Social Aspects of Sustainability

by

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Abstract:
The notion of sustainability usually refers to environmental and resource economics and was only recently extended to its social implications. This paper attempts to explore these social aspects of sustainability. Therefore, a definition of sustainability that applies the ideas of external effects to intertemporal problems is suggested. Two effects on sustainability can be identified. First, social security instruments may affect a sustainable growth path (indirect effects), second, the stock of social capital may diminish (direct effect). It is shown that indirect effects are ambiguous and significant direct effects are unlikely to occur.

1. Introduction
During the eighties and particularly after the Rio conference in 1992 the notion of “sustainability” has become increasingly popular and there have been numerous attempts to define “sustainability” in order to make this term more operational. The pivotal idea for all these definitions is adopted from the so called Brundtland report. According to this report a development is sustainable, if it meets the needs of the present without comprising the ability of future generations to meet their own needs. Originally the notion of sustainability was closely connected to environmental and resource depletion problems caused by modern consumption patterns. These very narrow considerations were widened by the UN-Conference on Environment and Development in Rio de Janeiro in 1992. For the first time the Agenda 21 explicitly mentioned the human development and social dimensions of sustainability, though this was mainly intended to apply to developing countries. Nevertheless this approach was warmly welcomed by other institutions in developed countries, too. The Enquete commission of the German Bundestag “Protection of Man and the Environment” stressed that “sustainability requires long run protection of people’s economic and social developing options and just distribution between people living today and future generations. ... Therefore environmental policy should pursue environmental, economic and social targets equally.” Similarly the OECD emphasizes the importance of human capital and social dimensions of sustainable develop-

* Contribution to the „Conference on Sustainability“ in Wroclaw (Poland), September 1998.
ment with respect to the worsening employment opportunities for low-skilled workers, the persistent and high unemployment in many countries and the desire to minimize the extent of poverty and social exclusion.\textsuperscript{2}

Unfortunately, this widened approach is lacking a rigorous economic foundation opening a wide range for abusing this term in the political debate. Since the term “social sustainability” is very blurred, disputants use it as a device to hamper and prevent the introduction of awkward political measures. This paper tries to fill this gap by giving a new definition of sustainability and outlining social sustainability effects. In the second section I suggest a definition for sustainability that will be applied to problems of social sustainability in section three.

2. Definition of Sustainability

The definition of the Brundtland report can be immediately translated into economic terms by identifying the influence of today’s decisions on future generations as an external effect.

Definition: A development is \textbf{sustainable}, if there exist no \textbf{intertemporal negative external effects}.

This definition has three constituent parts:

- The definition mentions a development that is characterized by a vector of all the economy’s stocks and flows allowing to integrate additional variables. This extension frees the definition from the usual centering on the relation between the economy and the environment.

- Today’s and future generations are related by the introduction of \textit{intertemporal} external effects. Intertemporal effects can only occur, if there are means to transport this impact over time. These means are capital stocks. It is crucial for considering sustainability problems, that any impact of today’s actions on tomorrow’s generations must be related to some kind of capital stocks. Intratemporal external effects that are common in economics need some kind of transport media, too. In the case of air pollution this would trivially be the air. The problem of intratemporal external effects has been solved by assigning property rights to the individuals.\textsuperscript{3} Such assignment will be infeasible if intertemporal external effects are considered, since future generations cannot own property rights today. Even if today’s generation conceded these rights to future generations, they would be unable to

\textsuperscript{2} OECD (1998).
\textsuperscript{3} As long as there are no transaction costs.
use these property rights to articulate their preferences in the market, since they will only live in the future and cannot be present today. This constitutes the crucial problem of sustainability.

- The definition interprets the influence on other individuals i.e. future generations as external effects. An individual’s action diminishes another individual’s utility (living in the future). By excluding any negative intertemporal external effects every generation must accomplish at least the same utility as the preceding generation. By introducing the individuals’ utilities this definition offers a more flexible treatment of sustainability. *Strong sustainability* requires natural capital not to diminish. *Weak sustainability* allows natural capital to be reduced but proposes that the aggregate of all capital stocks should remain constant at least. Using utility that is drawn from consumption allows to substitute capital stocks. Therefore, this definition descends from the idea of weak sustainability though it offers additional degrees of freedom (substitution in production or consumption). One may object that the utility is hard to measure, but this applies similarly to other sustainability concepts as natural capital is difficult to assess impeding the determination of substitution options for capital stocks. There are two more problems. First, there is a minimum level of consumption for every generation constraining the intertemporal substitution and raising normative problems in its determination. Second, if resources are subject to some kind of natural decay today’s generations must take action to avoid utility losses for future generations due to reduced capital stocks.

To influence sustainable development it is necessary to exercise an intertemporal effect i.e. there must be an impact on any capital stock. Thus, there are two ways social aspects can cause a sustainability problem:

- Social security systems (in particular social insurances) may influence the accumulation of capital stocks e.g. physical capital or human capital. Since social security instruments’ main target are improvements of today’s generation’s social situation, their intertemporal effect unfolds only by affecting some kind of capital stock. Therefore I will call these effects *indirect social sustainability effects*.

- Any political or economic intervention can influence the stock of “social capital” yet to be defined. Because of the immediate impact on a capital stock I will call this effect *direct social sustainability effect*.

Note that transitional (but intragenerational) social implications of shifting a society to a sustainable steady state path are explicitly not deemed to be part of a social sustainability prob-
lem. Structural frictions triggering social problems during a transitional adjustment process are not considered to threat social sustainability.

3. Social aspects of sustainability

3.1 Indirect social sustainability effects

As laid out above indirect social sustainability effects are the intertemporal impacts of today’s social security systems. There are several economic reasons for providing social security services by the state that base on some kind of market failure:

- Social security is a public good. Social stability enhances economic productivity. But since this stability can be enjoyed by everyone without own contributions as long as someone else provides some kind of social security system, individuals find themselves in a prisoners’ dilemma.

- There are imperfect insurance markets. Asymmetric information imply moral hazard and adverse selection in insurance markets possibly entailing a sub-optimal amount of social security supplied to the market.

But these market failures are just a necessary condition for public supply of social security systems. In addition it must be verified, that governmental intervention may improve this market failure and will not substitute state failure for market failure.

Besides these market failures unsatisfactory distributive market results are a frequently cited reason for governmental intervention. Unfortunately, economic theory does not provide clear cut recommendations for distributive problems and we are far from describing an economically optimal distribution and therefore are inviting normative intrusions to economic theory. An economic reason for re-adjusting the distributive results is the distribution’s impact on long run growth. By now there has been extensive (in particular empirical) research on the relations of distribution and growth finding that at least a very skewed income distribution is detrimental to economic growth.4 Another reason is derived from political economic theory. The foundation of the state is based on a social contract unanimously agreed on by all individuals of the social entity. Individuals earning low incomes who are entitled to social transfers may threat to cancel the social contract, if they receive insufficient social transfers. Those contributing to the social security system will grant these transfers because they benefit from

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the social contract. Thus, social transfers can be interpreted as toleration payments. This reasoning neglects that social transfers would be determined by negotiation power and not people’s needs, what is a serious objection.

In this paper I will focus on three different insurances and analyze their effects on capital stocks and the sustainability of social insurance schemes (see figure 1).

![Social aspects of sustainability](image)

**Figure 1: Social aspects of sustainability**

3.1.1. Pension insurance

The pension system is designed to warrant a sufficient standard of living to the individuals when they retire. There are two different systems for financing pension payments.

- **Funded system:** The individuals are obliged to pay contributions to some kind of (public) pension scheme during the working period of their life when they are young. The pension insurance institution invests these contributions in the capital market. When old the individuals consume the return of their invested contributions and the total amount of their contributions.

- **Pay-as-you-go system:** The individuals are obliged to pay contributions during the working period. But in contrast to the funded system the contributions are not invested but used to pay the pensions of the currently old generation. Today’s young generation has to rely

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5 Homann/Pies (1996).
6 Priddat (1996)
on tomorrow’s young generation, that they will pay their pensions when they are old. Assuming that contributions remain constant for all generations the interest of social insurance payments of the young generation equals the rate of population growth, because tomorrow’s generation will pay today’s generation’s pensions. Thus, pension payments will increase the more contributors will live tomorrow.

Usually an overlapping generations model is applied to identify the effects of these different pension systems.\(^7\) In particular we have to analyze the influence on the saving and accumulation behavior and on the evolving steady state capital intensity.

The individuals decide on how much they want to save enabling them to consume in the next period. If they have to pay an administratively fixed contribution to some kind of pension insurance, they will reduce their (private) savings regardless which system applies. But in a funded system of pension insurance contributions will be reinvested by the pension insurance institution. If we assume that private savings and social insurance contributions are perfect substitutes (i.e. their risk and return is identical), there will be no reduction in economy wide savings, because contribution payments are offset by reducing private savings. Capital accumulation and steady state capital intensity remain unaffected.

A pay-as-you-go system also reduces private savings. Whether this reduction will exceed the decline in the funded system depends on the relation of interest rate and rate of population growth. But in contrast to the funded system, the contributions are not reinvested and there is no off-setting effect for the reduction of private savings and consequently the accumulation of capital will decline. It can be shown that even the steady state capital intensity will decrease for a pay-as-you-go scheme.\(^8\) The comparison of the two schemes reveals that a pay-as-you-go scheme has a negative impact on long-run growth and the level of growth. It narrows future generations’ standard of living and should be refused from a sustainability point of view.

The effect described above changes if the individuals’ utility is altered. Assuming altruistic individuals drawing some utility from their descendants’ utility allows to introduce positive bequests enabling transfers from the old to the young generation. Notice that social security contributions can be interpreted as negative bequests (i.e. transfers from the young to the old).

Now assume that the old intend to leave a certain part of their fortune to their descendants. If the government fixes the amount of pension insurance payments (i.e. obligatory transfers from the young to be old), the old will react by increasing their bequest by the amount of pen-

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\(^7\) For a brief survey see Blanchard / Fischer (1989), p. 91-115  
\(^8\) Blanchard / Fischer (1989), p. 113
Pension payments reestablishing their intended net transfer to the young. Therefore, young generation’s income and savings will remain unchanged and capital accumulation will be unaffected by the introduction of social pension payments.

Pension insurance systems may not only affect the accumulation of physical capital but also the stock of human capital. It can be shown that the existence of a pension insurance may increase incentives for earlier retiring from employment. However, a shorter working life reduces the amortization time of human capital. Hence, investments in human capital will decline and the steady state path of growth will be lower.

Up to now we have focussed on the change of the level of the economy’s growth path. Pension systems may also influence the economy’s growth rate that is determined by the rate of population growth and the rate of technical progress in a neoclassical world. So if pension payments influence either the rate of technical progress or the fertility, the economy’s growth rate and future generations’ wealth will change. The analysis of pension schemes endogenizes the rate of population growth i.e. fertility. Parents draw utility from consumption and from their children’s utility, but they are subject to a budget constraint. Their expenditure for consumption and raising children and their bequests must equal their wage income and inheritance. If fertility were unchanged, parents would again transfer their pension benefits back to their children. But with endogenous fertility it can be shown that fertility will decline temporarily. Parents decide on having children by comparing their benefit from having children and the costs of raising children. As parents will compensate their children for their pension payments, the introduction of a pension system increases the costs of raising children and consequently fertility will be reduced. However, for all future generations fertility will return to its previous level, because they compensate their children for their social insurance payments but also receive such transfers.

In contrast to the negative assessment of a pay-as-you-go system it has been shown that such system may increase human capital investment in a model of endogenous fertility. Pension insurance contributions have two counteracting effects on the rate of population growth. On the one hand they reduce net wages and reduce opportunity costs of raising children tending to increase fertility. On the other hand pension payments increase the amount of bequests and

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10 This is in sharp contrast to other endogenous growth models usually endogenizing the rate of technical progress.
12 Evidently, assumptions of linearity are crucial here.
consequently the costs of raising children rise, too. Additionally social security payments diminish the return from human capital. If the rate of population growth decreases more than human capital investment, per capita human capital investment will increase allowing per capita income to increase, too.

To sum up, the effects of pension insurance on sustainability of growth are ambiguous and depend on the type of pension scheme applied and on which capital stocks the analysis takes into account (see figure 2).

![Diagram of Pension Schemes](image)

Figure 2: Sustainability effects of pension systems

3.1.2 Unemployment insurance

Unemployment insurance predominantly influences the accumulation of human capital. Unemployment insurance consists of two parts: insurance contributions and payments when people get unemployed.

First the impact of unemployment insurance on people unemployed will be analyzed. Compare two situations with and without unemployment insurance. Assume that unemployment is caused by structural changes and exclude unemployment due to business cycle fluctuations. When people get unemployed they will have to readapt their skills to market requirements. To learn these new qualifications they need time. If they do not receive transfers from unemployment insurance they will have to temporarily accept a badly paid low qualification job to earn their costs of living reducing their time to learn new qualifications. In contrast if an un-
employment insurance covers the individual’s costs of living it will be able to spend more time on education and will increase its stock of human capital more rapidly. Its improved productivity will increase its future wages when it will be re-employed. The case of no unemployment insurance will prolong the qualification period accompanied by low earnings delaying the time when it will receive higher wages or the individual will achieve a lower qualification implying lower wages in future employment. Thus, unemployment insurance improves the environment for swiftly acquiring new skills and for increasing the accumulation of human capital. This reasoning clearly skips serious objections e.g. high unemployment insurance payments may reduce the incentives to work or to join qualification programs.

Similarly, unemployment insurance may increase human capital accumulation of the employed. Every individual disposes of “portfolio” of skills and qualifications used to earn its income. A very special qualification may yield a large return but in turn is very risky as it may be easily devalued in structural frictions. Portfolio theory suggests to diversify the risk by acquiring numerous special qualifications presuming that a few qualifications will survive any structural break. Unfortunately, it is impossible to dispose of so many qualifications. First employees time for learning new qualifications is limited and second special qualifications are mostly tied to a special job impeding the acquiring of qualifications needed in other jobs. The individual’s qualification portfolio is always determined by its job making it prey to structural breaks. For a single individual evading this “special qualification risk” is only possible by accumulating low yielding general human capital (i.e. general skills like type-writing, calculus, etc.). However, the society as a whole can diversify the risk of special qualifications by introducing an unemployment insurance granting compensation for “defaulting” qualifications. Risk-averse individuals would dare to acquire very special qualifications since unemployment insurance payments will mitigate the default of qualifications. Consequently, the economy as whole will accumulate more and more special human capital accelerating the economy’s growth.

Unemployment insurance contributions can exhibit negative effects on human capital accumulation. Assuming an economy with qualified and low-qualified employees one can show that the unemployment insurance contributions paid by qualified employees to compensate more frequently unemployed low-qualified workers reduce the incentives for qualified workers to acquire new knowledge and skills. Human capital accumulation will be reduced.14

14 Dellas (1997).
The results are again ambiguous. Unemployment insurance can improve human capital accumulation provided the “right” insurance design is applied.

3.1.3 Health insurance

Human capital is tied to the individuals of the economy. If the individual falls ill and is prevented from working or even worse if individuals die early due to bad health care, its human capital is missing in production. Investment in health care can increase human capital accumulation and reduce the human capital’s depreciation due to illness. However, this becomes more important the more human capital intensive the economy’s production is. This positive effect on human capital accumulation must be weighed against the negative effect of reduced incentives to accumulate human capital, since net wages will decrease due to health care contributions.

3.2 Direct social sustainability effects

3.2.1 What is “social capital”?

The notion of “social capital” is quite unfamiliar in economics and rather adheres to sociological literature. A frequently cited definition describes two fundamental characteristics of “social capital”: First it reflects the society’s social structure and second it facilitates the individual’s actions.\(^ {15} \) This leads to my definition of “social capital”:

\textit{Definition:}

The social capital an individual disposes of is the sum of all his social relations weighed according to their strength and frequency of use. Consequently, the society’s social capital is the weighed sum of all social relations.

This definition allows to discriminate between human capital and social capital. Human capital is \textit{within} the people and can be owned by individuals. In contrast social capital is \textit{between} the people, between the human capital poles.\(^ {16} \) Therefore, people dispose of social capital and can employ social capital, but they can never own social capital, since any social relation contributing to the individual’s social capital requires another individual. This individual, however, may autonomously destroy social relations lowering the other’s social capital without any opportunity to keep it from doing that. Thus, the individual’s cannot freely dispose of their social capital contradicting the genuine definition of property. Correspondingly, social capital can never be accumulated by an individual itself, rather another individual is required

\(^ {15} \) Coleman (1990), p. 302. See chapter 12 for an extensive introduction to social capital theory.
to invest in social capital, i.e. to create or intensify social relations. On the other hand as mentioned above any individual can destroy social capital by refusing co-operation or disintensifying social relations.

A wider definition is provided by Putnam. He defines social capital as referring to “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions.” In elaborating his work Putnam identifies three variables comprising several indicators that he believes to measure social capital: civic community, institutional performance and citizen satisfaction. I will show below that the inclusion of constitutional (norms) or institutional structures into the definition of social capital is not advisable, because the institutional framework may be seen in a substitu tional relation to social capital. Similarly, trust is not a criteria for social capital by its own, rather it can be derived from the social relations and is therefore to be interpreted as a function of social capital. Of course there are numerous other definitions that I will not outline here.

3.2.2 Benefits from social capital

Social capital may directly influence the individual’s utility or indirectly increase utility by improving the economy’s productivity. The integration of social capital into the individual’s utility function refers to Becker who pointed out, that there have already been some authors including much more arguments in the utility function than just consumption, e.g. social esteem or just getting on with someone else. So we can conceive a utility function having social capital as an additional entry. The utility drawn from social capital alters the individual’s investment decision. The accumulation of social capital is time consuming. The individual must meet someone else, they will talk, make new dates to maintain their social ties. This time cannot be used in production therefore causing opportunity costs. Consequently, the individual will invest in social capital as long as the marginal utility from the social capital is greater than the utility from consumption co-determined by the individual’s income from work.

Social capital may also have indirect effects on productivity. The individual can employ its social capital (i.e. the sum of its social ties) to carry out (economic) transactions. Moreover, every transaction that uses the social capital strengthens the social relations and by it adds to the social capital. Thus, referring to the options for carrying out economic exchanges social capital is a substitute for the market, the usual carrier for exchanges. The market can be con-

16 Coleman (1990), p. 304.
19 For a good survey listing at least nine different definitions see Haug, (1997).
ceived as an institution provide by the state or a private organization, that is open to everyone willing to pay the entry fee. The entry fees are mostly diminishingly low so that allocative efficiency gains easily outweigh these fees. Therefore, the individual must always decide, which transactions it will carry out by using the market and for which transactions it will use its social capital. Social capital will be employed the more the market proves to be insufficient to satisfy the individual’s exchange needs. These insufficiencies may have different reasons:

- **Institutional insufficiencies**: If markets are non-existent or their function is constrained by the state (e.g. by introducing price controls impeding the mechanism to accomplish allocative efficiency), social capital becomes more attractive for carrying out economic exchanges. In addition, the individuals have to decide, if they should invest in their social capital or if an investment for the improvement of the institutional framework would be more appropriate. The following example will illustrate this problem. Regard the centrally planned economies of former socialist countries. Since prices were administratively determined, the price mechanism warranting allocative efficiency was ill-working and rationing was a common phenomenon. Markets did not work sufficiently. To meet their needs people extended their social networks (i.e. they increased their social capital). If they needed something that proved unavailable on the market, they had the possibility to ask a relative or colleague who may have known someone (and so on) who was able to get the desired goods. Alternatively, they could have claimed institutional reforms to improve market performance, but the costs of these claims would have been prohibitively expensive (repression, detention, etc.). An observation for the five “Neue Bundesländer” (eastern new federal states, former GDR) confirms this strong accumulation of social capital during the existence of the socialist economy. After the tumbling of the wall a market economy was swiftly introduced in the New Länder depreciating the once accumulated social capital, because now a highly efficient market was available to carry out economic transactions. Easterners frequently lament about the lost warmth of the former GDR what may be a symptom of lost social ties implied by a decrease of social capital.20

- **Micro-transactions**: As already mentioned above using markets for transactions causes transaction costs and it crucially depends on these costs for using the market whether people will decide to carry out a market transaction. Mostly, there are high opportunity costs for carrying out these transactions by market (search costs, menu costs, etc.). An example common to everyone are software problems. Just conceive that you have a small format-
ting problem with your word processing program. What can you do? Either you choose a
market solution, i.e. you buy information offered in the market that may be appropriate to
solve your problem (e.g. buy a book, call the Microsoft hotline, etc.), or you may contact a
colleague next door to you, if he knows a solution to your problem. In many cases this
will be enough and it will save money and time if you use the social network around you.

Acquiring advanced knowledge: Search costs for exchange partners or very specific goods
may similarly impede market exchanges. I suppose that this will mainly occur for the
good “information” and in particular advanced information in research and development.
Consider a researcher working on a very special problem, when he suddenly needs some
information or offers some information. Due to the very specific nature of his problem
there are only a few other researchers (potential market participants) that may be helpful
to him. Consequently, the market for this information would be very small. The informa-
tion other researchers will provide or the information our researcher offers is so specific
that it will be difficult to gauge the market value of this information. Therefore, it is very
likely that the researcher will not use the market for his information exchange but the so-
cial network at his disposal. This network usually includes a number of people who will
help to carry out this exchange and thus using the social capital will yield a swift and less
costly solution to this problem. This researcher network has other characteristics that are
not marketable. They know each other very well and thus are confident with each other’s
ways of thinking and each other’s knowledge. This further facilitates the exchange of in-
formation. Since research and development is an important growth engine this kind of so-
cial capital may prove to be an essential part for the development of the economy.

These productivity and utility increasing benefits face some considerable detriments. Transac-
tions that are carried out by help of social networks possibly neglect potential exchange part-
ners who are outside the network. The individual must compare this potential loss with the
search costs it would have to incur, if it prolongs its searching activity.

Furthermore, social relations are more likely and more intensive within homogenous than
within heterogenous groups. Homogenous groups are characterized by common activities,
interests, etc. These groups may even be organized to promote and protect their joint interests.
This allows rent-seeking behavior and lobbying impeding the economy’s productivity. Lob-
bies are a part of an economy’s social capital that reveal to be productivity reducing.

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20 Of course the loss of social ties has many reasons. The structural frictions in the economy are another reason
for it.
Finally, economically inefficient herding behavior can be promoted by social networks. Networks can be used to transmit signals that are deemed to be true the more intensive and the more credible the social ties transmitting these signals are. If the individual receives a signal that it expects to be credible, it will resign from collecting further (costly) information and will act according to the transmitted information. Therefore, a fine-meshed network (i.e. high level of social capital) will prevent further investigative activities and collection of information and will promote herding behavior.

3.2.3 The accumulation of social capital

Social capital is accumulated by creating or intensifying the relations between individuals. Due to the bilateral character of any social relation social capital cannot be accumulated by a single individual itself. It needs another individual to accumulate social capital. If an individual invests its resources in creating or intensifying its social ties, it induces positive external effects for the interaction partner who benefits from the improved ties, too. Similar to the accumulation of human capital we can identify to different types of accumulation activities:

- Intended and autonomous accumulation: The decision to accumulate social capital is independent from any other productive activity and substitutes for activities in real productions. The individual compares the increased utility it may draw (directly or indirectly) from an additional unit of social capital with the utility foregone by not being active in production. Illustrating examples are joining a sports club, becoming a union member, seeking contact to someone who has similar interests or problems.

- Accumulation as a by-product: Social capital can also be accumulated as an unintended by-product of any economic activity. For example daily contacts during work intensify social relations and consequently increase social capital. Moreover, similar to human capital and in contrast to physical capital any use of social capital increases the stock of social capital.

3.2.4 Social capital and sustainability

The effects of social capital on sustainable development depends on its ability to transport effects between generations and how political or economical measures may influence this capital stock.

Social capital seems to be a rather inapt transmitter for intertemporal effects, what can be explained by the close connection of social capital with the individuals. Social capital can be destroyed by two ways: Either the individuals intentionally dissolve their social ties and by it
reduce the stock of social capital, or ties will vanish, if individuals die. When people decease, the social capital tied to them is irrevocably annihilated. Unfortunately, the ways to bequest social capital from generation to generation are rather limited. The only way to bequest social capital is to integrate the heir into the social network and thus reduplicating the individual’s ties. Therefore social capital must be re-created by every new born generation. Consequently, any impact on the stock of social capital triggered by some political or economical measure will disappear when the generation who was influenced by these measures has completely passed away and the new generation has accumulated a new (their) stock of social capital. This considerably reduces the intertemporal transmission of effects by social capital. Social capital rather resembles a renewable resource. A sustainable impact on the stock of social capital can only be accomplished by shocks, by political or economic measures that persistently alter the people’s environment and change their accumulation behavior for social capital, e.g. by reducing the incentives to accumulate social capital.

To sum up, sustainability effects on social capital accumulation involving more than one generation are unlikely, but not impossible. The impact of economic policy measures on social capital are indirect. For example assume that the government constrains the application of some polluting production methods. This will induce depreciation of social capital as workers will be released or will have to be re-educated altering their social environment and their social ties. But this (transitional) depreciation of social capital and the readjustment of their social relations is politically intended and will be compensated by the improvement of environmental quality. Social capital will be regenerated by creating new social relations that are adapted to the new institutional environment. Nevertheless, structural frictions may persistently decrease an individual’s social capital, if it is unable to re-create new social ties, but it is unlikely that this will happen on an economy-wide scale.

4. Bibliography

Blanchard, Olivier / Fischer, Stanley (1989): Lectures on macroeconomics, Cambridge (Ma.).

21 This contrasts with human capital that can partially stored externally, e.g. in books, instructions, or in machines. Nevertheless, there is even some idiosyncratic human capital that cannot be passed on.


