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# The Role of Market Infrastructures in Pursuit of Sustainability

## On the Interaction between Policies and Markets

Stefanos Mouzas and Lars-Gunnar Mattsson

Lancaster University Management School and Misum, Stockholm School of Economics,

Send correspondence to:

Stefanos Mouzas, Lancaster University Management School, Lancaster LA1 4YW, United Kingdom. E-mail: s.mouzas@lancaster.ac.uk

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## Abstract

The present paper examines the role of market infrastructures in the pursuit of sustainability. We assume, first that sustainable development depends on interaction between policy practice and market practice and second, that market infrastructures are co-created, maintained and changed by policy actors and market actors.

Market infrastructure is the institutional, material and immaterial base that enables and conditions market exchange. Although market infrastructures are critical to the success of adopted policies for sustainable development, understanding and use of the concept in analysis and in policy and market practices aimed at sustainable development is quite limited.

The role of market infrastructures in market economies is of general interest but, as the empirical phenomenon, we refer to public policies following the Paris Agreement on climate change. The Paris Agreement contains framework of policies aimed at making the global economy carbon neutral in the second half of the 21st century. As we stand today, policymakers around the globe are translating the mandatory and default rules agreed into fine-print policies for specific sectors of the economy, such as energy, transportation, agriculture, and urban development to achieve significant reductions in CO2 emissions. Some of these policies translate into efforts to change and adapt market infrastructures; other policies are aimed to directly affect market exchange. As illustration, we refer to two sets of policy: Policies emanating directly from the Agreement and policy developments in Sweden.

The pursuit of sustainable development challenges the way we think about the interaction between policies and markets and raises a number of new questions: What is the role of market infrastructure for sustainable development in market economies? How does policy practice and market practice interact and contribute to shape market infrastructures? What are the inter-temporal trade-offs and implications?

The present paper attempts to develop the conceptual underpinning for further theoretical and empirical investigation of the role and shaping of market infrastructures for achieving sustainable development.

## Introduction

To solve important problems in the pursuit of sustainable development that "meets the needs of present generations without compromising the needs for future generations" (WCED, 1987, p. 166), markets may play a significant role in facilitating exchanges that are conducive to sustainable development (UN Agenda 2030). In this way, the idea of 'sustainable markets' has been proposed as the ultimate goal of policy (Jones & Watkins, 1996). Markets are also widely criticized for hindering sustainable development.

Markets are embedded in socio-economic contexts. Thus it is important to understand how interaction between policy practice and market practice may promote (or hinder!) sustainable development (Mattsson, 2016). We argue that the effect of these policies to a significant extent depend on how they directly and indirectly shape market infrastructures, especially how they stimulate market exchanges that promote climate mitigation innovations of a technical, economic and social nature.

The *purpose* of this (condensed) paper is to introduce the concept "market infrastructure" to the analysis of policy-market interaction for sustainable development, in preparation for empirical studies. The empirical illustration in this paper refers to government policies introduced for implementation of the Paris Climate Agreement. Policymakers around the globe translate the general principles and rules in the Agreement to detailed policies for specific sectors of the economy, such as energy, transportation, agriculture and urban development to achieve significant reductions in CO2 emissions in a relatively short time.

We adopt a practice perspective on policy processes as well as on market processes in order to capture how they interact in shaping market infrastructure.

First, we discuss the market infrastructure concept, second we apply our ideas to policy practices to implement the Paris Agreement.

**Market infrastructures and market practices**

Market infrastructure is the foundation ("infra" means "below") in terms of material and immaterial conditions that enables and conditions market exchange. The concept of market infrastructure implies long-term 'investments' that are made by governmental actors as well as market actors and raises the research question of how market infrastructures influence creation and functioning of markets. Market infrastructure is not a clearly defined concept, nor frequently used. Even if infrastructure should have a considerable degree of durability over time, it does not imply static properties. To promote sustainable development it needs to have dynamic attributes that enable durable effects. We posit that the idea of "sustainable markets" needs to be underpinned by market infrastructures promoting sustainable development. First, interaction between policy practice and market practice would then be the crucial, never ending processes to perform sustainable development. Second, the role of market practice in creation of market infrastructure will become visible. For example, effective development of market infrastructure with regard to transportation infra structure might be restricted by public procurement rules (Leendersee et al. 2016)

Buhr (2009) refers to the seminal work on market infrastructure by Jochimsen (1966). Market infrastructure should be understood with reference to its essential function - to promote economic growth in market economies. Buhr´s analysis refers to a neoliberal preference for competition on markets and to avoidance of market failures. However, here we focus on the function of market infrastructure to promote market exchange for sustainable development. Buhr (2009) distinguishes between three interacting categories of infrastructure: institutional (constitutions, codified rules), personal (human capital, to which we add social capital, re-labelling "personal" as "human/social" capital) and material (capital equipment, network systems).

Obviously, the concept market infrastructure is closely related to institutional perspectives on what constitutes a "sustainable market" (Mattsson 2016; Williamson 2000; Scott 1995). Another related approach is how research based on organization theory (Brunsson & Jutterström 2018; Ahrne et al. 2015) analyze how public and market actors are active as organizers of markets.

To adopt the market infrastructure concept as a condition for market exchange for sustainable development allows for

1. Considering the investment nature of market conditions (resources used and assets created, time length, financing)
2. Inclusion of material and social capital as well as institutions
3. Interaction between policy practice and market practice to shape conditions for market exchange

The term 'market' raises ontological questions about the nature of what we call the 'market' (Araujo et al., 2010). A starting point is to consider markets as 'institutional arrangements' which facilitate the exchange of goods (North 1990). Such a view, however, considers markets as 'a thing'; it addresses more the purpose of a market, as opposed to portray the practices that produce markets. We posit that markets are a matter of constant shaping, maintenance and reshaping through practices including exchange, representation and norms (Kjellberg & Helgesson 2007; Kjellberg et al., 2012; Harrison et al., 2010; Kjellberg & Helgesson 2007; Azimont & Araujo 2007; Callon et al., 2007; Cochoy, 2008; Simakova & Neyland 2008; Harrison et al., 2010).

The broad conceptualization of market infrastructure according to Buhr includes not only institutions but also material capital and human/social capital. Material infrastructure directly enabling communication between market actors (such as road and rail networks, distribution centers or digital communication networks) and human/social capital (such as social and inter-personal trust, knowledge) impact on the efficiency and effectiveness of markets. The problems to transform centrally planned economies to market economies is evidence of the initial insufficient market infrastructure to govern in e.g. the Soviet Union to restructure production (Thornton, 1998)

The access to market infrastructure may be open and free, or restricted and related to payments. Even if the infrastructure could include proprietary assets and assets pertaining to an individual actor, these assets need to contribute to efficiency and effectiveness of market economies, in this case contribute to sustainable development.

The unifying idea behind market infrastructures is long-term investments in 'market-based assets'. Thus, the creation of 'market-based assets' involves significant inter-temporal consequences (Johanson and Mattsson, 1985): First, market infrastructures would require initial investments, i.e. that resources need to be sacrificed and committed for the creation of market-based assets. Second, intertemporal links exist between initial investments for the creation of 'market-based assets' and subsequent value creation (Shrivastava et al. 1998,

2001). Recent research work addresses the specific role of 'evaluative' infrastructures, which are decentralized accounting practices and include evaluative devices such as rankings, ratings, reviews, audits that establish orders of worth (Kornberger et al, 2016, 2017) and the need for materiality and sustainability reporting standards (Eccles et al., 2012).

The literature references to "market infrastructure" to an overwhelming degree is about financial markets. Topics treated include regulation (like EMIR European Market Infrastructure Regulation), new financial products, new control agencies and industry organizations, new technologies (FinTech). A new *Journal of Financial Market Infra structures* has been launched. In a market practice perspective Mac Kenzie (2003) analyze the performative, although limited, role of economic theory in construction of a financial market. Development of information infrastructure as a necessary enabler in the operation of markets such as financial markets are analyzed as a transformation from artefacts to infrastructure (Pollock and Williams 2010; Monteiro et al.2013)

**Public Policy Practices**

By 2015 there was a prevalent recognition of the need to develop policies that promote sustainable development worldwide. The Paris agreement commits 195 countries to hold global temperature rises well below 2 degrees Celsius above pre-industrial times, pursue efforts to limit the temperature increase to 1.5 degrees Celsius and make the global economy carbon neutral in the second half of the 21st century (Klein et al., 2017). Instead of defining all terms and means of achieving the goal of sustainable development, the Paris Agreement articulates a shared vision and spells seven principles and as well as norms intended to mobilize the widest possible collaboration between public policymakers and private organizations to achieve the purported ends:

First, the spirit of the new policies is inclusive and non-adversarial. It recognizes that climate change is a *common concern of humankind* and that parties should *respect, promote and consider their respective obligations*.

Second, policies are based on a system of 'voluntary' and 'intended' *nationally determined contributions* from all countries, rich and poor by 2020 and beyond.

Third, all *nationally determined contributions* will be published and reviewed, as of 2020. All countries will need to resubmit updated *nationally determined contributions, which will be reviewed* in 2025 and 2030.

Fourth, the policies are non-punitive; they build on a non-legal enforceability based on reputations in accordance to a two-tiered UN system of reporting and reviewing countries' volume of emissions. This means that *nationally determined contributions* are now subject to scrutiny and group pressure in a highly transparent way. For example, countries need to account for anthropogenic emissions and removals in accordance with methodologies and common metrics and ensure methodological consistency between baselines, communication and implementation of intended nationally determined contributions.

Sixth, developed countries will deliver at least $ 100 billion per year by 2020 to develop sustainable infrastructures for poor countries, whilst taking into account the needs and priorities of poor countries. The policies envisage and increase of the total amount after 2020 to strengthen worldwide infrastructures.

Seventh, policies aspire capacity building through education and training to address existing gaps and needs in all countries.

The agreed policies for sustainable development will not produce any short-term effects on climate mitigation (Klein et al., 2017). To achieve the aspirations set out in the Paris Agreement over the next decades, the world would need to move beyond fossil fuels (oil, gas and coal) and develop 'non-carbon' energy sources.

For this reason, many countries have started or continued to promote the development and use of non-carbon energy sources. For example, the EU developed a new policy called NER 300 to promote innovation in the area of Geothermal Power, Concentrated Solar Power, Smart Grids, Bio-Energy, Ocean Thermal, Photovoltaic Energy, Wind Power and Carbon Capture and Storage. The NER 300 policy mobilizes a network consisting the European Investment Bank (EIB), EU ETS, the Directorate-General for Climate Action (DG CLIMA,) the European Environment Agency (EEA), as well as the European Trade Emission System (ETE) where energy intensive industries such as Oil Refineries, Power and Heat Generation, Steel, Iron and Metals, Aluminum, Cement, Lime, Glass, Ceramics, Pulp, Paper cardboards, Acids, Bulk Organic Chemicals and Civil Aviation trade emission allowances. Part of the

income generated through the emission trading is now directed to finance innovations in developing non-carbon energy sources

Our interpretation of these principles and norms is that they are aimed at reshaping the market infrastructure not only as regards institutions and institutional arrangements (e.g. reporting requirements, reframing ETE) but also material capital (infrastructure for developing countries) and human/social capital ( common concern for mankind, education and training)

*Swedish policy initiatives*

Swedish government policy process to reach NDC objectives includes measures taken at national, regional and local government levels. The climate policy is connected to a *"strategic cooperative development program*" (involving government, business and academia) directed at Swedish strong areas for innovation. A new *climate law* requires that all government propositions should be analyzed for their effect on climate before they are submitted to parliament. A *Climate Political Advisory Board* consisting of scientists (not politicians) has been formed.

A new government agency, overseeing public procurement has been established in Sweden. *The National Agency for Public Procurement.* It signals a change from primarily safeguarding competition to include functions (like sustainability) and innovation in criteria for effective and legally accepted public procurement practices.

A non-traditional government investigation, *Fossil Free Sweden* (FFS) was initiated. FFS shall enable communication and interaction between actors in public and private sectors, across sectors and industries that are concerned by climate change. FFS provides a platform for dialogues, storytelling, roundtable discussions etc. in voluntarily assembled networks of regional and local public agencies, business firms and civil society. Cooperating groups for different industries were formed to develop "roadmaps" to become fossil free. They should identify obstacles that could be removed by changes in regulation and government policies and communicate these to government.

FFS is an example of an interactive policy-market co-created process aimed to affect all three dimensions of market infrastructure. Institutional changes are suggested but not yet realized, digitalization providing material capital for market practice, involvement of actors in the

policy process that might develop human and social capital for coordinated climate mitigation processes.

The effectiveness of the policies referred to in general for the Paris Agreement and in the case of Sweden in a national perspective are not yet known. The umbrella agreement of Paris, and of course the underlying threats of global warming, stimulates a variety of policy initiatives, directly and indirectly interacting with shaping of market infrastructures aimed to promote sustainable development in market economies.

**Towards a theoretical framework**

In our proposed framework, policy practices and market practices interact. Market practices are directly concerned with individual and interconnected market exchanges, and also with shaping of market infrastructure (norms, including norms for representation). Policy practices contain mandatory rules, such as legislation and explicit regulations or restrictions within an industry as well as default rules, which actors could opt to follow without being required to do so (Riley, 2000; Sunstein, 2016). Policy practices also affects all three dimensions of market infrastructure.

**References**

Ahrne, G. Aspers, P. and Brunsson, N. (2015) The organization of markets, *Organization Studies* , Vol. 36, No 1, 7-27

Araujo, L., Finch, J., & Kjellberg, H. (Eds.). (2010). *Reconnecting marketing to markets*. Oxford University Press.

Buhr, W. (2009). *Infrastructure of the market economy* (No. 132). Volkswirtschaftliche Diskussionsbeiträge//Universität Siegen, Fachbereich Wirtschaftswissenschaften, Wirtschaftsinformatik und Wirtschaftsrecht.

Brunsson, N. & Jutterström, M. (eds.) (2018) *Organizing and reorganizing marke*

Eccles, R. G., Krzus, M. P., Rogers, J., & Serafeim, G. (2012). The need for sector-specific materiality and sustainability reporting standards. *Journal of Applied Corporate Finance*, 24(2), 65-71.

Jochimsen, R. (1966) Theorie der Infrastructur. Grundlagen der Marktwirtschaftlichen Entwicklung.

Johanson, J., & Mattsson, L. G. (1985). Marketing investments and market investments in industrial networks. *International Journal of Research in Marketing*, *2*(3), 185-195.

Jones, C., & Watkins, C. (1996). Urban regeneration and sustainable markets. *Urban Studies*, 33(7), 1129-1140.

Kjellberg, H. and Helgesson C.F. (2007), On the nature of markets and their practices, *Marketing Theory* , Vol. 7 No 2, 137-162

Kjellberg, H., Storbacka, K., Akaka, M., Chandler, J., Finch, J., Lindeman, S., ... & Nenonen, S. (2012). Market futures/future markets: Research directions in the study of markets. *Marketing Theory*, 12(2), 219-223.

Klein, D., Carazo, M.P., Doelle, M., Bulmer, J. and Higham, A. eds., (2017). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford University Press.

Kornberger, M., Pflueger, D., & Mouritsen, J. (2016). Evaluative Infrastructures: Accounting for distributed network production. In *Academy of Management Proceedings* (Vol. 2016, No. 1, p. 13624).

Kornberger, M., Pflueger, D., & Mouritsen, J. (2017). Evaluative infrastructures: Accounting for platform organization. *Accounting, Organizations and Society*, *60*, 79-95.

Leendersee, W., Arts, J. & de Ridder, H. (2016) Sustainable market involvement in transport infrastructure management, *Transportation Research Procedia,* 14, 2936-2945.

MacKenzie, D. (2003) Constructing a market, performing theory: the historical Sociology of a Financial Derivatives Exchange *American Journal of Sociology,* 109, (1) 107-145.

Mattsson, L.G. (2016) Bridging gaps between policies for sustainable markets and market practices, *IMP Journal*, Vol 10, No 2., 339-356.

Monteiro, E., Pollock, N., Hanseth, O., & Williams, R. (2013). From artefacts to infrastructures. *Computer supported cooperative work (CSCW)*, *22*(4-6), 575-607.

North, D. (1990) *Institutions, institutional change and economic performance* Cambridge University Press.

Pollock, N., & Williams, R. (2010). E-infrastructures: How do we know and understand them? Strategic ethnography and the biography of artefacts. *Computer Supported Cooperative Work (CSCW)*, *19*(6), 521-556.

Riley, C. A. (2000). Designing default rules in contract law: Consent, conventionalism, and efficiency. *Oxford Journal of Legal Studies*, 20(3), 367-390.

Scott, W.R. (1995) *Institutions and Organizations* Sage, London

Srivastava, R. K., Fahey, L., & Christensen, H. K. (2001). The resource-based view and marketing: The role of market-based assets in gaining competitive advantage. *Journal of management*, *27*(6), 777-802.

Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-based assets and shareholder value: A framework for analysis.*The Journal of Marketing*, 2-18.

Sunstein, Cass R., and Lucia A. Reisch. (2016). "Climate-Friendly Default Rules." Sunstein, Available at SSRN: https://ssrn.com/abstract=2796786 and http://dx.doi.org/10.2139/ssrn.2796786

*Swedish Government Policy Initiatives*. As found on the website www.regeringen.se/regeringens-politik/regeringens-prioriteringar/sverige-som-foregangsland-for-minskade-klimatutsläpp

Thornton, J.(1998) Restructuring production without market infrastructure *Transforming post-communist political economies*

UN Agenda 2030. Transforming our world: the 2030 Agenda for Sustainable Development. Accessed via: https://sustainabledevelopment.un.org/post2015/transformingourworld

WCED (1987) World Commission on Environment and Development, *Our Common Future*, Oxford University Pres.s

Williamson, O.E. (2000) The new institutional economics: taking stock, looking ahead, *Journal of Economic Literature* Vol 38, No 3, 595-613