Public goods, sustainable development and business accountability

Macro-micro linkages

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Abstract

Purpose – The purpose of this paper is to present a linkage between performance measurement at the business level and the concept of public goods usage, and a linkage between the micro- and macro-economic aspects of sustainability.
Design/methodology/approach – Exhibiting the essentials of a public goods cost perspective in order to initiate discussion between statisticians, standard setters for business reporting and practitioners.
Findings – Showing what has been achieved in measuring the outcomes of sustainable development efforts and what still needs to be done in order to arrive at aggregate values for national and global commons.
Research limitations/implications – Linking performance measurement at the business level to public goods usage will depend on the co-operation of businesses and national statistics which test the feasibility of monetary indicators for both the micro- and the macro-levels.
Practical implications – For practitioners in both the statistics profession and management accounting who are concerned with measurement of socioeconomic and environmental phenomena, this attempt at integrating sustainable development indicators and the managerial control system of companies might provide a valuable proposition. It is also a useful contribution to the ongoing debate of the value and credibility of sustainability reporting.
Social implications – If businesses make no attempts to exhibit numerically how they contribute to preserving and expanding the societal commons, they will be confronted with ever-growing agitation from pressure groups and they might be bypassed in the discussion on the issue of sustainability parameters that those groups are advocating.
Originality/value – This is the first academic paper that demonstrates a reporting model which unites business accounts and national accounts.

Keywords Sustainable development, Corporate performance, Public goods, Externalities, Business accountability

Paper type Conceptual paper

The nexus between sustainable development and public goods comes out both from the intra- and intergenerational aspect of the Brundtland definition ("meeting the needs of the present without compromising the ability of future generations to meet their own needs"; United Nations World Commission on Environment and Development, 1987, p. 25). Thus, public goods usage must be restricted to consuming the "fruit" that is generated from natural and social capital while the capital itself must be maintained. This is in line with what firms practice with regard to the capital invested by a shareholder of financial institutions: they cannot consume their capital; they can only consume the income that is generated this capital. Capital maintenance is one objective of business management. But businesses also use natural and social capitals; hence, they must preserve and maintain them and, if necessary, increase and expand them. This is, at least in part, accounted for by paying taxes and excise, and by duties like those levied on emission. What is not accounted for, yet, is the magnitude of public goods usage. For this to happen, measurement and valuation are needed on national and international levels; however, there has been a long debate amongst economists on whether public goods can and should be expressed in monetary terms. Yet, monetary valuation is the language of business. In order to connect

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business performance to measuring the status or the progress of sustainable development, indicators are needed that link the macro-sphere to the business level.

Linking the macro-sphere of sustainable development to the business level is in the interest of both the private and the public sector: while the objective of national accounts is to serve for decision making by government authorities in the first place, businesses and individuals do also base their decisions on information gleaned from national accounts. Businesses are often reproached for using public goods for free. Therefore, they might want to be able to demonstrate that they earn a return on the capital invested in public goods they use; they might be interested in knowing the value of those goods and they would wish to show that the taxes they pay are at least on par with the "return" on what is invested in public goods.

The paper will briefly deal with the techniques that have been developed by statisticians to quantify the value of natural resources, like the contingency and the willingness to pay method for isolated cases and the presentation of aggregated values in national accounts. The application of those valuation methods to social resources is rather scarce. But social resources are the major basis for a society to perform well, and developing social/institutional resources is a major issue especially in the developing world and in a substantial number of regions of developed countries as well. Hence, measuring their value should be a concern to policy makers. From this perspective, the paper will reflect on the macro-micro linkage by exploring externality costing and the concept that business reporting must account for multiple capitals. Then, a comprehensive indicator will be presented for overall business performance that connects to the multiple capitals concept. The concluding part presents implications for policy as well as recommendations for statistical offices and business firms.

Accessing the public goods phenomenon from the economists' and the business perspectives

Connecting public goods to sustainable development is a relatively new approach to the issue of public goods. Historically, the access to the phenomenon originated in the legal debate over property: the accepted view among Western jurists was for a long time that the foundation of the concept of property in ancient times was the occupation of land by a single proprietor and his family (Ostrom and Hess, 2007). However, in 1861, the English Jurist H.S. Maine, drawing on his own extensive research, concluded that "it is more than likely that joint ownership, and not separate ownership, is the really archaic institution" (Maine 1861/1963, p. 252). Until today, the bearing of private property in comparison to common property remains a contested issue in modern legal scholarship as stated in the famous article by Hardin (1968) on "The tragedy of the commons". Along the same lines, economists view common-property institutions as having a longer history than private property (North *et al.*, 1983). But private property is considered by most economists to be an essential ingredient in economic development (see, e.g. Welch, 1983).

Another view on the phenomenon was initiated by P. Samuelson, who reproached conventional economists for neglecting the topic of public expenditure, instead concentrating on the theory of taxation only. He made an explicit distinction between ordinary private consumption goods which can be parceled out among different individuals and collective-consumption goods which all individuals enjoy in the sense that each individual's consumption of such a good leads to no subtraction from any other individual's consumption of that good (Samuelson, 1954). The characteristics, thus, of public goods are accessibility, non-excludability and jointness (or non-rivalry) in consumption. As observed, among others, by Buchanan (1968/1999), the definition is highly restrictive and, strictly speaking, no good or service fits the extreme definition. Buchanan suggested a model that would include goods embodying various degrees of "publicness" and he points out that "jointness" occurs both in consumption and in the production of a public good.

With the consumption issue, we get to the business perspective: parallel to the developments on the macro-economic level, companies have broadened their reporting from just accounting for economic performance to exhibiting information on corporate social responsibility (CSR) and sustainability performance, and various frameworks are being adopted for benchmarking the outcomes (Holliday, 2001; Kennedy, 2000). A consolidation of this is the Global Reporting Initiative (GRI) (see www. globalreporting.org). In preparation of the UN Resolution of September 27, 2015, on the Post-2015 Sustainable Development Goals (SDGs), the UN Global Compact (www.unglobalcompact.org), one of the driving forces to build the GRI, has established a close relation between the UN Global Compact and SDGs (Lawrence and Beamish, 2013). One notable attempt to go further in detail has been made in Italy (Istat (L'Istituto Nazionale di Statistica) – Corporate Responsibility Manager Network – CMN Italia, 2014) and there is more work under way as GRI is connecting to the UN Post-2015 SDGs (Global Reporting Initiative, 2014).

On another end, corporate accounting and governance have always been focused on the imperative to improve effectiveness, creativity, and innovation in organizations. Corporate management is being challenged on how the resources outside the firm should be included in not only measuring corporate performance, but how they can enhance corporate performance and competitive advantage. However, there are varied complications and obstacles to consider. First, if individual firms are engaged in these activities, and if competitors do not, do these firms suffer a competitive disadvantage? Second, and much more technical, existing approaches have to be enhanced and new ones have to be developed to measure the value of public goods. Finally, top executives will ask whether all this results in improved corporate performance and competitive advantage.

Many companies talk about public goods, about giving back to the community, about sustainability and CSR, and some companies have incorporated and implemented social responsible behavior into their business practices. This is reflected in the literature and how companies are doing business. Michael Porter and Mark Kramer (2006), for example, have documented numerous examples of the link between companies' strategies that promote socially responsible behavior and competitive advantage. John Mackey, the founder of Whole Foods, with his book: "Conscious Capitalism" (Mackey and Sisodia, 2004) and his vision and strategy for his corporation have led many corporations worldwide to adopting an increased focus on only responsibility toward their social and natural environment. We are finding that academia and practice have contributed to this way of thinking. Sisodia *et al.* (2014) in the recently published second edition of their book "Firms of Endearment (FoEs)" define these to be fueled by passion and purpose instead of cash, and who view society and their workers as the ultimate stakeholders: "humanistic companies" where the stakeholders (customers, employees, suppliers, business partners, society, and investors) develop an affectionate connection to their company and where the companies seek to maximize their value to society as a whole. Although some might ask how this passionate commitment translates into profits, results reported in Sisodia *et al.* (2014) are excellent: Table I shows FoEs compared to Good to Great companies (Jim Collins pivotal research; Collins, 2001) and S&P 500 over 15, 10, 5, and 3 years, respectively. In this, FoEs dramatically outperformed these companies over the last 10 and 15 years.

Cumulative performance	15 years (%)	10 years (%)	5 years (%)	3 years (%)
US FoEs	1,681.11	409.66	151.34	83.37
International FoEs	1,180.17	512.04	153.83	47.00
Good to great companies	262.91	175.80	158.45	221.81
S&P 500	117.64	107.03	60.87	57.00

Source: Sisodia *et al.* (2014, p. 114)

Table I.
FoE's financial performance (2014)

The performance measure used here is share value. But with share value, we are still limited to the capital invested in the firm. However, the perspective must be widened. The International Integrated Reporting Council (IIRC) is conceptually following this idea by defining that "financial capital, manufactured capital, intellectual capital, human capital, social and relationship capital, and natural capital represent the stores of value that are the basis of an organization's value creation" (International Integrated Reporting Committee, 2013). The next step would be to establish a nexus between corporate performance and the usage of each of these types of capital. This has not yet been taken up by the IIRC due to the lack of wide-ranging monetary data for any other than financial capital and manufactured capital. It takes wonder why the private sector has not called for a more comprehensive treatment of public goods in the national statistical bureaus. Even though there is significant statistical work around on how to join public goods issues with sustainable development, the valuation and measurement problems are not treated in a uniform way throughout all the institutions which deal with the topic. We will come back to the dilemma of public goods valuation in the next section.

The dilemma of public goods valuation

The effort of making more information on public goods available in national accounts is motivated by the fact that this subject now dominates policy agendas. One example is the report "Policies to Enhance Sustainable Development" of the OECD (2001a), where a framework is outlined for better integrating economic, environmental, and social objectives. The nexus between measurement and policy may be seen from what the OECD has elaborated on the two objectives of measuring frameworks, making a distinction between analytical frameworks and accounting frameworks: an analytical framework would be, e.g., the "Resource-outcome indicator approach" developed by OECD (OECD, 2001b). The approach requires measures of both how well we are preserving our assets (resource indicators) and how well we are satisfying current needs (outcome indicators). With regard to accounting frameworks, the basic foundation is the core System of National Accounts (SNA) (United Nations, International Monetary Fund, Commission of the European Communities – Eurostat, Organisation for Economic Co-operation and Development, World Bank 1993), which is meant to unify economic statistics worldwide. It is broadly accepted, credible, internally consistent, and has a long established theoretical structure that imposes a systematic discipline to the organization of statistics. An expansion of the SNA is the National Accounting Matrix including Environmental Accounts which describes the flows of material through the economy through an input-output matrix (Stauvermann and van der Veen, 2013).

The social resources perspective seems to be underserved in most frameworks. The contemporary use of the term "social capital" is most often attributed to Bourdieu (1983), Coleman (1988), and Putnam (1993). Putnam views it as a set of horizontal associations between people – social networks and associated norms that have an effect on the productivity of the community. This was taken up by a working group at the World Bank, which, however, remained with a purely qualitative concept, i.e. "the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions" (World Bank, 2013). A more encompassing view includes the social and political environment that enables norms to develop and shapes social structure (see, e.g. Grootaert, 1998). From a measurement view, this broader concept seems to be more receptive to monetary valuation because looking at government, the political regime, the rule of law, the court system, etc., offers input/output relations as well as cost and benefit perceptions. From there, new measurement instruments are being discussed, at least in UN, EU, and OECD policy documents (Murphy, 2012).

Public goods and externalities

In macro-economics, we find a long history of the externalities debate. The definition of externalities which is commonly used refers to "situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided" (OECD Directorate for Financial, Fiscal and Enterprise Affairs, 1993). This is directed toward one primary feature of externalities, i.e. that one entity's action (a production facility polluting the air) directly or indirectly changes the options available to other entities (the neighborhood of that facility) – or, as an example of a positive externality, the effects which may arise from the construction of a road on housing, commercial development, tourism, etc. Another feature is the issue of burdening the entity which exerts a negative effect (or providing benefits to an entity which exerts a positive effect), and a third feature is that property rights cannot be clearly assigned (which causes the main obstacle for properly burdening a cost or crediting a benefit).

The subject of externality valuation and externality pricing has been extensively researched e.g., through the EU-funded ExternE series (European Commission, 2005). There is, however, no globally acknowledged framework (Ricci, 2010). Most of the methodological approaches are versed toward "punishing" the businesses for damages they cause and thus "internalizing" the cost for specific, but isolated, externalities or toward valuing aggregate externalities and then allocating their proportionate cost to businesses (Shioji, 2001). What is calculated, in principle, is the monetary value of the effects generated by a definite externality, like, e.g., carbon emissions and if ever aggregate externalities are considered, like, e.g., alternative use of lands, the valuation is reduced to either costs and benefits of a given land use option, or to assessing thresholds for the carrying capacity of land in terms of absorption of specific negative impacts associated e.g., to the growing of specific crops, etc. The traditional calculation uses estimates of prices based on people's willingness to pay for a given environmental benefit or willingness to accept compensation for a given nuisance level ("stated preference methods", Carson, 2000). Still, there are attempts to outperform those techniques by new attempts which comprise Input-Output Accounting and Strategic Assessment (Ricci, 2010, Johnson and Bourguignon, 2006) and would thus be closer to the methods applied in the world of business. But the main stumbling block remains the dilemma of valuation. So what would a business-level approach look like?

The business accountant, when she or he knows the cost of an input item, will be able to capitalize and thus arrive at the capital value – provided he can apply an appropriate rate of interest. So why not transfer this to the cost of externalities and thus arrive at their value? In this context, Figge and Hahn (2004) draw from the notion that the average value created by any form of capital in a market can be seen as its opportunity cost. The opportunity cost of different forms of capital thus corresponds to the efficiency of the use of these different forms of capital on the level of a benchmark. When this benchmark is the economy of a country, this value corresponds to the net domestic product (NDP). The spread between the use of capital in the overall economy and its alternative use in a business "value spread" would be (Figge and Hahn, 2005):

$$VS = \frac{NVA}{C_i^C} - \frac{NDP}{C_i^E}$$

where NVA is the net value added achieved from the use of capital C_i in the business (C_i^C), and NDP, net domestic product, the net value added achieved from the – external – use of capital (C_i^E), in the overall economy. The micro-level return is the company's profit-rate; the macro-level return on investment (NDP:(C_i^E)) may be interpreted as the cost-rate of externalities. From there, the capital employed in an economy's ecological and social resources could be inferred. Encompassing the social perspective could be effected by measuring the value of a society's social institutional infrastructure. Other terms that also comprehend this wider interpretation of social capital are "social value", "social resources", "institutional (social) capital", and

"governmental social capital" (North, 1990). A catalogue which accounts for natural and social resources items was not developed, to our knowledge, on a supra-national level. There is one example on a national level, which is the Swiss "national commons product (NCP)", and whose structure is shown in Table II.

Businesses using public goods: adding public goods usage to economic value added (EVA)

The concept of "EVA" was created by J. Stern and G.B. Stewart (Stern *et al.*, 1995). EVA® is a registered trademark. EVA is based on the idea that shareholders gain when the return from the capital employed in a corporation is greater than the cost of that capital. From here one can easily find that all stakeholders gain when the value created by a corporation is greater than the cost of the capital employed within the corporation, and the capital employed in whichever commonly available resources outside the corporation and employed by its business. This would be equivalent to internalizing costs that have hitherto been viewed as "external," thus shifting the costs from society to the private sector which consumes public goods. Creating private value would consequently have to encompass creating public value.

Like plant and property, machinery and inventory and other economic resources which are disclosed in financial reporting, the assets available to a corporation that are not provided by the financial community but by the public at large would be taken into account as well. They would be categorized into "social resources" and "ecological resources". This extends the concept of EVA to sustainable value added (SVA):

$$SVA = Profit$$

minus cost of capital employed in economic resources (property, plant and equipment, intangible assets inventory, receivables, etc.),minus cost of capital employed in ecological resources,minus cost of capital employed in social resources.

Ecological resources would be access to water, to (clean) air, to minerals, feasibilities to discharge effluents into public waters and gas emissions into the air, etc. Social resources would be the availability of legal and of education systems, of a properly working labor market, of traffic infrastructure, of civil infrastructure in cities and other communities etc.

Weight	Class of goods	Metric/database
25% natural resources	40% renewable energies	Capacity in GW/year
	20% water	Capacity in m^3/year
	20% land, sea	sq km of usable land/inhabitant
	20% capacity of renewable energies (coal, etc.)	world market prices
32% social resources	20% security and peace	Ranking in Global Peace Index
	20% health	percentage of population having
	20% education	free access …
	10% information	–
	10% law and order	–
	5% public transport	Sqm/inhabitant (% of all land)
15% volunteering and unpaid community services	–	–
7% religion	–	–
7% happiness/life satisfaction	–	World Database of Happiness
7% families with children	–	–
7% span of life	–	Life expectancy

Source: Dill (2009)

Table II.
The Swiss national commons

The concept of social resources may appear to be widely intangible, especially when considering the denomination of the World Bank as stated above (see also Fukuyama, 2002). This denomination is certainly much narrower than what is meant here by "social resources", and one might say that it evades monetary measurement. Thus, attempts at assigning a monetary value to social resources must be intensified. One example is the Istat study that was mentioned above (Istat (L'Istituto Nazionale di Statistica) – Corporate Responsibility Manager Network – CMN Italia, 2014); one other is the UK Office for National Statistics Social Capital Project in Great Britain (OECD, UK Office for National Statistics, and ONS, 2002). This would help to furnish the discussion by bringing in numerical studies.

The expansion of EVA that is envisaged here would be equal to enlarge the cost of capital by the costs which are caused by that part of "Public Goods" which is available to a corporation. We need to find some exemplary corporations which will take the leadership in this direction and which see the business case as well as the moral case for it. The statistical base could derive from connecting to the type of "NCP" as presented above. In a first approximation, the objective might be achieved by the following equation:

$$SVA = EVA \; minus \; (WACC + EVA{:}NDP) \times (Revenue{:}NDP) \times NCP$$

where EVA, WACC (weighted average cost of capital), and revenue refer to a specific company headquartered in a given country, and NDP and NCP refer to that country's net domestic product and "national commons product". The term "EVA:NDP" would reflect the spread of this company's use of common resources over the macro-economic return and the term "Revenue:NDP" would reflect the company's share of NDP in its homeland.

From that first approximation, the index could be improved by:

(1) disaggregating NCP into its ecological and its social components;

(2) disaggregating the company's revenue into where it was produced (home and foreign locations); and

(3) incorporating the NCPs (if available) for the locations beyond the homeland of the company.

The implications of using the SVA indicator range from concerns regarding "double counts" and stimulating the wrong type of growth to practical issues of (dis-) aggregation and of connecting to the level of day-today decision making. First, adjustments in the accounting information would have to be made as to where the "use of (some) public goods" has already paid for. This would relate to taxes, excise, tolls, fees levied for discharging effluents, and other imposts. A similar practice is already being deployed in calculating EVA and in disclosures following GRI formats. Second, as the SVA metric would disclose that an enterprise does only create value for its constituency (which is all the stakeholders) if the outcome of its activities cover the cost of capital employed in economic, ecological, and social resources; it would stimulate sustainable development because it promotes enrichment of resources instead of depleting them.

It goes without saying that the concept only works with a comprehensive valuation of public goods and stock taking as laid out above. The initiatives of IIRC and GRI are pointing to this direction. If supported by major business associations, they could compel the world's statistical bureaus to re-address the public goods valuation issue, with the OECD Statistics Directorate and the United Nations Statistics Division taking the lead. The outcome would prove that societies are reaching a consensus on businesses being seen as the agents not just of their shareholders but of a wider group of stakeholders. This wider accountability implies that companies are aware of the magnitude of resources that are not reflected in their financials. If the journey goes toward integrating social, environmental, governance, and other relevant non-financial "business-impacting" factors into a comprehensive report, the

"cost of public goods capital" approach would become one milestone on this road. But we might go even further: if no attempt is made by businesses to internalize the cost of public goods and to disclose a parameter which exhibits the magnitude of how they contribute toward preserving and expanding the societal commons, they will be confronted with ever-growing agitation from pressure groups. Business representatives should be aware that they might be bypassed in the discussion on the issue of sustainability parameters that is taking place between those groups, standard setters, governments, and regulators.

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