

Sustainability economics – general versus specific, and conceptual versus practical
Baumgärtner, Stefan; Quaas, Martin F.

Publication date:
2010

Document Version
Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for pulished version (APA):
Baumgärtner, S., & Quaas, M. F. (2010). Sustainability economics – general versus specific, and conceptual versus practical. (Working Paper Series in Economics; No. 169). Institut für Volkswirtschaftslehre der Universität Lüneburg.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

**Sustainability economics –
general versus specific, and conceptual versus practical**

by
Stefan Baumgärtner and Martin Quaas

University of Lüneburg
Working Paper Series in Economics

No. 169

May 2010

www.leuphana.de/institute/ivwl/publikationen/working-papers.html

ISSN 1860 - 5508

Sustainability economics – general versus specific, and conceptual versus practical

STEFAN BAUMGÄRTNER¹ and MARTIN QUAAS²

¹Department of Sustainability Sciences and Department of Economics, Leuphana University
of Lüneburg, Germany

²Department of Economics, University of Kiel, Germany

6 May 2010

Abstract. We clarify the definition and interpretation of “sustainability economics” (Baumgärtner and Quaas 2010) in response to recent comments by van den Bergh (2010), Bartelmus (2010) and others. For that sake, we distinguish between general and specific definitions of sustainability and sustainability economics, as well as between conceptual and practical approaches.

Keywords: economic and environmental accounting, efficiency, externality, joint production, justice, stocks, sustainability economics

JEL-Classification: Q0, D63, B0

Correspondence:

Stefan Baumgärtner, Sustainability Economics Group, Leuphana University of Lüneburg,
P.O. Box 2440, D-21314 Lüneburg, Germany. Phone: +49.4131.677-2600, fax:
+49.4131.677-1381, email: baumgaertner@uni.leuphana.de, <http://www.leuphana.de/seg>.

1. Introduction

“Sustainability” is a multi-faceted and contested notion, with different people holding different definitions and interpretations of it (Dobson 1996). The same goes for “economics” (Hausman 2007). No wonder then that any attempt at defining “sustainability economics”, as we have done it (Baumgärtner and Quaas 2010, “B&Q”), can be disputed. We welcome an open, constructive and pluralistic discussion of “What is sustainability economics?” as, indeed, much about the notion of “sustainability economics” as well as the research field denoted that way still has to be clarified. Therefore, we are happy to discuss and clarify some of the issues that have been raised by van den Bergh (2010, “vdB”), Bartelmus (2010) and others¹.

Much of the critique of our proposed definition of “sustainability economics” (Baumgärtner and Quaas 2010) seems to root in that we have not given one or the other *specific* definition of sustainability economics, but rather a *general* definition that encompasses and structures quite a lot of different specific understandings of sustainability economics, including those held by the pioneers of the field (e.g. Boulding 1966, Ayres and Knees 1969, Georgescu-Roegen 1971, Daly 1968, 1973, 1977, Costanza 1991, among others) and some prominent current proponents of sustainability economics (e.g. Ayres et al. 2001, Söderbaum 2007, 2008, Ayres 2008; for surveys see Pezzey and Toman 2002, van den Bergh 2007). In Section 2, we are going to show how our general definition of sustainability economics relates to more specific definitions that are based on notions of weak or strong sustainability.

What’s the use of defining sustainability economics in a general manner? We feel that the literature that has been accumulated in that field is quite heterogeneous and to a large extent unrelated, the field gets definitely fuzzy at the edges, and it lacks structure that could serve as a solid basis for further and systematic advances. In this situation, it helps to take a fresh look at what seemed to be familiar for too long already, and to identify unifying characteristics, intellectual structure, and perspectives. It is in this spirit that we have suggested a general and concise definition of sustainability economics. It re-establishes focus on the original, and still relevant, motivation to study and manage sustainability from an economic perspective. This new and encompassing perspective on the field also generates new core questions and insights beyond the ones already asked. For example, one very important class of questions that newly comes into the focus of sustainability economics is that of potential trade-offs and conflicts between the different normative goals of sustainability (*sensu* equity) and (economic) efficiency.

As we have put forward a general definition of sustainability economics which starts from the overall normative goals that a society should pursue, one critique is that such an approach is not as useful as starting on practical grounds, in particular from national economic and environmental accounting (Bartelmus 2010). In Section 3, we are going to argue that such a practical approach is not an alternative to, but rather presupposes and requires, a general and normatively founded definition of sustainability economics.

In Section 4, we deal in detail with the core argument of van den Bergh (2010), namely the role of externalities for sustainability economics. We briefly review the extensive literature that provides various definitions of “externality”, some being purely descriptive, some including a substantial normative content. We propose to use the purely descriptive and more

¹ Some have approached us directly and informally with their reactions to our article, e.g. Peter Söderbaum (Mälardalen University) and Udo E. Simonis (Social Science Research Center Berlin).

general concepts of *joint production* and *stocks*, rather than externalities, to complement the normative concepts of justice and efficiency that we use to define sustainability economics.

2. Sustainability economics – general versus specific

In defining sustainability economics in a general manner (B&Q), we have started from the normative foundations of both “sustainability” and “economics”. Briefly put,

1. sustainability aims at *justice* in the domain of human-nature relationships and in view of the long-term and inherently uncertain future, including (i) justice between humans of different generations (“intergenerational” justice), (ii) justice between different humans of the same generation, in particular the present generation (“intragenerational” justice), and (iii) justice between humans and nature;
2. economics is aimed at an ever better *satisfaction of human needs and wants*, with a focus on *efficiency*, that is non-wastefulness, in the use of scarce resources to achieve this goal.

So, sustainability economics is defined as aiming towards both justice and efficiency with respect to human-nature relationships over the long-term and inherently uncertain future. Thus, our understanding of sustainability as an issue of justice (or: equity), which is separate from the genuinely economic issue of efficiency, is in line with important contributions from both neoclassical and ecological economics (e.g. Solow 1974, Dasgupta and Heal 1979, Howarth and Norgaard 1990, Pearce and Duborg 1996, Woodward and Bishop 1995, Pezzey 1997).²

This is a general definition of sustainability economics, as we refer to the ideas of “justice” and “efficiency” in general. Both of these ideas need to be specified to obtain specific notions of sustainability and sustainability economics. If, for example, one specifies “justice” as purely anthropocentric and utilitarian in the sense of “non-declining utility over time”, and if natural goods and services can to a sufficient degree be substituted by human-made goods and services, then one arrives at what has been called “weak sustainability”. If, in contrast, one understands “justice” as going beyond purely anthropocentric concerns and including intrinsic rights of nature, or, alternatively, if one understands “justice” as anthropocentric and utilitarian but natural goods and services cannot to a sufficient degree be substituted by human-made goods and services, then one arrives at what has been called “strong sustainability”.³ Both of these notions are specific notions of sustainability that emerge from specific ideas of justice and specific assumptions about human-nature interactions, and, hence, are special cases of our more general definition.

3. Sustainability economics – conceptual versus practical

Bartelmus (2010) suggests that environmentally modified national economic accounts or indicators offer a practical conception of sustainability that can do without, and is therefore superior to, basing a sustainability concept on “non-measurable welfare or happiness”. The

² Others, in contrast, understand sustainability right away as encompassing both intergenerational justice *and* dynamic efficiency (e.g. Stavins et al. 2003). Daly (1992) also distinguishes between the normative goals of allocative efficiency and distributive justice, but understands “sustainable scale” as yet another and independent normative goal.

³ Still other vindications of weak and strong sustainability exist (e.g. Neumeyer 2003).

latter is what he criticizes B&Q and vdB for. In support of this suggestion, Bartelmus claims that “[a] great deal of nature’s assets and asset services can be costed in integrated environmental and economic accounts ... without resorting to utility and welfare estimates“, by using monetary valuation.

However, theory shows that any monetary valuation essentially relies on the distribution of incomes and wealth, both within our current generation as well as between generations (e.g. Weitzman 1976, Mas-Colell et al. 1995: Chap. 17, Freeman 2003: Chaps 2, 3). The reason is that the whole price system, including the interest rates, used for monetary valuation and aggregation in national accounts depends on the distribution of incomes and wealth.⁴ This is true both for actual market prices or people’s willingness to pay for non-market goods and services, as well as for shadow prices⁵ that indicate the “true” economic scarcities, that is, the scarcities of resources with respect to the overall societal goal that is being pursued. “Greening the accounts” or developing sustainability indicators that rely on aggregation in value terms therefore presupposes and requires knowledge of the overall societal goal, in particular the distribution of incomes and wealth that is considered to be just. It cannot replace such a normative conception of sustainability.

The current practice of national (and sustainability) accounting of taking current market prices, which are distorted in many ways and which derive from the status-quo distribution of incomes and wealth, to value environmental services and components of natural capital conceptually thus essentially presupposes that the status-quo distribution of incomes and wealth is already close to society’s objectives, i.e. it can be considered equitable within and across generations.⁶ As this cannot be taken for granted, the current green-accounting practice falls short of what it aims to achieve – namely to produce meaningful indicators of sustainable economic development..

Putting more effort into the development of meaningful sustainability accounting and indicators is nevertheless fruitful and may indeed constitute practical progress towards measuring and indicating sustainable economic development. However, it presupposes and requires a conceptual clarification of what constitutes, in terms of individual well-being, the overall societal goal of sustainable economic development. It is this latter point that, therefore, deserves to be at the center of attention in any attempt to define sustainability economics.

4. Externalities, joint production, stocks, and sustainability

At the core of van den Bergh’s (2010) discussion is the role of externalities for sustainability. Indeed, vdB simply seems to identify sustainability with absence of, or perfect internalization of, externalities: “[u]nsustainability means that the future is affected by current decisions, so that there are unavoidably dynamic or intertemporal externalities involved. In fact, without such externalities the problem of unsustainability vanishes.”

In order to clarify this point, we should first of all distinguish between normative and descriptive concepts: normative concepts specify an idea of how the world *ought* to be; descriptive concepts specify how the world actually *is* or could be. Allocative efficiency,

⁴ This basic argument may be illustrated using a simple Edgeworth-box.

⁵ Shadow prices can be obtained, for example, from linear programming based on ecological-economic input-output models – an approach suggested by Bartelmus (2010).

⁶ If it is not, even a comprehensive measure of national accounts may be a misleading indicator of sustainability (Asheim 1994).

distributive justice, and sustainability (both in our as well as in vdB's understanding of the term) are all normative concepts. Externality, in contrast, is mostly used as a descriptive concept, describing a particular cause-effect-relationship.

Furthermore, in order to assess the potential impacts of present human actions on other humans or non-human nature, both present or future, we should also clearly distinguish between the different normative goals that a society may pursue. In particular, in our notion of sustainability economics we distinguish between the two goals of allocative efficiency (in the sense of overall non-wastefulness of scarce resources) and justice (in the sense of a morally right order of people and things within a community of justice). As already stated above (Section 2), both of these goals need further specification to be operational, but even at this general level (and even more so in specific concretizations) they can be clearly distinguished.

In our definition of sustainability economics, we have been explicit on the normative side (see Section 2 above), defining sustainability economics as aiming towards both encompassing justice and efficiency. We have not been very explicit in terms of description of human-nature relationships over time and under uncertainty, though, as this is not decisive for a definition of "sustainability economics" that starts from its normative goals. Of course, the question asked by vdB, what is the role of today's actions for the achievement of sustainability, is a very important research question of sustainability economics. Yet, we believe that the externality concept may not be the best suited concept for addressing this question.

The concept of externality has a long and rich history in economics, starting with ideas of Alfred Marshall (1890) on the distinction between internal and external economies of scale in the production of goods by individual firms, later transferred to individual well-being and included into welfare economics by Pigou (1912/1920), and still later sharpened and formalized in different ways, also for the environmental and resource context, by Viner (1931), Meade (1952, 1973), Scitovsky (1954), Buchanan and Stubblebine (1962), Arrow (1970), Mishan (1971), Baumol and Oates (1975) and Heller and Starrett (1976), to cite just a few. Today, there exist very different conceptions of externality – some very wide, including all actions of economic agents that have an appreciable impact (benefit or damage) on another economic agent's utility or production possibilities without their full consent; and some rather narrow, denoting only the *direct* impacts of that kind.⁷ In another dimension, which is based on the consequences rather than on the origins of externalities, one can distinguish between conceptions of externalities that include only Pareto (i.e. efficiency)-relevant impacts, and others that also include distributive impacts. Either way, since Pigou the concept of externality has often (implicitly) been loaded with more or less normative connotations.⁸

Obviously, any answer to the question of what is the role of (dynamic) externalities, or their internalization, for achieving the normative goals of allocative efficiency and distributive justice crucially depends on exactly what conception of "externality" one subscribes to. But irrespective of any terminological variety in, and therefore potential confusion about, the concept of externality, it is clear that today's actions influence the state of nature and the economic conditions of persons living in the future, and thereby have a potential impact in terms of these two normative goals.

A rather straightforward, yet more general and fruitful, way of describing this impact using purely descriptive concepts, which we therefore consider to be superior to a description in

⁷ Defining "externalities" with reference to direct impacts rules out something like "intertemporal externalities" altogether, as future impacts of present actions are never direct.

⁸ Cornes and Sandler (1996: 39), who survey and discuss the different conceptions of externality, observe that "[t]here is a strong temptation to avoid giving an explicit definition of *externality*, since even this first step has been a fertile source of controversy".

terms of the concept “externality”, is the combination of the concepts of *joint production* and *stocks* (Baumgärtner 2000, Faber et al. 2005, Baumgärtner et al. 2006). In a nutshell, *joint production* means that along with the intended outcome of some action, e.g. the production of a product such as electricity from fossil fuels, there are necessarily other effects which one may be aware of or not, e.g. material by-products such as the release of carbon dioxide into the atmosphere or immaterial changes such as a change in knowledge, habits, or institutions. Indeed, externalities have already long ago been described as a special case of joint production (Buchanan 1966, Mishan 1969). A *stock*, briefly put, is an entity that has, in principle, temporal durability and variability according to some dynamic relationship. If some present action somehow modifies a stock, e.g. present emissions of carbon dioxide contribute to the stock of that substance in the atmosphere, and this stock, in turn, is of relevance for future decisions, e.g. on how to manage agriculture under the prevailing climate conditions, then the stock dynamics allows an understanding of how present actions become relevant for future potential and actual decisions.

Any discussion of sustainability has to deal with the concept of stocks, as stocks are the entities that link current actions to future outcomes. The concept of joint production adds another dimension, a central question being whether the (present and future) effects of joint products are taken into account in current decisions or not. If they are not, joint production may constitute an externality (in a more narrow sense) and may give rise to allocative inefficiencies, both in a static and in a dynamic setting. However, allocative efficiency and distributional justice are objectives that are (at least analytically) distinct. Internalizing externalities (in the common understanding of both “externality” and “internalization”) achieves allocative efficiency, but not necessarily distributive justice and thus not necessarily sustainability (Howarth and Norgaard 1990, Woodward and Bishop 1995).⁹

5. Conclusion

Summing up in one sentence, we believe that defining “sustainability economics” in a general (rather than a specific) manner, starting from the normative foundations of both sustainability and economics (rather than from practical approaches to economic sustainability), based on a clear distinction between the different normative goals involved, in particular efficiency and justice, and complementing such a normatively rooted definition by the purely descriptive concepts of *joint production* and *stocks* (rather than *externalities*) for a description of how present actions link to present and future impacts on nature and people, is useful for organizing and advancing our thinking on sustainability economics in a focused, systematic and methodologically sound manner.

References

- Arrow, K.J. (1970), The organization of economic activity: Issues pertinent to the choice of market versus non-market allocation, in: R.H. Haveman and J. Margolis (eds.), *Public Expenditures and Policy Analysis*, Markham, Chicago, pp. 23–39.
- Asheim, G.B. (1994), Net national product as an indicator of sustainability, *Scandinavian Journal of Economics* 96, 257–265.

⁹ In some instances, the efficient internalization of an intertemporal externality may at the same time reduce an intergenerational injustice. However, it is also imaginable that the efficient internalization of an intertemporal externality may cause or increase an intergenerational injustice.

- Ayres, R.U. (2008), Sustainability economics: Where do we stand? *Ecological Economics* 67(2), 281–310.
- Ayres, R.U. and A.V. Kneese (1969), Production, consumption, and externalities, *American Economic Review* 59, 282–297.
- Ayres, R.U., J.C.J.M. van den Bergh and J.M. Gowdy (2001). Strong versus weak sustainability: economics, natural sciences and “consilience”. *Environmental Ethics* 23(1), 155–168.
- Bartelmus, B. (2010), Use and usefulness of sustainability economics, *Ecological Economics*, in this issue.
- Baumgärtner, S. (2000), *Ambivalent Joint Production and the Natural Environment. An Economic and Thermodynamic Analysis*, Physica, Heidelberg
- Baumgärtner, S., M. Faber and J. Schiller (2006), *Joint Production and Responsibility in Ecological Economics. On the Foundations of Environmental Policy*, Edward Elgar, Cheltenham.
- Baumgärtner, S. and M.F. Quaas (2010), What is sustainability economics? *Ecological Economics* 69(3), 445–450.
- Baumol, W.J. and W.E. Oates (1975), *The Theory of Environmental Policy*, Cambridge University Press, Cambridge
- Boulding, K.E. (1966), The economics of the coming spaceship Earth, in H. Jarrett (ed.), *Environmental Quality in a Growing Economy*, Johns Hopkins University Press, Baltimore, pp. 3–14.
- Buchanan, J.M. (1966), Joint supply, externality and optimality, *Economica* 33: 405–415.
- Buchanan, J.M. and W.C. Stubblebine (1962), Externality, *Economica* 29: 371–384.
- Cornes, R. and T. Sandler (1996), *The Theory of Externalities, Public Goods and Club Goods*, 2nd ed., Cambridge University Press, Cambridge.
- Daly, H.E. (1968), On economics as a life science, *Journal of Political Economy* 76: 392–406.
- Daly, H.E. (1973), *Toward a Steady-State Economy*, W.H. Freeman, San Francisco.
- Daly, H.E. (1977), *Steady-State Economics: The Economics of Biophysical Equilibrium and Moral Growth*, W.H. Freeman, San Francisco.
- Daly, H. E. (1992), Allocation, distribution, and scale: towards an economics that is efficient, just, and sustainable, *Ecological Economics* 6(3), 185–193.
- Dasgupta, P. and G.M. Heal (1979), *Economic Theory and Exhaustible Resources*, Cambridge University Press, Cambridge.
- Dobson, A. (1996), Environmental sustainabilities: An analysis and a typology. *Environmental Politics* 5(3), 401–428.
- Faber, M., K. Frank, B. Klauer, R. Manstetten, J. Schiller and C. Wissel (2005), On the foundation of a general theory of stocks, *Ecological Economics* 55(2), 155–172.
- Freeman III, A.M. (2003), *The Measurement of Environmental and Resource Values. Theory and Methods*, 2nd ed., Resources for the Future Press, Washington DC.
- Georgescu-Roegen, N. (1971), *The Entropy Law and the Economic Process*, Harvard University Press, Cambridge.

- Hausman, D.M. (2007), *The Philosophy of Economics. An Anthology*, 3rd ed., Cambridge University Press, Cambridge.
- Heller, W.P. and D.A. Starrett (1976), On the nature of externalities, in: S.A.Y. Lin (ed.), *Theory and Measurement of Economic Externalities*, Academic Press, New York, pp. 9–21.
- Howarth, R.B. and R.B. Norgaard (1990), Intergenerational resource rights, efficiency, and social optimality, *Land Economics* 66, 2–11.
- Marshall, A. (1890), *Principles of Economics*, Macmillan, London.
- Mas-Colell, A, M.D. Whinston and J.R. Green (1995), *Microeconomic Theory*, Oxford University Press, New York.
- Meade, J.E. (1952), External economies and diseconomies in a competitive situation, *Economic Journal* 62:54–67.
- Meade, J.E. (1973), *The Theory of Economic Externalities. The Control of Environmental Pollution and Similar Social Costs*. Sijthoff-Leiden, Geneva.
- Mishan, E.J. (1969), The relationship between joint products, collective goods, and external effects, *Journal of Political Economy* 77: 329–348.
- Mishan, E.J. (1971), The postwar literature on externalities: an interpretive essay, *Journal of Economic Literature* 9: 1–28.
- Neumayer, E. (2003), *Weak versus Strong Sustainability: Exploring the Limits of Two Opposing Paradigms*, 2nd ed., Edward Elgar, Cheltenham.
- Pearce, D. and R. Dubourg (1996), Paradigms for environmental choice: sustainability versus optimality, in Faucheux, S., D. Pearce and J.L.R. Proops (eds), *Models of Sustainable Development*, Edward Elgar, Cheltenham, pp. 21–36.
- Pezzey J.C.V. (1997), Sustainability constraints versus “optimality” versus intertemporal concern, and axioms versus data, *Land Economics*, 73(4), 448–466.
- Pezzey, C.V. and M.A. Toman (eds) (2002), *The Economics of Sustainability*, Ashgate, Aldershot, UK, and Burlington, US.
- Pigou, A.C. (1912/1920), *Wealth and Welfare*, republished in a revised version as *The Economics of Welfare*, Macmillan, London.
- Stavins, R.N., A.F. Wagner and G. Wagner (2003), Interpreting sustainability in economic terms: dynamic efficiency plus intergenerational equity, *Economics Letters* 79(3), 339–343.
- Scitovsky, T. (1954), Two concepts of external economies, *Journal of Political Economy* 62: 70–82.
- Söderbaum, P. (2007), Towards sustainability economics: principles and values, *Journal of Bioeconomics* 9(3), 205–225.
- Söderbaum, P. (2008), *Understanding Sustainability Economics: Towards Pluralism in Economics*, Earthscan, London and Sterling (VA).
- Solow, M. R. (1974), Intergenerational equity and exhaustible resources, *Review of Economic Studies* 41, 29–45.
- van den Bergh, J.C.J.M. (2007), Sustainable development in ecological economics in: G. Atkinson, S. Dietz and E. Neumayer (eds.), *Handbook of Sustainable Development*, Edward Elgar, Cheltenham, pp. 63–77.

- van den Bergh, J.C.J.M. (2010), Externality or sustainability economics? *Ecological Economics*, in this issue.
- Viner, J. (1931), Cost curves and supply curves, *Zeitschrift für Nationalökonomie* 3: 23–46.
- Weitzman, M. L. (1976), On the welfare significance of national product in a dynamic economy, *Quarterly Journal of Economics*, 90(1), 156–162.
- Woodward, R.T. and R.C. Bishop (1995), Efficiency, sustainability and global warming, *Ecological Economics* 14, 101–111.

Working Paper Series in Economics

(recent issues)

- No.168: *Vincenzo Verardi and Joachim Wagner*: Robust Estimation of Linear Fixed Effects Panel Data Models with an Application to the Exporter Productivity Premium, April 2010
- No.167: *Stephan Humpert*: Machen Kinder doch glücklich? April 2010
- No.166: *Joachim Wagner*: Produktivität und Rentabilität in der niedersächsischen Industrie im Bundesvergleich. Eine Benchmarking-Studie auf der Basis vertraulicher Firmendaten aus Erhebungen der amtlichen Statistik, April 2010
- No.165: *Nils Braakmann*: Neo-Nazism and discrimination against foreigners: A direct test of taste discrimination, March 2010
- No.164: *Amelie Boje, Ingrid Ott and Silvia Stiller*: Metropolitan Cities under Transition: The Example of Hamburg/ Germany, February 2010
- No.163: *Christian Pfeifer and Stefan Schneck*: Relative Wage Positions and Quit Behavior: New Evidence from Linked Employer-Employee-Data, February 2010
- No.162: *Anja Klaubert*: "Striving for Savings" – religion and individual economic behavior, January 2010
- No.161: *Nils Braakmann*: The consequences of own and spousal disability on labor market outcomes and objective well-being: Evidence from Germany, January 2010
- No.160: *Norbert Olah, Thomas Huth und Dirk Löhr*: Geldpolitik mit optimaler Zinsstruktur, Januar 2010
- No.159: *Markus Groth*: Zur Relevanz von Bestandseffekten und der Fundamentalen Transformation in wiederholten Biodiversitätsschutz-Ausschreibungen, Januar 2010
- No.158: *Franziska Boneberg*: Die gegen das Drittelbeteiligungsgesetz verstoßende Aufsichtsratslücke existiert. Replik zu „Das Fehlen eines Aufsichtsrates muss nicht rechtswidrig sein“ von Alexander Dilger, Januar 2010
[erschienen in: Zeitschrift für Industrielle Beziehungen, 1 (2010)]
- No.157: *Institut für Volkswirtschaftslehre*: Forschungsbericht 2009, Januar 2010
- No.156: *Alexander Vogel, Joachim Wagner, Kerstin Brunken und Arno Brandt*: Zur Beschäftigungsentwicklung in der Region Hannover - Ein Vergleich mit 12 deutschen Verdichtungsräumen, Dezember 2009
- No.155: *Nils Braakmann and Joachim Wagner*: Labor market adjustments after a great import shock: Evidence from the German clothing industry and the Multi-Fibre Arrangement, December 2009
- No.154: *Joachim Wagner*: Zehn Jahre *European Data Watch*: Dokumentation von Datensätzen für die empirische Wirtschafts- und Sozialforschung und Zugangswegen zu den Daten, Dezember 2009
- No.153: *Joachim Wagner*: Offshoring and work performance: Self-Selection, effects on performance, or both? December 2009
- No.152: *Christian Pfeifer*: Effective Working Hours and Wages: The Case of Downward Adjustment via Paid Absenteeism, November 2009
- No.151: *Christian Pfeifer*: Adjustment of Deferred Compensation Schemes, Fairness Concerns, and Hiring of Older Workers, November 2009
- No.150: *Franziska Boneberg*: Recht und Realität von Mitbestimmung im westdeutschen Dienstleistungssektor: 11 Fallstudien, November 2009

- No.149: *Birgit Müller, Martin Quaas, Karin Frank and Stefan Baumgärtner*: Pitfalls and potential of institutional change: Rain-index insurance and the sustainability of rangeland management, November 2009
- No.148: *Alexander Vogel, Florian Burg, Stefan Dittrich und Joachim Wagner*: Zur Dynamik der Export- und Importbeteiligung deutscher Industrieunternehmen – Empirische Befunde aus dem Umsatzsteuerpanel 2001-2006, Oktober 2009
[publiziert in: *Wirtschaft und Statistik*, Heft 11(2009), 1109-1116]
- No.147: *Markus Groth*: Potentiale und Risiken der Nutzung von Methan aus Methanhydraten als Energieträger, Oktober 2009
- No.146: *Sandra Derissen, Martin Quaas and Stefan Baumgärtner*: The relationship between resilience and sustainable development of ecological-economic systems, October 2009
- No.145: *Anne-Kathrin Last und Heike Wetzel*: Effizienzmessverfahren – Eine Einführung, September 2009
- No.144: *Horst Raff and Joachim Wagner*: Intra-Industry Adjustment to Import Competition: Theory and Application to the German Clothing Industry, September 2009
[forthcoming in: *The World Economy*]
- No.143: *Nils Braakmann*: Are there social returns to both firm-level and regional human capital? – Evidence from German social security data. September 2009
- No.142: *Nils Braakmann and Alexander Vogel*: How does economic integration influence employment and wages in border regions? The case of the EU-enlargement 2004 and Germany's eastern border, September 2009
- No.141: *Stefanie Glotzbach and Stefan Baumgärtner*: The relationship between intra- and intergenerational ecological justice. Determinants of goal conflicts and synergies in sustainability policy. September 2009
- No.140: *Alexander Vogel*: Exportprämien unternehmensnaher Dienstleister in Niedersachsen, September 2009
- No.139: *Alexander Vogel*: Die Dynamik der Export- und Importbeteiligung niedersächsischer Industrieunternehmen im interregionalen Vergleich 2001-2006, September 2009
- No.138: *Stefan Baumgärtner and Martin F. Quaas*: What is sustainability economics? September 2009
[published in: *Ecological Economics* 69 (2010), 3, , 445 - 450]
- No.137: *Roland Olbrich, Martin F. Quaas and Stefan Baumgärtner*: Sustainable use of ecosystem services under multiple risks – a survey of commercial cattle farmers in semi-arid rangelands in Namibia, September 2009
- No.136: *Joachim Wagner*: One-third codetermination at company supervisory boards and firm performance in German manufacturing industries: First direct evidence from a new type of enterprise data, August 2009
- No.135: *Joachim Wagner*: The Research Potential of New Types of Enterprise Data based on Surveys from Official Statistics in Germany, August 2009
[publiziert in: *Schmollers Jahrbuch / Journal of Applied Social Science Studies* 130 (2009), 1, 133-142]
- No.134: *Anne-Kathrin Last and Heike Wetzel*: The Efficiency of German Public Theaters: A Stochastic Frontier Analysis Approach, July 2009
- No.133: *Markus Groth*: Das Conservation Reserve Program: Erfahrungen und Perspektiven für die europäische Agrarumweltpolitik, Juli 2009
[published in: *Zeitschrift für Umweltpolitik und Umweltrecht*, Heft 4 (2009), 447-468]

- No.132: *Stefan Baumgärtner and Sebastian Strunz*: The economic insurance value of ecosystem resilience, July 2009
- No.131: *Matthias Schröter, Oliver Jakoby, Roland Olbrich, Marcus Eichhorn and Stefan Baumgärtner*: Remote sensing of bush encroachment on commercial cattle farms in semi-arid rangelands in Namibia, July 2009
- No.130: *Nils Braakmann*: Other-regarding preferences, spousal disability and happiness: Evidence for German Couples, May 2009
- No.129: *Alexander Vogel and Joachim Wagner*: Exports and Profitability – First Evidence for German Services Enterprises, May 2009
[forthcoming in: *Applied Economics Quarterly*]
- No.128: *Sebastian Troch*: Drittelbeteiligung im Aufsichtsrat – Gesetzliche Regelung versus Unternehmenspraxis. Ausmaß und Bestimmungsgründe der Umgehung des Drittelbeteiligungsgesetzes in Industrieunternehmen, Mai 2009
- No.127: *Alexander Vogel*: The German Business Services Statistics Panel 2003 to 2007, May 2009
[forthcoming in: *Schmollers Jahrbuch 129 (2009)*]
- No.126: *Nils Braakmann*: The role of firm-level and regional human capital for the social returns to education – Evidence from German social security data, April 2009
- No.125: *Elke Bertke und Markus Groth*: Angebot und Nachfrage nach Umweltleistungen in einem marktanalogen Agrarumweltprogramm – Ergebnisse einer Pilotstudie, April 2009
[published in: *Zeitschrift für angewandte Umweltforschung*, Heft 1-2 (2009), 160-172]
- No.124: *Nils Braakmann and Alexander Vogel*: The impact of the 2004 EU-enlargement on enterprise performance and exports of service enterprises in the German eastern border region, April 2009
[revised version forthcoming in: *Review of World Economics*]
- No.123: *Alexander Eickelpasch and Alexander Vogel*: Determinants of Export Behaviour of German Business Services Companies, March 2009
- No.122: *Maik Heinemann*: Stability under Learning of Equilibria in Financial Markets with Supply Information, March 2009
- No.121: *Thomas Wein*: Auf der Speisekarte der DPAG: Rechtliche oder ökonomische Marktzutrittsschranken? März 2009
- No.120: *Nils Braakmann und Joachim Wagner*: Product Diversification and Stability of Employment and Sales: First Evidence from German Manufacturing Firms, February 2009
- No.119: *Markus Groth*: The transferability and performance of payment-by-results biodiversity conservation procurement auctions: empirical evidence from northernmost Germany, February 2009
- No.118: *Anja Klaubert*: Being religious – A Question of Incentives? February 2009
- No.117: *Sourafel Girma, Holger Görg and Joachim Wagner*: Subsidies and Exports in Germany. First Evidence from Enterprise Panel Data, January 2009
[published in: *Applied Economics Quarterly* 55 (2009), 3, 179-195]
- No.116: *Alexander Vogel und Joachim Wagner*: Import, Export und Produktivität in niedersächsischen Unternehmen des Verarbeitenden Gewerbes, Januar 2009
- No.115: *Nils Braakmann and Joachim Wagner*: Product Differentiation and Profitability in German Manufacturing Firms, January 2009

(see www.leuphana.de/institute/ivwl/publikationen/working-papers.html for a complete list)

Leuphana Universität Lüneburg

Institut für Volkswirtschaftslehre

Postfach 2440

D-21314 Lüneburg

Tel.: ++49 4131 677 2321

email: brodt@leuphana.de

www.leuphana.de/institute/ivwl/publikationen/working-papers.html