Relations industrielles
Industrial Relations

Sustainable Varieties of Capitalism? The Greening of Steel Work in Brazil and Germany

Variétés durables du capitalisme? Le virage écologique du secteur de l'acier au Brésil et en Allemagne

¿Variedades durables del capitalismo? La transformación ecológica del trabajo del acero en Brasil y Alemania

Heike Doering, Ph. D., Claire Evans, Ph. D. and Dean Stroud, Ph. D.

Volume 70, Number 4, Fall 2015

Les variétés du capitalisme revisitées : débats actuels et avenues possibles
Varieties of Capitalism Revisited: Current Debates and Possible Directions

URI: https://id.erudit.org/iderudit/1034897ar
DOI: https://doi.org/10.7202/1034897ar

See table of contents

Publisher(s)

Département des relations industrielles de l'Université Laval

ISSN

0034-379X (print)
1703-8138 (digital)

Explore this journal

Cite this article

Doering, H., Evans, C. & Stroud, D. (2015). Sustainable Varieties of Capitalism? The Greening of Steel Work in Brazil and Germany. *Relations industrielles / Industrial Relations*, *70*(4), 621–644. https://doi.org/10.7202/1034897ar

Article abstract

The aim of this article is to investigate the sustainability agenda and its implications for employment and managerial practices within different institutional contexts. The article uses the comparative capitalisms literature and, in particular, the Varieties of Capitalism framework to examine how multinational corporations (MNCs) can exploit different institutional contexts to achieve competitive advantages. We explore one multinational steel company's i.e. SteelCo.AG varied responses to the emerging constraints of the sustainability agenda in Germany, as an example of a Coordinated Market Economy, and Brazil, as an example of a Hierarchical Market Economy. In particular, we focus on evidence concerning training, environmental practices and policies in the different company sites.

We demonstrate how different institutional contexts favour different corporate strategies from an approach that exploits negative institutional complementarities, such as the "low-skill/low-cost trap," to one that benefits from strong institutional coherence facilitating skills formation and innovation in response to environ-mental legislation. Our analysis argues for the importance of incorporating the green agenda as a marker of difference into the existing VoC framework. This allows for nuanced readings of unstable institutional complementarities in terms of operational, managerial and social innovation in different institutional contexts – with such analyses essential for understanding workers' experiences of employment and work. Our contribution to the extant literature on the employment relationship, within the context of VoC analysis, therefore offers empirical material on understandings of employment relations within the HME category, as a new type within the VoC framework, through our discussion of a multinational's activities in Brazil. This also allows us to focus on the way companies and other actors' impact upon institutional frameworks and the distribution of power between different actors within particular contexts, thereby addressing recent discussions of the stability and homogeneity of institutional arrangements.

© DÉPARTEMENT DES RELATIONS INDUSTRIELLES, UNIVERSITÉ LAVAL - ISSN 0034-379X – RI/IR, 70-4, 2015, 621-644

Sustainable Varieties of Capitalism? The Greening of Steel Work in Brazil and Germany

Heike Doering, Claire Evans and Dean Stroud

The sustainability agenda presents challenges for corporate strategies and has implications for employment relations. We argue that the institutional context in which a company is embedded can provide an environment in which companies, and other social actors, perceive and act upon sustainability, for example in relation to environmental regulation, in a number of ways. We explore how pressures resulting from different institutional instantiations of the green agenda lead to contrasting responses within a single firm—from an approach that exploits negative institutional complementarities, such as the "low-skill trap," to one that benefits from strong institutional coherence facilitating skills formation and innovation in response to environmental legislation. The focus here is on a multinational steel company operating in Brazil and Germany.

KEYWORDS: **Employment relations, environment, skill, steel industry, multinationals.**

Introduction

Recent recurring natural and economic crises have highlighted the need for a rethinking of socio-environmental relations. On the one hand, sustainable economic recovery requires the re-creation of a "durable basis of demand" centred on re-formed employment relationships (Wilkinson *et al.,* 2013: 1). On the other, such a reassessment of employment relations needs linking to a wider understanding of the sustainability of demand through examining different approaches to sustainable development and the regulation of environmental issues. The challenge of sustainability, both of employment and demand, presents an opportunity to investigate the sustainability agenda within different institutional contexts. In particular, it provides scope for the analysis of the capacity of corporations to take advantage of (and innovate around) changed circumstances for their employment and managerial practices.

Heike Doering, Ph. D., Lecturer in Human Resource Management, Business School, Cardiff University, Cardiff, United Kingdom (DoeringH@cardiff.ac.uk).

Claire Evans, Ph. D., Lecturer, Business School, Cardiff University, Cardiff, United Kingdom (EvansC56@cardiff.ac.uk).

Dean Stroud, Ph. D., Lecturer in Education Studies, School of Social Sciences, Cardiff University, Cardiff, United Kingdom (StroudDA1@cardiff.ac.uk).

The comparative capitalisms literature has highlighted the potentially diverging effect of systemic crises on work and employment relations practice within and across settings, and the capacity for fundamental change in the relative competitiveness of firms, regions and nations (Lane and Wood, 2013: 166-167). In particular, multinational corporations (MNCs) can exploit different institutional contexts "to create unique sets of competences and engage in institutional arbitrage" (Morgan, 2005: 2). It is here that the Varieties of Capitalism (VoC) framework and its examination of institutional complementarities (and contradictions) allows for a clearer understanding of firm behaviour and varied capabilities (Hall and Soskice, 2001). Our discussion focuses on the pressures that derive from the sustainability agenda (e.g. environmental legislation) and its implications for employment relations within different institutional contexts. We explore how such pressures lead to contrasting responses within a single firm—for example, from an approach that exploits negative institutional complementarities, such as the "low-skill/low-cost trap," to one that benefits from strong institutional coherence facilitating skills formation and innovation in response to environmental legislation.

This article uses one multinational steel company's i.e. SteelCo.AG varied responses to the emerging constraints of the sustainability agenda in two different institutional contexts. The sustainability and environmental protection agenda is at the centre of the company's corporate strategy, but its behaviour on such matters markedly differs across production sites—in this case, in Germany (SteelCo-Germany) and Brazil (SteelCo-Brazil). Arguably, the differences at each site make an examination of company practices relevant to understanding institutional effects. In short, we aim to examine the way institutional contexts—specifically the Coordinated Market Economy (CME) context of Germany and Hierarchical Market Economy (HME) context of Brazil—produce different company-level approaches to environmental issues and explore the implications of these differences for employment relations.[1]

Our contribution to the extant literature on the employment relationship, within the context of VoC analysis, is threefold. First, we develop understandings of employment relations within the HME category, as a new type within the VoC framework, through our discussion of a multinational's activities in Brazil. In particular, we draw attention to the ways in which the "messy empirical reality" of institutional arrangements shapes companies' and employees' (as well as other actors') capacities to act. Second, we look to extend the VoC framework more generally, in our discussion of the implications of the sustainability agenda for employment relations. Third, this allows us to focus on the way companies and other actors impact upon institutional frameworks and the distribution of power between different actors within particular contexts (Morgan, 2005), thereby countering notions as to the stability and homogeneity of institutional arrangements (cf. Hassel, 2012; Lane and Wood, 2013).

Debates

The empirical realities of our case are characterized by competing claims about corporate responses to address environmental issues. In the German context, SteelCo.AG demonstrates a developmental orientation towards human resources with clear evidence of an environmental innovation approach, which far exceeds mere regulatory compliance (Evans and Stroud, 2014). At the same time, in their Brazilian operations, SteelCo.AG faces a legacy of non-compliance, environmental damage and allegations of both environmental crimes and exploitative relations with the local workforce (Governo do Estado do Rio de Janeiro *et al.*, 2013; Furtado, 2012; PACS, 2012). The theoretical puzzle is one of understanding these responses in the context of changing and diverging "rules of the employment relations game" for multinationals. Recent contributions to the comparative capitalisms literature (e.g. Morgan *et al.*, 2005; Streeck, 2009; Lane and Wood, 2012; Wilkinson *et al.*, 2013) highlight the increasing importance of acknowledging uncertainties, instabilities and fractures in our understanding of models (varieties, versions) of capitalism. In particular, this also means drawing attention to the spaces for agency in the use of institutional resources for skilful actors. The following is therefore an examination of the institutional resources available to the corporation (as well as other actors). We focus on how such resources might be strategically utilized for gain, and whether such deployment subsequently reinforces or destabilizes the extant institutional complementarities within different institutional contexts.

Germany as a Coordinated Market Economy

Although markets and hierarchies are important in ideal-type CMEs, such economies are characterized by strong networks of social institutions that regulate economic action within markets. Here, markets are "deeply embedded in an array of co-operative, redistributive and regulatory institutions" (Streeck, 1992: 6). Such institutions include powerful employer associations, strong trade unions, networks of cross-shareholding, as well as legal or regulatory systems that encourage information-sharing and collaboration between and within firms (Hall and Soskice, 2001). The financial system is less market-based and firms raise capital on a long-term basis through regionally based banks as opposed to the stock market (Lehrer *et al.*, 1999). This provision of "patient capital" has meant that firms are able to adopt longer-term, developmental orientations, which in turn facilitates technological innovation (Streeck, 1995).

Germany has been considered as the prime example of this model. The features that typify German firms (i.e. high levels of industry-specific technical skills amongst the workforce, worker autonomy, extensive information and knowledge sharing) originate from long-term, secure employment relationships. It is

these practices—alongside high levels of industry-specific engineering and technical skills, cultivated both within firms and in the wider VET system on a social partnership basis (Bosch and Charest, 2008)—that have been postulated as a principal source of competitive advantage and innovation for German process and engineering firms (Hall and Soskice, 2001; *cf.* Lane and Wood, 2013). More recently, however, the German labour market has, in line with the experiences of other countries, been characterized by increasing dualism: sectoral segmentation of the labour force into core and peripheral groups of workers with differentiated protection, with declining trade union power and diminished coverage of collective bargaining agreements (Hassel, 2012; Lane and Wood, 2013). CMEs are more liberalized, less regulated and less egalitarian than once was the case (Hassel, 2012), and the plant-based vocational training strongly associated with the cultivation of intermediate-level, specific (occupation-based, *Beruf*) skills—often associated with Germany's competitive advantage—has declined in favour of trends toward tertiary and higher education.

These changes in the German economic model take place not only in a context of intensified global product market competition, but also against the background of strong support for the sustainability agenda. Environmental protection, in particular, has been at the centre of German public policy development for decades, in part a reflection of the strong environmental movement, the ensuing political success of German Green Party and the subsequent integration of environmental issues into the other parties' policies (Blühdorn, 2009). Environmental policies have, moreover, long been perceived as a mechanism to develop market opportunities for domestic firms, as well as forming the backdrop to green economic transitions (for example, in the former coal and steel regions of the Ruhr) and environmental protection has been integrated into all initial vocational training regulations (Evans and Stroud, 2014). Our contention is that despite the seeming breakdown of the German model, levels of social capital remain relatively high and the broader stakeholder perspectives within CME contexts contribute to shaping policies and strategies (at firm and sector level, as well as more widely) that are aimed at the sustained cultivation and innovation of high-end value-added "green" economic activity, and with it associated levels of high skill, high wage work (e.g. Jagger *et al.*, 2012).

Brazil as Hierarchical Market Economy

The original "Varieties of Capitalism" framework (Soskice and Hall, 2001) centred on the market/coordination dichotomy, but the framework has been extended to include networks and hierarchy as basic principles of allocation (Schneider, 2013) and has been applied to Asian and Latin American capitalisms respectively (Sanchez-Ancochea, 2009; Aleman, 2013; Frangi, 2014). In the case of

HMEs, this means that hierarchy affects relationships within firms, such as between owners and managers and employers and workers, as well as between firms. In short, Schneider (2013) identifies four major characteristics: 1- The dominance of diversified, largely family-owned and controlled conglomerates (*grupos economicos*) in the domestic big business sector; 2- strong presence of subsidiaries of foreign transnational companies; 3- atomistic labour relations, both at the aggregate and firm levels; and 4- low and general levels of education and vocational skills.

Recent examinations of the left turn in Latin American politics and its potential for positive change in employment relations have indicated limited benefits for workers (Aleman, 2013); instead, trends towards decentralized collective bargaining, and the adoption of subcontracted, non-standard work forms ensuing from privatization persist (Anner and Veiga, 2013; Horwitz, 2013). Critics have argued that the new ideal-type is inferior to the existing LME/CME varieties and that its analytical narrative focuses on explaining its persistence despite its "relative inefficiency in terms of economic success and social equality" (Ebenau, 2012: 209). Consequently, the characteristics of HMEs rest on and perpetuate a number of core, but negative, complementarities. Of particular relevance to our argument are the negative complementarities of dominant MNCs and business groups operating in low-technology commodity sectors, characterized by low-skill, tightly-prescribed, low-quality jobs i.e. a "low-skill equilibrium" (Schneider, 2013: 35).

In the specific case of Brazil, this situation is further encouraged by the abundance of natural resources, including oil and iron ore. Extraction companies operating within these capital-intensive sectors both employ and develop skilled workers, but comprise a relatively small segment of the commodities sector. Thus, the availability of skilled work is constrained by its concentration in a restricted number of MNCs, only affording limited potential for positive change in employment relations (Schneider, 2013; Aleman, 2013; for a more positive account see Anner and Veiga, 2013). As demand for skilled labour is low, workers do not invest in professional development, which encourages both MNCs and domestic businesses to continue to invest in low-technology sectors, perpetuating an extractivist developmental model. For resource- and market-seeking MNCs, such as steel companies, Brazil is used as an entrance point to the American market, as well as an opportunity to take advantage of the local availability of resources. Skill deficits in the workforce locally can be met with in-house training (Atkin, 2012; Schneider, 2013). This might, however, reduce the incentive for workers to invest in skills before entering the workplace, and such training is often narrow in focus. According to the theoretical framework, a decentralized and fragmented labour movement and short job tenure exacerbates and consolidates this business model.

Of course, a business model that depends on low skill and low-technology sectors discourages investment in R&D and skilled employment; opportunities for in-

novation are not to be found in new products (McMillan and Rodrik, 2011), but rather novel forms of management or logistics (Schneider, 2013). The capacity for addressing environmental issues (through innovation) is thus low. This adds to the significant firm-level barriers for investment in the skills and technologies necessary for "greening." Further, in contrast to European discourses of green issues as costs (which EU firms attempt to mitigate through Emissions Trading Schemes (ETS)), recent discourses on environmentalism and sustainability in Brazil have taken on the notion of the environment not only as a cost but as a tradable good (Furtado, 2012), in ways beyond the EU's ETS. In a political arena focused on climate change and the "green economy" as a way of combatting it, natural resources such as lack of pollution and forest plantations are turned into fictitious goods such as "carbon credits" and, moreover, "mechanisms of clean development," which offer profits through financial instruments rather than operational and skill investment.

The Steel Industry Context

The steel industry constitutes an interesting focus for analysis of changing employment relations in the context of innovating for sustainable development. Steel is considered a strategic industry and, particularly for emergent economies, an integral driver of growth. Steel remains—for the moment—a core industry in the German economic model, and is likely to demonstrate the "traditional" features of the coordinated system. In Brazil, the focus is on basic steel production, where competitive advantage lies in natural resources and location. Given the persistence of diversity *within* (and across) varieties of capitalism (Lane and Wood, 2013), our focus on managerial approaches to employment and skills within one multinational company highlights the complex interaction between corporate strategies, which take either external or internal resources as the basis for competitiveness in different institutional environments.

As part of the restructuring of the European steel industry, there is a pressure on employers to advance innovative strategies around workforce development and work organization (Stroud, 2012; ESTEP, 2014). This overlaps in many ways with pressures to develop a sustainable industry and meet Corporate Social Responsibility (CSR) obligations and environmental regulations, as well as maximizing efficiency and optimizing resources through technological innovation (EUROFER, 2010). Similarly, in Brazil, the steel industry faces demands to contribute to sustainable development through providing employment, and thus developmental opportunities, as well as providing the state with income.

From an environmental perspective, the industry is carbon/resource intensive and is subject to extensive regulation. In Europe, in particular, the industry argues that carbon emissions policy and the implementation of the ETS is jeopardizing European

steel production (EEF, 2014). To meet these specific—and wider CSR—challenges, the sector has pledged its commitment to sustainable steel production, as well as "greening" work in line with such processes (ESTEP, 2014). In the Brazilian context, macro-political and macro-economic challenges, such as monetary and fiscal policy, are considered the biggest obstacles to continuing competitiveness and thus to the contribution, locally, to sustainable development (IAB, 2013). Sustainability, and thus the "greening" of steel production, is important both in the context of commodity-driven development and the industry's symbolic position as central to national development and the internationalization of the Brazilian economy.

Research

Two separate projects provide the case study data for this paper. One project conducted in 2011 focused on the greening of skills and work in EU steel industry and explored: 1- the industry's "green" training and skill needs, and 2- current industry/company strategies on green skills training and environmental policy and practice. We focused on companies in Germany, Italy, Poland and the UK, with the plant in Germany providing the focus for this paper. SteelCo-Germany is located in the north-west of the country and employs approximately 13,000 people.

The second project was conducted in 2013, in Brazil. It focused on exploring the interplay between environmental regulation and skills development at the sector, rather than company, level. The research focused on examining: 1- the industry's role in sustainable development and the industry's understanding of "green" development, and 2- company strategies on green skills training and environmental policy and practice. The SteelCo.AG site in Brazil that is the focus of this paper is a joint venture with a Brazilian company as a minority stakeholder, it started production in 2010 and directly employs 5,000 people.

A range of data was collected as part of both projects. First, documentary data were gathered on German and Brazilian environmental policy, practice and innovation at the national level, and, in the case of Germany at EU level. Second, documents on training strategies, environmental policy and practice were collected to illustrate the supporting organizational mechanisms within case study firms in Germany and Brazil. In the Brazilian case, this comprised company literature on environmental training programs and the environmental compliance reports and evaluative studies of SteelCo-Brazil. These documents were accepted as a reflection of existing programs rather than as a form of company presentation. Third, interviews with key stakeholders were conducted.

In Germany, group and individual interviews were conducted with key personnel at each plant, including environmental managers, health and safety co-ordinators, section managers, engineers, apprentices and training staff. The exploratory fieldwork in Brazil covered three companies, but the primary focus in

this paper is on SteelCo-Brazil. Individual and group interviews were conducted with key personnel in the steel industry, including environmental managers, CSR managers, environmental education staff and those responsible for community liaison. The interviews in Germany and Brazil were semi-structured and lasted between one and two hours. The company visits in Germany and Brazil also included a tour of the educational/training centre and, in Brazil only, one author participated in a demonstration of company environmental projects. In Brazil, fieldwork was extended to include social movement activists and local politicians active in the licensing processes—this comprised ten interviews. It should be emphasised that Brazilian fieldwork was part of a broader study conducted at a sectoral level, rather than within any particular company. Hence, interviews were conducted with a range of participants (as identified, but from a number of steel companies, educational institutions and community groups). The wider contextual knowledge generated from these interviews is used to supplement the secondary company-level data that we draw on in the paper to discuss SteelCo-Brazil.

Clearly, the focus of the project data in Germany and Brazil differs in some respects. Company-level data on SteelCo-Brazil are documentary in nature, drawn from company-published sources and secondary sources, whereas the data on SteelCo-Germany include interviews with company employees. However, the interview data collected in Brazil provide additional insights on the sector level. The data contribute to understandings of commonalities in approach across steel-producing companies and perceptions of steel activities by those affected by them. This broader approach—examining both internal and external perspectives of company activity—provides for differential access to representations and understandings of skill formation and employment relations at this site. In this article, we combine these different levels of analysis, which facilitates deeper insight into varied perceptions of the role of corporate and institutional mechanisms. This provides a basis for questioning the importance of institutional resources in constraining or enabling actors in a core industry under pressure of "green(ing) steel work."

Greening Steel Work

Both SteelCo-Germany and SteelCo-Brazil include environmental protection as central elements in their CSR policies. World-wide, policy is influenced by the parent company, SteelCo.AG. The company explicitly commits to "continuous improvement" as regards environmental protection, resource conservation and sustainability. The group board includes someone with overall responsibility for environmental matters and also drives an environmental and climate management system across its companies, defining uniform requirements and targets to be met by all plants. It commits to running regular internal training programs to support this goal, although training delivery differs across locations (see Stroud, 2012).

SteelCo.AG describes its environmental performance as superior to that of competitor companies, given its strategic aim of long-term sustainable development (Company Annual Report, 2011). The company's sustainability goals (i.e. continuous improvement of the economic, environmental and social performance of the company) are viewed as consistent with each other, rather than oppositional, and are aimed at fostering "outstanding technological competency" and the "promotion of innovation" (Company Report, 2009). With this in mind, we examine where aspects of employment (e.g. innovation and skills) overlap with environmental and sustainability considerations at SteelCo.AG's plants in Brazil and Germany, which represent different institutional contexts for the "greening" of operations.

The German Case

At SteelCo-Germany, technological innovation is a key aspect of environmental protection (e.g. the recycling of process gases to produce electricity). In light of such practices, various SteelCo.AG reports describe legislative compliance as a "given" (e.g. Company Annual Report, 2011). To facilitate SteelCo-Germany's sustainability goals, a dedicated and long-standing Environment and Climate Change Department (ECCD) operates alongside a Sustainability Team. Moreover, there is a team of section-based environmental representatives, who act as "contact partners for the parent company" and conduct daily environmental inspections (Director, ECCD, Interview Notes, 2011). These representatives also run environmental training for the workforce, and administer internal audits of green skills. The representatives are accountable to local management in the respective areas, but the environmental inspections are undertaken independently and the representatives report directly to the parent Group (Sustainability Manager, Interview Notes, 2011).

Furthermore, regulations and objectives pertaining to environmental protection are documented in an Environmental Management Handbook, described as a «key instrument» for communication of environmental matters. All environmental protection aspects are contained therein—as well as within work instructions/operating procedures—and presented in a format of practical guidelines. «Info-Points» are available within each work area and provide employees/trainees with information on relevant environmental protection issues, as well as other subjects: "…the company is constantly in contact with the plant operators to discuss environment-related decisions." (Environmental Manager, ECCD, 2011).

Environmental policy and practice at SteelCo-Germany is thus characterized by an engagement with the workforce and the pursuit of their "active contribution" as well as a level of scrutiny through daily inspections by the independent environmental representatives. This ethos is further exemplified in approaches to workforce development.

In keeping with other large German manufacturing corporations, employee development is a high priority at SteelCo.AG. With regard to environmental train-

ing at SteelCo-Germany, there is compulsory annual training for all managers. If employees require training in a particular environmental topic, they contact the HR department:

> One of the main instruments to keep employee training up-to-date is an occupational qualification plan assessing systematically what issues are relevant and which qualifications are needed in the various work areas [...] The plan covers, for example, legal mandatory qualifications and [new] requirements that arise in the context of commissions…. (Environmental Protection Officer, 2011).

For further specialized training over a wide range of environmental topics, the company commissions the relevant professional association (Training Manager, Interview Notes, 2011). Moreover, regular environmental training updates are provided by the Prevention Officers for Environmental Protection. Employees are involved in processes of environmental improvement and seminars for the entire workforce both inform and encourage participation (Training Manager, Interview Notes, 2011).

For apprentices, the off-the-job educational provision places heavy emphasis on the green aspects of occupations. There are formally-assessed environmental projects and environmental questions feature in examinations. In the work placement phase of their program of study, the content of the training provision follows in-company training plans, which correspond with occupational training regulations and emphasize environmental aspects. The apprentices also attend the company's well-resourced, technical training centre, receiving tuition on relevant environmental topics and working on related projects. The company aims to develop apprentices, "capable of thinking and acting independently," and who can: "participate and think in terms of the real processes at work, applying their technical knowledge to solve problems." (Trainer 1, 2011). Training staff stated that they aim to impart a level of understanding whereby trainees are able to: "… analyze the working process, be aware of and understand the possible impacts of their actions […] to ultimately increase their autonomy. (Trainer 2, 2011).

SteelCo-Germany clearly has a comprehensive and systematic approach to development, with the focus on achieving autonomy and adaptability of workers. The inclusive approach to development is reflected in (and reinforced by) its approach to innovation.

Involvement of the workforce in continuous improvement is encouraged on environmental improvement projects, which works in parallel with a specialist R&D function with responsibility for a large number of sophisticated process and product innovations. More specifically, at SteelCo.AG plants in Germany, approximately €240 million was spent on R&D in fiscal year 2007-08 and 1580 employees worked in this function across the segment as a whole. All employees

are comprehensively involved in working on efficiency improvements (the "Best" program, the "Ideas" scheme and the compulsory plant-wide efficiency programs). For example, the "Ideas" program—SteelCo.AG's highly successful suggestions scheme—saw a 20 percent increase in the number of suggestions for improving processes and optimizing efficiency between 2005 and 2008, generating annual savings of €15.5 million (Company Report, 2009).

The Brazil Case

The Brazilian company's commitment to sustainability is apparent in the planning of the production site: "Innovation, technology and respect for the environment and people" are presented as the "pillars which sustain SteelCo-Brazil" (Company Report 2012). The plant was planned with "the most modern energy technology available" and "produces steel with the lowest CO_2 emissions on the planet, when compared to other plants in production around the world" (Company Report 2012). It comprises mechanisms to recycle gases to produce electricity and claims to employ technology that keeps CO_2 emissions below the global average (Company Report 2012). This seems a departure from the theoretical paradigm of HMEs, which would predict low technological investment (Schneider, 2013). However, such investments have to be seen in the context of efforts by the Brazilian state to foster technological upgrading. Hence, the parent company benefited from R$1.48B investment in equipment and construction costs by the Brazilian National Bank of Development (BNDES), as well as from fiscal incentives to locate production in the area, offered by the local and Rio de Janeiro state government (PACS, 2012). The company seemingly exploited state financial resources in its corporate strategy of gaining access to a new market; thus, the basis of investment is made on quite different grounds to that in a CME context.

Further, institutional openness allowed SteelCo.AG to expedite the pre-operational licencing process regarding the installation of the production site[2] (Governo do Estado do Rio de Janeiro *et al.*, 2013). In this respect, SteelCo.AG's arrival in Brazil could have become another story of successful corporate exploitation of Brazil's comparative advantages i.e. the large pool of unskilled labour, low operational costs and the use of state support to lower installation costs. However, there is a legacy of what the current CEO of SteelCo.AG has described as "undesirable developments" (Company Report, 2013), around stories of *non-compliance* (uncovered during re-licencing processes) and ensuing enforcement. Despite the emphasis of SteelCo.AG and, locally, SteelCo-Brazil, on following environmental regulations, the company subsequently failed to secure a licence-to-operate (Governo do Estado do Rio de Janeiro *et al.*, 2013). The investigation by state authorities found 134 violations of environmental regulations, in particular, a lack of monitoring practices and measures (Governo de Estado do Rio de Janeiro

et al., 2013). SteelCo-Brazil admitted that, since the start of production at the site, carbon emissions in the metropolitan area of Rio have risen by 76 percent (PACS, 2012). Consequently, the regional and national state authorities compiled a detailed list of demands, published in 2012 in an Environmental Code of Conduct (*Terms of Adjustment of Conduct* or TAC) to remedy shortcomings with respect to the licencing, construction and operational processes at the site, with implications for the way work was organized and managed.

SteelCo-Brazil was ordered to introduce similar monitoring processes to the established daily internal inspections in Germany as a condition of the re-licencing process. Inspection reports[3] observing progress in SteelCo-Brazil's change in work practices provide an account of the increased use of monitoring and routine internal inspections. Since the imposition of TAC in 2012, manuals for the operation of equipment and checklists for processes with a view to reduce emission gases, effluents, and environmental risks in general have proliferated across the different stages of the production process (Inspection Report No. 16, November 2014). Workers are required to submit to observation by external monitors and also implement internal monitoring practices, by accounting for their actions in checklists and daily operation logs. These documents are then used as evidence of improved practice. However, the approach to inspection is implemented on a department-specific basis (e.g. related to the blast furnace area or the sinter plant) and thus, such a compartmentalized approach is arguably indicative of a lack of a strategic and integrated orientation towards improvement.

Of particular note, environmental improvements are being driven in a top-down fashion—with little evidence of the involvement of workers in processes of technical and organizational change. The increased surveillance, control and necessary adherence to rigid, tightly-prescribed and proceduralized tasks within a highly specialized division of labour point to the continuation and intensification of a Taylorized approach to work organization. Further, a lack of monitoring of workers' completion of essential training also suggests deficits with regard to the competences and confidence required for effective employee engagement in continuous [environmental] improvement programs. Education and training are presented as a principal activity within the company literature at SteelCo-Brazil (Company Report, 2013), but the TAC highlighted serious deficiencies in workforce development and, concomitantly, workplace practices. Early inspection reports cite evidence of company training provision—with workers being trained to operate equipment and adapt to new (imposed) processes (Inspection Report No. 1, May 2012, No. 2, July 2012)—but such training can only be described as being at a basic level. This is in contrast with the German case, where training follows an overarching strategic development orientation. In Brazil, the company training seems focused on ensuring rigid adherence to

standard operating procedures, rather than cultivating problem-solving, adaptive and innovative behaviours as an internal resource. Of course, it can be argued that highly-prescribed work tasks are associated with safer working, but the company was previously strongly criticized in an independent report for exposing workers to significant health and safety risks (Fiocruz 2011).[4] The lack of union representation at workplace level exacerbates this situation and underlines the role of health and safety committees which are statutory in companies with over 50 employees. Interestingly, however, the inspection reports remain silent on their involvement.

In contrast with such questions of operational compliance, there is evidence of green innovation at SteelCo-Brazil. The company has actively engaged in the "Green Economy" of Rio de Janeiro State by submitting three emission-reduction projects, certified as "Clean Development Mechanism" (CDM) projects (UNFCCC database). Using the CDM as one of the flexibility mechanisms defined in the Kyoto Protocol, SteelCo.AG technology developed in Germany was transferred to the Brazilian production site and, it is argued, implemented as part of the global carbon trading scheme. Thus, despite absolutely raising emissions, the company demonstrates both the relative reduction of emissions—if compared to the operation of the same plant without it—and "sustainable development" through technology transfer. This (fictitious) emission reduction is then remunerated in Certified Emission Reduction units, and demonstrates how managerial solutions of repackaging operational investment as environmental cost, rather than investment in new workforce skills, provides a different trajectory of innovation i.e. focused on external "resources" as opposed to the cultivation of internal sources, such as trust-based, participative "social architecture" and high levels of human capital.

However, the company has made a local investment of R$19M in educational provision to the community, as a basis for technical or professional training of a future workforce. It has also made other CSR investments required by the TAC. Nonetheless, even with such investments and the company's public espousal of amicable and supportive relations with the community, SteelCo-Brazil's presence has left the community divided, with a significant part of the local population feeling disadvantaged.[5] Thus, despite the existence of institutional factors that discourage union mobilization, as evidenced by low unionization rates, lack of workplace representation and a preference for the use of political channels by labour unions rather than bottom-up mobilization (Anner and Veiga, 2013), a number of social movements and protest groups have formed, achieving local and transnational political success in raising awareness of the negative environmental and social impact of "mega-investment projects" (PACS, 2012). The reporting of significant levels of enmity has reached the German political arena and resulted in a delegation of national politicians to the area. It has also

sparked the involvement of the Critical Shareholder Group at SteelCo.AG who has regularly submitted motions at the company's Annual General Meeting to hold the executive board to account for what has come to be known as an economic, environmental and social disaster for SteelCo.AG (Company Report 2014).[6] The corollary of this is that while interest and investment in the upgrading and creation of (green) skills for workers are lacking, the arrival of SteelCo-Brazil has, inadvertently, contributed to the upgrading of social capital in the area. This also holds potential for increased action at the workplace level through channels which combine union and social movement power (cf. Ramalho, 2012).

Discussion

The empirical data demonstrate that environmental matters are approached in different ways at different production sites within one multinational company. Both subsidiaries exhort CSR regarding the environment, but the evidence suggests distinctive variations across the two cases, with different outcomes for employment relations. Our argument is that these differences are principally attributable to the institutional contexts in which the companies are located, rather than generated by factors independent of political and economic context (cf. Matten and Moon, 2008). In particular, two interrelated issues—within which the employment relationship is central—will be addressed as follows: sustainability and the green agenda, as one of the dimensions of the VoC framework, and the resulting rereading of institutional complementarities and their expression through innovative practices within and beyond the company.

In the German CME context, institutions such as the structure of the financial system and provision and availability of capital, strong traditions of social partnership and collective bargaining have contributed to high skill levels, strong occupational identity (i.e. *Beruf*) and significant avenues for worker voice. In combination, these factors have, in general, facilitated a more developmental, longer-term perspective and high innovation performance (European Commission, 2012; Hall and Soskice, 2001). Moreover, the long-established political strength of the Green Party, extensive environmental legislation, and high levels of environmental awareness in the wider society provide support for environmental protection. The original VoC model did not refer explicitly to environmental issues, but a growing body of literature points to a correlation between the institutional frameworks of CMEs and strong environmentalism (e.g. Rootes *et al.*, 2012; Poloni-Staudinger, 2008; Dalton, 2005). These studies elaborate on established findings, which identify an association between the strength of environmental activism and the level of national economic and political development (Dalton, 2005), and demonstrate how high levels of support for welfare and social democracy (as found in CMEs) is associated with strong environmental protection (e.g. Krönig, 2010; Rootes *et al.*, 2012).

Thus, the CME context within which SteelCo-Germany is located facilitates and perpetuates the development and implementation of a high value-added strategy, based on technological innovation and a highly skilled workforce involved in continuous improvement activity, in conjunction with the firm's sophisticated environmental agenda. Environmental regulation, and the consequent need to improve environmental performance, is viewed as an economic opportunity to innovate through further investment in new technology and complementary skills. Here, environmental regulation constitutes another form of the "beneficial constraints" associated with the institutional frameworks of CMEs (Streeck, 2004) in which sustainability can be viewed as an endogenous feature.

This contrasts with the situation at SteelCo-Brazil where, in keeping with a (non-)developmental paradigm characteristic of HME contexts (Sanchez-Ancochea, 2009; Schneider, 2013; Boschi, 2014), significant barriers exist to the vision for, and investments in, both new forms of technology and the skills necessary for green innovation in an institutional framework (Schneider, 2013; Ebenau, 2012). Here, the dominant approach is focused on the *exploitation* of environmental resources, facilitated by an extractivist paradigm, leading to a number of regulatory breaches (i.e. non-compliance), as evidenced above. Subsequent changes in work patterns, as presented in the inspection reports, are a reflection of hierarchical relations, both within the company as management impose change and enforce compliance, rather than foster worker participation; and external to the company, as the plant responds to downward state pressures. Where investment in human capital has transpired, it took place outside the employment relationship. This occurred in tandem with technological investments that were utilized to directly generate income through manipulation of governmental incentive schemes, again as opposed to within-firm R&D investment and associated human capital development. Pioneering green technology was transferred from Germany rather than being developed at SteelCo-Brazil: high value-added R&D intensive activity was retained within the HQ of the parent company whilst the SteelCo-Brazil subsidiary focused on implementation and thus, low value-added and low-skilled production.

Investment in skills is further undermined by an institutional context in which low skills and concomitantly, low labour costs, attract MNC investment and comparative advantage continues to be based in the production and export of low value-added commodities, thereby perpetuating the "low skills trap" associated with HME contexts. Moreover, whilst transferred technology delivered regulatory compliance (at least with regard to carbon emissions, rather than other environmental aspects), it also facilitated exploitation of the new "Green Economy" of carbon trading. The green agenda then becomes a business opportunity—but one in which environmental resources are used unsustainably—rather than one which leads to skill (and thus work) upgrading and greening of the labour pro-

cess within, and ultimately outside, the company. In this sense, the institutional framework is not only characterized by negative institutional complementarities in terms of skill formation, but also with regard to sustainability. Thus, sustainability remains exogenous to the institutional framework and corporate strategies towards it emerge in negative, exploitative (rather than protective) ways.

Considering sustainability as a category of differentiation for varieties of capitalism, which can be either endogenous or exogenous, also has an impact on resulting complementarities between the different dimensions of the framework and, in particular, readings of innovative capacity. The cultivation of strong environmental movements within CME institutional frameworks, makes the emergence of pioneering green technology predictable (e.g. Rootes *et al.*, 2012). At the German plant, the long-term vision (of which workers are part and contribute directly e.g. the "Best" and "Ideas" schemes) and level of capital investment necessary for leading (environmental) innovations is facilitated by the corporatist institutions that characterize CME contexts. Such advances represent an example of a substantial and rapid shift in operations typical of radical innovation, which runs counter to predictions for incremental innovation in such contexts (Hall and Soskice, 2001), and further supports more recent contentions that CME institutions can be conducive to this type of innovation (see Allen and Funk, 2008).

In contrast, approaches to innovation adopted at SteelCo-Brazil's are ones that use technology to reduce emissions relative to other steel plants. At the same time, this is used to justify significant emission and local environmental degradation whilst simultaneously deriving financial gain from the process. Technology then becomes a financial as well as operational asset in the green agenda. This managerial, rather than operational, innovation is an attempt to exploit institutional conditions in a low-skill context, but also to the more general tendency towards "financialization" (e.g. Thompson, 2013; Leyshon and Thrift, 2007; Dawley et al., 2008; Peetz and Murray, 2013). Here, sources of profit are increasingly secured through utilization and exploitation of financial instruments rather than production and product markets. (Thompson, 2013: 475). At enterprise level, the quest for enhanced shareholder value and short-term profit maximization means that labour costs are squeezed and workforces experience greater insecurity and intensified working conditions, whilst employers increasingly retreat from investment in human capital (Thompson, 2013)—a situation which Brazilian trade unions, hampered in part by fragmented forms of organization, lack of workplace representation and low rates of membership, have struggled to challenge by themselves. In other contexts, unions have had to enter coalitions with locally dominant non-employment actors, such as the Catholic Church (Ramalho, 2012), or work through political channels (Anner and Veiga, 2013). Thus, SteelCo-Brazil reaps additional financial benefits from a developmentalist

state aiming to address this "trap" through financial incentivization for both indigenous and multinational companies, whilst simultaneously continuing to allow (environmental) exploitation. The green agenda therefore affords opportunities for radical managerial innovations, focused on manipulation of government incentive schemes. This reinforces exploitative and extractivist strategies of engagement, thereby reproducing the extant low-skill equilibrium.

The discussion of the green agenda, as a new dimension in the VoC framework, explains its varied impact within the company i.e. as embedded in the employment relationship in CMEs, but exogenous to the employment relationship and reinforced in its absence as negative complementarity in HMEs. However, its uneven impact on firm-society relations is worth noting. The example of the contentious installation process of SteelCo-Brazil suggests an increase in local *social* capital through increased local contestation and formation of associations (Santos, 2012), which was used to mobilize against the company and led to a subsequent increase of compliance and legal costs, as well as reputational loss. Similar mobilization can be seen in relation to other steel projects across Brazil (see Barbosa, 2010; Ramalho *et al.*, 2013; Santos, 2010) and is indicative of, on the one hand, the recent re-ordering of state-society relations in Brazil (Boschi, 2014) and, on the other hand, the growing importance of non-employment actors for employment relations (cf. Barbosa *et al.*, 2011; Veiga and Martin, 2009; Ramalho, 2012). It also reflects the continuing fragmentation of the Brazilian labour movement, which has remained limited in its ability to adapt to the breakdown of the previous corporatist system (Diniz and Boschi, 2003). Hence, spaces for action have opened up which have allowed social movements to organize around questions of sustainable development and to emerge as powerful actors, especially at the local and transnational level.

Conclusion

The sustainability and environmental agenda will develop unevenly worldwide and in different ways at the production sites of MNCs, and the shape and form of the employment relationship will differ accordingly. The value of the VoC typology is that it allows for a specification of the relationship between state, labour and capital—in this case in relation to innovation around the environmental agenda, the greening of operations and attendant implications for the management of the employment relationship at each site. Our analysis argues for the importance of incorporating the green agenda as a marker of difference into the existing VoC framework. This allows for nuanced readings of unstable institutional complementarities in terms of operational, managerial and social innovation in different institutional contexts—with such analyses essential for understanding workers' experiences of employment and work.

Clearly, within the CME environment, as industrial sectors restructure and respond to extensive environmental legislation, a collaborative infrastructure—supported by public policy focused on environmental protection—penetrates company philosophies and articulates environmental policy as a source of innovation and market opportunity. The realization of such strategies are, in turn, facilitated by the existence of high quality external educational institutions and high levels of intra-firm training, complemented by a range of effective worker voice mechanisms, enabling the greening of occupational competences and work at the level of the firm. The latter stands in stark contrast to the HME environment, where despite direction from the state (and community) on the greening of the economy/operations, efforts to comply with regulations are uneven and the frameworks to foster "green" innovation through the development of human capital and operational enhancement remain weak. This is not only the result of local institutional "weaknesses" (including with regard to worker representation), but of the particular form the insertion of emerging economies into the global economic order takes.

Thus, complementarities do not only exist locally but—as we have demonstrated—in the interaction between varieties of capitalism, too. The value of the comparison of the two institutional environments lies in making visible the linkages between them within one multinational company. As such, this article contributes to a multi-scalar understanding of the socio-institutional contexts of the employment relationship, as a consequence of the way corporate investment decisions are produced and mediated (cf. Dawley *et al.*, 2008) in relation to "greening." More specifically, it argues for a stronger emphasis on positive and negative institutional complementarities beyond the national scale within the Varieties of Capitalism framework.

Notes

1 Hall and Soskice's (2001: 38-44) distinction between Liberal Market Economies (LMEs) and Coordinated Market Economies (CMEs) identifies significant variations in the institutional, ideological and cultural patterns specific to these two types of capitalism. More recently, this framework has been extended to include developments in Latin America and transition economies—framed in terms of Hierarchical Market Economies (HMEs) (e.g. Schneider, 2013). The different production, labour market, industrial relations and status systems associated with the different types mean that the basis of competitive advantage differs significantly.

2 This pre-operational licence allows for the installation of production sites as well as limited operation.

3 As a condition in the TAC following the failed licencing process in 2012, SteelCo is required to publish bi-monthly inspection reports by an independent auditor monitoring progress in addressing areas of non-compliance with environmental legislation. These reports were analyzed to identify change in work practices in the company as a result of the TAC.

4 The report detailed dangerous levels of pollution in the area and potential dangers for the health and safety of workers. The company rejected the findings to the point of suing its authors (Werneck, 2011). Notwithstanding this response, the company now provides annual

accounts of health and safety performance to local and state authorities as well as the union, in compliance with the TAC (Inspection Report No. 12, March 2014).

5 For example, some 8000 local fishermen are reported to have experienced loss of income due to the negative impacts on marine life in the area (PACS, 2012; Furtado, 2012).

6 Similar occurrences are evident in relation to the establishment of a Volkswagen plant in Chattanooga, Tennessee. The plant did not recognize a union, nor did it have co-determination mechanisms. Following union opposition to such practices in Germany, Volkswagen presented proposals to establish a Works Council. However, these proposals were rejected by employees in 2014.

References

Aleman, Jose. 2013. "The Left Turn in Latin America: Consequences for Employment Relations." *The Oxford Handbook of Employment Relations*. Wilkinson, Adrian, Wood, Geoffrey, Deeg, Richard (eds), Oxford: Oxford University Press, 413-430.

Allen, Matthew and Lothar Funk. 2008. "Institutions and Innovation: The role of German works councils in supporting radical change." Paper presented at the 25th Celebration *Conference on Entrepreneurship and Innovation—Organizations, Institutions, Systems and Regions*, Copenhagen, Denmark, 17-20 June 2008.

Anner, Mark S. and João Paulo Cândia Veiga. 2013. "Brazil", *Comparative Employment Relations in the Global Economy.* Frege, Carola and John Kelly (eds), London and New York: Routledge, 264-284.

Atkin, David. 2012. "Endogenous Skill Acquisition and Export Manufacturing in Mexico", *NBER Working Paper 18266*, Cambridge: National Bureau of Economic Research.

Barbosa, Isabella Batalha Muniz. 2010. *O Lugar no Contexto das Redes Globais: O Polo Industrial e de Serviços de Anchieta, ES: uma paisagem em transformação*. PhD thesis. São Paulo: USP.

Barbosa, Alexandre de Freitas, Veiga, João Paulo Cândia and Maria Lúcia Vilmar. 2011. "Padrões de Trabalho Multinacionais no Brasil." *Revista de Associação Brasileira de Estudos do Trabalho*, 10 (1), 79-101.

Blühdorn, Ingolfur. 2009. "Reinventing Green Politics: On the Strategic Repositioning of the German Green Party." *German Politics*, 18 (1), 36-54.

Bosch, Gerhard and Jean Charest. 2008. "Vocational Training and the Labour Market in Liberal and Co-ordinated Economies." *Industrial Relations Journal*, 39 (5), 428-47.

Boschi, Renato R. 2014. "Politics and Trajectory in Brazilian Capitalist Development." *The BRICS and Emerging Economies in Comparative Perspective*. Becker, Uwe (ed) London: Routledge, 123-143.

Dalton, Russell J. 2005. "The Greening of the Globe? Cross-national Levels of Environmental Group Membership." *Environmental Politics*, 14 (4), 441-459.

Dawley, Stuart, Stenning, Alison and Andy Pike. 2008. "Mapping Corporations, Connecting Communities: Remaking Steel Geographies in Northern England and Southern Poland", *European Urban and Regional Studies*, 15 (3), 265-287.

Diniz, Eli and Renato R. Boschi. 2003. "Empresariado e Estratégias de Desenvolvimento", *Revista Brasileira de Ciências Socias*, 18 (52), 15-34.

Ebenau, Matthias. 2012. "Varieties of Capitalism or Dependency? A Critique of the VoC Approach for Latin America". *Competition and Change*, 16 (3), 206-223.

EEF. 2014. *The Future of the EU Emissions Trading Scheme*. London: EEF.

ESTEP. 2014. *Sustainable Steel Production for the 2030s: The Vision of ESTEP*. Brussels: European Commission.

EUROFER. 2010. *Manifesto of the European Steel Industry for the European Commission 2010-2014*. Brussels: Eurofer.

European Commission. 2012. *Regional Innovation Scoreboard 2012* Brussels: DG Enterprise and Industry.

Evans, Claire and Dean Stroud. 2014. "Greening Steel Work: Varieties of Capitalism, the Green Skills Agenda and the 'Greening' of the Labour Process" in Marco Hauptmeier and Matt Vidal (eds). *The Comparative Political Economy of Work and Employment Relations*. Basingstoke: Palgrave MacMillan, 118-138.

Fiocruz. 2011. *Avaliação dos Impactos Socioambientais de Saúde em Santa Cruz decorrentes da Instalação e Operação da Empresa TK CSA*. Rio de Janeiro: Fundação Oswaldo Cruz.

Frangi, Lorenzo. 2014. "Introducing Workers' Embedded Agency: Insights from the Brazilian Subsidiaries of a Multinational Corporation", *Relations Industrielles/Industrial Relations*, 69 (1), 60-86.

Furtado, Fabrina. 2012. *Ambientalismo de espectáculo: a economia verde e o mercado de carbono no Rio de Janeiro*. Rio de Janeiro: PACS.

Governo do Estado do Rio de Janeiro, Secretaria de Estado do Ambiente, Insituto Estadual do Ambiente (2013) *Termo Aditive no. 09/13 – Primeiro Termo Aditivo ao Termo de Ajustamento de Conduta – TAC. INEA 02/12*. Rio de Janeiro.

Hall, Peter and David Soskice. 2001. "An Introduction to Varieties of Capitalism." *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Peter Hall and David Soskice (eds), Oxford: Oxford University Press.

Hassel, Anke (2012) "The Paradox of Liberalization - Understanding Dualism and the Recovery of the German Political Economy", *British Journal of Industrial Relations*, 52 (1), 57-81.

Horwitz, Frank. 2013. "Employment Relations in the BRICS Countries." *The Oxford Handbook of Employment Relations*. Wilkinson, Adrian, Wood, Geoffrey, and Richard Deeg (eds), Oxford: Oxford University Press, 448-470.

Instituto Aço Brasil. 2013. *Relatório de Sustentabilidade*. Rio de Janeiro, Instituto Aço Brasil.

Jagger, Nick, Foxon, Tim and Andy Gouldson. 2013. "Skills Constraints and the Low Carbon Transition", *Climate Policy*, 13 (1), 43-57.

Krönig, Jürgen (2010) *Climate Change: the Challenge for Social Democracy*. London: Policy Network.

Lane, Christel and Geoffrey Wood. 2013. "Capitalist Diversity, Work and Employment Relations." *The Oxford Handbook of Employment Relations*. Wilkinson, Adrian, Wood, Geoffrey, Deeg, Richard (eds), Oxford: Oxford University Press, 156-172.

Lehrer, Mark, Tylecote, Andrew and Emanuelle Conesa. 1999. "Corporate Governance, Innovation Systems and Industrial Performance", *Industry and Innovation*, 6 (1), 25-50.

Leyshon, Andrew and Nigel Thrift. 2007. "The Capitalization of Almost Everything: The Future of Finance and Capitalism", Theory, Culture and Society, 24 (7-8), 97-115.

Matten, Dirk and Jeremy Moon. 2008. "'Implicit' and 'Explicit' CSR: A Conceptual Framework for a Comparative Understanding of Corporate Social Responsibility", *Academy of Management Review*, 33 (2), 404-424.

McMillan, Margaret S. and Dani Rodrik. 2011. "Globalization, Structural Change and Productivity Growth." *NBER Working Paper*, No. 17143, Cambridge, Mass.: National Bureau of Economic Research.

Morgan, Glenn. 2005. "Introduction: Changing Capitalisms? Internationalization, Institutional Change, and Systems of Economic Organization." Morgan, Glenn, Whitley, Richard, Moen, Eli (eds) *Changing Capitalisms? Internationalization, Institutional Change, and Systems of Economic Organization*. Oxford: Oxford University Press, 1-20.

Morgan, Glenn, Whitley, Richard and Eli Moen. (eds) 2005. *Changing Capitalisms? Internationalization, Institutional Change, and Systems of Economic Organization*. Oxford: Oxford University Press.

PACS. 2012. *Companhia Siderúrgica do Atlântico: Impactos e Irregularidades na Zona Oeste do Rio de Janeiro*. 3rd ed. Rio de Janeiro: PACS.

Peetz, David and Georgina Murray. 2013. "The Financialisation of Corporate Ownership and Implications for the Potential for Climate Action." Suzanne Young and Stephen Gates (eds.), *Institutional Investors and Corporate Responses: Actors, Power and Responses*, Emerald, London.

Poloni-Staudinger, Lori M. 2008. "Are Consensus Democracies more Environmentally Effective?" *Environmental Politics*, 17 (3), 410-430.

Porter, Michael E. and Class van der Linde. 1995. "Towards a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives*, 9 (4), 97-118.

Ramalho, José Ricardo. 2012. "Fórum Demissão Zero: crise e ação coletiva no Sul fluminense", *Desenvolvimento, trabalho e cidadania: Baixada e Sul Fluminense*. José Ricardo, Ramalho and Alexandre Fontes (eds), Rio de Janeiro: 7 Letras, 225-246.

Ramalho, José Ricardo, Santos, Rodrigo Salles Pereira dos and Raphael Jonathan da Costa Lima. 2013. "Estratégias de desenvolvimento industrial e dinâmicas territoriais de contestação social e confronto político." *Sociologia and Antropologia*, 3, 175-200.

Rootes, Christopher, Zito, Anthony and John Barry. 2012. "Climate Change, National Politics and Grassroots Action: An Introduction." *Environmental Politics*, 21 (5), 677-690.

Sánchez-Ancochea, Diego. 2009. "State, Firms and the Process of Industrial Upgrading: Latin America's Variety of Capitalism and the Costa Rican Experience.' *Economy and Society*, 38 (1), 62-86.

Santos, Rodrigo Salles Pereira dos. 2012. "Redes de Produção Globais, transformação estrutural e crítica/ contestação social: a TK CSA em Itaguaí, RJ." *Desenvolvimento, trabalho e cidadania: Baixada e Sul Fluminense*. José Ricardo, Ramalho and Alexandre Fontes (eds), Rio de Janeiro: 7 Letras, 43-76.

Schneider, Ben Ross. 2013. *Hierarchical Capitalism in Latin America: Business, Labor and the Challenges of Equitable Development*. New York: Cambridge University Press.

Streeck, Wolfgang. 1992. *Social Institutions and Economic Performance: Studies of Industrial Relations in Advanced Capitalist Economies*, London: Sage.

Streeck, Wolfgang. 1995. "German Capitalism: Does it Exist and Can it Survive?", *Modern Capitalism or Modern Capitalisms?* Colin Crouch and Wolfgang Streeck (eds), London: Francis Pinter.

Streeck, Wolfgang. 2004. "Educating Capitalists: a Rejoinder to Wright and Tsakalotos", *Socio-Economic Review*, 2 (3), 425-438.

Streeck, Wolfgang. 2009. *Re-forming Capitalism: Institutional Change in the German Political Economy*. Oxford: Oxford University Press.

Stroud, Dean. 2012. "Organising Training for Union Renewal: A Case Study Analysis of the European Union Steel Industry." *Economic and Industrial Democracy*, 33 (2), 225-244.

Thompson, Paul. 2013. "Financialization and the Workplace: Extending and Applying the Disconnected Capitalism Thesis." *Work, Employment and Society*, 27 (3), 472-488.

Werneck, Felipe. 2011. "Siderúrgica processa cientistas no RJ", *Estadão*, 1 November 2011, accessible at < http://www.estadao.com.br/noticias/geral,siderurgica-processa-cientistas-no-rj-imp-,793092> , last accessed 27 February 2015.

Wilkinson, Adrian, Wood, Geoffrey, Deeg, Richard. 2013. "Comparative Employment Systems." *The Oxford Handbook of Employment Relations*. Wilkinson, Adrian, Wood, Geoffrey and Richard Deeg (eds), Oxford: Oxford University Press, 1-20.

Wilkinson, Adrian, Wood, Geoffrey and Richard Deeg (eds). 2013. *The Oxford Handbook of Employment Relations.* Oxford: Oxford University Press.

Wood, Geoffrey and Lane, Christel. 2012. "Institutions, Change and Diversity." Lane, Christel and Wood, Geoffrey. (eds) 2012. *Capitalist Diversity and Diversity within Capitalism*. London, Routledge, 1-31.

SUMMARY

Sustainable Varieties of Capitalism? The Greening of Steel Work in Brazil and Germany

The aim of this article is to investigate the sustainability agenda and its implications for employment and managerial practices within different institutional contexts. The article uses the comparative capitalisms literature and, in particular, the Varieties of Capitalism framework to examine how multinational corporations (MNCs) can exploit different institutional contexts to achieve competitive advantages. We explore one multinational steel company's i.e. SteelCo.AG varied responses to the emerging constraints of the sustainability agenda in Germany, as an example of a Coordinated Market Economy, and Brazil, as an example of a Hierarchical Market Economy. In particular, we focus on evidence concerning training, environmental practices and policies in the different company sites.

We demonstrate how different institutional contexts favour different corporate strategies from an approach that exploits negative institutional complementarities, such as the "low-skill/low-cost trap," to one that benefits from strong institutional coherence facilitating skills formation and innovation in response to environmental legislation. Our analysis argues for the importance of incorporating the green agenda as a marker of difference into the existing VoC framework. This allows for nuanced readings of unstable institutional complementarities in terms of operational, managerial and social innovation in different institutional contexts – with such analyses essential for understanding workers' experiences of employ-

ment and work. Our contribution to the extant literature on the employment relationship, within the context of VoC analysis, therefore offers empirical material on understandings of employment relations within the HME category, as a new type within the VoC framework, through our discussion of a multinational's activities in Brazil. This also allows us to focus on the way companies and other actors' impact upon institutional frameworks and the distribution of power between different actors within particular contexts, thereby addressing recent discussions of the stability and homogeneity of institutional arrangements.

KEYWORDS: employment relations, environment, skill, steel industry, multinationals.

RÉSUMÉ

Variétés durables du capitalisme? Le virage écologique du secteur de l'acier au Brésil et en Allemagne

Cet article se penche sur le programme de développement durable et son incidence sur les pratiques d'emploi et de gestion dans différents contextes institutionnels. S'appuyant sur la littérature sur le capitalisme comparé, plus particulièrement sur le cadre d'analyse des variétés du capitalisme (VdC), il souhaite découvrir comment des multinationales peuvent exploiter différents contextes institutionnels pour en tirer des avantages concurrentiels. Les auteurs examinent les diverses réponses d'une grande aciérie multinationale, la *SteelCo.AG*, aux nouvelles contraintes imposées par le programme de développement durable en Allemagne — à titre d'exemple d'une économie de marché coordonnée (EMC) —, ainsi qu'au Brésil — exemple cette fois d'une économie de marché hiérarchique (EMH). Leur analyse s'appuie sur des données probantes relatives aux programmes de formation, aux pratiques environnementales et aux politiques en place dans les diverses sites de la compagnie.

L'article démontre que différents contextes institutionnels favorisent différentes stratégies opérationnelles, allant d'une approche axée sur les complémentarités institutionnelles négatives, comme le piège « faibles qualifications/faibles coûts », à une stratégie axée sur une solide cohérence institutionnelle facilitant la formation et l'innovation en réponse aux exigences des lois environnementales. Dans cet écrit, les auteurs démontrent l'importance d'intégrer le programme écologique, à titre de marqueur de différence, dans le cadre d'analyse des VdC. Cela leur permet de faire une lecture plus nuancée des complémentarités institutionnelles instables en matière d'innovation opérationnelle, managériale et sociale dans différents contextes institutionnels — analyses indispensable pour comprendre les expériences des travailleurs sur les plans de l'emploi et du travail. Cette étude sur les activités d'une multinationale brésilienne vient contribuer à l'enrichissement de la littérature sur les relations d'emploi, cela par le biais du cadre d'analyse des VdC, et elle fournit également du matériel empirique sur la compréhension des relations d'emploi au sein de la catégorie EMH, à titre de nouvelle contribution dans le cadre analyse des VdC. Elle permet aussi aux auteurs de focaliser sur la manière dont les entreprises et d'autres joueurs influencent le

contexte institutionnel et la répartition du pouvoir entre différents intervenants dans des contextes particuliers, faisant ainsi écho aux récents débats sur la stabilité et l'homogénéité des arrangements institutionnels.

MOTS-CLÉS : relations d'emploi, environnement, formation, secteur de l'acier, multinationale.

RESUMEN

¿Variedades durables del capitalismo? La transformación ecológica del trabajo del acero en Brasil y Alemania

El objetivo de este artículo es de investigar la agenda de la durabilidad y sus implicaciones para el empleo y las prácticas de gestión dentro de contextos institucionales diferentes. Este artículo utiliza la literatura comparativa sobre los capitalismos y, en particular, el esquema de las variedades de capitalismo para examinar de qué manera las corporaciones multinacionales (CMNs) pueden explotar los diferentes contextos institucionales para obtener ventajas competitivas. Se estudia las reacciones de una compañía multinacional del acero (SteelCo.AG) frente a las restricciones de la agenda de durabilidad en Alemania, como un ejemplo del mercado económico coordinado, y en Brasil, como un ejemplo del mercado económico jerárquico. Se focaliza en particular sobre los aspectos relativos a la formación, las prácticas y políticas sobre el medio ambiente en los diferentes emplazamientos de la compañía.

Se demuestra cómo diferentes contextos institucionales favorecen diferentes estrategias corporativas desde un enfoque que explota las complementariedades institucionales negativas, tales como « menos competencia/trampa del bajo costo », comparativamente al otro enfoque en que los beneficios de una coherencia institucional fuerte facilitan la formación de competencias y la innovación en respuesta a la legislación sobre el medio ambiente. Nuestro análisis sostiene la importancia de añadir la agenda ecológica como una marca de diferencia en el esquema de variedades de capitalismo. Esto permite una lectura más sutil de las complementariedades institucionales inestables en términos de innovación social, operacional y de gestión en los diferentes contextos institucionales. Este análisis es esencial para comprender las experiencias de los trabajadores en cuanto al empleo y el trabajo. Nuestra contribución a la literatura existente sobre las relaciones de empleo, dentro del contexto del análisis de variedades del capitalismo, ofrece por lo tanto material empírico para comprender las relaciones de empleo dentro de la categoría HME, como un nuevo tipo dentro del esquema de variedades del capitalismo, a través nuestra discusión de las actividades de una multinacional en Brasil. Esto nos permite también de focalizar sobre la manera cómo las compañías y otros actores influencian los cuadros institucionales y la distribución de poder entre los diferentes actores dentro de contextos particulares, orientando de esta manera las recientes discusiones sobre la estabilidad y la homogeneidad de los acuerdos institucionales.

PALABRAS CLAVES: relaciones de empleo, medio ambiente, competencia, industria del acero, multinacionales.