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Poverty, Human Capital, Life-cycle and the Tax and Transfer Bases: The Role of Education for Development and International Competition

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Abstract:

The paper is based on an individual life-cycle model, which describes the purely economic components of human capital. The present value of human capital is determined by all future income flows, which at the same time constitute the individual as well as the total tax base of a nation. Therefore, the income of the productive population determines the total tax revenue, which is spent for public goods (including education) and transfers (for poverty reduction). The efficient design of the education system (by private and public education investments) determines the quality of the human capital stock as well as the future gross income flows. The costs of public goods and the transfer expenditures have to be financed from the total tax revenue, which also affects the individual tax burden via the specific tax bases and tax rates. Especially the redistribution of income is connected with serious disincentives, influencing the preferences for work and leisure as well as for consumption and saving.

An efficient tax and transfer system being accompanied by an education system financed in public private partnership, which treats equally labor and capital income, sets positive incentives for the formation of human, financial, and real capital. An important prerequisite for a sustainable growth process is the efficient design of the social security system, being based on the family as well as a collective risk equalization scheme. If that system is diminishing absolute poverty in an appropriate time period by transfers and vocational education measures for the grown-up as well as high quality primary, secondary and tertiary education programs for the children, the transfer expenditure would decrease and the tax bases (income and consumption) increase, lowering the burden on the productive population. For the first time, this micro model presented in this paper pools all the relevant variables for development within a simple life-cycle model, which can also be used for a powerful analysis of the current failures in existing tax and transfer schemes and fruitful empirical investigations. Hence, an efficient tax and transfer scheme strongly contributes to an improved national position in the global competition.

Keywords:

Poverty, human capital, life-cycle analysis, lifetime income, education, taxation, transfers, redistribution, risk equalization, social security

JEL codes:

D1, D31, D91, H21, H31, H55, I21, I22, I32, J17, J24, O15, P46

I. Introduction

The fight against poverty is the main content of the Millennium Development Goals (MDG) of the United Nations Development Programme (UNDP). The poverty problem is closely connected with an efficient design of a social security system, which at least has to assure a minimum consumption standard to every member of a society. The sustainability of societies and nations is only guaranteed in a mid or long term perspective if the target of social justice is realized. Social justice is based on two fundamental pillars, the justice of ability and the justice of needs. While justice of ability is in full accordance with Pareto-efficiency, justice of needs creates a trade-off with the efficiency target depending on the volume of income redistributed from the rich to the poor: Redistribution of income reduces the total welfare of a society but in certain limits increases social sympathy (Petersen 2004). If the tax burdens on the productive people more and more exceed a certain threshold, welfare is dramatically reduced. This holds true because taxes and transfer payments create serious disincentives for labor supply, which has been sufficiently demonstrated by neoclassical income-leisure-models and several empirical investigations.

Therefore, a social policy which efficiently reduces the poverty problem is the silver bullet to progress and social consensus because a decreasing number of poor people reduce the transfer expenditures as well as redistribution and the tax burdens. Consequently welfare losses are heavily diminishing, too. Whereas in the highly developed Western welfare states absolute poverty has almost been abolished in the course of the last century, the problem of relative poverty has gained public attention. In spite of the fact that the transfer programs have been extended to an increasing group of persons and the transfer expenditures for decades strongly increased, the problem of relative poverty still exists. A growing number of households is obviously not able to achieve the average consumption standards by own market income but are dependent on transfer payments financed by the productive population. Both, increasing transfers and tax burdens have negative impacts on the labor supply on official labor markets. Especially the number of long term unemployed persons has been heavily increased in several high developed countries during the last decades. For instance in Germany about 3.6 million households (roughly 9% of all households) are dependent on social transfers and the share of households with household members being unemployed already in the third generation is steadily rising.

Increasing welfare creates a large number of winners within the societies but is obviously connected with individual stress phenomenon, which also leads to a substantial number of looser. If the education system is highly selective and discourages the adults as well as the children stemming from the relatively loosing families, the precarious social statue is inherited to the next generation. Under certain circumstances such processes are also fed by immigration so that in view of the current demographic developments (declining population and strongly increasing life expectancy) the burdens are further increasing – in spite of the fact that the manpower of every member of the society is badly needed to overcome the problems in the highly developed and still relatively productive social security systems. The current social policy in many welfare states creates incentives to stay in the social net of benefits and the educational system does not reach the children in the near-illiterate and low-skilled families.

A social policy guaranteeing life-long minimum consumption standards without any work produces societal niches in which people can escape; this is of special comfort if the remaining occupational skills allow for an employment in the shadow economy. Then the reservation wage is determined by the social aid payment and the income earned in the informal sector, which is often much higher than the net income of a comparable formal occupation in the official labor markets – apart from the fact that such behavior means transfer fraud by cheating the taxpayers in the respective countries. Howsoever such behavioral attitudes are assed, social policy should not create such niches but positive incentives for social rehabilitation and reintegration into the official labor markets. Education policy has to be concentrated on the early and primary education of children from families with precarious status to breach the vicious circle of illiteracy and inherited poverty. Social and education policy have to encourage the willingness for long-life learning to assure flexibility and reintegration into the society. Hence, the existing welfare states have to be reconstructed in the direction of workfare, which has to be accompanied by an efficient tax and transfer scheme.

Primary, secondary and tertiary education (including dual occupational education) has to create a human capital for every citizen, which would yield into a sufficient lifetime market income so that transfers are limited to that part of population which is really incapable for self-responsible action. The developing and transformation countries should benefit from the experience of the highly developed countries and avoid to be trapped into an ever increasing welfare regime. The relations in between human capital, taxation and transfers are described in the following chapters and make clear the redistributive impacts, which are causing high disincentives and welfare losses.

II. Living, Employment, Income, Consumption, and Saving

In the developing countries the close connections between living, individual work as well as sufficient (or often insufficient) consumption is an everyday and often harsh experience. The work input assures the living conditions, while in the development context the labor time can be invested in the household production, barter activities or – under advanced conditions – in the market sector. In a monetized system the labor input in the official labor markets is expressed in market income. Beside market income households also remain engaged in household production and the total welfare of both determines the ability to save. Not until a large number of individual households have reached a sufficient total welfare, collective savings and capital formation open the possibility for a dynamic economic development.

II.1. Subsistence Economics, Household Production and the Market Sector

Specialization and labor division are the first steps to improve labor productivity to overcome extreme scarcity and famine. In the development process the productive interdependences are deepening; household production is complemented by barter transactions, intermediate inputs and consumption products produced in other households also increase the own household productivity. Stand-alone production units are relocated beside the households. The general education formerly taken place within the families was complemented by special occupational education in the companies. The former household production is increasingly brought to the emerging markets, and in the industrial society this merchandising has reached its peak. The factor labor is directed to the most efficient deployment, the employees are stimulated by efficiently orientated wages paid by the employers to highest work performance.

With the dislocation of work from the households to the production units and companies, the link between the child education and the occupational education is abolished by the spatial separation. As a result of technical and societal progress child as well as occupational education has to be organized in specialized educational establishments in which professional teaching staff is employed. In the schools and the companies the usual work proceedings are met so that the children are quasi automatically adopted to the normal rhythm of life.

The inherited natural capabilities but also the familial environment as well as the external educational institutions are influencing the primary, secondary and tertiary education as well as the occupational methods of training and the educational success of the children. Handicaps in the individual dispositions can in certain limits been compensated by additional educational efforts, where the infantile language training has an extraordinaire relevance. Because people have different capabilities, educational successes and consequently occupational skills differ, too. Diverse educational and occupational degrees and qualities are determining the individual labor productivity with consequences for the individual wage level and the ability oriented market income. Market income affects the demand for consumption goods on the corresponding goods markets. Is market income sufficient to achieve an adequate consumption level, financial scope is opened to reduce the labor input (e.g., to demand more leisure) or to save the excess income. The saving itself can be invested in additional educational expenses (investment in human capital), which would increase the future wage level, or been accumulated over time and invested in financial or real capital (real estate or investment in own enterprises). The kind of behavioral adaptation depends on the income or leisure preferences of the single individual, which are quite differently developed.

II.2. Market Income, Consumption and Saving

Income and leisure as well as consumption and saving preferences are determining the income and wealth distribution in the society. Income and saving are functional related; the periodical savings are accumulated over time and form a steady wealth, which is the source of capital income (in form of interest, rents, or profits), which is added to the labor income. Hence, all the individual wealth is based on saved labor income, which is accumulated by abnegation of consumption. If capital income is denoted as "unearned income" as often done in the literature, the dynamic aspect of capital income creation from saved labor income is neglected and often only serves as justification to socialize private wealth by excessive income and property taxation. The multifold burdening of capital income with income, wealth, property, and corporate taxes compared to labor income is usually justified with such arguments. Having the behavioral impacts and disincentives in mind, is such multifold burden on capital income extremely questionable. The capable and saving citizens are punished ex post, those who are forming capital for themselves and the society. Just on these citizens – investing their capital in real estate and business creating living quarters and jobs – the social disadvantaged people are dependent, who are not (jet) able to save. Economic growth and increasing individual wealth necessitate an individually and collectively sustainable saving process because a process of efficient capital accumulation is the prerequisite for a market orientated system to generate its growth potential.

However, in a market setting there are wide areas for more or less serious market failures. This is especially true for public goods and services (e.g., for public management, traffic and education infrastructure) but also for the health, banking and insurance system. Beyond that even in highly developed societies there is always a certain part of population being temporarily or permanently unable to earn a sufficient market income due to medical conditions or under-education. Under such circumstances adequate transfers have to be paid to assure these groups a certain minimum consumption level. This minimum consumption level determined by the justice of needs has to be consensually fixed by those who have to finance the transfers from their own effort oriented income. The expenditures for public goods and services as well as the social transfers have to be financed by a well balanced tax and social security contribution system, which is only dependant on the market incomes[1] of the skilled and successfully performing citizen. On the one hand taxes and social security contribution reduce the disposable income so that the net income for consumption purposes and saving is declining, too. On the other hand the poor households get transfer payments which increase their disposable income. Taxes, contributions and transfers are influencing the behavior of people: the income and leisure as well as the consumption and saving

[1] For the classification of market income and the differentiation from the shadow economy and household production see Petersen/Thiessen/Wohlleben (2010).

preferences. And these reactions on incentives and disincentives describe by neoclassical theory have serious impacts on the future economic development.

Of special interests are the disincentives which impair the dynamics of the social and economic system. If the disincentives yield into factual behavioral adaptations as consequence of high marginal tax burdens, labor force is leaving the market economy and at least partly switching into the informal economy. Between household production and the market sector the so-called shadow economy is emerging in which especially services are supplied. The shadow incomes predominantly paid in (hidden) cash cannot be observed by the fiscal administration so that public control over such incomes is impossible. As consequence of the withdrawn taxes and social security contributions, the wages are considerably lower than in the official labor markets, while the wage advantage is split between the suppliers and demanders on the illicit labor markets. As higher the tax and contribution burden is in the market sector as stronger the wage advantages in the shadow economy are increasing. Furthermore the transfers paid to the unemployed determine a likewise minimum income without any work at maximum leisure time. Therefore, the unemployed are at least partly supplying their excess leisure time in the unofficial labor markets. This informal labor supply is connected with tax evasion and transfer fraud, which is usually not sanctioned by the society because of the income advantages for the clandestine worker and its customer. Illicit work meets common consent – in Germany wide areas of social services, e.g., the old-age care, cannot any longer be sufficiently organized at bearable costs without labor force from the shadow economy.

II.3. Dynamic Economic Development

In subsistence economics the labor incentives are set by the will to survive – the “struggle for live” in Darwin’s sense. Superior needs in Maslow’s sense can only be satisfied if the utmost scarcity has been overcome. As result of increased labor productivity working time reductions become possible. But even then considerable incentives remain for the “homo economicus” to rethink further improvements in labor technologies and operational procedures. The development of new labor technologies mean for the inventor himself a better use of his own human capital. At the same time the increasing technological complexity increases the educational efforts for the other users of such technologies. Technical progress is not only connected with increasing real capital but also necessitates an improvement of human capital. Increasing labor and capital productivities induce a process of general growth and increasing incomes so that more and more people become able for sustainable savings, which is also important for the further private and public wealth distribution.

As more citizen become able for saving due to an improving quality of their human capital as more investment in education and occupational skills is done and the resulting surplus also increases the real capital. Both, rising human and real capital are fostering economic growth, which is another reason for an accelerating technical progress. Also investment in different forms of education improves the conditions for the participation of the citizen in the political system, especially regarding the efficient control of the complex processes in a modern democracy. Hence, the emerging tax state in highly developed industrial countries (Schumpeter 1918) has bound the legislative sovereignties to parliaments and intensified the democratization processes. Therefore, strongly increasing welfare is closely connected with a successful combination of societal as well as technical progress. Technology alone does not explain the enormous welfare differences which still exist and are obviously caused by qualitative differences in the societal organizations and the political institutions – elements which are currently discussed under the term of "social capital" (Putnam 2000).

Education and vocational training are just in those countries without any geographical advantages and/or natural resources the only comparative advantages. These are often expressed in stable social structures, a highly developed public infrastructure, high technological standards, political stability and trust in governance as well as high private wealth. In contrast to such stable political systems still numerous fragile countries exist in which despite of high resource rents and geographical advantages educational and health services are badly missing. An adequate political control and countervailing political powers are not in existing. Consequently corruption and nepotism are ruling (Petersen 2010). The income and wealth distribution is neither ability nor needs orientated, often yielding into violence and warfare. Therefore, education and vocational training are usually closely connected with societal and economic progress.

But this success has its price. The current technical progress causes a permanent increase regarding the requirements for and the qualifications of the employed persons. Additionally the occupational images have been strongly changed so that modern jobs require much less physical but much more intellectual inputs. The white collar elements are steadily increasing. Therefore an increasing number of young professionals are striving for highly paid jobs often without having the necessary job qualifications. The appeal of the classical manually oriented jobs has been declined despite of the fact that especially in the household and car services enormous job potentials are hidden above all in the strongly ageing societies. Low qualified work does exist in abundance but meets no demand, while highly qualified jobs are less frequent but often even such jobs stay vacant because of lacking job qualifications. The mismatch on the official labor markets – excess supply of low qualifications and excess demand for high qualifications – are the core problem in many highly developed countries.

This mismatch is partly caused by young people striving into labor market segments for which they do not have the adequate education and vocational training. They have illusions regarding their individual abilities and skills but are exposing themselves to job standards, which in the long run cannot be met. Therefore, they cannot attain the position they have aspired and consequently also not the connected income and consumption levels. On the other hand in the course of technological progress vocational qualifications are at least partly devaluated – whole job segments disappear. Only if employees in such areas are able to acquire additional vocational skills, they will have the opportunity for a restart in the official labor markets. Additional vocational training assumes flexibility, learning attitude and willingness – all characteristics which are as lesser developed as older the persons concerned are. In any case high personal engagement is necessary being in the individual situation even more intense as slower the velocity of learning might be. Today the demands are extremely high so that extraordinary motivation is necessary to meet the claims.

II.4. Consumption without Market Income, Consumption without Work

What is the impact of a social system in which established institutional ties (social network) are existing in case of unemployment and where alternative jobs are supplied in the shadow economy? The single unemployed person will evaluate the loss of a job or a failed entrance into the official labor markets more as personal misfortune than as a consequence of structural changes at the labor markets or personal misjudgment. If the market income losses are partly assured by corresponding insurance benefits or transfers, the affected person will temporarily seek new employment which corresponds with her/his vocational skills. So called neighborhood effects are effective; the living standard in the nearer social environment determines the consumption wants, which first and foremost can be satisfied by own market income. Many job seekers eventually adapt their consumption wants to the job conditions in accepting a less qualified job with lower market income. Hence, they stay in the official labor markets to have the chance to climb the social latter again and demonstrate their personal motivation and abilities.

But often such lower qualified jobs are yielding an income, which is often not high enough for the individual and family's survival. Therefore, such jobs are often defamed as low wage jobs and wage dumping and also socially discriminated – despite of the fact that in such low wage segments some million of employees are still working (often in two or even more jobs) to support their own families in personal responsibility being not dependent on the drip of the welfare states. Especially ideological discussion on the publicly organized "second" or even "third" labor market for the reduction of the long term unemployment are often creating a specific entitlement behavior on side of the affected persons. Instead of adapting to the changed labor markets conditions by additional training efforts, they start in choosing supposedly "more convenient" solutions in relying partly or even totally on transfers being granted by the social security system. As "state" the affected persons but even more the involved lobbyists understand the "rich" in the society who obviously have more than enough or interpret the state as cow being fed in heaven but milked on earth (Puviani 1903). Their consumptions wants have to be satisfied on the highest possible level – whoever has to pay the bill.

Such views are even more supported as consequence of an escalating social romanticism that work in the modern post-industrial society is becoming extinct and the last resort is the switch into a much more humane leisure society. In such framework fits perfectly the naïve ideas on an unconditioned (not mean-tested) basic security income so that everybody can exist due to her/his needs and abilities. Who is then working for the acquisition of the necessary incomes remains an open question never having been critically analyzed. In view of the demographic developments in the high industrialized countries such imaginations are just threatening. But often such imaginations are met with broad acceptance in media and public opinion; consequently many affected people feel reconfirmed in their entitlement behavior against the anonymous state institutions. Therefore, many people turn away from the official labor markets and satisfy their consumption needs via the transfer system and supply at least some part-time work in the shadow economy – in which high net hourly wages can be earned because of the evaded taxes and social security contributions. Then tax evasion is accompanied by transfer fraud. Illegal and partly criminal incidental income together with the transfers paid yield in a high reservation income, which cannot be earned at the given skills in the official labor markets. More and more persons are falling into the poverty trap.

Without doubt, in socially oriented states social distress has to be cushioned by the society. But the social network should not generate a hammock in which people can conveniently relapse – likewise a guaranteed land of plenty as leisure societies are often described. Since the ban from paradise on earth such societies were rarely existent. Instead of that all the preceding generations had to earn their bread with sweat and tears. In the wealthy societies perhaps the tears are avoidable but the sweat will remain the base of progress. Therefore, the social net has to be organized in form of a trampoline, which motivates for the jump back into the official labor markets and the support for social life. The fundamental target of social policy is rehabilitation and reintegration into the official labor markets, which is especially true in ageing societies. The perpetuation of poverty as it is happening since generations in many highly developed countries has to come to an end. Furthermore all citizen – the capable as well as the less or even not capable – have to become aware who has to pay the redistributive bill. It is the close or more distant neighbor what has to be demonstrated in using the human capital approach below.

III. Human Capital, Life-time Income and Formation of Wealth

In the traditional tax theory the problems of the tax bases are discussed in a more or less isolated form perhaps due to the development of tax practices in the historical development context. In the history of taxation three tax bases (consumption, income and property) have been used tied with predominantly proportional or even progressive tax schedules yielding in the total tax revenue to finance the public budgets. Public goods and services as well as transfers (to poor households or help seeking enterprises) are financed by the citizen having the spending power and the corresponding positive tax bases. The conventional concepts of social justice (in the sense of justice of ability and justice of needs; Petersen 1993) require that not only the current tax period (principal of the assessment year) is taken into consideration (static approach) but the dynamic aspects of human capital formation in its consequences on life-time income and the private as well as public (financial and real) capital formation.

III.1. Current Income, Consumption and Wealth Formation

In the first instance a simple approach without state activity is taken into consideration and the relations between the individual labor input $h_{i,t}$ (in hours), the wage rate $wh_{i,t}$ (per hour) and the labor income $l_{i,t}$ of a single person I in the period t are of interest:

(1) $l_{i,t} = h_{i,t} \cdot wh_{i,t}.$

The wage rate $wh_{i,t}$ depends on the educational skills and the vocational training of the individual i, which is determined by the public expenditures for schools and universities and private expenditures for education of households and enterprises (regarding the vocational training in the dual education system).

From labor income the individual consumption expenses $c_{i,t}$ (in form of the purchased private consumption goods) are financed:

(2) $c_{i,t} = c_{i,t} (l_{i,t}).$

If the consumption expenses are smaller than the labor income a periodical saving $s_{i,t}$ results:

(3) $s_{i,t} = l_{i,t} - c_{i,t}.$

The saving (in other words the current cutback of spending or waiving consumption) brings in the dynamic element into the analysis. Is the saving not consumed in the subsequent periods or even supplemented by additional saving, capital (in financial and real form) or wealth $v_{i.t}$ is accumulated:

(4) $v_{i.t} = \sum_t s_{i,t}.$

Via investment in profitable assets the wealth $v_{i.t}$ yields an additional income – that is to say capital income (interest payments on financial assets, income from renting and leasing, and/or profits from own enterprises or shareholding in companies, entitlements against insurance companies etc.). For the sake of simplicity an average market interest rate r_t is assumed so that capital income $ci_{i,t}$ is defined as

(5) $ci_{i,t} = r_t \cdot v_{i.t}.$

In the periodical perspective the labor income $l_{i,t}$ is complemented by the capital income $ci_{i,t}$. Then the total income $y_{i,t}$ results with

(6) $y_{i,t} = l_{i,t} + ci_{i,t}$

and the consumption and saving capacity is also increased:

(2a) $c_{i,t} = c_{i,t}(y_{i,t})$,

(3a) $s_{i,t} = y_{i,t} - c_{i,t}$.

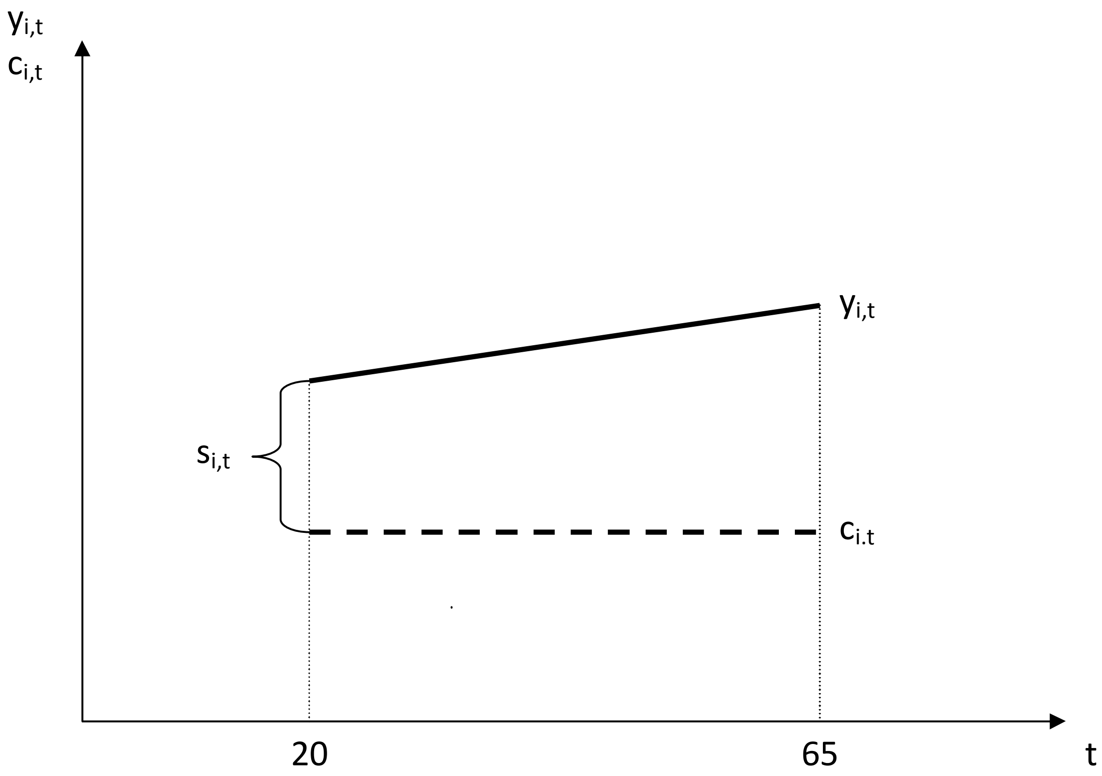
The individual wealth and the corresponding capital income are formed by citizen having a sufficient ability to relinquish consumption and to save. Those are also the taxpayer, contributing direct taxes on income, social security contributions and the indirect taxes on consumption. Beside these citizen with high ability to pay there are some additional falling with their total income below the basic exemptions in direct taxation but meet all consumption expenses from own sources. They contribute only social security contributions and indirect taxes (VAT and specific consumption taxes).

III.2. Life-time Income, Human Capital, Financial and Real Capital

The periodical income $y_{i,t}$ which can be earned by a single person because of her educational and vocational training experience is of course not only dependant on individual factors like educational qualification, income, leisure as well as consumption and saving preferences. Possible risks resulting from economic dynamics (innovation, invention, structural changes, devaluation of knowledge, and general workplace risks) are also to be taken into consideration. Empirical evidence has often proven that the risky event is more and more infrequent as higher the vocational qualifications are. However, over the whole life-cycle such risks have to be taken into consideration because risk occurrence is usually connected with a serious reduction of the periodical income. These different risks can be expressed as expected value; on the individual level there are only very limited information so that in the following this problem will be neglected.[2]

[2] There is a conditional expected value for the periodical income which is E ($y_{i,t}$|employment). In an existing social aid system (or unemployment insurance) the unemployed persons get transfer payments $tr_{i,t}$. If this transfer is guaranteed for the whole life-time, all citizens falling under this program have no risks but full security. Therefore, E ($tr_{i,t}$|unemployment) equals one. Such an assurance of at least a minimum consumption standard must have serious impacts especially on the labor supply behavior of unskilled persons.

Figure 1: Periodical Income and Consumption Expenses



In figure 1 it is assumed that the person under consideration earns a periodical income in the whole active life-cycle (from about 20 to 65) which is steadily rising and after the first saving period is made up of labor and capital income. The consumption expenses $ci_{i,t}$ are assumed as constant. The periodical saving is then the difference of periodical income and periodical consumption expenses according to (3a), so that the area between the income line and the consumption line represents the accumulated savings or the wealth $v_{i.t}$. The undiscounted life-time income y_i is the area below the income line, the life-time consumption c_i the area below the consumption line:

$$(7)\quad y_i = \int_{20}^{65} y_{i,t}\,,$$

$$(8)\quad c_i = \int_{20}^{65} c_{i,t} \text{ and}$$

$$(9)\quad v_i = \int_{20}^{65} s_{i,t}\,.$$

Hence, figure 1 demonstrates that savings and wealth have been generated out of the periodical incomes of the previous periods in which consumption was partly relinquished. An intended cutback in spending is the prerequisite to create capital income and this income is everything but “unearned” as can be often red in the literature.[3] That

[3] Capital gains and other windfall profits sometimes might have an unearned characteristic, especially if the owner has not expended any efforts.

proponents of a strong redistribution of incomes have strong preferences for highly progressive taxes to socialize the individual wealth should not draw off the attention from reality: Persons of outstanding ability and the wealthy are anything but defenseless. They can lower their supply of effort, consume more, save less, and use their mobility advantages in voting by feet and leave the country with their human and financial capital if such ideological positions are accepted by the democratic majority.

Reducing the human capital approach on its economic nucleus, at the beginning of the working life the accumulated human capital can be defined as an income flow of (expected) periodical incomes (from labor and capital) discounted at the present. Insecurities as workplace risks, capital risks, working time reductions as consequence of familial decisions can be taken into account in form of partial or even total losses of periodical incomes. This definition of human capital corresponds with the dynamic capital expenditure budgeting and the valuation discounted cash flows method for the business valuation.[4] As already mentioned the human capital at the beginning of the work life depends on the accumulated education and vocational skills being the result of primary, secondary, higher and vocational education expressed in a corresponding graduation or training qualification.[5] Education as well as vocational training is connected with high costs, which are typically financed by the public and the private sector. Private educational expenses (like tuition fees etc.) for the improvement of the educational quality have to be taken into consideration like capital spending in capital budgeting. Under these given constraints human capital at the beginning of the work life of a person hc_i can be expressed as present value of all future periodical incomes (from labor and capital), while the periodical income is discounted with the discount rate i_i:

$$(10) \quad hc_i = \sum_t (y_{i,t}) \cdot (1 + i_i)^{-t}$$

As mentioned above the human capital can be improved by educational investments so that the periodical expenses are given with

$$(2b) \quad c_{i,t} = cc_{i,t} + ce_{i,t},$$

where $cc_{i,t}$ are the expenses for consumption goods and $ce_{i,t}$ the expenses for educational goods and services.

Is the periodical income increasing as consequence of the educational expenses and over-compensating the investment costs, the human capital hc_i is increasing, too. The respective relation between labor and capital income is determined by the periodical marginal consumption and saving ratios. As higher, ceteris paribus, the marginal saving ratio is, as stronger the wealth and the corresponding capital income rise. All private capital assets are in the ownership of persons or households. Naturally, private firms exist

4 For more details see Anderson (2005) and Perridon/Steiner (2009).

5 For the impacts of educational investments on life-time income in Germany see Kirchner (2007) and Petersen/Kirchner (2008).

in the form of corporate bodies but the shares of the companies are usually in hands of natural persons.[6] In addition capital income is a derivative of individual human capital from which financial and real capital has been formed via periodical savings.

Figure 1 also demonstrates that at the end of the working life a wealth portfolio exist, yielding further capital income to meet consumption expenses or parts of the individual wealth can be liquidated for consumption purposes. Is a certain wealth even existing at the end of life, it can be transferred via property rights to the beneficiaries. Hence, individual life is embedded in inter-generative relations so that at least some persons at the beginning of their working live or even later inherit additional wealth usually in the familial context. In such cases consequently the capital stock as well as the future capital income flow is further increased, which might enforce inequality in the wealth and income distribution. But inheritances are only planned if the descendents have been assured that their saved (and not consumed) wealth will be largely transferred to the successors they have determined themselves. Exist threats that a finalized and sharply progressive inheritance tax will more or less socialize private inheritances, potential legators would not leave any wealth but just liquidate and consume it.[7] Then the private capital stock would be hardly affected so that the growth potential in democratic market societies would be jeopardized.

III.3. Tax Bases and Tax Revenue

Human capital and life-time income are the ties for state financing and taxation. In certain limits states are able for debt financing but as consequence each public debt in the life-cycle perspective has a debt service, which has to be financed by tax increases in the future. Therefore, public debt is usually shifting burdens from the present into the future and can be neglected in our further analyses. Due to uncontestable reasons of practicability each tax base has to be bound to a periodical concept (in Germany the so-called annual periodical concept) so that running tax revenue exists, which finances the necessary expenditure for the supply of goods and services and the transfers (social transfers as well as subsidies). All existing tax systems are tied to the periodical (usually annual) income and consumption or wealth at the end of such a period. As a general rule (with only very few exceptions) the current periodical taxation as well as the property taxation is purely static orientated. Especially in traditional income taxation neither the previous history of income nor the future use of income plays any systematic role.[8] The

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6 If shares are (partially) state-owned, the people, citizen or voters are the real owners. In a democratic market approach in the political system the voters are the principals. All the representatives are the agents.

7 Inheritances would only exist, because legators have wrongly estimated their life expectancies.

8 For details see Petersen/Rose (2004).

traditional income tax is tied to the periodical income as shown in equation (6).[9] The consumption taxes are tied to the consumption $c_{i,t}$ in the respective period. For the sake of simplicity the tax rate τ_y burdens the labor and capital income.[10] Then the income tax yield $T_{yi,t}$ results with

$$(11) \qquad T_{yi,t} = \tau_y \, (l_{i,t} + ci_{i,t}).$$

The disposable income $yd_{i,t}$ follows with

$$(12) \qquad yd_{i,t} = y_{i,t} - T_{yi,t}.$$

The income to be spend is reduced by the income tax yield so that equation (2a) turns to

$$(13) \qquad c_{i,t} = c_{i,t} \, (yd_{i,t}).$$

Equation (13) is the consumption tax base with the tax rate τ_c estimated as the average of all the existing consumption taxes (specific consumption taxes and the value added tax). The consumption tax yield is

$$(14) \qquad T_{ci,t} = \tau_c \cdot c_{i,t} \, (yd_{i,t}) = \tau_c \cdot c_{i,t} \, (y_{i,t} - T_{yi,t}).$$

Equation (14) demonstrates that the co-existence of income and consumption taxes causes an inner-periodic double taxation of the gross income. Are income and consumption taxes accompanied by specific wealth taxes on single property components or an eventually additional general wealth tax then the periodical income before tax is charged once more. If a tax on total wealth is assumed at a tax rate τ_v the wealth tax yield results with

$$(15) \qquad T_{vi,t} = \tau_v \cdot v_{i,t}.$$

Under the constraint of an equal tax yield each wealth tax at a given interest rate can be transformed into a tax on capital income.[11] A 1% annual wealth tax corresponds at an assumed interest rate of 5% with an annual capital income tax of 20%. Is the actual interest rate on total wealth lower (or even zero) the capital stock itself is reduced because the wealth tax has to be paid from labor income or a realization of wealth. Hence, inner-periodically the wealth tax leads to a further increase of the tax yield so that a multiple taxation of the income before taxes can be observed.

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9 The traditional income tax is often denoted as "synthetic" income tax despite of the fact that all existing taxes are not synthetic but scheduled taxes, having differently defined tax bases as well as specific tax schedules. See Petersen (2006).

10 A direct tax which has the total income (labor and capital income) as tax base is usually named a synthetic income tax. As already mentioned all existing income taxes are dual taxes or have multifold bases and rates so that they are everything else but not synthetic.

11 At a unitary labor and capital income tax rate τ_y the following relation holds true: $\tau_y = \tau_v (1 + r)/r$; for details see Petersen (2006).

In view of the life-cycle approach the death duties are another burden on the wealth and the life-time income of the taxpayer.[12] The estate or inheritance tax $Ł_{vendi,t}$ corresponds to a non-recurring wealth tax on the total property v_{endi} at life's end Ƭ (see figure 2) with the tax rate $ţ_{vend}$:

$$(16) \quad Ł_{vendi,t} = ţ_{vend} \cdot v_{endi}.$$

All kinds of taxes independently from their specific tax bases burden the individual gross income and can be converted into taxation of income. All taxes are reducing the disposable income – thus the purchasing power and saving potential.[13] An additional aggravating factor comes along in case of the traditional income tax, which in tax practice has more and more become a scheduled tax with separated bases and different tax rates or schedules regarding different kinds of income (Petersen 2006). Hence, such complex direct tax systems consisting of complicated income and corporation taxes totally neglect the dynamic aspects of (human, financial and real) capital formation as described above. In case of a so-called "periodically just" income tax it is analytically blacked out that saving has been done from (already taxed) disposable income. If in the following period the interest earnings are also taxed, in a life-time perspective (as expressed in the human capital approach above) in the course of time avalanche effects cause a multifold excess burden on capital income.[14]

If a traditional income tax with a rate of 25% is presumed, the disposable income being the base for the saving decision is already burdened with that rate. The current capital income taxation at a presumed annual interest rate on the wealth of 5% and an investment period of 40 years results in life-time tax burden of 58.3% - a burden which is more than 2.3 times as much as the annual income tax rate! If then an annual wealth tax at a tax rate of just 1% is implemented, the life-time burden on capital (interest) income increases to 76.2% - a burden on interest income being more than three times as much than in case of the labor income from which the saving has been generated. In case of a 40% income tax rate the life-time burden is 62.5%, including the wealth tax 86.1%. The inner-periodical accumulation of tax burdens and the avalanche effects result in tax burdens on capital income, which are extremely precarious regarding the incentives to consume and save.

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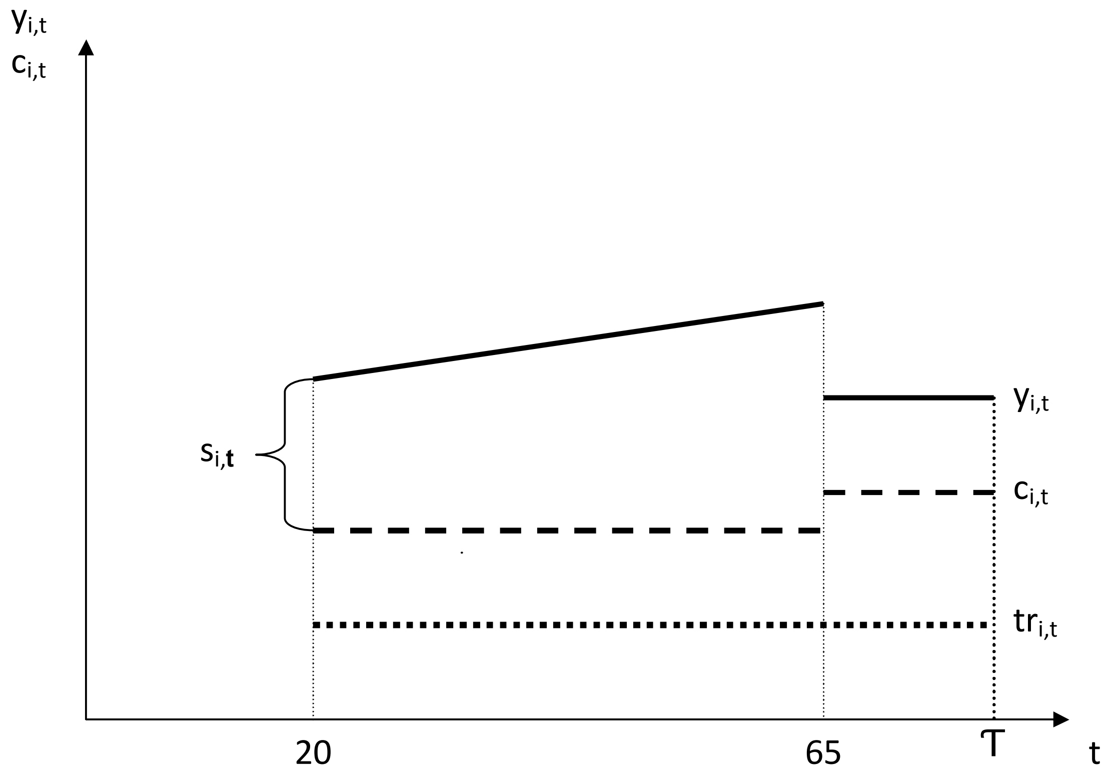
[12] The death duties can be separated into two forms: (1) the inheritance tax, which is a tax on the (group of) beneficiary/(ies) where the individual tax rate is determined by the number and degree of relationship of the beneficiaries, while (2) the estate tax is a tax on the total estate independently from the number of beneficiaries. In dependently from the specific arrangements the total tax burden on an inheritance/estate can be estimated and naturally has an impact on the testators' behavior – if anything is bequeathed, which beneficiary will get parts of the bequest and if the beneficiary is able to pay the tax without being pressed to sell parts of the property (shares, block of flats etc.). Therefore, estate and inheritance taxes have an important impact on the consumption and saving decisions of alive taxpayers.

[13] For more details see Rose (2005).

[14] For more details see Petersen/Rose (2004) and Petersen (2004a, 2009).

A life-time oriented income tax would avoid the double and multifold burdens of the traditional income and wealth taxation. It is assumed that at least parts of the wealth (including the entitlements against public and private life insurances) have been formed for old age provision. Beyond the retirement age (here 65) the income flows are reduced due to the individually chosen maintenance level, which again determines the consumption expenses as well as savings (presumed a sufficient old age income). Due to worsening health conditions the consumption expenses might increase. Figure 2 demonstrates a stylized trend of the income and consumption lines.

Figure 2: Income, Consumption and Transfers in Life-cycle



While the necessary consumption in childhood until the start of working life is financed in the familial context, the life-cycle shown in figure 2 the person is totally financed by the return of the accumulated human capital and even wealth is inherited to the coming generation. The avalanche effects within the traditional income tax systems have to be abolished so that particularly the self-responsible old-age provisions are not over-burdened in a life-time perspective. In the context of old-age security this is realized by tax exempt contributions to the pension insurances in the working life and the taxation of the pension payments in the retirement phase (saving adjustment or postponed taxation). This method shifts the tax base into the future when consumption takes place (consumption orientated income taxation).

The saving adjustment method avoids the avalanche effects for the old-age provisions and is already implemented (or on the way to be implemented like in Germany) in some of the traditional income tax systems. But saving adjustment is only half a step in the direction of a life-time adjusted income tax because also other investments for old-age provisions beside the pension insurances (returns from rental and leasing, interest payments, profits, dividends, etc.) are still suffering from the avalanche effects. These multifold burdens on large parts of capital income have negative impacts on saving and investment incentives which in view of dramatic demographic changes in the highly developed countries as soon as possible have to be abolished. If also in these cases the saving adjustment method (in the English literature also denominated as cash-flow-tax) would be implemented, for a long transitional period the base for the corporation tax would be dramatically reduced as consequence of cash-flow taxation with immediate write-off.[15] In this transitional phase the loss compensation (carry back and carry forward) would yield in tax revenue reductions or even tax refunds with the questionable perspective that even highly efficient enterprises are not any longer burdened by taxation.

For the avoidance of such transitional problems the Heidelberg Tax Circle in the framework of its "Easy Tax Model (ETM)" has proposed the introduction of an interest adjustment (protective interest on equity capital or allowance on corporate equity, ACE) for all kinds of capital income beside old-age provision.[16] For those capital incomes an interest payment on equity capital is deducted from the tax base which is "usual in the market" and approximately corresponds to the average interest rate in the respective country (risk-free interest rate). Then only profits, dividends, rental and leasing payments as well as interest returns are taxed exceeding the protective interest amount. In a life-time perspective the interest adjustment is compatible with the saving adjustment.[17] Since the return on equity capital is usually much higher than the risk-free interest rate, a remarkable and reliable tax base for enterprise taxation remains, which is not any longer affected by the avalanche effects. The long run burden on these capital incomes is dramatically reduced so that the annual tax rate can be slightly increased to compensate for the revenue losses of such a reform (Flotýnska 2010).

In the ETM approach with saving adjustment for old-age provisions and interest adjustment for all other capital incomes all kind of incomes including the labor income – being the source of all savings – are taxed at an equal rate. Saving is not any longer excessively burdened in the life-cycle, while in the traditional setting the "periodically just" income taxation is a threat for the supply of effort in the modern societies.

15 For more details see Flotýnska (2010) and Bach (1993).

16 See Petersen/Rose (2004), and www.einfachsteuer.de; alternatively a model for the interest adjustment within the existing German income tax system has been developed. For the details see Rose/Schmidt/Petersen/Kambeck (2006).

17 See Rose (2006) and Flotýnska (2010).

The tax revenue T_t now results as sum of the individual tax yields on income, consumption, wealth, and inheritances:

$$(17) \qquad T_t = \sum_i (Ł_{yi,t} + Ł_{ci,t} + Ł_{vi,t} + Ł_{vendi,t}).$$

Equation (17) demonstrates that corresponding to the context described above only those citizen contribute to state financing who have a sufficient gross income available at least to pay for the consumption taxes and after exceeding the respective tax exemptions are also able to pay direct taxes. Total tax revenue is then spent on public expenditures for public goods and services Egs_t and transfers Tr_t

$$(18) \qquad T_t = Egs_t + Tr_t,$$

and in the following only the transfer payments to persons or households in precarious income situations will be taken into consideration. The expenditure for public goods and services Egs_t consists of expenses for public consumption $Egsc_t$, public investment expenses $Egsi_t$ and public educational expenses $Egse_t$, the latter having an investment and personal component:

$$(19) \qquad Egs_t = Egsc_t + Egsi_t + Egse_t.$$

The public educational expenditures $Egse_t$ and the private expenses on education $ce_{i,t}$ usually have a positive impact on the future individual gross income:

$$(20) \qquad y_{i,t} = y_{i,t}(Egse_t, ce_{i,t}) \text{ with}$$
$$dy_{i,t}/dEgse_t > 0 \text{ and}$$
$$dy_{i,t}/dce_{i,t} > 0.$$

Private and public educational expenditures are an appropriate mean to increase human capital and reduce existing poverty. However, the impact is more long-termed: the effects of an improved primary and secondary school education are without question positive but the time-lag on the periodical incomes is between one and one and a half decade. In contrast high education and vocational training are connected with much shorter time-lags.[18]

III.4. Poverty, Transfers and Redistribution

Due to reasons of simplicity again it is assumed that the transfer recipients under consideration have no market income from labor and capital and are also not performing any activities in the shadow economy, which would be connected with tax evasion and transfer fraud. The transfers are related to a certain commodity basket, which covers for socio-cultural minimum of subsistence. For the single consumption commodities prices are estimated which include the indirect taxes. The resulting per-capita transfer (social benefits, unemployment benefits, etc.) comprises all existing indirect taxes so that the

[18] For more details see the results of innovation research, e.g. Hirschhausen et al. (2009).

transfer recipients pay the indirect taxes but are compensated by the transfers received. The individual transfer recipient gets a monetary transfer $tr_{i,t}$, which can be spent in accordance with the individual consumption preferences for the consumption goods $c_{i,t}$:

$$(21) \quad c_{i,t} = c_{i,t}\,(tr_{i,t}).$$

The total transfer payments result with

$$(22) \quad Tr_t = \sum_i tr_{i,t}.$$

Considering the income, consumption, wealth, and inheritance taxes of the capable citizen, their future net income flows are reduced and consequently their human capital hc_i, too:

$$(23) \quad hc_i = \sum_t^T \left(y_{i,t} - (\text{ŧ}_{yi,t} + \text{ŧ}_{ci,t} + \text{ŧ}_{vi,t} + \text{ŧ}_{vendi,t})\right) \cdot (1 + i_i)^{-t}$$

These reduced human capitals correspond to those of the transfer recipients with

$$(24) \quad hc_i = \sum_t^T c_{i,t} \cdot (1 + i_i)^{-t}.$$

The latter is fully financed by redistributive taxation on the capable citizen and transferred to the non-capable. Naturally, the assumption of a life-long transfer recipient is an extreme. But since decades trends have been observed that long-term unemployment in the lower wage segments has been steadily increased. In countries with a life-long guarantee of a minimum consumption standard the number of household has been strongly increased, which are already in the second and third generation not integrated into the official labor markets.

As the simple budget constraint of equation (18) demonstrates, for a certain time period additional transfer expenditures might be financed by tax and social contribution increases. But by and by such political decisions will be met by increasing tax resistance and declining compliance on side of the capable people who have to pay for the bill. Social policy which usually avoids unpopular decision is often displacing other public tasks. Such trends can be observed especially in the educational sector what is simply fatal for the further societal development because the human capital formation is directly affected. As long as large groups in politics as well as in the involved interest groups ("welfare industries") are not bound and determined for fundamental changes in the social systems, the vicious circle of increasing transfer volumes without any impacts on the poverty situations and a decrease in the quality of human capital will continue.

IV. Some Answers for an Efficient Fight against Poverty

The strategy of an efficient fight against poverty is not connected with a social cutback as often discussed in the highly developed countries. In many of these countries social policy was implemented for more than five generations and until now has not been so successful that the causes of poverty have been eliminated – only the symptoms have been cured by paying an ever increasing volume of social transfers. By strong interest groups (the "welfare industries") all these transfers have been justified because the growing flow-through also increased the number of jobs in this segment without bringing the aid recipients back into the official labor markets. A strategy to reduce poverty is naturally a threat for the lobbyist to lose their jobs. But at least for a longer transition period additional efforts are needed so that an immediate reduction in social expenditures cannot be expected. Beside the current social expenditures additional expenses for social rehabilitation, education and vocational training are necessary to improve the human capital in the households with precarious income situations. Especially educational programs in the early childhood are of utmost relevance.

However, the focus has to be directed at long-term unemployed persons. In households where unemployment is a phenomenon since generations, social rehabilitation has to be in the spotlight – starting with the usual daily routines and sequences of work. This has to be connected with the reinstruction of the values underlying achievement-oriented societies, which only is capable to cope with the high costs of poverty. Hints in direction of the malaise of people in poor developing countries might cause some thoughtfulness. The abolition of absolute poverty is certainly one prerequisite for the realization of human rights but is only possible if a sufficient number of capable households is existing to produce the necessary surpluses for redistribution. Because all these funds have to be created by human work, a social system which guarantees life-long consumption of goods, services and leisure, does definitely not belong to the range of protection defined by human rights. Rather such a system is a threat for the capable people within the societies because their rights are increasingly violated. Beside the reinstruction of values the self-discipline of the affected persons has to be strengthened; as experiences in the US and Scandinavia have shown, the daily routine has to be reestablished internalizing again the flow of work.

Then education and vocational training has to impart knowledge of occupational skills so that principally people are enabled for the participation in the official labor markets. Long-term unemployed have to be integrated in such occupational areas in which since for a long term excess demand has been observed. Despite the popular view that modern societies are running out work, there is more and more work which currently nobody wants to supply but is badly missing in the private as well as in the public sector. Household near services and many public services for the maintenance of public infrastructure have been eliminated due to ever increasing costs. Many employment opportunities are existing which can be organized by private and public organizations like street cleaning, landscape conservation, conversion of military and industrial areas, manual maintenance of public infrastructure – apart from activating people for social geriatric care in particular in the aging societies. These are all duties and responsibilities of high societal value, which have to be appropriately remunerated. The aim is not "exploiting cheap day taller" but the occupational rehabilitation, which always means that people do stand the test. Such a strategy substitutes "welfare" by "workfare".

In the highly developed countries the incentives have to be set for work instead of leisure. Unemployed have to be directed into the official labor markets because only market income is a tax and social contribution base. In the developing countries the negative experiences with welfare programs have to be taken into consideration because otherwise large parts of employment will remain in the shadow or subsistence economy. The policy strategy in both – developed and developing countries – has to be similar: School education, higher education and vocational training are of utmost relevance and have to be supported by public programs as well as private initiatives – the latter as more as richer the countries are. This can be assured by an integrated tax and transfer reform, which takes the dynamic aspects of human, financial and real capital formation seriously into consideration. People have to be motivated to be involved into the official labor markets – as suppliers as well as demanders of employment. A social policy which sets clear signals to the aid recipients to integrate as fast as possible into the official labor markets and includes social control mechanisms connected with a basic social security regime has to limit its benefits to the real poor. More generous education expenditures have to abolish the main causes of poverty – being unskilled because of a fundamental lack in human capital.

Such an integrated reform has to yield into a fundamental simplification of the existing income tax systems, enhancing transparency, compliance and trust into the public sector and its efficient and corruption-free agents. The tax base has to consist of labor and capital income, both treated equally due to the consumption oriented approach as described above. Integrating the transfers avoids hikes and drops in the marginal tax and transfer rates and mitigates disincentive effects. In some highly developed countries examples are to be found which can be taken as best practice models even for the developing countries so that misjudgments and serious failures can be avoided.

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