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Determining Social Capital by Social Accounting

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Abstract: Although social capital has been often debated in the last 20 years, there is a widely accepted **definition missing** and the approaches to measure its size are not very developed. Therefore, the definitions of social capital are stated and analysed, whether they are appropriately designed also for measurement purposes. We end up with a **division between capital** consisting of real capital as fixed and working capital and financial capital on the one hand and capitals, which are referring to human capital and social capital in a narrow sense on the other hand. The last two are named here as social capital. The stock of the first kind of capital can be expressed as net capital when the liabilities are deducted is booked to the final social balance as well as the remainder of the stock accounts. The stock of the second one can be identified as social assets reduced by social liabilities.

Non-commercial values of economic activities are gathered in **social accounting.** With social accounting exist several approaches, however most of them are not developed to such an extent that the social capital can be determined through an adequate ex-post analysis. A **welfare economic oriented approach** comprising a bookkeeping system helps to determine social capital. Based on the willingness to pay approach a commercial bookkeeping system and an additional **social bookkeeping** were designed where the respective "private" and additional social capital were verified. Both together show the total social capital related to an economic subject. The result is illustrated by such a social accounting for the **Faculty** of Economics and Business Administration of the University of Tartu for 2006. The author discusses the **limits and possibilities** of this kind of social capital determination.

Introduction

In many publications on development social capital is discussed as a development factor (OECD 2001). However, it is a rather **vague concept** (Bichmeier, 2002; Robinson, Schmidt, Siles 2002; Parts, 2009; Dill 2014) stemming from various sciences (Westlund, 2006; Parts, 2009), e.g. sociology, political science and economics, which implies extraordinary measurement problems (Franzen & Pointner 2007). Many measurement approaches are directed to measure social networks by network size indicators (Fukuyama, 1997; Parts, 2009), but they are not very useful for economic analysis, because of aggregation problems and missing economic evaluation (Dasgupta, 2002).
Therefore, the following **questions** are tackled:

- Which definitions of social capital make sense for economic analysis?
- How can they be measured?
- How to measure social capital in the framework of social accounting?
- Which bookkeeping system of social accounting leads us to measured social capital?

The first **section** of the article turns to the definitions and types of social capital. The second one deals with the difficulties of measurement. The third section tackles the possibilities of measurement by social accounting. A fourth section shows the measurement of social capital of a university faculty within a welfare oriented social accounting bookkeeping approach. A discussion of the possibilities and limits of this measurement approach brings our investigation to an end.

Methodology of the Research

The article is based on a literature review of definitions of social capital and attempts of its measurement. The literature on social accounting is examined in order to detect whether a welfare oriented social accounting approach exists, which allows a measurement of social capital to be developed. Recently, such a welfare oriented social accounting approach was developed that comprises an ex-post analysis, an appropriate accounting and bookkeeping system (Schmitz, 1980; Tsimopoulos, 1989; Friedrich 1991, 2010; Eerma & Friedrich, 2012; Eerma, 2014). This approach was developed by the author and his fellow researchers. An ex-post analysis was formulated, the charts of accounts were defined, and evaluation methods for social benefits and social goods were determined and bookkeeping procedures elaborated. The approach was applied to the Faculty of Management and Economics of the University of Tartu to identify social success of the faculty for 2006. The reader is introduced into this approach and the measurement techniques to determine social capital.

The limits of this kind of social accounting to determine social capital – in particular related to the welfare theoretical basis - are mentioned and discussed. The author indicates further developments of this social capital measurement approach.

Problems of applying this approach as a management tool, the ways how it could influence the management decisions in a university, CGE-impact models etc. are not tackled in the framework of this article.

Definitions of Social Capital

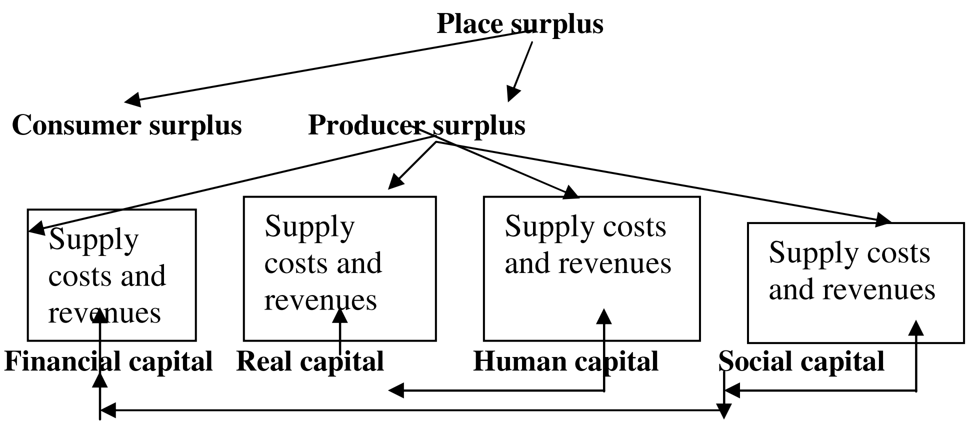
The definitions of social capital are manifold. Westlund (Westlund, 2006, p.8) defines social capital as **"social, non-formalized networks that are created, maintained and used by the networks' nodes/ actors to distribute norms, values, preferences and other social attributes, and characteristics, but which also emerge as a result of actors sharing some of these attributes".** Therefore, social capital constitutes of a network with links and nodes. It is like an **infrastructure** (Westlund, p.8). Information, goods, etc. (flows) are transmitted and the nodes can represent actors (Westlund, 2006; Grüb, 2007). In economic terms they may consist of economic units (households, private or public firms, public offices) or groups of economic units as the household sector, firms sector, state sector, etc. or groups defined according to other criteria. It also may refer to the whole economy. Alternatively it might be examined more generally through individuals in society, groups of them, organisations or the civic society or the society as a whole. One of the problems is that some authors concentrate on non-formalised networks. However, most important networks are formalised ones reflected in private and public law. On the one hand they are not totally open and accessible to everyone because one needs knowledge and education to cope with them, there are preconditions to use them and on the other hand they are path dependent and in steady development. At the very least the part of them in change should be included. There are **similar definitions** like culture concentrating on shared values and beliefs (Casson & Goodley, 2000; Kaasa, 2013; Kaasa & Parts 2010) or by North (1990) on institutions reflecting the rules of social cooperation and organisations the players, without emphasising networks. Other authors include both and call them institutional capital (Hardin, 1999; Krishna, 2000). However, these attempts to define social capital are even vaguer. A special approach not often mentioned in literature was developed by Walter Isard and his fellow researchers (Isard et al., 1969). They defined a good more generally as a social good and transmitted microeconomics to social and political phenomena showing supply and demand for social goods such as votes, values, information, etc. thus including social capital as well. In the literature different kinds of social capital are mentioned as well such as human capital, social capital of different economic units, internal social capital of economic units and external ones, which are in special sectors like the public sector, civic society, and different spheres like political, social, and physical sphere (Westlund, 2006, p.39; Kaasa & Parts, 2010; Kaasa, 2013). With respect to the **social sphere,** social capital is interpreted as access to network based resources, generalized trust, or norms and values (Franzen & Pointner, 2007). Social capital has also a **regional dimension** which is institutionally related to and reflected in industrial districts (Paniccia, 2002), cluster (Steiner, 1998; Porter, 200), regional information systems (Asheim & Gertler 2005), and triple helix (university-industry-government relations) (Etzkowitz, 2002). Social capital shows **many effects** on: the mentioned regions, civic society, markets, economic growth (Parts, 2009), groups, and single economic units, their establishment and development (Grüb, 2007; Tödtling

& Trippl 2012) on sectors, the public sector, shadow sector, resources like venture capital, environment, etc.

Social capital can appear in all parts of society such as civic society, governments, firms, households and it can be treated as a stock such as an investment. (Westlund, 2006, p.4).As mentioned above it causes many difficulties if it should be treated as a capital stock. Networks are difficult to measure and to add them up in total or in parts. There are inhomogeneous factors in links and nodes such as beliefs, values, etc. (Dasgupta, 2002) and there seem to be no prices to make the items to be aggregated comparable. **Aggregation** (Dasgupta, 2002) is mentioned as one of the main problems with social capital. Moreover, there are **vertical networks** between actors of higher and lower order such as EU, EU-member state, regional state, municipality, firm, or **horizontal networks** between actors of the same decision level (Westlund, 2006, pp 33), which greatly hamper aggregation of social capital. On the other hand social capital has some **features**, which allows speaking about **social capital.** It shows vintages, it has to be maintained (Prusak & Cohen 2001), and it enables positive or negative impacts (Grüb, 2007) on economic units and change of social capital (Riemer 2005) and rewards (Glaesner, et al., 2002). At least time has to be allocated to maintain or establish social capital. These **time expenses** (Friedrich, 1978) lead to utilities from social capital and its use and to disutility because of opportunity utility losses.

These expenses can be also expressed in monetary form. As basis can serve the **willingness to pay approach** used in welfare theory can serve as a basis to express the advantages and disadvantages of a measure considering surpluses, external effects, distortions, etc. This is applied to identify the **net-benefit** of a measure or project, according to the Kaldor-Hicks test. According to such an evaluation of the advantages and disadvantages the rewards from social capital can be identified. Therefore, social capital shows also features of capital in an economic sense. This approach is similar to that of Bolton (2002) who defined a **place surplus** comprising a **consumer surplus** and a **producer surplus** concentrating on a firm. Westlund (2006) highlighted the influence of social capital on producer surplus through supply costs and revenues shown in Figure 1. The social capital influences human capital and both the real capital and human capital and the financial capital as well in such a way that **supply costs and revenues change** and producer surplus varies. Behind this is also the idea that the willingness to pay is expressed in the surpluses that reflect a welfare change.

Figure 1: Place surplus according to Westlund (2006)



Source: Westlund (2007)

However, it is not clear whose willingness to pay is measured, e.g. consumers inside and outside the place, how externalities related to social capital are expressed in revenues and cost especially those who occur outside the firm etc. and how this place surplus is separated from other place surpluses Although the willingness to pay approach deals with **total welfare** in a national economy it is not shown how this place surplus is separated from those resulting from other firms or public offices the firm is cooperating with or linked in production. To differentiate between human capital and social capital is not easy. As far as human capital comprises the ability to know about and practice networks to gather information, to make decisions and communicate they are nearly not too separate. Moreover, one must exactly determine whether social capital welfare in the **sense of the welfare of inhabitants** of a country, region or municipality, of civic society of those jurisdictions should be identified. Social capital might also refer to the welfare of those economic units assigned to a sector such as public, private or a branch of industry, a group of firms, a group of households, to single firms, households, public offices, etc. Some times the authors distinguish between firm internal social capital, production-related social capital of the firm, environment-related social capital and market related social capital (Burt, 1992; Westlund, 2006). The place surplus concept tries to measure all of those.

The most serious problem is that there are various and different attempts of measurement of social capital. **Sociologists** try to measure the network-based social capital with a name generator (Fisher, 1977; Bidart & Charbonneau, 2011). This instrument tries to measure the contacts to other persons. A position generator (Lin & Dumin, 1986) measures the contacts to persons who possess an important professional position for the questioned person. A resource generator (Van der Gaag & Snijders 2004) should serve to determine from which people he knows a person might receive resources. There are attempts to identify access to a network, to which individuals and actors pose as the function of a broker (Burt, 1984) and to which sub-groups exist (Grüb, 2007). The density of networks is also measured (Schenk, 1984). The density shows a relation between actual contacts and possible contacts (Haug, 1997). Moreover, attempts exist to measure trust (Schumacher, 2006) in other persons (Halpern, 2005) and in institutions (Paxton, 1999) by interviews or questionings. Measurement of norms, values and reciprocity happen by investigating the behaviour of players in experimental games (Diekmann, 2004).These sociological measurement procedures are mostly designed to describe social capital partly with respect to individuals.

Economists try to describe social capital by cases such as describing clusters, regression analysis with respect to the effects of social capital, and some impact analysis (Westlund, 2007) and policy investigations. Further literature exists on the wealth originating form social capital (Scrivens & Smith, 2013, Siegler, 2014) and on how technical knowledge is influenced by social capital (Gu, et al., 2013) and how networks change through economic behaviour (Jacson, 2009). An ex-post analysis including a welfare-oriented evaluation is missing.

Social Accounting as Tool to Measure Social Capital

Although since the last 40 years (Eerma, 2014) there exist approaches to identify the contributions of single economic units to the success of society, the attempts to apply these instruments to measure and determine social capital are virtually non-existent. In particular, social capital as defined above has not been identified. There are social accountings for **evaluations of projects** using a welfare function, utility analysis or benefit-cost analysis implicitly considering the effects of social capital at present and in future (Eerma, Friedrich, 2010, 2012, 2012a). Such social accountings are performed in particular for identifications of social success in environmental accounting, health accounting and educational accounting. A comprehensive analysis of social capital is not involved. Social accountings concentrate especially on a statement of favourable and unfavourable social effects such as **social audits** (Schmitz, 1980). Some of them focus on special aspects of social life or factors of production such as **human resource accounting** in the sixties (Hermanson, 1964; Brummert, 1969; Flamholtz, 1971; Neubauer, 1974; Conrads, 1976). Other social accountings concentrate on contributions of a firm to social success such as **corporate social accounting** (Linowes, 1968; Abt, 1972; Monsen, 1972; Elliott-Jones, 1973, Eichhorn, 1974, Mühlenkamp, 2007). Some escape to a social indicator analysis, where the indicators signify social relevance and value (Dierkes, 1974; Mintrop, 1976; Fischer-Winkelmann, 1980; v. Wysocki, 1981; Schmitz, 1980; Friedrich, 1991; Schauer, 2007). Social capital is not explicitly detected. The **human resource accounting** directs the attention to human capital. However, social capital in the sense of networks is only evaluated indirectly, e.g. as special value of knowledge on social relations leading to higher human capital. Networks are considered in terms of social benefits transmitted to business partners and stakeholders, public jurisdictions, charity organisations, etc. However there is no identification of an item symbolising social capital. Mostly a welfare economic orientation is missing. Moreover, these approaches do **not provide an ex-post analysis and a bookkeeping system** necessary to identify the social success in a past period (Eerma, Friedrich 2010, 2012, 2012a; Eerma 2014). The link between social accounting and the determination of social capital does not exist.

Recently, have been some contributions which were not to identify social capital, but which enable to develop an **ex-post analysis and bookkeeping system,** thus providing a basis for a more comprehensive assessment of social impacts and values. This development started with Schmitz 1980, and developed through applications and extensions (Tsimopoulos 1989; Friedrich 1991; Friedrich, et al., 1993; Eerma & Friedrich 2010, 2012, 2012a; Eerma 2014) for public utilities, convention halls, university faculties, and other institutions like colleges and ecological banks. Moreover the bookkeeping system is welfare-oriented and a bookkeeping chart and bookkeeping and balancing rules have been developed. Therefore, we name it **economic welfare-oriented social accounting**

Therefore it should be discussed whether this bookkeeping assists to identify social capital. The basic features of this social accounting approach have to be mentioned to show how the social capital is going to be identified.

Social Capital Assessed by Economic Welfare Oriented Social Accounting

The economic welfare called net-benefit is measured on the basis of the following evaluation in terms of willingness to pay[1[1]] in favour or against the impacts of activities of an economic unit (Friedrich, 1991; Eerma & Friedrich 2010, 2012, 2012a; Eerma, 2014)

Net benefit = consumer surplus +turnover + value positive external effects –producer surplus as distortion on factor markets- costs – value of negative external effects

The willingness to pay can be rearranged to

Net benefit = turnover - costs
(Commercial accounting)
+consumer surplus + value positive external effects – producer surplus as distortion on factor markets – value of negative external effects
(Additional social accounting)

A **net-benefit** increase means payments "social benefits" in favour of a measure show the + sign, whereas the willingness against "social costs" payments are marked by a minus sign. If the difference net benefit is positive a measure results as welfare increasing.

This shows that the willingness to pay can be detected by **commercial accounting** and by a **supplementary social accounting.** By aggregating the two parts of accounting one gains the total willingness to pay.

Direct social benefits and costs are measured directly by market-related items such as consumer surplus, turnover and costs related to the economic unit operations. Some social benefits and social costs are measured **indirectly.** Income increases, money value of time savings, decrease of costs, e.g. of self instruction, less compensation from insurance companies, reductions in contributions of other institutions, or higher values of shadow prices, higher values based on hypothetical demand functions (Dasgupta *et al.*, 1972; Flores, 2003). Increases in property values and higher leases express higher ability to pay for external effects of economic unit operations because of improved services. Social costs incurred by the economic unit are determined by costs and input-oriented producer surpluses. Methods used to identify external social benefits serve to measure external social costs as well (Friedrich, 1991; Eerma & Friedrich 2010, 2012, 2012a; Eerma, 2014).

Social benefits existing in more than one period are **stocks** (social assets) and social costs existing in more than one period are stocks in the form of social liabilities. Those occurring in the period under consideration are **current social benefits** and current social costs (Friedrich, 1991; Eerma & Friedrich 2010, 2012, 2012a; Eerma, 2014). An **adaptation of the chart of commercial accounts** (revenues and

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1[1] See the debate on willingness to pay evaluations in the debates on welfare theory (Graaff, 1963; Sen, 1982; Samuelson, 1983; Flores, 2003; Adler, Posner 2006).

expenses) serves for the commercial accounting to identify profit and stocks assets, liabilities - serves - and to gather social benefits and social costs reflected there.

Table 1: Accounting Groups

Group	Classification
Assets	0: material social assets, human social assets
	1: social cash
	2: social claims
Liabilities	3: social equity, adjustments
	4: social liabilities and social net benefit
Social benefits	5: social benefits
Social costs	6: social material and staff costs
Technical accounts	7: opening social balance, final social balance, social success operating statement
	8: deferral stocks
	9: deferral successes

Source: Eerma & Friedrich (2010, 2012, 2012a)

. For the **additional social accounts a chart** has to show the current social benefits and current social costs and social benefits as stocks (social assets) and social costs as stocks (social liabilities). They are shown in Table 1. The additional social accounting also applies to double entry bookkeeping. Therefore there is a social cash account that assembles al the counter entries. Special deferral accounts are necessary to **defer** the social benefits and social costs that are caused by other economic units involved in transactions that mean the part of willingness to pay which is not due to the economic unit under investigation. In the chart appear social assets, social liabilities, current social benefits and current social costs. Moreover, there are **technical accounts** comprising opening balances, final social balance, final total social balance, the social success operating statement, and the deferral accounts for stocks and current social benefits and current social costs. The individual accounts show equations showing the remainder of an account or variable value at the end of a period, which is equal to the initial stock plus increases minus decreases (for details see Eerma, 2014). All individual accounts reflect a whole set of equations that are the basis for the ex-post analysis of the economic unit.

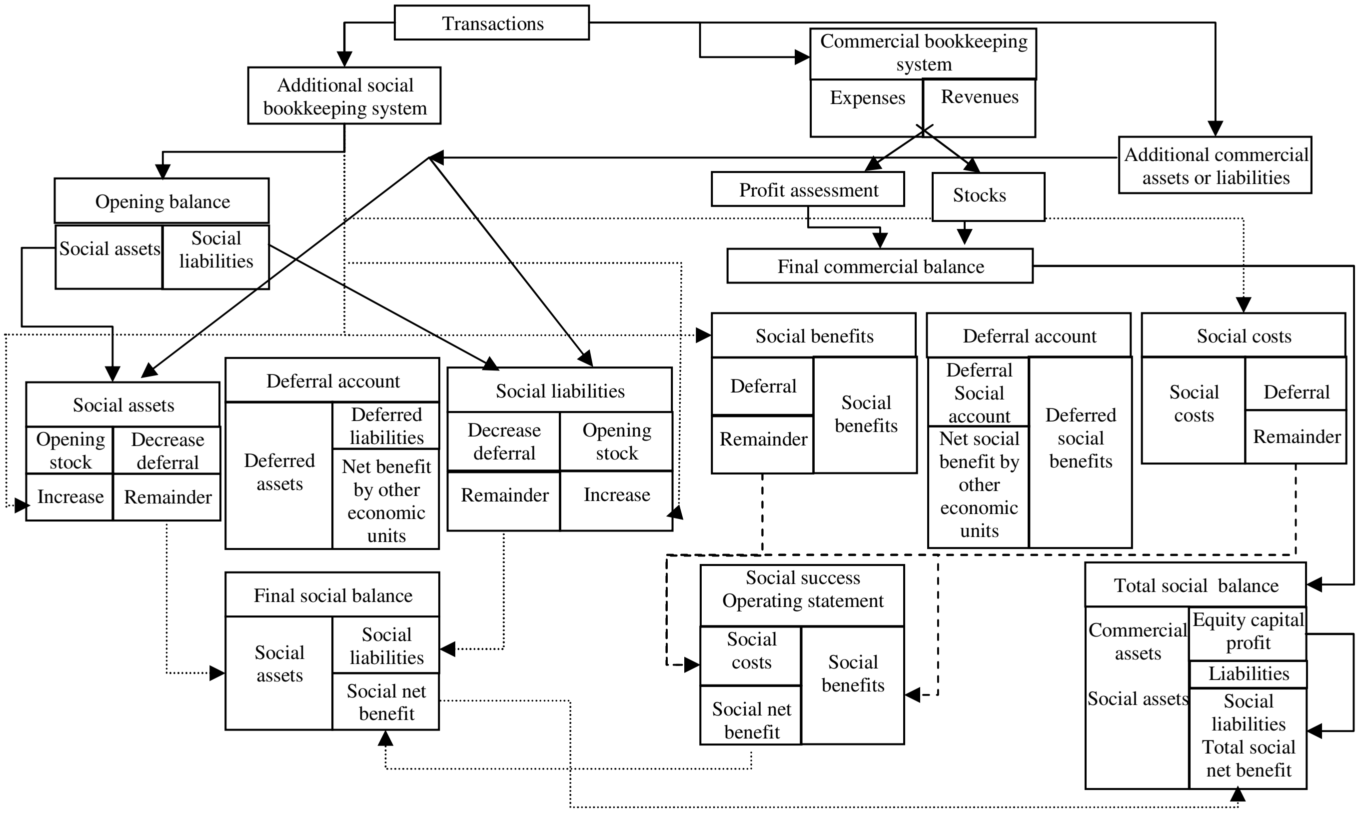
The stock accounts (respective equations are defined) according to types of long-lasting benefits (e.g. social assets). The current social benefits and current social costs are defined according to the operations of the economic unit.

Figure 2 shows the additional social bookkeeping and partly the commercial bookkeeping. In both parts an **opening balance** starts with the final stocks of the past period. With respect to the commercial part the revenues and expenses are entered in stock and current accounts. The remainder of the current accounts end up in the **profit assessment** account the resulting profit is transferred to the **final commercial balance.** There end up also the remainder of the stock accounts. In the additional social part some commercial stocks which are not considered in commercial accounting might be added. Then the **transactions** with respect to **stocks** are entered as well and **deferrals** take place. The entry of the transactions implying current benefits and current accounts follow. Deferrals are made. The remainders of the current social benefits and current social costs become collected within the **social success operating statement** and the current social net benefit determined. The latter is entered to the final social balance as well as the remainder of the stock accounts.

In a last step the **final social balance** and the commercial balance are aggregated to a **total social balance.** There we find the commercial assets and the social assets as well as equity capital, commercial liabilities, social liabilities, net social capital and current social success.

Therefore, this e**conomic welfare oriented social accounting** provides us with information about social capital. At first we receive information about the social capital related to the economic unit we are considering. When investigating the commercial part of the bookkeeping approach then we receive

Figure 2: Economic Welfare Oriented Social Accounting



Source: Eerma Friedrich (2012a)

the private capital in the form of a net private capital. The real capital (fixed and working) and the financial capital are shown in the commercial balance. We also learn the **net private capital**, which is the former one reduced by the liabilities ending up as equity capital, reserves and profit – the profit would then be used for investments.

Social capital of the economic unit can be detected similarly. It results from the additional willingness to pay, which is not demonstrated in commercial bookkeeping. Therefore, it is related to all additional social entries of transactions connected to rents and the indirect evaluation methods. They include on the one hand **internal social capital** and the willingness to pay for it and partly the **external social capital**. However, an explicit division between human capital and other forms of social capital is not made. Here, the distinguishing mark is the kind of evaluation method to determine the willingness to pay. In practice human capital and other sorts of social capital are also difficult to separate. Knowledge about and integration into a network can on the one hand reflect human capital but at the same time a network oriented social capital. Therefore, it seems wise to differentiate on one hand between the capital forms that are private ones just stated before and on the other hand social capital as the rest category that comprises the other forms as mentioned in chapter II. The economic welfare oriented approach allows detecting social capital of the economic unit. **Net social capital** results as the difference between social assets and social liabilities leading to the remainder of the social cash account representing net social capital plus the current social net-benefit. The willingness to pay approach is used to aggregate the different forms of social capital. These different forms of social capital vary from type to type of economic units according to the willingness to pay identification method applied.

Economic welfare oriented social accounting also enables to gather information about the social capital through the deferral accounts, which is due to the other economic units in an economy and also split into a stock component and a current component. However, it reflects social capital of total society, civic society, and of other sectors of economic units and the rest of the sector to which economic unit belong. The approach allows determining absolute levels but also changes of social capital. Through depreciation and acceleration and value adjustments it shows vintages of social capital. This approach also assists in **specifying social capital** by deciding on accounting needs to determine the period of ex-post analysis and by fixing the group of citizens whose welfare and social capital should be detected. Social capital also depends on the generations to consider, the region the analysis is concentrating on, the transactions and extension of networks considered, and the effects included. Social capital differs according to the evaluation methods of willingness to pay applied and to which kind of social capital is paid attention to. Moreover, the handling of alternative situations (with and without principle with respect to the economic unit), and the delineation of the economic unit (Eerma & Friedrich, 2012a) influences the size of social capital.

Social Capital of a University Faculty – The Example of the Faculty of Economics and Business Administration of the University of Tartu

Economic welfare oriented social accounting was applied to the Faculty of Economics and Business Administration of the University of Tartu (Eerma & Friedrich, 2010, 2012, 2012a), and the Faculty of Mathematics and Computer Science of the University of Tartu (Eerma, 2014). This social accounting was also performed in the European Colleges at Tartu, and the colleges at Pärnu /Estonia and Narva/Estonia related to the University of Tartu (Eerma & Friedrich, 2014). The approach described above was developed. From the year 2009 onwards the verification of the bookkeeping approach took place. The year 2006 was chosen for the empiric application for all faculties and colleges. One the one hand, that year was relatively stable with respect to the departments considered and on the other hand to gather objective data the information was not biased by ongoing managerial conflicts.

The competences, tasks, activities in teaching, research, consulting, etc. and their embeddings in networks within the university and with economic units outside the faculties and colleges were detected to delineate the basis to group the long-lasting social benefits and costs and to elaborate the current social benefit and current social cost account for the additional social accounting. The University of Tartu possesses a commercial bookkeeping system which is partly disaggregated to the faculty level and partly aggregated solely to the university level. Therefore, the commercial accounting has to be disaggregated – especially some stocks - and adapted to the faculties. A respective chart of accounts was assigned[2[2]]. Thereafter, revenues, expenses, stocks, etc. were entered. The profits and losses were determined as remainder in the profit assessment account and a final commercial balance was provided (see also Figure 2 and Table 2). Here, we can learn about the "social capital"reflected as net assets (see Table 2).

The additional social accounting had to be developed totally from the scratch. The definition of social stocks leads to the stock accounts, which are listed in Table 2.The current social benefits and current social costs are shown in Table 3. The accounts follow the activities of the faculty. After entering the transactions and fixing the deferrals the values in table Table 3 derive. The additional social net-benefit appears as a remainder, which is transferred to the final social balance and from there to the total final balance (see Table.2). The stocks result, e.g. additional social assets and their value adjustments. Moreover, one finds the additional social liabilities and their adjustments too. The social capital in stock appears as a remainder of the social cash account.**42.387 EEK.** However, social liabilities **0.0730** EEK are to be deducted. The additional social net-benefit shows social capital **25.084 EEK** due to the activities of the faculty during 2006. It is an increase in social capital.

Table 2. **Total social balance** (commercial and additional social balance), (in thousand EEK)

IIFT7401	**Total Social Balance**		
IFT711	**Commercial Balance**		
IFT711	Commercial Assets	IFT711	Commercial Liabilities
1.	Non-current 71.515	1.	Net assets, capital 72.714

[2[2]] For details see Eerma & Friedrich (2010, 2012, 2012a, 2014); Eerma (2014)

	assets				
2.	Financial assets	0	2.	Liabilities	3.023
3.	Current assets	3.222			
4.	Accrued income	1.0			

IIFT7301 **Additional Social Balance**

IIFT7301	Additional Social Assets	0	IIFT7301	Additional Social Liabilities	0
IIFA0101	Value of buildings	0	IIFL4001	Stock of previous net benefits	0
IIFA0111	Value of assets not entered	36.328	IIFL4011	Accidents	0
IIFA0201	Knowledge of baccalaureate	3.238	IIFL4021	Emissions, etc.	0.710
IIFA0211	Knowledge of master	1.093	IIFL4101	Future financial obligations	0
IIFA0222	Knowledge of doctor	0.544	IIFL4201	Closing down consultancy	0
IIFA0231	Knowledge Open University	6.615	IIFL4301	Loss of staff	0
IIFA0242	Knowledge vocational training	0.354	IIFL4401	Loss of res. by political act.	0.020
IIFA0251	Knowledge teaching staff	0.031	IIFL4501	Employment losses	0
IIFA0261	Knowledge of Scientists	0.030	IIFL4511	Reduced infrastructure	0
IIFA0301	Lasting research results	11.400	IIFL1001	**Soc. cash (add. Soc. capital)**	**42.387**
IIFA0312	Incr. intern. cooperation: capacity	0.603	IIFV3101-3612	<u>Value adjustment</u>:	10.170
IIFA0321	Incr. research capacities: staff	1.426			
IIFA0331	Incr. research capacity: equipment	0.160			
IIFA0341	Incr. research capacities: buildings	0			
IIFA0351	Incr. research capacities: library	0.094			
IIFA0361	Contribution to research centres	0			
IIFA0401	Capacity to consult firms	1.060			
IIFA0411	Capacity to consult government	0.901			
IIFA0421	European funds	0.060			
IIFA0501	Dev. Estonian language	1.915			
IIFA0511	Increased Employment	2.724			
IIFA0521	Increased infrastructure	3.500			
IIFA0601	Changes of profits of other firms	1.554			
IIFA0612	Increase of tax receipts	4.594			
IIFW3001-	<u>Value</u>	0.147			

3511	adjustment:		
		IIFB4871	**Additional net benefit 25.084**
	154.108		154.108

Source: Eerma & Friedrich (2012)

Table 3. Additional operating social success statement of the faculty (in thousand EEK)[3[3]]

IIFT7201	**Social Costs from**			**Social Benefits from**	
Teaching (1)					
sC6101	Baccalaureate studies	1.822	B5101	Baccalaureate studies	4.858
sC6111	Master studies	0.018	B5111	Master studies	2.418
sC6122	Doctoral studies	0.183	B5122	Doctoral studies	5.547
sC6132	Promotion of skills	0.324	B5132	Vocational training	0.513
sC6141	Open University	0.928	B5141	Open University	11.775
sC6152	Publ. teaching materials	0.048	B5152	Publ. teaching materials	0.924
Research (2)					
sC6202	Publ. research results	0.004	B5202	Publ. research results	0.008
sC6212	Rising funds	0.298	B5212	Rising funds	0.658
sC6222	Writing proposals	0.365	B5222	Writing proposals	0.609
sC6231	Writing, articles, books	0.496	B5231	Writing articles, books	1.548
sC6242	Organising conferences	0.139	B5242	Organising conferences	0.148
Consulting (3)					
sC6301	To firms	0.636	B5301	To firms	1.060
sC6311	To public institutions	0.541	B5311	To public institutions	1.351
sC6321	To parliament	0.030	B5321	To parliament	0.360
sC6331	To EU	0.019	B5331	To EU	0.060
sC5341	To scientific bodies	0.023	B5341	To scientific bodies	0.046
Management activities (4)					
sC6401	Monitoring	0.015	B5401	Monitoring, control	0.231
sC6411	Financial management	0.015	B5411	Financial management	0.219
sC6421	Staff management	0.024	B5421	Staff management	0.285
sC6431	Faculty decision making	0.043	B5431	Faculty decision making	0.642
sC6441	Management of labs	0.003	B5441	Management of labs	0.041
sC6452	Contacts to other faculties	0.002	B5452	Contacts other faculties	0.027
sC6461	Support of Colleges	0.076	B5461	Support of Colleges	0
sC6471	Representation	0.012	B5471	Representation	0.024
Other faculty activities (5)					
sC6501	Contact to schools	0.002	B5501	Contact to schools	0.003
sC6512	Attraction of visitors	0.154	B5512	Attraction of visitors	0.456
sC6522	Public relations	0.001	B5522	Public Relations	0.840
sC6532	Advertisement	0.004	B5532	Advertisement	0.108
sC5542	Fiscal social costs	0	B5542	Fiscal social benefits	6.773
sC6552	Other social costs	0.200	B5552	Other social benefits	0
sC6701	Depreciation	10.170	B5801	Appreciation	0.147
B4871	**Add. social net benefit**	**25.084**			
		41.679			**41.679**

Source: Eerma & Friedrich (2012)

The social capital due to the involvement of other economic units can be learned from the deferral to the assets of additional social benefits amount to 2.875 thousand EEK. The difference between the referred current social net benefit due to the referred current social benefits and the referred current social costs amounts to 10.870 thousand EEK.

3[3] The values in the tables are determined by methods stated mentioned in the 4th section according to appropriateness and availability of data. The numbers in the first and fourth column show codes of the accounts in the chart.

Chances and Limits to Detect Social Capital by the Economic Welfare Oriented Social Accounting

The **Economic Welfare Oriented Social Accounting** offers many chances to detect social capital. It combines and shows many aspects of social capital discussed in literature on social capital such as a stock, vintages, and maintenance activities. It comprises all specifications of social capital like networks, trust, values, norms, at least if there exists a **willingness to pay** for it. Therefore, it can be also aggregated. There is as well the possibility to identify the firm related social or the rest of it, which is linked to the firm's activities.

How far the social capital gets measured depends much on the **evaluation methods** concerning willingness to pay, which are applied to stocks and activities evaluation. Different methods may lead to different volumes of social capital. Here restrictions concerning data and methodological problems arise. This is especially relevant with respect to the indirect evaluation methods (Eerma 2014). One of the advantages concerns the comparability of the evaluations through willingness to pay.

Moreover, there is assumed that the demand curve shows the willingness to pay of the buyers. This is no problem if a final consumption good is offered, e.g. a study programme to students. With an intermediate product the analysis also assumes that the demanders firms and public offices are expressing their willingness to pay in the **demand curve**, in which also the willingness to pay of their customers is reflected. Therefore, no deferrals, etc. have to be made. However this problem has to be discussed more in detail[4[4]]. If this assumption holds no social capital has to be considered in the framework of the commercial accounting.

The **non commercial social capital** not caused by the economic unit considered is expressed in the additional social accounting. The economic welfare oriented social accounting is especially applicable to measure the **economic unit referred social capital.**

However, some **limitations** are related to this tool to identify social capital. As the bookkeeping system uses welfare theory based evaluations it is related to the individualistic welfare theory (Graaff, 1963; Sen, 1982; Samuelson, 1983; Mishan, 1987, Adler & Posner, 2006). The **role of social groups** (e.g. administrators, trade unions, entrepreneurial associations) in determining the content of social welfare is seldom emphasized. Therefore, the values identified by the willingness to pay approaches do not necessarily reflect the true evaluation in society. Moreover, the assumption of constant marginal utility of money that means, ignoring the fact that an Estonian croon (euro) may stem from a rich or poor household, points to a strong assumption. Further debates concern the so-called **compensation tests** discussed in literature on welfare theory. However, the stated difficulties are also with other approaches to measure performance.

If the bookkeeping approach suggested for one Faculty should also be applied to several faculties and the University itself, or if it should be applied to other economic units the chart has to be adapted. Then, the **conventions** of deferral get evidently much more specific and complicated. Also the chart of social accounts needs further elaboration, when isolated social net benefits of the group of clients, such as types of students or of research clients, should be assessed. Some social benefits and costs are to be excluded. More group specific conventions to deferral of social benefits and costs have to be developed. Additional corrections of social benefits and costs, which are booked in commercial bookkeeping, have to be made and considered in the additional social accounting. Total social net benefit and total social assets and liabilities can be assessed in principle.

And last, but not least some **efforts are necessary to complete** the economic welfare oriented social accounting. All the bookings in the commercial part of the social accounting have to be checked whether they reflect really willingness to pay. With respect to the additional social part more sophisticated criteria to split social benefit and costs and to allocate them to the institutions causing the social net-benefit should be available. Then the identification of social capital becomes more precise. Further research is needed to improve the identifications of effects, the determination of depreciation rates for knowledge of students, scientists, researchers, professors etc., the assessment of consumer

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[4[4]] It has to be investigated whether all consumer surplus changes, turnover changes and cost changes with all economic units involved in production have to be included, whether it is sufficient to turn to value added, which in a national accounting is based on commercial accounting, by deducting the value added of the institution looked at from all economic units involved.

surpluses for individual services, methods to evaluate stocks and the allocation of pre-services to linked economic units. Charts have to be developed for different kinds of economic units.

The approach can be redeveloped to **kinds of different social capital** identifying approach according to types of evaluations. It must be determined, which evaluation methods are linked to which social capital type. Then the bookings for which the respective evaluations are used can be summarized in special accounts, which then show the types of individual social capital involved. In this way a supplementary bookkeeping would be introduced.

Another approach to identify social capital would be a **bookkeeping system developed to measure different types of social capital**. Then the chart has to be shaped according to the different types of social capital. An ex-post analysis of an economic unit for social capital would be designed. The transactions have then to be booked on accounts of different social capital and deferrals have to be made and booked. The different social capitals will emerge concerning social stocks, social liabilities and the current social capital caused.

A very demanding project would be not to start with the measurement of the individual social capital at the level of an economic unit, but to try to fix the **total type of social capital in an economy or a region**. However as the development of national accounting has shown this needs the development of an individual social capital accounting first in order to assign an aggregated system of accounting5[5]. That would enable also a place related determination of total social capital for a region or a location. Special deferrals or restricted aggregations criteria become necessary.

Conclusions

The social capital is a vague concept comprising networks, norms, values and actions of actors concerning these features. In literature the characteristics of social capital are debated. Different types of social capital exist at different levels, e.g. individual level, group level, civic society level and total society level. How far it has features of capital in an economic sense is under debate. Some authors discuss a division consisting of real capital as fixed and working capital and financial capital on the one hand and capital, which are referring to human capital and social capital in a narrow sense on the other hand.

Many economists are convinced of its importance, because of its **effect**s on growth, innovation, management, types of markets, knowledge, etc. but the **measurement of social capital** as such is mostly done by sociologists. Attempts by economists are rather descriptive turning to practical cases, policy results or market developments or they turn to regression and other statistical analysis to identify the importance of social capital for some economic phenomena.However, measurement of social capital turns out unsatisfactory.

One possibility to measure social capital is yet not used. Social accounting serves to measure social impacts of economic activities. Several approaches of social accounting exist, however most of them are not developed to such an extent that the social capital can be determined through an adequate ex-post analysis. Most of them try to show the social and economic impacts of an economic unit in particular a firm on society. Only some special types of social capital of a firm can be identified. The usual social accounting have mostly no basis to aggregate different sorts of social capital or social capital at all. However, the **welfare economic oriented approach of social accounting** comprises monetary evaluations on basis of the willingness to pay approach applied in benefit-cost analysis and an ex-post analysis that allows a bookkeeping of the relevant transactions occurring during a past period.

The **definition of net benefit** allows splitting social benefits and social costs in those which are reflected as revenues and expenses in commercial accounting and additional social benefits and social costs, which can be considered an additional social accounting which constitutes a supplementary bookkeeping. The results of both show the net commercial assets as difference between assets and liabilities plus the profit on the one side and the social capital as difference between the additional

5[5]As an example serves the determination of the value added on the production account of national income accounting that results from aggregations of profit statements accounts from commercial bookkeeping.

social assets reduced by social liabilities and the current social net benefit on the other side. This allows identifying **social capita**l on the level of an economic unit.

The author demonstrates the basic features of the welfare economic oriented approach of social accounting of the Faculty of Economics and Business Administration for the University of Tartu in Estonia using data for 2006. How social capital of the faculty becomes expressed in the bookkeeping results has been explained. The **social capital of the faculty** turns out to be positive. It refers to networks, knowledge, values, norms and management actions. The part of social capital of the faculty that is not due to the faculty has been deferred. It refers to the additional social capital as remainder of the social cash account as a stock and the current social net benefit.

The welfare oriented approach of social accounting assists primarily to identify the **social capital related to one economic unit**. It also enables through the deferrals to estimate the part of social capital the economic unit is involved in that refers to activities of other economic units related to the economic unit under consideration. The approach does not inform about the **total existing social capital** in society, in a region or at a place. As the welfare economic oriented approach of social accounting was developed in order to detect social success, it is also not assigned to fix the amount of different types of social capital. Different social capitals are related to the different evaluation methods applied. Therefore, a next step of social capital identification, could lead to an extension of the approach by introducing a **social capital oriented supplementary accounting** where special remainders of accounts which are related to special types of social capital are transferred. An even more drastic extension would be when the total welfare oriented approach of social accounting is directed to entering the transaction within a chart of accounts which is defined according to different kinds of social capital. This, however, requires a totally new orientation of the whole approach.

A measurement of the total social capital in society or region cannot take place within the social accounting directed to one economic unit. On the basis of social welfare oriented accounting for one unit similar to national accounting a framework for **total social capital accounting** has to be developed in future.

Limits of the welfare oriented approach of social accountings are due of the individualistic welfare theoretical basis of the approach, the weakness of the so-called compensation tests, the question how far the willingness to pay expresses social priorities, etc. Moreover, the approach needs **further development** with respect to deferral rates and depreciation rates, etc. and in particular to evaluation methods and possibilities to apply them and impact analysis. With respect to social capital a detailed analysis concerning the kind of social capital which is going to be measured when applying those methods is necessary.

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