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WHAT WILL BECOME OF THE GERMAN MODEL? Engaging Sources of Firm-level Diversity in Germany's Economy

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Abstract

Traditionally, Germany's economy has been characterized by a specific model. Currently, transformations and empirical investigations of firm-level diversity challenge this traditional German model. This article summarizes important challenges by discussing four distinct sources of diversity in Germany's economy: transformations of the institutional framework; key firm-level sources of diversity in Germany's economy; SMEs (small and medium-sized enterprises) as a forgotten pillar of German capitalism; and the East German path in the German model. Overall, the article argues that the traditional German model has been substantially transformed. Additionally, considering the manifold sources of diversity in Germany's economy, I call for a theoretical and empirical appreciation of this diversity at the firm level. In doing so the research on the German economy could be substantially advanced and a more accurate picture of the current German model could be drawn.

Keywords

German economy, Germany's economy, comparative capitalism, firm-level diversity, institutional transformation and economic change, innovation, flexibility.

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O QUE ACONTECERÁ COM O MODELO ALEMÃO? Engajando fontes de diversidade ao nível da empresa dentro daeconomia alemã

Resumo

Tradicionalmente, a economia alemã tem sido caracterizada por um modelo específico. Atualmente, transformações e investigações empíricas sobre diversidade ao nível da empresa desafiam o conceito deste modelo tradicional alemão. Este artigo sumariza os desafios importantes por discutir quatro fontes distintas de diversidade dentro da economia alemã. Isto compreende: transformações do quadro institucional; fontes chaves de diversidade ao nível da empresa dentro da economia alemã; PME (Pequenas e Médias empresas) como um pilar esquecido do capitalismo alemão; o caminho da Alemanha Oriental no modelo alemão. Em linhas gerais, o artigo argumenta que o modelo tradicional alemão foi substancialmente transformado. Além disso, considerando as múltiplas fontes de diversidade dentro da economia alemã, o artigo busca por uma apreciação teórica e empírica desta diversidade ao nível da empresa. Fazendo isto, a pesquisa sobre a economia alemã pode ser avançada substancialmente e um quadro mais acurado do modelo alemão atual pode ser desenhado.

Palavras-chave

Economia alemã. Capitalismo comparado. Diversidade ao nível da empresa. Transformação institucional e mudança econômica. Inovação. Flexibilidade

Introduction

A key assumption in the comparative capitalism (CC) literature (JACKSON; DEEG, 2008) is that national institutional frameworks foster the development of specific models of production and particular innovative capabilities. The CC literature views Germany as a central case (WHITLEY, 1999; HALL; SOSKICE, 2001; AMABLE, 2003). Germany's unique institutional conditions have fostered the emergence of a particular German model at the firm level (SORGE; STREECK, 1988; STREECK, 1991). This German firm-level model was recognized for its incremental innovation and economic success in global markets. Major foundations of this successful model – among other aspects – are long-term employment relations and high innovative capabilities. This idea of a particular German model is a cornerstone of the comparative capitalism literature.

However, recent institutional and organizational transformations question the assumptions about the traditional German model. In the 1990s, substantial transformations led several authors to question the survival chances of the German model (STREECK, 1997; BOSCH et al., 2007). While the model flourished in the 1980s, it is considered to have been in a process of erosion and transformation since the 1990s. Especially the diffusion of temporary agency work constitutes a major rupture with the general logic of the traditional German model (HOLST et al., 2010). The short-term scope of this and other atypical forms of employment conflict with the general long-term orientation of traditional employment relations. The rise of atypical employment call into question the foundations of the traditional German model.

However, in light of these recent developments in German capitalism, the concept of a German model is coming under pressure. A number of studies have revealed that structures and strategies of German firms are often not as clear-cut as traditionally expected (CROUCH et al., 2009; HERRMANN, 2008; LANGE, 2009; BARRY; NIENHUESER, 2010). These empirical studies show a substantial diversity of German firms. One major aspect of this diversity is the coexistence of high-tech and low-tech firms (HIRSCH-KREINSEN, 2008; HIRSCH-KREINSEN et al., 2012), while one would expect German firms to be primarily embarked in high-tech production. This diversity does not fit well with the traditional assumptions of the German model. One general claim of the traditional debate was that the German firm-level model is an ideal-typical approach. However, empirical diversity calls into question the assumption that German firms (still) follow this model (ALLEN, 2004).

The current economic crisis in Europe has reversed this picture of the erosion German model. The German model is currently no longer an example of desperation and decay. On the contrary, scholars have remarked on the almost miraculous resilience of German firms in the 2008/9 financial crisis (e.g. MÖLLER, 2010; BOSCH, 2011</publisher><urls></urls></record></Cite></EndNote>). This development has reignited interest in the German model's foundations. More than ever, there is a need to engage with what is going on in German firms.

Against this background of doubts about the traditional German model, I ask: Is there still a German model and what is its current state? How many other models are there? While these questions involve a research agenda, I will focus my argument on four sources of diversity within the German model:

First, a shift in the traditional German model is likely, since *transformations of the institutional framework* prompt firms to adapt. In recent years, evidence about fundamental changes has emerged that challenges existing ideas on the German model and their implications for production and innovation models.

Second, in the CC debate, *key firm-level sources of diversity in Germany's economy* have been largely overlooked. This includes research on diversity within national frameworks and between industries. Empirical evidence shows the co-existence of various production and innovation models within a single national economy.

Third, CC debates have mostly focused on strategic patterns of large German firms (BERGHOFF, 2006). The influence of small and medium-sized enterprises (SMEs) within the German model is substantial, although within the general CC debate they are at best a *supporting actor* (cf. BLUHM; SCHMIDT, 2008; BLUHM; MARTENS, 2009). So one can assume that SMEs might be *a forgotten pillar of German capitalism.* An investigation into the current state of the German model of production and innovation must consider SMEs.

Fourth, the reunification of East and West Germany marks a major shift in the traditional model (STREECK, 1997; BOSCH et al., 2007).

Recent empirical evidence points to a particular *East German path in the German model* (BUSS; WITTKE, 2004, 2005, 2006). The reunification of Germany in 1990 included a transfer of the West German institutional framework to East Germany. For East Germany, this resulted for instance in a specific industry structure, higher unemployment rates, and differences in power relations. These differences likely affect production and innovation models. Not only has the debate about the traditional model neglected East Germany's development since 1990, it also seems likely that East German firms follow a somewhat modified path in the overall model.

This article contributes to the general question about the current state of the German model. In the following sections, I draw on existing investigations and empirical studies that shed light on the four mentioned sources of diversity in Germany's economy. Generally, I argue that studies in CC can be advanced if we relate ideal-typical firm-level models to sources of diversity within national frameworks. Specifically, I contribute to CC debates by pointing out sources of diversity in Germany's economy and discussing the relevance of these sources for the idea of the traditional German model.

Transformations of the Institutional Framework

In the existing literature, the German model of capitalism is portrayed as an archetypical case of a *coordinated market economy* (HALL; SOSKICE, 2001; see also WHITLEY, 1999; AMABLE, 2003; DEEG; JACKSON, 2007). Especially with the juxtaposition of the German and the U.S. institutional frameworks, the CC literature has influenced the debates about comparative (dis)advantages and the persistence of national idiosyncrasies. The idea of a *German model* and the various firm strategies has influenced the debates about institutional frameworks and international comparative studies.

Foundations of the Traditional German Model

In the 1980s, the German model was identified with several specific institutionalized structures and organizational patterns (STREECK, 1991; HALL; SOSKICE, 2001). This included the following firm practices: high general employee qualifications; firm-specific qualifications; high employment security; functional, flexible, and decentralized work organization; a cooperative orientation between employees and employers; a formalized system of co-determination; industry-wide collective bargaining agreements; the availability of patient capital from *house banks (Hausbanken)*; and strong unions. In this context, firms were confronted with an institutionally made structural inflexibility on external labor markets and an according low external numerical flexibility. This was expected to be compensated for by high internal flexibility and the dominance of internal labor markets (TÜSELMANN, 1996).

The resulting *German production model* at the firm level was termed *diversified quality production* (DQP) (SORGE; STREECK, 1988; STREECK, 1991, 1997). German firms were expected to predominantly implement strategies and organizational structures that strategically fit the institutional framework. Restrained and enabled by institutional pillars, firms opt for quality competition instead of price competition. This is because only a quality competition strategy can achieve an institutional competitive advantage in the international market environment (HALL; SOSKICE, 2001). In comparison with their U.S. counterparts, German firms are expected to follow a specific model of innovation – that of incremental innovation via long-term quality improvements. The basis for this innovation strategy and the developed innovative capabilities are primarily long-term employment and the availability of long-term corporate finance sources. In the CC debate, this specific innovation strategy is understood to be the root of German international competitiveness (HALL; SOSKICE, 2001). Elevated market positions or market niches are first conquered and subsequently defended in an international, high-quality competition. Closely related to production and innovation models are various employment models that mediate access to labor markets and thus to the workforce needed to realize production and innovation.

It is understood that while alternative strategies are possible in principle, they are difficult to implement because any alternative would face the effects of a hostile institutional environment (JÜRGENS et al., 2000). Thus, the concept of institutional frameworks is not deterministic. It allows for deviations, for instance, the pursuit of different innovative activities: "Firms are encouraged to adopt… ways of developing innovations, and discouraged from pursuing other ones, by particular combinations of dominant institutions in different kinds of market economies" (WHITLEY, 2007, p. 190) So, in this understanding, a model implies the existence of dominant default strategies of firms; for instance, quality instead of price competition or internal instead of external flexibility.

Transformations of the German Model since the 1990s

The traditional German model concept was developed to account for the situation in West Germany in the 1980s. The current German model has been reshaped by significant changes. A fundamental evolution or erosion of the traditional German model has been observed since the economic crises in 1992/3 and the socioeconomic effects of the reunification process (BEYER; HÖPNER, 2003; KITSCHELT; STREECK, 2004; BEYER, 2007b).

Dramatic shifts occurred in *corporate governance* and *corporate finance*. *Deutschland AG* as a German mode of corporate governance characterized the German model of capitalism. This mode built on extensive network ties among large German corporations and the involvement of banks as central nodes. This corporate governance system allowed for the supply of patient capital and long-term investments, as well as substantial cooperation and joint ventures among large German firms (WINDOLF; BEYER, 1995; HALL; SOSKICE, 2001). However, in the 1990s, shareholder value orientation spread throughout the traditional German Model and induced a new mode of corporate governance and corresponding firm strategies (BEYER; HÖPNER, 2003; BEYER, 2006a, 2006b, 2007b; see FLIGSTEIN, 2001; DEEG, 2001). Banks switched from the house bank paradigm to investment banking (BEYER; HÖPNER, 2003). Shares began to replace credit as the key external source of corporate finance (WINDOLF, 2005). Actors' new orientations and the corporate governance mode led to a subsequent dissolution of the network underlying the German Model (BEYER, 2007a, 2007b).

In the 1990s, there were shifts in *industrial relations* (HÖPNER, 2001, 2003): union membership declined substantially (SCHNABEL; WAGNER, 2007), as did the role of central collective agreements (*Flächentarifvertrag*) (HÖPNER, 2001, 2003). This decline was the result of a decentralization through firm-specific agreements that introduced *opening clauses* (Öffungsklauseln) and a general decline of firms that utilized collective bargaining agreements (KOHAUT; BELLMANN, 1997). Additionally, the shifts within the industrial relations system provoked systematic conflicts between codetermination practices of work councils and union policies (HÖPNER, 2001). As a result of this process, a decoupling of these two major industrial relations pillars became apparent (GOERKE; PANNENBERG, 2007).

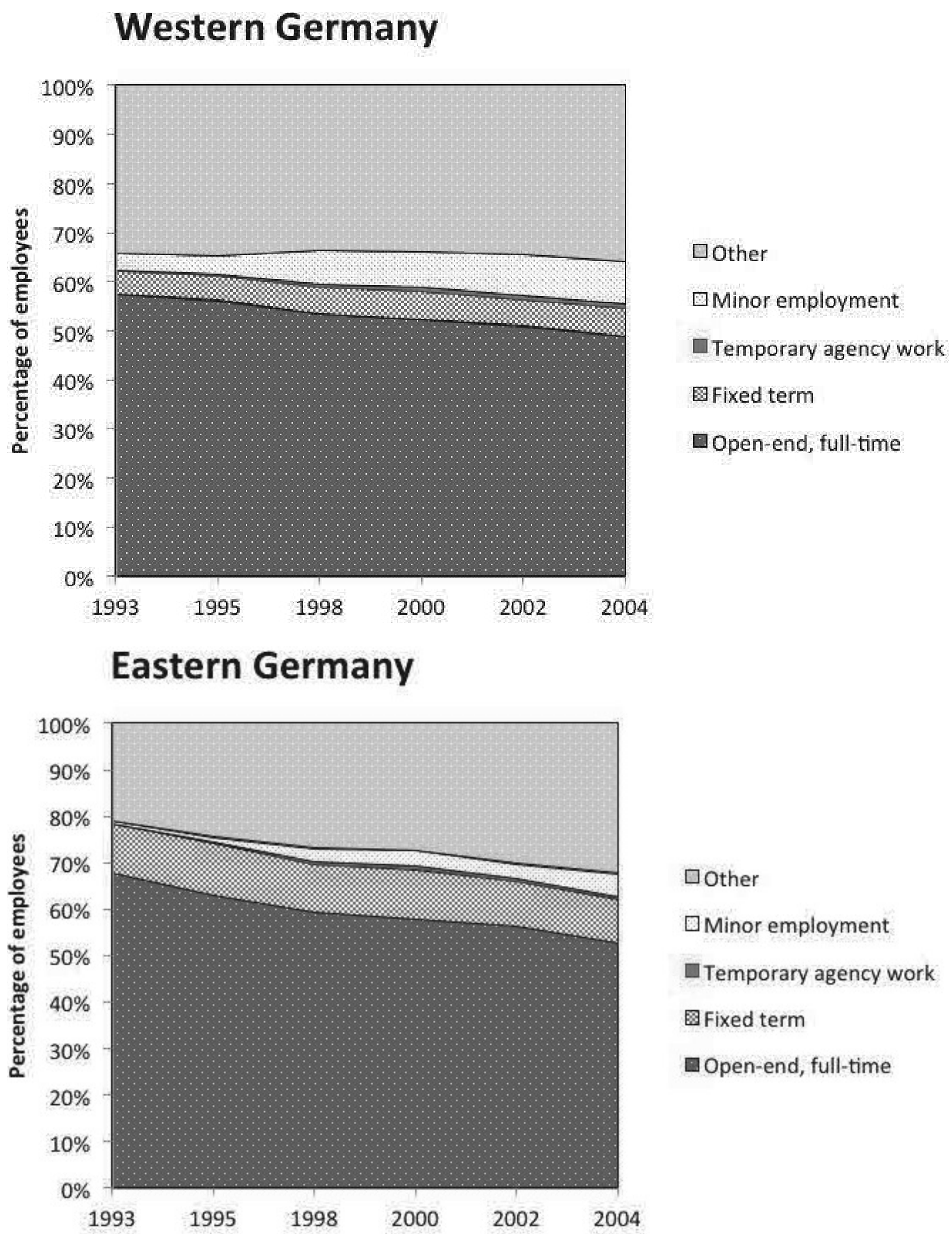
Considerable changes to the traditional *work organization system* altered established approaches and relations in the workplace in the 1990s. Along with the economic downturn and increasing competitive pressures in globalized markets, lean management practices first spread throughout Germany's automotive industry (WOMACK et al., 1991; MINSSEN, 1993; BENDERS; VAN BIJSTERVELD, 2000). These practices were then adapted in mechanical engineering and many other sectors (KIRCHNER; OPPEN, 2007; KIRCHNER et al., 2008). Diffusing practices included group work, center concepts, and the empowerment of lower hierarchical levels. Additional reorganization took place in the form of supply chain restructuring, outsourcing, and offshoring. For employees, this diffusion process included an expansion of post-Taylorist work patterns, including an increase in flexibility and discretion in everyday work (NORDHAUSE-JANZ; PEKRUHL, 2000; LORENZ; VALEYRE, 2005).

Concerning *employment relationships*, several changes to the traditional long-term, full-time employment model have emerged since the 1990s. The major developments in Germany's employment system between 1993 and 2004 are depicted in Figure 1 (see GROTHEER, 2008).[2] In general, the share of atypical employment has risen. Central developments discussed in the existing literature are an increase in temporary employment (*Zeitarbeit*, *Leiharbeit*) and the growth of fixed-term contracts (*befristete Beschäftigungsverhältnisse*). Although temporary employment in particular is relatively low in terms of numbers (BELLMANN; KÜHL, 2007; BELLMANN et al., 2008), both forms have expanded and have impacted the labor markets. They have particularly affected younger employees, women, and less-qualified employees (SZYDLIK, 2008). Besides these tendencies, empirical evidence shows that all employee groups are increasingly affected by these shifts, which implies a differentiation of firm employment systems beyond the classical insider-outsider distinctions (KÖHLER et al., 2006; KÖHLER et al., 2008). The share of minor employment (*Geringfügige Beschäftigung*) has also significantly increased since 1995. Additionally, the so-called Hartz reforms of the German welfare state in 2003 completed attempts to create a low-wage sector that had previously been alien to the traditional German employment system (OFFE, 2002; STREECK; TRAMPUSCH, 2005; KEMMERLING; BRUTTEL, 2006; BOSCH et al., 2007).

Considering all these tendencies of decay and change, it is an open question how the complex, intertwined system of institutional complementarily can still be assumed to be in place and working. One can generally ask whether the changing institutional conditions have brought about a subsequent evolution of new production, employment, and innovation models. New institutional conditions allow for new organizational solutions. Also, the diversity of old and new institutional logics provokes conflicts that lead to a diversity of organizational structures (THORNTON; OCASIO, 2008). Therefore, one can assume that institutional transformations are a key source of organizational change (LANE; WOOD, 2012) and allow for emerging models at the firm level.

[2] The category *Other* includes: self-employed and family workers; part-time without minor employment; vocational training apprentices; other forms of dependent full-time employment (civil servants, servicemen).

Figure 1: Development of Germany's Employment System (East vs. West Germany)



(Source: Data from GROTHEER, 2008, p. 139; figure by the author.)

Key Firm-level Sources of Diversity in Germany's Economy

In seminal contributions to the CC literature, differences to ideal-typical models are understood as exceptions to a general homogeneity within a given institutional framework (HALL; SOSKICE, 2001; cf. ALLEN, 2004). The widespread adaptation of a specific production, employment, and innovation model is central to the idea of the traditional German model. However, in contrast to this implicit idea of homogeneity, a persistent heterogeneity of different organizational models within given institutional settings appears to be a fairly common phenomenon (SCHNEIBERG, 2007). More recently, CC scholars have engaged with the question of diversity within national institutional frameworks (CROUCH; VOELZKOW, 2009; LANE; WOOD, 2012).

Empirical evidence supports this diversity view. An international comparative study of production models in the automotive sector found that differences exist at an international level owing to institutional settings. Yet a considerable diversity of strategies has also been observed within a single institutional framework (BOYER; FREYSSENET, 2003; also JÜRGENS, 2004). Using mostly case studies of pharmaceutical firms, Herrmann (2008) revealed that various strategies have been employed. In these cases, the institutional frame shaped not only strategies, but also the international pharmaceutical market. Firms actively related to their various institutional frameworks, but by establishing functional equivalent institutions, they showed opportunistic, diverse behaviors (HERRMANN, 2008, p. 28).

A diversity of national and local institutional settings has been shown in case studies of various industries, including: furniture-making, motor vehicle manufacturing, biopharmaceuticals, and filmmaking (CROUCH et al., 2009; CROUCH; VOELZKOW, 2009). The findings not only show compliance to institutional settings, but also instances of creative deviations from expected general patterns. The studies report an active re-shaping of alternative local institutions by producing *creative incoherencies*. National institutional settings are circumvented by the introduction of functional equivalent institutions – for instance by relying on international capital and international labor markets for managers. A search for alternative strategies is triggered, particularly in cases where institutional contexts collide with competition models and markets.

A survey of *firm employment systems* in several industries found a diversity of models of employment forms (KÖHLER et al., 2008). This study shows that the specific combinations of open-ended and fixed-term employment as well as the use of other forms of atypical employment follow industry-specific models and development paths (KRAUSE, 2010, 2013). While the mechanical engineering industry is still using traditional models of long-term employment, as suggested in the traditional German model, the healthcare industry and educational services follow different employment strategies.

These findings indicate limitations in the scope of the institutional framework argument. Several sectors of employment and economic activities in particular have been considered less important, if important all. These limitations become especially apparent when looking at de facto innovation activities. Even in the manufacturing sector, innovative capabilities in high-tech industries such as biotechnology differ from those developed in low-tech sectors, such as furniture-making industry or paper manufacturing (HIRSCH-KREINSEN, 2008). Case studies reveal a specific mode of low-tech and medium-tech (hereafter, low-tech) innovation. Compared to high-tech innovation strategies, low-tech firms develop different competencies, external relations, and solutions. Using an EU-wide survey, Heidenreich (2009) found evidence for the existence of a specific low-tech industry innovation pattern. Besides apparent differences in production technologies, low-tech as well as high-tech forms of innovative capabilities are still being developed and employed in a single national institutional setting.

However, the empirically generated classification of high-tech and low-tech modes of innovation is tricky, and perhaps misleading. In a 2 x 2 table of firm size and innovation mode, only two cells are easy to fill. In many studies, high-tech capabilities appear to be characteristic of large corporations in international markets. Subsequently, low-tech innovation appear to be a trait of SMEs. This general assumption conflicts with other findings that indicate a major reason for the founding of some SMEs is to realize high-risk, radical innovation. This can be observed with the outsourcing of research and development functions into SMEs, for instance in the biotechnology industry. This argument applies to many startup firms in general. Furthermore, the relevance and share of large low-tech enterprises should not be forgotten. Examples of large low-tech companies can still be found and do survive. A prime example of this aspect of diversity is the case of Trigema in the textile industry (SCHÜßLER, 2009). While most German textile producers have ceased or outsourced production, Trigema continues to manufacture clothing in Germany. It is critical to consider these variations to the general models even if the absolute number of these firms might be low.

Whether or not startup SMEs and large low-tech corporations prevail in large numbers is an empirical question. When we reconsider the German model, it might well be worthwhile to integrate these firms into the general theoretical framework. However, even more severe is the implicit exclusion in the CC literature of large parts of the service sector. Service industries are a major sector of economic activity and innovation, and differ from manufacturing in many aspects (ASCHHOFF et al., 2008; RAMMER et al., 2010; see also BELLMANN et al., 2005). In an age of ever-declining shares of employment and economic turnover in manufacturing, service industries need to be included in the search for employment and innovation models. Overall, one can assume that diverse innovation models exist, because firm characteristics vary with economic sectors and firm sizes.

Are SMEs a Forgotten Pillar of German Capitalism?

The CC argument has not only been limited by looking at specific industries; the importance of SMEs for German industrial power has been overlooked: “Giant companies, mostly run by managerial elites, are considered to be the economic actors. SMEs either are not mentioned or are relegated to the status of a minor enclave in the aggregate economy…” (BERGHOFF, 2006, p. 267). This substantially relates to the aforementioned difference in innovative capabilities between small and large firms. The importance of SMEs for the German model might even have grown as a result of downsizing and outsourcing processes and a general focus on core competences.

In an alternative view German SMEs, the so-called *Mittelstand*, can be considered a *second pillar of German capitalism*.[3] Similar to large firms, the *Mittelstand* has also been characterized by a *traditional model* (BERGHOFF, 2006). Family-owned and operated SMEs with a cooperative orientation towards their workforce and quality competition strategies describe the traditional SME model. This is accompanied by high integration in regional networks and reliance on institutions that provide training and research opportunities. The traditional SME corporate finance system is also based on long-term relationships with local banks and a general avoidance of external capital use. Among other contributing factors, this has allowed for the pursuit of long-term strategies. This traditional model was in many ways similar and connected to the traditional DQP model outlined above (see Table 1). Major differences can be found in the personal dedication and identification of entrepreneurs with their firms and a general orientation towards generational succession. The latter points further support a long-term orientation. In contrast to major pillars of the DQP model, in SMEs, cooperation with unions and formal structures of co-determination were avoided or impeded.

Similar to the DQP production model of large firms, the traditional German SME model has also been subject to substantial transformations. A new competitive landscape shaped by technological changes and globalized markets has intensified market pressures and has triggered a modernization of the traditional structures (BERGHOFF, 2006). Competitive pressures have led to changes in production processes. Waves of reorganization have changed many German SMEs. However, the intensity of new organization principles such as basic lean management practices decreases with size and has affected larger establishments more (KIRCHNER et al., 2008). So while there are some similarities between large and smaller German firms, one can expect to find differences.

[3] This cannot be misunderstood as a simplistic binary model, since the two sectors are deeply intertwined.

Table 1: Comparison of Traditional Models for Large Firms and SMEs

Dimension	Traditional model for large German firms	Traditional model for German SMEs
Cooperative orientation between employers and employees	Strong culture of trust and loyalty	Strong culture of trust and loyalty
Work organization	Decentralized (informal), functional, flexible	Decentralized (informal), functional, flexible
Business development scope	Long term, diversification	Long term, limited diversification
Network inclusion	Strong (national)	Strong (regional)
Corporate finance	*House bank* system providing patient capital; corporate governance network of banks and firms (*Deutschland AG*); avoidance of foreign, network-external capital	*House bank* system providing patient capital; general avoidance of external capital markets; limited access to capital markets
Influence of unions	Strong	Limited, avoided
Codetermination by work councils	Basic pillar of industrial relations	Avoided or impeded

(Source: Authors' own summary based on STREECK, 1991; HALL; SOSKICE, 2001; DEEG, 2001 and BERGHOFF, 2006.)

One major area of prevailing differences is changes in the corporate finance system. Changes in corporate finance is foremost a story of transformations in large firms. Extending to international corporate finance sources, only a limited number has shifted to forms of equity finance. In contrast, the key source of finance for SMEs is still bank finance characterized by close bank-firm relationships and long-term perspectives (DEEG; PEREZ, 2000; DEEG, 2001). While large corporations are increasingly shifting from traditional patterns into novel shareholder value finance, SMEs still predominantly adhere to a traditional mode. In this situation, larger and smaller firms appear to take distinct development paths.

Nonetheless, the corporate finance system for SMEs also appears to be in motion. Foremost the globalization of markets have forced German SMEs into higher capital intensity and thus into increased reliance on external capital sources (BERGHOFF, 2006). Additionally, the *Basel II recommendations* have significantly changed the basis for SME finance. Increased demands on transparency and higher financial reporting standards have strained the traditional house bank system. As a result, substantial shifts in SMEs' capital strategies can be observed in reaction to increased formalization of controlling and firm-bank relationships (BLUHM; MARTENS, 2009). The steady dissolution of the traditional house bank system creates a systematic scarcity for SMEs to access to external capital. This development has been somewhat eased by the existence of publicly owned banks that provide less expensive credit. Overall, this situation might foster the development of a new type of profit-oriented *Mittelstand* (KÜHL, 2003; BERGHOFF, 2006).

Finally, concerning innovative capabilities, it is assumed that there is a fundamental difference between small and large firms (ASCHHOFF et al., 2008; RAMMER et al., 2010). Again, this connects to the issue raised in the preceding section. Low-tech innovation strategies are predominantly found among SMEs, which reflect size differences in resource bases and market strategies (HIRSCH-KREINSEN, 2008; HEIDENREICH, 2009). However, empirical findings show that SMEs would be ill advised to copy large firms' best practice innovation approaches. Instead, SMEs follow distinct patterns largely owing to resource restrictions and dissimilar investment strategies (BERENDS et al., 2010). In contrast to large firms, regional network effects are expected to play an even more significant role for innovation in SMEs. Accordingly, regional innovation systems are expected to influence SMEs' innovation strategies and capabilities (COOKE, 1992; COOKE; WILLS, 1999; TODTLING; KAUFMANN, 2001). Furthermore, it is probable that recent changes in the traditional model of German SMEs will influence innovation, since access to capital and other fundamental economic conditions have changed. Overall, this argument underlines that SMEs should receive more attention in the current state of the German model. We need to better understand how SMEs relate to the overall model and what specific conditions shape the economic successes of German SMEs.

East Germany's path in the German model

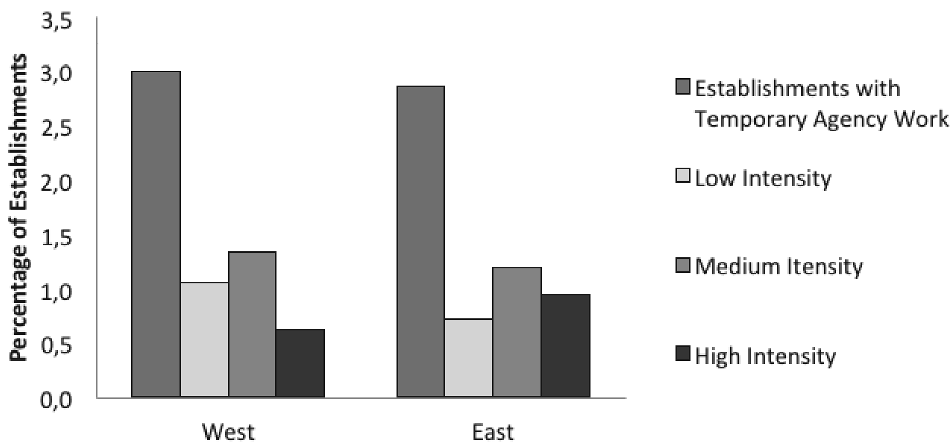
The clearest case of diversity in Germany's economy is the development of the *Neue Bundesländer* – the emergence of East Germany. Years after reunification, East Germany has made tremendous developments, but also displays major structural differences compared to the West German *Alte Bundesländer* (WIESENTHAL, 2003). In the 1990s, there was a unique implementation process of West German institutions into East Germany (OFFE, 1996). Since then, high unemployment rates, federal development payments, and a gap in economic performance have accompanied East Germany's economic situation. Furthermore, empirical evidence shows that institutions in East Germany might perform differently than in the West. Accordingly, for East Germany an independent path of economic and institutional development is assumed – a *German variety of capitalism* (BUSS; WITTKE, 2005). In short, "…an important issue is whether Eastern German *Neue Länder* simply inherited West German institutions or whether deviations in the transfer have imported certain novelties" (CROUCH; VOELZKOW, 2009, p. 664)

Surprisingly, pre-unification, East German production systems were somewhat similar to the DQP strategy of their West German counterparts (SORGE, 1993). In the radical transformation processes of reunification, some continuity in production principles was preserved and maintained. One example of continuity is the vocational training system (BUSS; WITTKE, 2006; CROUCH et al., 2009; KEUNE et al., 2009). Regional solutions for vocational training build on traditional structures inherited from pre-unification periods. In comparison with the West German model, these functional equivalent solutions constitute alternative local institutional structures.

In contrast to West Germany, the system of collective bargaining agreements and trade union influence in particular never gained a solid foothold in East Germany (SCHNABEL; WAGNER, 2007; BOSCH et al., 2007). The industrial relations landscape in East Germany appears to be polarized (BUSS; WITTKE, 2006). Large firms, often subsidiaries of West German parent companies, are forced to comply with West German regulations standards. However, throughout the range of East German medium-sized and small firms, collective bargaining policy cannot provide a comparable guiding function. This leaves much room for the realization of diverse strategies. Accordingly, the East German socioeconomic environment allows for business and production strategies that vary significantly from their West German counterparts (BUSS; WITTKE, 2004, 2005, 2006). Such alternative strategies are also fostered by social transfer and state programs, which present inexpensive and low-risk alternatives that prevent the development of independent solutions.

Employment relations in East Germany differ from those of West Germany. Returning to Figure 1, which depicts the shares of several employment forms in East and West Germany between 1993 and 2004. Distributions for both German regions changed throughout these 11 years. The share of open-ended forms of employment as well as the share of temporary contracts is higher in East Germany (GROTHEER, 2008). While considerable growth in minor employments can be observed in West Germany, East Germany is experiencing an increase on a much lower level. Another significant difference is the steady growth of the employment category *Other* in East Germany. This category includes self-employed and family workers; part-time without minor employment; vocational training apprentices; other forms of dependent full-time employees (civil servants, servicemen). Each of these employment subcategories has shown a steady increase in East Germany since 1993. Thus, employment relations in East Germany seem to be taking a different development path.

This difference in employment also emerges in other studies. East German firm employment systems are believed to take the form of so-called *firm survival communities* (*betriebliche Überlebensgemeinschaften*) (see BEHR, 2000). Core employees are tied more strongly to firms than in their West German counterparts, while the peripheral workforce is exposed to increased turnover and employment insecurity. Generally, East German employees accept high employment flexibility and general concessions as a 'price' for securing their workplace (BUSS; WITTKE, 2006). Case studies also show that in some well-known cases of large East German firms, there is extensive use of atypical employment (HOLST et al., 2009). This seems to be partly fostered by high unemployment rates and by the relative weakness of the industrial relations system in East Germany. Also, the share of establishments using temporary work is similar in distribution and numbers between East and West Germany (BELLMANN; KÜHL, 2007) (see Figure 2). Although East German establishments show higher high-intensity use, they are still on a low level overall.



(Source: Data IAB Establishment Panel 2006, taken from BELLMANN; KÜHL, 2007, p. 28, author's own depiction.)

Along with the employment situation, working conditions and production systems differ in East Germany. First, there is a specific industry structure owing to the de-industrialization process in the aftermath of reunification (OFFE, 1996). In comparison to West Germany, East Germany appears to be a low-wage region, and lower working conditions standards can be implemented (BUSS; WITTKE, 2006). It has been assumed that West German companies use East German establishments as an *extended* *workbench* to carry out labor-intensive production steps without independent product competences (BUSS; WITTKE, 2006; BLUHM, 2007) – this has for instance been reported in the automotive industry case of Opel Eisenach (GERST et al., 1995). Thus, East German firms have been depicted as a *laboratory* for experiments in working conditions such as deregulation and *Americanization* (BRINKMANN, 2005). In the case of the process of introduction formal quality management rules into production systems (ISO 9000), East Germany has been considered a distinct institutional environment (BECK; WALGENBACH, 2009). The region's reputation for low-quality products was understood to make the introduction of certified formal rules more beneficial.

Its differences to West Germany amount to a diagnosis of a general structural weakness in East Germany's economy (BELLMANN et al., 2005, pp. 53). Of East Germany's establishments, 82% are in East German ownership. However, these establishments only account for 44% of the total revenue. This indicates a structural deficit of independent growth opportunities and a specific firm size structure (BELLMANN et al., 2004). Empirical studies have shown that East Germany's economy, comparison to that of West Germany, is characterized by a productivity gap, a smaller share of exports, a different industry structure, a lower share of manufacturing, a higher share of smaller establishments, and a lower share of R&D-intensive industries (BELLMANN et al., 2004, pp. 21; BELLMANN et al., 2005, pp. 56).

Accordingly, East German establishments face a distinct situation for implementing innovation and developing innovative capabilities. East Germany's economy is populated by smaller establishments with less organizational slack for R&D activities. However, East German firms face similar problems getting funding for innovations as their West German counterparts (BELLMANN et al., 2005). Case studies report East German approaches to innovation in which regional networks, cooperation with customers, flexibility, and the development of skilled workers are central for coping with its specific economic situation (BEHR; SCHMIDT, 2006). According to quantitative data, East German firms spent more turnover on innovation. However, empirical studies report less success from innovation and significant industry dissimilarities (BELLMANN et al., 2005; ASCHHOFF et al., 2008; RAMMER et al., 2010). Recent survey data shows that more East German firms are engaged in continuous R&D activities with a similar share of innovators at the same time. West German firms seem to gain more from innovation; the cost-reduction of process innovation achieved is higher, as is the revenue share gained from market novelties (RAMMER et al., 2010). So, in terms of innovative capabilities, there are substantial differences between firms in East and West Germany.

Summarizing all presented aspects, one can conclude that East German firms face an institutional framework that is very different from the traditional West German template. Thus, this regional diversity might account for a substantial share of diversity within Germany's economy.

Discussion

In this paper, I have presented evidence of considerable changes in the traditional German model. These findings call the traditional assumptions into question. Empirical studies reveal diversity within the national framework as well as creative deviations from expected models at the local level. I introduced and discussed four sources of diversity within Germany's economy.

The institutional transformations in the 1990s present a first substantial source of diversity in Germany's economy. These institutional transformations foster organizational changes. In accordance with changes in production and employment models, one can expect the German model of innovation to have shifted. As the conditions for production and employment forms change, we can expect that the processes of developing and realizing innovation to have adapted to fit altered competitive and institutional landscapes. It is likely that, at the very least, modifications to the traditional model will have emerged in the process.

Considering the firm level, I have focused on historical diversity in the German model. The coexistence of high-tech and low-tech firms is most interesting in this respect. Not all firms in a given economy can pursue high-tech innovations. This fact needs to be accommodated by CC theories about firm-level models. However, the coexistence of high-tech and low-tech does not prove the German model wrong. As Hirsch-Kreinsen (2008) notes, high-tech and low-tech firms often operate in interconnected ways. Low-tech firms supply high-tech firms or serve as subcontractors for labor-intensive production steps. In this view, these two models are complementary, i.e. these firms gain from cooperation. In this sense, low-tech firms are not an alternative model, but represent a complementary part of the general German model and its core firms.

Closely linked to the previous source of diversity are the considerations raised about SMEs in Germany. Many low-tech firms are of small firms. In contrast, accounts of the traditional German SME model describe a specialization in long-term incremental innovation processes very similar to large German firms. However, SMEs likely suffer from restricted resources, limited access to capital markets, and higher regional embeddedness. In this sense, there are diverse SME models in Germany. Seminal CC approaches have overlooked the characteristics of SMEs, while other authors have pointed out the relevance of SMEs for the German economy (BERGHOFF, 2006; BLUHM; MARTENS, 2009). The considerations I have presented here support the claim that SMEs should play a more important role in CC approaches.

Development in East Germany describes a final source of firm-level diversity I have discussed. Since the traditional German model accounts for dominant patterns in West Germany, the East German situation is not covered. A considerable amount of research findings show that East Germany differs significantly. Firms in this environment must cope with distinct economic and institutional conditions. For instance, one could expect dissimilarities concerning the development of innovative capabilities and their realization. Empirical investigations of the current German model should investigate whether firms in East Germany follow a particular path.

Based on the various sources of diversity I presented, some conclusions can be drawn. Overall, the existence of one unified model seems highly unlikely. The diversity of institutional contexts and economic conditions can be expected to produce various model solutions. Here, change leads to ambiguity, which – in turn – leads to a differentiation of models. For the case of work organization, a polarization of establishments has been shown, since some cases have reorganized but most did not (KIRCHNER; OPPEN, 2007; KIRCHNER et al., 2008). A similar finding has been reported for establishment employment systems. Some firms alter their employment structures and adopt novel approaches such as temporary agency work, while many others stick to traditional patterns (KRAUSE, 2010). Overall, this empirically observed diversity provides substantial empirical and theoretical challenges for CC approaches. While the particular characteristics are still unclear, it is imperative that the CC literature review and revise our traditional assumptions about the German model.

Research can show the incidences of diverse models. In the case that the traditional model still exists, we need more information about how the traditional model relates to alternative models. On the basis of this argument, one can assume that the German model is transformed in several ways. The traditional German model also faces a growing competition from emerging alternative models. However, without solid empirical data, we cannot rule out that key aspects of the traditional model have been preserved. A recent quantitative empirical investigation underlines this line of thinking (KIRCHNER et al., 2012). This empirical investigation shows the coexistence of several models. However, the findings also show that the dominant model in the sample of German firms still resembles key characteristics of the traditional German firm-level model. This is a reminder to not abandon the German model idea. This would be premature, since we are only beginning to properly understand the realities of the current German model, with its transformed properties.

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