Business Start-Ups and the Effect of Coaching Programs

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Diplom-Volkswirt Christian Loersch
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wohnhaft in Berlin

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Erstgutachter: Prof. Dr. Marco Caliendo
Zweitgutachter: Prof. Dr. Alexander S. Kritikos

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Gemäß § 7 Absatz 2 Punkt 6(a) gebe ich hiermit an, dass ich im Sommersemester 2011 an der Universität zu Köln als Promotionsstudent eingeschrieben war. Durch einen Hochschulwechsel an die Universität Potsdam wurde das Promotionsvorhaben an der Universität Potsdam weitergeführt.

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Potsdam, 09. September 2014

Christian Loersch

Preface

The last four years I focused on analyzing entrepreneurship and support for new enterprises. After doing extensive research in this field, this dissertation will cluster all results of this fruitful time. The landscapes of business start-ups and support programs are constantly changing. This dissertation will draw the most recent picture of these landscapes. It will especially focus on the relatively new and complex way of supporting entrepreneurs via coaching sessions.

I personally think this dissertation will help people to find their way in the vast topic of supporting entrepreneurs. I especially hope that people will learn to appreciate the value of individual coaching lessons. Nonetheless, after reading this dissertation one should be aware of all the problems and difficulties of coaching entrepreneurs.

Beside the audience of the scientific society this work is also of interest to entrepreneurs and coaches. Entrepreneurs might learn whether or not coaching is useful in their personal situation. Coaches might become acquainted with more of the various coaching settings and techniques. Furthermore, specific details will be highlighted that may aid to the improvement of the quality of coaching sessions.

I would like to express my gratitude to the over 5,000 respondents that completed the questionnaires. The invaluable answers of these entrepreneurs helped to get an insight into the contemporary challenges, problems and solutions of the entrepreneurial world. This helped to draw a picture of the first stages of an enterprise and how a coach can help to overcome the first obstacles after starting a business. Without the help of the respondents we would know much less about the problems, solutions and the development of young companies.

This study was accepted as a doctoral thesis by the Chair of Empirical Economics of the University of Potsdam. It utilized the data of the project “Evaluation of the programs ‘External Business Coaching Germany’ and ‘External Business

Coaching Germany for former unemployed individuals' ".

I would like to thank my supervisor Prof. Dr. Marco Caliendo. He helped me in several ways. He gave me the opportunity to get access to the interesting world of entrepreneurship research. In addition to that, he was a personal mentor over the last four years. I would also like to thank my second supervisor Prof. Dr. Alexander S. Kritikos. He aided me with his extensive knowledge about coaching and entrepreneurial support. Further, he helped me through discussing my possible career options in research and academia overall. I thank all of my former colleagues of the Chair of Empirical Economics at the University of Potsdam and the Institute for the Study of Labor. The balance between sociability and a tenacious strive for a dedicated work ethic, made for an exceptionally comfortable working environment. Further, I also thank the Institute for the Study of Labor for supporting me via a scholarship.

I would like to thank all my close friends from the University of Cologne. They gave me advice and ensured that the time not sitting at the desk working was extraordinarily lovely. This helped me to build up the resistance and stamina needed for research. I also thank all friends who I met in Berlin. In the last few years they affected my quality of life in an extremely positive way. Further, I thank several very nice friends who have done the proof-reading. I also thank my siblings, their partners, my nephew, and my niece for being supportive even from far away. Seeing them from time to time gave me the emotional stability to consistently work on my thesis. Last but not least, I gratefully thank my parents who never stopped believing in me. As my time of studying was long this part was probably not easy. They supported me personally and financially. I hope that I can give some of this back by giving you a little feeling of pride whenever you think of your son.

If you, as reader have any suggestions, comments or questions concerning this dissertation please do not hesitate to contact me.

Potsdam, September 2014 *Christian Loersch*

Contents

Abbreviations

ALMP	Active Labor Market Policy
ATT	Average Treatment Effect on the Treated
BMAS	Bundesministerium für Arbeit und Soziales (Federal Ministry of Labour and Social Affairs)
BMWi	Bundesministerium fr̈ Wirtschaft und Technologie (Federal Ministry of Economics and Technology)
CATI	Computer Assisted Telephone Interview
CHF	Swiss Franc
CIA	Conditional Independence Assumption
EBCG	External Business Coaching Germany
EBCG-NP	External Business Coaching Germany – Group of non-participants
EBCG-P	External Business Coaching Germany – Group of participants
EBCG-UE	External Business Coaching Germany for former unemployed individuals
EBCG-UE-NP	External Business Coaching Germany for former unemployed individuals – Group of non-participants
EBCG-UE-P	External Business Coaching Germany for former unemployed individuals – Group of participants
EDEN	L'encouragement au développement d'entreprises nouvelles (Promotion of the development of new enterprises)
EU	European Union
GATE	Growing America Through Entrepreneurship
INKAR	Indikatoren und Karten zur Raum- und Stadtentwicklung in Deutschland und in Europa (Indicators and maps for regional and urban development in Germany and Europe)

NACRE	Nouvel accompagnement pour la création et la reprise d'entreprise (New support for the creation and the recovery of enterprises)
NUTEK	Verket För Näringslivsutveckling (Swedish Agency for Economic and Regional Growth)
PLMP	Passive Labor Market Policy
PSM	Propensity Score Matching
SME	Small and Medium-sized Enterprises
TEA	Total Early-Stage Entrepreneurial Activity (percentage of people shortly before or after starting a business on the total working-aged population)
UK	United Kingdom
US	United States of America

Symbols

BR	Bias reduction
D	Treatment indicator
Δ	Difference in potential outcomes
€	Euro
£	Pound Sterling
i	Indicator for a single individual
N	Number of observations
SB	Standardized bias
SB_A	Standardized bias after matching
SB_B	Standardized bias before matching
V	Variance
W	Weighting matrix
$W(i,j)$	Weight for untreated individual j for constructing $Y_i(0)$ of treated individual i
X	Covariate (vector)
Y	Outcome variable (vector)
Y_i	Observed outcome for individual i
Y_i^1	Potential outcome for individual i given $D_i = 1$
Y_i^0	Potential outcome for individual i given $D_i = 0$
$\amalg$	Independent of
$\mid$	Conditional on

1

Introduction

Business start-ups are essential as the vast majority of individuals are employed by small and medium-sized enterprises (SME). However, the entrepreneurs leading these companies often lack financial, human, social and managerial capital. Start-up subsidies which have often been analyzed only mitigate the lack in financial capital. Other shortcomings have received less attention from governments. Yet, in recent years governments have started to develop coaching programs. The present study is the first one evaluating public German coaching programs and supplying a holistic overview of coaching, thus filling a gap in the scarce coaching literature. The present analysis shows that coaching is only effective in rare and specific cases. Coaching effectiveness is influenced by the individual's characteristics, the coaching process and by regional labor market conditions. In conclusion, coaching needs to be well tailored to the individual and applied thoroughly. Therefore, governments should design and provide support programs only after due consideration.

Without doubt, entrepreneurship is important for many countries as it stimulates the economy, creates new jobs and is beneficial for the society as a whole. Due to these positive effects of entrepreneurship many governments support entrepreneurs. The emergence of new, innovative enterprises constantly forces larger companies to develop new products and services and keep production cost-efficient. Hence, entrepreneurs contribute to the creation of a competitive environment, which again fosters technological development. These positive effects of entrepreneurship are the reasons why nowadays many governments support entrepreneurs. The research about entrepreneurship also increased in popularity. More than

35 years ago David Birch raised a public discussion with his research on small firms (Birch 1979). In several provocative articles he stated that small new firms create the majority of employment in the United States (US) and are therefore, an important driving force for an economy (Birch 1981). A few years later Acs and Audretsch (1988) found out about the key role of entrepreneurs in a country's innovation process. In a more recent study Audretsch (2007) also states the importance of entrepreneurship in generating economic growth. In the last three decades a vast entrepreneurship literature emerged.

Due to the positive effects of new enterprises, supporting entrepreneurs plays a crucial role in labor market policy. This assistance includes specific support programs for (previously)[1] unemployed individuals. In the last decades the governmental support for unemployed individuals in setting up a business increased heavily. Fighting unemployment has been – and still is – a main task of governments nowadays. In former times passive labor market policy (PLMP) was the main pillar to help the unemployed. PLMP helps overcoming the income shortage of an unemployment period via subsidies. These payments are referred to as unemployment benefits. In the last years the governments realized that this help is impermanent. It only helps individuals to overcome the income shortage in the short run. But it is more important to help unemployed with their long-term reintegration into the labor market. This is why governments around the globe changed their focus from PLMP to active labor market policy (ALMP). ALMP programs not only aim to increase the job take-up rate but also to the long-term integration into the labor market. Thus, these programs also want to decrease the fall-back rate into unemployment. In the last decades the support of unemployed changed enormously from PLMP to ALMP. The latter includes several monetary support programs such as start-up subsidies. However, the effects of traditional ALMP programs such as vocational training, wage subsidies, and job creation schemes on income and employment is rather disappointing (Lechner and Wunsch 2008). In contrast to this, there are positive effects of start-up subsidies in Germany on employment and income – even in the long term (Caliendo and Künn 2011). After the development from PLMP to ALMP coaching can be seen as a further step in moving away from the idea of pure financial support.

[1] On the one hand, there are programs supporting unemployed to become employed. On the other hand, there are programs supporting previously unemployed entrepreneurs. The first one mainly aim at increasing the job take-up rate, the second one aim at decreasing the fall-back rate into unemployment.

This analysis will focus on coaching programs to support new enterprises and entrepreneurs. The relatively new method of coaching in public policy is not defined by an economic model but through practicing coaches. The ideal coaching session – if it exists – is developed through a learning by doing process which is still far from being completed. There is still a lack of an overall theoretical coaching model. As there are not many public coaching programs the international literature about coaching is scarce. This might also be due to the fact that there are no internationally accepted coaching standards. Thus, public policy programs to support entrepreneurs via coaching are difficult to design. The heterogeneous coaching quality due to the unregulated coaching supply complicates the support via coaching. The present analysis will examine coaching for entrepreneurs in Germany.

Entrepreneurs in Germany have the opportunity to participate in subsidized coaching sessions via two public policy programs. These German coaching programs try to solve two main problems of entrepreneurs at the same time, first the lack of knowledge how to create, establish, and run a business and second the lack of financial capital.[2] The German coaching programs "External Business Coaching Germany" (EBCG)[3] and "External Business Coaching Germany for former unemployed individuals" (EBCG-UE)[4] aim at solving both of these problems conjointly. The Federal Ministry of Economics and Technology (BMWi)[5] and the Federal Ministry of Labour and Social Affairs (BMAS)[6] designed these programs to support entrepreneurs via a partial cost coverage of coaching sessions.[7] The programs absorb 50% to 90% of the coaching costs. The two programs started in October 2007 (EBCG) and October 2008 (EBCG-UE). There are only few criteria for being eligible for program participation. Hence, the rejection rates are low. 55,000 individuals participated in the two programs from program start until the end of 2010. All participants of the coaching program EBCG-UE received some kind of support such as start-up subsidies before the commencement of the coaching process. Thus, one relevant question is whether coaching on top of financial

[2]Many authors find that the lack of capital is a serious problem in the start-up period (Blanchflower and Oswald 1998; Evans and Jovanovic 1989).
[3]The original name of the program is "Gründercoaching Deutschland".
[4]The original name of the program is "Gründercoaching Deutschland – Gründungen aus Arbeitslosigkeit".
[5]"Bundesministerium für Wirtschaft und Technologie".
[6]"Bundesmisterium für Arbeit und Soziales".
[7]Due to the different target audience (previous unemployed and previous employed individuals) the programs are administered by two different federal ministries.

subsidies affects the success of the entrepreneur. We will analyze the effects of coaching in detail by evaluating two public German coaching programs.

The empirical part of this analysis uses quantitative and qualitative data about the German coaching programs EBCG and EBCG-UE. We conducted intensive one-on-one interviews with several actors of the coaching process. Using this qualitative data it is possible to draw a very clear, realistic, and extensive picture of the coaching business and the effects of coaching. On the other hand, it is important to verify coaching results and coaching practice with a quantitative analysis using a large dataset of entrepreneurs. Through this, we gain the statistical power to estimate causal program effects by applying an adequate econometric method. Beside the qualitative data, we therefore use a unique dataset of 2,936 Germany-based entrepreneurs. By matching participants of coaching programs with adequate comparison groups we estimate the effects of coaching in Germany. In analyzing the effects of public policy programs, e.g. coaching, there is one main challenge for researchers. Specific individuals, e.g. entrepreneurs, whose company have poor performance levels, self-select into program participation. If these individuals would have different success rates, than non-participants even in absence of the program, the program effects estimated by the researcher may be biased. The quantitative dataset we use enables us to control for this selection process. Contrary to most other studies the data of individuals not participating in the program gives us access to the reasons for non-participation. This unique possibility of analyzing the self-selection process, shows that most of the individuals not participating in coaching are simply not aware of the program. Moreover, we observe the reasons for not participating among the individuals who are aware of the program. About 60% of these individuals state that they did not participate because they did not need coaching.

In summary, the analysis of the two German coaching programs shows that coaching in general only has few positive effects. The effects of the two programs are quite different. The program for former employed individuals (EBCG) has even negative effects. After controlling for various characteristics, entrepreneurs who participated in the coaching program have less success than entrepreneurs who did not participate in the program. Success, in our case, is measured in the survival of the entrepreneurs in self-employment, monthly earned net income, number of hired employees, and the entrepreneurs' satisfaction. Reasons for the negative program effects are diverse and will be discussed during the analysis.

The program for former unemployed individuals (EBCG-UE) is more successful. Coaching has positive effects on the survival of entrepreneurs in self-employment. An extensive effect heterogeneity analysis shows that this effect can be observed among almost all considered subgroups. The results show that coaching is most effective in East Germany and in regions with a high unemployment rate. Among these subgroups coaching has positive effects on the entrepreneur regarding short-term and long-term survival in self-employment. Moreover, the positive effects on employment are reflected in a higher job satisfaction of participants compared to matched non-participants. The last chapter of the present analysis will elaborate on why coaching effects differ between the two coaching programs.

This study shows an up-to-date picture of coaching, coaching programs and their effects on enterprises and entrepreneurs. By combining theory and practice, business administration and economics, qualitative and quantitative data it draws an extensive picture of coaching for entrepreneurs. To the best of our knowledge, the present study is the first one showing an overall picture of coaching by analyzing the field theoretically and empirically with intense qualitative interviews and identifying causal effects of coaching with quantitative data. Thus, it closes the research gap in the scarce coaching literature. It will help researchers to understand the process and effects of business coaching. It will help policy makers to value, design and adjust coaching programs. Furthermore, it will help coaches and entrepreneurs to improve their coaching sessions. It enables entrepreneurs to evaluate whether or not coaching is the right strategy in their situation. Thus, the target audience of this study is quite diverse.

The structure of the analysis is as folllows. The introduction in chapter 1 describes the purpose and goals of the present study. It gives an introduction about entrepreneurship in general and the support available for entrepreneurs. Chapter 2 delineates the role of business start-ups and support programs.[8] This includes a detailed description about the business start-up process. Additionally, the chapter describes the different types of non-monetary support focusing on coaching. It will be analyzed under which circumstances coaching sessions increase the success of entrepreneurs, how this success can be measured and which possible effects

[8] In the following the term "support programs" will be used as a general expression for supporting enterprises. This support can consist of financial support, coaching, mentoring, training, consulting, loans, guarantees etc.

coaching has. The chapter also includes the characterization of the landscape of entrepreneurship in Germany. Furthermore, it sheds light on different support programs in other countries. Chapter 3 describes in detail one methodological approach to evaluate labor market programs. It elaborates the matching approach which will be used to analyze the effects of the two German coaching programs. Chapter 4 depicts the two German coaching programs, EBCG and EBCG-UE. In this chapter we describe the institutional settings of the coaching programs and present the datasets we use. Furthermore, we describe the coaching processes and the selection process into the programs and potential program effects. Chapter 5 and 6 analyze the coaching effects of the programs EBCG and EBCG-UE, respectively. The participants and their comparison groups are described and the estimated program effects are discussed in detail. Reasons for the effects are analyzed via several sensitivity checks. An extensive effect heterogeneity analysis describes which type of individuals benefit from coaching. Chapter 7 compares the program effects of the two programs and concludes. Finally, it should be mentioned that the analysis of the program effects is made possible through an evaluation project which started in 2010 and ended in 2013. The contracting entities of this project were the BMWi and the BMAS.

2

Business Start-Ups and Support Programs

The present chapter is organized as follows:[9] Section 2.1 will describe the process of a business foundation. We developed a new theoretical model which combines existing literature and own theoretical considerations. We will present the single steps of the start-up process and describe the different stages and the problems which can arise. This discussion will include a recommendation in which of the stages coaching can be used as a helpful instrument to overcome occurring difficulties. In section 2.2 we will describe the different types of non-monetary support an enterprise can make use of. This discussion closes a gap in the economic literature of entrepreneurship research. The single support methods are often described empirically in the business literature using qualitative data. Nevertheless, an extensive theoretical overview of the differences of the single methods is still missing in the literature. Using theoretical considerations and the existing literature this will be discussed in section 2.2. Additionally we will discuss the determinants of successful coaching (section 2.3). The challenges the entrepreneur and the coach face are described and discussed. It is very important for the effectiveness of coaching that some rules during the coaching process are observed and the actors (coach and entrepreneur) have some knowledge and attitude regarding coaching. Section 2.4 will give an extensive overview on support programs in other countries. We will mainly concentrate on programs which are similar to the German

[9]Some aspects of sections 2.1, 2.3, and 2.6 were developed during a research project analyzing the effectiveness of the programs EBCG and EBCG-UE (Caliendo et al. 2014a). This project was joint work with M. Caliendo, A. Kritikos, S. Künn, H. Schröder and H. Schütz.

coaching programs. As the settings of the different programs are very diverse a comparison is not trivial. Besides an international comparison, this section will give an overview of the diverse possibilities of program designs. Using these diverse program designs it is possible to consider in which way the design of the German coaching programs could be adjusted. After this international overview, section 2.5 will focus on Germany and its development of business foundations and landscape of support programs for entrepreneurs. The main research task in this field is to evaluate these programs and estimate their effectiveness. Before validating effectiveness, we need to define success. Therefore, section 2.6 will describe how entrepreneurial success is measured in the existing literature and how it will be measured in our empirical analysis. Finally, section 2.7 will discuss the potential effects of coaching programs.

2.1 The process of a business foundation

A business foundation is a complex process. In literature there are various ways of categorizing the development of an enterprise into different stages (Galbraith 1982; Greiner 1998; Kaiser and Gläser 1999; Kazanjian and Drazin 1990; Reynolds 2000; Rostow 1960; Scott and Bruce 1987; Steinmetz 1969). Every business development is unique, a perfect manual for persons on the road to self-employment does not exist. Therefore, none of the multi-stage models used in the literature is true for each and every foundation. Nevertheless, the models are important and a good visualization of the development of an enterprise. Galbraith (1982) argues that new ventures need to know the stages to overcome the single problems and the transitions from one stage to another. Greiner (1998) shares this opinion. Without knowing the problems of an organizational development beforehand, there is a risk of staying in one stage, and not develop further. This might increase the risk of failure. This is in line with the opinion of Scott and Bruce: "[...]the problems of change can be minimized if managers are proactive rather than reactive. Prior knowledge of what generates crises and what to expect in each stage will smooth the process of change" (Scott and Bruce 1987, p. 45). Churchill and Lewis (1983) add that the model cannot only help owners but also consultants to recognize problems in enterprises. It is important to know in which stage the company is to get the right outsider assistance. Chrisman et al. argue that "the timing of the delivery [of the outsider assistance] is important to the success of new ventures" (Chrisman et al. 2012, p. 66).

There are mainly two potential dimensions which determine the stage in which a new enterprise is situated in. First, the time since start-up and second, the size of the company. In the following the models used in the literature will be described. Afterwards, these results will be clustered in developing an own model of the business start-up process.

One of the most popular growth models is the model Greiner developed in 1972 (Greiner 1998).[10] In his model he argues that there are evolution and revolution stages. Each revolution stage comes with a crisis and each evolution stage with a growth phase. Consequently, each growth stage ends with a crisis. Coping with the crisis will be the transition into the next growth stage. The five growth stages following Greiner are growth through creativity, direction, delegation, coordina-

[10] The article cited is the reprint of 1998.

tion, and collaboration. Each transit from one stage to another is characterized by a main management problem which needs to be solved. The Greiner model heavily influenced the literature of development stage models. Many authors (Churchill and Lewis (1983); Scott and Bruce (1987) among others) build up their models extending the one of Greiner. Scott and Bruce (1987) divide the development of an enterprise into five stage: inception, survival, growth, expansion, and maturity. Following Greiner (1998), they argue that each transition between stages is attached to the solution of a crisis. They emphasize the importance of these crises for the development of the entrepreneur and the enterprise.

Steinmetz (1969) has a similar approach. He argues that companies need to pass three critical phases to experience the four stages of business development: direct supervision, supervised supervision, indirect control, divisional organization. In his opinion a business needs to grow or it dies. In other words, there is no possibility of arriving at a plateau without growing anymore. Churchill and Lewis (1983) build up their model on the models of Steinmetz (1969) and Greiner (1998). They extend these models in two ways. First, they broaden the dimension of size and include the number of branches, complexity of product line, value added etc. Second, they include the stage "success" instead of "growth". They argue that it is possible for an enterprise to be successful without growing. Later on, they revised this opinion because 39.8% of all companies they surveyed, stated that their company is in a stage of growth.

Kazanjian and Drazin (1990) divide their growth model into four stages: conception and development, commercialization, growth, and stability. They point out that their model is only valid for technology based enterprises. Galbraith (1982) also describes the development stages of high-technology companies. His model has five stages: Proof of Principle/Prototype Stage, Model Shop, Start-Up Volume Production, Natural Growth, and Strategic Maneuvering. Interestingly, Galbraith also describes the change of people working in the venture. In the first stages a company needs "Jacks-of-all-Trades" and risk takers. But in later stages business people, planners and strategists are more important.

Summarizing, most models divide the business foundation process into several stages. But still, these stages are defined very differently. We agree with Stanworth and Curran (1976), that even though stages can be defined and be called differently, they all fulfill the same tasks in the end: creating a business idea for a product/service, managerial tasks, organizational maturity and stability, all need

to be addressed at one point of the business creation process. The number of stages mainly depends on two factors. First, the level of detail and second, the time frame considered. Some authors do not consider the idea development and the planning stage. The time frame of their models start with the start-up itself. Moreover, company size is often considered as a determining factor for the stage (Churchill and Lewis 1983). However, size is not only measured in the number of employees, but also in the complexity, the number of branches etc.

Keeping in mind the high number of solo-entrepreneurs we argue that the number of employees is by far not the most important factor for determining the actual stage a company is in. We agree with Scott and Bruce (1987) who say that the absolute size of a company (employees, sales, assets) is different from company to company. More important is the concept of size and growing in a broader sense. As mentioned above we follow the more broader definition of size Churchill and Lewis (1983) use (amount of revenues etc.). Moreover, the time since foundation (or until foundation) is an important factor in determining the actual stage. This does not mean there is a fixed amount of time one has to stay in every single stage. The time a company is situated in a stage can vary.[11] This anon, is depending on several factors such as the sector, the region, and the economy. The enterprise of a solo-entrepreneur can also pass all stages of a business development process without hiring employees. We do not exclude the size completely but size can mean various things in our model. Similar to Churchill and Lewis, size in our means is defined as size of turnover, sales, branches but of course also number of employees among others. After considering the literature and keeping in mind our research context we define a model with five stages: Idea Development, Planning, Foundation, Growth, and Maturity.[12] These stages are shown in figure 2.1. The arrows are the transition possibilities of the enterprise.

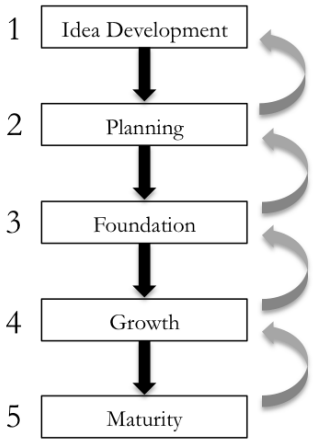
We believe that problems in the foundation stage and subsequent stages often arise from mistakes in the planning stage and the idea development stage. This is the reason for considering these pre-foundation stages as separate stages. The main difference between the multi-stage processes described above and the model

[11] Greiner (1998) points out that enterprises are faster in the stage transitions if they run a business in a fast growing industry. In contrast to these opinions, Scott and Bruce (1987) argue that enterprises can only stay in some stages for a limited time.

[12] Some models, like the model of Greiner draw a growth line in a two axes coordinate system. Normally the size of the enterprise (with diverse definitions) is shown on the vertical axis and the time shown on the horizontal axis. As the size can have several definitions and is (depending on the enterprise) not necessary for a stage transition we decide to use just one axis.

presented here, are the loops from subsequent stages to former stages. Only in rare cases, does a business foundation find a straight pathway through all of the stages. It is possible and often necessary to take a step back, to move forward again. Even though this is not modeled in the literature yet, it is in line with the argumentation of other authors. Greiner argues that the development process and growth mainly depend on former decisions. And "management in its haste to grow, often overlooks such critical development questions" (Greiner 1998, p. 3). This means respectively, that it may be useful to go back to former stages and revise some decisions. This is visualized by grey arrows going from later stages to former stages in figure 2.1.

Figure 2.1: Stages of the company development process



Source: Own model, developed based on theoretical considerations and existing literature.
Note: The arrows indicate transition probabilities.

The transitions of the grey arrows in figure 2.1 are more difficult to realize than the ones indicated by black arrows. For the entrepreneurs it is more difficult to go back to a former stage than accepting – and trying to solve – problems on the current stage. In general, it is important to note, that even if we define several stages this does not mean that the transitions are clear-cut. Often enough, entrepreneurs commit the mistake of ignoring the importance of the idea development process. This can lead to weak ideas and enterprises with low survival probability. In general, coaching can help with problems in the development of a business. A coach can point out problems from former stages. In this case, the coach and the entrepreneur need to find a way to solve the problem(s) of the former stages. In

some cases it is necessary to completely relocate the company to a former stage. If the coach (or the entrepreneur) for instance realizes in the foundation stage, that the entrepreneur and her/his business idea are incompatible, it might be the right step to go back and customize the business idea.[13]

In the following the single stages shown in figure 2.1 will be described. This description includes the tasks of the stage, the problems which can arise in each stage and whether or not coaching can help solve these problems. The German coaching programs which will be evaluated in chapter 5 and 6 mainly take place in stage three, the foundation stage. But as many problems in stage three have their roots in the first two stages the coach should also check the decisions made in the former stages.

Beside creating an idea, discussing it, extending and refining the idea are crucial in the idea development stage. Sometimes a trial and error process of producing a prototype is also auxiliary. Galbraith (1982) argues that all the single stages are a development of the business idea. This is in line with our opinion that it is sometimes helpful to go back from a later stage to the idea development stage. Moreover, it is helpful to include many people in the idea development process: family, friends, employees/employers in the same sector, potential business partners, business angels etc. Cooper and Gimeno-Gascon (1992) find that ideas arising from hobbies are less successful than ideas arising from former self-employment. The main problem arising in this stage is to end the process of idea development too early. This leads to weak and immature business ideas. Upcoming entrepreneurs are often afraid of disclosing their business idea because someone could steal it. However, the advantages of refining the business idea by using other persons' opinions and suggestions should not be undervalued. Coaching is not necessary in this early development stage. This does not mean that there are no rules which can – or should – be followed in this stage. There are several strategies leading to a successful idea development process.[14] It is easy to learn techniques of developing business ideas but uncommon to consult a coach to learn these strategies. As we will explain in section 2.2 the main task of a coach is not to transfer knowledge as teaching idea development techniques, but to discuss problems of the enterprise and help with generating solutions.

[13] Certainly, it is not only the business idea which needs to fit to the entrepreneur. There is a large body of literature about the "entrepreneurial-fit". A good overview is given by Markman and Baron (2003).

[14] The differences in these strategies are rather large. We will not discuss this point in detail. A modern technique of developing innovative business ideas is for example shown by Faltin (2001).

We call the second stage the planning stage. As the term reveals, the main part of this stage is the creation of a business plan. The business plan captures the main planning steps and figures. It describes and examines the business idea, the foundation team, the competitors, sales, marketing, finances and other facets concerning the enterprise. Furthermore, this stage includes the planning of personal, finances, and production resources. Shane et al. (2003) argue that entrepreneurs need to have several skills depending on the circumstances. "[B]ut they may include such factors as selling and bargaining, leadership, planning, decision making, problem solving, team building, communication, and conflict management" (Shane et al. 2003, p. 275). This follows the classical opinion in the entrepreneurship literature in the field of economics. It is originally shaped by the work of Lazear (2004). In his opinion entrepreneurs need to be "Jacks-of-all-Trades". "Entrepreneurs are individuals who are multifaceted. Although not necessarily superb at anything, entrepreneurs have to be sufficiently skilled in a variety of areas to put together the many ingredients required to create a successful business. As a result, entrepreneurs tend to be more balanced individuals" (Lazear 2005, p. 676). This theory is validated by German data (Wagner 2003). Lechmann and Schnabel (2014) partially agree with this finding. Using German data as well, they find that entrepreneurs do more tasks and that their work requires more skills. Additional to the findings of Lazear (2004) they find that entrepreneurs not only need more basic skills but also more expert skills.

Besides the just mentioned literature about entrepreneurship in the field of economics, there is the literature about entrepreneurship in the field of business administration. Regarding entrepreneurship there are different opinions between the two fields. Faltin, an entrepreneur himself, points out that "the concept of an all-round qualification will become obsolete" (Faltin 2001, p. 127). This contradicts the classical theory of Lazear. Faltin (2001) adds that the entrepreneur should spent his time for being innovative and lead the company. The modern entrepreneur should outsource a lot of tasks. This is cheaper than hiring employees or doing it by her/his own. This opinion would explain why most entrepreneurs stay solo-entrepreneurs without hiring employees. Nonetheless, this cannot be seen as the main reason for the high number of solo-entrepreneurs. Faltin (2001) follows a very modern, service intensive picture of entrepreneurship which is still not taken into account by the majority of the entrepreneurs. These considerations about the range of personal skills should be considered in the planning of the personal

resources in the business plan.

In the planning stage the entrepreneur needs to come to a decision about the market entry strategy. Usually the literature differentiates between niche strategy, diversification, and cost leadership. The niche strategy aims at a small number of special customers. Diversification is a strategy in which the products are very customer needs oriented. The cost leaders aims at a high number of customers through the supply of great numbers of cheap products. The selected strategy should fit the personality of the entrepreneur (Faltin 2012, p. 138 ff.). This increases the probability of a good implementation of the strategy, hence the survival of the company. Problems in this stage can arise in a bad business plan, missing business knowledge (to plan the figures of sales, marketing, finances), and the wrong market entry strategy for the product or service. Many of the problems in this stage are caused by a lack of knowledge. To solve these problems a training is sufficient and a coaching is not needed. As section 2.2 will show training facilitates knowledge whereas coaching is a more personalized process matched to the entrepreneur. A trainer is more like a teacher, whereas a coach is a listener and companion and a "custom-made supporter". Nevertheless, if there is a lack of resources it is very important that the entrepreneur is aware of this. If this is not the case, it is important to look for assistance. In this case a coaching can also be useful on this early stage. The coach should be able to find out which parts of the entrepreneurs' personality hinder her/him to establish the company in a stable way and whether there are missing resources (finances, knowledge etc.). Afterwards, it can be decided how the company can get access to these missing resources.

The third stage is the foundation stage. At this stage the founder needs to increase her/his effort (especially energy, time, and finances) significantly. The business plan, created in the stage before, evolves into a very important tool in this stage. In this stage there is the possibility for the entrepreneur to check whether the planned numbers, e.g. sales, costs are over- or underestimated. In our opinion this is a very important stage for the later development of the company. If there are no adjustments as consequences of misplanning in this stage, it might harm the enterprise heavily and lead to a shutdown. Coaching activities are perfect for this stage. Someone who is not involved in the company is more capable to evaluate the development process of the company than the entrepreneur, since the opinion of the entrepreneur is often biased. In the founding stage it is very important whether or not the market entry strategy worked and whether the

business idea is as good as expected. If this is not the case the entrepreneur needs to take one or two steps back to solve these problems and/or adjust decisions taken in one of the two former stages.[15]

In the growth stage the company grows significantly. This growth can appear in the form of hiring employees, an increase in turnover etc. By growing, the enterprise becomes more visual for others, amongst them competitors. Economies of scale enable large competitors to produce the product cheaper than the entrepreneur. This might drive the young and small enterprise out of market (Scott and Bruce 1987). Organizational problems as well as running out of funding can be problematic at this stage. By hiring employees the founder becomes a manager and supervisor. Consequently, the entrepreneur will face new challenges and problems. These problems can also be solved by consulting a coach as it is important to find the source of these problems. A coach should not only alleviate the symptoms – for example helping the entrepreneur to find investors – but look for the reason of the lack of funding, e.g. a bad business idea. If sales are low due to a unformed business idea, it should be adjusted. Otherwise, the funding of an investor will only solve the problem in the short run. Sometimes the problems in this stage arise from the fact that the enterprise does not enter the growth stage. Hence, the growth rate which is calculated in the business plan cannot be fulfilled, which again results in a lack of funds. All these problems can – and often should – be analyzed and solved together with a coach.

In the last stage the enterprise is mature. If the problems of the other stages are solved, the company can stay in this stage for a longer duration. Nevertheless, most enterprises experience a downtime after the stage of maturity. Main reasons are out-of-date products or services or a saturation of demand. In most cases coaching is not helpful in such a late stage. The problems at this stage should rather be solved by consulting than by coaching. As we will explain in section 2.2 a consultant solves problems by her/his own, whereas coaches help entrepreneurs solve the problems by themselves.

Different problems can arise on different business stages. These problems need to be addressed by tailored support measures. The next section will shed light on these different measures. Focusing on coaching as our reference point throughout the analysis.

[15] Obviously, if an entrepreneur adjusts her/his business idea (first stage) this does not necessarily mean that she/he has to found a new company even if the "foundation" stage needs to be experienced again.

2.2 The different types of non-monetary support

There are many different non-monetary ways of helping young enterprises, entrepreneurs and employees. The mostly recognized methods, namely coaching, mentoring, training, consulting and counseling, will be described and compared in the present section. Some of these expressions are often used interchangeably making it difficult to realize the detailed differences. In the following the concrete methods, similarities and differences of these support methods are described. Even if there are many overlaps between the methods, we disagree that it is correct to use the different methods interchangeably. As this study is about coaching, we will especially focus on the description of this support method.

All support methods have one thing in common: There are communicative sessions in which a teacher is communicating with one or several recipient/s.[16] The recipient does not need to be an entrepreneur. Quite the contrary is the case. In most cases the recipient is an employee. Support methods can be used – and are indeed used – on every hierarchical level of a company, from the case worker to the executive up to the owner. Even though the teacher needs to adjust her or his support to the recipient (e.g. to the recipient's level of education) the main characteristics of the different support methods are independent of the recipient. The provider of the support can either be the government or the company itself.

The support programs which will be discussed and evaluated in the empirical analysis in chapter 4, 5 and 6 are public programs provided by two German Ministries. In the following we will shortly specify the different types of helping entrepreneurs and employees. Table 2.1 summarizes these types of non-monetary support and clusters the main differences.

In the literature, the expression "coaching" is usually used for executive coaching or coaching employees. These types of coaching are not exactly the same as the type of coaching we study in the analysis in chapter 4, 5 and 6. Although the contents of coaching sessions are sometimes very similar, executive coaching differs in other aspects. Coaching as we analyze it, is addressed to entrepreneurs and self-employed people in the first months or years after the foundation of their company. Coaching is a process in which coach and recipient meet up in several one-on-one sessions. At the beginning of the coaching process the coach asks ques-

[16] The term "teacher" is used here as a hypernym for mentor, coach, consultant, trainer etc. The same is true for the term "recipient". It is used as an expression for the person who receives the support.

tions and listens to get to know the enterprise and the recipient.[17] The coaching is about personal and business development. In order for the coaching process to be successful the coach needs to adjust her/his program to the individual business needs of the person seeking advice. King and Eaton describe coaching as a mix of counseling, mentoring and consulting. They add that it is a "holistic view of the individual" (King and Eaton 1999, p. 145). Thus "work, corporate values, personal needs and career development are made to work together in synergy" (King and Eaton 1999, p. 145). Kühl (2005) contradicts this opinion. He argues that coaching is totally non-holistic and not about an individual's personality but about his business development. Nonetheless, he agrees that the recipient's private life can be integrated into the coaching process. But that the goal is focused on the entrepreneur's role within the enterprise (Kühl 2005, p. 9). These conflicting opinions indicate the lack of a clear theoretical coaching model. We argue that coaching in practice is in between these opinions. The main goal of coaching is to help people develop strategies to solve business problems. Since business problems can also be caused by personal behavior coaching and its goal is defined in a broader sense. Detecting problems, defining future goals, and discussing future plans are crucial for the coaching process. In this process it is important that the recipient learns to help him-/herself. Thus, integrating the recipient is very relevant. Choosing topics for example should be a joint activity not only for the coach to decide. Following this view, Klofsten and Öberg argue that "[d]uring entrepreneurship training, it is very important that the entrepreneur and not the coach [...] is in the 'driver's seat' " (Klofsten and Öberg 2012, p. 44). Furthermore, the coach should also check whether the recipient is able to implement the theoretical concepts learned. Feedback by the coach on this is very important.[18]

Mentoring on the other hand, is a kind of a "parent-child-relationship" over an extended period of time. It is about sharing knowledge and experience. The mentor is mostly a specialist with a background in a specific sector. Mentors are

[17] The coaching described and analyzed in this study refers to the coaching in the western world (America and Europe). In other parts of the world, e.g. Asia there are different definitions and rules of coaching. In Japan for example it is unfriendly and counterproductive to ask to many questions (Jumpertz 2007). Furthermore, e-coaching is very common in Japan, where coaching via telephone is also classified as e-coaching (Dreyer 2012, p. 310 ff.).

[18] This need is visualized by one coach-entrepreneur pair during the one-on-one interviews of the qualitative analysis. The entrepreneur stated that the coaching was perfect and really helped him to solve the problems whereas the coach stated that the coaching did not work. This inconsistency shows that the entrepreneur might not be able to judge the coaching effect without feedback sessions.

persons who experienced a similar situation as their protégées. Thus, Deakins et al. (1997) add, that it is good for entrepreneurs getting mentoring from former entrepreneurs. Mentoring is about personal and career development. The mentor can give advice but the protégée can choose whether or not to follow this advice. The relationship between the mentor and protégée is less formal than the coach-recipient relationship (NESTA 2009, p. 3). Goals in mentoring do not need to be as specific as in coaching and are more long-termed. As mentioned above, mentoring is often career oriented, whereas coaching focuses more on the development and growth of the enterprise. In other words, mentoring is development driven, while coaching is performance driven. Because of the transfer of personal experiences and the long mentoring process a mentor usually has an even closer relationship to the protégée than a coach to the recipient.

Then again, training is the knowledge transition of a trainer to other persons. The main training goal is learning specific skills or work processes. Training is often done in group sessions as the trainer does not need to consider personal or company specific problems of the entrepreneur. Mostly, there is a series of fixed sessions. The time spent on training (number of sessions) is easier to determine than the time needed for coaching, as the content of the training is known in advance. This is not the case in coaching. The coach and the recipient develop the sessions in the process itself. This can easily lead to a shortening or extension of the number of the originally planed sessions.

Consulting is the solution of problems through an external person. In contrast to coaching, the consultant does not help the entrepreneur solve problems on his/her own but the consult solves the problems. A consulting process is a functional guidance. A consultant "provides ready-made answers to specific problems, without necessarily aiming for learning outcomes" (Audet and Couteret 2012, p. 4). At the beginning of the process the consultant also needs to listen and analyze the business figures to detect the main problems the business is facing. But in contrast to coaching, the process is mostly focused on the company and not on the entrepreneur or the employees.

Counseling however is very similar to coaching. The counselor also helps the counselee to help her-/himself to make elaborate decisions. As in coaching, this happens through asking questions and extensive listening. The process aims at solving personal or business problems. In contrast to coaching, counseling has a psychosocial approach and derives from the clinical-psychological sector. The

counselor teaches the counselee to deal with her/his problems and fears.

The above overview of the different support methods shows that there are many differences between the types of support. Even if there are mostly no strict rules or theoretical models on how to conduct these support methods. This complicates the definition, description, and distinction of the methods. We described the methods as they are used in practice and characterized in the literature. Even if there are some overlaps, coaching which we will analyze in detail is different from the other support methods and should not be confounded with the other techniques.

The present section described the theoretical framework of coaching and distinguished it from other support types. In the next section we will look at the processes of coaching and determine which conditions need to be fulfilled for a successful coaching.

Table 2.1: Different types of non-monetary support

	Coaching	Mentoring	Training	Consulting	Counseling
Procedure of process	Coach helps recipients to help themselves	Mentor shares knowledge with protégée	Trainer provides additional knowledge	Consultant gives instructions to the recipient	Counselor helps counselees to help themselves
Duration of process	Diverse durations; mostly several sessions in a few weeks or months	Long-term process	Short duration with few sessions	Very diverse durations	Very diverse durations
Person determining the contents and process	Coach and recipient determine the contents and process	Mentor and protégée determine the contents and process	Trainer determines the contents and process	Consultant determines the content and process after talking to employees	Counselor and counselee determine the contents and process

2.3 The determinants of successful coaching

There are several determinants for successful business coaching. These determinants can be separated into two crucial dimensions. First, the actors in the coaching process, namely the coach and the entrepreneur; second the time dimension – before and during coaching. We mainly structure our analysis by the dimension of the actors. We firstly describe the entrepreneurs' challenges leading to successful coaching, secondly look at the coach and her/his tasks. A good coach-entrepreneur relationship is crucial for a successful coaching. As the relationship is very closely attached to the challenges of the single actors – coach and entrepreneur – we will not describe this relationship in a special part but integrate it into the challenge descriptions of the single actors. Nevertheless, we define the relationship as a third aspect (besides the actors themselves) for successful coaching. Figure 2.2 summarizes the different determinants for successful coaching.[19] In the following, we will describe the single steps for successful coaching in detail beginning with the challenges of the entrepreneur.

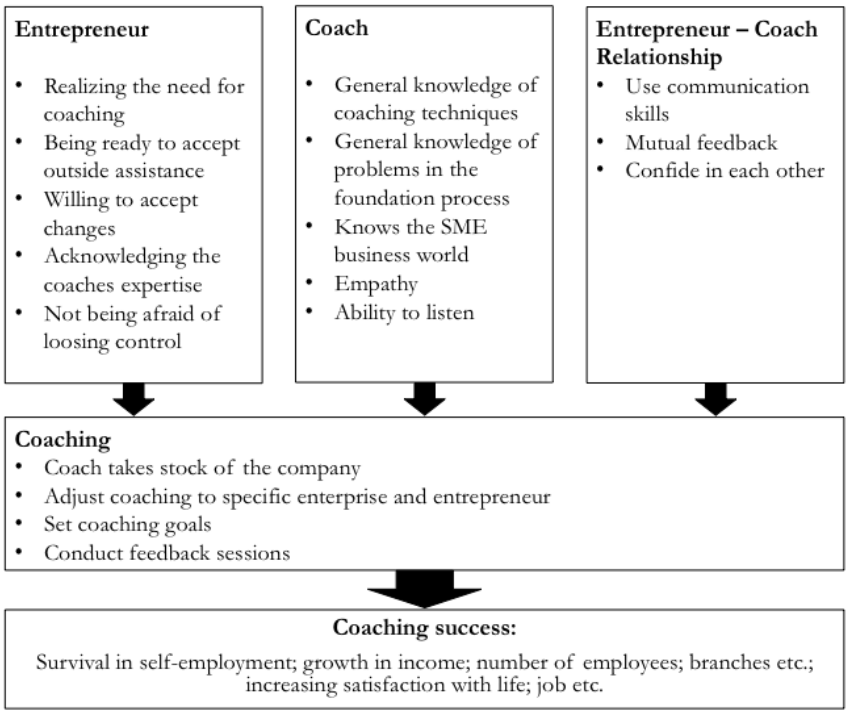
Already before the coaching process begins, the entrepreneur needs to fulfill some requirements for successful coaching. First, she/he needs to realize the need for coaching. This need is often caused by problems which might arise in a specific field of their business (marketing, finances etc.) or it might be more general problems like a bad business performance. Latter mostly occurs with a lack of funding which is the most common visualization for the entrepreneur that there is a problem with the business.

Apart from not realizing the need for assistance, there might be psychological reasons why entrepreneurs are not actively looking for help. One of these is that they are simply not ready to accept outside assistance. These entrepreneurs are most likely not participating in coaching or coaching is not successful. For effective coaching the entrepreneur must be willing to accept changes and acknowledge to her-/himself that she/he needs help (Audet and Couteret 2012). Furthermore, the entrepreneur needs to trust the coach and acknowledge the coach's expertise. The entrepreneur needs to believe in the coach's ability to provide useful support. Thus, one main success factor for coaching is that the entrepreneur needs to be receptive to coaching. Besides the reason mentioned above, there are several

[19] The illustration is similar to the one developed by Audet and Couteret (2012). We extended their version by several other factors.

other possibilities discussed in literature why entrepreneurs refuse coaching: The entrepreneurs believe the offered support is not what they want or need (Shaw and Blackburn 2000); they think the coach charges too much (Audet and Couteret 2012); they think the coach does not understand the world of small businesses, or the entrepreneurs are not open for changes (Müller and Diensberg 2011, p. 41). Some entrepreneurs also need to overcome their fears as they are afraid of loosing control if they ask for outside assistance (Shaw and Blackburn 2000). Others refuse outside help because they fear that "[s]eeking advice [...] may be interpreted by [...] outsiders as showing an overdependence on others" (Curran and Blackburn 1994, p. 116).

Figure 2.2: The way to coaching success



Source: Own model, developed based on theoretical considerations and existing literature.

Once an entrepreneur realizes and accepts that she/he needs outside help, a suitable coach has to be chosen. As already mentioned, it is important that coach and entrepreneur make a "good team". Otherwise, coaching cannot be successful. One requirement for a thorough selection is the existence of a pool of coaches (Müller and Diensberg 2011, p. 43). The German coaching programs, which will be

described in chapter 4, provide a database of coaches from which the entrepreneur can choose her/his coach. But the results of the analysis show that almost none of the program participants choose their coach using this database. An unanswered question is whether or not the entrepreneur is generally able to choose a good coach. The entrepreneur needs to find a coach who firstly, is able to help her/him with the specific business problem and secondly, fits to the entrepreneur on a personal basis. The first could be solved via an extensive research of the database of coaches (assuming the entrepreneur is aware of the specific problem) as they state their specific fields of knowledge in this database; the second needs to be decided after a first meeting with the coach. Therefore, coaches often offer the first session free of charge to get to know each other. Often the challenge of the "personal fit" between coach and entrepreneur does not arise as 45% (EBCG-UE) to 53% (EBCG) of the entrepreneurs in our estimation sample know the coach before the coaching process. In practice the personal basis does not seem to be the main problem. During our qualitative analysis we only had one single case in which the entrepreneur changed the coach due to personal problems with the coach. A far bigger problem in practice seems to be the coaching quality. The coaches themselves point this problem out during the one-on-one interviews of the qualitative analysis. Being a coach is not an officially certified profession, which leads to the fact that many coaches are badly educated in the field of coaching. Due to this non-regulated coaching market, coaching quality varies strongly. Hence, it is even more important for the entrepreneur to choose their coach thoroughly. We will analyze the problem of heterogenous coaching quality in more detail in the empirical analysis.

As mentioned above, whether or not coaching is successful obviously does not only depend on the entrepreneur but as well on the coach. In the following we will describe this second aspect leading to coaching success. As mentioned above the coach should have general knowledge on coaching techniques and should be able to apply these. This involves posing the right questions at the right time, listening, and responding in an empathetic way. Furthermore, the coach must have general knowledge about the problems arising in the foundation process of a business and need to know how to solve these. As this comes with time it is mostly wiser for the entrepreneur to choose an experienced coach. The coach should also have basic business knowledge. This enables her/him to help the entrepreneur in specific problems and answer distinct questions; e.g. in fields of accounting, mar-

keting, financing, business development. Another basic prerequisite is that the coach knows the business world of the SMEs. This enables her/him to understand the entrepreneur and her/his problems (Gibb 1997).

There are also some requirements for the personality of the coach. She/he should not be seen as an "outsider" or even worse a "stranger". This involves trivial things as speaking the same language or the ability to build confidence as most entrepreneurs are not looking for a teacher but for an ally (Dalley and Hamilton 2000). Furthermore, the coach needs empathy and should share the culture of the entrepreneur (Gibb 1997). Coaches need to place themselves on the same level as the entrepreneur and should have the ability to listen during the coaching process (McNally 2013). The communication skills of both parties – coach and entrepreneur – are very important. When talking about the problems the entrepreneur gets an outside perspective of her/his company. Through identifying the problem, the entrepreneur is able to solve it more easily. Through good communication the coach and the entrepreneur can reach higher levels of trust, bringing them closer together and raising the chances for problem solving.

After these general requirements of (1) the entrepreneur's attitude, (2) a coach's knowledge and personality and (3) a working entrepreneur-coach relationship (compare figure 2.2) are met, we will now focus on the coaching process itself and the challenges the actors face during this process. At the beginning of the coaching process the coach should conduct a comprehensive appraisal of the enterprise. In this process it is also important that the coach finds out which objectives the entrepreneur is seeking. After that they can control whether or not these objectives have been reached and how future objectives can be reached. Defining future objectives together with the entrepreneur is one main task of the coach. Coaching goals need to be determined and there needs to be a plan of action (including a timetable) on how to achieve these goals. The goals need to be challenging yet realistic. This can generate the best coaching results (King and Eaton 1999). The coach should also examine the motives which led to the foundation. There are several different models and findings in the literature examining the reasons for starting a business. Shane et al. (1991) find that the reasons for founding differ by countries and gender. They conduct a study including data of Great Britain, Norway, and New Zealand. The authors only find one universal reason for founding a business: the desire of job freedom. According to Scheinberg and MacMillan (1988) there are six main factors for starting a business: need for approval, per-

ceived instrumentality of wealth, degree of communitarianism, need for personal development, need for independence, and need for escape. Analyzing 11 countries they find that the US scored highest in the need for independence and China scored highest in the need for approval. All these different motives can influence the effectiveness of coaching.

We will especially concentrate and differentiate between push and pull motives as reasons for a foundation. Entrepreneurs driven by push motives e.g. want to be self-employed because of a lack of money, often as a result of unemployment. Pull motives are e.g. the desire to be ones own boss or the perception of a market opportunity. Entrepreneurs driven by push motives have a lower success probability than the ones driven by pull-motives (Caliendo and Kritikos 2009b).[20] The different motives often result in different mistakes during the foundation and thus lead to varying problems. This is why different foundation motives should lead to different coaching strategies (Caliendo and Kritikos 2010). Entrepreneurs driven by push factors more often lack motivation. Entrepreneurs driven by pull factors more often make mistakes in the planning stage of the foundation. Following this, the coach should adjust her/his coaching to the type of entrepreneur and her/his motives.

Equally important are feedback sessions in which the coach checks whether or not the defined steps to reach the objectives have taken place. This pressure forces the entrepreneur to stick to the agreed plans. If there are general problems with the company the coaching should especially concentrate on the personality of the entrepreneur. By this, the coach can find out whether the type of company – e.g. in terms of the offered product/service or the internal structure of the enterprise – fits the personality of the entrepreneur. Coaching is therefore often twofold. On the one hand the coach should help the entrepreneur with specific business problems. On the other hand coaching needs to include a personal approach. The coaches surveyed in the one-on-one interviews in our qualitative analysis confirm this view. Some even emphasize that the personality part is a bit more important as the problems often arise because of the personal attitude of the entrepreneur.

A good instrument during coaching is a strengths and weaknesses analysis. This analysis should be done by both, the coach and the entrepreneur, separately.

[20] Furthermore, Caliendo and Kritikos (2009b) find that there is a third group of entrepreneurs driven by push and pull motives. One year after start-up the survival rates of the companies of this type of entrepreneurs are lower (84%) than the ones driven by pull-motives (92%) but higher than the ones driven by push motives (79%).

Afterwards they should compare their result. By this, the entrepreneur learns to evaluate herself/hisself and realizes how the enterprise is rated from another person. The duration of the coaching is mostly not problematic and therefore only indirectly a determinant for coaching success. There is no perfect duration for a coaching. Some problems can be solved in a very short amount of time others should lead to a larger number of coaching sessions. Therefore, the number of coaching sessions should be flexible to allow an optimal coaching effect. Nonetheless, due to financial reasons the number of coaching sessions is limited in most coaching programs. One will see in the analysis in chapter 4 that this might be relevant for an effect of a coaching program.

If the coach and the entrepreneur stick to all these rules and fit these criteria the coaching can be successful. This success should be measurable in specific outcome variables, e.g. income, number of employes, turnover, satisfaction.

The international overview in the next section will show whether coaching programs are indeed successful. Apart from coaching programs we will also consider some other support programs as some of them show interesting, innovative program designs. These designs can also be considered when creating new or adjusting present German labor market programs.

2.4 An international comparison of support programs

This section will give an overview of the most important support programs on an international level, compare as well as discuss these. The aim is first, to find out whether coaching programs are effective and second, to classify the German coaching programs internationally, regarding quantity, quality and generosity. Being able to compare and classify the programs will contribute toward creating better ones. The difference between the programs in each country help shape new ideas. However, the great variety and their differences make comparisons difficult.

As described in section 2.2 there are coaching, training, consulting, mentoring, and counseling assistance programs. As mentioned above, these differ greatly depending on their programm setting. Mostly, these differences show up in different eligibility criteria, different support intensities and different providers of the program. There are neither many large coaching programs nor a lot of literature on coaching programs. Therefore, empirical evidence on business coaching and its effects is rather scarce. The following will give an international overview of the most important programs which are closest to what we understand is a coaching program. Unfortunately, some of the programs are not yet evaluated.

The non-profit organization from Switzerland named "Genilem" offers by far the most generous and intensive coaching program in the comparison. The organization was founded in 1995 and is sponsered by private and public funds. The program offers free coaching for a duration of three years. The participants are selected by a committee of executives. In order to be eligible it is necessary to fulfill certain requirements: (1) an innovative business idea (judged by a jury), (2) at the time of application the business needs to be less than three years old and (3) existence of a prototype of the product or service. The main part of the program is a three-year coaching. Coaching topics include marketing, financing, law, taxes among others. Furthermore, the participants get access to the network of the partners and investors of "Genilem". Unfortunately, the program is not yet evaluated. According to their own statements they have supported over 100 entrepreneurs and helped create over 1,000 jobs.

"CTI Start-Up" is another program from Switzerland. It is a free of charge coaching program which lasts between 6 and 24 months. The eligibility criteria are (1) the company needs to be Swiss, (2) there is potential for sustainable growth, (3) the business model belongs to the technology sector and is innovative

and (4) there is an ambitious foundation team or entrepreneur. Coaches working for "CTI Start-Up" are recruited by them and need to have founded their own business beforehand. Feedback evaluations as well as ratings are conducted, in order to assure the quality of the coaches. Every year coaches must undergo new tests in order to keep working for "CTI Start-Up". One aim of the program is the development of new business areas by the participating companies. The experts help the founder to optimize the business strategy. After the coaching sessions the company needs to present the success of the coaching to a jury to get the "CTI Start-Up" Label. The Label serves as a signal for partners, investors, and banks. The number of program participants is relatively small. In the 15 years of 1996 to 2010 there were only 243 entrepreneurs who successfully participated in the program and received the "CTI-Start-Up" Label (Gantenbein et al. 2011, p. 5). To the best of our knowledge there is only one evaluation study of the "CTI Start-Up" program. Gantenbein et al. (2011) analyzed the effects of the program on survival, number of employees and access to venture capital. Their dataset has 186 observations – 70 in the treatment group and 116 in the control group. They find that the survival rates are larger for the treatment group than for the control group. Five years after foundation 88.3% of the treated enterprises are still on the market. This five year survival rate is only 57.4% for the control group (Gantenbein et al. 2011, p. 37). Furthermore, treated enterprises hire more employees than non-treated enterprises – at least in the long run. Six years after foundation treated enterprises have on average 14 employees whereas non-treated ones only have 6 (Gantenbein et al. 2011, p. 40). The participants also received more venture capital (0.86 million CHF in 2009) than non-participants (0.40 million CHF) (Gantenbein et al. 2011, p. 21). Unfortunately, the evaluation of Gantenbein et al. (2011) does not draw causal inference as it only uses descriptive evidence. As mentioned above, there are several eligibility criteria leading to a selective sample. This makes it impossible to draw conclusions on the basis of descriptive evidence.

"Företagscoach" is a Swedish program of the public owned support company "Almi Företagspartner". It consists of coaching sessions which need to extend a period of at least six months. The aim of the program is that companies accomplish their goals and that the entrepreneurs improve their business skills. The costs for the entrepreneur vary but are on average 300 € (plus taxes). As part of the application the entrepreneur needs to explain in written form why she/he needs assistance through coaching. The program has not been evaluated as a whole but

there is a small sub-project called "Disa" which focuses on support for women through individual coaching sessions of "Almi Företagspartner". This project has been analyzed via a qualitative case study by Tillmar (2007). The analysis aimed at ascertaining whether there are gender differences in terms of the need of support. The cost of the support program are 250 € per participant. The coach and the entrepreneur meet up once a month for two hours in a total time span of 1.5 years. In her analysis Tillmar (2007) finds that it is important to enable women to start-up companies and support them via assistance programs. The program helped recognize that women cannot be treated as a homogeneous group in coaching but also have heterogeneous needs such as men. Tillmar (2007, p. 94) summarizes that "the positive comments from all participants indicate that the coaching was very successful. Since the idea of the method is to adapt to the specific circumstances and the specific person, this kind of coaching seems to help avoiding both the pitfall of treating the business owners according to a male norm and the pitfall of treating them as a homogeneous group of women."

In 1993 the Swedish Agency for Economic and Regional Growth ("NUTEK"[21]) started a program supporting female entrepreneurs in northern Sweden. Women are supported by female business advisers. The advisers offer the entrepreneurs assistance, training, and consultancy. The program has very innovative aspects as the support is not only provided by the female business advisers but also through their network. The adviser helps the entrepreneur find tailored support by other advisers of the network. The aim of the program is to strengthen female entrepreneurship but also increase the network of advisers. As most business advisers only work part time as advisers and have other jobs they also benefit from the network. Thus, the adviser-entrepreneur relationship is a win-win situation. The advisers are trained and receive a certificate before providing their support. Interestingly, the design of the program follows an open approach. Meaning that local municipalities are allowed to adjust the program to their local needs and ideas. As there are no clearly defined objectives the success of the program is difficult to measure. Unfortunately, there is only scarce evidence about the effects of the program. Summarizing there are two main effects. First, female entrepreneurship in Sweden is strengthened. Second, the network of business advisers increased and improved (EU 1999).

The "North Jutland Entrepreneurial Network" supports 1,200 entrepreneurs

[21] "Verket För Näringslivsutveckling"

and SMEs in Denmark each year. It provides counseling on three levels. The first two levels support individuals in the pre-start-up period, whereas the third level supports them during the start-up process (Rotger et al. 2012). Rotger and Gørtz (2009) analyze the effects of the program by examining two different cohorts. They use the methodological approach of propensity score matching. For the 2002/2003 cohort they find positive effects for the two, three and four year survival rate. The program effects get smaller by an increasing observation period. The counseling enhanced the two-year survival rate by 8%, whereas the four-year survival rate was enhanced by 5%. The survival rate was higher than average in the construction and hotel/restaurant sector. In a more recent paper (Rotger et al. 2012, p. 516) find that the two-year survival rate was increased by "between 3% and 12% depending on the time period considered and the type of advice taken, compared with otherwise similar firms not taking such advice." Surprisingly, Rotger and Gørtz (2009) find that the survival rate was not influenced by sociodemographic characteristics of the business owner such as gender, age, education or experience. They find that entrepreneurs who founded their company before looking for counseling do better. Furthermore, the entrepreneurs who take their full allocation of counseling hours do better than individuals who quit counseling early. Rotger and Gørtz (2009) suggest that policy makers should take this result into account and create incentives to take the full allocation of counseling hours.

France is especially interested in supporting subgroups of the entrepreneurial population. The program "EDEN"[22] of the Department of Labor especially supported entrepreneurs who have been unemployed before their business foundation. The assistance was aimed towards people who are unemployed and below the age of 30 or above the age of 50. The support consists of a loan and a coaching program. The entrepreneur needed to participate in the coaching sessions in order to receive the loan. The coaching sessions had to take place in the first year after applying for the program. The coaching sessions take place before or after the foundation. In 2009 the program was replaced by "NACRE".[23]

"NACRE" also supports only entrepreneurs who have been unemployed before their business foundation. Coaching already starts before the actual start-up. The program is designed similarly as "EDEN", since it too consists of a combination

[22] "L'encouragement au développement d'entreprises nouvelles" (Promotion of the development of new enterprises).

[23] "Nouvel accompagnement pour la création et la reprise d'entreprise" (New support for the creation and the recovery of enterprises).

of coaching and interest-free loans. Moreover, participating in coaching programs is a requirement in order to receive the loan. The program is divided into three stages. The first stage consists of coaching which has a timespan of four to six months. During the coaching sessions topics like the business plan and financing are discussed. Further assistance, like contacting banks is also provided during this period. In the second stage the entrepreneur receives an interest-free loan between 1,000 € and 10,000 €. This loan has a maximum life of five years. In the third stage there are more coaching sessions. Participants are allowed to take part in these sessions until three years after the business foundation. This long period ensures that there is enough assistance during the development and expansion of the enterprise. To ensure the coaching quality the coaches are required to hold coaching certificates.

The most popular program in Italy is the "Law 44 program". It subsidizes youth entrepreneurship in southern Italy via mentoring/consulting and financial support. Due to regional and age restrictions, it is difficult to compare these supported enterprises with typical small Italian companies (Storey 2000, p. 186). In detail, the program finances up to 90% of the start-up costs; 40% to 60% with a grant and 30% by a loan. In order to get the grant and the loan the entrepreneur needs to have a detailed business plan. But also the creation of the business plan can be assisted through the program coordinators free of charge. If the assisted company wants to have further support, there are private consulting firms helping the entrepreneurs (Maggioni et al. 1999). In evaluating the program Maggioni et al. (1999) do not find significant effects on growth. Regarding survival rates they find that supported companies have a higher survival rate than the average italian start-up. Even though, this finding might be biased due to selection issues. Comparing groups of treated and non-treated companies, they find that treated companies have a higher level of technology and participants have a higher barrier to exit the business.

The "Enterprise Programme" of the institution Prince's Trust supports young disadvantaged entrepreneurs in the United Kingdom (UK). The program exists since 1983 and has supported over 80,000 people (Prince's Trust 2014). It consists of start-up loans (max. 5,000 £), grants (max. 2,000 £) and mentoring (Shutt and Sutherland 2003). Meager et al. (2003) evaluate the program using a matching approach. It was not possible for them to create a control group via a survey. Therefore, they took an existing database of young unemployed people and used

them as control group. They matched this group to the participants by using three criterias: gender, region and employment status before creating a start-up. Beforehand, they assured that the age range of the control group (18 to 30) was the same as the one of the participants. They find positive employment effects. Participants are significantly more often in employment than non-participants. Furthermore, they examined whether or not the participation had an effect on the employment probability and earnings chances after shutting down their enterprise. They find no evidence that the program has a positive effect on subsequent employment or earnings. As they match on very few covariates there is a high probability of biased results. There are other evaluations of the Prince's Trust with contradicting results.[24] Even if the possibility of unobserved heterogeneity is high because of the low number of matching criteria, the methodological approach used by Meager et al. (2003) is preferable to other studies. They mainly show descriptive evidence or do not use control groups at all (Shutt et al. 2001; Shutt and Sutherland 2003).[25]

Wren and Storey (2002) evaluate the impact of a marketing support initiative on sales turnover, employment and survival of firms. The program subsidizes British based SMEs with less than 500 employees. The participants received external advice by private consultants. The government paid 5 to 15 days of consultancy. For mid-range SMEs in terms of size they find that the program had positive effects on the survival rate and increased the growth of the turnover and the number of employees. They do not find effects on the survival rate of very small enterprises. The program is most effective for middle range SMEs. Interestingly, their "selection results suggest that, compared with all firms expressing an interest in the scheme, the supported firms have low-growth but high-survival characteristics" (Wren and Storey 2002, p. 336). Therefore, they use a multiple stage model with an indicator for the propensity of treatment to correct for the self-selection bias.

"Business Coaching for growth" is a program designed to support Businesses trading in the UK. It provides up to 10 days of business coaching for SMEs with high growth potential. For participation the company is not allowed to have more than 250 employees, needs to be registered in the UK, and there needs to be a high growth potential. The aim of the program is to support companies so they can

[24] For a more detailed overview and comparison of the different studies, see Greene (2009).

[25] Unfortunately, all studies mainly concentrate on the financial support via Prince's Trust and not on the effects of mentoring.

generate a yearly growth of 20%. The program consists of coachings (4 to 10 days) on business development, leadership, being more innovative, and contacting investors. The share of the costs the company itself needs to pay depends on the company's size. Unfortunately, there is no evaluation on the effectiveness of the program up to now. It would be quite challenging to solve the selection problem in evaluating the program's effectiveness. Even if there are not a lot of formal requirements, the requirement of high growth potential has a large influence on the type of businesses which are supported. Whereas German coaching programs are designed to support companies in their foundation stage, British programs focus their attention on the growth stage. Tables A.1 and A.2 summarize the European landscape of coaching programs.

Besides the previously described European programs there are several other programs in different countries outside of Europe. Most of these support programs differ significantly from the programs in Europe in terms of program design or the institutions supplying the support. The similarities of these programs with the German coaching programs EBCG and EBCG-UE are rather scarce. Nevertheless, we will give a short overview of these programs as we want to draw an exhaustive international picture of support programs. Table A.3 summarizes these programs and their effects.

The program Growing America Through Entrepreneurship (GATE) is designed by the Small Business Administration and supports emerging entrepreneurs with training and business counseling in the United States. To ease the evaluation and get to know the real effect of the program, an experiment with random assignment to treatment was designed.[26] It is politically undesirable to distribute subsidies at random, as the program will appear as more effective if there is an institutional selection process. Therefore, random assignment is quite uncommon in the case of public policy programs. The program GATE consisted of three stages – an assessment, classroom training, and technical assistance. At the assessment meeting an assessment counselor recommends the participant to a special training or technical assistance. The classroom training includes training on financing, marketing, setting up a business plan etc. The "technical" assistance is a one-on-one meeting with a counselor who helps entrepreneurs with specific needs like "refinement of

[26] Random assignment to treatment means that it is decided randomly who participates in the program and who does not. This program design solves the problem that individuals with specific characteristics self-select into the program. Due to the random assignment, there may be less differences between the treatment and the control group leading to unbiased estimates for the program effects.

the business idea, business plan writing and development, marketing, budget and cash flow projections, and availability of financing" (Bellotti et al. 2006, p. 96). The third stage is the most similar to our coaching definition. In the final evaluation report of the project by Benus et al. (2009) it is stated that GATE had positive effects on business ownership. This effect can be observed in the "first few quarters after random assignment, [...] [whereas] it dissipated over time" (Benus et al. 2009, p. 153). The program participants had higher earnings than the control group. However, this effect is not statistically significant. The authors conclude that "self-employment training programs are an effective policy tool for assisting the unemployed" (Benus et al. 2009, p. 154).

There is also some evidence of support for entrepreneurs and SMEs in developing countries. This research arise because some microfinance institutions want to increase their repayment rates by business training for their clients. As the topics of these business training sessions are similar to the topics in the coaching sessions of the German coaching programs we will also present the literature and evidence regarding these business training programs.[27]

Karlan and Valdivia (2011) analyze the effects of training sessions for female entrepreneurs in Peru supplied by a microfinance institution. The women are assigned randomly to a treatment and control group. The training sessions take place during weekly meetings with the microfinance institution. The trainings teach the participants about how to identify customers and competitors, how to set prices and calculate production costs, and provided information on product and promotional strategies. Karlan and Valdivia (2011) find positive – however small – effects on revenues of the enterprises of participants. They find no effect on the number of workers hired. However, they observe that business knowledge of the participants improved.

Giné and Mansuri (2011) analyze the effect of an eight day business training in Pakistan. The trainings included marketing, financing, and business planning. Participants were randomly assigned to the treatment. Giné and Mansuri (2011) find some positive effects on the outcome variables "Business Knowledge" and "Outlook for life". However, these effects vanish when including interaction effects of the business training with gender.

Bruhn et al. (2013) analyze the effect of management consulting of SMEs in

[27] As described in section 2.2 there is a difference between coaching and training. However, in practice the discussed topics during coaching and training sessions are sometimes similar.

Mexico. The program consists of highly subsidized consulting services aiming at increasing the managerial capital of participants. Companies need to pay 10% to 30% of the costs by themselves. Bruhn et al. (2013) show that the program has large effects on the number of employees and on total wage bill. Participation increases the number of employees by 44% and the total wage bill by 57%. Bruhn et al. (2013) argue that these significant effects are reasonable as the participants do not receive any training before the intervention of the program. Furthermore, many firms in their sample are small. Hence, "adding a single worker would have been a significant increase in employment" (Bruhn et al. 2013, p. 4).

Summarizing, the main characteristics of the programs are the contents of coaching, the intensity (time, number of sessions), the costs and the (sometimes compulsory) combination with other program parts. The international overview shows that many of the programs aim at supporting subgroups. Interestingly, there are some innovative ways of program designs (Sweden).

Unfortunately, not all of the presented programs have been evaluated. Some of the conducted evaluations only include descriptive evidence (Gantenbein et al. 2011) or qualitative analyses (EU 1999; Tillmar 2007). However, some studies (Maggioni et al. 1999; Meager et al. 2003; Rotger et al. 2012; Wren and Storey 2002) also use comparison groups to draw causal inference on program effectiveness. The presented non-European evaluations (Benus et al. 2009; Bruhn et al. 2013; Giné and Mansuri 2011; Karlan and Valdivia 2011) make use of experiments to analyze the effectiveness of programs.

The presented studies show some positive effects of coaching. However, most effects are either small or not robust. Concluding, more research – especially in a quantitative manner – is needed to sufficiently state whether or not coaching can help entrepreneurs. By evaluating two German coaching programs (section 5 and 6), we will add important evidence to the international literature on coaching effectiveness.

2.5 The landscape of business start-ups and support programs in Germany

Burandt and Kanzek (2010, p. 20) state that 70.5% of all employed people in Germany are employed in SMEs. This shows how important small businesses are for the German economy. And SMEs directly arise from self-employment. The number of self-employed increased significantly in the last 20 years in Germany. During this time an innovative culture was established. Especially East Germany adds to the rise of self-employment in Germany. Considering the period from 1996 to 2009 the yearly number of start-ups ranged between 262,000 and 396,000. The increase led to a rise in the number of self-employed in Germany from about 3 million in 1991 to 4.2 million in 2009. In this time frame the number of self-employed in East Germany doubled (Fritsch et al. 2012a). In comparison to other countries the development of Germany's SMEs is outstanding. The 2012/2013 annual report of the European Commission on SMEs pointed out that Germany in 2009 was the only country in Europe "where SME performance in terms of value added and employment was positive"[28] (Gagliardi et al. 2013, p. 33). These numbers are very positive for the development of employment as entrepreneurship serves as driver for the economy. Entrepreneurs do not only employ themselves but create jobs. This effect is often called the "double dividend" of labor market programs (Caliendo and Künn 2011). However, the increase in the number of self-employed in Germany is especially due to the strong increase of solo-entrepreneurs[29] (Brenke 2013; Fritsch et al. 2012b). The number of entrepreneurs with employees increased in the time from 1991 to 2009 by about 12.4%, whereas the number of solo-entrepreneurs increased by about 70.4% in this time frame (Fritsch et al. 2012b). In international comparison the entrepreneurial activity in Germany is relatively low. Using the most common measure of entrepreneurship, namely the total early-stage entrepreneurial activity (TEA) rate, Germany ranks the fourth last among the Members of the EU. The EU average TEA rate in 2013 was 8.0, whereas Germanys' was 5.0 (Amorós and Bosma 2014, p. 31).[30]

[28] "Gross value added is the difference between output and intermediate consumption. As an aggregate measure of production, GDP is equal to the sum of the gross value added of all resident institutional units (i.e. industries) engaged in production, plus any taxes and minus any subsidies, on products not included in the value of their outputs" (Gagliardi et al. 2013, p. 10).

[29] Solo-entrepreneurs are entrepreneurs without employees.

[30] The North American TEA rate is traditionally higher than the European rate. In 2013 the rate was 12.7 for the United States and 12.2 for Canada.

Some of the entrepreneurial activity in Germany is due to support programs for entrepreneurs. Germany supports entrepreneurs in several ways. There are many local support types like incubators, training programs among others. Beyond that there are some governmental support types. These programs often focus on special subgroups, e.g. former unemployed individuals.

Since 1998 the program EXIST supports academic scientist entrepreneurs with an innovative business idea. The business idea needs to be technology oriented or knowledge-based. The program serves as one component to stimulate innovative entrepreneurship. The support consists of a scholarship to assure a livelihood, and a financial support for material expenses and coaching. The support has a maximum duration of one year.

Another supported subgroup are the unemployed. The support of self-employed individuals grew to an important part of Germany's active labor market policy. In 1986 only 1% of the start-ups out of unemployment were supported via programs. This number increased to 50% in 2005 (Caliendo and Kritikos 2009a). Due to a high unemployment rate and the positive effects of self-employment the government especially supported the step from unemployment into self-employment. This mainly included financial support and led to an extensive increase in number of people who ended their unemployment due to self-employment. From 1986 onwards entrepreneurs had the possibility to receive "Bridging Allowance".[31] This subsidy helped entrepreneurs get over the first financial obstacles after foundation. For six months entrepreneurs received the amount of their individual unemployment benefits as subsidy. The "Hartz reforms"[32] in 2003 included the introduction of the German "Start-up subsidy".[33] This subsidy included a monthly payment of 600 € in the first year, 360 € in the second year, and 240 € in the third year. The effects of the programs "Bridging Allowance" and "Start-up Subsidy" were evaluated within the evaluation framework of the "Hartz reforms" (Baumgartner and Caliendo 2008; Caliendo et al. 2007, 2009). The programs were successful in the sense that employment probability and the income of program participants were higher than for comparable non-participants. Even in the long run Caliendo et al. (2010) confirm the success of the programs. Moreover, the programs at-

[31] The original name in German was "Überbrückungsgeld".

[32] The "Hartz reforms" have been the result of the suggestions of a commission which was assigned to make suggestions about how to increase the efficiency of the German labor market policy. For an overview see Wunderlich (2004).

[33] The original name in German was "Existenzgründungszuschuss".

tracted different groups of individuals. Participants of the "Start-up Subsidy" had similar characteristics as the total group of unemployed. In contrast to that, participants of the "Bridging Allowance" had similar characteristics as the total group of self-employed. The introduction of the "Start-up Subsidy" therefore supported a group of entrepreneurs who were underrepresented among the self-employed up to this point in time (Caliendo et al. 2007).

In August 2006 the two support programs, "Bridging Allowance" and "Start-up Subsidy" were merged and replaced by the "New Start-up Subsidy".[34] This support consisted of a monthly payment of the former unemployment benefits plus 300 € for a duration of nine months. After that the support could be extended by about six months. In this second period the subsidy consists only of the lump sum of 300 €. In November 2011 the government decided to change the time frames. From that point in time the subsidy in the first period lasts six months and the one in the second period nine months.

Another subsidy for the unemployed on their way to self-employment are "Integration Grants".[35] They were introduced in January 2005. The amount of this subsidy differs individually. It depends on the duration of unemployment and on the size of the household. The individual is supported for a maximum of 24 months. The integration grant can be used for taking up a dependent employment or a self-employment. In practice the majority of participants used the grant for the latter (94% of the participants in 2005) (Noll et al. 2006). In the first year (2005) around 17,000 individuals received an integration grant. After this the popularity of the program rose and the number of participants increased to more than 30,000 yearly (2006 and 2007). But after this time the participation numbers decreased to 18,000 in 2009 (Haller et al. 2010).

In the last years the German government extended the non-monetary support for entrepreneurs. In October 2007 the program EBCG was introduced. One year later the equivalent program for former unemployed persons (EBCG-UE) started. These programs support people in their first years of self-employment via subsidized coaching. This results from the fact, that self-employed in the foundation stage not only lack financial resources but possibly also knowledge. The programs subsidize 50% to 90% of the coaching costs. Compared to the most programs providing financial support these non-monetary support programs are small in terms

[34] The original name in German is "Gründungszuschuss".
[35] The original name in German is "Einstiegsgeld".

of number of participants. In general the program for former unemployed individuals, EBCG-UE has more participants and also a higher participant growth rate. In 2009 approximately 7,500 individuals participated in EBCG and 14,600 in EBCG-UE. In 2010 the number of EBCG participants decreased to 6,900 individuals, whereas the program EBCG-UE increased to a number of more than 18,000 individuals.

Summarizing the development of the number of self-employed is positive over the last years in Germany. The support of self-employed increased in popularity among the labor market policy. There are several programs successfully supporting (previously) unemployed. Two programs extend the financial support of entrepreneurs by subsidized coaching sessions. The next section will focus on how entrepreneurial success can be measured. We will focus on success measures which are likely to be influenced by coaching sessions. Using these measures it is possible to evaluate the effectiveness of the two German coaching programs.

2.6 Measuring entrepreneurial success

As described earlier entrepreneurship is one of the most important drivers of the economy. This fact by itself and even more important the fact that governments support entrepreneurs makes it necessary to analyze how successful entrepreneurs are. This in turn makes it necessary to find ways to measure entrepreneurial success. Or to keep it more general, to define entrepreneurial success.

At first glance, measuring the success of a company is quite straightforward. As a company sells products or services, obvious success measures are the profit and the turnover of the company. The type of success we want to measure in this study is the effect coaching has on entrepreneurial success. As coaching is a way of assistance which also focuses on the entrepreneur and not only on the company, it makes sense to use the personal success of the entrepreneur as outcome measure, e.g. the survival in self-employment, the earned income, and the number of employees hired by the entrepreneur. Obviously, the latter two outcome measures will be influenced by the entrepreneur's survival in self-employment. Nonetheless, it can be treated as program effect on earned income if the earned income of some individuals (in the treated or non-treated group) change to zero due to unemployment. Thus, the income effect will always consist of two parts. First, the change in employment status leading to several individuals becoming unemployed, and hence earn no employment income anymore. Second, the direct income effect by a changing level of income of (self-)employed participants and non-participants. Moreover, coaching may also influence the earned income of a subsequent dependent employment. In the analysis of the German coaching programs in section 5 and 6 the outcome measure of earned income is therefore asked independently of the employment status.

Furthermore, we use measurements which characterize the personal success of an entrepreneur, which can for example be measured in the satisfaction of the entrepreneur. By this, we expand the economic and business approach by the psychological approach. A business start-up is mainly about the entrepreneur – at least at the beginning – we therefore characterize satisfaction as another important outcome variable. Furthermore, satisfaction can serve as a good indicator of the future personal development of the individual. Even if the company does not survive, there might be a personal success of the entrepreneur. The aim of programs supporting former unemployed entrepreneurs is to reintegrate the individuals into

the labor market. Hence, it is also a success if the entrepreneur needs to close down the enterprise but changes to regular employment. This can also be an effect of a support program as it might have not helped the individual to stay self-employed but helped to prevent another period of unemployment. Furthermore, there might be cases in which the entrepreneur sells the founded company or quits the job to establishes another company. This should also not be seen as failure. Therefore, we will use the survival of the entrepreneur in self-employment as an outcome measure in the empirical analysis and not the survival of the company.

In the empirical analysis in chapter 5 and 6 we use four types of outcome measures. First, survival of the entrepreneur in self-employment, second, individual earned monthly net income, third, the number of employees of the company, and fourth the satisfaction of the entrepreneur. The latter will especially consider life and job satisfaction.

2.7 Potential effects of coaching

2.7.1 Main effects

After considering which preconditions need to be fulfilled for an effective coaching process (section 2.3) and with which success measures coaching effects can be analyzed (section 2.6) the present section discusses the most important point of a study analyzing a labor market policy program: The effectiveness of the program. We argue that a coaching process influences the success of an entrepreneur. In the following we will discuss theoretical considerations about coaching effects on the entrepreneur's survival in self-employment, the earned income, the probability of hiring employees, and on satisfaction rates. This discussion will lead to several hypotheses regarding the coaching effects on these outcome measures.

We begin by considering coaching effects on the probability of survival in self-employment. There might be two reasons prolonging an entrepreneur's survival in self-employment. First, the coaching enhances the entrepreneur's ability to solve the enterprise's problems. Second, the coach might have some self-interests. Even if the enterprise is not successful and will not be successful in the future the coach tries to help the entrepreneur to save the company from bankruptcy. This might as well be true if the coach is not convinced about the future success of the enterprise. A coach normally tries to help the entrepreneur even if there is no reasonable chance of recovering for the enterprise. One reason is the business of the coach. She/he earns a lot more if she/he tells the entrepreneur that the problems are solvable with a few more coaching sessions than if she/he tells the entrepreneur in the first coaching session to shut down the enterprise. However, as discussed earlier, the main positive effect comes through the coach by equipping the entrepreneur with the ability to solve future problems in business life. We argue that this has positive effects on the entrepreneur's probability of staying self-employed. Therefore, we hypothesize:[36]

H1*: Coaching increases the probability of staying self-employed.

[36] The hypotheses of the effects are marked with a star (*) to disentangle them from the ones we will state about the selection process into program participation.

Another success measure which is influenced by coaching is the earned net income of the entrepreneur.[37] The coach tries to help the entrepreneur to make the company (more) profitable. In a second step a higher profit enables the entrepreneur to increase her/his own income. Concluding, the entrepreneur's earned income should increase with the help of the coaching.

Yet, the coaching might also lead to an extended survival probability of non-profitable companies. As we consider earned income from self-employment *and* regular employment,[38] the following could lead to a negative income effect: Non-participants quit their self-employment and change into dependent employment. As argued before this would increase the coaching effect on survival (as more participants stay in self-employment). If the coaching participants continue their non-profitable self-employment and non-participants earn more in the new dependent employment, the coaching effect on income would be negative. Nonetheless, we argue that this side effect is weaker than the positive effect of coaching on income. Therefore, we hypothesize:

H2*: Coaching increases the individual earned income.

Furthermore, coaching can have an effect on the probability of hiring employees. In the qualitative interviews, coaches stated that they often helped entrepreneurs to get access to financing. Some coaches stated that they attend meetings with the entrepreneur's bank and helped them get funding. Other coaches support the entrepreneurs indirectly via communication training to increase the chances of getting an investor. As more capital enables the entrepreneur to hire employees, coaching should increase the probability of hiring employees. Furthermore, the entrepreneur realizes her/his weaknesses in the coaching process. One way to compensate these weeknesses and not transfer them to the business of the company is to hire employees. As Lazear (2004) pointed out, an entrepreneur does not need to be a specialist in a specific field, but needs general knowledge about many busi-

[37] This earned income might be from self-employment or from regular employment. It is also rated as success of the program if the entrepreneur quits the self-employment and earns more in regular employment. Even if the coaching did not help the entrepreneur's company, it helped the entrepreneur to increase her/his wage.

[38] As explained in section 2.6 the income is measured independently of whether or not the individual is self-employed or regular employed. A higher income of a regular employment following the original self-employment can also be an effect of coaching.

ness fields. Hence, if the company prospers, the entrepreneur needs specialists for the tasks she/he is not able to do her-/hisself. Because of all these points we argue:

H3*: Coaching increases the probability of hiring employees.

The just described types of success (survival in self-employment, earned income, and number of employees) are easy to measure and commonly used in literature. Beyond that, we also have data regarding the satisfaction of the entrepreneurs. In the following we will shortly discuss coaching effects on this outcome measure. As a coaching process is also a psychological way of assistance the entrepreneur should get more self-confident in private and business concerns through coaching. In the quantitative analysis the coaches confirmed that the coaching process is often not only about supporting entrepreneurs by showing them how to generate solutions to the company's problems but also helping them on a psychosocial level. Even though coaching reveals the entrepreneur's weaknesses (which might decrease the entrepreneur's satisfaction) the coach helps the entrepreneur to overcome these weaknesses which increases the entrepreneur's satisfaction. Hence, after the complete coaching process the entrepreneur should feel more satisfaction than before. We argue that satisfaction, even if it is only a subjective outcome measure, also influences career success. Therefore, we asked the entrepreneurs about their satisfaction. Considering the theoretical considerations mentioned above we hypothesize:

H4*: Coaching increases satisfaction.

Whether or not these hypotheses can be confirmed will be analyzed in section 5.3 for the program EBCG and in section 6.3 for the program EBCG-UE.

2.7.2 Effect heterogeneity by region

Coaching effects can also differ by regions. The easiest one to think about is a geographical distinction. As mentioned earlier, in the program EBCG there are regional differences of the cost absorption. As the share of coaching cost financed by the program is higher in East Germany (75%) than in West Germany (50%)

there might also be differences in the coaching effectiveness influenced by this difference in the institutional settings. But as there is no regional variation in the maximum coaching costs (they are not allowed to exceed 6,000 €) this difference does probably not lead to overall more intensive coaching processes in East Germany. We therefore do not construct a hypothesis about whether coaching has better effects in East Germany or West Germany.

But the regions cannot only be determined geographically. It is even more interesting whether or not the coaching effects differ due to regional characteristics, like the labor market conditions measured by the unemployment rate or the innovative character measured by the self-employment rate. Using the INKAR dataset it is possible to analyze in which regions coaching is more effective. There is a large literature about spatial differences in the birth of firms (Audretsch and Fritsch 1994; Hamilton 1986; Lee et al. 2004). The literature of spatial differences in the success of firms or entrepreneurs is rather scarce. Falck (2007) analyze the firms' survival conditional on regional characteristics. He finds that more new businesses in the regions within the same industry have a negative impact on firms' survival. He reasons this by the strong competition in the local labor market. Nonetheless, there is not much evidence in which kind of regions entrepreneurs are more successful. Even less researcher analyze the regional heterogeneity of the effectiveness of labor market programs. Caliendo and Künn (2014) find that the German start-up subsidy program "Bridging Allowance" is more effective in regions with worse economic conditions. Lechner and Wunsch (2009) analyze whether there is a relationship between the effectiveness of German training programs and the unemployment rate. They find a clear positive relationship. To the best of our knowledge there is no study analyzing in which kind of regions coaching is most successful. The present study will close this research gap. In the following we will discuss the potential effects of regional differences on coaching effectiveness. Using these theoretical considerations we will state hypotheses concerning the relation between coaching effectiveness and regional characteristics.[39]

Regions with higher unemployment rates are in general regions with worse economic conditions. This makes it harder for an entreprise to survive. Since there

[39] Obviously, one reason for regional differences in the effectiveness of coaching would be if coaches are systematically distributed across regions. If regions with higher umenployment rates attract better coaches on average, this would also influence the coaching effectiveness. We cannot find evidence in the data about regional differences in coaching quality. Thus, we argue that this is not the reason for a relationship between regional characteristics and coaching efectiveness.

are less customers or customers with less willingness to pay in these regions. Moreover, it is more difficult to have good business partners in the regions as there are less successful businesses. Therefore, we argue that coaching is more necessary in these regions and is more effective.

H5*: Coaching has more positive effects in regions with a high unemployment rate.

A higher self-employment rate is an indicator for an innovative area. It enhances the entrepreneur's chances of having social ties to other self-employed individuals. This increases the probability of having outside help through another entrepreneur. This is true for program participants and the comparison group at the same time. The help through a self-employed friend might reduce the necessity of coaching. We argue that coaching is more effective if entrepreneurs do not have social ties to other entrepreneurs which is more probable in regions with a low self-employment rate.[40]

H6*: Coaching has more positive effects in regions with a low self-employment rate.

The direct relation between the regional characteristic (self-employment rate) and one of our success measures (survival in self-employment) leads to an interesting research question:

Is coaching an instrument which can increase the survival rates of companies in regions with generally low survival rates? If yes, coaching helps the regions with low self-employment rates to increase this rate as it helps companies to survive longer. A further highly interesting research question is whether coaching can help regions with decreasing self-employment rates to counteract this development. We argue that a low survival rate of new enterprises goes hand in hand with a decreasing share of self-employed. If this is true we would generally observe lower survival rates in regions with a decreasing share of self-employed. Is coaching able to compensate for this low survival probability in these regions? To the best of

[40] Of course the regional number of coaches might also be influenced by the self-employment rate. A region with a lot of coaches might include more bad coaches; but it might as well be true that the coaching quality is better due to the strong regional competition between coaches. As we do not know the influence of the regional number of coaches on the coaching quality, we do not take regional differences of the coaching quality into account.

our knowledge the present analysis is the first one which is able to answer these research questions. This analysis is highly relevant for the regional economic development and whether this development can be influenced by assistance programs for entrepreneurs. On the other hand it could be true that coaching itensifies the trend of the development of the regional self-employment rate. This would be the case if coaching helps entrepreneurs in regions with a high or increasing share of self-employed and does not help entrepreneurs in regions with a low or decreasing share of self-employed. It is an empirical question whether coaching intensifies the regional development or whether it leads to a convergence of the different regional developments. We will not state any hypotheses about this. Sections 5.3.2 and 6.3.2 will answer these research questions and check whether the stated hypothesis can be confirmed.

3

The Methodological Approach to Evaluate Programs

To evaluate the effect of a labor market program, one needs to compare the success variables in the case a person participated in the program versus the person did not participate. The individual effect of a program Δ_i is defined by the difference in potential outcomes

$$\Delta_i = Y_i^1 - Y_i^0 \tag{3.1}$$

where Y_i^1 is the outcome of individual i in the case of participation and Y_i^0 is the outcome of non-participation for the same person. Obviously, these two states can never be observed at the same time for the same individual. This is referred to as the fundamental evaluation problem (Caliendo and Kopeinig 2008). The most common outcome variable in evaluating labor market programs is the employment status (y=1: employed; y=0: unemployed). The average treatment effect on the treated (ATT) is then

$$ATT = E(\Delta_i | D_i = 1) \tag{3.2}$$

where D_i is an indicator showing 1 if the person i is treated (participated in the program) and 0 if the person did not participate. Using equation 3.1 equation 3.2 can also be written as

$$ATT(x) = E(Y_i^1 | D_i = 1) - E(Y_i^0 | D_i = 1). \tag{3.3}$$

The first part $E(Y_i^1|D_i = 1)$ is the outcome for the participants in case of participation and $E(Y_i^0|D_i = 1)$ is the potential outcome for the participants in case of non-participation. Obviously, the second state can never be observed. What the researcher is interested in is the outcome of the participants if they had not participated. As this information is missing we need to replace this outcome by another outcome which is observed. This is done by observing two groups, one group, in which individuals participate in the program and one group in which individuals do not participate in the program. The group of people who participate are usually called the treatment group, whereas the non-participants are considered as comparison group.[41] The comparison group is used to replace the missing information for the participants in case of not participating. However, this approach raises another problem. The two observed groups of individuals are intrinsically different. These differences in characteristics such as sex, age, personality can have an effect on the variable of interest (e.g. employment status). This means, even without the program participation the outcome variable of the compared individuals might differ. As a result, the outcome would be a reflection of a) the effects of program participation and b) the individual differences between groups. It is fundamentally essential to distinguish between these two effects. It is therefore important who is selected (or self-selects herself/himself) into program participation and who is not. This problem is called the selection problem. Fortunately, there are several solutions to this problem. The problem can be overcome through a method referred to as "random program assignment". If the persons for program participation are chosen completely at random, differences between participants and non-participants in characteristics should average out. This way of solving the selection problem is called an experiment. However, as most programs are publicly funded it is highly controversial who should be selected for a subsidy. In order to demonstrate careful consideration of how governmental funds are invested, an institutional selection process is applied, instead of a random selection process. But even if there is no selection by a case worker there is a self-selection process in almost every program. This occurs, as individuals with different characteristics might gravitate towards a specific group, which others do not. So that more highly educated people might be more likely to participate in the program,

[41] We use the terms "participants" and "treated" interchangeably. The same is true for the terms "non-participants" and "comparison group". We mostly use the expressions participants and non-participants as this is more intuitive for the reader in our context.

rather than less educated individuals. This scenario may transpire due to various reasons, for example one being that more educated people may be more likely to know about the program, than less educated people and therefore, may be more likely to participate in the program. Should the level of education also affects the outcome (which is quite likely), the estimation of the effects would be biased.

If there is no random assignment, the selection problem needs to be solved in another way. There are selection processes on observable variables and ones on unobservable variables. For example the age of a person is observed in most cases, whereas the personality is often unobserved. If there is selection on observables only, the two most common ways of solving the selection problem are to run a regression or to conduct a matching approach. The main assumption in both methods is that every variable/characteristic influencing the outcome and the probability of program participation is observed. Due to very detailed data we argue that there is only selection on observables in our evaluation project of the German coaching programs EBCG and EBCG-UE. We are therefore able to control for the selection bias. Storey argues that taking account of the selection bias is the best practice in public policy evaluation (Storey 2000, p. 188 ff.).

In this analysis the methodological approach of matching is used to determine the causal effect of the two programs. In matching one compares the outcome variables (success variables)[42] of a group of participants with the ones of a group of non-participants. As we will explain later on, in our case, the participants are entrepreneurs who started their program participation (coaching) in 2009. Non-participants are entrepreneurs who are eligible for program participation but did not participate in 2009. The matching approach tries to find statistical twins and compares the success measure for them. All variables influencing the outcome variables and the probability of program participation should be included in the process of finding statistical twins. If it is possible to find characteristically identical people in both groups one can compare them to find the program effect. This method is called exact matching as the compared people have exactly the same characteristics with the only difference that one participates in the program and the other does not. Unfortunately, exact matching is not possible in most cases. The main problem here is the high number of variables (characteristics) which need to be considered in finding statistical twins. If no match is found in the other group, the observation cannot be used. It is almost impossible to find two individuals, one

[42] In the following, the term "outcome variables" and "success variables" will be used interchangeably.

in the treatment group and one in the comparison group, with identical characteristics in all observed control variables if there are many characteristics relevant for outcome and participation. This problem is called the "curse of dimensionality" (Rosenbaum and Rubin 1983). The solution to this problem is very intuitive. One will not look for exact statistical twins but estimate the program participation probability dependent on the specific characteristics for each individual – participants and non-participants. In many cases it might be better (lead to less bias) not to use exact matching but instead utilizing all information/observations and use inexact matches (Rosenbaum and Rubin 1985). Then, one looks for statistical twins in terms of the program participation probability. This approach allows for the program effect to be disentangled from other influences, namely the effects on the outcome variables via person specific characteristics. The individual participation probabilities are called propensity scores. This matching method is therefore called propensity score matching (PSM). Therefore, participants and non-participants are matched based on one specific number, namely the propensity score, rather than matched based on each characteristic.[43] The propensity scores implicitly control for the group differences. After estimating the participation probability the researcher just need to compare the outcome variable of participants and non-participants.

Using PSM we rely on the conditional independence assumption (CIA). Conditional on the observed variables X the counterfactual outcome (Y^0) is independent of treatment (D):

$$Y^0 \amalg D \mid X \tag{3.4}$$

An important step in conducting matching is to choose the variables for estimating the propensity scores in a way that the CIA holds. A limitation of the matching method is that researchers run the risk of omitting variables that influence the participation decision and the observed outcome. This problem can lead to heavily biased estimates (Dehejia and Wahba 1999; Heckman et al. 1997). Therefore, this method should only be utilized with very detailed data.

Another assumption of PSM is the overlap condition. It ensures that all persons according to their specific characteristics have a positive probability to be in

[43]The propensity score is only one possibility of balancing the treatment and the comparison group. There are other balancing scores which will not be used in our analysis.

the participant group and in the non-participant group.

$$P(D = 1)|X) < 1 \tag{3.5}$$

Hence, the perfect predictability of participation (D) given specific characteristics (X) is not allowed (Heckman et al. 1999, p. 1920). This is because observations which always/never participate due to their specific characteristics would not be able to be matched to a person of the other group.

Whereas exact matching is totally non-parametric, PSM is semiparametric as the estimation of the scores, namely the participation probability is parametric but the following comparison of the outcomes of the participants and non-participants is non-parametric. This semiparametric approach of the matching estimator has several advantages. An advantage over parametric approaches is its independence of a functional form. A linear regression (ordinary least squares) relies on a parametric model, namely linearity. In a regression one can add higher polynomials to get a better fit. Nonetheless, it will still be a parametric estimation. This parametric form will never fit exactly to the observations. It still might be a very good approximation leading to a good estimate. Using a semiparametrical approach like matching, there is no parametrical form (like linearity) in the second step of the effect estimation which needs to fit to the observed data points. One data point (participant) is directly compared to another data point (non-participant).[44] The advantage over non-parametric estimation approaches is the simplicity and the intuitive implementation (Lechner 2002). Howeve, a disadvantage is the missing possibility to control for unobserved heterogeneity. Hence, the dataset used for the analysis needs to include all variables influencing the selection into the program. Obviously, there is always the possibility of unobserved heterogeneity as the influences of program participation can be diverse. This cannot be ruled out completely. Nonetheless, in order for the unobserved covariates (if there are any) to bias our results, they need to fulfill three conditions. The first two are the conditions all the other covariates also need to fulfill. They need to have an influence on the participation probability as well as on the success of the enterprise. The third condition is that the covariate needs to not be highly correlated with any of

[44] As we described earlier the actual method used is a bit more complex. We do not use one to one matching but attach a weight to every non-participant to construct a counterfactual for the observed participant. For simplicity we explained the difference between non-parametrical and parametrical models using one to one matching. Furthermore, there is a functional form used in the first step of the estimation of the propensity scores.

the observed covariates used in the estimation. All three of these conditions need to be fulfilled for an unobserved covariate to bias the results, which is very unlikely as we use many covariates in our analysis.[45]

In the next step one needs to choose the matching algorithm. The most intuitive one is the nearest neighbor matching. This means that the nearest neighbors in terms of the propensity scores are compared. This ensures that each participant is compared with the most similar person in the group of non-participants. Beside the nearest neighbor approach there are several other matching algorithms.[46] In our analysis we decided to implement the kernel matching method, instead of the nearest neighbor matching method. The advantage of kernel matching is that more information is used, which leads to a lower variance (Caliendo and Kopeinig 2008). In kernel matching it is not only the nearest neighbor who is used as the counterfactual but all non-participants. For each participant a virtual counterfactual is constructed using all non-participants. The non-participants who have similar characteristics as the participant get a higher weight than the ones who differ a lot from the observed participant. The weights attached to the non-participants have to sum up to one, as this virtual individual is compared to exactly one participant. With this method a non-participant is constructed as counterfactual for every participant. The above explained ATT in this case results from equation (3.6).

$$ATT = \frac{1}{N_1} \sum_{i \epsilon I_1} [Y_i^1 - \sum_{j \epsilon I_0} W(i,j) Y_j^0] \tag{3.6}$$

$W(i,j)$ is the individual kernel weight used to weight the outcome variable Y^0 of each individual j of the group of non-participants. By this, the outcome variable Y^0 can be compared with the outcome variable Y^1 of the participant i. Only the non-participants are weighted. The weighting process assures that the shares of the characteristics in each group are similar. Thus, the differences in characteristics between the participants and the non-participants are controlled for. We estimate propensity scores through a probit model which estimates the participa-

[45] For the estimation of the coaching effects of the program EBCG we use 82 covariates. For the analysis of the effects of the program EBCG-UE we use 69 covariates. Table A.8 and A.12 show which covariates are used.

[46] The most common matching algorithms are nearest neighbor, caliper and radius, stratification and interval, kernel and local linear and weighting. For a good overview of the most important matching algorithms see Caliendo and Kopeinig (2008).

tion probability for each individual depending on their characteristics. Based on these scores, kernel matching generates the weights. The non-participants with similar characteristics as the participants get a high weight, whereas the ones with a very different propensity score get a low weight.

The researcher can decide how diverse the weights of the non-participants are. This is done by the selection of the bandwidth. The smaller the bandwidth the more different are the weights. A kernel function with a large bandwidth attaches similar weights to every non-participant observation. This has the advantage of using more information but it gives non-participants who are far away in terms of participation probability a large weight. This can result in biased estimates. In other words, a large bandwidth leads to a smoother estimated density function and to a lower variance, namely more precision. The disadvantage is that a large bandwidth can lead to biased estimates because the differences between the observations are leveled out (which is because of the similar weights). Therefore, the bandwidth decision is a trade-off between a low variance and less biased estimates (Galdo et al. 2008). In the analysis of the two German coaching programs EBCG and EBCG-UE we decided to use a bandwidth of 0.06. Furthermore, the optimal bandwidth is calculated. Comparing the results of the bandwidth choice of 0.06 and the optimal bandwidth shows that the results for the evaluation of the program EBCG are not sensitive to the bandwidth choice. In the evaluation of the program EBCG-UE we find that there are slight differences in the coaching effectiveness on income, number of employees and satisfaction. As the results do not diverge strongly[47] we decided to use a uniform bandwidth of 0.06 for all outcomes of both programs. The standard errors of the effects are calculated via bootstrapping. Whereas this method of receiving the standard errors is not valid in nearest neighbour matching it is in kernel matching (Abadie and Imbens 2008).

After choosing the matching algorithm and the bandwidth parameter, it is important to check the so called region of common support. This means, that for all values of propensity scores of the one group there have to be individuals with similar propensity scores in the other group. Observations outside the common support region should not be used in an analysis as they bias the estimator (Heckman et al. 1998). There are several approaches of defining the region of common support. To estimate the ATT for every participant there needs to be a potential match in the comparison group (Bryson et al. 2002).

[47] For a detailed analysis see section 5.5 and 6.5.

One way of defining the region of common support is the minima and maxima comparison. This means all observations are excluded who have a propensity score which is lower than the minimum or higher than the maximum propensity score of the other group. Lechner (2002) argues that one should also try to eliminate the observations if they are in the upper or lower 10% of the propensity score distribution. This prevents problems of the minima and maxima comparison if there are only very few observations in the tail of the propensity score distributions.[48]

In our analysis we use the minima and maxima comparison to determine the region of common support. Section 5.2 and 6.2 will describe the common support in our evaluation projects.

Finally, one should check the quality of the matching process. This can be done via several tests. The most intuitive way to check the matching quality is to compare the differences in characteristics between the groups (participants and non-participants) before and after matching. As we described before, the matching process should eliminate these differences by conditioning on the propensity scores. As Rosenbaum and Rubin (1983) stated this also means that the information of the covariate vector X should not give us any more information about the treatment probability if we already conditioned on the propensity score P:

$$X \amalg D|P(D = 1|X) \tag{3.7}$$

There are several tests and indicators whether the matching procedure leads to a good comparison of treated and control individuals. One of the most commonly used measures is the standardized bias (SB) suggested by Rosenbaum and Rubin (1985).[49] It is computed by

$$SB = \frac{100 \cdot (\overline{X}_1 - \overline{X}_0)}{\sqrt{0.5 \cdot (V_1(X) + V_0(X))}} \tag{3.8}$$

where $\overline{X}_1$ ($\overline{X}_0$) are the averages of the covariates in the treated group (comparison group) and $V_1(V_0)$ are the sample variances in the treated group (comparison group).

The bias can be computed before and after matching. To calculate the standardized bias after matching the means and variances of equation (3.8) need to be

[48] This would lead to problems, because the second largest (or second smallest) propensity score is very far away from the largest (or smallest) propensity score.

[49] This approach is used for example in studies by Caliendo et al. (2008); Lechner (1999); Sianesi (2004).

replaced with the ones of the matched sample. The reduction of the bias (BR) is

$$BR = 100 \cdot \left(1 - \frac{SB_A}{SB_B}\right) \tag{3.9}$$

where SB_A is the standardized bias after matching and SB_B is the one before matching. After having solved the measurement problem of the quality, another issue arises. There is no official rule to which value the bias should be reduced. Caliendo and Kopeinig (2008) suggest the values of the bias after matching need to be below 3% to 5% as these thresholds are used in many empirical studies. The bias reduction is then considered as sufficient.

Another test to evaluate the matching quality is a t-test. The idea is the same as in the bias reduction method above. We look at the situation before and after matching. As in the method above we compare the means of the participants and non-participants. Using a t-test we find out whether the means of the characteristics differ significantly between the two groups. After this, we take the matched sample and conduct the same test. After matching the differences should disappear (Rosenbaum and Rubin 1985).

Yet another method is suggested by Sianesi (2004). She suggests to compare the pseudo-R^2 of two estimations. The pseudo-R^2 of the probit model estimating the participation probability indicates a measurement of the explanatory power of the covariates on the participation probability. This estimation models the selection into program participation. If we do this estimation again with the matched sample, namely participants and *matched* non-participants, we should get a very low pseudo-R^2. The matching process, adjusts the covariates so that differences between participants' and non-participants' covariates can no longer serve as a predictor of program participation probability. It is essential to evaluate the quality of the respective matching process. A poor matching quality is an indication for misspecification or failure of the conditional independence assumption (Smith and Todd 2005).

We will focus on the three above mentioned methods of measuring the matching quality: standardized bias, t-test and comparison of pseudo-R^2.[50] In section 5.4 and 6.4 we conduct these tests to check the matching quality in our analysis of the German coaching programs.

[50] There are other tests for the matching quality like the stratification test suggested by Dehejia and Wahba (2002).

4

The German Coaching Programs

In the past years Germany extended the support for entrepreneurs by two coaching programs. The long tradition of financial support via ALMP and PLMP has been complemented by two large public policy programs offering non-financial support, namely subsidized coaching sessions. It is of public and research interest whether or not these support programs are necessary for entrepreneurs and whether they have positive effects on them and their enterprises.[51] The aims of the programs are to give entrepreneurs the opportunity to participate in coaching and to increase the success and number of new enterprises (Bundesministerium für Wirtschaft und Technologie 2011, p. 1157).

The present chapter is organized as follows: First, section 4.1 will describe the two programs in detail, point out differences, and specify changes over time in the institutional settings. This will give a first overview on the programs and will help to rate the quantity and quality of the support programs. The data used to analyze the programs will be presented in section 4.2. As the quantitative survey data consists of two waves it will be investigated in section A.4 whether or not there is selective panel attrition from the first interview to the second one. This means that the individuals who answered in the first interview differ in their

[51] As it will be described later, a group of treated individuals and one of non-treated individuals will be compared to estimate the coaching effects. Treatment, in our case, is defined as participating in the public policy program EBCG or EBCG-UE, which is not exactly the same as participating in coaching. This is because the individuals of the non-treated group can participate in another coaching (which is not subsidized via one of the two public programs). Nonetheless, only very few individuals of the non-treated participated in another coaching. This is why we will not make a difference between program participation and coaching participation in the following analysis. Hence, by analyzing the program effects, the effects of coaching entrepreneurs are analyzed.

characteristics from the ones who answered in the second interview.[52] This may lead to biased estimates. Section 4.4 will consider possible selection processes into program participation. Furthermore, descriptives about the coachings will be shown in section 4.5. This will give a first insight into coaching practices in Germany. For this description, qualitative and quantitative data will be used.

[52] Actually, we are removing some observations of the second interview due to item non-response in essential questions of the survey leading to an estimation sample. Consequently, we are directly analyzing whether or not the characteristics of the entrepreneurs in the first interview differ from the ones in the final estimation sample. This analysis is even more convincing than a comparison between the characteristics in the first and second interview.

4.1 Institutional settings of the programs

The programs EBCG and EBCG-UE are constructed to support people in the period after start-up via subsidized coaching sessions. The programs are set up by the BMWi and the BMAS. In the years 2007 to 2010 about 55,000 entrepreneurs participated in one of the two programs. The following subsections will describe the institutional settings of the two programs in detail.

4.1.1 External Business Coaching Germany (EBCG)

The program EBCG started in October 2007. The criteria of eligibility are not very restrictive. Therefore, almost every business founder was eligible for the program. From the start of the program in October 2007 until the end of 2010 a total of 20,500 persons participated in coaching sessions subsidized by the program.[53] The number of participants were somewhat stable in the three years 2008, 2009, and 2010.[54]

There are only two restrictions concerning program participation, one with regard to the period when coaching takes place and the other with regard to the type of self-employment. The first restriction excludes coachings in the pre-founding period. Furthermore, the date of foundation or acquisition[55] needs to be less than five years ago. This guarantees that enterprises which are still not profitable after five years will not participate in the program. Thus, businesses which are not profitable in the long run are excluded. The program is specifically designed to overcome first obstacles in the post-founding period. The coaching is only allowed to last for one year after commitment. The type of employment is not allowed to be a part time job but needs to be a full-time job.

The subsidy of the coaching differs by regions. In East Germany 75% of the coaching costs are covered by the program whereas this rate is only 50% for the

[53] We only use data which was provided to analyze the effects of the programs. Therefore, there are only information until the end of 2010.

[54] The number of participants in 2007 is very low as the program started in October 2007. The year 2007 can therefore not be included in the judgement about the development of the number of participants.

[55] The programs also subsidize persons who take over an existing company, meaning that they buy (and/or start to manage) a company which still exists. Nevertheless, the data show that this group is small. Only 14.62% (4.70%) of the EBCG (EBCG-UE) participants state that they took over a company.

other Federal States of Germany (including Berlin).[56] The total maximum amount of coaching costs is not allowed to exceed 6,000 €. This results in a maximum subsidy of 4,500 € (75%) in East Germany and 3,000 € (50%) in the other Federal States. The maximum daily coaching costs are not allowed to exceed 800 € in all of Germany. There is no restriction on the amount[57] of coaching sessions. If the total coaching costs exceed the amount of 6,000 € or the daily coaching costs exceed 800 € the coaching is not subsidized at all. Travel costs of the coach are not included in the overall coaching costs and has to be paid by the entrepreneur.

The coach and the entrepreneur can decide on the coaching topics. There are only a few areas which are excluded from the coachings, for example in helping with law, taxes and insurance problems (Bundesministerium für Wirtschaft und Technologie 2011, p. 1157).

The entrepreneur can choose the coach by herself/himself. The only requirement is that the coach is registered in a special database for coaches in the internet.[58] The entrance requirements for registration in this database have been very low, which leads to a very diverse quality of coaches, and hence coachings. Sections 5.3.2 and 6.3.2 will empirically shed light on the problem of different coaching qualities. The heterogeneous coaching quality was one main point of criticism of the program. As a consequence, the government tightened the registration requirements for coaches to register in the database. This issue will be discussed in section 4.1.3.

4.1.2 External Business Coaching Germany for former unemployed individuals (EBCG-UE)

The program EBCG-UE differs in some aspects from the program EBCG. The program started one year later in October 2008. The coaching is only allowed to start in the first year after business foundation (five years in EBCG). Therefore, the companies of the EBCG-UE participants are mostly younger than the ones of the EBCG participants. Like in EBCG, the type of employment needs to be a full

[56] For some regions the regional classification scheme is neglected due to their comparatively poor economic development (GDP < 75% of the EU average). In these so called phasing-out regions the subsidy rate is also 75%. The phasing-out regions are Soutwest Brandenburg, Lüneburg, Leipzig, and Halle. In fact, only entrepreneurs in Lüneburg received a higher subsidy due to this rule, because the other regions are in East Germany (75% subsidy anyway).

[57] The participants of the program EBCG had approximately 11.5 coaching sessions on average.

[58] The database is provided on the webside of the reconstruction loan corporation (https://beraterboerse.kfw.de).

time job.

From the start of the program in October 2008 until the end of 2010 approximately 35,000 founders participated in the program. The number of participants increased strongly from 2009 to 2010. There were about 14,600 participants in 2009 and 18,300 in 2010.[59] This shows a high acceptance rate and possibly a word-of-mouth advertising.

Contrary to EBCG, the subsidy of the coaching does not differ by regions. 90% of the coaching costs are covered. Even if this percentage covering rate is higher than in EBCG the maximum allowed amount of coaching costs is lower and not allowed to exceed 4,000 €. This results in a maximum subsidy of 3,600 € (90%). The maximum daily coaching costs are 800 €. If the coaching costs exceed one of the maximum cut off values (daily or total) there is no subsidy at all. Coaching is only allowed to last for one year after commitment and there is no restriction on the amount of coaching sessions.[60] The founder can here too choose a coach out of the coaching database by herself/himself.

4.1.3 Changes in the institutional settings of the programs

In April 2011 several institutional settings of both programs changed. This is mainly because both involved federal ministries realized some weaknesses in the programs. Unfortunately, it was not possible to evaluate these changes. The empirical analysis in the following chapter does not consider these changes because the quantitative data only include founders who participated in 2009 and/or 2010. In order to evaluate the changes in the program settings, a new cohort who participated in the programs after April 2011 would need to be drawn and interviewed. Nonetheless, we will give a short overview of the main changes to describe the latest stage of the programs.

The quality of the coaches was the most controversial problem before the changes of the institutional settings took place. Especially the coaches themselves[61] and the regional offices (at which the entrepreneurs need to apply for program participation) criticized this point in face to face interviews with the program actors. Therefore, the new institutional settings restrict the enrollment of

[59] The number of participants in the year of 2008 cannot be used for the judgement of the development of the numbers of participants as the program started only in October of that year.

[60] There are approximately 11 EBCG-UE coaching sessions on average.

[61] Obviously, the coaches did not criticize their own coaching quality, but the quality of other coaches.

coaches in the online platform. Following the new institutional settings coaches need to have two references of coachings conducted in the last 12 months. Furthermore, they need at least three years of coaching experience. Another problem relates to the costs the entrepreneur needs to pay. She/he is committed to pay a particular share of the coaching costs by her/his own. As described earlier, this share differs between 10% (EBCG-UE) and 50% (EBCG, West Germany). The evaluation of the programs hint at an illegal technique. Some entrepreneurs stated that they get their share of the costs back from the coach. In other words the coach refunds the entrepreneur the unsubsidized part of the coaching costs. This would mean the coach and the entrepreneur pickup the subsidy and the entrepreneur does not pay anything for the coaching. This was already forbidden in the original institutional settings. But after these insights the ministries especially included the prohibition of this method.

There were also some changes in the coaching itself. The entrepreneur needs to be present at least 50% of the coaching time. This excludes long web or telephone coaching sessions. Coaching is not allowed to include the design of a website or the creation of advertisement material. The new institutional settings compel the entrepreneur to choose the coach beforehand as most entrepreneurs had chosen a coach before they applied for program participation. Summarizing, the new institutional settings mainly try to assure a better coaching quality and to prevent malpractice.

4.2 The datasets

The data we use to evaluate both programs consist of three different datasets. First, a quantitative dataset from a survey of program participants and comparison groups. Second, a qualitative dataset from face to face interviews with program participants, coaches, and regional offices which are in charge of the selection of the participants. Third, a dataset including regional information to control for regional differences and examine whether the program effects differ by regions. The quantitative dataset is used most extensively in the present study. The qualitative data and the regional information are not analyzed separately but help us draw a more detailed picture of coaching sessions and their effects. In the following we describe the datasets and the data generation process beginning with the quantitative data.

Table 4.1: Number of interviews conducted for the quantitative analysis

Subgroup	Sample	Observations 1st interview	Observations 2nd interview	Observations Estimation samples	Share
EBCG	1	901	527	513	56.94%
EBCG-UE	2	811	507	489	60.30%
EBCG NP	3	2,265	1,154	1,128	49.80%
EBCG-UE NP	4	1,531	834	806	52.61%
		5,508	3,022	2,936	53.30%

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: NP: Non-participants. The share in the last column indicates the share of the estimation sample on the total observations of the 1st interview. As the table shows, this share clearly depends on panel attrition (difference between 3rd and 4th column) and not on item non-response (difference between 4th and 5th column). The share of individuals deleted due to item non-response is below 4% for every sample.

The quantitative dataset consists of two waves of four different samples, namely participants and comparison groups of the two programs. Table 4.1 shows the number of observations of the different samples in both waves. In total 5,508 (3,022) entrepreneurs replied in the first (second) interview. For our analysis we dropped observations with item non-response in variables used in the analysis. As success measures of the first and second interview wanted to be compared and for this comparison the same database is needed, we only used individuals who replied in both waves. Our final estimation sample consists of 2,936 observations. In the groups of non-participants (EBCG NP and EBCG-UE NP) the rate of re-interviewing

is a bit lower versus in the one of participants. The reason for this, is because participants are generally more interested in the study and might have the feeling of giving something back for the subsidy by answering the survey. Therefore, the reply rates of the participants are usually a bit higher. In total, the analysis uses 53.30% of all individuals interviewed in the first survey.

The four samples of the quantitative data are drawn from three different databases. The participants of the program EBCG (sample 1) are drawn from the monitoring-system of the program.[62] This sample is drawn from the persons who got a program commitment in 2009 and started a company in 2008 or 2009. The database to generate the EBCG comparison group (sample 3) is a business directory.[63] It is ensured that the individuals of this comparison group (sample 3) did not participate in the coaching program in 2009. The participants of the program EBCG-UE (sample 2) and their comparison group (sample 4) are drawn from data of the Federal Employment Agency. All individuals of sample 2 and 4 received assistance for the start-up (e.g. start-up subsidy) in 2008 or 2009. This is the eligibility criteria for participating in the coaching program. It is ensured that the individuals of the comparison group (sample 4) did not participate in the coaching program in 2009. By using the same database for these samples the groups of sample 2 and 4 are more similar in their characteristics as the groups of sample 1 and 3. This will also be shown later.

The survey data is generated using a computer assisted telephone interview (CATI). The first survey was conducted from May to August 2011. The reinterviewing took place from February to April 2013. Later it is analyzed whether or not the individuals of our final estimation sample (which only consists of entrepreneurs who answered in both interviews) differ from all persons surveyed in the first wave. As explained earlier only participants who started coaching in 2009 are used in the analysis. Table 4.2 shows the distribution of the founding years for the companies in our estimation samples.

Almost two thirds of all EBCG participants took coaching sessions in the first three years after foundation. There are two main reasons for this. First, the

[62] The monitoring-system is maintained by the reconstruction loan corporation. They collect data with basic informations like gender, age, sex etc. about every participant.

[63] A company called "Creditreform" collects the data for the business directory used. One critique about using this dataset is the underrepresentation of small companies. Using matching this does not harm the analysis as the treatment and control group will anyway be made comparable before estimating the effects. For a more detailed description see section 3.

starting phase of a company is harder to overcome than the following years. This increases the need for coaching in the first years. Second, the probability of being aware of the existence of coaching programs is higher in the initial period after start-up because the entrepreneurs collect more information on subsidies in this period.

Table 4.2: Start-up year of all 2009 inflows into coaching program participation

Year of start-up	2004	2005	2006	2007	2008	2009	2010
⟶					⟶	Coaching ⟶	
Share of EBCG	7.0%	13.7%	14.0%	19.7%	19.5%	26.1%	
Share of EBCG NP	11.0%	15.1%	15.9%	22.3%	17.7%	18.0%	
Share of EBCG-UE					32.1%	67.9%	
Share of EBCG-UE NP					24.4%	75.6%	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: NP: Non-participants.

Beside this quantiative survey data we also use data from face to face interviews. This data was conducted during an implementation study before the quantitative survey started. It consists of 45 interviews, 15 with each of entrepreneurs, their coaches and the regional offices where the entrepreneur needed to apply for program participation. Table 4.3 summarizes the number of observations of the qualitative part of the survey.

Table 4.3: Number of observations used in the qualitative analysis

Group	Observations
EBCG/EBCG-UE participants	15
Coaches	15
Regional offices	15
$\sum$	45

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Regional offices are the offices where the entrepreneurs need to apply for program participation.

Using these 90 minutes interviews has the advantage of allowing us to consider more than one viewpoint concerning the coaching program. The 45 interviews were constructed in the way that exactly those coaches were interviewed who conducted the coaching with the interviewed entrepreneur. Moreover, the regional office is interviewed at which the surveyed entrepreneur applied. This interview technique is called triangulation (Flick 2008, p. 11 ff.). Especially the interviews with the

coaches are valuable in providing further information on the coaching process and the entrepreneur as the coaches are not interviewed in the quantitative analysis. Additionally, we are able to compare the statements of the coach and the entrepreneur considering the same coaching process. Furthermore, the results of the quantitative analysis can be compared with the results of the qualitative analysis. With this unique combination of quantitative and qualitative information we are able to answer why entrepreneurs self-select into coaching and why coaching has effects on some entrepreneurs and not on others.

The dataset we use includes heterogeneous entrepreneurs, companies and coachings. This results from the few prerequisites for the program participation and only minor restrictions concerning the coaching topics. The dataset includes firms in different founding stages (described in section 2.1) which make use of different coachings. Furthermore, many characteristics of the founders including sociodemographics, labor market history, personality traits, wealth and income information are observed. The rich dataset enables us to determine which specific characteristics of the founder and the company are driving the selection process into coaching. If there are unobserved differences between the characteristics of participants and non-participants and these characteristics influence the success of the company the estimated program effect will be biased. This is because the success of participants and non-participants differs even in the absence of the program, which is known as "selection bias". It is a major problem in evaluations comparing treated and non-treated individuals. Therefore, the analysis will examine the selection process in detail and clarify which variables are important to include in an evaluation to solve the selection problem. The exact methodological approach and its difficulties were described in section 3.

As a third pillar, we use regional data of the Federal Institute for Research on Building, Urban Affairs and Spatial Development to get an insight whether program effects differ by regions. The dataset is called INKAR[64] and includes several indicators on the most detailed level of administrative regions. The dataset includes characteristics of the labor market, education, environment, health, living conditions and many more. We combine the INKAR dataset with the quantitative survey results in order to analyze in which areas coaching is useful and in which it is not. This gives a novel insight on regional variation in coaching effects, as they may only be effective in some regions. Considering for example a region with a lot

[64]Indikatoren und Karten zur Raum- und Stadtentwicklung in Deutschland und in Europa.

of entrepreneurs versus a region with almost no entrepreneurs, it is probable that generating know-how about how to set up a company is easier in a very innovative region because there is a lot of information "in the neighborhood". These spillover effects might reduce the effect of coaching as other information/learning channels are present and might be even more helpful than coaching. On the other hand, the competition in such areas might be higher and coaching can help to withstand this competition. A second example might be a region with high unemployment. It may be the case that companies in these regions have more business problems, e.g. selling their products due to the poor labor market conditions. Coaching might help to overcome business problems, hence extend the survival in self-employment for the entrepreneur. The merging of the quantitative survey data and the regional data provides the unique possibility to analyze these effects.

In the present and following chapters we do not look at the quantitative and qualitative data separately. It is more rewarding if these two ropes are intertwined. The main pillar of the analysis is the quantitative data. We will not analyze the qualitative data in a separate section. Instead, it is used whenever it is useful to look into a topic more detailed. Furthermore, it will help answer questions not asked by the survey of the quantitative dataset. As mentioned earlier, using this combination of datasets will draw a detailed picture and lead to a better understanding of coaching effects. At the same time the statements have the statistical power through the quantitative analysis. Furthermore, there is the rare possibility to analyze regional effects by using the dataset including regional characteristics.

4.3 Panel attrition

In the following we analyze whether persons surveyed in the second interview differ regarding their characteristics from those interviewed in the first one. On the one hand, it can be imagined that more successful founders have a lower participation probability in the second interview because they are too busy to pick up the phone for the interview. On the other hand it is possible that more successful founders are more likely to communicate their success and are therefore participating in the second interview more often than unsuccessful entrepreneurs. Both scenarios would bias the results as they lead to selective panel attrition. In these cases it is important to control for these different participation probabilities. This would be done via a weighting process. The individuals answering the second interview would be weighted by the inverse probability of participating in this interview (Wooldridge 2010, p. 840 ff.). Consequently, the weighting procedure would balance out the different participation probabilities as the weights of individuals with a low participation probability would be inflated.

As mentioned before we only use individuals who answered both interviews. Furthermore, some observations are not used due to missing information; e.g. item non-response. Finally, our estimation sample consists of 2,936 persons in total. Table 4.1 shows the number of observations of all four samples.

To test for selective attrition we directly compare individuals who answered in the first survey with individuals who are in our estimation sample.[65] The methodological approach is rather intuitive. We analyze whether or not there is selective attrition by comparing several success/outcome variables between all individuals and the ones in our estimation sample. We consider outcome variables gathered in the first interview because these are observed for all individuals. Outcome variables of the second interview cannot be used as they are not observed for the individuals only replying in the first wave. It is tested whether the individuals who are in our estimation sample already differed from all individuals at the time of the first interview. If this is the case, the estimation sample is a selective sample. This test is conducted among all groups separately via a t-test. Table A.4 and A.6 show the means of the considered variables for the participants and table A.5

[65] It is also possible to check whether the individuals answered in the first interview differ from the ones who answered in the second interview. We argue that it is even more useful to directly test for differences between the estimation sample and the individuals of the first interview. The advantage of this approach is that we also check whether there is selection due to dropping observations.

and A.7 show the means for the groups of non-participants.

Table A.4 shows that there are no significant differences in the variable means of EBCG participants who answered in the first survey and those who are in the estimation sample. Hence, there is no clear evidence for a selective attrition process. The participants who are in the estimation sample are a bit more successful in terms of employment status and income. But these differences are small and not significant. Therefore, a weighting because of panel attrition is not necessary.

This test of differences is also conducted with the three other samples, namely EBCG-UE and EBCG non-participants (table A.5 and A.7), and EBCG-UE participants (table A.6). All t-test except one are not statistically significant. This means that there is no difference in terms of success between the individuals who replied in the first survey and the ones in our estimation samples. The only exception is the survival rate of the EBCG control group. It is significantly higher in the estimation sample compared to all entrepreneurs surveyed in the first interview. The share of self-employed among all surveyed entrepreneurs is 87.2% and the one in our estimation sample is 89.6%. As this is the only difference among the groups and the attrition in the group of EBCG participants shows in the same direction (86.8% all surveyed entrepreneurs, 87,7% estimation sample), we decided not to weight the individuals even though there is a small difference between the groups.

4.4 The selection process into the programs

It is well known that selection is a main concern when evaluating the effects of labor market programs. If there is a selection into program participation which leads to differences between the comparison group and the treatment group the differences need to be taken into account. Otherwise the estimates for the program effectiveness will be biased. Section 4.4.1 will describe the methodological approach to model the selection process. In section 4.4.2 we will state the main concerns how the selection process could harm our analysis and how these problems are appropriately taken into consideration. Section 4.4.3 will give a detailed overview of potential selection due to the entrepreneurs' characteristics and their environment and states hypotheses. These theoretical considerations will be tested in section 5.2 and 6.2 empirically.

4.4.1 Modelling the selection process

Solving the selection problem is a main task in the evaluation of labor market programs. Many aspects might influence the program participation decision. Characteristics which influence the probability of participation and the success of the enterprise at the same time will complicate the analysis. If one of these characteristics is not observed, we are not able to assign the estimated program effect to the treatment as it may be an effect of differing participation probabilities according to the unobserved characteristic. Nonetheless, the presence of variables which affect participation and success is common. Examples would be information as education, job experience, industry experience, intergenerational transmission. Therefore, one needs to control for all these variables to calculate the program effect. As mentioned before we use the methodological approach of PSM. In a first step one needs to estimate the program participation probability for every individual. We do so by applying a simple probit model.

$$D_i = \beta_0 + \beta_i X_i + u_i \tag{4.1}$$

In this equation D_i specifies the treatment indicator being 1 for coaching participants and 0 for the comparison group. X_i are several covariates of sociodemographic characteristics and pre-start-up conditions, as for example motivation, lifetime employment and experience. This approach is commonly used in estimat-

ing propensity scores in matching procedures (Caliendo and Kopeinig 2008).

In contrast to most other studies psychological aspects such as the "Big Five", the "locus of control" and the risk preference are also observed and controlled for.[66] These characteristics are also referred to as personality traits. The Big Five model was developed by Costa et al. (1992) and classifies personality into five factors, namely openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Individuals who register high in openness are willing to try new things and are more open for changes. Persons scoring high in conscientiousness are always prepared, are scheduled, and act dutiful. Individuals scoring high in extraversion like to talk, do not mind being the center of attention, and enjoy interacting with other people. Individuals with high values of agreeableness are cooperative, have a trusting nature, and have an optimistic view of human nature. The character of neurotic persons is shaped by emotional instability. They regard minor problems as difficult to solve.

The locus of control is a concept developed by Rotter (1966) and measures whether a person is convinced that one can influence her/his life through own actions or that everything happens by chance. A person with an internal locus of control thinks she or he can influence future outcomes by todays actions. Individuals with an external locus of control do not believe this. These psychological variables are also part of the control variables (X_i) in the present analysis. To estimate the program effect each individual in the comparison group is weighted due to her/his program participation probability as described in section 3. In the case of selection on observables this solves the self-selection problem. "Selection on observables" means that all relevant variables influencing the selection process are observed and present in the dataset. As described before matching leads to biased estimates if the selection process is influenced by unobserved variables.

4.4.2 Main selection concerns

As mentioned before, due to the reason that program participation is not random there is a selection process. This selection process is driven by two actors, the entrepreneur and the case worker. The selection by the entrepreneur is called

[66] These characteristics are also measured at the two interviews which were both conducted after treatment. Thus, there is the possibility that these characteristics are influenced by treatment. Following the literature (Cobb-Clark and Schurer 2011, 2012), we assume that these characteristics are stable over time.

"self-selection" and the selection by the case worker is called "administrative selection". The selection by the case worker takes place in the regional office where the entrepreneur has to apply for program participation. If the rejection rate of applicants would be very high (which is not the case) it could mean that only the best entrepreneurs get the support. This would lead to differences in the success of the company between treated and not treated individuals due to the case worker selection which would bias the results. In the qualitative interviews the regional offices stated that only about 5% of the applicants were rejected. The application consists of a one-on-one appointment during which the case worker checks whether or not the candidate fulfills the requirements. The qualitative interviews with the regional offices show that the appointment is more about checking the requirements than a real application process. Many entrepreneurs know their chosen coach before this first appointment with the regional office. The entrepreneur often gets advice by the coach how to get through the application process. In some cases the coach is even present at the appointment of the entrepreneur with the case worker. In cases where the requirements are not fulfilled the entrepreneur gets advice by the case worker to fulfill the requirements. These findings point to a not restrictive institutional selection process. Because of these findings we argue that the selection process through the case worker (and the institutional requirements) does not bias our results.

The second actor who drives the selection process is the entrepreneur. The participants self-select into the program. It might well be the case that only entrepreneurs with unsuccessful companies apply for program participation. This would mean that the group of participants have on average a weaker firm performance than the one of non-participants. The lack of information regarding firms' success before coaching would bias the results. The dataset allows us to control for firm performance before program participation. This is done via including the income of the year before program participation, the number of employees at the time of start-up, and the start-up capital in the estimation procedure. We conclude that we can solve the main problems of selection due to these information about the firms before participation. Furthermore, the selection through the case workers is not problematic as very few applications get rejected.

Beside the concerns of selection due to the case worker and due to the performance of the enterprise there are several other factors influencing the participation probability. The participants might differ in their characteristics (e.g. sociodemo-

graphic characteristics) from individuals who do not choose to participate in the program. These characteristics might not only influence the participation probability but also their success. Imagine that entrepreneurs with a higher education are more successful. At the same time it is possible that better educated entrepreneurs are more responsible and well-informed. Because of that the probability that they know the program is higher. In this case the participation probability as well as the success probability are positively affected by education. As mentioned above, this means we have to take education into account when estimating the program effects. The following subsection will consider characteristics influencing the selection process and hypothesize in which way they influence this process.

4.4.3 Theoretical considerations

After the general explanations about selection effects in the previous subsections we will now look more detailed at the selection processes into the German coaching programs EBCG and EBCG-UE. We will first describe possible selection processes and create hypotheses.[67] These hypotheses are tested in section 5.2 for the program EBCG and in section 6.2 for the program EBCG-UE.

The question why someone should participate in a subsidized coaching program can be answered differently. Even if the program is very generous and does not have high entrance barriers we can think of several reasons for not participating in the program. An entrepreneur with almost no liquidity constraints might not see the importance of a subsidy, hence do not collect information of subsidizing programs. The maximum subsidy of 4,500 € (EBCG, East Germany) may not sound very attractive for an entrepreneur with 100,000 € start-up capital. Naturally, needy people are more likely to partcipate in a subsidizing program. Nonetheless, entrepreneurs without any start-up capital cannot afford the coaching even if it is partly subsidized. This should result in an inverse U-shaped pattern of participation probability concerning the start-up capital. Entrepreneurs with low start-up capital cannot afford the subsidized coaching. Entrepreneurs with a very high start-up capital do not need the support. This leads to the following hypothesis.

[67] For the sake of convenience the hypotheses are stated in an abbreviated manner. The comparison categories are not mentioned. For example, hypothesis H1 is "Entrepreneurs with middle range start-up capital have a higher program participation probability (than entrepreneurs with low or high start-up capital). We leave out the term in brackets. The same holds for all hypotheses. The results shown in tables A.8 to A.15 will be used during the analysis. These tables show all categories.

H1: Entrepreneurs with middle range start-up capital have a higher program participation probability.

Concerning the experience of self-employment the most obvious argument is the following: Experience in self-employment helps entrepreneurs solve problems on their own. In previous founding processes they learned how to handle challenges arising in the first stages of an enterprise. These reasons decrease the participation probability of entrepreneurs with experience in self-employment. Another reason for not participating is that coaching is not needed, or not considered as necessary in many firms, as the new venture is not facing any problems. This can arise due to the lack of ability of the entrepreneur to realize the problems. We argue that this lack diminishes with increasing experience in self-employment. This could increase the participation probability for entrepreneurs with experience in self-employment. Having experience in self-employment also means (at least in some cases) that the founder needed to shut down a previous enterprise. This might also increase the participation probability as the founder does not want to make the same mistake again. We argue the first mentioned point is the strongest and overcompensates the other effects. This leads to the hypothesis that entrepreneurs without experience are more likely to participate in coaching programs since the ones with experience know how to solve business problems without assistance.

H2: Entrepreneurs with a short lifetime self-employment have a higher program participation probability.

Beside the experience of self-employment we can also think about more specific experience, namely industry experience.[68] We argue that entrepreneurs with industry experience through a former self-employment are even more able to meet the challenges of a new founded enterprise than entrepreneurs with self-employment experience in other fields. Therefore, conditional on having self-employment experience, founders with industry experience should have a lower participation probability than entrepreneurs without this experience. It is also possible to separate

[68] We set "industry experience" equal to "experience within the field of work before start-up". The original survey question was: "Did you have experience in the field of work in which you are self-employed before start-up? Due to dependent employment: yes/no; Due to previous self-employment: yes/no; Due to hobby activities: yes/no".

the root of the industry experience. We observe whether the industry experience is due to former self-employment, former dependent employment or hobby activities. Whereas we hypothesize that industry experience will lower the participation probability we will not draw a hypothesis about the different effects of different roots of industry experience.

H3: Entrepreneurs without experience within the field of work before start-up have a higher program participation probability.

As stated in section 4.1.1 the subsidy rate for the program EBCG is higher in East Germany than in the other regions. This channels the entrepreneurs to participate in the program if they live in East Germany. Therefore, we hypothesize (for the program EBCG) that the participation probability is higher for entrepreneurs living in East Germany.

H4: Entrepreneurs in East Germany have a higher program participation probability (only hypothesized for program EBCG).

Another aspect influencing the participation probability arises from intergenerational transmission. Founders with at least one self-employed parent are less likely to participate in coaching because they use private assistance by their family instead of outside assistance (Lentz and Laband 1990). They face less problems in setting up their business and do not need assistance. Intergenerational transmission can therefore replace outside assistance. This might also be an indirect effect as entrepreneurs with self-employed parents are more successful and these entrepreneurs look for outside assistance less often. Beside the general experience the parents share with their children, this higher success rate also comes through the industry specific human capital of the children by following their parents' path (Laband and Lentz 1985, p. 37 ff.). Therefore, we hypothesize that not having self-employed parents increase the likelihood of participating in coaching.

H5: Entrepreneurs without self-employed parents have a higher program participation probability.

A similar argument can be made for the private assistance due to a spouse. This tie is probably less close than the intergenerational transmission tie. But in the start-phase of an enterprise it is important to talk to persons who look at the company from the outside. Sullivan (2000) states that it is good to have some support. This can be through other employees, family members or coaches.[69]

H6: Entrepreneurs who are not married have a higher program participation probability.

Chrisman and McMullan (2004) point out the knowledge gap of entrepreneurs looking for outside assistance. A founder needs to be a "Jack-of-all-Trades" entrepreneur (Lazear 2004). This means a founder neither needs to be outstanding in every skill nor in a single skill but she/he needs a basic understanding of all tasks. Supposing many entrepreneurs are not this stereotype of person they need assistance. This help is often generated internally through employees. However, the majority of all business founders in our dataset are solo-entrepreneurs. Therefore, in order to get all tasks done properly these entrepreneurs need to look for outside assistance or hire employees. Thus, we argue that solo-entrepreneurs have a higher probability of using coaching.

H7: Entrepreneurs without employees have a higher program participation probability.

Earned net income of a self-employed individual might be a good indicator whether or not she/he is looking for assistance. Earned net income is a clear success indicator. An entrepreneur with a low income probably leads a company facing more problems or has liquidity constraints. Hence, these entrepreneurs tend to need coaching more often. Therefore, we hypothesize that a low income increases the program participation probability.

[69] It might as well be that other social ties such as friends or partners help the entrepreneur. However, the data does not include more variables on social ties.

H8: Entrepreneurs with a low earned income have a higher program participation probability.

Another success indicator is the motivation for foundation. Does the entrepreneur found the company because of a good opportunity (e.g. a brilliant business idea) or out of necessity (e.g. needs more money)? The literature shows that start-ups resulting from necessity are less successful than start-ups resulting from opportunity (Caliendo and Kritikos 2009b).[70] We argue that start-ups out of necessity (push motives) have a higher program participation probability because they are less successful and therefore need to consult a coach more often.

H9: Entrepreneurs with push motives (necessity entrepreneurs) have a higher program participation probability.

As explained earlier, the locus of control measures whether a person thinks everything in business life happens by chance or whether the person can influence their business life. Individuals with an external locus of control possibly believe that coaches can influence their job success, since these types of individuals think that they cannot influence their lives themselves. This attitude might lead to the fact that they think coaches can influence their job success. Thus, we argue that entrepreneurs with an external locus of control look for coaching more often than ones with an internal locus of control. Moreover, persons with an internal locus of control are more successful (Begley and Boyd 1987; Evans and Leigthon 1989). This, in turn, decreases the probability of looking for help of individuals with internal locus of control even more as more successful people need less help. Therefore, we hypothesize that entrepreneurs with an external locus of control are more likely to participate in the programs than people with an internal locus of control.

H10: Entrepreneurs with an external locus of control have a higher program participation probability.

[70] Caliendo and Kritikos (2009b) show that there is actually a third group of start-ups resulting from opportunity *and* neccessity. This group is more successful than the start-ups out of necessity.

Whether or not the ten hypotheses can be verified will be analyzed in section 5.2 for the program EBCG and in section 6.2 for the program EBCG-UE. These findings will help us to characterize which kind of individuals participate in coaching.

What has not been discussed until now, is whether the existence of the program is common knowledge, not only among participants, but also among non-participants. As we will show in section 5.2 and 6.2 this is clearly not fulfilled as not all non-participants know the program. To be aware of the program is a large issue in modeling the selection process. The selection process can be seen as a two step procedure. First, the entrepreneur has to be aware of the program, second she/he is looking for advice. The hypotheses mentioned above only consider the second step. But the two steps are not independent of each other. For example for an entrepreneur who is married, has employees or self-employed parents the probability of knowing the program is higher because there is a chance that the entrepreneur might get information about the coaching program by one of these persons. These interactions between the awareness of the program and the other variables influencing program participation help us with our estimation strategy. As mentioned in section 3 an omitted variable only leads to selection bias if its influence on participation probability is not highly correlated with any of the observed covariates. As we just argued the probability of being aware of the program is likely to be correlated with other covariates (being married, having self-employed parents etc.). This would mean that we do not have to include the variable "awareness of the program" in the estimation of the propensity scores. Furthermore, it is technically not even possible to include this variable in the probit model estimating the program participation probability. This is because this variable perfectly predicts program participation as all participants obviously know the program. Because of these two reasons we do not use the variable in the estimation procedure. Nevertheless, the information whether or not the entrepreneurs of the control group are aware of the programs gives us the unique possibility to firstly analyze whether or not the awareness of the program is a main reason for not participating in the program and secondly to conduct sensitivity checks by limiting the comparison group to entrepreneurs not being aware of the program.[71]

[71] The latter only matters for the analysis, if the two groups (non-participants not being aware of the program and ones being aware of it) differ in unobserved characteristics and these characteristics also influence the success of the enterprise.

To the best of our knowledge there is no study available in the existing public policy evaluation literature which is able to address these concerns in depth as the information whether or not non-participants are aware of the program is commonly missing in the datasets. Therefore, our results are equally important for researchers conducting public policy evaluations and policy makers. The latter group gets insights about the awareness of ALMP programs and can use it as a basis whether these programs should be more advertised while researchers get a feeling about how important this variable is for the selection process.

4.5 The coaching sessions

This section describes the coaching sessions via the two German coaching programs, EBCG and EBCG-UE. It gives the most up to date picture of the coaching landscape in Germany. Combining qualitative and quantitative data it gives a novel insight on coaching practices.

We pointed out the differences in the various types of coachings. Coachings mainly differ in contents, quality, quantity, and the point of the company's life time when the entrepreneur requests the coaching. These differences also influence the impact of coaching regarding the success of the entrepreneur. Chrisman and McMullan (2004) for example find evidence for a curvilinear relationship between amount of outside assistance in preparing to start an enterprise and performance of the company. Meaning that outside assistance has decreasing marginal effects on later firm outcomes. Table 4.4 shows the main coaching characteristics.

Only 34% (36%) of the EBCG (EBCG-UE) participants compared prices and services of different coaches. Having in mind that a) coaching may be a very valuable process in keeping the company alive and b) many entrepreneurs lack financial capital, this share is very low. Obviously one reason for not comparing the prices of different coaches is that 53% (45%) of the EBCG (EBCG-UE) participants knew the coach before coaching. 44% of the EBCG participants who knew the coach before coaching, know her or him because the coach also supervised the entrepreneur during the start-up period. Among the participants of EBCG-UE this share is 62%.

The average amount of coaching sessions is 11.5 (11.0) among EBCG (EBCG-UE) participants. As the maximum coaching costs are 6,000 € (4,000 €) in EBCG (EBCG-UE) and the maximum daily coaching costs are 800 € the budget lasts only for 7,5 (5) days if the coach charge the maximum daily coaching costs. This means that there are many coaching sessions which do not last a whole day. Moreover, the qualitative analysis shows that most of the coaches (13 out of 15) charge the maximum amount of 800 € per day for subsidized coachings. Only 3 out of the 13 coaches charge more than 800 € per day for not subsidized coachings. This shows that only few coaches charge different amounts for subisidized and not subsidized coachings. This again, means that the quality of subsidized coachings is probably not different from their coachings without subsidies.

Coaching contents cover a wide scope of topics. Topics directly influencing

the growth of the company as "personnel decisions" and "growth intentions" are relatively rarely reported in comparison to other coaching topics. This has several reasons. As argued earlier, some entrepreneurs do not have the intention to let their business grow or they are still in a too early stage to generate growth. Furthermore, it is a lot harder to realize coaching needs in these topics than in areas like marketing and sales for example. This is simply because sales are directly measured in numbers. Undesirable developments in sales are therefore a lot easier to detect than ones in "personnel decisions". Another reason is the complexity and difficulty of advice due to "personnel decisions". Most coaches asked in the

Table 4.4: Characteristics of coachings in the programs EBCG and EBCG-UE

	EBCG	EBCG-UE
Entrepreneur compared prices and services of different coaches	33.92	35.58
Entrepreneur knew the coach already before coaching	53.41	45.40
Coach already supervised start-up	44.16	61.82
Number of coachings (total)	11.50	10.94
Specific reason for consulting the coach	77.15	80.29
Coaching topic		
Marketing	83.04	89.98
Optimization of business idea	80.47	84.66
Financial questions	70.31	70.37
Dealing with customers	63.67	67.08
Sales	66.80	65.98
Accounting, administration, and controlling	60.82	60.53
Law questions	54.60	60.99
Growth intentions	51.66	37.70
Personnel decisions and management	39.96	28.34
Coaching quality (1: bad, 7: good)	5.78	5.71
Coaching effect (1: very negative, 7: very positive)	5.27	5.21
Satisfied with coaching (1: very dissatisfied, 7: very satisfied)	5.76	5.92
Setting up specific coaching targets during coaching (yes, no)	91.99	88.89
Achieved coaching targets (1: not at all, 4: totally)	3.01	3.01
Coaching mode (multiple answers possible)		
Single	96.49	97.75
Group	14.62	7.57
Seminar	13.06	10.43
Received own share back from the coach	9.68	8.09
Further coaching after the end of the program		
Yes, by the same coach	20.16	18.00
Yes, by another coach	6.65	6.34
No	73.19	75.66

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise.

face to face interviews of the qualitative part of the analysis have relatively simple coaching methods and supply assistance in basic topics. Some coaches teach the entrepreneurs general tasks like creating business plans, communicating with investors, banks and customers, others try to find out more about the personality and whether the business idea needs to be shifted to fit to the personality of the entrepreneur. Even though coaching may affect growth and the number of employees, these relatively complex coaching topics are less often discussed in coaching sessions than more general topics such as marketing and optimizing the business idea.

Interestingly, a main coaching topic is the "optimization of the business idea". This reveals one important problem of new ventures, as they tend to start-up their business too early. Often founders have immature business concepts. The success probability of a company is higher if the business idea is developed enough at the time of foundation. 80% of the EBCG participants point out the "optimization of the business idea" as topic during their coaching sessions. This is an even bigger issue among start-ups out of unemployment, where 85% of EBCG-UE participants state that the "optimization of the business idea" was a coaching topic during their sessions.

Table 4.5: Coaching details

	EBCG	EBCG-UE
Duration of coaching (in months)		
1–2	27.39	24.10
3–4	21.58	17.57
5–6	15.77	18.47
> 6	35.27	39.86
Number of coaching sessions		
1–4	8.41	8.83
5–10	58.32	55.44
11–20	24.07	27.52
> 20	9.20	8.21

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise.

On average program participants rate the coaching quality as good. On a scale from 1 (indicating bad coaching quality) to 7 (indicating good coaching quality) the EBCG (EBCG-UE) participants rate the quality on average as a 5.8 (5.7). Furthermore, participants of both programs state that they experience a positive coaching effect and that they are satisfied with the coaching. Almost every en-

trepreneur stated that coaching targets were set up during the coaching sessions. This share is 92% among EBCG participants and 89% among EBCG-UE participants. Most participants reported that they achieved the coaching targets. On a scale from 1 (coaching targets not at all achieved) to 4 (coaching targets fully achieved) EBCG and EBCG-UE program participants state on average 3. Every fifth EBCG participants participated in another coaching with the same coach after program participation. Among EBCG-UE this share is slightly lower.

Even though the maximum amount of coaching costs is not very high using EBCG (6,000 €), some coachings last several months as table 4.5 shows. More than 50% of the coaching processes take more than four months. The lower panel of table 4.5 shows that the number of coaching sessions is mostly in the range of five to ten sessions. But there is not an insignificant amount (8% to 9%) of coaching processes with > 20 sessions.

5

The Evaluation of the Program EBCG

The present chapter describes the participants of the program "External Business Coaching Germany" (EBCG) and the participants' companies and analyzes the effects of this program. It compares the success of these entrepreneurs with an adequate comparison group. Hence, the effects of the program can be determined.

The effectiveness of coaching is analyzed based on success variables, e.g. the survival probability of the entrepreneur in self-employment, earned income of the entrepreneur, and number of employees. Furthermore, we will analyze whether the program affects subjective measurements of "success" such as life and job satisfaction. Methodologically, coaching effects will be evaluated via a PSM approach.

The results show that the program has negative effects on most of the outcome measures. Coaching decreases the survival probability in self-employment in the long term. Furthermore, it decreases individual earned income and the number of employees in the entrepreneurs' companies. Conducting an extensive sensitivity analysis does not change the results. Interestingly, the negative results are neither driven by bad coaching quality nor by the fact that the comparison group participated in alternative programs with better effects. Furthermore, the data allow for an unusual possibility of a sensitivity check. The negative effects might be driven by the fact that individuals of the comparison group know the program but decided not to participate in it, for lack of coaching needs. We are able to identify these individuals of the comparison group. In the sensitivity analysis we exclude these individuals to check whether the coaching effects change by using

this trimmed comparison group. However, the coaching effects remain negative. Hence, lesser coaching needs of the comparison group are not the reason for the negative effects. But effect heterogeneity shows that the effects of the program are differing by subgroups. The negative effects on survival in self-employment are driven by men. There are neither positive nor negative significant coaching effects on survival in self-employment among women. Interestingly, coaching has less negative effects on survival in self-employment for low educated than for high educated. But it has more negative effects on income and satisfaction for low educated than for high educated. Coaching has less negative effects in regions with a high unemployment rate and in regions with a low self-employment rate.

This chapter is organized as follows:[72] First, section 5.1 will show descriptive evidence of the program and the participants and non-participants. With a detailed empirical part it will contribute to the picture about coaching practices in Germany and analyze which type of individuals participates in coaching. Following that, section 5.2 will demonstrate an in-depth analysis about the selection process into coaching programs. It will be analyzed in detail which characteristics lead to program participation. This will be done via a probit model which is also the first stage of the matching procedure. The probit model calculates the probability of program participation based on participants' individual characteristics. These participation probabilities are transformed into individual scores which will be used for the effect estimation in the second stage of the matching approach. In section 5.3 we will estimate the program effects via PSM. We will intensively discuss the main effects of the program EBCG (section 5.3.1), before effect heterogeneity will be considered in section 5.3.2. This will be done by analyzing whether or not the effects differ between different subpopulations. The sufficiency of the estimation will be shown in section 5.4 by demonstrating the matching quality.

As the program effects are surprisingly negative we will conduct an extensive sensitivity analysis in section 5.5. We will test whether the results hold even if we rule out several effects which might drive the negative effects such as bad coaching quality or the use of an inadequate comparison group. This analysis of coaching effects for entrepreneurs will draw the most detailed picture in the scarce coaching literature. Finally, section 5.6 concludes.

[72] Some aspects of this chapter were developed during a research project analyzing the effectiveness of the programs EBCG and EBCG-UE (Caliendo et al. 2014a). This project was joint work with M. Caliendo, A. Kritikos, S. Künn, H. Schröder and H. Schütz.

5.1 Descriptive analysis

There are two main aims in this section. The first aim is a description of the kinds of individuals and enterprises that are considered. It is essential to get an understanding of the people that make up the EBCG program group and the comparison group. There may be individuals with distinctive educational or personal backgrounds, experiences and motivations. These are important details to be aware of, when it comes to the interpretation of the effects of the program. For example, a fifty-year-old entrepreneur with 100,000 € start-up capital and a university degree who founds an IT company in a big city with five other friends, is assumed to react and perceive the coaching intervention very differently to an eighteen-year-old, low educated entrepreneur who alone opens up a hair salon in a small town. These differences also point out the fundamental importance of starting conditions of the company, e.g. the start-up capital. Therefore, it is also important to get an understanding of the type of business that is to be set up. This section describes both, the characteristics of the entrepreneurs and the characteristics of the start-ups. In the present descriptive part we use the means of the variables of the observed entrepreneurs and enterprises to describe the groups. This is a common method in quantitative analyses. Furthermore, we use qualitative interviews to reconsider the description of the persons observed.

The second aim of this section is a descriptive comparison between participants and non-participants. We have a first look at this topic by comparing the means of the groups with a t-test. This descriptive evidence is to get a first impression about the differences in the groups of participants and non-participants. We discuss the selection process for this program in section 5.2 in more detail through an econometric model.

Table 5.1 shows means of basic sociodemographic characteristics of EBCG participants and their comparison group. The very right column shows the p-value of a t-test. If the p-value is below 0.05 the means of this characteristic differ significantly on the 5% significance level between the groups. There are 32.9% females in the EBCG participating group and 24.4% in the non-participating group. The participants are on average about 39.5 years old. 38.2% of participants are in the age group of 35 to 44 years, which is by far the largest group. A large share of observed individuals stated “apprenticeship” as highest vocational degree. This share is 38.0% among participants and 42.7% among non-participants.

Table 5.1: Personal characteristics of entrepreneurs

Variable	EBCG-P	EBCG-NP	p-value
Female	32.94	24.38	0.0003
Age (in years)	39.54	38.54	0.0341
Age bracket			
< 25 years	2.73	4.70	0.0617
25–34 years	29.82	30.32	0.8398
35–44 years	38.21	38.92	0.7839
45–55 years	24.95	23.32	0.4712
> 55 years	4.29	2.75	0.1019
Migration background	12.28	17.55	0.0068
Living in East Germany	52.83	19.50	0.0000
Handicapped	3.12	4.34	0.2385
Married	54.00	64.36	0.0001
Highest school degree			
No degree, lower sec. school, others	8.77	14.98	0.0005
Middle secondary school	35.28	40.07	0.0648
Upper secondary school	55.95	44.95	0.0000
Highest vocational degree			
No degree, in training, others	4.29	5.14	0.4571
Apprenticeship	38.01	42.73	0.0719
Advanced technical degree	18.91	24.38	0.0141
University degree	38.79	27.75	0.0000
Parents are/were self-employed	35.87	44.77	0.0007
Persons in household	2.77	2.89	0.0792
Single household	16.18	13.39	0.1338
Two person household	30.41	29.96	0.8556
Three person household	24.56	22.96	0.4785
> Three persons in household	28.85	33.69	0.0518
Child(ren) below the age of six	27.74	23.13	0.0646
Net household income (€/month)	3,519.31	4,371.37	0.0026

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The characteristics refer to the time of the 1st interview which was conducted 16 months after the end of the coaching process on average.

Only 12.3% and 17.6% of participants and non-participants, respectively, have a migration background.[73] The shares of people living in East Germany vary widely between participants and non-participants. 52.8% of the participants live in East Germany, whereas only 19.5% of the non-participants do so. This shows the influence of the institutional settings. In East Germany 75% of the coaching

[73]We define a person with migration background as one who does not have the German citizenship or has at least one parent not born in Germany.

costs are covered by the program, whereas this rate is only 50% for the other Federal States of Germany (including Berlin). Nonetheless, we cannot exclude the possibility that the reasons for the different regional shares are more complex. Individuals living in East Germany might also face more economic problems with their enterprises or are more open to external assistance which would both lead to a higher participation probability.

54.0% of the participants are married. This share is 64.4% for the non-participants. This already indicates that singles look for assistance more often. As argued earlier, spousal advice might also reduce coaching needs. This will be further discussed in section 5.2. Despite the large share of not married individuals, only very few of the observed persons (13.4% to 16.2%) live in single households. The non-participants are lower educated than the participants in terms of school degree. The share of people with upper secondary school degree is 56.0% for participants and only 45.0% for non-participants. The picture is the same for the highest vocational degree. Participants have a university degree more often, than non-participants. The share of individuals with university degrees is 38.8% among participants and only 27.8% among non-participants. This shows that coaching is not a type of external assistance that mainly low educated look for to compensate for their lower education. It is quite the opposite: The participants in coaching are higher educated than non-participants. The reason might also be that individuals with apprenticeship or advanced technical degree have less coaching needs. Additionally, it might also be that individuals with a university degree are more able to detect problems within their company, hence, look for coaching more often. The shares of individuals with self-employed parents are a first validation of hypothesis H5, saying that entrepreneurs without self-employed parents have a higher program participation probability.[74] Participants have in 35.9% of the cases self-employed parents whereas this number is 44.8% for non-participants.

The large differences between the observed participants and non-participants point out that it is not possible to estimate the coaching effects without taking the differences in characteristics into account. 11 out of the 26 means of personal characteristics observed differ significantly between participants and non-participants on the 5% significance level.

[74] However, these shares are unconditional descriptive numbers. The verification of the hypotheses stated in section 4.4.3 will be done in section 5.2 where conditional effects are estimated using an econometric model.

Table 5.2: Professional characteristics of entrepreneurs

Variable	EBCG-P	EBCG-NP	p-value
Lifetime employment (in years)	21.83	22.84	0.0592
$<$ 5 years	3.12	1.33	0.0136
5 – $<$ 10 years	7.99	7.45	0.6997
10 – $<$ 20 years	32.36	28.72	0.1360
$\geq$ 20 years	56.53	62.50	0.0218
Lifetime self-employment (in years)	6.26	5.60	0.0029
$<$ 2.5 years	13.06	9.66	0.0393
2.5 – $<$ 4 years	16.96	19.86	0.1650
4 – $<$ 6 years	27.88	33.42	0.0252
$\geq$ 6 years	42.11	37.06	0.0516
Employment status before start-up			
Dependent employment	32.55	61.35	0.0000
Self-employed	20.47	6.74	0.0000
Unemployed	33.92	20.48	0.0000
Others	13.06	11.44	0.3473
Experience within the field of work before start-up (multiple answers possible)			
Due to dependent employment	67.64	80.14	0.0000
Due to previous self-employment	28.07	17.82	0.0000
Due to hobby activities	37.43	27.93	0.0001
Motivation to start a business (multiple answers possible)			
Spotted a market gap	49.32	35.73	0.0000
Want to earn more money	64.52	60.73	0.1424
Others advised me to do so	32.94	29.17	0.1231
Want my business idea to turn into reality	74.46	62.50	0.0000
Expect better compatibility of work and family	54.78	44.77	0.0002

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 16 months after the end of the coaching process on average.

Table 5.2 shows the experience and motivation of the entrepreneurs. These characteristics are usually really closely attached to the success of the enterprise. The majority of the p-values in the very right column are below the value of 0.05. This means that the means of these characteristics differ significantly between the two groups. Again, this even raises the importance of including these variables in the analysis as otherwise the selection process biases the estimation results. Non-participants have on average about one more year of experience in employment. This is surprising as participants are one year older on average (as seen

in table 5.1). However, participants have more experience in self-employment on average. This is also reflected by the activity before the start-up of the observed company. 61.4% of the comparison group have been in dependent employment before the start-up. This share is only 32.6% for participants. The shares of being self-employed (20.5%) or unemployed[75] (33.9%) before start-up are a lot higher for participants than for non-participants (6.7% and 20.5%). This might also give an indication about the channels over which the people get to know the program. It could indicate that these people are aware of the program more often (e.g. due to former enquiries about support possibilities) and therefore are more likely to participate.

Experience within the field of work due to a former dependent employment was stated by 67.6% of the participants. With 80.1% this share is a lot higher for non-participants. In contrast to this, the participants have this experience more often due to previous self-employment or hobby activities than non-participants. This fits to the findings that participants have more experience in self-employment. Experience in the field of work is a clear advantage and probably leads to more successful companies on average.

The two most often named motivations to found a company are "I want my business idea to turn into reality" and "I want to earn more money". Motivations are usually divided into so called push and pull motives. This indicates whether a person starts-up out of necessity (push motive) or resulting from opportunity (pull motive). The push motive "Others advised me to do so" is rarely stated in comparison to pull motives. 32.9% of all the participants state this push motive and 29.2% of the non-participants do so. The shares for the pull motives "I want to earn more money", "I want my business idea to turn into reality", and "Spotted a market gap" are clearly bigger. 74.5% (62.5%) of all participants (non-participants) state the pull motive "I want my business idea to turn into reality". But even if existing literature (Caliendo and Kritikos 2010; Halberstadt and Welpe 2008, p. 54 f.) defines these motives as push or pull motives it is not clear whether the single items mentioned above can as well be categorized as such in our dataset. We will discuss this in more detail in section 5.2.

Economic analyses increasingly consider personality traits as influencing factors of economic success. This branch of research arose from psychology. Personality

[75] These individuals would have also been eligible to participate in the program EBCG-UE for former unemployed individuals but decided to participate in EBCG.

traits are commonly used as predictor for outcomes in psychology. Several researchers show that these are also important in economic research (Caliendo et al. 2014b; Mueller and Plug 2006; Nyhus and Pons 2005). Table 5.3 shows the most commonly used personality traits in economics for the individuals in both samples. Participants are significantly more likely to take risks than non-participants. It might be that individuals that score high on risk-taking behaviors, make drastic decisions without careful consideration of possible consequences. This could lead to mistakes in the foundation process, which again involves the need for external advice. As a result high risk takers are more likely to seek advice and therefore be participants.[76] Participants are more open to new experiences and are more extraverted. These personality traits correlate with open-mindedness, which allow an entrepreneur to seek advice and accept new ideas from a coach. There are no significant differences between participants and non-participants in the locus of control.

Table 5.3: Personality traits of entrepreneurs

Variable	EBCG-P	EBCG-NP	p-value
Risk attitude (1: not risk-loving, 10: very risk-loving)	6.23	5.91	0.0018
≤ 4	14.81	20.39	0.0072
≥ 7	47.76	40.60	0.0066
Big Five (1: applies not at all, 7: applies completely)			
Openness	5.27	5.02	0.0005
Conscientiousness	6.05	6.12	0.0980
Extraversion	5.96	5.84	0.0251
Agreeableness	5.93	5.86	0.1426
Neuroticism	4.03	4.06	0.7787
Internal locus of control (scale: 5–35)	28.46	28.40	0.7697
Internal locus of control: very high (scale value > 30)	30.57	31.15	0.8140

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 16 months after the end of the coaching process on average.

[76] The significant differences between participants and non-participants might also be a measurement problem. A coach usually shows the entrepreneur that some options/investments the entrepreneur is thinking about are too risky. This might lead to the fact that participants are more aware of their high risk preferences. As the interviews were conducted after coaching, participants might state higher risk preferences than non-participants due to the communication with the coach.

In the following we concentrate on the enterprises of program participants and non-participants. Table 5.4 shows the starting conditions of both groups. The starting conditions might also influence the success of coaching. We can imagine that the starting points of different enterprises are very different which might affect the type of coaching needed and the effect of coaching. The advice given by a coach to different entrepreneurs may differ substantially depending on a variety of factors, such as the start-up capital, individual characteristics and level of detail of preparation for the start-up company.

Moreover, the marginal effect of coaching might be lower for companies which are better off due to better starting conditions. Furthermore, the coaches might only be able to give advice for basic tasks such as marketing or creating a business plan. In the qualitative analysis the coaches mentioned marketing as the most frequent coaching topic, whereas more complex advice topics like human resource management are stated very seldom. The quantitative analysis shows the same picture. As shown in table 4.4 marketing is the most often coaching topic.

As in the characteristics before, by using table 5.4 we compare the shares of EBCG participants and non-participants by conducting a t-test of differences in the means. A non-significant difference does not mean one can neglect this variable in the matching procedure. It is decided due to theoretical considerations which variable should be included in the matching procedure.

The companies of participants are a bit younger than the ones of non-participants. About 46% of all participants' companies were started in 2008 or 2009. This share is only about 36% in the group of non-participants. This reflects that coaching needs are higher in the initial period after start-up. Remember, all observed participants started coaching in 2009. Furthermore, entrepreneurs gather more information about support programs in the initial period after start-up than later. These are reasons for the fact that participants' companies are younger. Program participants have a lower probability of starting with employees and a lower start-up capital than non-participants. 28.5% (45.4%) of all program participants (non-participants) have employees at the time of start-up. Conditional on having employees the entrepreneur employs about five employees. About 68% of all non-participants have a start-up capital of 10,000 € or more. This share is only about 48% in the group of program participants. This points out that the people who participated are more needy on average and therefore are more likely

to look for support programs.[77] The private service sector is the largest in both groups. 48.3% (43.6%) of all surveyed participants (non-participants) work in the private service sector.

Table 5.4: Starting conditions of businesses of EBCG participants and non-participants

Variable	EBCG-P	EBCG-NP	p-value
Calendar year of business start-up			
2004	7.02	10.99	0.0118
2005	13.65	15.07	0.4490
2006	14.04	15.87	0.3390
2007	19.69	22.34	0.2257
2008	19.49	17.73	0.3921
2009	26.12	18.00	0.0002
Start-up with employees	28.46	45.38	0.0000
Number of employees at start-up (if > 0)	5.16	5.26	0.9154
Start-up capital (in €)	31.34	38.79	0.0740
No start-up capital	13.52	9.53	0.0168
$<$ 1,000	4.17	2.36	0.0454
1,000 – $<$ 2,500	9.54	6.99	0.0765
2,500 – $<$ 5,000	7.55	4.08	0.0036
5,000 – $<$ 10,000	16.90	9.07	0.0000
10,000 – $<$ 50,000	34.19	43.38	0.0005
$\geq$ 50,000	14.12	24.59	0.0000
Sector of start-up			
Construction	8.38	10.46	0.1896
Production	7.99	9.84	0.2315
Retail	13.45	26.42	0.0000
Private service sector	48.34	43.62	0.0746
Others	21.83	9.66	0.0000

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 16 months after the end of the coaching process on average.

Table 5.5 shows the success variables which we will consider in analyzing the effectiveness of the program. This table shows descriptive differences between the success of participants and non-participants. As we have seen, the groups differ in their characteristics. Because of this selection process, it is not possible to

[77] Obviously, it is possible that some non-participants also make use of coaching or other assistance measures. As they have a higher start-up capital they might not use subsidized assistance programs but pay for tailored assistance by their own. This issue will be addressed in sensitivity analyses in sections 5.5.1 and 6.5.1.

state whether the program is effective using table 5.5. Section 5.3 will show the *causal* program effects regarding these success variables as the matching approach controls for the group differences. Descriptively non-participants are clearly more successful than participants. This is unsurprisingly as we realized by table 5.4 that non-participants have a higher probability of starting with employees, have more employees at the time of start-up, and have a higher start-up capital. However, this does not necessarily mean that non-participants are in general better entrepreneurs. As previously discussed, participants are better educated and have more experience in self-employment.

The survival rates in self-employment are very high. Interestingly, we observe that among non-participants the survival rate increases from the first interview (89.8%) to the second interview (94.2%). As explained earlier, this is possible as we only measure the employment status at two points in time and do not consider the survival of the company but the survival of the entrepreneur in self-employment. For the sake of convenience we treat it as "survival" in self-employment even if the entrepreneur would have stopped being self-employed in the meantime and started a new company. Due to the fact that in the group of non-participants more entrepreneurs start a new business than shut down a business the share of self-employed increased from the first to the second interview. This development cannot be observed in the group of participants. Consequently, there are significantly more people in self-employment in the group of non-participants than in the group of participants at the time of the second interview.

At both interviews the monthly earned net income of participants is significantly lower than of non-participants. The monthly net income of participants is about 2000 €. The monthly income of non-participants is 600 € to 700 € higher.

Comparing table 5.4 and 5.5 we observe some time trends. Among both groups – participants and non-participants – the share of entrepreneurs having employees largely increased from the time of start-up until the first interview. At start-up 28.5% (45.4%) of all participants (non-participants) had employees. Until the first interview these shares increased to 45.8% (69.5%) among the group of participants (non-participants). Thus the gap between groups is widening from start-up to the first interview. In the two years between the two interviews the shares of entrepreneurs having employees increased again. At the time of the second interview 49.6% (72.5%) of participants (non-participants) employ workers.

Regarding satisfaction rates we created a binary variable showing whether or

not an individual is satisfied with her/his life and job.[78] The share of highly satisfied individuals does not differ largely between participants and non-participants.

Table 5.5: Outcome variables – EBCG participants and non-participants

Variable	EBCG-P	EBCG-NP	p-value
Self-employed			
1st interview	87.72	89.79	0.2125
2nd interview	86.52	94.24	0.0000
Individual earned net income (€/month)			
1st interview	1,947.58	2,635.72	0.0000
2nd interview	2,161.29	2,771.33	0.0001
Employees			
$\geq$ 1 employee 1st interview	45.81	69.50	0.0000
Number of employees 1st interview	2.84	5.08	0.0001
$\geq$ 1 employee 2nd interview	49.61	72.52	0.0000
Number of employees 2nd interview	3.43	5.67	0.0036
High life satisfaction			
1st interview	79.80	81.28	0.4834
2nd interview	77.25	81.90	0.0282
High job satisfaction			
1st interview	80.47	82.15	0.4159
2nd interview	78.75	79.77	0.6374

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level.

Table 5.5 conveys the impression that coaching has negative effects. However, this table only displays descriptive evidence and the differences are driven by selection processes influencing the participation probability. In the estimation of the causal coaching effects we will control for the differences between the groups. It needs to be stressed that this also includes controlling for individual earned net income before coaching and employees at start-up. Meaning that if the differences in the success variables shown in table 5.5 arise from original group differences in income or the probability of having employees at start-up, there will be no significant negative coaching effects. Before estimating the causal effects of the program the selection process leading to the group differences will be scrutinized.

[78] Life and job satisfaction are initially measured on a likert scale from 1–7. We define all individuals stating a value of 5 or more as highly satisfied. We assume that non-participants and participants use the scale in a similar way. In other words, there is no systematical difference in the way individuals in the group of participants would state higher or lower satisfaction values in absence of the program.

5.2 The selection process into the program

In the present section we will analyze what kind of individuals use coaching. We will test whether or not the hypotheses stated in section 4.4.3 can be confirmed. This is done by estimating a probit model (see table A.8) which shows which characteristics increase and which ones decrease the program participation probability.[79] Table 5.6 shows whether the hypotheses can be confirmed.

Table 5.6: Hypotheses about the selection process into EBCG program participation

No	Hypothesis about types of individuals with a higher program participation probability	Confirmed	Comment
	Entrepreneurs		
H1	with middle range start-up capital	yes	with limitations[a]
H2	with a short lifetime self-employment	yes	with limitations[a]
H3	without experience within the field of work before start-up	yes	with limitations[a]
H4	in East Germany	yes	
H5	without self-employed parents	no	relation not sign.[b]
H6	who are not married	no	relation not sign.[b]
H7	without employees	yes	with limitations[a]
H8	with a low non-zero earned net income	yes	
H9	with push motives (necessity entrepreneurs)	no	
H10	with an external locus of control	no	

Source: EBCG/EBCG-UE Dataset, own calculations.
Explanation: The hypotheses are stated in an abbreviated manner as the benchmark is not mentioned. All individuals not being in the mentioned category are taken as benchmark.
a: "with limitations" means that there is some evidence for the confirmation of the hypothesis. However, due to the coefficients of the other categories used in the estimation process the hypothesis cannot be completely confirmed. The text includes a detailed description.
b: "relation not sign." means that the relationship shows in the hypothesized direction but is not significantly different from zero.

We argued that entrepreneurs without any start-up capital cannot afford coaching and entrepreneurs with a high start-up capital do not need coaching or use other unsubsidized assistance. Hence, entrepreneurs with a middle range start-up capital have the highest participation probability. We use five categories[80] of start-up capital and define entrepreneurs with 5,000 € – < 10,000 € as having a middle range start-up capital. The participation probability for entrepreneurs

[79] All statements about relationships between program participation probability and specific characteristics are ceteris paribus statements. This means that we hold all other covariates constant when interpreting the influence of a variable on the participation probability.

[80] The categories used are: no start-up capital; < 5,000 €; 5,000 € – < 10,000 €; 10,000 € – < 50,000 € and ≥ 50,000 €.

with a high start-up capital is significantly lower than for entrepreneurs with a middle range start-up capital. Entrepreneurs with a start-up capital in the middle range have the highest likelihood to participate in coaching. This indicates a confirmation of hypothesis H1. However, there is one limitation to the confirmation of the hypothesis. Entrepreneurs without start-up capital do not have a significantly different participation probability than entrepreneurs with a middle range start-up capital and entrepreneurs with a low start-up capital ($<$ 5,000 €). Hence, the relationship between start-up capital and participation probability is not inversely U-shaped. Thus, hypothesis H1, stating that entrepreneurs with a middle range start-up capital have a higher participation probability can only be confirmed if they are compared to the entrepreneurs with a high start-up capital but not if they are compared with entrepreneurs having a low start-up capital. Hence, hypothesis H1 can only be confirmed with the explained limitations.

Entrepreneurs with experience in self-employment need less coaching as they learned how to handle the challenges of the initial period after start-up. If this is true, entrepreneurs without this experience have a higher coaching participation probability. We use four categories[81] of lifetime self-employment to measure this relationship. Table A.8 shows that experience in self-employment decreases the probability of coaching participation. The estimator of the category, 4 – $<$ 6 years lifetime self-employment, is significantly negative, which means that these individuals participate less often in the program than the reference category ($<$ 2.5 years of lifetime self-employment). The individuals in the reference category have the highest participation probability as the estimates of all other categories are lower. This points to a confirmation of hypothesis H2. However, individuals within the two categories 2.5 – $<$ 4 years and $\geq$ 6 years have no significantly different participation probability than entrepreneurs within the reference category ($<$ 2.5 years). Thus hypothesis H2, stating that entrepreneurs with a short lifetime self-employment (category $<$ 2.5 years) have a higher participation probability than the entrepreneurs within the other categories, can only be confirmed with the explained limitations.

Hypothesis H3 is about whether or not experience within the field of work has an influence on the participation probability. This can be tested by using three different variables. The survey asked separately whether or not the entrepreneur has experience within the field of work before start-up (1) due to dependent em-

[81] The four categories are $<$ 2.5 years; 2.5 – $<$ 4 years; 4 – $<$ 6 years and $\geq$ 6 years.

ployment; (2) due to previous self-employment or (3) due to hobby activities.[82] The hypothesis that entrepreneurs without experience in the field of work before start-up have a higher participation probability, can only be confirmed for missing experience due to dependent employment. Individuals with this experience have a significantly lower participation probability in the coaching program. We argue that this is true because the entrepreneurs with experience due to dependent employment face the least problems in the initial period after start-up as they have business contacts within the field of work. Interestingly, the lower participation probability for individuals with experience due to dependent employment is driven by women. Among men there is no significant effect on participation probability according to the experience within the field of work. Experience due to hobby activities does not influence coaching participation probability. This indicates that previous experience in dependent employment, may prepare individuals better for subsequent self-employment, than experience due to hobby activities. As argued before, entrepreneurs with experience due to previous self-employment are possibly persons who failed to manage problems in their former self-employment. This might be the reason why they stopped working in self-employment. Although previous work experience may prepare entrepreneurs for self-employment, it could also imply failure to previously succeed in self-employment. This would actually increase the participation probability of these people due to the desire to avoid previously made mistakes. This is exactly what is reflected in the estimation results. The individuals with experience due to former self-employment within the field of work have a higher – however not significantly higher – participation probability in coaching than people without this experience. Hence, hypothesis H3 can only partially be confirmed.

This picture is supported by looking at another labor market history variable. The data include information about what the entrepreneurs did before start-up. Entrepreneurs who have been self-employed instantly before start-up have a significantly larger probability of participating in coaching than individuals being regular employed before start-up. There are also individuals who were unemployed before start-up.[83] They also have a significantly larger participation probability than individuals being in regular employment before start-up. The increased likelihood

[82] As the survey asked all three questions separately the reference category is not having experience due to the specific status.

[83] These entrepreneurs would have also been eligible to participate in the program EBCG-UE for former unemployed individuals but decided to participate in EBCG.

for previously unemployed individuals to participate, maybe due to the nature of the unemployment status, which very often leads to decreased self-esteem and fears of making mistakes. Consequently, this again may lead to unemployment. These are reasons for a higher participation probability of these individuals.

Table A.8 shows clearly that the program participation can be influenced by the institutional settings. In East Germany the cost absorption is higher. This is reflected in the participation probability. Living in East Germany increases the program participation probability significantly. Again, this higher participation probability in East Germany is not driven by inferior economic conditions of the companies in these parts. The effect is estimated by controlling for other variables indicating the condition of the companies; e.g. start-up capital, income, employees. What is not controlled for is the regional economic condition. Hence, it might also be true that the higher participation probability in East Germany is caused by larger coaching needs because of poor regional economic conditions. We have seen the higher probability of participating in the program for these individuals in the descriptive part already. Table 5.1 showed that 53% of the participants live in East Germany, whereas only 19.5% of the non-participants do so.[84] Consequently, hypothesis H4 can be confirmed.

There is no significant difference in the participation decision whether or not the entrepreneur has/had an self-employed parent. Nonetheless, the point estimator is negative for individuals with self-employed parents. Hence, the family internal advice helps entrepreneurs but does not make coaching unnecessary. Among men the estimator is significantly negative meaning that self-employed parents decrease participation probability for men. However, for the total sample hypothesis H5 cannot be confirmed. Even though, the relationship between the participation probability and the hypothesized direction is true.

The same is true for the "internal advice" through a spouse. Married entrepreneurs are less likely to participate in coaching. However, the difference between married and single entrepreneurs is not significant. Interestingly the lower participation probability is mainly driven by women.

Business founders without employees (reference category in table A.8) have a higher probability of participating in the coaching program compared to ones with two employees. One could argue that entrepreneurs with employees are more suc-

[84] In drawing the individuals for the survey we did not control for region. Hence, this large difference is not caused by favoring participants in East Germany in the data generation process.

cessful and therefore need less external advice. But as mentioned before, in the model it is controlled for several variables influencing the success. Hence, the effect of a higher coaching probability for entrepreneurs without employees is estimated by holding the other factors constant. We divided the entrepreneurs into five categories: No employees, one, two, three, and more employees. The entrepreneurs with two employees have the lowest participation probability and the ones with more than three employees the highest. Hence, there is a U-shaped relationship between the number of employees and coaching probability. This means that entrepreneurs without internal advice via employees use less coaching but if there are more than three employees coaching is also used. The latter might be caused by organizational problems in larger companies. The differences in the participation probability between solo-entrepreneurs and ones with one, three or more than three employees are not statistically significant which leads to the mentioned U-shaped relationship. Hence, hypothesis H7 can only be confirmed with some limitations.

Hypothesis H8 can clearly be confirmed. Entrepreneurs with low income have a higher program participation probability. Entrepreneurs within the category of 1 € – 500 € monthly earned income in 2008 (before coaching) have the highest participation probability. The arguments are the same as the ones concerning the start-up capital. In general, low income increases the need for coaching. But without any income the entrepreneur cannot pay her/his own share of the coaching costs and is therefore not able to participate in the coaching program. Hence, the participation probability is not the highest for entrepreneurs without income (reference category in table A.8) but for persons with 1 € – 500 € monthly income. Entrepreneurs within the higher income categories have a lower participation probability as the need for coaching among these people is lower.

Concerning the motivation for starting a business we argued that they can be divided in push and pull motives. We want to verify whether or not the classification in push and pull motives is valid with our dataset. We therefore, conducted a principal components factor analysis. The results show that two out of the five motives asked in the survey equally load onto two factors, hence, they cannot clearly be classified as push or pull motive (see figure A.11 showing the rotated factor loadings and unique variances). As there are only three motives left which can roughly be classified as push or pull motive we decided to include each motive individually into the estimation process. This has the advantage that the model is

more flexible than using a push/pull index as the variation of each item is used separately for the estimation of the participation probability. But as we are not able to identify more than one push motive we can only answer hypothesis H9 using the variation of this single item. We should keep this in mind and interpret the result with caution. Table A.8 shows that only two of the motives differ significantly between participants and non-participants. Stating the pull motive "I spotted a market gap" leads to a higher program participation probability. But this effect is only driven by men. Among women stating this motive does not influence program participation probability significantly. The other motive influencing participation probability is "Expect better compatibility of work and family". Stating this motive increases the participation probability. This effect is only driven by women, whereas there is no significant effect among men. The push motive "Others advised me to start a business" does not differ significantly between participants and non-participants. Thus, hypothesis H9 cannot be confirmed.

Hypothesis H10 is not true. The differences in the participation probability according to different values in the locus of control indicator are very low and not significant. This means that by controlling for all the other variables, the locus of control is not very important in predicting the program participation probability.[85]

Through testing these carefully tailored together hypotheses, the contemporary stand of coaching participants in Germany got a bit clearer. Through the previously discussed analyses it can be derived that a typical entrepreneur[86] looking for external advice via coaching would embody the following characteristics: middle range start-up capital, lacking experience in self-employment, no or many employees, low income before coaching (but not zero income). Furthermore, we can add that the coaching participation probability is higher for older entrepreneurs than for younger ones. The probit estimation results in table A.8 show that the older the entrepreneurs the more likely they participate in coaching. This is surprising as "[o]lder people have had time to build better social and business networks, and to have identified valuable opportunities in entrepreneurship, possibly through learning about the business environment" (Parker 2009, p. 113). Thus, they should need less assistance than younger individuals. However, the ability of detecting business problems also increases with age. Hence, older individuals might be more

[85] This does not mean that we should not use the variable in our model. The variables used in the model are choosen by theoretical considerations and not by the data at hand.

[86] Obviously this picture is only true on average. There are also entrepreneurs with other characteristics (even though not that many) participating in coaching.

able to realize that they need a coach, which again increases participation probability. Interestingly, the relationship between age and participation probability is only caused by the subgroup of women. Being older than 55 years strikingly increases the participation probability among women. Among men, age does not influence coaching participation probability.

Furthermore, better educated people are usually more successful and therefore also have a lower probability of participating in coaching. But they are probably good in realizing internal problems and are well informed about subsidizing programs. This increases their probability of participating in coaching. Hence, it is unclear whether or not good education increases the probability of coaching participation. Table A.8 shows that neither the coefficients for the highest school degree nor the ones for the highest vocational degree significantly influence the program participation probability. This might be due to the just mentioned opposing influences of education on participation probability and due to conditioning on many other covariates.

Concerning the relationship between the Big Five personality traits and the participation probability we find that entrepreneurs scoring high in conscientiousness participate less often in coaching. High values in extraversion and agreeableness lead to a slightly (but not significant) higher participation probability.

As mentioned in the methodological approach all the aforementioned variables and the other covariates listed in table A.8 are used to construct a propensity score showing the program participation probability for each entrepreneur. Figure A.1 shows the distribution of these propensity scores of the EBCG participants and the comparison group. The light bars at the top show the distribution of the propensity scores for the participants. The dark bars at the bottom show the ones for non-participants. Naturally, the scores for non-participants are much lower than the ones for participants. The more the characteristics of the individuals between both groups differ, the more different are the propensity score distributions of the groups. Problems arise if there are areas of propensity scores with only one of the two groups. Figure A.1 indicates that the groups of participants and non-participants differ substantially. Especially the dark bars in the lower part are very skewed to the left. This means that the specific characteristics of the non-participants lead to a very high probability of not participating. This highly differing propensity scores increase the importance of testing the matching quality. The matching procedure needs to work very well to eliminate the large differences

between participants and non-participants. We will test this in section 5.4.

After considering the selection process due to the topics stated in the hypotheses we will have a look at a more general selection issue. A possible reason for not participating in a program is that a lot of people are just not aware of the program. This is a serious problem in public policy evaluation. The estimator will be biased if people who know the program are systematically more or less successful than the ones who do not know it. This is because the non-participants would have a different success probability even in absence of the program. To the best of our knowledge the present analysis is the first study using the information whether or not the selection process is caused by an information problem.

To find out more about the selection process into coaching we asked the non-participants whether they are aware of the program. We asked the people who responded with "Yes" why they did not participate in the program.

Looking at table 5.7, which shows the answers to the questions, there is one clear main reason for not participating in the programs. 83.14% of the EBCG comparison group did not know about the program. Having in mind the usual lack in social, managerial, and financial capital an entrepreneur has to cope with in the foundation period this share is very high.

Table 5.7: Awareness of the program EBCG of the comparison group

	Share
Are you aware of the program EBCG?	
No	83.14
Yes	16.86
Reason for not participating[a]	
I did not need coaching	59.47
The effort for program application was too big	23.16
The maximum allowed coaching cost were too low for my coaching needs	12.11
Other reasons	34.21

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are shares in percent.
a: Multiple answers possible.

The lower panel of table 5.7 shows reasons for not participating in case the person was aware of the program. Each of these reasons was asked separately which means stating multiple reasons was possible. The majority of the entrepreneurs of the non-participants stated not to need any coaching (59.47%).

These findings are very important for the selection process as it might indicate that "good" entrepreneurs do not self-select into the coaching program. In most datasets the information about the reasons for being in the comparison group is not available. This unique dataset enables us not only to control for the selection process but also to look into the drivers of the selection process.[87] This is an extraordinary opportunity. We can conduct a sensitivity analysis by using this information. Thus, we are able to test whether the program effects are driven by the composition of the comparison group regarding the reasons for not participating. This will be done during a sensitivity analysis in section 5.5.

Summarizing, participants compared to non-participants are significantly older, have a low income in 2008 (before coaching), have limited experience in self-employment and are solo-entrepreneurs or have more than three employees.

However, some of the characteristics influencing the selection process are very different between subgroups. Thus, the effects on participation probability observed using the entire sample are driven by specific subgroups. The higher participation probability for older entrepreneurs is mainly driven by women. Interestingly, among men having more than three employees strongly increases the participation probability, whereas it strongly decreases the participation probability among women (table A.8). Especially in East Germany a high earned income lowers the participation probability (table A.9). Table A.10 and A.11 present the results for estimating the participation probability among the other subgroups.[88]

In total, most of the characteristics leading to program participation show that the program attracted especially entrepreneurs who have a low success probability (low income, low start-up capital, brief experience). This finding was also supported through the qualitative analysis. One of the entrepreneurs in the qualitative interviews responded that the business situation was already really bad at the time of consulting a coach. However, the matching approach controls for the differences between participants and non-participants. By conditioning on these differences the estimation results of the program effectiveness will not be biased due to the fact that "worse" entrepreneurs participate in coaching. The program effects conditional on these differences will be shown and discussed in section 5.3.

[87] It is impossible to control for the reason of not participating in the probit model which estimates participation probability. This is because the information is obviously only available for the comparison group but not for the participants as they all know the program.

[88] These results will not be discussed. However, they are included in the appendix for the sake of completeness of the matching procedure.

5.3 Effects of the program EBCG

In the present section the effects of the program EBCG in terms of entrepreneurial success are analyzed. In section 2.6 we discussed how entrepreneurial success can be measured. The result of this discussion is the following:

On the one hand, one should use main objective success variables as it is done in the literature, namely survival rates, income etc. On the other hand, one should use subjective measurements of success, e.g. the satisfaction of the entrepreneur as this can also influence success, e.g. survival probability in self-employment. Moreover, satisfaction can lead to better future job opportunities in the case of discontinuing self-employment.

The hypotheses about the program effectiveness stated in section 2.7 will be examined in section 5.3.1. Additionally, we will have a closer look at the effect heterogeneity of coaching (section 5.3.2). This is done by analyzing the effects within different subgroups. This leads to the result that coaching is useful for some people, whereas it can even be harmful for others. To get a more comprehensive idea of the coaching effects all success variables are measured at two different points in time. By this it is possible to identify and disentangle short-term and long-term effects of coaching. At the first interview the EBCG participants' enterprises are 46 months old on average and finished coaching 16 months before that interview. At the second interview the companies are 68 months old on average. The first interview gives us the outcome measures for the short-term effects[89] and the second one shows long-term coaching effects.[90] We decided to use four types of success variables at the two interview sessions to measure the effects of coaching.

First, the survival of the entrepreneur in self-employment is used. This variable is a binary variable showing whether or not the entrepreneur is self-employed at the time of the interviews. She/he does not need to be self-employed with the same company. Second, the individual earned net income of the entrepreneur will be used as success variable. It is measured in €/month. Third, it will be observed whether or not coaching has an effect on the probability of having employees (binary variable) and on the number of employees. Fourth, the effects on personal

[89] For the sake of convenience we call these effects short-term effects. This is valid because the time span between the end of coaching and the interview is on average only 16 months. The evaluation project only allowed interviews at two points in time.

[90] The end of the coaching process is 38 months ago on average at this point in time. For the sake of convenience we call this a long-term effect.

life and job satisfaction will be used as outcome measures. The satisfaction was surveyed using a likert scale. Afterwards a binary variable is created from the answers to this scale. Thus, this binary variable shows the share of individuals being satisfied with their life or job.

There are no positive program effects using the entire sample of participants and non-participants. Surprisingly, the overall effectiveness of the program is negative. Coaching participation leads to less earned income and the participants' enterprises have less employees and a lower long-term survival probability. Reasons for these surprising effects are discussed in section 5.5. The detailed picture arising from the effect heterogeneity analysis shows that there are differences in coaching effectiveness between subgroups. The program effect on the number of employees and the survival probability in self-employment is more negative for men. Considering regional information coaching is less successful in regions with a low unemployment rate and in regions with a high self-employment rate. Interestingly, coaching quality has no large effect on the effectiveness of coaching.

5.3.1 Coaching effects

Table 5.8 shows the average treatment effect on the treated for several outcome variables. As explained before this is the causal effect of treatment, namely program participation. It is the difference in the outcome variable between participants and matched non-participants.[91]

The most obvious outcome variable is survival in self-employment. The first two outcome variables in table 5.8 show the effects of the program on this success measure. In the short run (-0.28% points) and in the long run (-6.03% points) the coaching effect on survival in self-employment is negative. Only the long term effect is significantly different from zero. Coaching is a process which mainly influences the entrepreneur and only indirectly the company. Consequently, we use the "survival" of the entrepreneur in self-employment as outcome measure. This does not necessarily mean that the entrepreneur is still self-employed with the same company.[92]

[91] In the following interpretation of the program effects we will sometimes use the expression "non-participants" for reasons of simplification. Nonetheless, we mean that we compare the outcome variables of participants and *matched* non-participants.

[92] If we use the expression "the entrepreneurs' survival" in the following analysis, we talk about entrepreneurs being self-employed at the time of the interview and not necessarily staying self-employed with the same company.

Table 5.8: ATT of the program EBCG

Outcome variable	ATT	
Self-employed		
1st interview	-0.28	
	(2.63)	
2nd interview	-6.03	**
	(2.52)	
Individual earned net income (€/month)		
1st interview	-340.03	**
	(156.63)	
2nd interview	-270.61	*
	(160.68)	
Employees		
$\geq$ 1 employee 1st interview	-10.18	***
	(3.83)	
Number of employees 1st interview	-2.46	*
	(1.43)	
$\geq$ 1 employee 2nd interview	-12.54	***
	(3.88)	
Number of employees 2nd interview	-0.83	
	(0.59)	
High life satisfaction		
1st interview	-3.91	
	(2.82)	
2nd interview	-5.73	*
	(3.04)	
High job satisfaction		
1st interview	-1.63	
	(3.13)	
2nd interview	-1.11	
	(3.27)	
Number of observations	1,641	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

Hence, the interpretation of the results is as follows: Coaching leads to a 0.28% points (6.03% points) lower probability of being self-employed at the time of the first interview (second interview). This result is the contrary of what we expected. The program is designed to help entrepreneurs in the initial period after start-up. The results indicate that the program has a significantly negative effect on the entrepreneurs' survival in self-employment.

There is the – however unlikely – probability that coaches advise entrepreneurs to shut down the business as they realize (during the coaching process) that the individual should better work in dependent employment. This would result in a negative coaching effect on survival in self-employment. But there is no evidence for this in the detailed interviews of the qualitative analysis. Furthermore, this advice would yield a negative coaching effect at the short-term stage already. Another reason for the negative effects might be that participants change to regular employment more often than non-participants. Even though, unemployment could be prevented by this, this is not the intended goal of the program. Hypothesis H1* cannot be confirmed.

Table 5.9: Hypotheses about the effects of the program EBCG

No	Hypothesis	Confirmed
	Coaching increases	
H1*	the probability of staying self-employed	no
H2*	the individual earned net income	no
H3*	the probability of hiring employees	no
H4*	satisfaction	no

Source: EBCG/EBCG-UE Dataset, own calculations.

The individually earned income at the time of the first interview is 340 €/month lower for participants than for matched non-participants. In fact, one should keep in mind that the total income effect always consists of two parts. First, the change in employment status leading to several individuals becoming unemployed, and hence receive no earned income anymore. Second, the direct income effect by a changing income of (self-)employed participants and non-participants.[93] As there is no significant coaching effect on employment in the short run the major part of the negative income effect consists of the direct income effect. Even more sur-

[93] Limiting the analysis to individuals who are still self-employed does not give us the correct direct income effect. In the matching approach it is not allowed to condition on an outcome measure (self-employment) to receive the effect for another outcome measure (income).

prising are the results for the coaching effects in the long run. Despite the large negative coaching effect on survival in self-employment (-6.03% points) the negative income difference between participants and non-participants gets less negative (-271 €/month) than at the time of the first interview (-340 €/month). In summary, both coaching effects on income (short-term and long-term) are negative. Thus, hypothesis H2* cannot be confirmed.

The coaching effects on hiring employees are extremely negative. Coaching leads to a 10.18% points lower probability of having employees in the short run and to a 12.54% points lower one in the long run. These differences between participants and non-participants are significant on the 1% significance level. In the descriptive analysis in section 5.1 we showed that non-participants are significantly more likely to have employees at the time of start-up. 45.38% of all non-participants have employees at start-up, whereas this share is only 28.46% for the participants. But the negative coaching effect on having employees is independent of this large, original difference. In the first stage of the matching approach we control for the number of employees at start-up. Therefore, the negative coaching effect does not result from the large group difference at the time of start-up. If we consider the total number of employees the negative coaching effect can be confirmed. At the time of the first interview participants have 2.46 less employees than matched non-participants. This effect partly arises because of participants without any employees as the outcome measure of total employees includes the entrepreneurs without employees. In the long run participants somewhat catch-up. At the time of the second interview participants have "only" 0.83 employees less than matched non-participants. But the effect is not statistically significantly different from zero anymore in the long term. One explanation of the negative coaching effects on the development of the number of employees is that coaches might discourage entrepreneurs from hiring employees.[94] Unfortunately, there is no evidence for this in the qualitative data. But in fact a coach will probably try to stop the entrepreneur from making risky decisions or spending too much money. Hence, a coach might advice the entrepreneur to save costs by not hiring (too many) employees. Overall, the coaching effects on all employee outcome measures are negative. Thus, hypothesis H3* cannot be confirmed.

[94] Additionally, coaches might be more conservative in encouraging an entrepreneur to hire employees (even if employees are necessary), than in discouraging an entrepreneur not to hire employees (if she/he plans to hire employees). This would increase the negative coaching efects.

The lower part of table 5.8 shows the coaching effects on satisfaction rates. Satisfaction does not directly show the success of the company or the entrepreneur. Nonetheless, satisfaction might lead to success indirectly. More satisfied people do have more enthusiasm to push their projects forward. Furthermore, if entrepreneurs need to shut down their company it is easier to find a job if they are more satisfied with their life.[95]

The coaching effects on entrepreneurs' satisfaction are all negative. But the effects are low (especially for job satisfaction). Further, only the negative long-term effect on life satisfaction is statistically significant. We imply that the coaching has no large effects on the likelihood of being satisfied with the job. This is surprising as the other outcome measures (survival, income, and number of employees) are almost all significantly negatively influenced by coaching. This means, that the differences of participants and non-participants in companies' survival, earned labor income and number of employees do not significantly affect differences in job satisfaction rates. In the long term, it is indicated that coaching leads to a 5.73% points lower probability for high life satisfaction. As a result, there is no evidence that coaching can influence satisfaction in a positive way. Hence, hypothesis H4* cannot be confirmed.

Concluding, the evidence for negative program effects is unambiguous. All outcome measures considered in table 5.8 are negative. None of the four hypotheses, indicating positive coaching effects, can be confirmed. Most effects are even statistically significant negative. In the sensitivity analysis in section 5.5 we will discuss potential reasons for these surprising effects and test whether it is possible to find evidence in the data driving the negative effects. But first we will consider effect heterogeneity and check whether or not coaching has (positive or negative) effects among specific subgroups of individuals.

5.3.2 Effect heterogeneity

The negative coaching effects presented in the previous section might be caused by specific individuals, that overshadow possible positive effects for other individuals. Moreover, variability in quality of each coaching session may influence overall coaching effects. However, by looking at the coaching effects for the entire sample

[95] Of course a shut down of a company does not lead to satisfaction but the job is only one aspect influencing life satisfaction. As some coaching processes concentrate on the personality of the entrepreneur coaching might also influence satisfaction independent of the companies development.

of participants it is not possible to form an opinion about this. Therefore, this section will analyze whether the effects of the program EBCG differ by subgroups. For this task it is essential to interpret the results of the subgroups the correct way. The estimation of the ATT does not compare the success of participants between subgroups but participants and non-participants within subgroups. To give an example, if the effects for women are more positive than the ones for men it does not mean that women are more successful than men. It means that the program EBCG is more effective for women than for men. In other words, the estimated coaching effects do not show which subgroups are more successful but for which subgroups coaching is effective and for which subgroups it is not effective.[96] Table 5.10 shows which subgroups are used and where the coaching effects for these subgroups can be found in the appendix.[97]

Table 5.10: Subgroups used in the analysis for the effects of the program EBCG

Type of subgroup	Coaching effects presented in table
Subgroups by sociodemographic characteristics	
Men/Women	A.16
Entrepreneurs with/without upper secondary school degree	A.17
Subgroups by regional characteristics	
Living in East Germany/West Germany	A.17
Unemployment rate high/low	A.18
Self-employment rate high/low	A.18
Subgroups by coaching quality	
Coaching quality good/bad	A.19

Note: Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used.

Whereas the ATT shows the effects within subgroups, we will also briefly compare the success between subgroups. This will be done by a comparison of the short-term survival rate in self-employment of participants and matched non-participants. The results of this analysis are illustrated in the figures 5.1 to 5.5. Using these figures one can see whether the coaching effects occur on different

[96] However, we are only estimating average effects. Thus, a positive estimated coaching effect among a subgroup does not mean that coaching is useful and effective for each individual in this subgroup.

[97] The average of the effects of two mutually exclusive subgroups do not need to show the effect for the total sample. Even more, the effects of the two subgroups can both be higher or lower than the total effect. This is caused by the matching approach and the subgroup specific reestimation of the propensity scores.

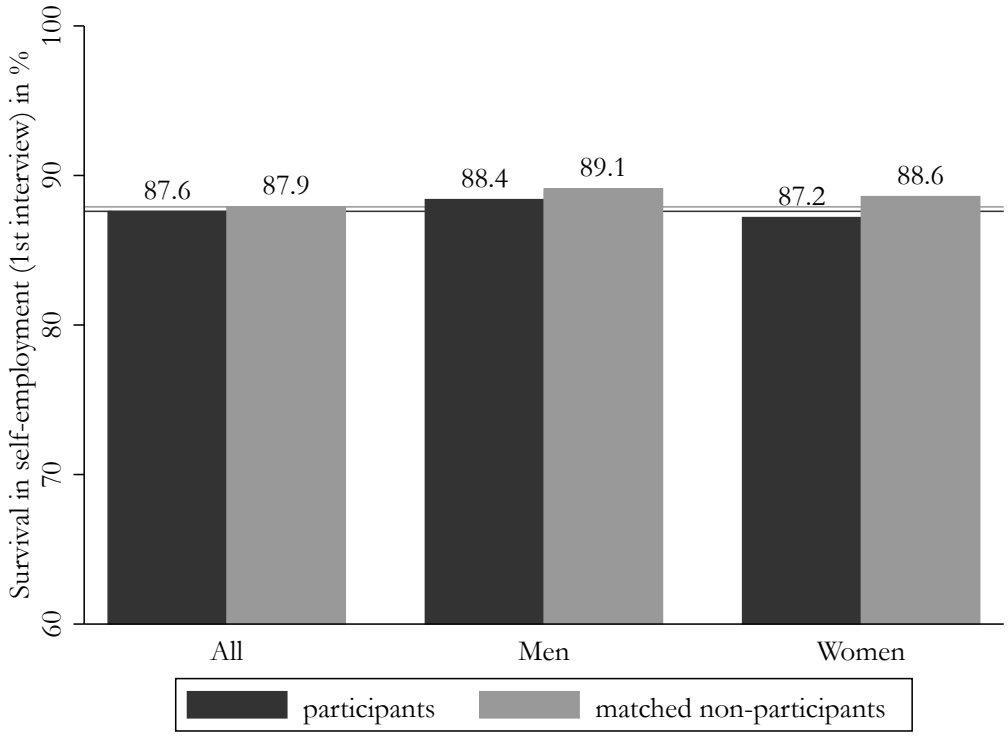
levels of survival rates.

Table A.16 shows the results for men and women separately. The negative effect on survival in the long run is exclusively caused by male participants. Male program participants have a 9.02% points lower probability to stay in self-employment than male non-participants. Whereas this effect is significant on the 1% level there is no significant program effect for women. The long-term survival difference between participants and matched non-participants is actually very close to zero among women (0.78% points lower for participants). Figure 5.1 compares the levels of the survival probability of participants and matched non-participants. The bars for the two groups of matched non-participants in figure 5.1 show that the level of short-term survival in self-employment is a bit lower for women (88.6%) than for men (89.1%). But in general, as figure 5.1 shows, the short-term survival rates do not differ heavily between and among subgroups.

There is no significant income effect in the subgroups of men and women. The (not significant) income differences between participants and non-participants are not very different between the subgroups of men and women. Concerning the effect on the employees the picture is similar to the one considering the survival effects. The negative coaching effects on the long-term probability of having employees is mainly driven by men. It is likely that the negative effect on the probability of having employees is also caused by the negative employment effect as becoming unemployed involves the number of employees falling to zero. In the short term the negative coaching effect is stronger for women. Among men, coaching leads to a 9.14% points lower probability of having at least one employee at the first interview (significant on the 5% level). Among women, coaching leads to a 13.09% points lower probability of having an employee (significant on the 10% level). In the long run this highly negative effect mitigates for women (-8.38% points, not significant) but reinforces for men (-11.94% points, highly significant). As mentioned earlier, the reason for these negative effects on the probability of having employees might be due to the fact that the coach discourages the entrepreneur from hiring employees. Considering the subjective outcome measure of satisfaction the results are similar. Program participation has a more negative effect on the satisfaction rates of men, than on the ones of women. One explanation for these gender differences in program effectiveness can be drawn by the detailed interviews with the coaches during the qualitative part of the analysis. Some coaches state that women are more realistic or even underestimate themselves, whereas men overestimate them-

selves regarding their business plans and prospects. Hence, some coaches argue that the type of coaching sessions differ by gender. This may explain why some coaching effects are more negative among men than among women. Coaches might try to adjust the overestimating attitude among men. Consequently, male participants hire less employees than matched non-participants, are less satisfied (as they realize their overestimating attitude) and quit their self-employment more often. In summary, program participation is not recommendable for men. It might also be that women are better at implementing the solutions the coach suggested. But even if the coaching effects for women are less negative than for men, coaching does not have significant positive effects for women.

Figure 5.1: Short-term survival rate comparison: EBCG participants and comparison group – Total sample and gender



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.16. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of matched non-participants (87.9%). The lower line shows the survival rate of participants (87.6%).

Comparing the effect for high educated and low educated[98] individuals we observe that in the group of high educated the effect on survival is more negative, whereas in the group of low educated the effect on income is more negative. Table A.17 shows that coaching does not help high educated entrepreneurs to stay self-employed. In the long run coaching leads to a 11.34% points lower survival probability in self-employment among entrepreneurs with an upper secondary school degree. This effect is considerably lower for low educated (-5.46% points). Contrary to this, the negative income effect is mainly driven by low educated participants. Both income measures are significantly negative and large among low educated. Coaching leads to 585 € less earned income per month at the time of the second interview among low educated (significant on the 1% level). Considering the income shortage of entrepreneurs in the initial period after start-up this is a substantial effect. Coaching has negative effects on hiring employees among both of the subgroups. The effects on the number of employees are a bit worse for high educated entrepreneurs.

Although, the short-term coaching effects on survival are similar in the subgroups of low and high educated (-1.16% points; -2.58% points) the levels of the survival rate differ between these subgroups. Figure 5.2 illustrates that in our dataset, surprisingly, entrepreneurs with upper secondary school degrees have lower survival probabilities, than the individuals without this degree. This might be caused by the fact that high educated have better employment opportunities in dependent employment than low educated. The income differences between being self-employed and being employed might be higher for high educated. This could lead to more entrepreneurs changing to dependent employment among high educated than among low educated. Furthermore, figure 5.2 shows that coaching leads to a reduction of the survival probability among both of the groups.

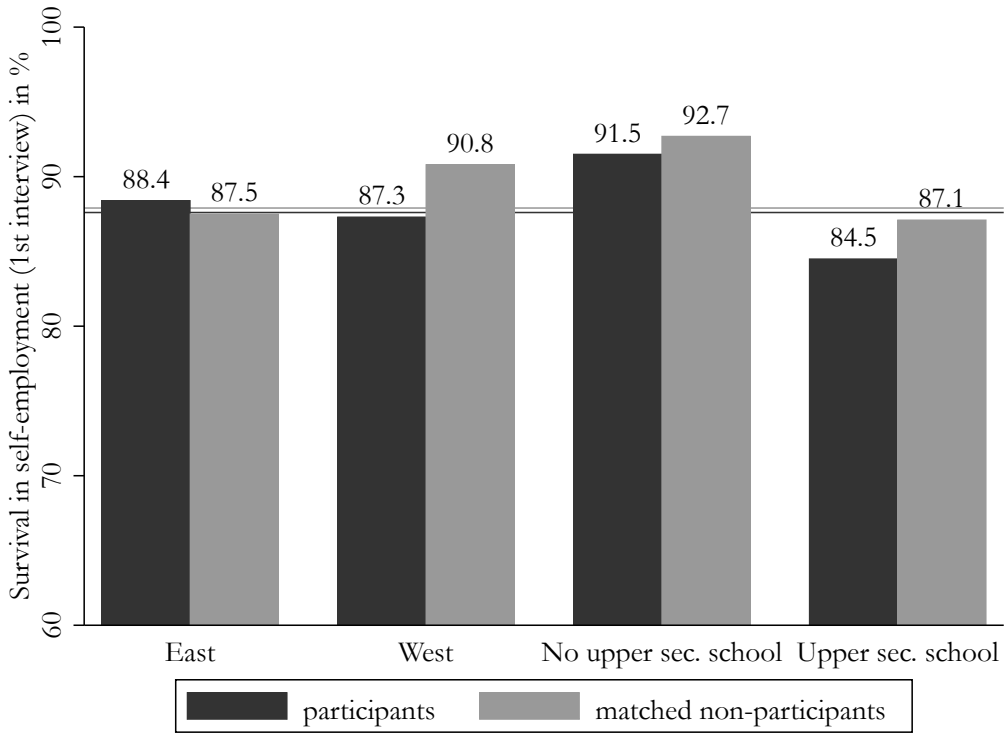
In the following we will check whether or not there are regional differences in the effectiveness of coaching. We will analyze the effect heterogeneity based on geographical regions and based on differences in the characteristics of the regions. The research question whether or not coaching is more useful (or harmful) in regions with high/low self-employment or unemployment rates is of particular interest. Obviously the regional variables (self-employment rate and unemployment rate) are endogenous in a way that they might be influenced by coaching

[98] We distinguish between entrepreneurs with upper secondary school degree qualifying for university admission and ones without this degree.

processes. Therefore, we use the self-employment and unemployment rates before coaching. Hence, we are able to show in which regions coaching is more successful. Before analyzing these topics we will consider geographical differences in coaching effectiveness.

While looking at the subgroups East Germany and West Germany, the difference in coaching cost absorption should be considered. The cost absorption is 75% in East Germany and only 50% in West Germany. Table A.17 shows the coaching effects among these subgroups. The coaching effects on income, long-term survival, and satisfaction are worse in East Germany. In the long term, coaching leads to a 10.60% points lower survival probability in self-employment and 428 €

Figure 5.2: Short-term survival rate comparison: EBCG participants and comparison group – Regions and education



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.17. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of matched non-participants (87.9%). The lower line shows the survival rate of participants (87.6%).

less income in East Germany. In West Germany it only leads to a 4.83% points lower survival probability and 263 € less income. Both income effects among the subgroups are not statistically significant. These findings also give an indication of whether or not it is better to increase the cost absorption (as it is higher in East Germany). The results do not point to such a policy change. The region with the higher cost absorption has more negative effects, which leads to the fact that this "advantage" of a higher cost covering rate in fact turns out to be a disadvantage in terms of program effectiveness. Again, the estimation does not compare participants between subgroups but participants and non-participants within subgroups. Therefore, it would be incorrect to interpret the worse development of participants in East Germany as effect of worse business conditions in East Germany. The business conditions are the same for participants and non-participants in East Germany. It can only be said that the program is more effective, or at least does not have such strong negative effects, in West Germany, than in East Germany. However, this statement does not apply to the number of employees in the companies. The coaching effects on the number and the existence of employees are similar in East Germany and West Germany.[99] Figure 5.2 shows that the – however not significant – negative effect on survival in West Germany is caused by a higher survival probability of matched non-participants (90.8%) compared to the survival probability of matched non-participants in East Germany (87.5%).

The effects are disappointing concerning program effectiveness. Coaching leads to 1.69 less employees in West Germany at the time of the first interview. Further, after the second interview coaching leads to a 10.59% points (West Germany) to 10.98% points (East Germany) lower probability of having employees. As mentioned before this negative effect is partly caused by the negative employment effect. Interestingly, the negative program effect on the satisfaction rate is only caused by participants (and non-participants) in East Germany. There is no significant coaching effect on the shares of individuals being highly satisfied with their life or job in West Germany. In East Germany coaching affects satisfaction rates in a highly negative way. In the short run coaching leads to a 12.68% points lower probability of being highly satisfied with one's own life. This difference between participants and matched non-participants even rises in the long run. Coaching decreases the long-term life satisfaction rate by 19.08% points in East Germany.

[99] The lack in statistical significance among the subgroup of East Germany is also caused by a considerably lower number of observations in East Germany than in West Germany.

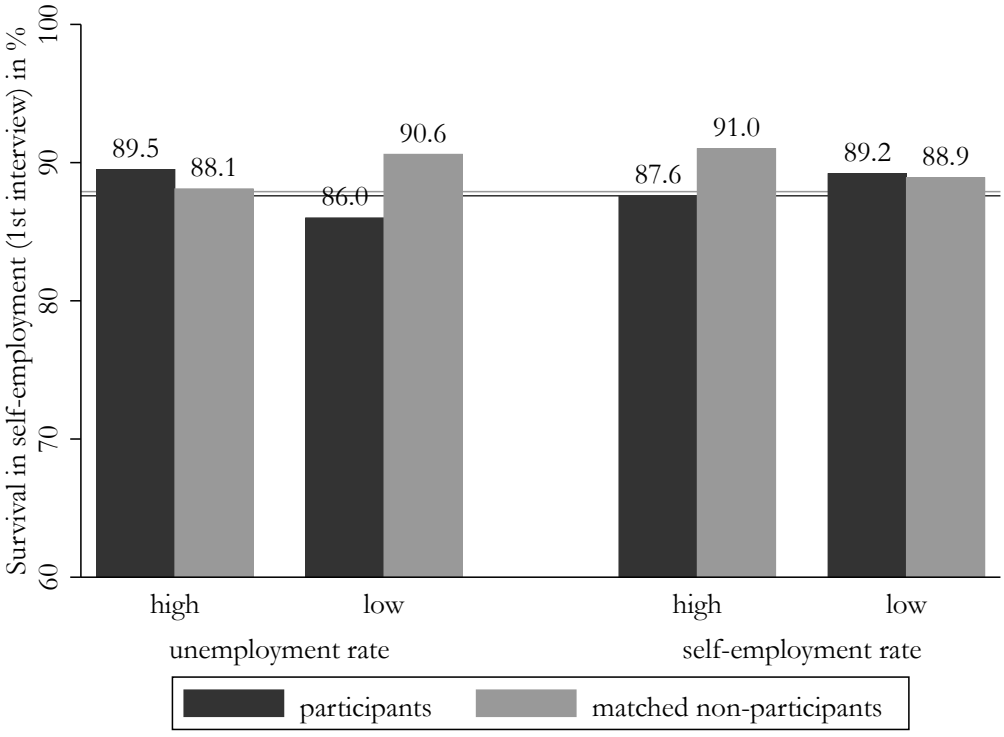
The coaching effect on the job satisfaction rate is also negative in East Germany. In the short term, coaching leads to a 8.40% points (significant) lower probability of being highly satisfied with the own job, whereas this negative effect decreases to 4.29% points (not significant) in the long run. The negative coaching effect on the job satisfaction rate for entrepreneurs in East Germany might be caused by the strongly negative effect on entrepreneurs' income. The lower income of participants probably leads to a lower share of individuals being satisfied with their job.

Table A.18 shows the matching results for the subgroups of regions with high and low unemployment rates. The negative coaching effects are stronger in regions with a low unemployment rate than in ones with a high unemployment rate. The long-term coaching effect on entrepreneurs' survival in self-employment is -6.69% points in regions with a high unemployment rate and -8.39% points in regions with low ones. Coaching leads to 425 € less monthly earned income in regions with low unemployment, whereas it only reduces earned income by 9 € (not significant) in high unemployment regions. Employee development is also influenced more negatively by coaching in low unemployment regions, than in ones with high unemployment rates. In low unemployment regions coaching leads to a 15.75% points lower probability of having employees in the long term. This effect is only -7.26% points in high unemployment regions (not significant). Only the life satisfaction rate is more negatively influenced in regions with high unemployment rates, than in regions with low unemployment rates. In the long run coaching leads to 15.01% points lower probability for high life satisfaction in high unemployment regions. There is no negative effect on the life satisfaction rate (-1.78% points, not significant) in regions with low unemployment. Interestingly, figure 5.3 shows that the more negative coaching effect on short term survival probability is also caused by regional level differences of entrepreneurs' success. The survival probability of matched non-participants is higher in regions with low unemployment rates (90.6%) than in ones with high unemployment rates (88.1%). Coaching decreases the survival probability rate in regions with low unemployment rates (86.0%), whereas it slightly increases the survival probability (not significantly) in regions with high unemployment rates (89.5%).

In summary, entrepreneurs are more successful in regions with a low unemployment rate but it is not useful to participate in coaching in these regions. Coaching effects on survival, income, and employee development are significantly negative in regions with a low unemployment rate. We will now consider coaching effectiveness

in regions with low or high self-employment rates. In general regions with high self-employment rates are characterized by an innovative environment. This might help entrepreneurs to generate knowledge about how to successfully lead a company. But on the other hand, the competition among small businesses might be higher than in other regions. We argue that the first mentioned point is stronger. Entrepreneurs in regions with low self-employment rate might have more problems in generating know-how about business start-ups and successful entrepreneurship. This generates a higher need for assistance in these regions. Therefore, we argued that coaching has more positive effects in regions with a low self-employment rate than in regions with a high one. Table A.18 shows that the coaching effects on

Figure 5.3: Short-term survival rate comparison: EBCG participants and comparison group – Regional characteristics



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.18. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of matched non-participants (87.9%). The lower line shows the survival rate of participants (87.6%).

survival are not very different. In the long term coaching leads to a 5.96% (5.65%) points lower survival probability in self-employment in regions with a high (low) self-employment rate. But the effects on income, the number of employees and satisfaction are more negative in regions with high self-employment rates than in regions with low self-employment rates. In the long run coaching leads to 587 € less earned monthly income in high self-employment regions. In regions with a low self-employment rate coaching increases the monthly income by 124 € (not significant). Coaching reduces the probability of having employees in the short run (-17.25% points) and in the long run (-18.24% points) in regions with a high self-employment rate. These negative effects are weaker (-6.53% points and -9.63% points) in regions with a low self-employment rate. To conclude, table A.18 shows that 9 out of 12 of the observed outcome measures are significantly negative in regions with a high self-employment rate. Hence, coaching is not useful in these regions. In regions with a low self-employment rate only 2 out of 12 outcome variables are significantly negatively influenced by coaching. Therefore, hypothesis H6* can be confirmed. However, there were also no positive effects of coaching in regions with a low self-employment rate. Table 5.11 summarizes the findings about the relationship between coaching effectiveness and the characteristics of the region.

Table 5.11: Hypotheses about regional effect heterogeneity of the program EBCG

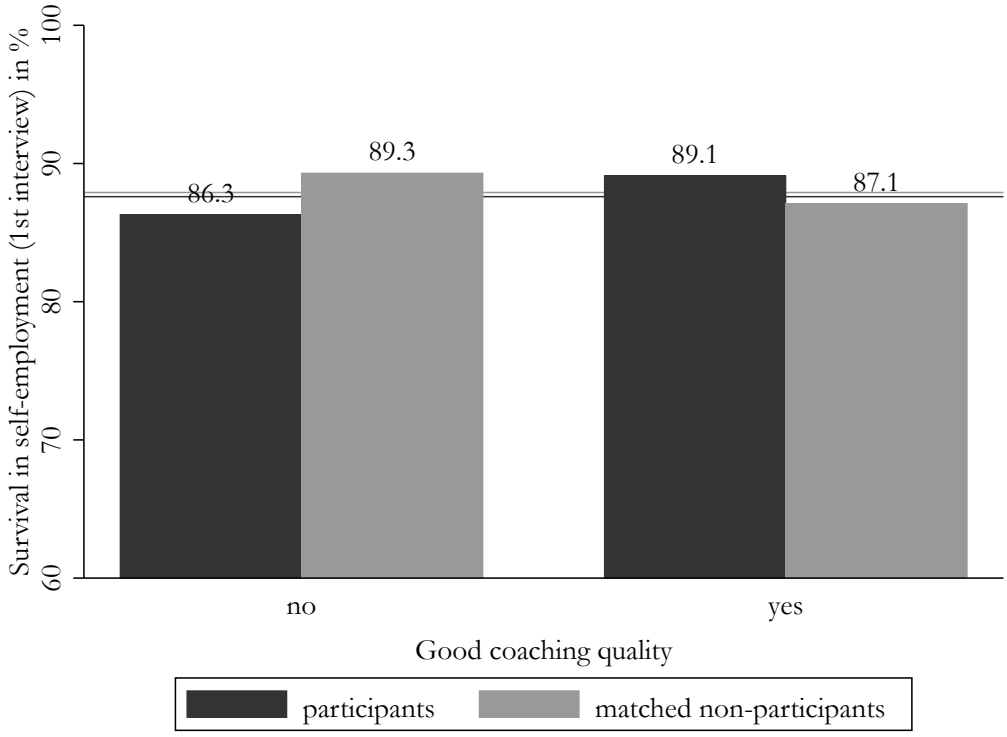
No	Hypothesis	Confirmed	Comment
H5*	Coaching has more positive effects in regions with high ue rate than in regions with low ue rate	yes	but no positive effect in both types of regions
H6*	low se rate than in regions with high se rate	yes	but no positive effect in both types of regions

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: ue rate = unemployment rate; se rate = self-employment rate.
Explanation: Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. We used the rates of the year 2008.

One explanation of the clear negative program effects might be the treatment itself. The above could be explained by the possibility that the coaching itself is not helpful to the entrepreneur as the coaching quality might be insufficient. As a result coaching may cause the above displayed negative effects. The question

of whether or not the coaching quality is sufficient is not easy to answer as there are no official measures of coaching quality. The following intensifies the problem of bad coaching quality: Coaching is still not accepted as an official profession. "There are no professional standards, no minimum requirements, which could give orientation to young founders or business people" (Müller and Diensberg 2011, p. 43). The main reason is the lack of general theories and methods in coaching, hence (inter)nationally accepted coaching certificates. Nonetheless, coaching is a format which is used in practice. The lack of theoretical background and methods complicate the acceptance of coaching as a profession (Birgmeier 2008). This missing official framework might cause bad coaching quality. To determine the

Figure 5.4: Short-term survival rate comparison: EBCG participants and comparison group – Coaching quality



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.19. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the matched non-participants (87.9%). The lower line shows the survival rate of participants (87.6%).

coaching quality, we added a few questions to the questionnaire of the quantitative analysis that address these issues. In the following, we will test whether or not the coaching quality influences the coaching effectiveness. A bad coaching quality might be a reason for the negative coaching effects.

In the survey several questions were asked indicating whether or not the coaching quality was good. The answers to these questions are used to define a good coaching. In detail, we select three dimensions for a good coaching. As mentioned in section 2.1 problems of new enterprises often result from mistakes in the prefoundation period. This has to be considered in coaching. The coach should therefore conduct a comprehensive appraisal of the existing enterprise at the beginning of coaching. Hence, the coach should ask detailed questions and listen carefully to get a good picture of the entrepreneur and the enterprise. Following the changes of the institutional settings described in section 4.1.3 we also believe that coaching is only useful in single sessions. As shown in section 2.2 this is not true for other forms of supporting companies. Furthermore, it is easier and more straightforward if the coach and the entrepreneur define coaching aims. The achievement of these aims can be validated which enhances the effectiveness of the coaching process. This leads to three indicators typifying a good coaching. We included them in the survey by asking the following questions.

1) Did the coach conduct a comprehensive appraisal of your company?
Scale from 1 to 7:
1: not at all, 7: thouroughly
Good coaching: Answers 6–7

2) Which kind of coaching was it?
1: Single Sessions, 2: Group Sessions, 3: Seminars
Good coaching: Answer Single Sessions

3) The coaching had clear coaching aims which were determined at the beginning of the coaching.
1: Yes, 2: No
Good coaching: Answer Yes

An indicator was constructed showing the value 1 if all answers to the three questions point to a good coaching quality. According to this indicator 48.73%

of EBCG participants participated in good coaching sessions. Table A.19 shows the relationship between coaching effectiveness and coaching quality. Surprisingly, the results do not differ widely. Bad coaching is a bit more harmful in terms of companies' survival probability and entrepreneurs' short-term income than good coaching. There is almost no difference of the effect of good or bad coaching on the number of employees. Short-term life and job satisfaction are negatively influenced by bad coaching, whereas good coaching has no negative effect on satisfaction. Figure 5.4 reveals that there are only slight differences between the short-term survival rates in self-employment regarding heterogeneous coaching qualities. As a result, it is surprising that different coaching quality does not influence coaching effects heavily.

In conclusion, the effects of the coaching program EBCG are very negative. The program is not able to increase the success of entrepreneurs. Especially the coaching effects among men are significantly negative. Furthermore, coaching is not useful in regions with a high self-employment rate. The effects on almost all success variables used, are significantly negative in these regions.

5.4 Matching quality

As described in section 3 we need to check the matching quality of our approach. Through this, we check whether there is a misspecification present and whether there is a failure of the conditional independence assumption. Table A.27 to A.31 show the results of the three discussed tests for the matching quality for all used subgroups.

As we have seen in section 5.2 EBCG participants are very different from their comparison group. Therefore, it is very important to test whether these differences are eliminated through the matching procedure. The differences between the group reappear in table A.27. The mean standardized bias is 15.81% if we do not conduct matching. In 47 out of the 82 covariates there are significant differences in the means between the groups of participants and non-participants on a 5% significance level. Several of these differences were described in section 5.1 and 5.2. The pseudo-R^2 of the probit model estimating the participation probability is high if there are many differences in covariates between participants and non-participants. Before matching there is a very high pseudo-R^2 due to the very large differences of the characteristics in the two groups. It has a value of 0.26 before matching.

The matching approach works very well in terms of balancing out the differences between EBCG participants and their comparison group. The mean standardized bias decreases from 15.81% to 3.03%. As described earlier a reduction to a value of 3% to 5% is mostly seen as sufficient (Caliendo and Kopeinig 2008). The t-tests which compare the means of the characteristics of both groups visualizes the good matching quality. Due to the matching the group differences in the 47 covariates vanish completely. After matching there is no covariate left which is significantly different between the two groups. The third measure, namely the pseudo-R^2 shows a similar picture.[100] If the estimation of the participation probability is conducted again after matching the pseudo-R^2 decreases from 0.26 to 0.02. All three measures (t-test of mean differences, mean standardized bias, and pseudo-R^2) indicate a very good matching quality. Therefore, we argue that it is valid to interpret the estimation results of the matching procedure as causal program effects. The matching quality for the subgroups is not as good as for the entire sample, but it is also sufficient.

[100] According to the construction of these measures, they necessarily need to show a similar picture. For the construction of these measures see section 3.

5.5 Sensitivity analysis

In the present section we will conduct an extensive sensitivity analysis. This will indicate whether the surprising results of negative coaching effects are robust. First, we will check whether there are reasons for the negative program effects which can be answered by the data at hand. Second, we will test whether or not the results are robust due to the bandwidth choice in the matching approach.

5.5.1 Choosing an adequate comparison group

If we do not find any evidence in the data for the negative program effects there may be unobserved characteristics causing the results. Using matching there is always the possibility of unobserved heterogeneity. This problem would emerge if there is an unobserved variable which influences the success of the company and the participation probability at the same time. Additionally, the existence of such a variable is only a problem if this variable is not highly correlated with any of the observed covariates.[101] As we control for various covariates this is very unlikely. We included one valuable question in the survey which helps to overcome the concern that there might be unobserved heterogeneity. The non-participants are asked whether or not they know the program EBCG. The individuals in the comparison group knowing the program decided (for whatever reason) not to participate in the program. This is an indication that they do not need coaching, as they might have less problems with their businesses. If this difference in performance before coaching is not observed, it leads to selection bias, hence biased estimates.[102] This would mean that on average the comparison group has a higher success probability than the group of non-participants even in absence of the program. The coaching effects would be underestimated in this case. Thus, we should ask whether the observed non-treated group is an adequate comparison group for participants. We therefore designed a specification excluding non-participants who are aware of the program. The concern that the negative program effects result from the fact that there are entrepreneurs in the comparison group who do not need the coaching because they are more successful anyway, hence do not self-select into

[101] If we think about an unobserved variable which is perfectly correlated with a covariate we already use, the unobserved variable would not add information, hence will not bias the results.

[102] Remember that this is only a sensitivity check. If the described non-participants differ in terms of the variables used in the matching approach (see table A.8 for used covariates) this difference is captured. This would not result in biased estimates.

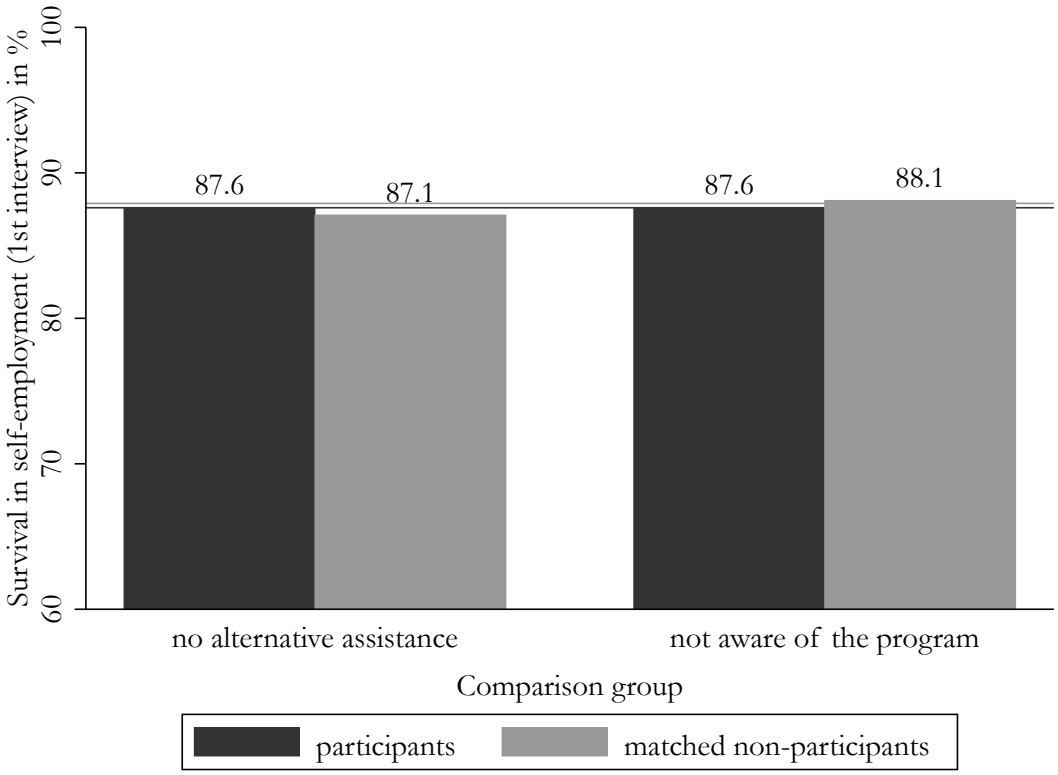
coaching, cannot be confirmed. Table A.19 shows that the program effects using only the subgroup of non-participants (last column in table A.19) who were not aware of the program as comparison group do not differ widely from the effects using the entire sample. In fact, most effects are a little more negative than using the entire sample of the comparison group. As figure 5.5 shows the short-term survival probability in self-employment of participants (87.6%) is slightly lower than the ones of matched non-participants (88.1%). However, this difference is not statistically significant. These results confirm that the estimates using the entire sample are not biased due to the fact that the comparison group included entrepreneurs who knew the coaching program and decided not to participate in it because they are more successful and do not need coaching. This means that the negative program effects are not sensitive to the awareness of the program of the comparison group.[103]

Another reason for the negative program effects could be that the non-participants substitute coaching by other assistance programs. If this is the case and the other programs have better effects on business success, the effects of the analyzed coaching program would be underestimated.[104] Therefore, we asked the comparison group whether or not they participated in another assistance program or consulting service. We then construct a subsample in which we excluded these non-participants. This trimming of the comparison group has actually two reasons. First, it can be seen whether or not the negative coaching effects result from the substitution of coaching via other assistance programs by the comparison group. Second, it can be checked whether or not it is correct to set program participation equal to coaching participation. In the analysis we defined the treatment as participating in the program and set this equal to participating in coaching. The effects are therefore interpreted as the effects of coaching. This is only valid if the non-participants did not take part in any coaching. But as we just argued it is possible for non-participants to consult a coach without participating in the program EBCG. By excluding non-participants who substituted the EBCG coaching through an unsubsidized coaching we can set the program participation equal

[103] Unfortunately, it is not possible to estimate the effects using only the non-participants who know the program as comparison group. The number of observations of this group is too low.

[104] We are interested in the effect of coaching versus no coaching. If we would be interested in the effect of coaching via the program EBCG versus the effect of other assistance it would be necessary that all individuals of the comparison group participated in another assistance program. As we are only interested in the pure coaching effect we exclude the individuals with other assistane in this sensitivity analysis.

Figure 5.5: Short-term survival rate comparison: EBCG participants and trimmed comparison groups



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.19. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the matched non-participants (87.9%). The lower line shows the survival rate of participants (87.6%).

to taking part in a coaching. The penultimate column in table A.19 shows the effects of coaching by excluding the non-participants with alternative coaching sessions. As these are only 15.9% of the comparison group the program effects do not change widely by excluding these persons. This shows us that the substitution of the EBCG coaching by other coachings does not play a major role in the analysis. It also shows that coaching is still a rarely used instrument to solve problems in enterprises. We conclude first, that the negative coaching effects are not driven by individuals in the comparison group who substitute coaching via other assistance programs, and second that the assumption of setting coaching equal to program

participation is valid. Due to the fact that only a few non-participants use other means of assistance and the effects do not change by excluding them, the effects can be interpreted as coaching effects as well as effects of the program.

5.5.2 Additional outcome variable

One sensitivity test examines whether or not coaching also influences the survival of the company negatively and not only the survival of the entrepreneur in self-employment. For this purpose we constructed a variable which shows whether or not the entrepreneur is still self-employed with the same company.[105] Table A.20 shows the coaching effect on the survival of the company. The coaching effects are also negative for the survival of the company. However, the effects are not statistically significant. Hence, coaching does not have such a negative effect on the company as on the employment status of the entrepreneur.

5.5.3 Bandwidth choice

As a last sensitivity check we change one parameter of the matching approach, namely the bandwidth choice. Table A.21 shows a comparison of two bandwidth choices. In the penultimate column we used 0.06 as bandwidth for estimating the coaching effect of every outcome variable. We decided to use this consistent bandwidth of 0.06 for estimating the effects according to all success measures in the analyses of the coaching program effects of the program EBCG. To check whether or not the results are robust we changed the bandwidth parameter and calculated the "optimal" bandwidth for each outcome measure.

All twelve observed outcome variables have the same sign whether 0.06 is used for the bandwidth or the optimal one. In general, the level of the effects do not differ widely. For example, the long-term survival rate of the enterprises is 6.03% points lower for participants than for matched non-participants if one uses the uniform bandwidth of 0.06. Using the optimal bandwidth it is 6.25% points

[105] As we already argued coaching is a person oriented approach and can influence the entrepreneur directly and only indirectly the company. Hence, we choose to use the survival of the entrepreneur in self-employment as outcome measure in the main specification and not the survival of the company. Additionally, there are data problems with the variable of the survival of the company. Due to these two data problems the sensitivity test has to be treated with caution. First, there is some misreporting in the variable whether an entrepreneur is still self-employed with the same company (survival of the company). Second, there might be cases in which the company still exists but the entrepreneur is not the owner of the company anymore. Thus, the company survived but the entrepreneur does not survive in self-employment. We do not have information on this in the available data.

lower for participants than for matched non-participants. Significances also only change slightly. Through the utilization of the optimal bandwidth, coaching has a significantly negative effect on life satisfaction. Overall, we conclude that the program effects estimated in the analysis in section 5.3 are not sensitive to the bandwidth choice.

5.6 Conclusion

The analysis showed that entrepreneurs participating in coaching significantly differ from entrepreneurs not participating in coaching. In general, good start-up conditions such as having a high start-up capital decrease the participation probability in coaching sessions. This is what we expected: "better" entrepreneurs face less business problems, hence, ask for less assistance.

Beside the mentioned data about the selection process due to the described characteristics of the observed individuals we have unusually detailed information on the non-participants' reasons for not participating. This enabled us to present novel evidence about the drivers of selection procedures. We have access to information that indicates whether non-participants were aware of the program and in case of their awareness of the program, what were the reasons for their non-participation. We showed that the division into participants and non-participants is mainly caused by information asymmetry. About 83% of the non-participants did not know the program. Out of the roughly 17% of non-participants who know the program about 60% did not participate because they simply do not need coaching. Obviously, this information cannot be used in the main specification as there is no variation in the group of participants because they all know the program. However, we were able to use this information in a sensitivity analysis.

In the main specification we controlled for the large differences between participants and non-participants in the observed characteristics. The good matching quality showed that the matching procedure used, works well and eliminates almost all of the differences between participants and non-participants. Thus, an adequate counterfactual for participants was constructed to estimate the effects of the program EBCG.

In conclusion, the effects of the program EBCG are disappointing as there are no positive effects at all. Table 5.12 shows an overview whether there are positive (indicated by +) or negative (indicated by –) or no (indicated by 0) significant coaching effects for the different subgroups. The evidence of effectiveness of the program is clearly negative. Table 5.12 shows that there are negative coaching effects on survival in self-employment, earned net income, number of employees, and satisfaction for most of the subgroups.

Table 5.12: Coaching effects of the program EBCG – Overview

Outcome variable	All	Men	Women	East	West	Upper sec. school		Regional ue rate		Regional se rate	
						no	yes	high	low	high	low
Self-employed											
1st interview	0	0	0	0	0	0	0	0	0	0	0
2nd interview	–	–	0	–	–	–	–	–	–	–	–
Individual earned net income (€/month)											
1st interview	–	0	0	–	0	–	0	0	0	–	0
2nd interview	–	0	0	0	0	–	0	0	–	–	0
Employees											
≥ 1 employee 1st interview	–	–	–	0	–	–	–	0	–	–	0
Number of employees 1st interview	–	–	0	0	–	0	–	0	0	–	0
≥ 1 employee 2nd interview	–	–	0	–	–	–	–	0	–	–	–
Number of employees 2nd interview	0	0	0	0	–	0	0	0	0	0	0
High life satisfaction											
1st interview	0	0	0	–	0	–	0	–	0	–	0
2nd interview	–	–	0	–	0	–	0	–	0	–	0
High job satisfaction											
1st interview	0	0	0	–	0	0	0	0	0	–	0
2nd interview	0	0	0	0	0	–	0	0	0	0	0

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: +/– indicate positive/negative coaching effects at least on the 10% significance level. 0 indicates no significant coaching effects.
The 1st interview was conducted 16 months after the end of the coaching process and the 2nd interview 38 months.
ue rate = unemployment rate; se rate = self-employment rate; Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used.

There are several explanations for the surprisingly negative coaching effects. Some of these explanations can be tested by the data at hand. Others unfortunately cannot be tested. Table A.37 gives an overview of the nine possible explanations for negative coaching effects resulting from thorough considerations. We will explain the single points shortly and then conclude which reasons are the ones most likely for the negative coaching effects.

A first possible explanation for negative effects is the coaching itself. Coaches might advise entrepreneurs to save costs to keep the company alive. Hence, it is possible that coaches advise entrepreneurs not to hire (too many) employees as this is costly. The group of non-participants – not getting this advice – might therefore hire more employees than participants. The same reasoning can be true for the earned net income of the entrepreneur. This money is an expense for the enterprise. A coach might advise the entrepreneur not to take too much money out of the company as own income as this will lower the profit of the company. Consequently, one could argue that this effect cannot be treated as negative as the coach helps to decrease the costs of the enterprise. However, the coach's reasoning behind giving this advice should be considered. If the entrepreneur is told by the coach to save costs this is caused by a potential – or already given – liquidity shortage. Even if the advice by the coach might decrease the number of employees and the entrepreneurs' income (consequently possibly also her/his satisfaction) the entrepreneur should have a higher survival probability in self-employment as the companies probability to survive is higher due to the lower expenditures. But the results show that the survival rate is negatively influenced by coaching. Consequently, this reason can only be part of the story for explaining the negative coaching effects.[106]

A second explanation also addresses the negative effects on the survival in self-employment. As we have seen in table 5.5 of the descriptive part the negative effect on survival in self-employment also depends on entrepreneurs becoming self-employed with a new company. We cannot make statements about the dynamics of the changing employment status between the two observed interviews. However, as we have seen in the descriptive part of the study, the negative effect on survival in self-employment also depends on the fact that more entrepreneurs in

[106] If the coaching intervention increases the entrepreneurs risk aversion she/he may possibly sell a bad company instead of continuing leading the company as this strategy is less risky. This would lead to a lower survival probability in self-employmet due to coaching. However, it is not very likely that coaching in general influences the personal risk aversion.

the group of non-participants start a new business, than shut down a business. For the group of participants, the opposite is true, more entrepreneurs quit self-employment than start a new business. This difference also drives the negative effect on survival in self-employment. One explanation for this group difference is the following: Program participants learned from the coaching that starting and leading a business is even more complex than they thought. After termination of the self-employment during which they participated in coaching, they do not start a new business. They might be deterred from starting a new business. On the contrary, non-participants do start new businesses after a failure. As shown in the sensitivity analysis this partly explains the negative coaching effects on survival in self-employment. Using the survival of the company as outcome measure the negative coaching effect gets smaller and insignificant.

A third explanation cannot be the reason for negative coaching effects but at least for zero coaching effects. As recognized in the descriptive part, the entrepreneurs are well-educated and do have a lot of experience in self-employment – even in the same industry. Coaching often provides general business knowledge which might already be common knowledge among this group of well-educated entrepreneurs. Meaning that the gain in knowledge about solving business problems is infinitesimal. Hence, there is no positive effect of coaching for these entrepreneurs.[107]

A fourth explanation for negative or at least zero program effects might be the coaching quality. Coaching can only be effective if the coach is able to provide a good coaching quality. As there are no regulations about fixing the coaching quality or setting a minimum coaching quality it is difficult to monitor whether or not the coaches are able to provide good coaching sessions. We tested whether or not this problem of potential bad coaching quality drives the negative effects. We found that coaching sessions with a better quality only slightly improve effects compared to bad quality coaching sessions. Consequently, bad coaching quality is not the main driver for the negative coaching effects.

To test a fifth and sixth explanation, we conducted two sensitivity tests in terms of the choice of the comparison group. As the negative effects might be driven by some individuals of the comparison group receiving alternative assistance (which might has better effects) we excluded these individuals from the

[107] However, this explanation contradicts, in a way, the second explanation as we stated in the second explanation that the coaching might have effects on the subsequent self-employment probability.

comparison group. In another specification we excluded individuals of the comparison group who know the coaching program but decided not to participate. As this decision might be an indicator for missing coaching needs these individuals possibly would have performed better than participants even in absence of the program. Both of these selection issues could explain negative coaching effects. The results showed that neither tests result in estimates showing better coaching effects. Hence these reasons are not the cause for the negative coaching effects.

A seventh explanation for negative coaching effects would be if the coach advises the entrepreneur to shut down or sell the company because the coach thinks the entrepreneur is better off in dependent employment. In all detailed questions about the coaching sessions in the personal interviews with the entrepreneurs and the coaches there is no evidence for coaches giving this advice. Hence, it is unlikely that this drives the negative coaching effects.

As eighth and ninth explanation we consider remaining selection problems in estimating the program effects. We observed large differences in the characteristics of the individuals between the treatment and the comparison group. An eighth explanation for the effects would be that these large differences cannot be leveled out by the matching procedure, hence, negative coaching effects arise because of remaining differences between participants and matched non-participants. In the matching procedure we controlled for these group differences. Moreover, the matching quality showed that the matching procedure works well. Therefore, we argue that remaining group differences are not the reason for the negative coaching effects. However, the possibility of unobserved heterogeneity between the groups can never be ruled out completely. But as we a) use many covariates to estimate the selection into program, b) show that the matching quality is very good, and c) have unique information about the selection into treatment, we argue that the possibility of biased estimates due to unobserved heterogeneity is very unlikely.

After discussing all possible drivers for negative coaching effects the following can be concluded: Explanations four (bad coaching quality), five (non-adequate comparison group), six (non-adequate comparison group), and eight (remaining group differences) are shown by the available data not to be the reasons for the negative coaching effects. We argue that explanations seven (coach advice) and nine (unobserved heterogeneity) are very unlikely to drive the result, even though, we cannot test these explanations.

We are also not able to test explanations one (save costs) and three (successful

entrepreneurs) by the data at hand. These explanations are only conjectures based on theoretical considerations. However, as we eliminated many other possible reasons for the negative effects, we argue that the combination of explanation one, two, and three is likely to lead to negative coaching effects. First, coaches advise entrepreneurs to save costs, hence not to hire (too) many employees. Second, entrepreneurs participating in coaching have a lower probability to start a new company after failing with their original company. Third, previously employed entrepreneurs are successful anyway and coaching is therefore not able to increase this success even further.

Moreover, effect heterogeneity showed that the negative effect regarding survival in self-employment is solely driven by men. As argued earlier this might be because of the differences in coaching sessions for men and women. Coaches stated in the detailed interviews that men overestimate themselves more often than women. As women are more realistic and even underestimate themselves, coaches do not need to adjust womens' business prospects and plans downwards. But coaches might try to adjust the overestimating attitude of men downwards. This might be the reason for the negative coaching effects on survival in self-employment among men.

6

The Evaluation of the Program EBCG-UE

Start-ups out of unemployment are perceived as having been launched out of (financial) necessity, instead of the evolvement of a good business idea. Due to this kind of motivation the success probability of start-ups out of unemployment may be low. Some authors find that they have a low survival probability (Andersson and Wadensjö 2007; Carrasco 1999; Pfeiffer and Reize 2000) and produce small businesses (Vivarelli and Audretsch 1998). This raises the discussion whether or not these entrepreneurs should be supported via public labor market programs. In this discussion one should keep in mind that if the previously unemployed entrepreneurs are successful there might be a so called double dividend. The entrepreneurs create their own job and further jobs by hiring employees (Caliendo and Künn 2011). Some literature shows that it is useful to support these kind of entrepreneurs via subsidies and other assistance.[108] By analyzing the effects of start-up subsidies in Germany, Caliendo and Künn (2011) find that start-ups out of unemployment are successful. They find that 81%–89% of the participants of two start-up programs are integrated into the labor market five years after start-up. Furthermore, their earned income is relatively high and they are satisfied with their occupation.

Beside monetary assistance via subsidies or benefits, there is the relatively new way of supporting entrepreneurs via subsidized coaching sessions in Germany.

[108] In total, literature shows mixed results for the effectiveness of governmental support. For a good overview, see Caliendo and Künn (2011).

Whereas subsidies try to solve the common problem of lack of capital in the start-up period, coaching provides non-monetary assistance by providing active help in solving business problems in the initial period after start-up. In the present chapter we will analyze whether or not coaching can help former unemployed individuals to overcome these problems. All of the observed individuals received some kind of start-up subsidy or benefits after starting a business.[109] On top of that support, some entrepreneurs participate in subsidized coaching sessions. We will analyze whether or not these coaching sessions have effects on the success of the participating entrepreneurs. This will provide evidence whether or not it is useful to support previously unemployed entrepreneurs with additional assistance, namely coaching.

This chapter describes the effects of the program EBCG-UE. We will see that this program is more effective than the program EBCG described in the previous chapter. The coaching effect on survival in self-employment does not differ between men and women. But the coaching has more positive effects on long-term income and the number of employees of male entrepreneurs than on female entrepreneurs. Furthermore, coaching is especially useful for entrepreneurs living in East Germany, in regions with high unemployment rates, and in regions with low self-employment rates.

This chapter is organized as follows:[110] First, section 6.1 will show descriptive evidence about coaching participants and an adequate comparison group. The aim of this description is twofold. First, it will create a picture of the kind of individuals participating in coaching. Second, it will draw attention to differences between program participants and the used comparison group (non-participants). With utilization of an econometric model, section 6.2 will support the analysis of the differences between participants and non-participants. Main selection concerns into program participation are analyzed and a detailed picture about selection into coaching will be drawn. This will be done by testing the hypotheses stated in section 4.4. Following that, the effects of the program EBCG-UE are discussed in

[109] Entrepreneurs are only allowed to participate in the coaching program EBCG-UE if they received start-up subsidies according to the Social Act II, § 16b / § 16c or the Social Act III, § 57 in the first year after start-up. Furthermore, entrepreneurs who received benefits to secure one's livelihood in the first year after start-up are also allowed to participate (Social Act II, § 20). However, only 6.54% of all participants stated that they received these benefits and did not receive a start-up subsidy.

[110] Some aspects of this chapter were developed during a research project analyzing the effectiveness of the programs EBCG and EBCG-UE (Caliendo et al. 2014a). This project was joint work with M. Caliendo, A. Kritikos, S. Künn, H. Schröder and H. Schütz.

section 6.3. This section will also consider effect heterogeneity (section 6.3.2) concerning regional differences in the effectiveness of coaching. Section 6.4 will show that the performance of the matching approach is good. An extensive sensitivity analysis will be conducted in section 6.5. The sensitivity analysis will test whether the observed non-participants are an adequate comparison group and whether the results are robust to changes in the bandwidth choice used in the matching procedure. Finally, section 6.6 will conclude.

6.1 Descriptive analysis

This section mainly describes the surveyed entrepreneurs and analyzes the characteristics of their companies at the time of start-up. Beside this main task of this section, differences between participants and non-participants are also described. This will help us to discuss and analyze the differences in detail between participants and non-participants in section 6.2. For a more thorough analysis of the participants' characteristics, these were subdivided into two groups: personal characteristics and professional characteristics. Table 6.1 shows the personal characteristics and table 6.2 shows the characteristics of the entrepreneurs' professional life.

42.7% (44.8%) of the participants (non-participants) are female. The participants are on average older (41.5 years) than non-participants (40.7 years). The distribution of the people in five different age categories shows the difference even better.[111] The shares of the three youngest age categories are all higher for non-participants than for participants. The opposite is true for the two oldest age categories. In terms of school degree the observed individuals are well educated. More than half of the participants (50.3%) and non-participants (53.2%) have an upper secondary school degree. The highest vocational degree point to well-trained individuals. 45.4% (43.9%) of the participants (non-participants) have an apprenticeship. 36.6% (37.6%) of the participants (non-participants) have a university degree.

Migrations backgrounds were present for participants and non-participants, 16.2% and 16.8%, respectively.[112] The non-participants have self-employed parents significantly more often than participants, 36.4% and 29.9%, respectively. 48.3% of the EBCG-UE program participants are married. This share is significantly higher (54.6%) in the group of non-participants. The non-participants are more likely to be married and also tend to have more persons per household on average. They also have more children below the age of six. This share is 25.0% for non-participants and only 19.9% for participants. Also in line with these results is the difference of the household incomes between the two groups. The monthly net household income of the participants is 3,203 € on average and for non-participants it is 3,366 €.

[111] We categorize the age as follows: < 25, 25–34, 35–44, 45–55, and > 55 years.

[112] We define a person with migration background as one who does not have the German citizenship or has at least one parent not born in Germany.

Table 6.1: Personal characteristics of entrepreneurs

Variable	EBCG-UE-P	EBCG-UE-NP	p-value
Female	42.74	44.79	0.4719
Age (in years)	41.51	40.67	0.1114
Age bracket			
< 25 years	2.04	3.72	0.0910
25–34 years	22.29	24.32	0.4050
35–44 years	36.40	38.09	0.5431
45–55 years	32.31	27.42	0.0608
> 55 years	6.95	6.45	0.7256
Migration background	16.16	16.75	0.7805
Living in East Germany	38.85	34.24	0.0938
Handicapped	5.73	3.85	0.1160
Married	48.26	54.59	0.0271
Highest school degree			
No degree, lower sec. school, others	10.84	11.91	0.5581
Middle secondary school	38.85	34.86	0.1480
Upper secondary school	50.31	53.23	0.3084
Highest vocational degree			
No degree, in training, others	4.91	5.46	0.6667
Apprenticeship	45.40	43.92	0.6041
Advanced technical degree	13.09	13.03	0.9750
University degree	36.61	37.59	0.7217
Parents are/were self-employed	29.86	36.35	0.0167
Persons in household	2.51	2.63	0.0932
Single household	23.93	20.72	0.1766
Two person household	32.72	30.40	0.3825
Three person household	21.06	22.70	0.4904
> Three persons in household	22.29	26.18	0.1160
Child(ren) below the age of six	19.89	25.04	0.0614
Net household income (€/month)	3,203.48	3,366.35	0.5366

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The characteristics refer to the time of the 1st interview which was conducted 15 months after the end of the coaching process on average.

The above description already gives a clearer indication of what type of individuals gravitate towards coaching sessions. Entrepreneurs who participate in coaching are of middle age, well educated, about 20% of them have children below the age of six, and their monthly household income is on average about 3,200 €.

Table 6.2 shows characteristics categorizing the professional life of the entrepreneurs. Typically these characteristics are important in determining the success of a company. We will have a first look on the descriptives of the most

important characteristics of the entrepreneurs' labor market history and their motivation to start a business.[113]

Interestingly the participants spent more time in employment (21.8 vs. 20.8 years in their lifetime), whereas they spent slightly less time in self-employment compared to non-participants. But the difference in the latter is small and statistically insignificant. The average lifetime employment of the participants (21.8 years) fits to the average age of 41.5 years. This also tells us that the most of the observed entrepreneurs were not long-term unemployed. However, the reliability of these answers should be questioned. Asking a person about the months of her/his lifetime employment often leads to the fact that the person calculates the years from her/his graduation up to the time of interview. This would also include (shorter) unemployment spells. We argue that these misreportings happen in both groups (participants and non-participants) in a similar way. Hence, this does not harm the analysis.

All interviewed entrepreneurs were unemployed before the foundation of their company.[114] To control for recent experiences they are asked about their job status before the unemployment period. The most EBCG-UE program participants have been in dependent employment before this unemployment period (86.5%). Only 68.2% of the non-participants have been in dependent employment before the unemployment period. This is a substantial difference. It is consistent with the fact that participants have one year more lifetime employment than non-participants.

About three out of four individuals have experience within the field of work before start-up due to a previous dependent employment. Only 13.9% (17.5%) of the participants (non-participants) stated that they have experience due to a former self-employment. About 40% of the individuals stated that they have experience due to hobby activities.

[113] Caliendo and Kritikos (2009b) find that the motivation has an influence on the success of the company. Entrepreneurs with pull motives are more successful than ones with push motives. They find that some entrepreneurs are driven by both push and pull motives. Entrepreneurs with both push and pull motives are in between these groups in terms of success.

[114] This is a precondition to be eligible for the subsidy. In the case of the non-participants the program design assured that only previously unemployed persons were interviewed.

Table 6.2: Professional characteristics of entrepreneurs

Variable	EBCG-UE-P	EBCG-UE-NP	p-value
Lifetime employment (in years)	21.80	20.80	0.0887
$<$ 5 years	2.04	2.48	0.6131
5 – $<$ 10 years	7.98	12.53	0.0105
10 – $<$ 20 years	33.74	32.88	0.7492
$\geq$ 20 years	56.24	52.11	0.1489
Lifetime self-employment (in years)	3.38	3.49	0.6037
$<$ 2.5 years	48.26	49.13	0.7617
2.5 – $<$ 4 years	34.56	30.27	0.1087
4 – $<$ 6 years	6.54	10.05	0.0302
$\geq$ 6 years	10.63	10.55	0.9602
Employment status before unemployment			
Dependent employment	86.50	68.24	0.0000
Self-employed	1.43	2.23	0.3097
Others	12.07	29.53	0.0000
Experience within the field of work before start-up (multiple answers possible)			
Due to dependent employment	76.69	75.81	0.7188
Due to previous self-employment	13.91	17.49	0.0890
Due to hobby activities	36.81	40.69	0.1654
Push motive (scale 4–28)	14.28	15.09	0.0099

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 15 months after the end of the coaching process on average.

There are several different motivations to start-up a company. As described in section 2.3 one method is to divide them into push and pull motives. To test whether or not push and pull motives influence the program participation the motives were surveyed via four questions. Two of them indicate push motives and two indicate pull motives.[115] The pull motives are: "I always wanted to be my own boss" and "I want my business idea to turn into reality". The two push motives used are "I do not want to be unemployed anymore" and "I cannot find another job". Out of these four motives a push index is constructed showing whether the entrepreneur founded the company mainly because of push motives (high index

[115]Compare for example Caliendo and Kritikos (2009b) for a definition which motives are classified as push motives and which ones are classified as pull motives.

value) or because of pull motives (low index value).[116] There is an indication that non-participants are more inclined to found a start-up on the basis of push-motives, than participants. The index, which can show values from 4 to 28, is 14.3 for participants and 15.1 for non-participants.

In the last years economic research increasingly included psychological aspects in their analyses. This is because the personality also influences economic decision making and therefore outcomes. In our analysis we therefore also examine the personality traits of the persons. Table 6.3 shows the means of the personality traits of participants and non-participants. Furthermore, the risk attitude of the individuals is surveyed. What we are interested in is which risk attitude the participants of the program EBCG-UE have and whether or not it is different from the one of non-participants. On the one hand, one could imagine that it is more risky to start a business without external advice. This would mean the risk preference of non-participants is higher than the one of participants. On the other hand, one could also argue that entrepreneurs with higher risk preference face more problems with their company. Hence, they are more likely to consult a coach. This would mean the risk preference for participants is higher than the one for non-participants. Table 6.3 shows that on a scale from 1 (not at all risk loving) to 10 (very risk loving) participants state 6.0 on average and non-participants state 5.9. This difference is not statistically significant. But the share of non-participants stating 7 or more on the 1 to 10 scale is significantly lower (40.2%) than the one for participants (45.4%).

As described earlier the Big Five personality traits capture many different fields of the personal attitude. Generally, the differences in these variables' means between participants and non-participants are not very high. On a scale from 1 (applies not at all) to 7 (applies completely) participants score a bit higher in "openness to new experiences" (5.5 vs. 5.3), "conscientiousness" (6.3 vs. 6.2), and "extraversion" (6.0 vs. 5.9).

[116] Each of the motives is measured on a 1–7 scale. A principal components factor analysis confirmed the theory that these motives can unambiguously categorized into push and pull motives (see figure A.12 showing the rotated factor loadings and unique variances). The index sums up the values of the push motives and the reversed values of the pull motive: push index = push motive 1 + push motive 2 + (8 - pull motive 1) + (8 - pull motive 2). As each motive can have values between 1 and 7, the index has values from 4 to 28.

Table 6.3: Personality traits of entrepreneurs

Variable	EBCG-UE-P	EBCG-UE-NP	p-value
Risk attitude			
(1: not risk-loving, 10: very risk-loving)	6.00	5.88	0.2455
≤ 4	19.02	20.35	0.5614
≥ 7	45.40	40.20	0.0663
Big Five			
(1: applies not at all, 7: applies completely)			
Openness	5.45	5.34	0.1402
Conscientiousness	6.26	6.19	0.0938
Extraversion	5.98	5.90	0.1641
Agreeableness	5.98	5.98	0.9294
Neuroticism	3.97	4.06	0.2348
Internal locus of control (scale: 5–35)	28.12	27.71	0.0713
Internal locus of control: very high (scale value > 30)	30.10	25.72	0.0875

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 15 months after the end of the coaching process on average.

There is a significant difference in the internal locus of control between participants and non-participants.[117] Surveyed participants score higher in internal locus of control than non-participants. This might be an indication for the following: Entrepreneurs who think their behavior influences the companies' outcomes (high internal locus of control) believe that coaching can help them. Consequently, these individuals participate in coaching more often. If an individual does not believe in the relationship between her/his actions and outcomes it would not make sense to participate in coaching. As argued in section 2.2 a coach does not solve the companies' problems but helps the entrepreneur to solve it by her/his own. Therefore, an entrepreneur needs to be (at least a bit) convinced that she/he can influence the outcome by her/his actions (internal locus of control).

The most important success determining factor of an enterprise is the founder. She/he lays the foundation of the enterprise. Whether the company is successful is mainly influenced by decisions of the entrepreneur. These decisions anon are dependent on several characteristics of the founder: personality, experience, attitude,

[117] It is a subject for debate whether the locus of control is influenced by the coaching, hence, is an endogenous variable. As Cobb-Clark and Schurer (2011) show the locus of control is very stable over time and there are only modest changes. Therefore, we argue that also coaching is not able to change personality traits. Hence, we assume that they are exogenous.

motivation, private life and many more. With the conducted survey described in section 4.2 many of these characteristics are encompassed.

Due to the institutional settings the enterprises of the EBCG-UE participants are young. Only entrepreneurs who participated in the program in 2009 are observed. The average age of a company participating in EBCG-UE is four months at the beginning of the coaching process. Table 6.4 shows that the foundation years of all observed companies are 2008 or 2009. This is caused by the sampling design as one criteria when drawing the sample was a start-up in one of the two years. The comparison group is therefore also limited to these foundation cohorts. 67.9% (75.6%) of the participants (non-participants) founded their companies in 2009. For the following analysis the companies' age should be kept in mind. These enterprises and hence their problems might differ a lot from the problems of older companies considered in chapter 5. We have seen and discussed the importance of the companies' age in section 2.1. Table 6.4 shows the share of entrepreneurs having employees at the time of start-up. This share is 10.9% for participants and 11.7% for non-participants. There are no significant differences between the number of employees of program participants and non-participants. Conditional on having employees participants have on average 3.3 employees and non-participants 2.9. The start-up capital can be very important for the success of an enterprise. It is very heterogeneously distributed. There is a large group of 15.7% to 19.7% of entrepreneurs who start a company without any start-up capital. This is especially interesting as the entrepreneurs who participate in a coaching need to pay at least the own share for the coaching. Without any start-up capital this cost absorption is hardly possible. An unemployment spell before the start-up does not necessarily mean that individuals have no money to spend as start-up capital. About one third of the observed individuals have a start-up capital of at least 10,000 €. However, the dataset does not show whether the start-up capital is financed by savings or by loans.

The shares of the start-up capital categories of both groups show that there are no large differences between participants and non-participants. The share of the category between 10,000 € and 50,000 € is significantly higher for program participants, than for non-participants. The share without start-up capital is higher for non-participants. The total start-up capital of a participant is on average 12,560 €. The mean of the comparison group is 13,700 €. This difference is not statistically significant and mainly results from the higher share of non-participants in the top

group as there are some entrepreneurs with a very high start-up capital.[118]

The service sector is the biggest sector among the interviewees. The share of entrepreneurs in the private service sector is slightly higher for participants (58.1%) than for non-participants (54.5%).

Table 6.4: Starting conditions of businesses of EBCG-UE participants and non-participants

Variable	EBCG-UE-P	EBCG-UE-NP	p-value
Calendar year of business start-up			
2008	32.11	24.44	0.0027
2009	67.89	75.56	0.0027
Start-up with employees	10.86	11.68	0.6543
Number of employees at start-up (if > 0)	3.30	2.87	0.4826
Start-up capital (in €)	12.56	13.70	0.5754
No start-up capital	15.67	19.65	0.0734
$<$ 1,000	6.39	5.92	0.7322
1,000 – $<$ 2,500	16.91	18.14	0.5765
2,500 – $<$ 5,000	11.34	10.96	0.8326
5,000 – $<$ 10,000	13.61	14.36	0.7087
10,000 – $<$ 50,000	30.72	24.31	0.0119
$\geq$ 50,000	5.36	6.68	0.3439
Sector of start-up			
Construction	5.73	6.33	0.6613
Production	4.29	4.84	0.6518
Retail	13.09	11.29	0.3344
Private service sector	58.08	54.47	0.2049
Others	18.81	23.08	0.0702

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level. The information are gathered in the 1st interview which was conducted 15 months after the end of the coaching process on average.

In summary, we can describe the average EBCG-UE participant as middle aged, well educated person with a long lifetime employment experience. The most have been in dependent employment before the unemployment spell. Many have experience within the field of work before start-up due to a previous dependent employment. The non-participants are similar in their characteristics. Nonetheless they are a bit younger, more likely married, are a bit more experienced in

[118] We decided not to exclude these people as they are not typical outliers. There are several observations at several different values in the top category. Thus, the distribution in the top category is not characterized by outliers.

self-employment, are more likely to have self-employed parents, are more likely to have young children, and have less lifetime employment experience.

Table 6.5 shows the success variables which will be used to estimate the causal program effects in the empirical analysis in section 6.3. This table descriptively compares the values of the success variables between participants and non-participants. A t-test shows whether there are significant differences in the means between the two groups. Remember, these are only descriptive numbers, meaning that group differences in the success variables can not be interpreted in a causal way as this comparison suffers from the already described selection process. Nonetheless, this table is important as it shows the levels of the different outcome variables. This will help to interpret the coaching effects which will be estimated in section 6.3.

Table 6.5: Outcome variables – EBCG-UE participants and non-participants

Variable	EBCG-UE-P	EBCG-UE-NP	p-value
Self-employed			
1st interview	82.41	77.33	0.0290
2nd interview	80.57	76.02	0.0566
Individual earned net income (€/month)			
1st interview	1,577.61	1,762.42	0.0403
2nd interview	1,773.04	1,858.46	0.4279
Employees			
$\geq$ 1 employee 1st interview	23.72	22.70	0.6740
Number of employees 1st interview	0.94	0.88	0.8183
$\geq$ 1 employee 2nd interview	27.81	23.57	0.0886
Number of employees 2nd interview	1.22	1.39	0.7997
High life satisfaction			
1st interview	81.97	81.47	0.8222
2nd interview	79.55	80.45	0.6951
High job satisfaction			
1st interview	80.90	78.36	0.2741
2nd interview	77.10	74.66	0.3227

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are percentages unless stated otherwise. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. The right column shows the p-value of a t-test on equal means. A p-value below the value of 0.1/0.05/0.01 shows a statistical difference in the means on the 10%; 5%; 1% significance level.

The share of individuals being self-employed at the time of the first interview is 82.4% for participants and 77.3% for non-participants. Both of these shares decrease only slightly in the almost two years between the two interviews.[119] The share of participants decrease to 80.6% and the share of non-participants decrease to 76.0%. The income of the observed entrepreneurs ranges between 1,577 € and 1,858 €. Non-participants have slightly higher incomes than participants. This income difference between the groups is significant in the short term (5% level) but not significant in the long term. As we have seen in table 6.4 10.9% (11.7%) of the participants (non-participants) have at least one employee at the time of start-up. Two to three years after start-up (time of first interview) these shares increased to 23.7% (22.7%). Another two years later 27.8% (23.6%) have at least one employee.

The life and job satisfaction rates are high[120] and do not differ significantly between participants and non-participants.[121]

[119] We do not observe the employment statuses and whether these change between the two interviews.

[120] To compare life and job satisfaction rates we have chosen the same cut-off values in the likert scale to define high/low satisfaction. Furthermore, we use the same cut-off values as in the evaluation of the program EBCG. Hence, it is possible to compare the satisfaction rates between programs. On a likert scale from 1–7 we define all individuals stating a value of 5 or more as highly satisfied. We assume that, non-participants and participants use the scale in a similar way. In other words, there is no selection in the way that individuals in the group of participants state higher or lower satisfaction values even in absence of the program.

[121] Interestingly, the satisfaction rates are very similar than the satisfaction rates of previously employed individuals (see table 5.5).

6.2 The selection process into the program

To determine the selection process it is estimated whether program participants and non-participants differ in several characteristics. With this estimation a propensity score, which indicates each entrepreneur's participation probability, is calculated. We can see which characteristics lead to a high participation probability and which characteristics lead to a low participation probability. Table A.12 shows the results of the probit estimation. Positive values mean that this characteristic leads to a higher participation probability and negative ones point to a lower participation probability. Reference categories are mentioned in brackets. In binary variables there is no reference category named, as the persons having the value zero in this variable are the reference category. Using these estimation results the hypotheses stated in section 4.4 can be answered.[122] Table 6.6 shows whether the hypotheses can be confirmed.

Table 6.6: Hypotheses about the selection process into EBCG-UE program participation

No	Hypothesis about types of individuals with a higher program participation probability	Confirmed	Comment
	Entrepreneurs		
H1	with middle range start-up capital	no	
H2	with a short lifetime self-employment	yes	with limitations[a]
H3	without experience within the field of work before start-up	yes	with limitations[a]
H5	without self-employed parents	yes	
H6	who are not married	yes	
H7	without employees	no	
H8	with a low non-zero earned net income	yes	with limitations[a]
H9	with push motives (necessity entrepreneurs)	no	
H10	with an external locus of control	no	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The theoretical considerations leading to hypothesis 4 are only valid in the program EBCG. Thus, hypothesis 4 is not stated and tested in the analysis of the program EBCG-UE.
Explanation: The hypotheses are stated in an abbreviated manner as the benchmark is not mentioned. All individuals not being in the mentioned category are taken as benchmark. Table A.12 shows all categories used.
a: "with limitations" means that there is some evidence for the confirmation of the hypothesis. However, due to the coefficients of the other categories used in the estimation process the hypothesis cannot be completely confirmed. The text includes a detailed description.

[122] All statements about relationships between program participation probability and specific characteristics are ceteris paribus statements. This means that we hold all other covariates constant when interpreting the influence of a variable on the participation probability.

The results about the start-up capital are not totally clear. We use five categories of start-up capital.[123] Entrepreneurs with a start-up capital of 10,000 € – < 50,000 € have the highest participation probability. But the category of people with a start-up capital below 5,000 € also has a significantly higher participation probability than entrepreneurs without start-up capital (reference category in table A.12). The entrepreneurs without start-up capital have the lowest participation probability. Even though, the estimators for entrepreneurs within the start-up capital range of 5,000 € – < 10,000 € show a positive value, the participation probability does not differ significantly from the one of entrepreneurs without start-up capital. Hence, the relationship between start-up capital of an enterprise and program participation is not totally inverted U-shaped as we hypothesized. Hypothesis H1 cannot be confirmed.

The experience in self-employment is measured in years of lifetime self-employment. For estimating the participation probability four categories are used.[124] The category of entrepreneurs who have been self-employed for 4 – < 6 years in their life have the lowest probability to participate. They have a significant lower participation probability than entrepreneurs with < 2.5 years of self-employment experience. But the participation probability of the entrepreneurs in the two "tail" categories (< 2.5 years and ≥ 6 years) is almost equally high. Therefore, the relationship between program participation and self-employment experience is U-shaped. Thus coaching is especially used by entrepreneurs with little experience (< 2.5 years) and by ones with a lot of self-employment experience (≥ 6 years). The latter might occur because longer lifetime self-employment enables the entrepreneur to detect problems in the company. Furthermore, entrepreneurs with a lot of experience might also be more responsive to coaching. We hypothesized that individuals with a short lifetime self-employment experience (< 2.5 years) have a higher program participation probability than entrepreneurs with more experience. Even though, this can be confirmed if the categories < 2.5 years and 4 – < 6 years are compared, this cannot be confirmed if the other two categories, 2.5 – < 4 years and ≥ 6 years are also taken into account. Thus, hypothesis H2 can only be confirmed with some limitations.

Interestingly, the experience within the field of work before start-up does not

[123] The categories are: no start-up capital; < 5,000 €; 5,000 € – < 10,000 €; 10,000 € – < 50,000 € and ≥ 50,000 €.

[124] The categories are < 2.5 years; 2.5 – < 4 years; 4 – < 6 years and ≥ 6 years.

influence the participation probability heavily. Entrepreneurs with experience in the same field of work due to hobby activities have a significant lower participation probability than entrepreneurs without this experience. Experience based on former self-employment or dependent employment does not restrain the entrepreneurs from consulting a coach. One should be careful when interpreting the results of the estimation, as it does not show the difference between program participation probability based on hobby activities or former (self-)employment. As we use binary variables the estimation just shows the difference of individuals with experience based on hobby activities and individuals without that experience. Considering this comparison we can state: Experience based on hobby activities lowers the participation probability. But experience based on former self-employment or dependent employment does not significantly lower the participation probability. Thus, hypothesis H3, stating that entrepreneurs without experience within the field of work before start-up have a higher participation probability can only be confirmed with some limitations.

The intergenerational transmission of knowledge or assistance through parents serves as substitute for coaching. Table A.12 shows that entrepreneurs with self-employed parents utilize coaching significantly less often than entrepreneurs without self-employed parents. Hence, hypothesis H5 can be confirmed.

The same is true for married entrepreneurs. As we argued before, the reason for that might be the help of the spouse which might make coaching needless. Table A.12 shows that married entrepreneurs are significantly less participating in coaching. Thus, hypothesis H6 can be confirmed.

The difference in the participation probability of entrepreneurs with and without employees at the time of start-up is not statistically significant. Thus, hypothesis H7 cannot be confirmed. We hypothesized that the internal assistance via employees might substitute coaching, leading to a lower participation probability for entrepreneurs with employees. The results show that this cannot be confirmed. Apparently there are some effects compensating the mentioned effect. Entrepreneurs with employees might have more managerial problems as they are leading a larger company than solo-entrepreneurs. Moreover, the entrepreneur needs to have the knowledge to choose the right employees for the company (Shane 2000, p. 69). If this is not the case the internal assistance via employees is probably useless and does not substitute external assistance. Even though, the point estimators of the probit estimation of entrepreneurs are negative for entrepreneurs

with more than one employee, meaning that entrepreneurs without employees have a – however not significant – higher participation probability than ones with more than one employee.[125]

Entrepreneurs with a low earned net income before coaching have a higher probability of participating in the coaching program than ones with a higher income. Even the individuals without any income (reference category in table A.12) have a higher participation probability than entrepreneurs in some of the other income categories (> 1,500 € – 2,000 € and > 3,000 €). This occurs as the cost the entrepreneur needs to pay her-/himself is very low. The maximum costs a participant need to cover are 400 €. This is apparently financeable for the entrepreneurs even without an own income.[126] This higher probability of program participation for entrepreneurs of "weaker" companies confirms one of the main selection concerns stated in section 4.4.2. Entrepreneurs of unsuccessful companies are more likely to participate in coaching programs. As long as this selection process is driven by observed variables it does not bias the estimation results. The estimator for the category 1 € – 500 € earned net income is the only positive. Hence, as hypothesized participation probability is highest for entrepreneurs with a low non-zero earned net income. However, their participation probability is not significant different from the ones of entrepreneurs without income. Thus, hypothesis H8 can only be confirmed with some limitations.

To test whether or not push and pull motives influence the program participation we constructed an index out of four motives for starting a business and included this index in the estimation.[127] Entrepreneurs driven by push motives are less successful on average (Caliendo and Kritikos 2009b). Consequently, we hypothesized that entrepreneurs driven by push motives need coaching more often and, hence, participate in the program more often. Table A.12 reveals the opposite relationship. The more the entrepreneur is motivated by push motives the lower the program participation probability. Hence, hypothesis H9 cannot be confirmed.

Concerning the locus of control we argued that people who think that they cannot influence the events of their life via their actions (external locus of control)

[125] Unfortunately, it is not possible to include more than three categories of the number of employees. This is due to a low number of observation in the categories with more than one employee.

[126] Furthermore, the entrepreneur can also decide to take less coaching sessions, which would even lower her/his share of costs.

[127] As mentioned before, a principal components analysis showed that each of the four motives clearly load onto one factor and not onto the other. Thus, it is allowed to construct one index using all four motives.

have a higher program participation probability. First, because they are less successful than people who think they can influence the events of their life (internal locus of control), and second, because they think others (e.g. a coach) can influence their life and the outcome of their company. Both would lead to a higher participation probability for entrepreneurs with an external locus of control than for ones with an internal locus of control.[128] The estimation results show the exact opposite. Entrepreneurs with a higher internal locus of control have a – however not significantly – higher participation probability. One explanation for this is the following: Because the "internal locus of control entrepreneurs" think they can influence the success of their company via their actions they consult a coach. In section 4.4.3, we argued that the likelihood of consulting a coach is higher for individuals with an external locus of control, as they believe that they are not able to influence the outcome of the company but the coach is. However, as described in section 2.2 this is not the task of a coach. The external solution of problems is the task of a consultant but not the one of a coach. The coach assists the entrepreneur to help her-/himself and enables her/him to solve the enterprise's problems. This might be the answer for our results: Entrepreneurs with an internal locus of control are more likely to participate in the program as they know they will be able to influence the success of the company by using the coach's advise. Thus, hypothesis H10 cannot be confirmed.

Apart from the selection process analyzed to test the hypotheses, there are other important variables included in the estimation. Education, measured in the highest school degree and the highest vocational degree surprisingly did not have a significant influence on the participation probability. This might be caused by opposing effects. On the one hand, better education might lead to more success, hence, less coaching needs. On the other hand, better educated entrepreneurs might be more able to realize that they need assistance which increases coaching probability.

Age does not have a significant influence on the participation probability, even though there is slight (not significant) evidence that older entrepreneurs use coaching more often. Concerning the relationship between the Big Five personality traits and the coaching probability we find that high values in openness to experience

[128] In table A.12 only categories of internal locus of control are used. This index of internal locus of control also includes the external locus of control as it is constructed in a way that high values of external locus of control decrease the index of internal locus of control.

lead to a significantly higher participation probability.

As mentioned in the section of the methodological approach individual propensity scores are constructed based on the participation probability according to the individual characteristics. Figure A.6 shows the distribution of the scores. It compares the distribution of the scores of program participants with the one of the comparison group. The distribution of the propensity scores of the participants are shown by the light grey bars in the upper part of the figure and the one of the comparison group by the dark grey bars in the lower part of the figure. Naturally, the scores for the participants are on average higher than the ones for the comparison group. Figure A.6 shows that the differences between participants and non-participants are not very large. This means that the individuals of the two groups do not differ highly in the observed characteristics.[129] This eases the comparison of the two groups as it is not necessary to make strong adjustments in order for the groups to be comparable. As the groups do not differ widely it is easier to find individuals in the comparison group to construct an adequate counterfactual.

After this extensive and detailed analysis, we will look at a more general selection issue, namely if selection is driven by asymmetric information. Imagine that the comparison group not participated because they were not aware of the program. If this is the case and the awareness of the program is correlated with some unobserved characteristics this would harm our analysis. Therefore, we included questions in the survey providing answers to this selection issue. Table 6.7 shows the results to these questions. Almost three out of four individuals of the comparison group do not know the program EBCG-UE. This indicates that this information asymmetry is a main reason for the selection process.[130] Many entrepreneurs stated that they did not need coaching. This was the case for 58.30% of the individuals who knew the program. This is an indication that this group had less problems with their companies. This brings up the question whether or not we estimate the program effects using an adequate comparison group as the group of participants obviously needed coaching. Hence, participants and non-participants might differ in their success probability even in absence of the program. The

[129] Figures A.7 to A.10 show that this is true for almost all of the subgroups considered.

[130] As mentioned earlier it is a political decision whether or not public labor market programs should be promoted. We will not discuss this in detail. Nevertheless, the present study shows that this possibility needs to be considered as the information asymmetry is a main reason for the selection into program.

unusually detailed information about the selection process due to asymmetric information enables us to conduct sensitivity checks whether or not the comparison group is an adequate one. We will do so in section 6.5.

Table 6.7: Awareness of the program of the EBCG-UE comparison group

	Share
Are you aware of the program EBCG-UE?	
No	72.12
Yes	27.88
Reason for not participating[a]	
I did not need coaching	58.30
The effort for program application was too big	22.87
The maximum allowed coaching cost were too low for my coaching needs	13.00
Other reasons	31.84

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: All numbers are shares in percent.
a: Multiple answers possible.

In conclusion, about half of the hypotheses about the selection into program participation can be confirmed – however with some limitations. The average entrepreneur participating in coaching either has very short or very long lifetime self-employment experience, does not have self-employed parents, is not married, has a low earned income and does not start-up because of push motives. Furthermore, not participating in coaching is mostly caused by the fact that the non-participants are simply not aware of the program. After considering the selection into program participation the next section will analyze whether participating in the program has effects on the success of the entrepreneur.

6.3 Effects of the program EBCG-UE

The present section analyzes the EBCG-UE program effects in detail. As described in section 3 this is done by a comparison of participants with an adequate comparison group. By a matching approach the causal effect of the coaching process on the entrepreneur and the enterprise is estimated. Further, an analysis of the subjective and the objective success variables is conducted. All success variables are measured at two points in time. Herewith, it is possible to identify short- and long-term effects. The short-term effects were measured 15 months after coaching[131] (first interview) and the long-term effects were measured 37 months after coaching (second interview).[132]

In section 6.3.1 the program effects will be described by using the total samples of participants and non-participants. In the short run coaching helps the entrepreneur to survive in self-employment but in the long run this effect vanishes. The coaching program has no positive effects on the earned net income nor on the satisfaction of the entrepreneur. In the long run there is a positive effect of coaching on the probability of having employees.

In section 6.3.2 effect heterogeneity will be considered. This is done by analyzing the effects for different subpopulations such as different educational groups and different regional groups. In the short run there are negative effects on income in West Germany and in regions with a low self-employment rate. But in the long run the participants catch-up in terms of income. This is especially true for men. There is a similar picture for the coaching effects on the number of employees. In the short run there is no significant positive coaching effect on this outcome variable. But the long-term coaching effect on the probability of having employees is positive which is, again, only driven by men.

In summary, we find that in the long run, coaching is especially useful for men in terms of employee development. Even though, male participants catch-up in terms of income in the long run, the income levels do not differ significantly between participants and matched non-participants.[133] The effects on survival in

[131] Obviously, this point in time is not available for non-participants. Both groups, participants and non-participants, are drawn from a sample of individuals who received a subsidy after an unemployment spell.

[132] For the sake of convenience we call the effects short- and long-term effects. We would have prefered an interview at a third point in time to measure the coaching effects after an even longer time span. Unfortunately, the evaluation project only allowed for two interviews per entrepreneur.

[133] We use the expression “matched non-participants” for addressing the counterfactual outcome.

self-employment are similar for men and women. However, the effects occur on a different level as the companies of women have a lower survival probability than the ones of men in our dataset.

Coaching has more positive effects in East Germany. We observe that entrepreneurs in "disadvantaged" regions with a high unemployment rate and a low self-employment rate have lower survival rates. Interestingly, coaching has better effects in these regions. The educational level does not strongly influence coaching effectiveness. Coaching has slightly better effects for low educated individuals. Surprisingly, the levels of the survival rates also do not differ between different educational groups.

Furthermore, it is analyzed whether coaching quality affects coaching effectiveness. Coaching quality is positively related to coaching effectiveness in terms of survival of the entrepreneur in self-employment. Bad quality coaching does not have significant positive effects. Even though the difference in coaching effectiveness due to different coaching qualities is not large.

6.3.1 Coaching effects

Table 6.8 shows that the program has a significant positive effect on the survival of the entrepreneur in self-employment at the time of the first interview. The participants have a 5.16% points higher survival probability in self-employment, than matched non-participants. In the long run this effect gets smaller (3.19% points) and insignificant. Therefore, hypothesis H1*, stating that coaching has positive effects on the survival of the entrepreneur in self-employment, can be confirmed in the short run but not in the long run.

The individual earned income is not significantly affected by coaching participation. In fact, it is surprising that the income difference in the short run shows that participants have a (not significantly) lower income than matched non-participants as the survival probability is higher for participants. The effects on income and employees are unconditional whether or not the individual is still self-employed. Hence, the total coaching effect on income (showing the group differences in income of participants and matched non-participants) results from two mechanisms: First, the difference in employment status and second, from an income difference between the individuals still being self-employed. As the employment effect is positive the income effect would also be positive if the income changes of participants

Table 6.8: ATT of the program EBCG-UE

Outcome variable	ATT	
Self-employed		
1st interview	5.16	*
	(2.65)	
2nd interview	3.19	
	(2.79)	
Individual earned net income (€/month)		
1st interview	-111.91	
	(93.74)	
2nd interview	36.09	
	(97.85)	
Employees		
$\geq$ 1 employee 1st interview	-0.42	
	(3.14)	
Number of employees 1st interview	0.16	
	(0.22)	
$\geq$ 1 employee 2nd interview	5.45	*
	(2.97)	
Number of employees 2nd interview	0.27	
	(0.28)	
High life satisfaction		
1st interview	3.76	
	(2.90)	
2nd interview	1.62	
	(2.83)	
High job satisfaction		
1st interview	2.15	
	(2.97)	
2nd interview	1.46	
	(3.08)	
Number of observations	1,295	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

and non-participants staying self-employed are similar. In this case the income effect would mainly be driven by the group differences in the survival probability. But the estimated income effect is negative. Hence, the income development of participants and non-participants who are still self-employed differs. The first part of the income effect which is driven by the differences in the survival probability is positive. The second part of the income effect which is driven by income differences of surviving participants and non-participants is negative. The latter one is stronger which leads to an overall (not significant) negative coaching effect on income of -112 € in the short term. In other words, matched non-participants earn 112 € more per month than participants. But as mentioned before, this effect is not statistically significant. In the long term we are not able to infer which of the two mechanisms is stronger as both the effect on survival and on income are positive, though not significant.

Overall, the effect on income is more positive at the time of the second interview (36 €) than at the time of the first interview (-112 €). This shows a catch-up effect of participants in terms of earned income. In other words, even though there are no positive coaching effects on income, the group of participants is able to close the negative income gap to the matched non-participants in the long term. However, as the total coaching effect on earned income is not significant in the short term nor in the long term, we cannot confirm hypothesis H2*, stating that coaching positively influences earned income.

Table 6.9: Hypotheses about the effects of the program EBCG-UE

No	Hypothesis	Confirmed	Comment
	Coaching increases		
H1*	the probability of staying self-employed	yes	but only in the short term
H2*	the individual earned net income	no	
H3*	the probability of hiring employees	yes	but only in the long term
H4*	satisfaction	no	

Source: EBCG/EBCG-UE Dataset, own calculations.

A similar trend can be observed for the coaching effects on the development of the number of employees. At the time of the first interview coaching participants have a (not significantly) lower probability of having employees (-0.42% points). However, in the long term this picture improves considerably. Coaching leads to a 5.45% points higher probability of having employees at the time of the second interview (significant on 10% level). Keeping in mind the results from our descrip-

tive analysis this effect is large. As shown in table 6.4 in the descriptive part, 10.86% of the participants have employees at the time of start-up, whereas this rate is only 11.68% for non-participants. Table 6.5 showed that 27.81% (23.57%) of the participants (non-participants) have employees at the time of the second interview.[134] Despite the decreasing coaching effect on survival over time, the effects on the number of employees increases. Coaching increases (not significantly) the absolute number of employees by 0.27 employees in the long term. Even though, coaching does not have positive effects on the survival in self-employment in the long run, coaching participants have a 5.45% points higher probability of having employees than if they had not participated in coaching. Thus hypothesis H3* can be confirmed in the long run but not in the short run.

The lower part of table 6.8 shows the effects of the program EBCG-UE on subjective success measurements, namely life and job satisfaction. The estimation results can be interpreted as difference in the share of satisfied individuals between participants and matched non-participants in percentage points. All satisfaction effects have a positive value, meaning that coaching leads to a higher probability of being satisfied with ones life and job. Nonetheless, none of the differences is statistically significant. There is no large time trend in the effects on satisfaction as the estimators of the first and second interview do not differ widely. In the short run participants have a 3.76% points higher probability of being satisfied with their life than matched non-participants. In the long run this advance decreases to 1.62% points. A similar decrease can be seen in the job satisfaction rates. At the first interview participants have a 2.15% points higher probability of being satisfied with their job, than non participants. At the time of the second interview this difference slightly decreases to 1.46% points. This decrease in job satisfaction is reflective of the coaching program's survival effects. But as mentioned before, the differences between participants and matched non-participants in satisfaction are not significantly different from zero. Therefore, hypothesis H4* cannot be confirmed.

Table 6.9 summarizes whether or not the stated hypothesis can be confirmed

[134] The figures of the descriptive analysis cannot be compared directly with the causal effect arising from the matching approach. As argued earlier there are selection processes into program participation. These selection processes might also lead to the differences of having employees at start-up shown in the descriptive analysis. Using the matching approach we control for the selection processes by comparing participants with *matched* non-participants. In the descriptive analysis we only compare participants and non-participants directly.

due to the estimated coaching effects which are shown in table 6.8. In conclusion, the program EBCG-UE helps the entrepreneur to stay self-employed in the short run and after a while it also helps them to hire employees. However, the earned monthly income of entrepreneurs and the satisfaction (life and job) is not significantly affected by coaching.

6.3.2 Effect heterogeneity

The last section discussed the program effects using the entire sample of participants and non-participants. In the present section we will examine which subgroups may be the driver of these effects. It might be that the program is effective for some entrepreneurs but not for others. This would mean that there are heterogeneous effects for different groups of entrepreneurs. To analyze this, the sample is divided into several subsamples. Both the participants and the non-participants are limited to the respective subgroup and the outcomes of participants and non-participants are compared among each subgroup.[135] Tables A.22 to A.25 show the program effects among the subgroups. Table 6.10 provides an overview of the subgroups which were utilized in the analysis.

Table 6.10: Subgroups used in the analysis for the effects of the program EBCG-UE

Type of subgroup	Coaching effects presented in table
Subgroups by sociodemographic characteristics	
Men/Women	A.22
Entrepreneurs with/without upper secondary school degree	A.23
Subgroups by regional characteristics	
Living in East Germany/West Germany	A.23
Unemployment rate high/low	A.24
Self-employment rate high/low	A.24
Subgroups by coaching quality	
Coaching quality good/bad	A.25

Note: Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used.

Table A.22 shows that the results do not give a clear indication for which gender the programs was more effective. The short-term coaching effects on the survival

[135] As explained earlier we actually compare outcomes of participants with outcomes of *matched* non-participants with the applied matching procedure.

of the entrepreneur in self-employment is positive for both subgroups, men and women. But the one for women is a little lower and not statistically significant. Remember, this does not mean that male entrepreneurs are more successful than female entrepreneurs, as the participants are compared to non-participants. In other words the comparison is not between (men vs. women) but within (participants vs. non-participants) subgroups. This is due to examining the within group differences rather than the between group differences in program effectiveness. Even though, we will also have a short look at the differences between subgroups. If we do so for the gender subgroups we realize the following: Even if the coaching effect on short-term survival is similar for men and women, the levels of the survival rates are different between men and women. Figure 6.1 shows that male participants (non-participants) have a survival rate of 85.6% (77.7%), whereas female participants (non-participants) only have one of 77.8% (70.5%). In the short run the program is a bit more effective for male entrepreneurs than for female entrepreneurs. But in the long run the coaching effect on survival in self-employment is higher for women than for men.

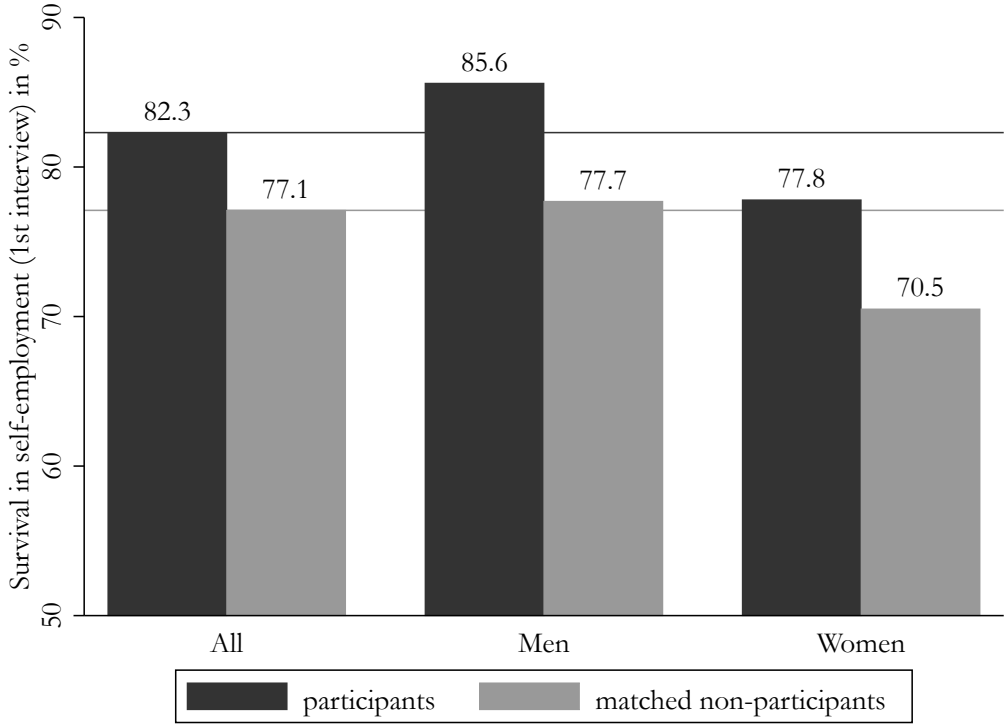
Among women there are no coaching effects on short-term or long-term earned income of the entrepreneur. The coaching effects on these outcomes are negative but not significant. Among men the coaching effect on income is negative in the short run (-161 €) and positive in the long run (89 €). However, these effects are also not significantly different from zero. Meaning that participants did not earn significantly more than matched non-participants. Nonetheless, the catch-up effect in terms of income from the first to the second interview is a lot higher for men than for women. The (not significant) coaching effect for men increases from the first to the second interview from -161 € to 89 €. Among women the (not significant) income effect only increases from -62 € to -50 €.

The coaching effects on employee development are very interesting. The program EBCG-UE has the effect that male participants do not stay solo-entrepreneur. In the long run, participating in coaching leads to a 10.48% points higher probability to employ at least one employee among men (effect highly significant). Coaching does not have an influence on womens' probability of hiring employees.

The effects on satisfaction rates are not significantly different from zero. Nonetheless, the coaching effects on satisfaction among women tend to be slightly more positive than the ones for men. This is especially true for short-term life satisfaction and long-term job satisfaction. Among women the higher probability of being

satisfied with the job in the long run might be caused by the higher long-term survival rate of the participants compared to matched non-participants.

Figure 6.1: Short-term survival rate comparison: EBCG-UE participants and comparison group – Total sample and gender



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.22. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the participants (82.3%). The lower line shows the survival rate of matched non-participants (77.1%).

Table A.23 shows the program effects for subgroups with different educational background. Subgroups with and without upper secondary school degree will be considered. The effects on survival in self-employment are similar for both groups. Overall, coaching is slightly more effective for individuals without upper secondary school degree. 10 out of 12 outcome measures for coaching effects are more positive for low educated than for high educated individuals. However, only 2 of the 12 measures among low educated are statistically significant. Surprisingly, figure 6.2 shows that there are almost no differences in the level of the survival rates between

entrepreneurs of different educational groups.

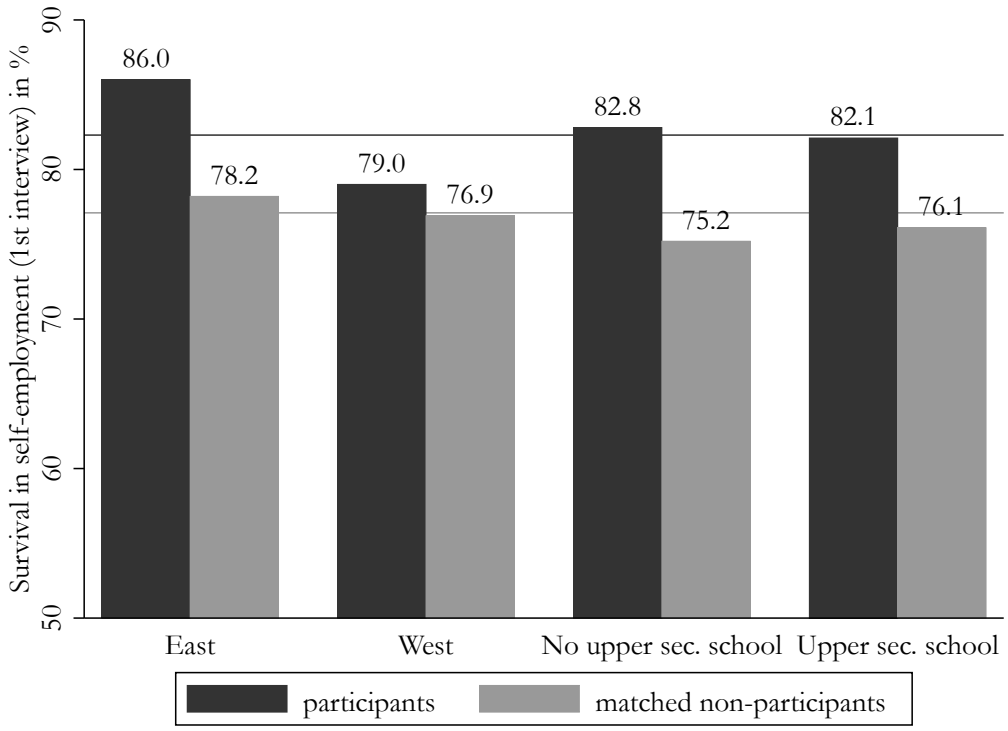
Coaching increases entrepreneurs short-term survival probability in self-employment from 76.1% to 82.1% for entrepreneurs with upper secondary school degree and from 75.2% to 82.8% for ones without this degree. Long-term coaching effectiveness on the number of employees and on satisfaction rates is better for low educated than for high educated. The similar survival rates of the comparisons groups (75.2% and 76.1%) show that the general differences in success between high and low educated are not large in the used dataset. Furthermore, we do not observe that low educated are not able to implement the solutions developed during the coaching process. The coaching effect on the short-term survival probability in self-employment is even a little higher for low educated. However, in the long run the coaching effect on survival is higher among high educated.

In the following we will consider regional differences in the effectiveness of coaching. There are several possibilities to analyze regional coaching effectiveness. The most obvious one is the analysis of coaching effectiveness for different geographical regions. We will do this by comparing coaching effectiveness in East Germany and West Germany. Furthermore, it is not only possible to split the regions geographically, but by specific characteristics of the region. Using the in section 4.2 explained INKAR dataset we are able to analyze in what kind of regions coaching is successful and in what it is not. To our knowledge this is the first time coaching effects can be evaluated with respect to regional differences. The INKAR dataset includes information about the characteristics of the region. We decided to build subgroups in terms of two variables. First, the regional unemployment rate, which is an indicator for the regional labor market condition. Second, the regional self-employment rate, which indicates whether a region is characterized by high or low innovativeness. The regions are defined by the regional district which is the smallest official regional unit in Germany.

There are various reasons why the analysis of coaching effectiveness among regions with different characteristics is perceived as informative. It is of general interest for entrepreneurs, coaches and policy makers in what kind of regions coaching is more effective. This information will aid entrepreneurs in their decision of consulting a coach in their respective geographical area.[136] For policy makers it

[136] Imagine coaching is more successful in regions with a high number of self-employed. This might be caused by the fact that these regions are more competitive and coaching is useful because it helps to withstand this competitive environment. This information is helpful for an entrepreneur thinking about participating in coaching.

Figure 6.2: Short-term survival rate comparison: EBCG-UE participants and comparison group – Regions and education



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.23. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the participants (82.3%). The lower line shows the survival rate of matched non-participants (77.1%).

is of interest whether coaching programs can influence the entrepreneurial success of regions. This might increase the innovative environment of specific regions.[137] In the following we will describe coaching effects among different regions, starting with the geographical distinction of regions.

As table A.23 shows the differences in the program effects by geographical region (East Germany and West Germany) are quite unambiguous. The program EBCG-UE is more effective in East Germany. This is not caused by differences in the institutional settings. The cost covering rate is 90% in all parts of Ger-

[137] Unfortunately, we are not able to judge whether coaching affects the innovative development of a region with the available data. Nonetheless, the analysis will show in which kind of regions coaching is more effective.

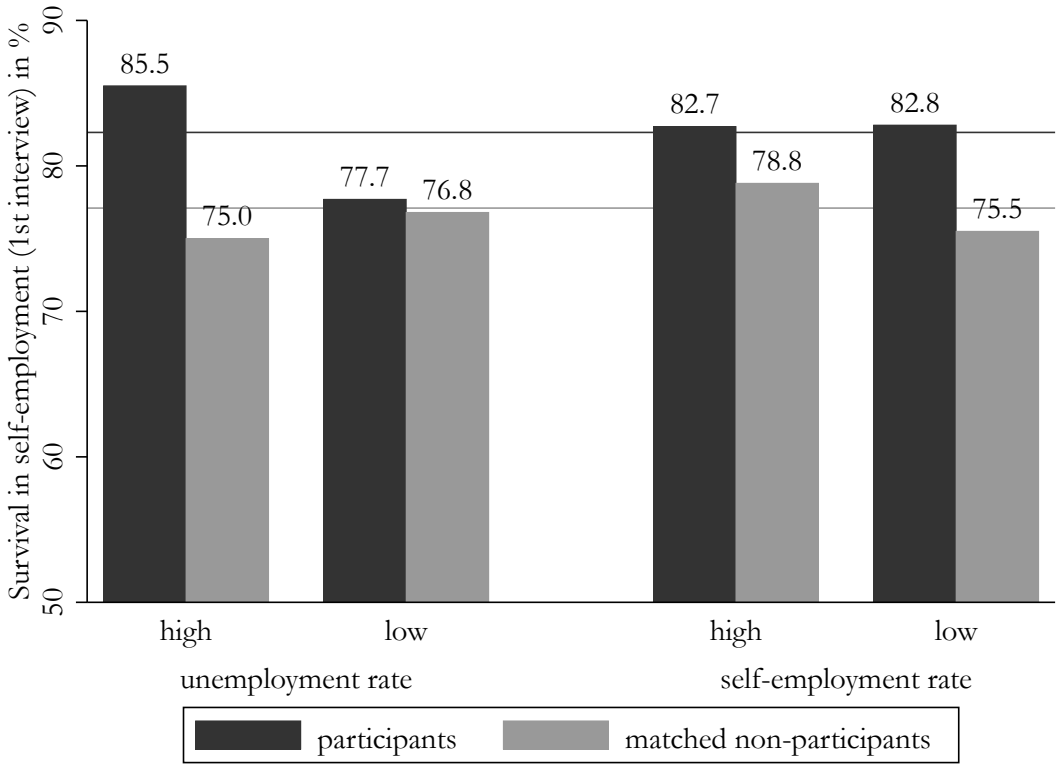
many. The effects on the survival measures are positive and significant among entrepreneurs in East Germany. In the short run coaching leads to a 7.83% points higher survival probability in self-employment. This effect is even stronger in the long run. Coaching leads to a 9.78% points higher probability of being self-employed in East Germany at the time of the second interview. Figure 6.2 shows that the positive effect in East Germany is really driven by participants and not by original survival differences between regions. The matched non-participants' survival probability is almost the same in East Germany (78.2%) and West Germany (76.9%). The large regional difference in program effectiveness results from the high survival rate of participants in East Germany (86.0%). This value is only 79.0% in West Germany.

In the long run, the income of program participants are higher than the ones of non-participants in East Germany and lower in the short run. However, neither of the income effects are statistically significant. Nonetheless, it becomes clear that the (not significant) negative program effect on the individual earned income in the short run (as shown in table 6.8), when using the entire sample, is mainly driven by participants in West Germany. The earned income of participants in West Germany is 200 € per month lower than the income of matched non-participants. This negative coaching effect on earned income is significant among the group of entrepreneurs in West Germany, but not in the entire sample. The picture of the effects on the employees is not very clear. There is no significant program effect on the development of the number of employees, neither in East Germany nor in West Germany.

The coaching effect on satisfaction rates is substantially positive in East Germany. In the short run coaching leads to a 9.36% (12.12%) points higher life (job) satisfaction rate. These significant satisfaction differences between participants and matched non-participants are probably also driven by the positive coaching effects on survival in self-employment in East Germany.

In summary, 9 out of 12 outcome measures used for estimating the program effects are higher in East Germany than in West Germany. The program EBCG-UE has a very positive effect on the survival of entrepreneurs in self-employment in East Germany whereas it has no effects on survival in West Germany. As mentioned before, this is especially driven by the participants in East Germany and not by original regional survival differences (as shown in figure 6.2).

Figure 6.3: Short-term survival rate comparison: EBCG-UE participants and comparison group – Regional characteristics



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.24. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of all participants (82.3%). The lower line shows the survival rate of the matched non-participants (77.1%).

In the following, we will test whether coaching effects are different due to the regional unemployment or self-employment rate. As hypothesized in section 2.7.2, the coaching effects on entrepreneurs' survival in self-employment are by far larger in regions with a high unemployment rate. Table A.24 shows that there is not a single significantly positive coaching effect in regions with a low unemployment rate. Whereas coaching has large significantly positive effects on survival in self-employment and job satisfaction in regions with a high unemployment rate. In the short term coaching leads to a 10.54% points higher survival probability (highly significant). In regions with low unemployment rates this effect is only 0.86% points (not significant). But figure 6.3 shows that, contrary to our expectations,

this is not mainly caused by a large original regional difference of survival. The survival rates of both comparison groups are similar. Nonetheless, the survival rates of high unemployment regions (75.0%) are slightly lower than the ones in regions with better labor market conditions (76.8%). Interestingly, in high unemployment regions coaching is able to increase the short-term survival probability from 75.0% to 85.5%. Whereas, in regions with a low unemployment rate coaching increases the survival probability only from 76.8% to 77.7%. The latter increase is not statistically significant, whereas the first one is highly significant. The coaching effects on income and satisfaction of the entrepreneur are also better in regions with high unemployment rates than in ones with low unemployment rates. Coaching compensates for the worse labor market conditions the enterprises need to deal with. In the long term coaching increases the individual earned income by about 157 € per month in regions with a high unemployment rate. In low unemployment rate regions it decreases the individual income by about 95 €. But both effects are not statistically significant. Caused by the large positive short term effect on entrepreneurs' survival in self-employment in high unemployment regions (10.54% points), the effect on the job satisfaction rate is also high. In these regions coaching increases the share of individuals being satisfied with the job by 7.54% points (significant on 10% level) in the short term. In regions with a low unemployment rate this effect is -3.22% points (not significant) which reflects the worse effect on survival probability. The results show that 9 out of 12 outcome measures are higher in regions with a high unemployment, than in regions with a low unemployment rate. Hence, hypothesis H5* can be confirmed.

Table A.24 also shows the matching results of the relationship between coaching effectiveness and the regional self-employment rate. Even though, a higher self-employment rate might increase the regional competition and the need for coaching, we argued that coaching is more effective in regions with a low self-employment rate. As in regions with a low self-employment rate, knowledge about business start-ups is a scarce resource, the possibilities of receiving other assistance or information regarding start-ups, e.g. through a self-employed friend, are larger in areas with a high self-employment rate. Hence, coaching in regions with a high self-employment rate may not be as important as in regions with a low self-employment rate. In terms of the effect on the survival in self-employment this can be confirmed. In the short run coaching leads to a 7.25% points (significant on 10%) higher survival probability in regions with a low self-employment rate.

In regions with a high one the effect is only 3.90% points (not significant). In the long run this regional effect heterogeneity vanishes. Coaching increases the survival probability by about 4.09% points in regions with low self-employment rates, whereas it increases the survival probability by 4.35% points in ones with high self-employment rates. But both effects are not statistically significant. In terms of the effect on income coaching is clearly ineffective in regions with a low self-employment rate. In the short run coaching leads to 351 € less monthly individual earned income. This effect is highly statistically significant, whereas the effect in the long run (227 € less income) is not. In regions with high self-employment rate coaching has positive, even though not significant, effects on the individual earned income.

The effects on the development of the number of employees are all not significant. In the short run they are higher in regions with a low self-employment rate and in the long run they are higher in regions with a high self-employment rate. The (not significant) positive coaching effects on the satisfaction rates in the entire sample as shown in table 6.8 are all caused by positive effects in regions with high self-employment rates (see table A.24). The relationship between the regional self-employment rate and coaching effectiveness stated in hypothesis H6* can partially be confirmed. Table 6.11 summarizes the findings about the relationship between coaching effectiveness and the characteristics of the region according to the stated hypotheses.

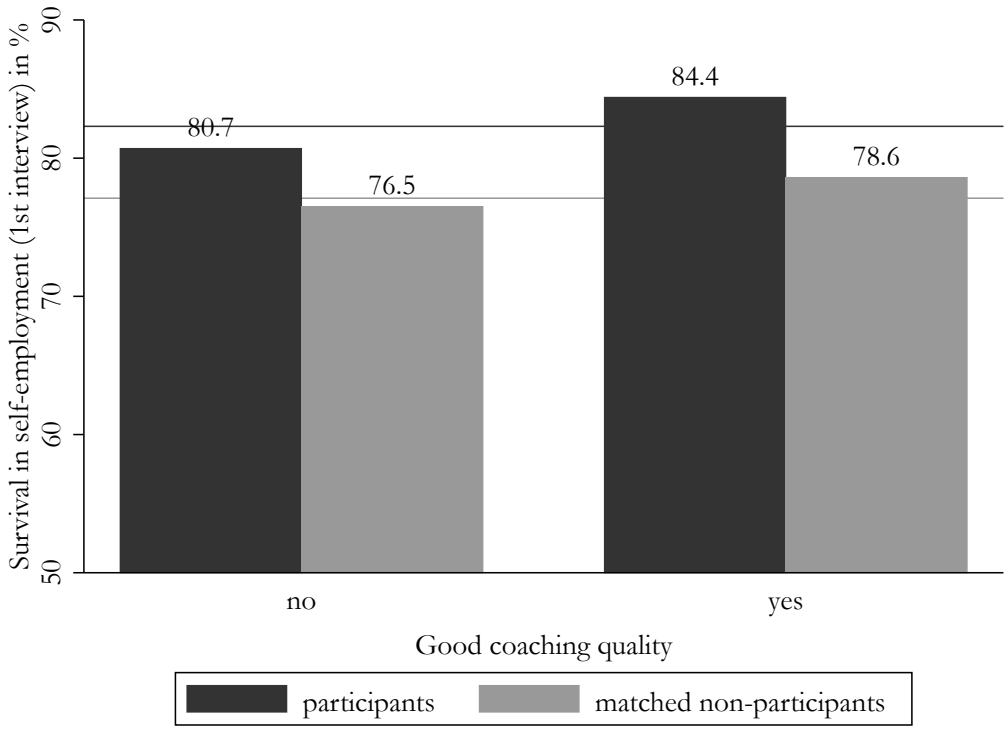
Table 6.11: Hypotheses about regional effect heterogeneity of the program EBCG-UE

No	Hypothesis	Confirmed	Comment
	Coaching has more positive effects in regions with		
H5*	high ue rate than in regions with low ue rate	yes	
H6*	low se rate than in regions with high se rate	yes	but only in terms of survival in self-employment

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: ue rate = unemployment rate; se rate = self-employment rate.
Explanation: Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. We used the rates of the year 2008.

Another way of thinking about the effectiveness of coaching is the treatment itself. As discussed earlier there are no official standards of quality in the coaching business. This might lead to a high variability in coaching qualities. Moreover,

Figure 6.4: Short-term survival rate comparison: EBCG-UE participants and comparison group – Coaching quality



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.25. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the participants (82.3%). The lower line shows the survival rate of matched non-participants (77.1%).

the coaching effectiveness might be influenced by the quality of the coaching sessions. Therefore, we observed whether the entrepreneur participated in good or bad coaching. The lack of coaching quality standards makes it difficult to evaluate the quality of coaching sessions. Standardized coaching quality scales, would alleviate the evaluation process. Nevertheless, as discussed in section 2.3, there are theoretical considerations and existing literature leading to standards which can enhance the effectiveness of coaching. Using this argumentation we were able to include some indirect questions about the coaching quality in the survey. We used three indicators for a good coaching quality. These three indicators are measured in the survey by the following questions.

1) Did the coach conduct a comprehensive appraisal of your company?
Scale from 1 to 7:
1: not at all, 7: thouroughly
Good coaching: Answers 6–7

2) Which kind of coaching was it?
1: Single Sessions, 2: Group Sessions, 3: Seminars
Good coaching: Answer Single Sessions

3) The coaching had clear coaching aims which were determined at the beginning of the coaching.
1: Yes, 2: No
Good coaching: Answer Yes

The indicator shows the value 1 if all three questions point to a good coaching quality. If one or more of the three mentioned questions point to a bad coaching quality the indicator shows the value 0. According to this indicator 50.31% of EBCG-UE participants participated in good coaching sessions. Table A.25 shows the relationship between coaching effectiveness and coaching quality. The coaching effects on survival in self-employment are better if we only use participants with good coaching sessions. In the short run bad coaching leads to a (not significant) increase of survival in self-employment of 4.23% points. Good coaching leads to a significant (10% level) increase of survival in self-employment of 5.81% points. Figure 6.4 compares the shares of participants and matched non-participants in self-employment at the time of the first interview. It shows that in the short term participants using good coaching have a higher survival probability (84.4%) than participants using bad coaching (80.7%).[138] In the long run the effect on survival is insignificant among both groups. Nevertheless, the estimator is also higher in the long term for the group with good coaching (5.56% points) than for the one with bad coaching (2.31% points). In conclusion, the coaching quality influences the effect of coaching regarding the survival probability in self-employment. For the effects on earned income, employee development, and satisfaction the picture

[138] The individuals used as comparison group are the same. The diffferences in the level of the survival rate for matched non-participants in figure 6.4 are due to the different weights attached to them during the matching procedure. The weights for the non-participants change by comparing them with a different sample of participants.

is similar. In total 11 out of the 12 outcome measures are better for good coaching than for bad coaching. Hence, we conclude that the relationship between coaching effectiveness and coaching quality is positive.[139] However, there are also not many positive coaching effects of good coaching sessions. Participating in good coaching sessions leads to higher short-term survival in self-employment and higher probability of hiring employees in the long term. If the entrepreneur participates in bad coaching sessions there are no positive coaching effects at all.

In summary, we observe that the effects of the program differ between subgroups. The relationship between gender and program effectiveness shows that, in the long term, coaching is more useful for men in terms of effects on earned income and employee development. The coaching effects on survival in self-employment are similar for men and women. Even though the level of the survival rates are very different between men and women. In absence of the program women have a survival probability which is about 7% points lower than the one for men. Hence, the program has similar effects on men and women but on a different level. Furthermore, coaching is a bit more useful for entrepreneurs without upper secondary school degree than for entrepreneurs with this degree. This may occur as low educated entrepreneurs lack general knowledge about the business start-up process. By coaching they are able to generate this knowledge whereas high educated already had this knowledge before coaching. In terms of regional difference of coaching effectiveness we observe that coaching is more effective in East Germany. Interestingly, coaching has also more positive effects in regions with bad labor market conditions and in highly innovative regions.

[139] We cannot rule out that entrepreneurs who would be more successful even in absence of the program choose better coaches than less successful entrepreneurs. If this is the case, it would be wrong to interpret the differences in the effects between the groups as differences caused by heterogeneous coaching quality. Then, the differences in the effects might as well be caused by generally different characteristics of the entrepreneurs between the two subsamples. This possible unobserved selection would lead to an overestimation of the effects among participants with good coachings and an underestimation of the effects among participants with bad coachings. Thus, there would even be less differences in the effects between good and bad coachings.

6.4 Matching quality

In the following, three tests are conducted to verify the matching quality of the presented estimation procedure. The theoretical considerations and methods leading to these tests are introduced in section 3. Tables A.32 to A.35 show the results of these tests for all subgroups. The upper part of table A.32 shows the total number of covariates, namely 69, used in the analysis to estimate the program participation probability. We conduct a t-test on the differences in means of characteristics between the program participants and the comparison group. Table A.32 shows how many covariates differ significantly between participants and non-participants before and after matching using the entire sample of both groups. The matching works well, even though not perfectly. Before matching 12 out of 69 covariates used in the estimation differ on the 5% significance level in their means between participants and non-participants. After matching this number decreases to three covariates. Even if the matching does not work perfectly by eliminating all group differences, we should keep in mind that the groups of the EBCG-UE participants and their comparison group are very similar already before matching.[140] Only 12 out of 69 covariates differ in their means before matching (5% significance level). Therefore, the bias due to group differences is low even before matching.

The mean standardized bias is reported in the midsection of table A.32. It is 7.56% before matching and 3.92% after matching. The bias after matching of 3.92% is in the rule-of-thumb range of 3% to 5% mentioned in section 3, indicating a good matching quality.

The lower panel of table A.32 shows the pseudo-R^2 from the probit estimation of the participation probability. If we estimate the model again after matching the pseudo-R^2 clearly decreases. The pseudo-R^2 before matching is 0.11, the one after matching 0.03. This indicates a good matching quality as the group differences in the characteristics of the entrepreneurs are "smoothed away" by the matching procedure. Hence, we can say that the matching quality is good and the bias due to selection issues dropped clearly by using the matching approach. The matching quality of the subgroup analysis is also good. The highest mean standardized bias after matching can be found for the subgroup of low educated (table A.33). It has a value of 4.99%, i.e. still in the range of 3% to 5% regarded as sufficient.

[140] This can be seen best by figure A.6 which compares the score distributions of participants and non-participants. One reason for the similarity of the groups is that we used the same database for participants and the comparison group to generate the data. This is explained in detail in section 4.2.

6.5 Sensitivity analysis

In the present section we will analyze whether or not the findings are robust. This will mainly be done by testing whether or not an adequate comparison group was used in the analysis. Furthermore, we will conduct one test of changing a parameter of the econometric approach, namely the bandwidth choice.

6.5.1 Choosing an adequate comparison group

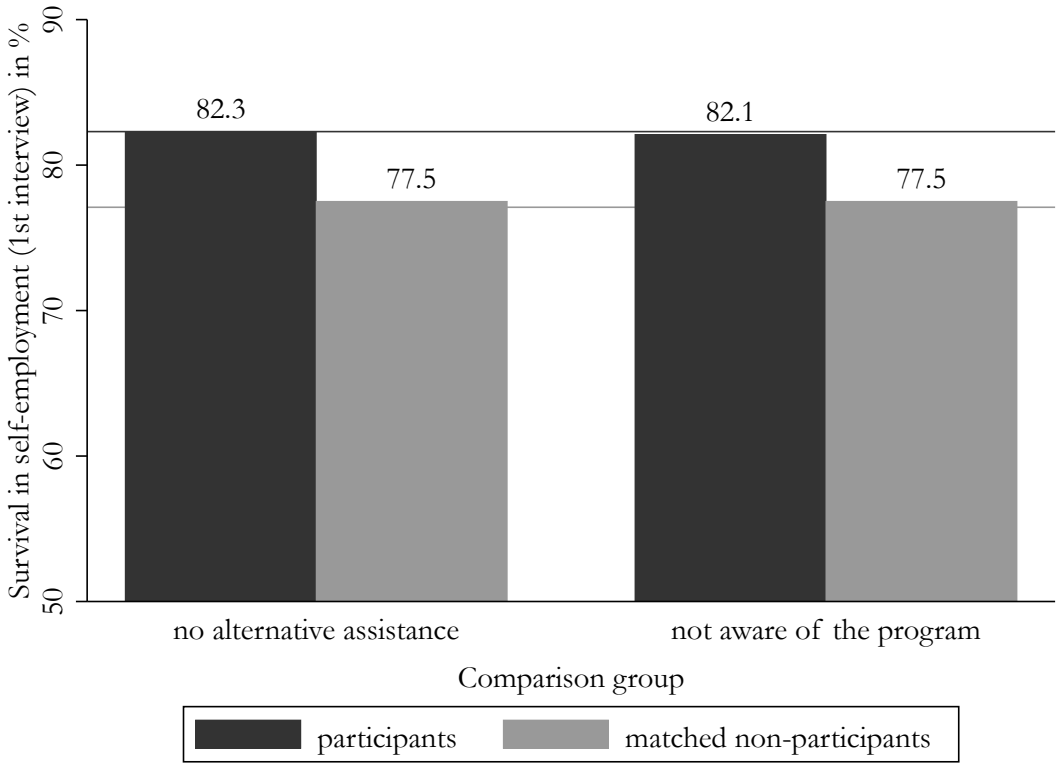
Biased program effects can be caused by participation in differing coaching programs. This would harm the analysis, as the way in which results are interpreted would have to change. The estimated effects would not show the effects of coaching via EBCG-UE compared to non-participation but the effects of coaching via EBCG-UE compared to other coaching. The latter is not part of our analysis and would lead to an underestimation of the program effects if the alternative coachings have any positive effects. If the alternative coachings have better effects than coachings via the program EBCG-UE the estimated effects would even be negative. Therefore, we asked the comparison group whether or not they participated in an alternative coaching. 18.4% of them answered with "Yes". We excluded these persons from the anaysis to check whether these individuals influence the effect estimation in a specific way.[141]

The second last column of table A.25 shows the results of the program effect estimation for the specification using the trimmed comparison group. In total, 10 out of the 12 effects are lower than using the entire sample of non-participants. This means that the aforementioned argumentation is not true in this case. Alternative coaching programs do not lead to more success. Otherwise the outcome measures for coaching effectiveness should increase caused by the trimming of the sample. Nonetheless, the effect on long term survival in self-employment increased and got significant. Using the entire sample coaching leads to a (not significant) increase in the long-term survival probability of 3.19% points. Excluding the individuals who participated in an alternative coaching leads to an increase of this

[141] It might as well be true that the individuals not using alternative assistance are on average more successful than participants and therefore do not need alternative assistance. This would lead to group differences even in absence of the program. If this is the case and we do not capture this difference in our covariates the coaching effects would be biased. Unfortunately, we are not able to test the coaching effects only using the individuals with alternative coachings as comparison group. There are too few observations for this group.

effect to 5.23% points. The latter effect is statistically significant on the 5% level. But in general, the effects using the trimmed sample do not differ widely from the ones using the entire sample. None of the estimators changed the sign.

Figure 6.5: Short-term survival rate comparison: EBCG-UE participants and trimmed comparison groups



Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The bars compare participants with matched non-participants. The values of the differences, called the ATT, can be found in the first row of table A.25. The horizontal lines show the survival rates using the entire sample. The upper line shows the survival rate of the participants (82.3%). The lower line shows the survival rate of matched non-participants (77.1%). The survival rate of participants who are not aware of the program is slightly lower than in the main specification (82.1% vs. 82.3%). This is due to participants "off support" in the matching procedure, whereas these participants are "on support" in the matching procedure using the entire comparison group.

Figure 6.5 shows that due to the low number of non-participants using alternative assistance the survival rate of matched non-participants did not change strongly. It is 77.5% for the trimmed matched comparison group and 77.1% for the entire matched comparison group. In summary, we conclude that alternative

coachings do not play an important role.

A main concern in conducting matching is whether or not the researcher is able to solve the self-selection problem. We argued that by using the 69 covariates in the matching procedure, we are able to control for all relevant characteristics influencing success and the selection into program. As the possibility of unobserved heterogeneity can never be eliminated completely we included another question in the survey to understand more about the selection process into the coaching program. As mentioned earlier we asked the group of non-participants whether or not they know the program. If they knew the program and did not participate in it, it is an indication that they did not need coaching at all. If this is the case these individuals (or their companies) generally differ from participants and their companies. Having no need for coaching on average means that these companies are more successful than ones with coaching needs, e.g. participants in EBCG-UE. Therefore, the coaching effects would be downward biased due to including these "successful" individuals in the comparison group. Hence, we estimated the coaching effects by excluding the non-participants who know the program EBCG-UE.[142] Table A.25 shows the results for this estimation. As in the sensitivity analysis before the most (8 out of 12) coaching effects are smaller than using the entire sample of non-participants. Hence, we cannot confirm that the non-participants who know the program are generally more successful than participants. The effects are robust to this sensitivity test.

6.5.2 Bandwidth choice

As a last sensitivity check we will change one parameter of the matching procedure, namely the bandwidth choice. Table A.26 shows a comparison of two bandwidth choices. In the second last column we used 0.06 as bandwidth for estimating the coaching effects. As we want to use a uniform bandwidth over all outcome measures, we decided to use this fixed value for all 12 outcome measures. This is also the bandwidth we used for the analysis in the previous sections. As sensitivity check we calculated the "optimal" bandwidth for every outcome measure separately and used it to estimate the coaching effects.

Only in 3 out of the 12 outcome measure the sign of the effect changes. None of these three effects were significant using a bandwidth of 0.06 nor when using

[142] Obviously it is not possible to include this information in the propensity score estimation of estimating the individual participation probability. This is due to the fact that all participants know the program.

the optimal bandwidth. The effect for the survival of the entrepreneur in self-employment is very similar for the different bandwidths. In the short term the effect on survival is 5.16% points using a bandwidth of 0.06 and 4.97% points using the optimal one. Both effects are significant on the 10% level. In the long run the survival effects are 3.19% points for both bandwidth choices. The effects on earned income and satisfaction rates are a bit lower with the optimal bandwidth (excluding long term job satisfaction). For example, the short term income effect of the program is -112 € using the uniform bandwidth of 0.06. Using the optimal bandwidth it is -170 € and gets significant on the 5% level.

Overall, there are some (mostly minor) changes of the effect according to a different bandwidth choice. The least robust effects are the ones for earned income and life satisfaction. But in general the differences between the two bandwidth choices are not large. We argue that it is better to use a uniform bandwidth parameter for all outcome variables than using different ones for each outcome measure, because a comparison of the effects of the program EBCG and EBCG-UE is not possible if one uses different bandwidths to calculate the effects. In general, there are only minor differences between the estimated effects which are shown in table A.26. Therefore, we argue that the program effects estimated in the analysis in the previous sections are not very sensitive to the bandwidth choice and can be interpreted as causal effects.

6.6 Conclusion

The descriptive analysis showed that the characteristics of the observed participants and non-participants are very similar. However, the estimation of the selection process revealed some differences between participants and non-participants. Interestingly, entrepreneurs with self-employed parents and married entrepreneurs have a significantly lower participation probability than individuals without these characteristics. We hypothesized that these people use coaching less frequently as they use their private relations to discuss business problems. Interestingly, this effect cannot be observed for internal support via employees. We argued that by hiring employees more managerial problems arise. Hence, coaching is needed even if employees might provide internal advice. Further, there is no clear pattern concerning the relationship between start-up capital and program participation probability. However, individuals without start-up capital have the highest participation probability.

In general there are not many differences between participants and non-participants which had to be corrected for in matching participants and non-participants. Moreover, the matching quality is sufficient.

The analysis showed that there are modest positive coaching effects. Coaching increases the short-term survival in self-employment significantly. Even though, in the long run the effect on survival diminishes in size and gets insignificant. Coaching has no significant effect on entrepreneurs' net income and on the share of highly satisfied, neither in the short run nor in the long run. Table 6.12 shows an overview whether there are positive (indicated by +) or negative (indicated by –) or no (indicated by 0) significant coaching effects for the different subgroups.

Effect heterogeneity analysis showed that coaching is equally effective among men and women regarding the effect on survival in self-employment. However, the original level of survival rates are different between men and women. For men the short term survival rate in self-employment is about 7% larger than the rate for women. Among men coaching leads to a high, significant positive effect on the probability of having employees in the long run, whereas this effect cannot be observed among women.

Interestingly, effect heterogeneity showed that coaching has large effects on survival in self-employment and on life and job satisfaction in East Germany, whereas there are no significantly positive effects in West Germany. Moreover, there are

large positive effects in regions with a high unemployment rate. Interestingly, as shown by figure 6.3, the survival rates of matched non-participants do not differ substantially between regions with low and regions with high unemployment rates. Hence, the subgroup differences in coaching effectiveness does not cause in large survival differences of non-participants between the regions but in survival differences of coached entrepreneurs between regions.

According to a coaching quality indicator, better coaching sessions have better effects than coaching sessions with worse quality. However, the difference in coaching effects based on differing coaching quality levels is surprisingly low.

Table 6.12: Coaching effects of the program EBCG-UE – Overview

Outcome variable	All	Men	Women	East	West	Upper sec. school		Regional ue rate		Regional se rate	
						no	yes	high	low	high	low
Self-employed											
1st interview	+	+	0	+	0	+	0	+	0	0	+
2nd interview	0	0	+	+	0	0	+	+	0	0	0
Individual earned net income (€/month)											
1st interview	0	0	0	0	–	0	0	0	0	0	–
2nd interview	0	0	0	0	0	0	0	0	0	0	0
Employees											
≥ 1 employee 1st interview	0	0	0	0	0	0	0	0	0	0	0
Number of employees 1st interview	0	0	0	0	0	0	0	0	0	0	0
≥ 1 employee 2nd interview	+	+	0	0	0	0	0	0	0	0	0
Number of employees 2nd interview	0	0	0	0	0	+	0	0	0	0	0
High life satisfaction											
1st interview	0	0	0	+	0	0	0	0	0	0	0
2nd interview	0	0	0	0	0	0	0	0	0	0	0
High job satisfaction											
1st interview	0	0	0	+	0	0	0	+	0	0	0
2nd interview	0	0	0	+	0	0	0	+	0	0	0

Source: EBCG/EBCG-UE Dataset, own calculations.

Note: +/– indicate positive/negative coaching effects at least on the 10% significance level. 0 indicates no significant coaching effects. The 1st interview was conducted 15 months after the end of the coaching process and the 2nd interview 37 months. ue rate = unemployment rate; se rate = self-employment rate; Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used.

7

Conclusion and Outlook

The aim of the study was to give an extensive overview of coaching and analyze empirically, whether or not coaching programs have positive effects on entrepreneurs. This is done by first relating coaching to other national and international support programs, relating coaching to other types of support, and describing how and in which stage of the company's evolvement coaching can influence entrepreneurial success. The effectiveness of coaching is shown by evaluating two public German programs which support entrepreneurs via subsidized coaching sessions. Thus, the present study provides the most extensive overview about coaching and adds empirical evidence about German coaching programs to the scarce coaching literature. The following will compile the conclusions of this study.

Chapter 1 explained that business start-ups are important as they are a main driver of the economy. Therefore, there are several support programs for entrepreneurs. These support programs help individuals to get self-employed and assist them via monetary and non-monetary support in the initial period after start-up. One of these support programs is the program EBCG supplying subsidized coaching sessions. As supporting self-employed individuals also plays a crucial role in labor market policy the German government complemented the support via coaching by the program EBCG-UE. This support program is tailored for previously unemployed entrepreneurs. The coaching programs of the German government, i.e. the provision of non-monetary assistance, supplemented the financial support (e.g. start-up subsidies) for entrepreneurs. Before analyzing the effects of the German coaching programs we had a look at the target group of the program and alternative national and international support programs. This was

done in chapter 2.

Chapter 2 is about business start-ups and support programs. Before looking at coaching effects it is important to examine the evolvement of a business start-up and consider at what stage coaching is important. To classify the German coaching programs we described other types of support and observed the effects of programs in other countries. Section 2.1 described the process of a business foundation. This process can be divided into several stages. Based on existing literature and theoretical considerations we designed a model with five stages: Idea Development, Planning, Foundation, Growth, and Maturity. The analysis of each stage has shown that the ideal time for a coaching intervention are the foundation and the growth stage. As these are the first stages after the actual start-up it is very common that problems arise in these stages. Entrepreneurs' opinions about sales prospects, the business idea etc. are often biased due to experiences in the last months and expectations for the next months. As a result, the entrepreneur is not as open minded anymore as in former stages. Outside assistance is important at these stages as an outsider can judge the situation from an external, more neutral perspective. Problems arising after the growth stage are more complex and difficult to solve through coaching interventions. Section 2.2 described the five most common types of non-monetary support for entrepreneurs, namely coaching, mentoring, training, consulting, and counseling. The main similarity of these different support techniques is simply that they all aim to assist individuals. Differences can be found in the procedures and the duration of the processes. Furthermore, the kind of relationship between the provider and recipient of the support differs between the types. To give an example, the relationship between a mentor and a recipient of support is more personal than the relationship between a consultant and the supported person. Coaching is a mixture between supporting an individual in its professional and personal life. The coach and the recipient of the support both determine the coaching contents. Coaches do not solve problems but teach recipients techniques to solve their problems by themselves. The theoretical framework of coaching is the first part in understanding the world of coaching. However, the theoretical framework did not reveal one single coaching method which is applied by all coaches. Section 2.3 discussed the determinants leading to coaching success. The discussion has shown that three pillars influence the coaching success. First the coach, second the entrepreneur, and third the relationship between them. As a conclusion we stated that the entrepreneur first of all has to acknowledge the

need for coaching. After this, the entrepreneur is required to adapt four attitudes that are essential for coaching to be successful. The entrepreneur needs to (1) be ready to accept outside assistance, (2) willing to accept changes, (3) acknowledging the coaches expertise, and (4) does not need to have the fear of loosing control. The coach need to have general knowledge about coaching techniques and problems commonly arise in the foundation period. Moreover, she/he needs to have the capability for empathy and the ability to listen. We conclude that if these preliminary conditions are fulfilled and the coach-entrepreneur relationship is shaped by a communicative, friendly atmosphere and by mutual feedback discussions coaching will be successful. Section 2.4 showed an international overview of support programs. We concluded that most support programs considered have either no or small positive effects. However, there is little quantitative evidence in the international literature. By adding empirical, quantitative evidence about German coaching programs we hope to enrich the knowledge about the effectiveness of coaching programs. Even though, more coaching programs should be evaluated to draw a more general and international picture about coaching effects. This international overview also showed that some program designs are very innovative. An assistance program of the Swedish Agency for Economic and Regional Growth (NUTEK) allows local municipalities to adjust the program to their needs and ideas. Even more interesting, the program is not characterized by a competition of advisers but by teamwork of individuals providing support. A closely knit network of advisers that exchange their knowledge and expertise ensures the provision of the most efficient coaching services possible. Even though, there is some qualitative evidence showing positive effects (EU 1999), there is no quantitative evidence with which it is possible to judge whether the innovative Swedish program has positive effects on participants. Section 2.5 showed that the number of self-employed increased in the last years in Germany. However, this increase is mainly caused by an increase of solo-entrepreneurs. There are several programs such as "Bridging Allowance" and "Start-up Subsidy" successfully supporting the transition from unemployment into self-employment. Whereas these programs helped entrepreneurs with financial capital the policy of supporting entrepreneurs is supplemented by two coaching programs providing help regarding social, managerial, and human capital. Section 2.6 explained that coaching is a process focusing on the individual. Therefore, we concluded that one should use individual success measurements such as the survival of the entrepreneur in self-employment and the

individual earned net income in analyzing coaching effectiveness. Due to the very personal approach of coaching it is also possible that the satisfaction of the entrepreneur will be influenced by the coaching sessions. This again might influence the future success of the entrepreneur. Thus, we concluded that one should also use the share of highly satisfied individuals as outcome measure. This is rarely done in the entrepreneurship literature. We argued that satisfaction is an interesting, novel type of outcome measure especially when considering the effects of coaching sessions. Finally, we drew hypotheses about the effectiveness of coaching programs (section 2.7) which stated that coaching should have positive effects on the survival of the entrepreneur in self-employment, the number of employees, the entrepreneur's income and her/his satisfaction. Moreover, we concluded that coaching should be more effective in regions with poor labor market conditions. Due to a possible lower number of customers and business partners in these regions the need for coaching is higher. Thus, coaching can raise the business success in these regions, whereas in regions with good labor market conditions coaching is less necessary, thus non-participants may be similar successful than coaching participants.

Chapter 3 explained the main problems in evaluating public policy programs such as the coaching programs EBCG and EBCG-UE. One of the main problems is that individuals who self-select into program participation might differ in their characteristics from individuals who do not self-select into program participation. Hence, participants might differ from non-participants in terms of business success even in absence of the program. The methodological approach the researcher should choose depends on whether or not the data include information about the characteristics leading to these differences between participants and non-participants. Thus, there are methods used in case of selection on observables and methods used in case of selection on unobservables. In evaluating the German coaching programs we had the opportunity to gather data with a survey we designed. This enabled us to observe a lot of information about entrepreneurs, enterprises, and the coaching process. We therefore argued that there is only selection on observables in our case. Matching methods are one possible methodological approach in this setting. We decided to use PSM to solve the selection problem and estimate the effects of the German coaching programs.

Chapter 4 firstly explained the institutional settings of the two German coaching programs. Section 4.1 explained differences of the two German coaching pro-

grams. Moreover, it described adjustments of the institutional settings due to a reform of the programs in 2011. Section 4.2 described the unique datasets of quantitative and qualitative data we have access to.[143] In section 4.3 we tested whether or not the data suffered from selective panel attrition. We were able to reject this for all of the four subsamples. As we argued earlier systematic selection into program participation is one main issue in public policy evaluation. In section 4.4 we showed that the combination of existing literature and theoretical considerations led to many hypotheses regarding characteristics influencing coaching participation probability. As a result of this discussion we argued that characteristics such as lack of experience in self-employment, lack of advice via self-employed parents or other social ties (e.g. a spouse), low income, increase participation probability. Section 4.5 gave a first overview of the coaching sessions of the two German programs. We concluded that most coaching styles provide basic knowledge such as marketing and optimization of the business idea. Most entrepreneurs do not compare services and prices before choosing a coach, which is probably due to the fact that many entrepreneurs know the coach already before program participation. Despite the not very deliberate coach selection, coaching quality is rated as good by most entrepreneurs.

Chapter 5 analyzed the coaching effects of the program EBCG. First, the selection into program was examined. About half of the hypotheses about this selection process were confirmed – however most of them only with some limitations. Interestingly we did not find evidence that having self-employed parents or being married influences the coaching participation probability. We hypothesized that these "characteristics" decrease the participation probability due to the possible substitution of assistance via parents or a spouse. This could not be confirmed.

We observed large group differences between the observed participants and non-participants. The matching approach controlled for these differences. Even though the group differences were high, the matching quality showed that the methodological approach worked very well in creating an adequate comparison group to participants.

To conclude, the effects of coaching are disappointing. The program has significant negative effects on the survival of the entrepreneur in self-employment, the earned monthly net income of the entrepreneur, the probability of having and the

[143] However, these data cannot be used to estimate the effects of the reform of the programs explained in section 4.1.3.

number of employees and the share of satisfied participants. We conducted several tests to find the reasons for these surprisingly negative effects. We concluded that the results are not driven by only one reason but by a combination of mainly three reasons.

First, coaches advice entrepreneurs to save costs. They try to lower entrepreneurs' enthusiasm about future business prospects and recommend them to make more reasonable business plans for the future. Thus, coaches might give the advice not to hire (too many) employees. As the coach wants to help keep the company alive, she/he might give the advice of decreasing the entrepreneur's income because "paying" the owner a high income is too costly for the company. Consequently, the coaching effects on income and on the probability of having employees are negative. However, this does not explain the negative program effects on the survival of the entrepreneur in self-employment. Therefore, this explanation cannot be the only driver for the negative results.

Second, the sensitivity analysis showed that the negative effect diminishes when considering the survival of the company instead of the survival of the entrepreneur in self-employment. Meaning that coaching participants are more reluctant than non-participants in starting a new company after they ended the self-employment during which they participated in coaching. There is the possibility that coaching acts as a deterrent regarding a new foundation after the last one failed. However, it is doubtful whether or not coaching has such large effects that it influences subsequent employment decisions. Hence, this explanation is probably not the only driver of the results. Even though, this might be one reason for negative coaching effects.

Third, the previously employed entrepreneurs are very well educated and have on average about six years of experience in self-employment. Thus, according to their characteristics they have a high business success probability. Consequently, it is unlikely that coaching interventions help to increase the – anyway high – success of this kind of entrepreneurs in a significant way. Moreover, as shown in the analysis, these entrepreneurs have complex and advanced coaching needs which apparently cannot be fulfilled by the coaches. However, this only explains why coaching has no effects but not why it has negative effects. Thus, this is not the only driver for the results. We argue that the combination of the three reasons described above lead to negative coaching effects on the considered success measures.

Chapter 6 analyzed the effects of the program EBCG-UE targeting previously unemployed individuals. After successfully supporting previously unemployed individuals with monetary support such as start-up subsidies,[144] it is of interest whether they also profit from receiving non-monetary support on top of these subsidies.

The descriptive analysis showed that compared to previously employed entrepreneurs (chapter 5), previously unemployed entrepreneurs have a lower survival probability in self-employment, a lower earned income and a lower probability of having employees.

Only two out of nine hypotheses about the selection process into coaching were confirmed completely. However, another three hypotheses were confirmed with some limitations. A spouse and self-employed parents significantly decrease the participation probability. We argued that this occurs, as interacting with these persons might substitute coaching or at least decrease coaching needs.

Opposing the negative coaching effects of the program EBCG, there are some positive effects of the program for previously unemployed individuals (EBCG-UE). These positive effects may arise because the former unemployed individuals lack general knowledge about starting a business. This shortcoming can be compensated by the use of coaching leading to positive effects of the program EBCG-UE. Coaching leads to a higher short-term survival probability and a higher probability of having employees in the long term. Effect heterogeneity analysis showed that coaching has large positive effects on survival in self-employment in regions with a high unemployment rate.

The study intensively analyzed and discussed the coaching effects of two German coaching programs, EBCG and EBCG-UE. However, there is one more question that has not been considered until this point. Why are the effects of the two programs different?[145] We will shortly deliberate on this question. There are several possible explanations for these differences.

First, participants of the two programs differ and coaching is only effective for some entrepreneurs. Second, coaching sessions (e.g. quality, topics) differ between the two programs. Third, the coach-entrepreneur match is better in the program

[144] Compare for example: Caliendo and Künn (2011).

[145] We are not pooling the datasets of the two programs to answer this question. The comparison is based on the different causal effects described in chapters 5 and 6. These effects result from comparisons between participants and matched non-participants separately for both programs. We do not explicitly test whether the effects of the programs differ.

EBCG-UE than in EBCG.

Unfortunately, the latter cannot conclusively be analyzed by the available data as coaches were not interviewed during the quantitative analysis. However, there is some evidence in the data contradicting a better coach-entrepreneur match in EBCG-UE than in EBCG. It would be an indication that the match is better in EBCG-UE than in EBCG if participants of the program EBCG-UE select the coach more carefully than EBCG participants. Hence, the match between coach and entrepreneur would be better in the program EBCG-UE. The quantitative interviews asked whether or not the coaches compared prices and services of different coaches. The descriptive analysis showed that 33.9% of the EBCG participants compared prices and services compared to 35.6% of the EBCG-UE participants. This means previously unemployed individuals are a bit more careful in choosing the coach. However, it is very likely that this is due to the fact that EBCG participants were more likely to know their coach previous to the commencement of the coaching session than EBCG-UE participants. 53.4% of EBCG participants knew their coach before coaching, whereas this rate is only 45.4% for EBCG-UE participants. If the match would be better in case the entrepreneur knows the coach before, this would additionally contradict the possibility that the coach-entrepreneur match is better among EBCG-UE participants than among EBCG participants. Furthermore, almost all qualitative interviews point to harmonious relationships between coaches and entrepreneur. A bad coach-entrepreneur match would probably also lead to a bad rating of the coaching. The descriptives showed that there is almost no difference of being satisfied with the coaching between EBCG and EBCG-UE participants. Thus, all evidence contradicts the statement that the quality of the coach-entrepreneur match differs between the two programs. We conclude that this is not the reason for the different effects of the two coaching programs.

The second reason for different effects between the two coaching programs EBCG and EBCG-UE is that the coaching, e.g. in terms of quality, intensity or topics, differ between the programs. As most coaches conduct coaching sessions for entrepreneurs of both programs, EBCG and EBCG-UE, it is quite unlikely that the coaching quality differs between the two programs. Why should the coaching be worse if the coaches are the same? This might only be the case if the coaches conduct different coachings depending on the entrepreneur's previous employment status, respectively the program (EBCG or EBCG-UE) the entrepreneur partici-

pates in.

The data showed that the subjective coaching quality and coaching effect does not differ between participants of the two programs (see table 4.4). In fact, both measures are a bit higher among EBCG participants than among EBCG-UE participants. The coaching quality indicator we constructed does not show large differences between participants of both groups. The indicator combines three survey questions for measuring coaching quality. According to this indicator 48.73% of EBCG participants and 50.31% of EBCG-UE participants participated in good coaching sessions. Thus, we conclude that different coaching quality is not the reason for the different coaching effects of the two programs.

One more aspect in which coachings can be different are the coaching topics. Many topics are stated with equal frequency among both groups of participants, e.g. financial questions, sales, and accounting, administration and controlling. However, table 4.4 showed that some more complex coaching topics are more often stated by EBCG participants, e.g. growth intentions and personnel decisions and management, whereas other more basic topics are stated more often by EBCG-UE participants, e.g. marketing, optimization of business idea, and dealing with customers. We conclude that differences in coachings are not the reason for the different program effects. However, there are some differences in coaching topics. We argue that this is an indication for one last reason of different effects of the two programs.

Lastly, there is the possibility that entrepreneurs and enterprises of the two programs differ and coaching is only effective for some entrepreneurs. The detailed one-on-one interviews with coaches and entrepreneurs mostly point to coaching sessions which impart basic knowledge about starting a business. The above mentioned differences in coaching topics confirm that participants of EBCG-UE have more basic coaching needs than EBCG participants. Another reason for the lack in basic knowledge among EBCG-UE participants is that they have almost three years less experience in self-employment on average than EBCG participants. Obviously, the more complex coaching needs of previously employed individuals (participants in program EBCG) cannot be met. Therefore, we argue that the main reason for the differing program effects are the differences in the characteristics between EBCG participants and EBCG-UE participants.

Moreover, it is harder to increase the, anyway better, previously employed entrepreneurs than the less successful previously unemployed entrepreneurs. This

is even more plausible considering the extremely high survival rates of previously employed entrepreneurs. Moreover, it might be that previously employed individuals are less responsive for coaching, e.g. because the think they are able to solve many problems by their own as they have much experience in self-employment.

In summary, we find that coaching has little effects on the success of entrepreneurs. The previous employment status, the characteristics of the entrepreneur and the regional conditions play a crucial role in the effectiveness of coaching. Based on the findings described in this study participation in coaching cannot be recommended for previously employed individuals. However, we are not able to state whether this recommendation would change if the adjustments in the institutional settings made in 2011, could have been evaluated. There is the possibility that these adjustments positively affected coaching effectiveness. Contrary to these negative effects, previously unemployed individuals benefit from coaching sessions. As they have less experience, coaching sessions supplying basic knowledge on starting a business positively influence their business success. Especially in regions with bad labor market conditions coaching is useful for previously unemployed entrepreneurs.

Even though, the present analysis showed a large overview of coaching using existing literature and rich data, there are some limitations to this study. It only addresses the effects of two programs in Germany and – as shown in section 2.4 – international evidence is also still scarce. Hence, more research is needed to test whether the effects we found are similar for other countries and cultures.

Effect heterogeneity of the present study showed that coaching is more effective in some regions than in others. It would therefore be interesting to know whether support programs for entrepreneurs can influence the innovative character of a region. Moreover, it would be of policy interest whether and which public support programs can influence the regional labor market conditions. With this knowledge policy makers would be able to tailor together public policy programs for each region. Further, this knowledge could be utilized to help disadvantaged regions to catch-up or help to create regional innovative clusters. Whether or not policy makers should in fact use this information – if they were available – is an open question.

There are still interesting research questions about coaching effectiveness which cannot be answered conclusively with the available data. One example is whether the coach-entrepreneur match influences coaching effectiveness. A conceivable re-

search question would be whether coaching is more effective, if coach and entrepreneur have similar characteristics, e.g. same gender, nationality, region of birth.

Furthermore, more research (quantitative and qualitative) is needed about the influences of coaching regarding the entrepreneur's direct reactions to coaching such as cutting down costs or adjusting business prospects and the number of employees.

Even though there are still open questions about coaching, this study showed the most recent picture of coaching sessions for entrepreneurs in theory and practice. We hope this novel evidence will advance coaches, entrepreneurs, researchers, and policy makers in their knowledge about coaching programs for business start-ups.

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Bibliography

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Appendix A

A.1 International evidence support programs

Table A.1: Support programs – European evidence (1)

Country	Name of program	Program specifications	Program effects	Study
Switzerland	"Genilem"	Three coaching for three years. participants get access to the network of the partners and investors of "Genilem".	No evidence.	–
Switzerland	"CTI Start-Up"	Free of charge coaching program. Lasts 6 to 24 months. Eligibility criteria: Potential for sustainable growth, swiss company, innovative business model in the technology sector, ambitious entrepreneur. Coaches are former entrepreneurs. Possibility to receive "CTI Start-Up" Label.	Descriptive evidence: Participants' companies have larger survival rates, more employees, and higher venture capital.	Gantenbein et al. (2011)
Sweden	"Företagscoach"	Long term coaching of at least six months. Aim: Improve business skills of entrepreneurs. Average coaching costs of 300 € for the entrepreneur.	Case study showed that according to the subjective opinion of participants coaching was successful. No quantitative evidence.	Tillmar (2007)
Sweden	"NUTEK" program	Assistance, training, and consultancy by female business adviser; innovative open approach as local municipalities are allowed to adjust program to their needs and ideas.	No quantitative evidence. Mainly two program effects: strengthening female entrepreneurship; development of a network of advisers.	EU (1999)
Denmark	"North Jutland Entrepreneurial Network" support	Counseling in three levels by different providers: 1) local business centre; 2) private-sector advisor; 3) private sector start-up consultant.	Positive effects on survival. Worse effects, if counseling was quit early.	Rotger and Gørtz (2009)
France	"EDEN"	Combination of coaching and loan. Participation in coaching needed, to receive the loan. For former unemployed under 30 or above 50.	No evidence.	–
France	"NACRE"	Three stages: coaching, interest-free loan, coaching. Coaching as requirement to receive an interest-free loan.	No evidence.	–

Table A.2: Support programs – European evidence (2)

Country	Name of program	Program specifications	Program effects	Study
Italy	"Law 44"	Mentoring, Consulting, and financial support of young entrepreneurs in southern Italy. Program finances up to 90% of the start-up costs.	No effect on growth. Participants have a higher barrier to exit the business.	Maggioni et al. (1999)
United Kingdom	"Marketing Support Initiative"	For SMEs with less than 500 employees. External advice of private consultants.	No effects for very small enterprises. Positive effects for mid-range SMEs on survival, turnover, and number of employees.	Wren and Storey (2002)
United Kingdom	"Business Coaching for Growth"	Up to ten days of business coaching for SMEs with high growth potential. Aim: Participation should lead to 20% of yearly growth.	No evidence.	–
United Kingdom	"Enterprise Programme" of Prince's Trust	Start-up loans, grants, and mentoring. For young, disadvantaged entrepreneurs.	Positive employment effects, no effect on subsequent employment and earnings. But effect estimation might be biased.	Meager et al. (2003)

Table A.3: Support programs – International evidence

Country	Name of program	Program specifications	Program effects	Study
United States	"GATE"	Random assignment. Consists of an assessment meeting, classroom training, and assistance through a counselor.	Positive effects on earnings (not significant). Positive effects on probability for business ownership.	Benus et al. (2009)
Peru	"Business Training"	Random assignment. Business training during weekly meeting with microfinance institution. Only for women. Various topics.	Small effects on revenues. No effects on number of employees.	Karlan and Valdivia (2011)
Pakistan	"Business Training"	Random assignment. Eight day business training. Marketing, Financing, Business Planning.	Positive but not robust effects on entrepreneurs' "Business Knowledge" and their "Outlook for life".	Giné and Mansuri (2011)
Mexico	"Management Consulting"	Random assignment. Subsidized consulting services to increase managerial capital.	Participation increases the number of employees by 44% and the wage bill by 57%.	Bruhn et al. (2013)

A.2 Panel attrition

Table A.4: Panel attrition EBCG participants

Outcome variable	N	Observations 1st interview	N	Estimation sample	p-value
Employment status 1st interview					
Self-employed	901	86.79	513	87.72	0.6171
Regular employed	901	8.44	513	8.58	0.9267
Unemployed	901	2.44	513	1.95	0.5498
Employees					
at start-up (yes/no)	901	30.41	513	28.46	0.4406
at start-up (absolute; if > 0)[b]	274	4.83	146	5.16	0.6501
at 1st interview (yes/no)[a]	866	45.61	489	43.15	0.3816
at 1st interview (absolute; if > 0)[b]	395	7.89	211	6.59	0.3057
Income situation 1st interview (€/month)					
Household income[a]	777	3,431.51	459	3,519.31	0.6301
Individual earned net income[a]	794	1,904.18	466	1,947.58	0.6459

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The last column shows the p-values of a simple test of mean equality.
a: The number of observations is lower due to item non-response.
b: The number of observations is considerably lower as only entrepreneurs with employees are taken into account.

Table A.5: Panel attrition EBCG comparison group

Outcome variable	N	Observations 1st interview	N	Estimation sample	p-value
Employment status 1st interview					
Self-employed	2,265	87.24	1,128	89.63	0.0436
Regular employed	2,265	10.46	1,128	9.22	0.2565
Unemployed	2,265	0.35	1,128	0.18	0.3734
Employees					
at start-up (yes/no)[a]	2,256	45.74	1,126	45.38	0.8418
at start-up (absolute; if > 0)[b]	1,031	5.40	511	5.26	0.8126
at 1st interview (yes/no)[a]	2,246	67.81	1,123	69.37	0.3595
at 1st interview (absolute; if > 0)[b]	1,522	8.06	779	7.32	0.3144
Income situation 1st interview (€/month)					
Household income[a]	1,816	4,382.34	976	4,273.39	0.5918
Individual earned net income[a]	1,845	2,713.16	985	2,635.72	0.5043

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The last column shows the p-values of a simple test of mean equality.
a: The number of observations is lower due to item non-response.
b: The number of observations is considerably lower as only entrepreneurs with employees are taken into account.

Table A.6: Panel attrition EBCG-UE participants

Outcome variable	N	Observations 1st interview	N	Estimation sample	p-value
Employment status 1st interview					
Self-employed	811	79.28	489	82.41	0.1685
Regular employed	811	11.34	489	9.41	0.2724
Unemployed	811	4.93	489	4.09	0.4836
Employees					
at start-up (yes/no)[a]	810	10.62	488	10.86	0.8909
at start-up (absolute; if > 0)[b]	86	2.94	53	3.30	0.6034
at 1st interview (yes/no)[a]	797	20.45	476	21.64	0.6146
at 1st interview (absolute; if > 0)[b]	163	4.32	103	4.33	0.9908
Income situation 1st interview (€/month)					
Household income[a]	704	2,964.18	449	3,203.48	0.3494
Individual earned net income[a]	722	1,493.94	458	1,577.61	0.2470

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The last column shows the p-values of a simple test of mean equality.
a: The number of observations is lower due to item non-response.
b: The number of observations is considerably lower as only entrepreneurs with employees are taken into account.

Table A.7: Panel attrition EBCG-UE comparison group

Outcome variable	N	Observations 1st interview	N	Estimation sample	p-value
Employment status 1st interview					
Self-employed	1,531	74.46	806	77.05	0.1681
Regular employed	1,531	14.37	806	12.41	0.1897
Unemployed	1,531	5.94	806	5.58	0.7234
Employees					
at start-up (yes/no)[a]	1,529	11.64	805	11.68	0.9798
at start-up (absolute; if > 0)[b]	178	4.17	94	2.87	0.3001
at 1st interview (yes/no)[a]	1,509	21.01	794	21.54	0.7678
at 1st interview (absolute; if > 0)[b]	317	5.14	171	4.11	0.5035
Income situation 1st interview (€/month)					
Household income[a]	1,275	3,359.10	707	3,366.35	0.9712
Individual earned net income[a]	1,319	1,704.06	725	1,762.42	0.4523

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: The last column shows the p-values of a simple test of mean equality.
a: The number of observations is lower due to item non-response.
b: The number of observations is considerably lower as only entrepreneurs with employees are taken into account.

A.3 Probit estimation results

A.3.1 Program EBCG

Table A.8: Probit estimation results – Total results and subgroups by gender

	All	Men	Women
Female	0.096		
Age bracket			
(ref.: < 25 years)			
25–34 years	0.400*	0.194	1.221**
35–44 years	0.545**	0.243	1.155*
45–55 years	0.578**	0.205	1.459**
> 55 years	0.620*	0.069	2.290***
Migration background	-0.174	-0.237*	-0.198
East Germany	0.253*	0.313*	0.455
Handicapped	-0.074	0.006	-0.603
Married	-0.125	-0.080	-0.232
Highest school degree			
(ref.: None, lower sec. school, others)			
Middle secondary school	-0.041	-0.144	0.154
Upper secondary school	0.124	-0.015	0.460
Highest vocational degree			
(ref.: None, in training, others)			
Apprenticeship	-0.027	-0.184	0.327
Advanced technical degree	0.068	-0.120	0.746
University degree	0.169	0.125	0.336
Parents are/were self-employed	-0.118	-0.161*	-0.046
Lifetime employment			
(ref.: < 5 years)			
5 – < 10 years	-0.134	-0.150	-0.490
10 – < 20 years	0.185	0.307	-0.092
≥ 20 years	0.036	0.129	-0.138
Lifetime self-employment			
(ref.: < 2.5 years, not specified)			
2.5 – < 4 years	-0.222	-0.364*	0.010
4 – < 6 years	-0.397**	-0.367*	-0.585
≥ 6 years	-0.235	-0.304	-0.051
Employment status before start-up			
(ref.: Regular employed)			
Self-employed	0.646***	0.575**	0.593*
Unemployed	0.416***	0.423***	0.742***
Others	0.245*	0.278	0.384
Experience within the field of work before start-up			
Due to dependent employment	-0.288***	-0.146	-0.747***
Due to previous self-employment	0.159	0.199	0.055
Due to hobby activities	0.002	-0.135	0.218
Motivation to start a business			
Spotted a market gap	0.149*	0.234**	-0.211
Want to earn more money	-0.041	-0.090	0.013
Others advised me to do so	0.082	0.118	0.142
Want my business idea to turn into reality	0.072	-0.019	0.329
Expect better compatibility of work and family	0.158**	0.076	0.329*
Number of employees at foundation			
(ref.: None, not specified)			
1 employee	-0.210	-0.171	-0.437
2 employees	-0.306*	-0.394**	-0.067
3 employees	-0.016	-0.073	-0.398
≥ 4 employees	0.219	0.481**	-0.936**

Table to be continued.

Table continued.

	All	Men	Women
Category of start-up capital (in €)			
(ref.: No start-up capital)			
< 5,000	-0.049	0.053	-0.301
5,000 – < 10,000	0.155	0.044	0.511*
10,000 – < 50,000	-0.270**	-0.187	-0.472*
≥ 50,000	-0.348**	-0.276	-0.544*
Sector of start-up			
(ref.: Construction)			
Production	0.050	0.075	-0.843
Retail	-0.266*	-0.094	-1.712***
Private sector services	0.121	0.143	-0.732
Others	0.422**	0.386**	-0.446
Business newly founded (no acquisition)	-0.150	-0.238*	-0.062
Calendar year of business start-up			
(ref.: 2004)			
2005	0.429***	0.302	1.207***
2006	0.405**	0.327	0.928**
2007	0.357**	0.278	1.085**
2008	0.407**	0.487**	0.684
2009	0.347*	0.407*	0.493
Quarter of business start-up			
(ref.: 1st)			
2nd	-0.018	0.083	-0.326
3rd	0.165	0.257**	-0.051
4th	0.018	0.034	-0.086
Individual earned net income in 2008 (€/month)			
(ref.: 0)			
1–500	0.343*	0.334	0.346
> 500–1,000	0.146	0.137	0.012
> 1,000–1,500	-0.017	-0.138	-0.070
> 1,500–2,000	-0.148	-0.260	0.125
> 2,000–3,000	-0.155	-0.219	-0.338
> 3,000	-0.120	-0.251	0.014
Not specified	-0.422**	-0.558**	-0.564*
Risk preference ≥ 7 (1: very low, 10: very high)	0.118	0.115	0.286
Big Five (1: does not apply, 7: completely applies)			
Openness	-0.007	-0.004	0.066
Conscientiousness	-0.105**	-0.101*	-0.087
Extraversion	0.059	0.033	0.214**
Agreeableness	0.039	0.031	0.056
Neuroticism	0.005	0.014	-0.018
Internal locus of control			
(ref.: Low)			
Medium	-0.003	-0.109	0.167
High	0.023	0.014	-0.029
Constant	-0.106	0.459	-2.071
Number of observations	1,641	1,197	444
Pseudo R^2	0.255	0.252	0.413
Log-likelihood	-759.355	-537.293	-173.245

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Dependent variable: Participation in EBCG. ref. = reference category.

Table A.9: Probit estimation results – Subgroups by region and education

	East	West	Upper secondary school	
			no	yes
Female	0.101	0.110	0.134	0.132
Age bracket				
(ref.: < 25 years)				
25–34 years	0.724*	0.382	0.399	0.580
35–44 years	0.654	0.830**	0.222	0.899**
45–55 years	0.711	0.797**	0.270	1.000**
> 55 years	0.646	0.897**	0.402	1.017*
Migration background	-0.232	-0.146	-0.243	-0.074
East Germany			0.511**	0.132
Handicapped	-1.452***	0.180	-0.064	0.017
Married	-0.150	-0.101	-0.288**	-0.041
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	0.244	-0.209		
Upper secondary school	0.464	0.073		
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	0.185	-0.135	0.033	-0.056
Advanced technical degree	0.038	0.167	0.104	0.096
University degree	0.213	0.135	0.621*	0.108
Parents are/were self-employed	-0.039	-0.155	-0.184	-0.067
Lifetime employment				
(ref.: < 5 years)				
5 – < 10 years	-0.289	0.421	-0.107	-0.115
10 – < 20 years	0.279	0.676	0.037	0.223
≥ 20 years	0.223	0.418	0.206	-0.133
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 – < 4 years	0.108	-0.451**	-0.131	-0.313
4 – < 6 years	0.208	-0.776***	-0.269	-0.620***
≥ 6 years	0.523	-0.625***	0.052	-0.582**
Employment status before start-up				
(ref.: Regular employed)				
Self-employed	0.059	0.878***	0.679**	0.696***
Unemployed	0.363**	0.481***	0.331**	0.586***
Others	0.869***	0.215	0.380*	0.235
Experience within the field of work before start-up				
Due to dependent employment	-0.073	-0.395***	-0.191	-0.395***
Due to previous self-employment	-0.005	0.239*	-0.021	0.264*
Due to hobby activities	0.152	-0.103	-0.192	0.056
Motivation to start a business				
Spotted a market gap	0.152	0.181*	0.284**	-0.014
Want to earn more money	0.001	-0.041	-0.059	-0.044
Others advised me to do so	-0.109	0.214**	-0.147	0.262**
Want my business idea to turn into reality	0.300*	0.032	0.145	0.044
Expect better compatibility of work and family	0.044	0.213**	0.319***	-0.019
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.226	-0.215	-0.309*	-0.158
2 employees	-0.276	-0.325	-0.513**	-0.137
3 employees	0.083	0.008	0.145	-0.330
≥ 4 employees	-0.373	0.452*	0.445	0.042

Table to be continued.

Table continued.

	East	West	Upper secondary school	
			no	yes
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	-0.240	0.054	-0.155	0.141
5,000 – < 10,000	0.354	0.056	0.283	0.248
10,000 – < 50,000	-0.333	-0.261	-0.271	-0.218
≥ 50,000	-0.395	-0.342*	-0.193	-0.466**
Sector of start-up				
(ref.: Construction)				
Production	0.173	0.062	0.191	-0.132
Retail	-0.139	-0.277	-0.308	-0.461*
Private sector services	0.185	0.232	0.130	-0.038
Others	0.595**	0.534**	0.742***	0.041
Business newly founded (no acquisition)	-0.265	-0.103	-0.179	-0.170
Calendar year of business start-up				
(ref.: 2004)				
2005	0.572**	0.307	0.323	0.684**
2006	0.651**	0.288	0.264	0.754***
2007	0.612**	0.234	0.216	0.652**
2008	0.970***	0.054	0.538*	0.461
2009	1.017***	-0.069	0.061	0.707**
Quarter of business start-up				
(ref.: 1st)				
2nd	-0.042	-0.077	-0.202	0.127
3rd	0.129	0.177	0.047	0.303*
4th	-0.041	-0.013	-0.137	0.226
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1–500	-0.493	0.535**	0.087	0.648**
> 500–1,000	-0.562	0.081	0.012	0.420*
> 1,000–1,500	-0.574	0.038	-0.341	0.278
> 1,500–2,000	-1.114***	0.032	-0.247	-0.027
> 2,000–3,000	-1.044**	-0.108	-0.442	0.173
> 3,000	-0.869*	-0.115	-0.551	0.216
Not specified	-0.895**	-0.577**	-0.631**	-0.187
Risk preference ≥ 7 (1: very low, 10: very high)	0.026	0.153	0.152	0.101
Big Five (1: does not apply, 7: completely applies)				
Openness	-0.088	0.002	-0.066	0.017
Conscientiousness	-0.083	-0.117*	-0.023	-0.170**
Extraversion	0.126	0.034	-0.023	0.164***
Agreeableness	-0.040	0.101*	0.070	0.036
Neuroticism	0.028	-0.002	0.019	-0.003
Internal locus of control				
(ref.: Low)				
Medium	-0.109	0.090	0.053	0.006
High	-0.340*	0.218*	-0.049	-0.027
Constant	-0.025	-1.306	-0.157	-0.449
Number of observations	491	1,150	847	794
Pseudo R^2	0.246	0.227	0.290	0.283
Log-likelihood	-254.651	-457.383	-348.779	-372.211

Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Dependent variable: Participation in EBCG. ref. = reference category.

Table A.10: Probit estimation results – Subgroups by regional characteristics

	Unemployment rate		Self-employment rate	
	high	low	high	low
Female	0.213	-0.043	0.083	0.222
Age bracket				
(ref.: < 25 years)				
25–34 years	0.716*	0.356	0.394	0.371
35–44 years	0.701*	0.715**	0.487	0.623
45–55 years	0.775*	0.559	0.314	0.983**
> 55 years	0.492	0.810*	0.748	0.603
Migration background	-0.421**	-0.022	-0.019	-0.242
East Germany	-0.144	0.971***	0.183	1.242***
Handicapped	-0.374	0.085	-0.755*	0.301
Married	-0.130	-0.127	-0.292**	-0.030
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	0.202	-0.251	-0.292	0.287
Upper secondary school	0.332	0.073	-0.233	0.502**
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	0.425	-0.321	0.128	-0.197
Advanced technical degree	0.329	-0.025	0.292	-0.102
University degree	0.376	0.049	0.269	0.065
Parents are/were self-employed	-0.169	-0.015	-0.147	-0.138
Lifetime employment				
(ref.: < 5 years)				
5 – < 10 years	-1.017*	0.477	0.557	-0.594
10 – < 20 years	-0.642	0.808**	0.771*	-0.064
≥ 20 years	-0.826	0.741*	0.822	-0.552
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 – < 4 years	0.179	-0.553**	0.083	-0.502**
4 – < 6 years	0.069	-0.707***	-0.175	-0.579**
≥ 6 years	0.388	-0.664***	0.017	-0.400
Employment status before start-up				
(ref.: Regular employed)				
Self-employed	0.321	0.911***	0.533*	0.860***
Unemployed	0.414***	0.547***	0.507***	0.440***
Others	0.289	0.330*	0.589***	0.034
Experience within the field of work before start-up				
Due to dependent employment	-0.287*	-0.357***	-0.306**	-0.375***
Due to previous self-employment	0.164	0.186	-0.102	0.219
Due to hobby activities	0.120	-0.131	-0.040	0.040
Motivation to start a business				
Spotted a market gap	0.125	0.131	0.311**	0.048
Want to earn more money	-0.153	0.095	-0.062	-0.024
Others advised me to do so	0.120	0.074	0.020	0.146
Want my business idea to turn into reality	0.160	-0.003	0.143	-0.058
Expect better compatibility of work and family	0.188	0.117	0.206*	0.135
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.406*	-0.084	-0.267	-0.225
2 employees	-0.529**	-0.130	0.013	-0.657***
3 employees	0.455	-0.532	-0.366	0.206
≥ 4 employees	-0.037	0.387	0.160	0.307

Table to be continued.

Table continued.

	Unemployment rate		Self-employment rate	
	high	low	high	low
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	-0.011	-0.227	-0.298	0.180
5,000 – < 10,000	0.228	0.138	0.057	0.142
10,000 – < 50,000	-0.195	-0.457***	-0.410**	-0.244
≥ 50,000	-0.341	-0.471**	-0.448**	-0.417**
Sector of start-up				
(ref.: Construction)				
Production	0.289	0.067	-0.152	0.325
Retail	-0.106	-0.336	-0.374*	-0.152
Private sector services	0.196	0.230	0.107	0.142
Others	0.515*	0.639***	0.345	0.600**
Business newly founded (no acquisition)	-0.144	-0.066	-0.208	-0.124
Calendar year of business start-up				
(ref.: 2004)				
2005	0.440*	0.452*	0.228	0.529**
2006	0.591**	0.375	0.332	0.468*
2007	0.474*	0.324	0.383	0.347
2008	0.923***	0.102	0.607**	0.203
2009	0.750**	0.114	0.412	0.309
Quarter of business start-up				
(ref.: 1st)				
2nd	0.023	-0.071	0.075	-0.116
3rd	0.181	0.172	0.127	0.217
4th	-0.017	0.058	0.105	-0.066
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1–500	0.243	0.431	-0.046	0.705**
> 500–1000	0.114	-0.035	-0.011	0.278
> 1000–1500	0.107	-0.184	-0.187	-0.016
> 1500–2000	-0.219	-0.263	-0.358	-0.123
> 2000–3000	0.014	-0.461*	-0.286	-0.135
> 3000	0.129	-0.442*	-0.328	0.016
Not specified	-0.119	-0.896***	-0.444	-0.599**
Risk preference ≥ 7 (1: very low, 10: very high)	0.081	0.111	0.095	0.132
Big Five (1: does not apply, 7: completely applies)				
Openness	-0.053	0.028	-0.006	-0.028
Conscientiousness	-0.045	-0.128*	-0.139*	-0.133*
Extraversion	0.098	0.016	0.045	0.064
Agreeableness	-0.001	0.055	0.048	0.073
Neuroticism	0.025	-0.031	0.014	-0.031
Internal locus of control				
(ref.: Low)				
Medium	-0.081	0.034	-0.148	0.115
High	-0.191	0.218	-0.015	0.080
Constant	-0.329	-0.879	-0.221	-1.272
Number of observations	632	1,009	784	857
Pseudo R^2	0.243	0.280	0.269	0.331
Log-likelihood	-330.155	-381.028	-341.663	-367.522

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Dependent variable: Participation in EBCG. ref. = reference category.

Table A.11: Probit estimation results – Different coaching quality and alternative comparison groups

	Good coaching quality		Comparison group:	Comparison group:
	no	yes	No alternative assistance	Not aware of the program
Female	0.127	0.107	0.087	0.114
Age bracket				
(ref.: < 25 years)				
25–34 years	0.398	0.463	0.213	0.406*
35–44 years	0.472	0.647**	0.380	0.544**
45–55 years	0.359	0.803**	0.378	0.597**
> 55 years	0.527	0.730*	0.409	0.600*
Migration background	-0.277*	-0.082	-0.197*	-0.209*
East Germany	0.223	0.259	0.292*	0.291*
Handicapped	-0.101	-0.103	-0.003	0.095
Married	-0.092	-0.132	-0.145*	-0.121
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	-0.020	-0.051	-0.104	-0.095
Upper secondary school	0.100	0.201	0.089	0.033
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	0.194	-0.157	-0.040	0.037
Advanced technical degree	0.188	0.037	0.127	0.155
University degree	0.197	0.145	0.209	0.275
Parents are/were self-employed	-0.231**	-0.016	-0.124	-0.110
Lifetime employment				
(ref.: < 5 years)				
5 – < 10 years	-0.256	-0.175	-0.087	0.062
10 – < 20 years	0.115	0.138	0.186	0.361
≥ 20 years	-0.059	0.041	0.048	0.234
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 – < 4 years	-0.225	-0.184	-0.212	-0.376**
4 – < 6 years	-0.287	-0.443**	-0.425**	-0.540***
≥ 6 years	-0.094	-0.299	-0.259	-0.430**
Employment status before start-up				
(ref.: Regular employed)				
Self-employed	0.655***	0.516**	0.723***	0.690***
Unemployed	0.263**	0.534***	0.397***	0.421***
Others	0.192	0.259	0.197	0.214
Experience within the field of work before start-up				
Due to dependent employment	-0.314***	-0.226**	-0.327***	-0.280***
Due to previous self-employment	0.166	0.150	0.191	0.187
Due to hobby activities	-0.048	0.068	-0.010	-0.004
Motivation to start a business				
Spotted a market gap	0.065	0.247**	0.204**	0.190**
Want to earn more money	0.009	-0.095	-0.040	-0.026
Others advised me to do so	0.064	0.126	0.082	0.119
Want my business idea to turn into reality	0.063	0.074	0.090	0.077
Expect better compatibility of work and family	0.005	0.271***	0.169**	0.195**
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.375**	-0.093	-0.214	-0.279**
2 employees	-0.234	-0.321	-0.240	-0.365**
3 employees	-0.143	0.018	-0.034	-0.001
≥ 4 employees	0.047	0.267	0.271	0.250

Table to be continued.

Table continued.

	Good coaching quality		Comparison group: No alternative assistance	Comparison group: Not aware of the program
	no	yes		
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	-0.169	0.056	-0.149	0.032
5,000 – < 10,000	-0.052	0.295	0.040	0.246
10,000 – < 50,000	-0.387***	-0.208	-0.405***	-0.239*
≥ 50,000	-0.390**	-0.316*	-0.479***	-0.344**
Sector of start-up				
(ref.: Construction)				
Production	-0.169	0.213	0.049	0.019
Retail	-0.365*	-0.167	-0.273*	-0.258
Private sector services	0.028	0.176	0.108	0.128
Others	0.269	0.504**	0.499***	0.414**
Business newly founded (no acquisition)	-0.071	-0.247*	-0.149	-0.105
Calendar year of business start-up				
(ref.: 2004)				
2005	0.274	0.529***	0.397**	0.454***
2006	0.407*	0.416*	0.390**	0.426**
2007	0.436**	0.274	0.324*	0.379**
2008	0.591**	0.284	0.409**	0.479**
2009	0.482**	0.240	0.360*	0.465**
Quarter of business start-up				
(ref.: 1st)				
2nd	-0.019	-0.030	-0.047	-0.033
3rd	0.216*	0.125	0.157	0.166
4th	0.189	-0.148	0.073	0.057
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1–500	0.377	0.394	0.364*	0.316
> 500–1,000	0.177	0.158	0.029	0.184
> 1,000–1,500	-0.030	0.062	-0.140	0.043
> 1,500–2,000	-0.199	-0.014	-0.255	-0.100
> 2,000–3,000	-0.157	-0.030	-0.246	-0.122
> 3,000	0.098	-0.244	-0.160	-0.062
Not specified	-0.260	-0.481**	-0.498**	-0.413**
Risk preference ≥ 7 (1: very low, 10: very high)	0.076	0.118	0.144*	0.159*
Big Five (1: does not apply, 7: completely applies)				
Openness	-0.017	0.007	-0.001	0.006
Conscientiousness	-0.149**	-0.042	-0.140***	-0.132**
Extraversion	0.055	0.053	0.053	0.072
Agreeableness	0.078	-0.011	0.032	0.039
Neuroticism	0.004	0.013	0.013	0.007
Internal locus of control				
(ref.: Low)				
Medium	0.041	-0.067	0.014	0.076
High	-0.078	0.106	0.075	0.091
Constant	-0.117	-1.101	0.623	-0.179
Number of observations	1,391	1,378	1,462	1,451
Pseudo R^2	0.258	0.261	0.276	0.288
Log-likelihood	-500.217	-482.530	-685.477	-671.099

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
We use the total sample of non-participants in the probit estimations of the participants with good or bad coaching quality. Therefore, the sum of observations of the two subgroups (1,391 and 1,378) does not equal the total number of observations (1,641). ref. = reference category.
Dependent variable: Participation in EBCG.

A.3.2 Program EBCG-UE

Table A.12: Probit estimation results – Total results and subgroups by gender

	All	Men	Women
Female	-0.029		
Age bracket			
(ref.: < 25 years)			
25–34 years	0.264	0.348	-0.130
35–44 years	0.257	0.209	0.098
45–55 years	0.488	0.462	0.341
> 55 years	0.521	0.669	-0.096
Migration background	0.075	0.094	-0.005
East Germany	0.049	-0.164	0.261
Handicapped	0.321*	0.398	0.141
Married	-0.273***	-0.240**	-0.293**
Highest school degree			
(ref.: None, lower sec. school, others)			
Middle secondary school	0.167	0.093	0.473*
Upper secondary school	0.135	0.028	0.370
Highest vocational degree			
(ref.: None, in training, others)			
Apprenticeship	0.049	-0.039	0.021
Advanced technical degree	0.002	-0.032	-0.168
University degree	0.016	-0.078	0.093
Parents are/were self-employed	-0.202**	-0.250**	-0.083
Lifetime employment			
(ref.: < 5 years)			
5 – < 10 years	-0.373	-0.436	-0.550
10 – < 20 years	-0.289	-0.321	-0.276
≥ 20 years	-0.317	-0.398	-0.291
Lifetime self-employment			
(ref.: < 2.5 years, not specified)			
2.5 – < 4 years	-0.059	0.017	-0.169
4 – < 6 years	-0.296*	-0.114	-0.520**
≥ 6 years	-0.007	0.183	-0.441*
Employment status before unemployment			
(ref.: Regular employed)			
Others (incl. self-employment)	-1.009***	-1.226***	-0.914***
Experience within the field			
of work before start-up			
Due to dependent employment	0.034	-0.010	0.107
Due to previous self-employment	-0.125	-0.267	0.137
Due to hobby activities	-0.145*	-0.200*	-0.153
Push motive (scale 4–28)	-0.017**	-0.014	-0.023**
Number of employees at foundation			
(ref.: None, not specified)			
1 employee	0.001	0.175	-0.437
≥ 2 employees	-0.223	-0.257	-0.462
Category of start-up capital (in €)			
(ref.: No start-up capital)			
< 5,000	0.213*	0.302*	0.096
5,000 – < 10,000	0.073	0.089	0.080
10,000 – < 50,000	0.327***	0.344*	0.488**
≥ 50,000	0.225	0.334	-0.151

Table to be continued.

Table continued.

	All	Men	Women
Sector of start-up			
(ref.: Construction)			
Production	-0.014	0.041	-0.491
Retail	0.206	0.335	-0.526
Private sector services	0.094	0.228	-0.633
Others	-0.035	0.523**	-1.138*
Calendar year of business start-up			
(ref.: 2008)			
2009	-0.696***	-0.690***	-0.798***
Quarter of business start-up			
(ref.: 1st)			
2nd	0.145	0.266*	-0.046
3rd	-0.033	-0.044	-0.010
4th	-0.038	-0.007	-0.061
Individual earned net income in 2008 (€/month)			
(ref.: 0)			
1–500	0.081	0.486	-0.222
> 500–1,000	-0.125	0.045	-0.348
> 1,000–1,500	-0.129	-0.221	-0.090
> 1,500–2,000	-0.399**	-0.386	-0.511*
> 2,000–3,000	-0.077	-0.141	0.008
> 3,000	-0.387**	-0.377	-0.318
Not specified	-0.278	-0.332	-0.299
Risk preference ≥ 7 (1: very low, 10: very high)	0.042	0.064	0.028
Big Five (1: does not apply, 7: completely applies)			
Openness	0.065*	0.063	0.052
Conscientiousness	0.053	0.179**	-0.158*
Extraversion	0.004	0.009	-0.013
Agreeableness	-0.053	-0.116*	0.090
Neuroticism	-0.032	-0.060	-0.008
Internal locus of control			
(ref.: Low)			
Medium	0.094	0.058	0.175
High	0.162	0.195	-0.016
Constant	0.479	0.675	1.603
Number of observations	1,295	725	570
Pseudo R^2	0.111	0.147	0.162
Log-likelihood	-763.187	-412.295	-313.929

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Due to the lower number of observations it is not possible to use the same categories for the single characteristics as in the analysis of the program EBCG. ref. = reference category.
Dependent variable: Participation in EBCG-UE.

Table A.13: Probit estimation results – Subgroups by region and education

	East	West	Upper secondary school	
			no	yes
Female	-0.111	0.022	-0.035	0.017
Age bracket				
(ref.: < 25 years)				
25 to 34 years	0.210	0.089	0.502	-0.290
35 to 44 years	0.053	0.153	0.272	-0.201
45 to 55 years	0.486	0.313	0.478	0.102
> 55 years	0.232	0.479	0.432	0.363
Migration background	0.502**	-0.033	-0.004	0.126
East Germany			-0.263	0.240
Handicapped	-0.052	0.491**	0.489**	0.200
Married	-0.332**	-0.230**	-0.385***	-0.172
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	-0.191	0.326**		
Upper secondary school	0.084	0.117		
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	0.126	0.012	-0.114	0.336
Advanced technical degree	0.211	-0.131	-0.136	0.127
University degree	-0.048	0.055	-0.519	0.254
Parents are/were self-employed	-0.438***	-0.137	-0.180	-0.260**
Lifetime employment				
(ref.: < 5 years)				
5 - < 10 years	-0.638	-0.061	-0.422	-0.402
10 - < 20 years	-0.560	0.151	-0.286	-0.334
≥ 20 years	-0.612	0.146	-0.185	-0.428
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 - < 4 years	-0.287	0.063	0.013	-0.099
4 - < 6 years	-0.414	-0.273	-0.183	-0.375*
≥ 6 years	0.249	-0.143	0.139	-0.095
Employment status before unemployment				
(ref.: Regular employed)				
Others (incl. self-employment)	-1.001***	-1.065***	-1.132***	-1.135***
Experience within the field				
of work before start-up				
Due to dependent employment	0.185	0.009	0.004	-0.064
Due to previous self-employment	-0.153	-0.111	0.034	-0.208
Due to hobby activities	-0.132	-0.203*	-0.179	-0.130
Push motive (scale 4–28)	-0.026*	-0.016*	-0.017	-0.023**
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.282	0.194	0.230	-0.687*
≥ 2 employees	0.038	-0.294	-0.445*	0.056
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	0.171	0.320**	0.116	0.364**
5,000 - < 10,000	0.193	0.120	0.108	0.064
10,000 - < 50,000	0.333	0.407***	0.214	0.449**
≥ 50,000	0.290	0.301	0.083	0.360

Table to be continued.

Table continued.

	East	West	Upper secondary school	
			no	yes
Sector of start-up				
(ref.: Construction)				
Production	0.237	-0.171	-0.138	0.616
Retail	0.010	0.341	0.209	0.639
Private sector services	0.113	0.146	0.099	0.506
Others	-0.029	0.023	-0.189	0.473
Calendar year of business start-up				
(ref.: 2008)				
2009	-0.787***	-0.645***	-0.842***	-0.728***
Quarter of business start-up				
(ref.: 1st)				
2nd	0.005	0.226	0.197	0.189
3rd	-0.023	-0.063	-0.050	0.008
4th	-0.003	-0.034	0.227	-0.237
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1 - 500	-0.054	0.113	0.044	0.070
> 500 - 1,000	-0.257	-0.132	-0.326	0.164
> 1,000 - 1,500	-0.349	-0.012	-0.270	0.014
> 1,500 - 2,000	-0.777**	-0.309	-0.344	-0.444*
> 2,000 - 3,000	-0.344	0.008	0.089	-0.076
> 3,000	-0.823**	-0.297	-0.207	-0.406
Not specified	-0.829**	-0.091	-0.394	-0.173
Risk preference ≥ 7 (1: very low, 10: very high)	0.081	0.071	0.001	0.116
Big Five (1: does not apply, 7: completely applies)				
Openness	0.077	0.067	0.098**	0.035
Conscientiousness	0.106	0.041	0.041	0.097
Extraversion	0.020	-0.005	0.029	-0.048
Agreeableness	-0.140*	-0.022	-0.020	-0.087
Neuroticism	0.007	-0.055	-0.084*	0.001
Internal locus of control				
(ref.: Low)				
Medium	-0.061	0.163	-0.053	0.231*
High	0.045	0.236*	0.130	0.261*
Constant	1.372	0.512	1.293	0.436
Number of observations	466	829	620	675
Pseudo R^2	0.155	0.130	0.139	0.144
Log-likelihood	-266.300	-471.641	-357.520	-378.821

Note: $*/**/***$ indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Due to the lower number of observations it is not possible to use the same categories for the single characteristics as in the analysis of the program EBCG. ref. = reference category.
Dependent variable: Participation in EBCG-UE.

Table A.14: Probit estimation results – Subgroups by regional characteristics

	Unemployment rate		Self-employment rate	
	high	low	high	low
Female	0.035	-0.049	0.029	-0.102
Age bracket				
(ref.: < 25 years)				
25–34 years	0.202	-0.163	0.119	0.584
35–44 years	0.079	-0.162	-0.030	0.702
45–55 years	0.314	0.127	0.307	0.872*
> 55 years	0.444	0.117	0.366	0.909*
Migration background	0.129	0.011	0.228	-0.045
East Germany	-0.168	0.633*	0.072	0.259
Handicapped	0.058	0.600**	0.424	0.210
Married	-0.318**	-0.259**	-0.391***	-0.193*
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	0.090	0.229	-0.028	0.377*
Upper secondary school	0.143	0.090	0.056	0.204
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	0.078	0.067	0.330	-0.201
Advanced technical degree	0.004	0.063	0.499	-0.499*
University degree	0.009	-0.013	0.347	-0.269
Parents are/were self-employed	-0.489***	0.022	-0.243*	-0.185
Lifetime employment				
(ref.: < 5 years)				
5 – < 10 years	-0.883**	0.061	-0.194	-0.488
10 – < 20 years	-0.636*	0.160	0.034	-0.500
≥ 20 years	-0.693*	0.153	-0.048	-0.461
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 – < 4 years	-0.010	-0.054	-0.044	-0.047
4 – < 6 years	-0.189	-0.400*	-0.748***	0.070
≥ 6 years	0.226	-0.124	-0.022	0.004
Employment status before unemployment				
(ref.: Regular employed)				
Others (incl. self-employment)	-0.915***	-1.310***	-1.069***	-0.951***
Experience within the field				
of work before start-up				
Due to dependent employment	0.191	-0.006	0.096	-0.043
Due to previous self-employment	-0.123	-0.178	-0.101	-0.202
Due to hobby activities	-0.212*	-0.101	-0.171	-0.142
Push motive (scale 4–28)	-0.012	-0.023**	-0.020*	-0.016
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.049	-0.018	-0.080	0.143
≥ 2 employees	-0.201	-0.309	-0.220	-0.284
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	0.208	0.272	0.056	0.362**
5,000 – < 10,000	0.133	0.114	-0.027	0.242
10,000 – < 50,000	0.379**	0.409**	0.398**	0.295
≥ 50,000	0.754**	0.000	-0.191	0.664**

Table to be continued.

Table continued.

	Unemployment rate		Self-employment rate	
	high	low	high	low
Sector of start-up				
(ref.: Construction)				
Production	0.046	-0.172	-0.166	0.185
Retail	0.217	0.212	0.164	0.188
Private sector services	0.012	0.133	0.076	0.086
Others	-0.108	0.024	-0.157	0.080
Calendar year of business start-up				
(ref.: 2008)				
2009	-0.646***	-0.868***	-0.864***	-0.567***
Quarter of business start-up				
(ref.: 1st)				
2nd	0.059	0.285*	0.150	0.093
3rd	0.056	-0.062	0.038	-0.108
4th	-0.027	-0.034	-0.046	-0.086
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1–500	-0.092	0.235	0.091	0.131
> 500–1,000	-0.044	-0.449	-0.24	-0.112
> 1,000–1,500	-0.269	-0.058	-0.166	-0.202
> 1,500–2,000	-0.546**	-0.365	-0.515*	-0.422*
> 2,000–3,000	-0.305	0.108	-0.089	-0.115
> 3,000	-0.828***	-0.177	-0.364	-0.508*
Not specified	-0.564**	-0.137	-0.201	-0.378
Risk preference ≥ 7 (1: very low, 10: very high)	0.036	0.071	0.039	0.076
Big Five (1: does not apply, 7: completely applies)				
Openness	0.074	0.049	0.056	0.084*
Conscientiousness	0.103	0.048	-0.135	0.217**
Extraversion	-0.042	0.020	0.028	-0.013
Agreeableness	-0.149**	0.020	-0.021	-0.062
Neuroticism	0.054	-0.099**	-0.072	-0.022
Internal locus of control				
(ref.: Low)				
Medium	0.070	0.142	0.186	0.070
High	0.210	0.193	0.220	0.104
Constant	0.971	0.970	1.616	-1.185
Number of observations	618	677	622	673
Pseudo R^2	0.132	0.175	0.170	0.112
Log-likelihood	-363.789	-360.124	-340.057	-398.151

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Due to the lower number of observations it is not possible to use the same categories for the single characteristics as in the analysis of the program EBCG. ref. = reference category.
Dependent variable: Participation in EBCG-UE.

Table A.15: Probit estimation results – Different coaching quality and alternative comparison groups

	Good coaching quality		Comparison group:	Comparison group:
	no	yes	No alternative assistance	Not aware of the program
Female	-0.052	0.014	-0.005	-0.059
Age bracket				
(ref.: < 25 years)				
25–34 years	0.342	0.202	0.282	0.337
35–44 years	0.326	0.171	0.360	0.359
45–55 years	0.566	0.404	0.574*	0.608*
> 55 years	0.485	0.569	0.640*	0.533
Migration background	0.112	0.018	0.102	0.020
East Germany	0.016	0.030	0.048	0.106
Handicapped	0.430**	0.167	0.345*	0.354*
Married	-0.298***	-0.219**	-0.259***	-0.207**
Highest school degree				
(ref.: None, lower sec. school, others)				
Middle secondary school	0.022	0.291	0.240*	0.195
Upper secondary school	-0.123	0.401**	0.209	0.120
Highest vocational degree				
(ref.: None, in training, others)				
Apprenticeship	-0.031	0.198	0.119	0.038
Advanced technical degree	-0.376	0.380	0.067	-0.039
University degree	-0.017	0.086	0.033	0.043
Parents are/were self-employed	-0.156	-0.248**	-0.192**	-0.212**
Lifetime employment				
(ref.: < 5 years)				
5 – < 10 years	-0.309	-0.452	-.562*	-0.332
10 – < 20 years	-0.239	-0.418	-0.475	-0.261
≥ 20 years	-0.240	-0.468	-0.585*	-0.346
Lifetime self-employment				
(ref.: < 2.5 years, not specified)				
2.5 – < 4 years	-0.163	0.035	0.007	-0.064
4 – < 6 years	-0.122	-0.473**	-0.236	-0.300*
≥ 6 years	0.020	-0.033	-0.003	0.020
Employment status before unemployment				
(ref.: Regular employed)				
Others (incl. self-employment)	-0.980***	-1.114***	-0.989***	-0.992***
Experience within the field of work before start-up				
Due to dependent employment	-0.005	0.042	0.020	0.135
Due to previous self-employment	-0.102	-0.159	-0.133	-0.099
Due to hobby activities	-0.177*	-0.128	-0.110	-0.132
Push motive (scale 4–28)	-0.024***	-0.010	-0.021***	-0.017**
Number of employees at foundation				
(ref.: None, not specified)				
1 employee	-0.006	-0.029	0.080	0.000
≥ 2 employees	-0.519**	0.011	-0.229	-0.327*
Category of start-up capital (in €)				
(ref.: No start-up capital)				
< 5,000	0.067	0.388***	0.222*	0.208*
5,000 – < 10,000	0.050	0.116	0.046	0.087
10,000 – < 50,000	0.174	0.478***	0.345***	0.431***
≥ 50,000	0.051	0.375	0.168	0.255

Table to be continued.

Table continued.

	Good coaching quality		Comparison group:	Comparison group:
	no	yes	No alternative assistance	Not aware of the program
Sector of start-up				
(ref.: Construction)				
Production	0.057	-0.154	0.005	0.035
Retail	0.118	0.313	0.213	0.303
Private sector services	-0.027	0.201	0.079	0.213
Others	-0.276	0.158	-0.035	0.084
Calendar year of business start-up				
(ref.: 2008)				
2009	-0.762***	-0.764***	-0.585***	-0.599***
Quarter of business start-up				
(ref.: 1st)				
2nd	0.210	0.039	0.208*	0.105
3rd	-0.096	0.003	0.017	-0.084
4th	-0.118	0.034	-0.028	-0.008
Individual earned net income in 2008 (€/month)				
(ref.: 0)				
1 – 500	0.076	0.070	0.025	0.102
> 500 – 1,000	-0.112	-0.158	-0.145	-0.120
> 1,000 – 1,500	-0.146	-0.098	-0.106	-0.109
> 1,500 – 2,000	-0.290	-0.492**	-0.374**	-0.427**
> 2,000 – 3,000	-0.112	-0.087	-0.072	-0.156
> 3,000	-0.243	-0.511**	-0.321	-0.439**
Not specified	-0.355	-0.206	-0.277	-0.213
Risk preference ≥ 7	-0.076	0.187*	0.002	0.051
(1: very low, 10: very high)				
Big Five				
(1: does not apply, 7: completely applies)				
Openness	0.074*	0.053	0.069**	0.038
Conscientiousness	-0.043	0.134*	0.052	0.072
Extraversion	-0.025	0.043	0.013	0.035
Agreeableness	-0.061	-0.062	-0.069	-0.040
Neuroticism	-0.016	-0.033	-0.021	-0.062*
Internal locus of control				
(ref.: Low)				
Medium	0.032	0.125	0.059	0.091
High	0.114	0.206*	0.152	0.124
Constant	1.431*	-1.069	0.581	0.111
Number of observations	1,049	1,052	1,147	1,072
Pseudo R^2	0.116	0.141	0.111	0.115
Log-likelihood	-502.028	-491.212	-695.459	-654.132

Note: */ * */ * ** indicate significant difference on the 10%; 5%; 1% significance level.
All characteristics are measured at the time of the 1st interview unless stated otherwise.
Due to the lower number of observations it is not possible to use the same categories for the single characteristics as in the analysis of the program EBCG. ref. = reference category.
We use the total sample of non-participants in the probit estimations of the participants with good or bad coaching quality. Therefore, the sum of observations of the two subgroups (1,049 and 1,052) does not equal the total number of observations (1,295).
Dependent variable: Participation in EBCG-UE.

A.4 Coaching effects

A.4.1 Program EBCG

A.4.1.1 Effect heterogeneity – General subgroups

Table A.16: ATT of the program EBCG – Total effects and subgroups by gender

Outcome variable	All		Men		Women	
Self-employed						
1st interview	-0.28		-0.76		-1.39	
	(2.63)		(2.74)		(5.46)	
2nd interview	-6.03	**	-9.02	***	-0.78	
	(2.52)		(2.32)		(5.88)	
Individual earned net income (€/month)						
1st interview	-340.03	**	-251.16		-231.69	
	(156.63)		(180.94)		(161.30)	
2nd interview	-270.61	*	-198.49		-238.35	
	(160.68)		(217.73)		(210.48)	
Employees						
$\geq$ 1 employee 1st interview	-10.18	***	-9.14	**	-13.09	*
	(3.83)		(4.44)		(7.63)	
Number of employees 1st interview	-2.46	*	-2.07	*	-0.38	
	(1.43)		(1.26)		(1.12)	
$\geq$ 1 employee 2nd interview	-12.54	***	-11.94	***	-8.38	
	(3.88)		(4.36)		(7.87)	
Number of employees 2nd interview	-0.83		-1.07		-0.36	
	(0.59)		(0.80)		(1.09)	
High life satisfaction						
1st interview	-3.91		-4.95		-0.81	
	(2.82)		(3.15)		(6.42)	
2nd interview	-5.73	*	-7.73	**	5.26	
	(3.04)		(3.31)		(7.56)	
High job satisfaction						
1st interview	-1.63		-2.40		2.54	
	(3.13)		(3.12)		(7.39)	
2nd interview	-1.11		-3.75		3.75	
	(3.27)		(3.27)		(7.36)	
Number of observations	1,641		1,197		444	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

Table A.17: ATT of the program EBCG – Subgroups by region and education

Outcome variable	East		West		Upper sec. school no		yes	
Self-employed								
1st interview	0.93		-3.48		-1.16		-2.58	
	(4.35)		(2.58)		(2.78)		(3.51)	
2nd interview	-10.60	***	-4.83	**	-5.46	*	-11.34	***
	(3.65)		(2.31)		(2.80)		(2.75)	
Individual earned net income (€/month)								
1st interview	-600.09	*	-199.42		-522.96	**	-336.93	
	(329.83)		(181.78)		(216.79)		(230.95)	
2nd interview	-428.04		-263.44		-584.56	***	-218.39	
	(304.44)		(298.35)		(193.46)		(289.63)	
Employees								
$\geq$ 1 employee 1st interview	-8.48		-9.91	**	-11.04	**	-11.59	**
	(6.51)		(4.46)		(5.54)		(5.50)	
Number of employees 1st interview	-3.37		-1.69	*	-0.19		-4.65	*
	(3.15)		(0.87)		(0.65)		(2.52)	
$\geq$ 1 employee 2nd interview	-10.98	*	-10.59	**	-13.87	**	-14.13	***
	(6.25)		(4.70)		(5.58)		(5.41)	
Number of employees 2nd interview	0.28		-1.69	*	0.02		-1.39	
	(0.66)		(1.02)		(0.77)		(0.89)	
High life satisfaction								
1st interview	-12.68	***	-0.11		-8.18	*	-2.61	
	(4.13)		(3.30)		(4.32)		(3.87)	
2nd interview	-19.08	***	1.63		-14.32	***	-2.32	
	(3.97)		(3.62)		(4.06)		(4.36)	
High job satisfaction								
1st interview	-8.40	**	-0.22		-5.61		0.93	
	(3.70)		(3.65)		(4.12)		(4.40)	
2nd interview	-4.29		2.03		-9.16	**	-0.95	
	(5.46)		(3.74)		(4.16)		(4.14)	
Number of observations	491		1,150		847		794	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.4.1.2 Effect heterogeneity – Subgroups by regional characteristics

Table A.18: ATT of the program EBCG – Subgroups by unemployment rate and self-employment rate

Outcome variable	Regional unemployment rate				Regional self-employment rate			
	high		low		high		low	
Self-employed								
1st interview	1.39		-4.64		-3.37		0.29	
	(3.55)		(3.01)		(3.50)		(3.22)	
2nd interview	-6.69	**	-8.39	***	-5.96	*	-5.65	*
	(3.31)		(2.51)		(3.28)		(3.00)	
Individual earned net income (€/month)								
1st interview	-300.22		-215.03		-356.52	**	-160.99	
	(231.97)		(199.78)		(169.58)		(236.76)	
2nd interview	-9.45		-425.34	**	-586.75	***	123.50	
	(251.04)		(206.44)		(176.47)		(255.12)	
Employees								
$\geq$ 1 employee 1st interview	-6.38		-13.61	**	-17.25	***	-6.53	
	(5.23)		(5.80)		(5.60)		(5.42)	
Number of employees 1st interview	-2.52		-1.12		-1.17	**	-4.20	
	(2.57)		(0.83)		(0.52)		(3.07)	
$\geq$ 1 employee 2nd interview	-7.26		-15.75	***	-18.24	***	-9.63	*
	(5.44)		(5.71)		(5.37)		(5.59)	
Number of employees 2nd interview	0.03		-0.41		-0.52		-0.79	
	(0.70)		(0.87)		(0.66)		(0.86)	
High life satisfaction								
1st interview	-8.55	**	-3.79		-7.91	**	-3.86	
	(3.75)		(3.67)		(4.02)		(3.98)	
2nd interview	-15.01	***	-1.78		-9.45	**	-4.53	
	(3.53)		(3.89)		(4.41)		(4.72)	
High job satisfaction								
1st interview	-1.81		-5.08		-8.99	**	1.93	
	(4.02)		(3.93)		(3.93)		(4.38)	
2nd interview	-2.53		-0.64		-7.01		5.01	
	(4.22)		(3.81)		(4.59)		(5.16)	
Number of observations	632		1,009		784		857	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.4.1.3 Sensitivity Analysis

Table A.19: ATT of the program EBCG – Subgroups by coaching quality and different comparison groups

Outcome variable	Good coaching quality				Comparison group:				Comparison group:			
	no		yes		No alternative assistance				Not aware of the program			
Self-employed												
1st interview	-2.95		1.96		0.45				-0.52			
	(3.22)		(3.18)		(2.99)				(3.58)			
2nd interview	-7.91	***	-5.69	**	-6.52	***			-9.64	***		
	(3.00)		(2.66)		(2.45)				(1.78)			
Individual earned net income (€/month)												
1st interview	-461.72	**	-291.07		-352.06	*			-325.67	**		
	(225.80)		(177.89)		(187.27)				(157.49)			
2nd interview	-152.27		-378.26	**	-353.43	*			-354.22	**		
	(251.12)		(148.78)		(193.78)				(167.24)			
Employees												
$\geq$ 1 employee 1st interview	-10.30	**	-9.56	**	-8.39	*			-14.54	***		
	(4.66)		(4.38)		(4.40)				(4.93)			
Number of employees 1st interview	-2.10		-2.85	*	-1.14	*			-0.95	*		
	(1.43)		(1.71)		(0.63)				(0.50)			
$\geq$ 1 employee 2nd interview	-9.72	*	-11.85	***	-11.91	***			-19.54	***		
	(5.00)		(4.35)		(4.24)				(3.84)			
Number of employees 2nd interview	-0.23		-1.25	*	-0.75				-1.35	*		
	(0.72)		(0.69)		(0.70)				(0.73)			
High life satisfaction												
1st interview	-7.19	*	0.26		-5.24	*			-6.31	**		
	(4.03)		(3.46)		(3.07)				(2.75)			
2nd interview	-5.90		-3.72		-8.80	***			-5.33			
	(4.44)		(3.61)		(3.01)				(3.93)			
High job satisfaction												
1st interview	-7.49	*	1.95		-1.41				-5.86	**		
	(3.87)		(3.34)		(3.47)				(2.69)			
2nd interview	4.24		-2.05		-3.34				-2.50			
	(4.52)		(3.38)		(3.07)				(4.06)			
Number of observations	1,391		1,378		1,462				1,451			

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

Table A.20: ATT of the program EBCG – Additional outcome variable

Outcome variable	All
Survival of the company	
1st interview	-1.81
	(2.68)
2nd interview	-3.10
	(3.26)

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003).

Table A.21: ATT of the program EBCG – Sensitivity analysis – Bandwidth choice

Outcome variable	Total sample			
	bw=0.06		bw=optimal	
Self-employed				
1st interview	-0.28		-0.82	
	(2.63)		(2.17)	
2nd Interview	-6.03	**	-6.25	**
	(2.52)		(2.44)	
Individual earned net income (€/month)				
1st interview	-340.03	**	-342.20	**
	(156.63)		(143.76)	
2nd interview	-270.61	*	-288.66	*
	(160.68)		(156.31)	
Employees				
≥1 employee 1st interview	-10.18	***	-10.97	***
	(3.83)		(3.57)	
Number of employees 1st interview	-2.46	*	-3.89	**
	(1.43)		(1.57)	
≥1 employee 2nd interview	-12.54	***	-12.88	***
	(3.88)		(3.55)	
Number of employees 2nd interview	-0.83		-1.26	**
	(0.59)		(0.57)	
High life satisfaction				
1st interview	-3.91		-3.34	
	(2.82)		(2.32)	
2nd interview	-5.73	*	-5.71	**
	(3.04)		(2.69)	
High job satisfaction				
1st interview	-1.63		-2.33	
	(3.13)		(2.39)	
2nd interview	-1.11		-1.96	
	(3.27)		(2.43)	
Number of observations	1,641		1,641	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: bw=bandwidth. */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 16 months after the end of the coaching process and the second one 38 months. We apply kernel (epanechnikov) matching with common support. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.4.2 Program EBCG-UE

A.4.2.1 Effect heterogeneity – General subgroups

Table A.22: ATT of the program EBCG-UE – Total effects and subgroups by gender

Outcome variable	All		Men		Women	
Self-employed						
1st interview	5.16	*	7.93	**	7.33	
	(2.65)		(3.55)		(5.16)	
2nd interview	3.19		5.85		8.81	*
	(2.79)		(3.91)		(5.34)	
Individual earned net income (€/month)						
1st interview	-111.91		-161.45		-61.96	
	(93.74)		(144.48)		(130.59)	
2nd interview	36.09		88.74		-50.23	
	(97.85)		(143.92)		(151.91)	
Employees						
$\geq$ 1 employee 1st interview	-0.42		1.76		-0.87	
	(3.14)		(4.18)		(4.84)	
Number of employees 1st interview	0.16		0.33		0.16	
	(0.22)		(0.34)		(0.21)	
$\geq$ 1 employee 2nd interview	5.45	*	10.48	***	-0.11	
	(2.97)		(4.06)		(4.74)	
Number of employees 2nd interview	0.27		0.30		0.31	
	(0.28)		(0.47)		(0.26)	
High life satisfaction						
1st interview	3.76		-1.07		5.31	
	(2.90)		(3.42)		(4.35)	
2nd interview	1.62		-2.12		0.48	
	(2.83)		(4.11)		(4.44)	
High job satisfaction						
1st interview	2.15		0.82		-0.20	
	(2.97)		(3.51)		(4.36)	
2nd interview	1.46		0.15		5.72	
	(3.08)		(4.34)		(4.86)	
Number of observations	1,295		725		570	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

Table A.23: ATT of the program EBCG-UE – Subgroups by region and education

Outcome variable	East		West		Upper sec. school no		Upper sec. school yes	
Self-employed								
1st interview	7.83	*	2.07		7.56	*	6.03	
	(4.39)		(3.60)		(4.38)		(3.93)	
2nd interview	9.78	**	0.55		4.45		7.47	*
	(4.56)		(3.80)		(4.61)		(3.84)	
Individual earned net income (€/month)								
1st interview	-49.04		-200.21	*	-52.58		-202.01	
	(121.92)		(119.03)		(158.39)		(128.15)	
2nd interview	32.17		-47.39		77.22		-99.73	
	(141.22)		(133.67)		(149.71)		(152.42)	
Employees								
$\geq$ 1 employee 1st interview	-1.55		0.56		-1.78		4.04	
	(4.81)		(3.73)		(4.58)		(3.34)	
Number of employees 1st interview	0.07		0.17		0.28		0.14	
	(0.23)		(0.35)		(0.37)		(0.31)	
$\geq$ 1 employee 2nd interview	2.49		3.49		6.66		5.16	
	(4.78)		(3.98)		(4.90)		(3.40)	
Number of employees 2nd interview	0.21		0.14		0.64	*	-0.49	
	(0.25)		(0.45)		(0.34)		(0.84)	
High life satisfaction								
1st interview	9.36	*	-3.62		2.35		0.95	
	(4.85)		(3.24)		(4.25)		(3.61)	
2nd interview	1.16		-2.41		0.98		-2.36	
	(4.58)		(3.59)		(4.49)		(3.92)	
High job satisfaction								
1st interview	12.12	***	-5.29		7.30		-0.65	
	(4.58)		(3.31)		(4.59)		(3.86)	
2nd interview	8.17	*	-4.03		4.63		-2.32	
	(4.78)		(3.51)		(4.63)		(3.69)	
Number of observations	466		829		620		675	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.4.2.2 Effect heterogeneity – Subgroups by regional characteristics

Table A.24: ATT of the program EBCG-UE – Subgroups by unemployment rate and self-employment rate

Outcome variable	Regional unemployment rate				Regional self-employment rate			
	high		low		high		low	
Self-employed								
1st interview	10.54	***	0.86		3.90		7.25	*
	(3.99)		(4.23)		(3.97)		(3.85)	
2nd interview	7.68	*	2.94		4.35		4.09	
	(3.98)		(4.49)		(4.03)		(4.04)	
Individual earned net income (€/month)								
1st interview	-66.27		-198.72		74.32		-350.96	***
	(132.81)		(151.61)		(135.27)		(131.33)	
2nd interview	156.75		-94.94		132.93		-226.83	
	(137.83)		(146.09)		(148.75)		(152.53)	
Employees								
$\geq$ 1 employee 1st interview	-0.37		2.20		-3.85		1.22	
	(4.53)		(3.88)		(4.76)		(4.08)	
Number of employees 1st interview	0.47		-0.05		-0.12		0.27	
	(0.39)		(0.26)		(0.25)		(0.45)	
$\geq$ 1 employee 2nd interview	3.19		5.48		5.50		2.93	
	(4.20)		(4.45)		(4.59)		(4.23)	
Number of employees 2nd interview	0.12		0.23		0.26		-0.04	
	(0.76)		(0.25)		(0.25)		(0.71)	
High life satisfaction								
1st interview	6.19		-1.71		5.03		-3.44	
	(4.09)		(3.95)		(4.25)		(3.44)	
2nd interview	-0.92		-1.16		5.87		-3.62	
	(4.28)		(3.62)		(4.36)		(4.16)	
High job satisfaction								
1st interview	7.54	*	-3.22		4.15		-2.28	
	(3.90)		(3.99)		(4.05)		(3.85)	
2nd interview	7.70	*	-5.45		1.52		-0.21	
	(4.37)		(3.57)		(4.00)		(4.16)	
Number of observations	618		677		622		673	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Regions are categorized as regions with high unemployment rate, if this rate is at least 9%. Regions are categorized as regions with high self-employment rate, if this rate is at least 11.5%. Rates of the year 2008 are used. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.4.2.3 Sensitivity analysis

Table A.25: ATT of the program EBCG-UE – Subgroups by coaching quality and different comparison groups

Outcome variable	Good coaching quality			Comparison group:		Comparison group:	
	no	yes		No alternative assistance		Not aware of the program	
Self-employed							
1st interview	4.23	5.81	*	4.83	**	4.66	***
	(3.65)	(3.19)		(1.88)		(0.35)	
2nd interview	2.31	5.56		5.23	**	4.69	
	(3.49)	(3.55)		(2.27)		(5.28)	
Individual earned net income (€/month)							
1st interview	-174.77	-154.98		-128.01	***	-227.54	***
	(113.67)	(121.05)		(35.67)		(4.26)	
2nd interview	-108.78	70.15		2.97		36.33	
	(117.74)	(136.04)		(177.93)		(31.84)	
Employees							
$\geq$ 1 employee 1st interview	-2.47	-0.32		-3.09		-3.18	***
	(3.68)	(3.82)		(3.56)		(0.86)	
Number of employees 1st interview	-0.17	0.40		0.15	**	0.20	
	(0.19)	(0.39)		(0.07)		(0.13)	
$\geq$ 1 employee 2nd interview	3.39	6.90	*	2.91		3.06	**
	(3.48)	(3.84)		(2.15)		(1.50)	
Number of employees 2nd interview	-0.23	0.52		0.43	***	0.49	***
	(0.32)	(0.45)		(0.02)		(0.17)	
High life satisfaction							
1st interview	0.73	5.09		1.14		0.59	
	(3.38)	(3.42)		(2.64)		(1.36)	
2nd interview	-0.83	1.10		0.57		-0.61	
	(3.44)	(3.62)		(2.65)		(1.50)	
High job satisfaction							
1st interview	-0.44	2.59		1.00		0.62	***
	(3.57)	(3.17)		(1.84)		(0.22)	
2nd interview	2.65	-1.00		0.51		-0.01	
	(3.66)	(3.60)		(4.15)		(0.66)	
Number of observations	1,049	1,052		1,147		1,072	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support; for the bandwidth we use 0.06. Results are not sensitive to the bandwidth choice. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

Table A.26: ATT of the program EBCG-UE – Sensitivity analysis – Bandwidth choice

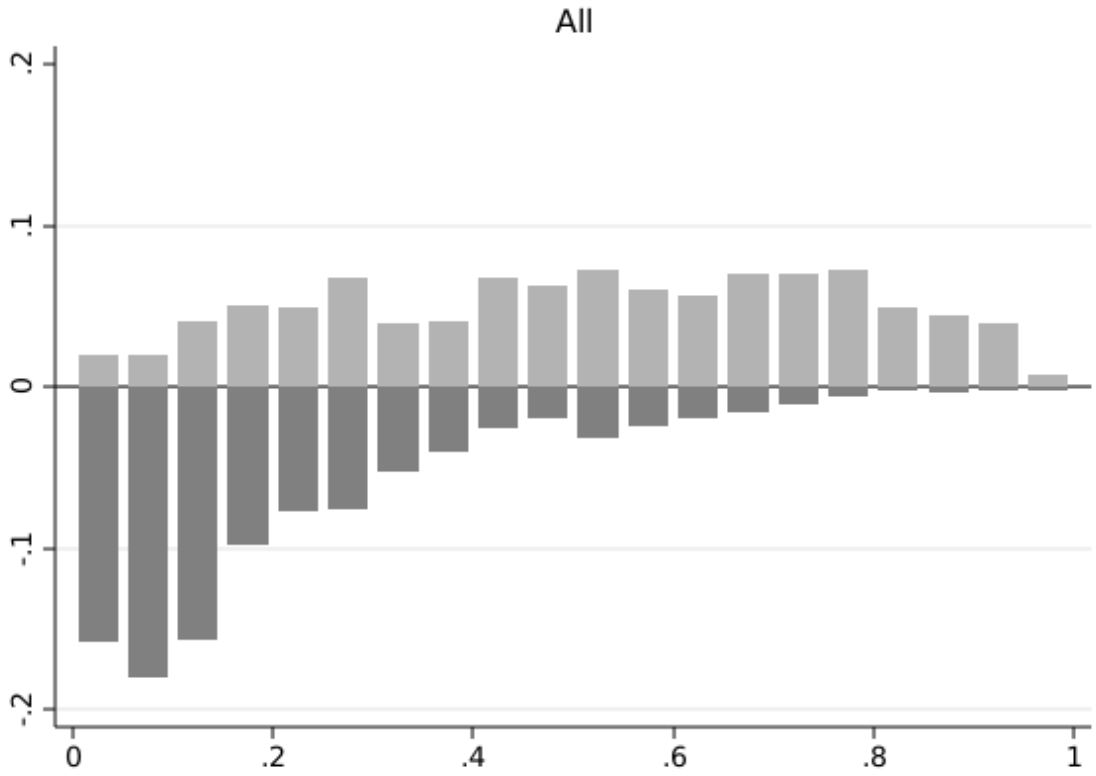
Outcome variable	Total sample			
	bw=0.06		bw=optimal	
Self-employed				
1st interview	5.16	*	4.97	*
	(2.65)		(2.67)	
2nd interview	3.19		3.19	
	(2.79)		(2.79)	
Individual earned net income (€/month)				
1st interview	-111.91		-170.11	**
	(93.74)		(86.58)	
2nd interview	36.09		-32.05	
	(97.85)		(93.78)	
Employees				
≥1 employee 1st interview	-0.42		0.97	
	(3.14)		(2.48)	
Number of employees 1st interview	0.16		0.09	
	(0.22)		(0.24)	
≥1 employee 2nd interview	5.45	*	4.18	*
	(2.97)		(2.51)	
Number of employees 2nd interview	0.27		0.06	
	(0.28)		(0.37)	
High life satisfaction				
1st interview	3.76		1.01	
	(2.90)		(2.30)	
2nd interview	1.62		-1.17	
	(2.83)		(2.29)	
High job satisfaction				
1st interview	2.15		1.77	
	(2.97)		(2.40)	
2nd interview	1.46		1.74	
	(3.08)		(2.57)	
Number of observations	1,295		1,295	

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: bw=bandwidth. */**/*** indicate significant difference on the 10%; 5%; 1% significance level. The 1st interview was conducted 15 months after the end of the coaching process and the second one 37 months. We apply kernel (epanechnikov) matching with common support. The standard errors in brackets are based on 1001 bootstrap replications. Estimations are done using the PSMATCH2 package by Leuven and Sianesi (2003). We define all individuals stating a value of 5 or more on a 1–7 likert scale as highly satisfied. Hence, the results for satisfaction show the effects on the share of highly satisfied. Due to item non-response the number of observations is smaller in estimating the program effect on income.

A.5 Propensity score distributions

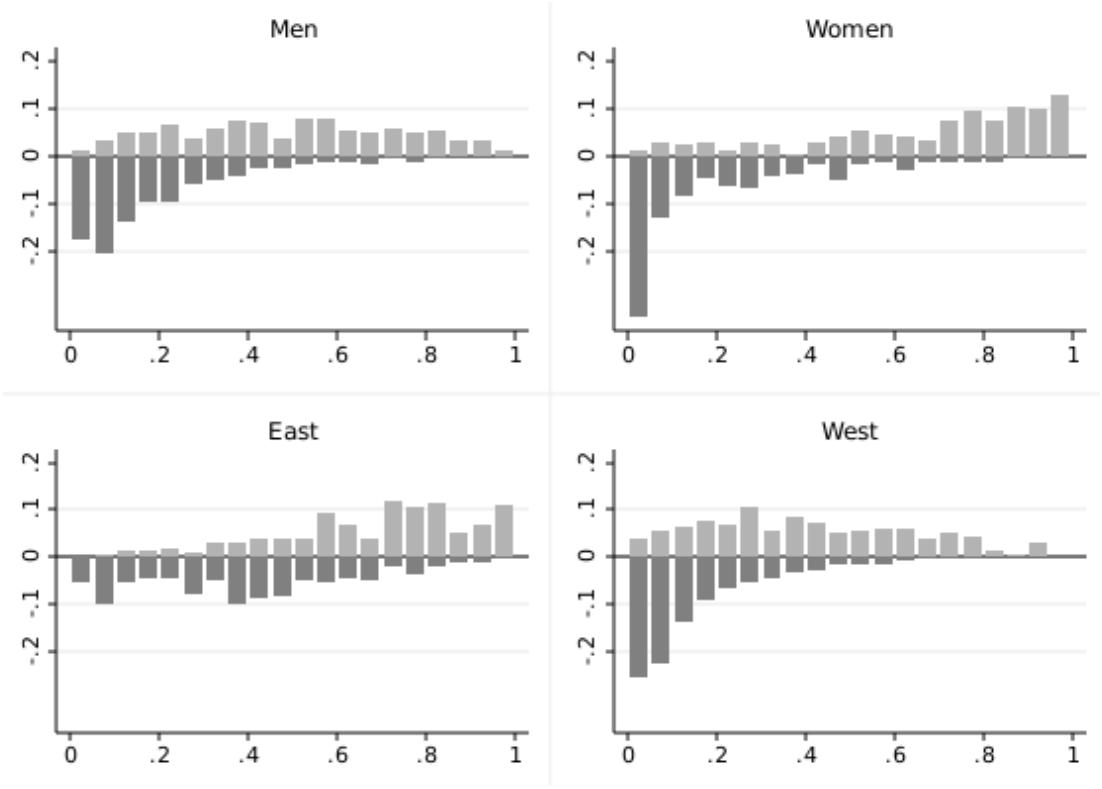
A.5.1 Program EBCG

Figure A.1: Propensity scores EBCG participants and comparison group



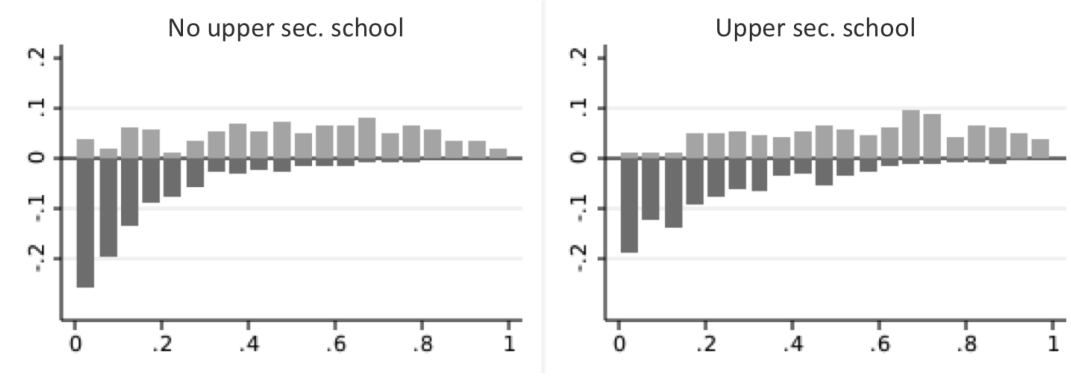
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.2: Propensity scores EBCG participants and comparison group – Gender and region



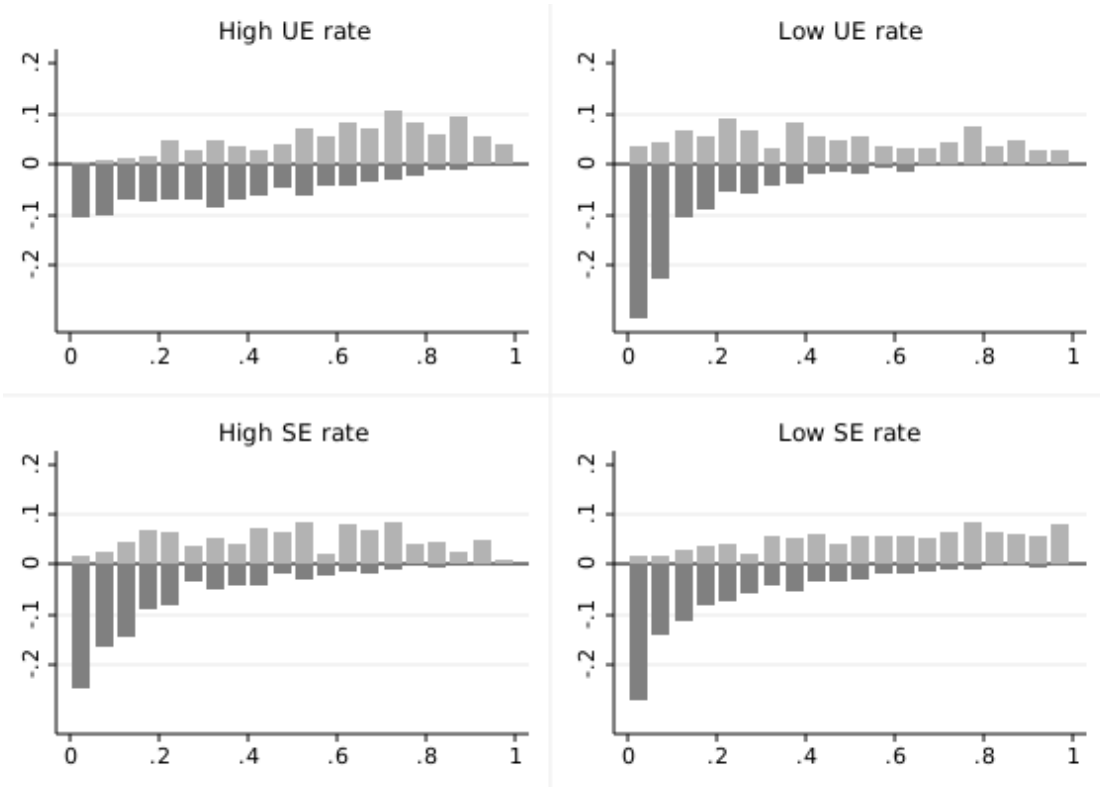
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.3: Propensity scores EBCG participants and comparison group – Education



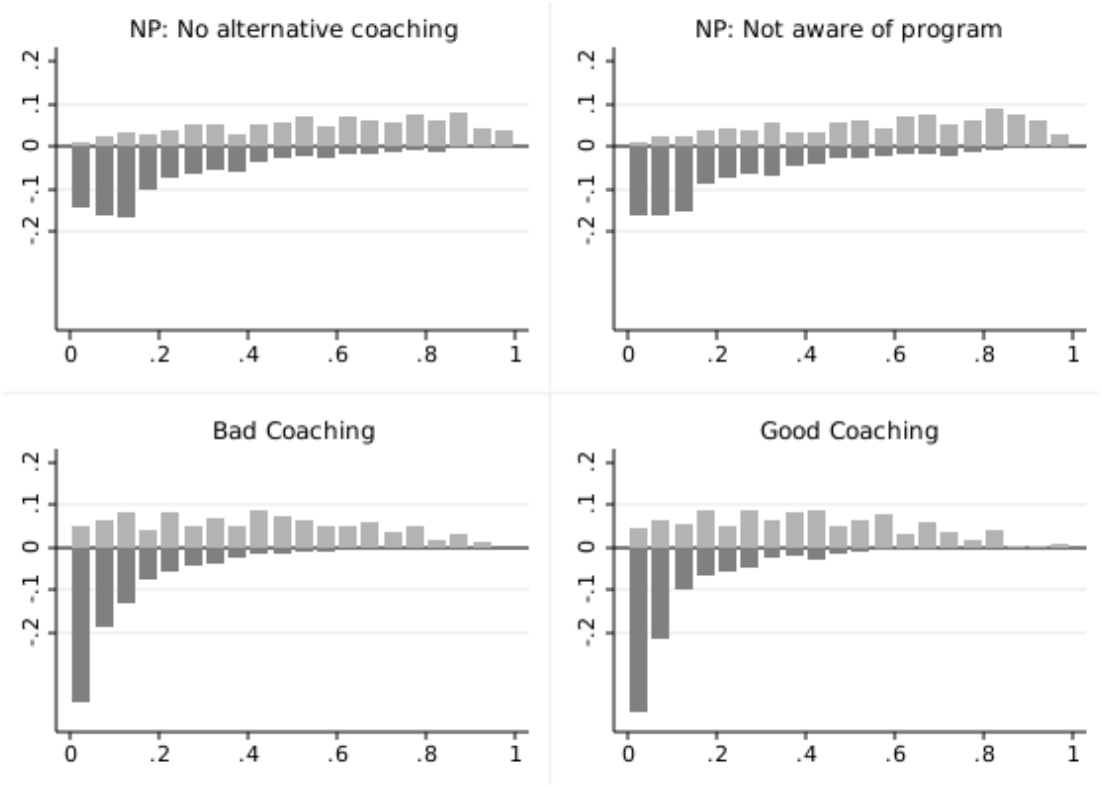
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.4: Propensity scores EBCG participants and comparison group – Regional characteristics



Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars). UE rate = unemployment rate; SE rate = self-employment rate.

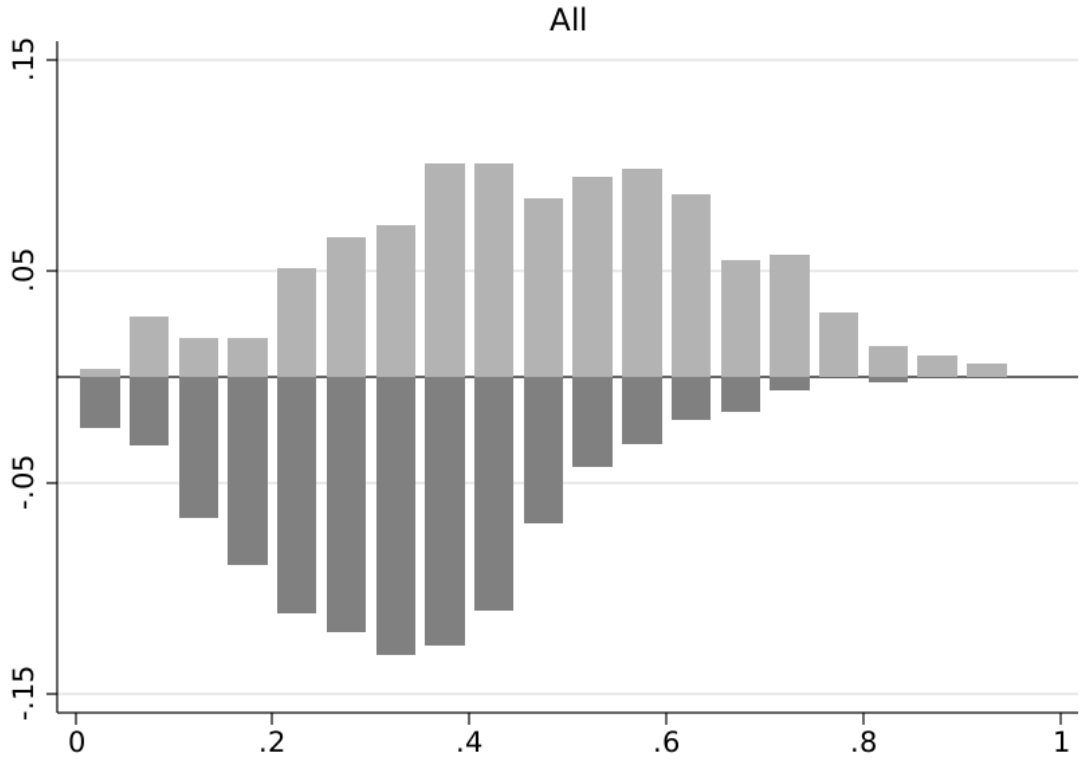
Figure A.5: Propensity scores EBCG participants and comparison group – Alternative comparison groups and coaching quality



Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

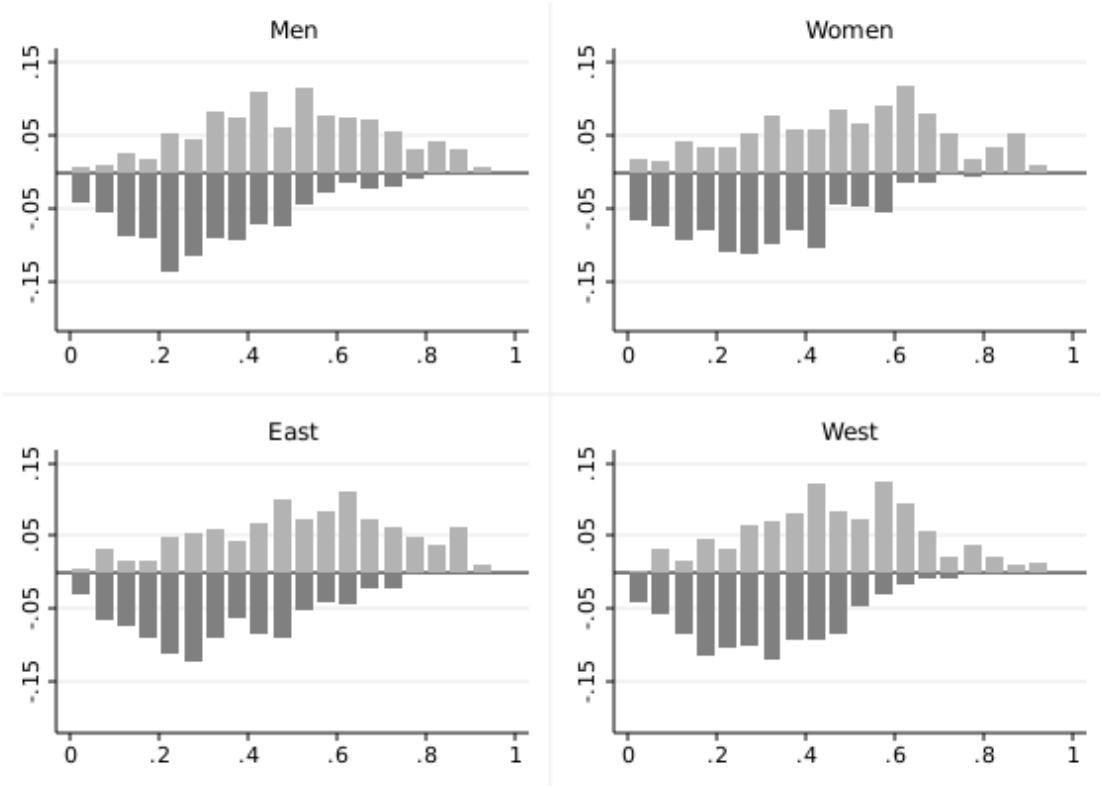
A.5.2 Program EBCG-UE

Figure A.6: Propensity scores EBCG-UE participants and comparison group



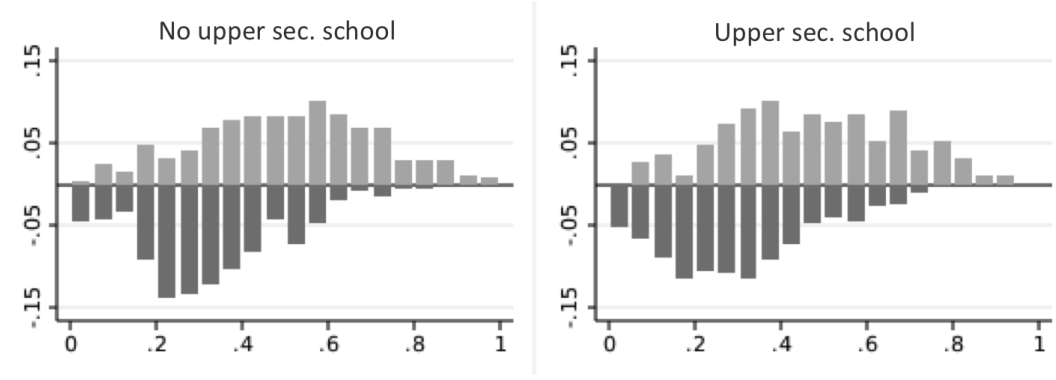
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.7: Propensity scores EBCG-UE participants and comparison group – Gender and region



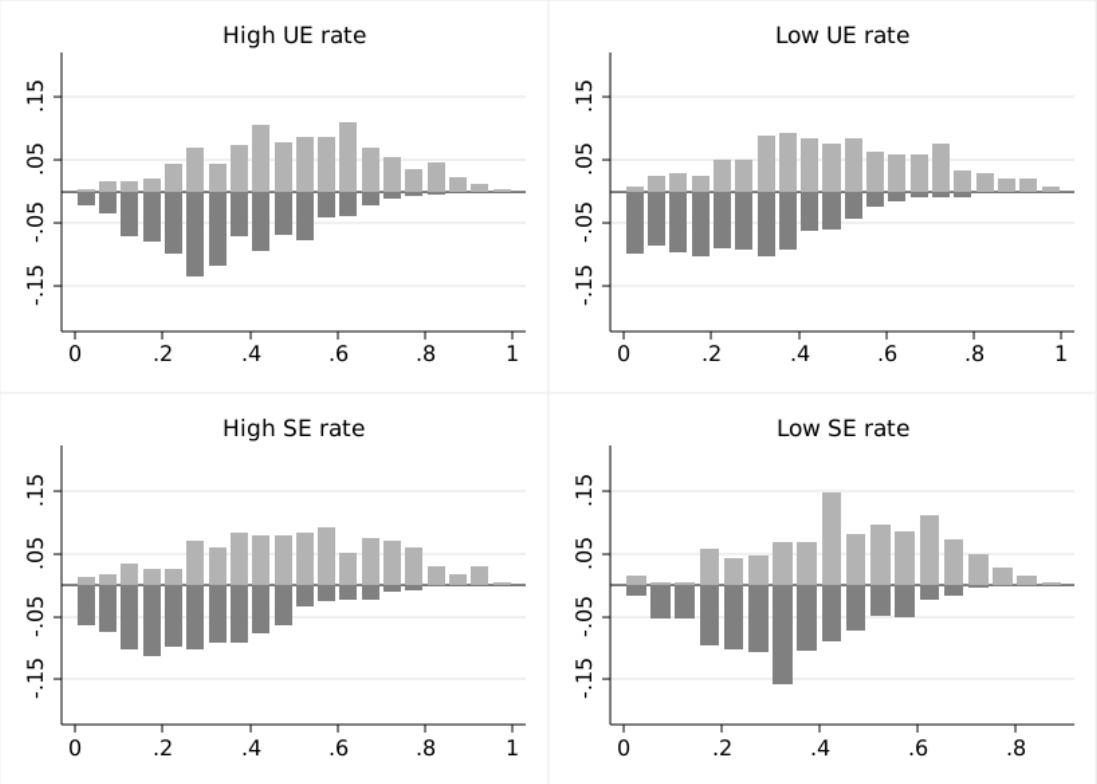
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.8: Propensity scores EBCG-UE participants and comparison group – Education



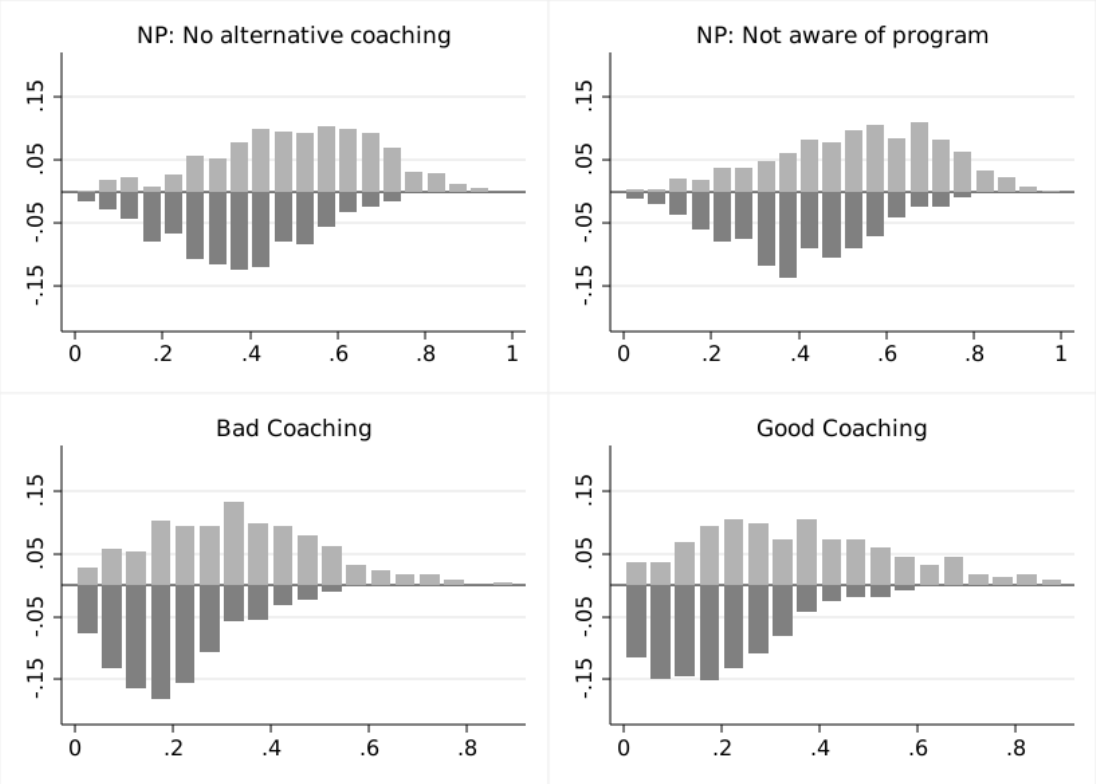
Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

Figure A.9: Propensity scores EBCG-UE participants and comparison group – Regional characteristics



Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars). UE rate = unemployment rate; SE rate = self-employment rate.

Figure A.10: Propensity scores EBCG-UE participants and comparison group – Alternative comparison groups and coaching quality



Note: These are propensity score distributions for participants (light grey bars) and non-participants (dark grey bars).

A.6 Matching quality

A.6.1 Program EBCG

Table A.27: Matchingquality EBCG – Total sample and gender

Measure	Sample	All	Men	Women
Covariates		82	81	81
1%-level	unmatched	34	24	20
	matched	0	0	0
5%-level	unmatched	47	39	30
	matched	0	0	0
10%-level	unmatched	53	45	38
	matched	0	2	0
Mean st. bias	unmatched	15.81	15.34	18.38
	matched	3.03	4.04	5.93
$< 1\%$	unmatched	1	2	2
	matched	16	10	10
$1\% - < 3\%$	unmatched	8	4	6
	matched	36	29	17
$3\% - < 5\%$	unmatched	6	6	8
	matched	12	16	12
$5\% - < 10\%$	unmatched	18	21	15
	matched	17	19	28
$\geq 10\%$	unmatched	49	48	50
	matched	1	7	14
Pseudo R^2	unmatched	0.26	0.25	0.41
	matched	0.02	0.03	0.08

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.28: Matchingquality EBCG – Region and education

Measure	Sample	East	West	Upper sec. school	
				no	yes
Covariates		81	81	79	79
1%-level	unmatched	14	23	24	25
	matched	0	0	0	0
5%-level	unmatched	25	31	29	31
	matched	0	0	2	0
10%-level	unmatched	29	40	38	40
	matched	1	0	3	2
Mean st. bias	unmatched	13.62	14.56	15.55	16.02
	matched	5.44	3.13	6.49	5.05
$< 1\%$	unmatched	2	3	3	5
	matched	4	19	6	7
$1\% - < 3\%$	unmatched	7	4	9	5
	matched	21	24	16	19
$3\% - < 5\%$	unmatched	8	6	7	7
	matched	22	21	14	18
$5\% - < 10\%$	unmatched	20	22	18	17
	matched	23	16	26	27
$\geq 10\%$	unmatched	44	46	42	45
	matched	11	1	17	8
Pseudo R^2	unmatched	0.25	0.23	0.29	0.28
	matched	0.06	0.02	0.05	0.04

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.29: Matchingquality EBCG – Regional characteristics

Measure	Sample	Unemployment rate		Self-employment rate	
		high	low	high	low
Covariates		82	82	82	82
1%-level	unmatched	21	20	17	33
	matched	0	2	0	0
5%-level	unmatched	33	30	28	44
	matched	0	6	0	0
10%-level	unmatched	39	37	34	49
	matched	0	10	3	4
Mean st. bias	unmatched	14.82	15.11	14.69	18.43
	matched	3.68	8.50	5.97	5.41
$< 1\%$	unmatched	4	2	1	3
	matched	15	4	8	9
$1\% - < 3\%$	unmatched	7	8	7	3
	matched	25	17	16	18
$3\% - < 5\%$	unmatched	7	4	9	4
	matched	22	11	24	22
$5\% - < 10\%$	unmatched	19	18	20	16
	matched	16	27	17	18
$\geq 10\%$	unmatched	45	50	45	56
	matched	4	23	17	15
Pseudo R^2	unmatched	0.24	0.28	0.27	0.33
	matched	0.03	0.07	0.05	0.04

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias. The regional variables are not used in the estimations of the propensity scores. Therefore, the number of used covariates is the same for the subgroups as for the total sample.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.30: Matchingquality EBCG – Coaching quality

Measure	Sample	Good coaching quality	
		no	yes
Covariates		82	82
1%-level	unmatched	30	26
	matched	0	0
5%-level	unmatched	44	35
	matched	0	0
10%-level	unmatched	50	40
	matched	1	0
Mean st. bias	unmatched	16.70	15.72
	matched	4.52	3.15
$< 1\%$	unmatched	3	3
	matched	11	12
$1\% - < 3\%$	unmatched	3	6
	matched	24	34
$3\% - < 5\%$	unmatched	7	10
	matched	17	22
$5\% - < 10\%$	unmatched	16	18
	matched	23	14
$\geq 10\%$	unmatched	53	45
	matched	7	0
Pseudo R^2	unmatched	0.26	0.26
	matched	0.04	0.01

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.31: Matchingquality EBCG – Sensitivity

Measure	Sample	Comparison group: No alternative assistance	Comparison group: Not aware of the program
Covariates		82	82
1%-level	unmatched	38	39
	matched	0	1
5%-level	unmatched	48	48
	matched	2	8
10%-level	unmatched	54	53
	matched	7	9
Mean st. bias	unmatched	16.29	16.96
	matched	4.09	5.44
$< 1\%$	unmatched	3	1
	matched	15	6
$1\% - < 3\%$	unmatched	5	6
	matched	23	22
$3\% - < 5\%$	unmatched	5	3
	matched	18	16
$5\% - < 10\%$	unmatched	19	21
	matched	17	27
$\geq 10\%$	unmatched	50	51
	matched	9	11
Pseudo R^2	unmatched	0.28	0.29
	matched	0.03	0.04

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

A.6.2 Program EBCG-UE

Table A.32: Matchingquality EBCG-UE – Total sample and gender

Measure	Sample	All	Men	Women
Covariates		69	68	68
1%-level	unmatched	5	4	7
	matched	0	0	0
5%-level	unmatched	12	8	10
	matched	3	2	0
10%-level	unmatched	17	14	12
	matched	4	2	1
Mean st. bias	unmatched	7.56	9.07	9.62
	matched	3.92	4.51	4.86
$< 1\%$	unmatched	5	2	5
	matched	11	10	8
$1\% - < 3\%$	unmatched	17	9	10
	matched	21	18	17
$3\% - < 5\%$	unmatched	8	12	13
	matched	19	15	19
$5\% - < 10\%$	unmatched	24	21	17
	matched	14	22	20
$\geq 10\%$	unmatched	15	24	23
	matched	4	3	4
Pseudo R^2	unmatched	0.11	0.15	0.16
	matched	0.03	0.03	0.04

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.33: Matchingquality EBCG-UE – Region and education

Measure	Sample	East	West	Upper sec. school	
				no	yes
Covariates		68	68	66	66
1%-level	unmatched	2	3	4	2
	matched	0	0	0	0
5%-level	unmatched	6	9	7	6
	matched	0	0	0	0
10%-level	unmatched	11	15	10	13
	matched	0	3	1	0
Mean st. bias	unmatched	9.23	8.81	9.18	8.70
	matched	4.20	4.15	4.99	3.46
$< 1\%$	unmatched	4	4	2	3
	matched	9	12	10	13
$1\% - < 3\%$	unmatched	9	10	9	11
	matched	23	21	19	23
$3\% - < 5\%$	unmatched	9	9	8	10
	matched	13	13	11	15
$5\% - < 10\%$	unmatched	22	23	24	23
	matched	20	17	19	13
$\geq 10\%$	unmatched	24	22	23	19
	matched	3	5	7	2
Pseudo R^2	unmatched	0.16	0.13	0.14	0.14
	matched	0.04	0.03	0.03	0.02

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.34: Matchingquality EBCG-UE – Regional characteristics

Measure	Sample	Unemployment rate		Self-employment rate	
		high	low	high	low
Covariates		69	69	69	69
1%-level	unmatched	3	5	7	3
	matched	0	0	0	0
5%-level	unmatched	6	11	10	6
	matched	0	0	0	0
10%-level	unmatched	7	18	14	7
	matched	2	0	0	2
Mean st. bias	unmatched	8.47	9.93	9.73	7.75
	matched	4.46	4.18	4.56	4.49
$< 1\%$	unmatched	9	4	6	6
	matched	8	10	8	13
$1\% - < 3\%$	unmatched	8	11	11	9
	matched	23	26	20	14
$3\% - < 5\%$	unmatched	7	8	7	9
	matched	14	11	10	17
$5\% - < 10\%$	unmatched	20	17	16	30
	matched	18	16	29	20
$\geq 10\%$	unmatched	25	29	29	15
	matched	6	6	2	5
Pseudo R^2	unmatched	0.13	0.18	0.17	0.11
	matched	0.03	0.03	0.03	0.03

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias. The regional variables are not used in the estimations of the propensity scores. Therefore, the number of used covariates is the same for the subgroups as for the total sample.
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

Table A.35: Matchingquality EBCG-UE – Coaching quality

Measure	Sample	Good coaching quality	
		no	yes
Covariates		69	69
1%-level	unmatched	2	6
	matched	0	0
5%-level	unmatched	9	17
	matched	0	0
10%-level	unmatched	14	21
	matched	0	0
Mean st. bias	unmatched	7.64	9.33
	matched	3.94	3.16
$< 1\%$	unmatched	7	2
	matched	7	15
$1\% - < 3\%$	unmatched	15	11
	matched	25	21
$3\% - < 5\%$	unmatched	9	15
	matched	14	19
$5\% - < 10\%$	unmatched	18	16
	matched	21	13
$\geq 10\%$	unmatched	20	25
	matched	2	1
Pseudo R^2	unmatched	0.12	0.14
	matched	0.02	0.03

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

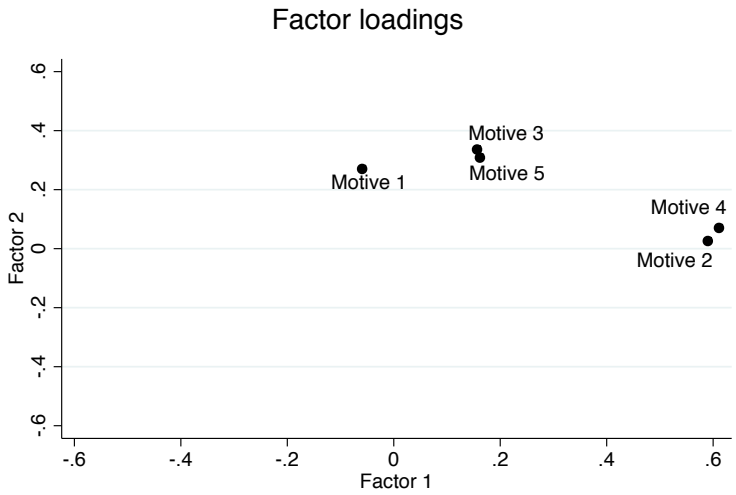
Table A.36: Matchingquality EBCG-UE – Sensitivity

Measure	Sample	Comparison group: No alternative assistance	Comparison group: Not aware of the program
Covariates		69	69
1%-level	unmatched	5	3
	matched	0	0
5%-level	unmatched	10	11
	matched	2	2
10%-level	unmatched	19	20
	matched	3	3
Mean st. bias	unmatched	7.52	7.99
	matched	3.94	3.59
$< 1\%$	unmatched	7	5
	matched	9	11
$1\% - < 3\%$	unmatched	14	14
	matched	23	23
$3\% - < 5\%$	unmatched	10	8
	matched	16	18
$5\% - < 10\%$	unmatched	19	22
	matched	18	14
$\geq 10\%$	unmatched	19	20
	matched	3	3
Pseudo R^2	unmatched	0.11	0.12
	matched	0.03	0.02

Source: EBCG/EBCG-UE Dataset, own calculations.
Note: Mean st. bias = Mean standardized bias
Explanation: The upper part of the table shows the total number of covariates used and the number of covariates in which participants and non-participants differ significantly on the 1%-level; 5%-level; 10%-level. The middle part of the table shows the average mean standardized bias and the number of covariates within several ranges of biases. The lower part of the table shows the Pseudo R^2 before and after matching.

A.7 Factor analysis concerning start-up motives

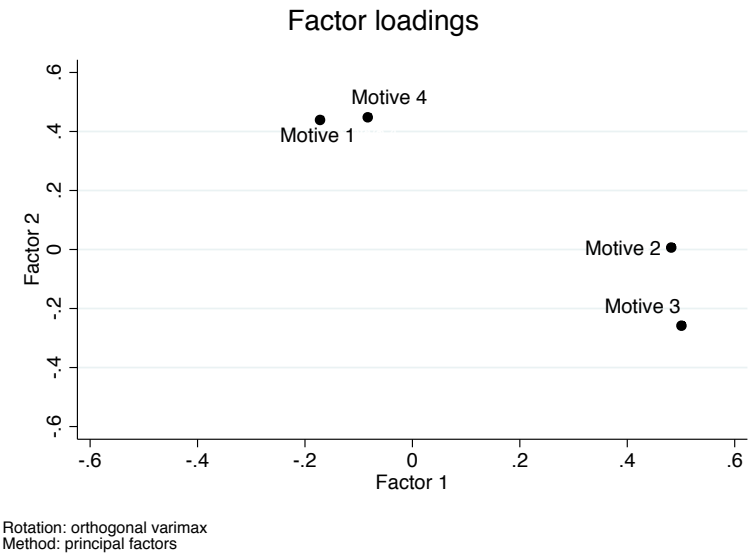
Figure A.11: Factor analysis – Program EBCG – Start-up motives



Note: The graph shows that three of the five motives are loading very low on both factors. Hence, these motives cannot be categorized as push or pull motive in the dataset. Only two motives load high on one factor and low on the other factor.
Motive 1: Others advised me to start a business.
Motive 2: Spotted a market gap.
Motive 3: Want to earn more money.
Motive 4: I want my business idea to turn into reality.
Motive 5: Expect better compatibility of work and family.

Motive	Variable	Factor 1	Factor 2	Uniqueness
1	Others	-0.0594	0.2701	0.9235
2	Market gap	0.5900	0.0259	0.6512
3	Money	0.1565	0.3360	0.8626
4	Business idea	0.6110	0.0703	0.6217
5	Family	0.1619	0.3085	0.8786

Figure A.12: Factor analysis – Program EBCG-UE – Start-up motives



Note: The graph shows that each of the four motives load high on one of the factors and low on the other factor. Hence, the four motives can be categorized as either push motive or pull motive.
Motive 1: I always wanted to be my own boss.
Motive 2: I do not want to be unemployed anymore.
Motive 3: I cannot find another job.
Motive 4: I want my business idea to turn into reality.

Motive	Variable	Factor 1	Factor 2	Uniqueness
1	Boss	-0.1720	0.4390	0.7777
2	Unemployment	0.4819	0.0066	0.7677
3	Job	0.5009	-0.2587	0.6824
4	Business idea	-0.0832	0.4480	0.7924

A.8 Explanation for negative effects of EBCG

Table A.37: Explanations for negative coaching effects – Program EBCG

No.	Explanation	Do data include information on this?	Conclusion
1	To save costs coaches advise entrepreneurs to hire less employees and to cut down their own income.	No	Not possible to test. In any event, this explanation would not explain the negative coaching effect on survival in self-employment.
2	Coaching decreases the share of individuals starting a new company after they ended the one for which they received coaching.	Yes	This partly explains the negative coaching effects.
3	Observed entrepreneurs are very successful anyway and coaching cannot further increase their success.	No	Might be an explanation for zero coaching effects, but not for negative effects.
4	Bad coaching quality.	Yes	Results indicate that negative effects are not mainly caused by bad coaching quality.
5	Comparison group replaces coaching by alternative (better) assistance.	Yes	Tested by the data; this explanation cannot be confirmed.
6	Despite controlling for some pre-treatment success indicators, there is the possibility that individuals of the comparison group have less business problems and better outcomes than individuals of the treatment group even in absence of the program.	Yes	We excluded individuals of the comparison group who knew the program, as most of them decided not to participate, because they do not need coaching. Results show that this explanation is not the driving factor for the negative results. However, if this information asymmetry (being aware or not being aware of the program) is correlated with some unobserved characteristics, the estimated effects might be biased.
7	Coaches advise entrepreneurs to shut down or sell their company as the coach thinks the entrepreneur would be better off in regular employment.	No	There is no evidence in the qualitative data that coaches give this advice.
8	The differences between treatment and comparison group lead to biased estimates.	Yes	This cannot be confirmed. The quality of the matching approach is good as the differences between the groups can be eliminated.
9	Unobserved heterogeneity.	No	Extensive data makes this explanation unlikely. Yet, this reason can never be ruled out completely.