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# Transitions to the Knowledge Economy in Germany, Sweden, and the Netherlands

*Kathleen Thelen*

The “digital revolution” that began in the late 1960s has transformed product markets and production processes in rich democracies. Observers depict the changes underway as a transition from the Fordist industrial economy to a new “knowledge economy,” characterized by rapid technological innovation and associated with a heightened premium on higher education.<sup>1</sup> Although the challenges of this transition are broadly similar across the rich democracies, individual countries have navigated the course differently.

This article compares three countries that exhibit different trajectories of change: Germany, Sweden, and the Netherlands. Unlike their liberal counterparts (including the United States and the United Kingdom), all three countries feature strong social partnership between unions and organized employers, and they are all considered examples of coordinated market economies in the literature on varieties of capitalism. However, despite these similarities, each has adapted differently to the challenges and opportunities of the new knowledge economy. Germany has vigorously defended its strength in high quality manufacturing through the digital transformation of products and production within the traditional industrial core. Sweden, by contrast, has moved more strongly to compete directly in high-tech sectors, especially information and communications technologies (ICT). Finally, the Dutch have increasingly turned to high-end business services, deploying new technologies to return to the country’s historic strengths in trade and finance.

What accounts for these divergent trajectories? I argue that differences in the structure of organized labor and business interests, and in the institutions that structure their interactions with each other and with the state, produced different coalitional alignments that have led these countries onto divergent paths toward the knowledge economy today. In Germany, unions and employers are organized along industrial lines, and manufacturing interests dominate the producer-group landscape on both sides of the class divide. Market pressures since the 1970s have inspired intense cross-class cooperation within the industrial sector and forged a formidable political alliance

focused on defending areas of traditional strength. State policy reflects and reinforces the dominance of manufacturing interests through partnerships with industries that promote knowledge-intensive innovation within the industrial core. Sweden's producer-group landscape, by contrast, features more encompassing, sector-spanning interests, a constellation that blocks strategies focused on defending particular sectors. However, the division of blue- and white-collar interests into competing union confederations and the growing power of salaried interests within the labor movement have allowed the state to play a more constitutive role through policies that facilitated the consolidation of a new coalition of white-collar unions and innovation-intensive sectors. Finally, in the Netherlands, where national-level corporatist institutions had originally been devised to promote industry, the collapse of traditional manufacturing in the 1970s created an organizational vacuum. This vacuum allowed the state to actively engineer a more fundamental shift in the dominant growth regime with policies that cemented an unlikely alliance between blue-collar unions and high-end business services in support of the financialization of the Dutch political economy. In short, differences in the interest group landscape produced different patterns of interaction between states and organized interests from which three different patterns of state policy emerged: supportive of a dominant coalition in Germany, enabling of an emerging coalition in Sweden, and transformative of a new coalition in the Netherlands.

### **Diverging Political-Economic Profiles**

The divergent trajectories of change in these three countries cannot be captured by any single indicator. However, looking at relative changes in value-added in manufacturing as a share of GDP offers a start. As Figure 1 shows, manufacturing declined in all three countries in the 1970s and 1980s but leveled off in Germany and recovered to previous levels after the 2007–2008 crisis. In the Netherlands, by contrast, manufacturing dropped sharply in the 1970s and continued to decline after that. The trend for Sweden lies in between: after a significant drop in 1990, Swedish manufacturing rebounded, but experienced more of a decline than in Germany after 2008.

Behind these broad trends lie significant differences in the export profiles of the three countries. The German export economy today is dominated by the very same sectors that we have long associated with that country's economic model. Cars continue to play an outsized role, leading the top ten exports (volume in billions of USD) by a wide margin, while closely related products, including vehicle parts, engine parts, and machinery, also count among the country's top ten exports.<sup>2</sup>

Sweden presents a more differentiated export profile. The country combines significant exports in areas of traditional strength (cars and vehicle parts, but also raw materials such as wood) with a strong presence in ICT-related exports such as telecommunications and broadcasting equipment, which continue to play a significant role in the political economy even after the bursting of the dot com bubble.<sup>3</sup> The country's well-known move into ICT is reflected as well in a sharp rise in employment

**Figure 1** Manufacturing Value Added as Percent of GDP

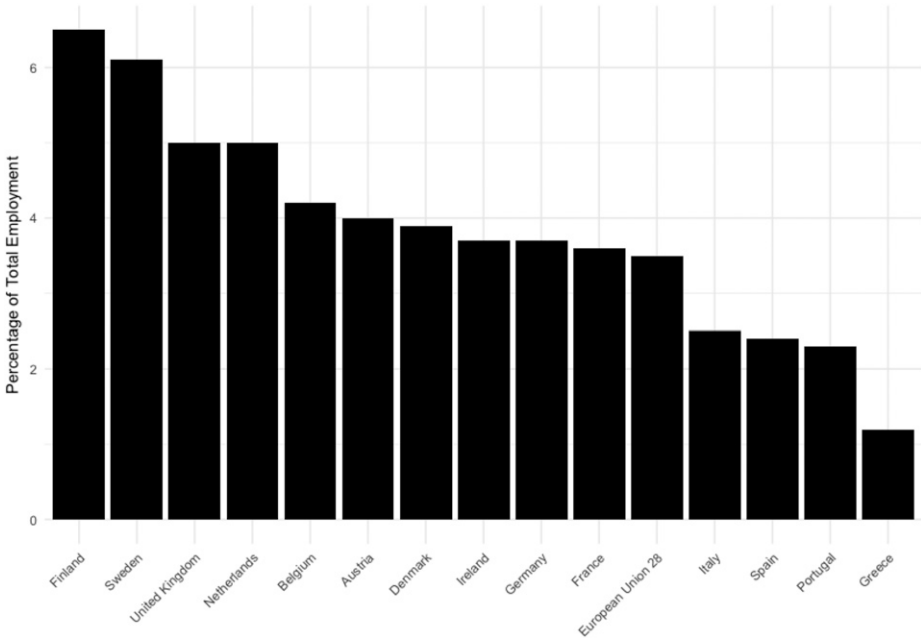
Source: World Bank National Accounts data and OECD National Accounts Data Files, 1969–2015. <https://data.worldbank.org/indicator/NV.IND.MANF.ZS>.

in ICT manufacturing and services in the 1990s, unmatched by Germany where employment in these areas remained flat.<sup>4</sup> As Figure 2 shows, Sweden leads all other European countries save Finland in the number of ICT specialists employed throughout the economy.

The Netherlands presents yet a different picture. The Dutch also experienced an increase in employment in ICT-related areas in the 1990s, and after the 1970s what has remained of Dutch industry is very high end—computers, telecoms, broadcasting, and photo lab equipment are among the top ten exports.<sup>5</sup> More importantly, however, as Figure 3 shows, employment in business services rose steadily and rather sharply through the 1980s and 1990s, and by 1998 came to account for over 50 percent of total employment. Employment in FIRE industries (finance, insurance, and real estate) alone accounted for 28 percent of total employment in 2015.<sup>6</sup>

In sum, important differences in the dominant growth regimes emerged across the three countries in the 1980s and 1990s: Germany stayed within traditional areas of competitive advantage, continuing to move further up market in the same sectors that have anchored the economy for decades. Sweden and the Netherlands, by contrast,

Figure 2 ICT Specialists

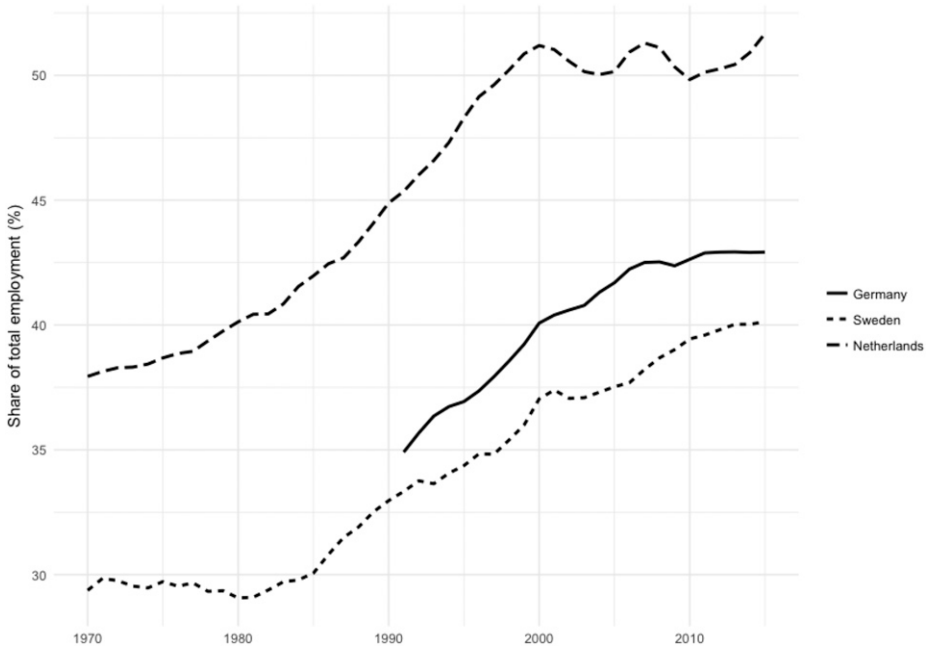


Source: European Commission Digital Single Market Digital Scoreboard, “DESI by components: 2b1 ICT Specialists,” 2017. [https://digital-agenda-data.eu/charts/desi-components#chart={“indicator”：“DESI\\_2B1 ICTSPEC”；“breakdown-group”：“total”；“unit-measure”：“pc\\_ind\\_emp”；“time-period”：“2017”}](https://digital-agenda-data.eu/charts/desi-components#chart={“indicator”：“DESI_2B1 ICTSPEC”；“breakdown-group”：“total”；“unit-measure”：“pc_ind_emp”；“time-period”：“2017”})

show much more movement—Sweden into higher-technology (IT) manufacturing and services, and the Netherlands into high-end business services.

### Explaining Divergent Trajectories

The dominant perspective in the literature on the comparative political economy of the rich democracies remains the influential varieties-of-capitalism (VofC) framework.<sup>7</sup> This work distinguishes between liberal market economies (LMEs) of the Anglo Saxon world and the coordinated market economies (CMEs) of Europe. It expects both types of political economies to adapt to changing market conditions by building on previous sources of institutional advantage, reinforcing differences between LMEs and CMEs. As such, nothing in the VofC literature could have predicted the evolution of two of these CMEs in an apparently liberal direction, as both Sweden’s move into ICT and the Netherlands’ move into business services are areas of economic activity closely associated with the liberal model.

**Figure 3** Employment Share Business Service Sector

Source: OECD Stan Indicators, 1970–2015. <https://stats.oecd.org/Index.aspx?DataSetCode=STANINDICATORS>.

An alternative perspective highlights the role of partisan politics in the evolution of advanced economies, locating the drivers of change in the voting public and the representatives they elect to office. The most important recent work in this vein, by Beramendi and colleagues, identifies four clusters corresponding to the social democratic, Christian democratic, liberal, and southern European models.<sup>8</sup> While illuminating the changing electoral foundations of social policy in these countries, their work does not explain the outcomes of interest in this article. For example, Germany and the Netherlands are both examples of what Beramendi et al. call “status oriented capitalism.”<sup>9</sup> Yet the trajectories of change in the two countries’ production profiles could hardly be more different.

Other lines of research are aimed at explaining the kinds of sectoral changes of interest here. Schneider and Paunescu demonstrate that the production profiles of some CMEs (including the Netherlands and Sweden) have shifted toward high tech sectors typically associated with the liberal model.<sup>10</sup> However, they do not pair this important observation with an explanation of the politics behind those changes. Ornston, by contrast, does provide such an explanation, at least for the Nordic economies.<sup>11</sup>

Channeling insights from the corporatism literature, he suggests that the move into high-innovation sectors depends on corporatist consensus-building supported by state policy. The emphasis on the structure of organized interests and the role of the state is valuable, but this account obscures the intense contestation across and within sectors that often accompany these moves. Variation in the depth and character of that contestation, not consensus, is what gives the state an opening to steer outcomes in new directions.

Finally, Baccaro and Pontusson's analysis of growth regimes challenges consensus-based models and, like mine, draws attention to the distributive struggles that shape adjustment strategies.<sup>12</sup> They draw a broad distinction between consumption-led growth and export-led growth, characterizing Germany as an example of export-led growth underwritten by suppression of wages (and consumption) and Sweden as a more "balanced" growth model that combines robust domestic consumption with strong exports. Although their outcome variable (growth) is different from mine (production profiles), their analysis is relevant because they argue that Sweden's more balanced model "critically depended on" the shift into ICT-related manufacturing and services.<sup>13</sup> But how exactly did Sweden make the move into ICT? On that question, Baccaro and Pontusson's analysis is silent, though they do suggest that to answer it, it would be necessary to identify the specific "social blocs" that underpin different growth models. They further suggest that such an analysis would require attention paid to both the demand side factors they emphasize and supply side institutions such as education and national innovation policy. I agree; this is exactly the approach I take in the analysis that follows.

The explanation offered here thus shares with Ornston an emphasis on the structure and strategies of organized interests and their interactions with the state. However, it embraces Baccaro and Pontusson's emphasis on distributive struggles both between labor and capital and within each bloc, while taking up their invitation to identify more precisely the specific social coalitions that lie behind divergent growth trajectories. My analysis shows how the trajectories of change we observe were shaped by the producer group landscape and how state policy reinforced enduring or, in some cases, emerging coalitional alignments to set these three countries on different paths to the knowledge economy.

### **The German Growth Regime: Doubling Down**

Germany has long served as the exemplar of successful high-quality manufacturing targeting the upper end of traditional markets such as automobiles and capital goods. Debates over economic policy there center entirely on how best to defend and promote Germany as an attractive platform for high-end (now "advanced") manufacturing. In comparative perspective, the most remarkable feature of the German political economy is how little the country's product profile has changed over the postwar period.

Maintaining its commanding position in sectors like automobiles and machine tools is by no means a matter of inertia; this is an outcome that has to be actively defended

and that has involved weathering a tremendous onslaught from both lower-cost producers and new entrants into the high-end markets that German producers have dominated for decades. Yet the German export machine has rarely looked stronger or more dominant. Exports make up a huge share of GDP, and Germany runs large trade surpluses year after year.<sup>14</sup>

The successful defense of the traditional core of German manufacturing is largely the work of a cross-class coalition within industry that is ideally configured and situated to defend and enhance these areas of strength. Both German unions and German employers are organized along sectoral lines, with weak overarching institutions and no serious crosscutting cleavages. On the union side, organization levels in manufacturing far outstrip those in services, and the metalworkers union (IG Metall) is by far the dominant actor. The largest of Germany's eight unions, it has never faced an effective counterweight; the overarching trade union confederation has no influence over the constituent unions. Public sector unions are formidable players in many advanced industrial countries, but the public sector in Germany is small by European standards.<sup>15</sup> Finally, blue- and white-collar employees within a sector are organized into the same union, their fates jointly tied together and to the success of that sector.

The organization of German business mirrors that of unions. The employer associations that negotiate with labor are industry-based, and sectoral trade associations represent their interests politically. Moreover, unlike their conglomerate counterparts in Sweden, large German firms tend to be anchored in particular sectors (think of Daimler, VW, or BMW).<sup>16</sup> The same is true for Germany's powerful *Mittelstand* (small- and medium-sized companies), which is composed of firms whose fortunes are usually tied to particular industries (and sometimes, as suppliers, even to particular clients).

In short, manufacturing interests in Germany are tightly organized within particular industries and sectors. They are neither embedded in more encompassing associations nor forced to share power with similarly influential actors in other sectors. As the economy's unrivaled growth engine, industry enjoys outsized influence not just in the economy but in policymaking circles as well. These arrangements have helped forge an ironclad alliance in defense of long-standing sectoral strengths through both aggressive cost cutting and active adaptation of traditional institutional arrangements to new product markets and production technologies. The key developments in industrial relations, labor market policy, education/training, and innovation policy are outlined below.

In industrial relations, cross-class cooperation within the manufacturing core has intensified since the 1980s in response to heightened market pressures. Powerful works councils and managers have worked together over the past decades to control costs, outsourcing low-skill services previously performed in-house, and deploying temps and fixed-term workers to cover short-term cycles.<sup>17</sup> Manufacturing unions and employers stood together to defend the principle of collective bargaining autonomy (i.e., non-state involvement) despite union weakness outside of manufacturing and the massive growth of low-wage work in the 2000s.<sup>18</sup> It is an open secret that Germany's industrial unions



were initially reluctant to support the introduction of a statutory minimum wage, fearing that this would produce downward pressure in their own wage negotiations.

Government policy reflects and reinforces the dominance of manufacturing interests. Labor market policies since the 1990s have stabilized employment for skilled manufacturing employees, even as they made work outside the protected core more flexible. The Hartz reforms of the early 2000s liberalized labor markets by slashing unemployment benefits and loosening restrictions on various forms of atypical work. However, even as government policy liberalized atypical employment, other measures specifically shielded skilled industrial workers from the vicissitudes of the market. In the turbulent years of 2008–2009, the government passed three successive bills to extend the length and generosity of subsidies to firms wishing to avoid laying off their skilled workers (*Kurzarbeit*). Although employment in industry has fallen to about 20 percent of total employment in Germany, 80 percent of these subsidies went to workers in the manufacturing core. The metalworking sector collected the lion's share, and funds flowed disproportionately to two states (Baden-Württemberg and Bavaria) that lie at the heart of the German industrial export regime.<sup>19</sup> The government's "cash for clunkers" program (*Abwrackprämie*) sent a special lifeline to the car industry, causing a mini-boom for German automakers in the midst of the global crisis.<sup>20</sup>

Cost control strategies have been important in adjusting to a knowledge economy, but it would be a mistake to attribute the continued success of German industry solely, or even primarily, to wage suppression.<sup>21</sup> Instead, continued success has involved the ongoing active adaptation of traditional political-economic arrangements to a rapidly evolving market context. In a period of explosive technological change, this especially applies to education and training. Governments in most other countries have responded to the increasing importance of high-end (especially engineering) skills by promoting higher education. However, in Germany, high-quality manufacturing has always relied heavily on firm-based vocational training, so employers and unions have worked together to upgrade the quality of such training as production becomes ever more knowledge-intensive.<sup>22</sup>

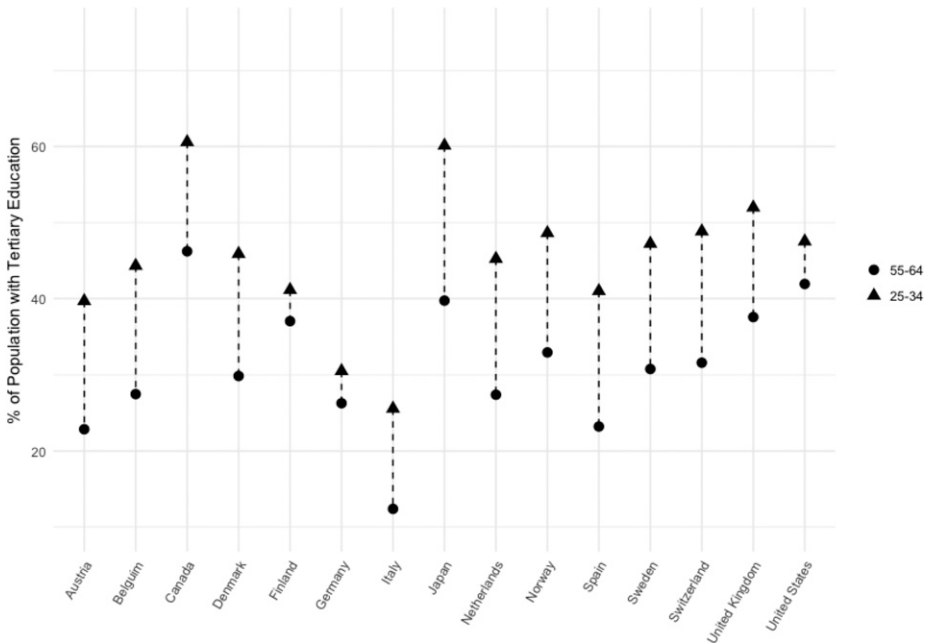
However, advanced manufacturing increasingly requires theoretical skills that firms themselves cannot provide efficiently. Thus, a further challenge has been to continue to attract the brightest students into industry while forestalling the drift toward what German employers consider "overly academic" training. The solution manufacturers have hit upon is to pursue partnerships with regional universities of applied sciences (*Fachhochschulen*) to create new and more demanding (also more theoretical) apprenticeships that confer, simultaneously, vocational certificates and bachelors' degrees. Top students are indeed drawn to these "dual study" programs, not just for the double certification but also because unlike "regular" university students they receive a wage (as apprentices) during their studies.<sup>23</sup> Crucially, access to these highly prized dual-study programs runs exclusively through companies; youth cannot apply directly but instead must be hired as apprentices by participating firms. Thus, rather than softening the line between vocational and university tracks as is occurring in most other

countries, developments in Germany instead subsume part of the higher education system to the firm-dominated logic of the traditional vocational system.<sup>24</sup>

The continued draw of the vocational system explains why academic higher education remains so dramatically underdeveloped in Germany. Figure 4 compares university completion rates for two generations. While most of the other rich democracies record large increases in tertiary completion rates among the younger cohort, Germany shows very modest movement.

Finally, the continued domination of manufacturing interests is on display in Germany’s innovation policy. A national-level tripartite “Alliance for the Future of Industry” includes policy makers and representatives of all the main manufacturing interests. The express goal is to defend Germany’s position as an industrial power (*Industrie Standort Deutschland*) and to secure the competitiveness of German manufacturing in the digital era.<sup>25</sup> At the center of German innovation policy is an ambitious strategic initiative, *Industrie 4.0* (signaling the fourth industrial revolution), that involves major investments in research by government, universities, and companies. As a result of ongoing innovation within the industrial core, Germany has

**Figure 4** Population with Tertiary Education 2016, 25–34 year olds/55–64 year olds



OECD Data, “Population with tertiary education,” 2016. <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>.

become a world leader in “internet of things” (IoT) and machine-to-machine (M2M) communication.<sup>26</sup> Although Industrie 4.0 is one of several “future projects” in Germany’s “High Tech 2020” strategy, it is clearly the most important, receiving the lion’s share of resources and attracting the greatest attention. For present purposes, what is as striking as the futuristic ambitions of this project is the cast of characters charged with implementing it, which reads like a who’s who of the oldest and most influential actors in German economic history. The steering committee includes such nineteenth-century power brokers as the Trade Association for Mechanical Engineering (VDMA), the Federation of German Industry (BDI), the Manufacturers’ Association for the Electrical Industry (ZVEI), the German Association of the Automotive Industry (VDA), and of course the IG Metall.

In sum, Germany’s transition to the knowledge economy has not represented a sharp departure from traditional strengths, but instead a (so far extremely successful) doubling down on strategies supporting ever higher quality and increasingly digitized manufacturing. The developments outlined above reinforce the continued dominance of industrial interests in the German political economy, placing them at the center of the country’s growth strategy for the knowledge economy.

### **The Swedish Growth Regime: Branching Out**

Sweden’s postwar growth regime centered on many of the same export industries as Germany. However, manufacturing interests in Sweden compete for influence within a much denser organizational space where the relevant producer groups span sectors in ways that complicated the defense of particular firms and industries.

On the labor side, union density far exceeds that of Germany; Swedish unions have a stronger presence among both low-skill service workers and high-skill salaried employees. Manufacturing interests are powerful, but they are imbricated in associations that are both encompassing and crosscutting. Thus unlike its German counterpart, Sweden’s main manufacturing union IF Metall is part of a broader blue-collar confederation that includes workers in other sectors, including low-skill services. IF Metall must also coordinate with white-collar unions in manufacturing that are themselves part of separate confederations of salaried employees, which have grown in size and strength with the shift in employment to services.

On the employer side, Swedish business interests are more concentrated and more diversified than in Germany. They are more concentrated because Sweden lacks an equivalent to Germany’s politically influential *Mittelstand*. Instead, the economy historically has been dominated by a handful of large business groups, among them the vast Wallenberg dynasty, whose companies accounted for 10 percent of all private sector employment in Sweden in the 1970s.<sup>27</sup> Today, the holdings of the top fifteen families in Sweden comprise 70 percent of the Stockholm exchange, and Sweden’s two biggest business groups together hold controlling shares in thirteen of the country’s twenty-five largest companies.<sup>28</sup>

Swedish business interests are also more diversified than their German counterparts, which, as we saw, tend to be rooted in particular industries. By contrast, Sweden's business groups have a presence across a wide range of sectors, spanning manufacturing and services and even export and domestic markets. For example, the Wallenbergs have major holdings in traditional manufacturing (e.g., ball bearings and appliances), but also in banking and ICT, and even education and healthcare. The country's second largest business group, Handelsbanken, has a similarly broad portfolio.<sup>29</sup> Some prominent firms whose operations span different sectors have dual memberships in separate employer associations for industry and for services. For example, Ericsson is the largest member of the ICT group in the service employers' association Almega, but also belongs to the industry association Verkstadsföreningen. Other cross-over companies include Kinnevik (telecommunications with roots in paper mills) and Industrivärden (active in banking, but also manufacturing, paper, and forest products, plus domestic and tradable services).

The very different producer group landscape in Sweden supported a pattern of adjustment quite different from that of Germany. Stronger union presence outside manufacturing blocked German-style dualization, and indeed white-collar membership grew to outnumber blue-collar with the long-term shift in employment toward services. Sweden's business groups responded to market pressures by reshuffling their portfolios, exiting sectors such as automobiles, and moving upmarket into more knowledge-intensive manufacturing and services.<sup>30</sup> In the 1990s, Saab and Volvo passed into foreign hands, moves that in Germany surely would have triggered a spirited cross-class defense of treasured national symbols. However, in Sweden these events occurred without much drama, as business groups shifted resources into growth fields and the center of gravity in the labor movement began to tilt toward white-collar interests.

The move into ICT was led by a few key firms, most notably Ericsson, which wielded outsized influence both in the market and in politics.<sup>31</sup> The conservative government of 1990–1994 strongly supported the move into high technology markets through supply-side interventions—especially in education and innovation policy—and found ready allies both in Sweden's most influential business groups and in the expanding white-collar unions. The following paragraphs sketch out the relevant developments in four key arenas.

Major changes in industrial relations began in 1983 with the collapse of peak-level wage negotiations, a move that reflected the waning leadership of the blue-collar trade union confederation (LO). Wage decentralization in Sweden went beyond the widely known move from national-level to industry-level bargaining, allowing more room for local wage setting. Employers sought such decentralized bargaining for the wage flexibility it offered, but unions of salaried professionals also favored local wage formation to address their members' demand for pay that reflected their investments in education and skills.<sup>32</sup>

Wage decentralization exacerbated tensions between Sweden's blue- and white-collar confederations, and it also inspired competition between the two white-collar confederations whose members compete for status and jobs. Members of the academic/professional unions within the smaller Confederation of Professional Associations

(SACO) are already university graduates. However, the same is not true for members of the larger Confederation of Salaried Employees (TCO), which, since the 1990s, has made increased access to higher education its number one priority. Merit- and education-based wage differentiation thus heightened demand for changes in state education policy. German-style (firm-based) apprenticeship had been eliminated decades before, but two-year vocational tracks continued to exist alongside three-year academic tracks in Swedish high schools. In 1991, the government passed a major reform, implemented over the next few years, that eliminated the two-year track and opened the path to university studies to all.<sup>33</sup> The government also increased spending on education from 5.3 percent of GDP in 1990 to 7.4 percent by 2000, and doubled spending on higher education specifically (from 1 percent of GDP to 2 percent in this period).<sup>34</sup> As Figure 4 indicated, Sweden registered a very large increase in completion of tertiary education and surpassed the United States by 2009.

Unlike in Germany, Sweden's labor market policy focused on easing the transition away from the traditional manufacturing core rather than on preserving it. During the 1980s, Swedish labor market policies had drifted toward defensive job-preserving measures,<sup>35</sup> but the conservative government of the early 1990s answered a sharp and unprecedented rise in unemployment with a massive expansion of active labor market policies. Spending on ALMP rose from 1.7 to 2.6 percent of GDP, and by the time the conservatives left office in 1994, fully 7.3 percent of the total labor force was engaged in ALMP programs. The subsequent social democratic government continued these policies. Over the entire 1992–1997 period, ALMP expenditures as a share of total public expenditure and GDP was higher in Sweden than in any other OECD country, especially after adjusting for the rate of unemployment.<sup>36</sup>

While labor market policies eased the transition out of traditional manufacturing, state innovation policy actively promoted the move into ICT. Prime Minister Carl Bildt, an early advocate (and well-known “computer freak”) convened a government commission in 1993 that laid out a comprehensive plan for Sweden to become a leading player in the IT sector.<sup>37</sup> However, in a feature that is hard to square with Ornston's picture of consensus-based change, the commission did not include a single representative of Sweden's producer groups. It was instead composed of top executives from six firms that were all active in the telecommunications or computer software industries (including notably Ericsson's CEO), alongside experts from academia.<sup>38</sup> Sweden's innovation policy, unlike that of Germany, focused on infrastructure and especially users of IT rather than manufacturers.<sup>39</sup> The commission's report, with the evocative title “Wings to Human Ability,” recommended introducing computers into classrooms across Sweden, educating teachers in technology, and encouraging the integration of IT into instruction at all levels.<sup>40</sup> The government financed these efforts by redirecting the defunct wage earner funds that had originally been intended to achieve collective ownership.<sup>41</sup>

Swedish unions got on board after the conservative government left office and played a key role in disseminating IT technology and skills. Recognizing that computer literacy would be crucial to their members' employment prospects, the LO and TCO

began to negotiate steep volume discounts from PC suppliers that they passed on to their members.<sup>42</sup> A large number of Swedish employees acquired their first home computer in this way.<sup>43</sup> The Swedish employee PC purchase schemes were wildly popular, and in 1997 political parties from both the right and left supported a measure to make these purchases tax-free. Thus developed “a three-party collaboration between the state, employers and unions” that resulted in a dramatic expansion of the number of Swedish households with a computer and internet access.<sup>44</sup> The biggest increase occurred between 1996 and 2000, and by 2006, almost 1.6 million of Sweden’s 4.3 million households had taken advantage of the Home PC program.<sup>45</sup> The program is now “considered a major reason for the rapid and, in an international comparison, early diffusion of PCs among Swedish households,” and credited with having played an important role in Sweden’s ICT transformation by providing a “great lift in digital literacy.”<sup>46</sup>

The Social Democratic government of the late 1990s complemented these initiatives with policies to expand ICT skills within the general population (i.e., beyond the constituencies served by the union-based initiatives). The “Knowledge Lift” (KL) program of 1997–2002 offered training at existing adult education centers, and computer science was an especially popular subject in each of the five years the program ran. A separate program from 1998 to 2000, “Swedish Information and Technology” (SWIT), promoted IT skills specifically.<sup>47</sup>

These supply-side developments are crucial to explaining the Swedish ICT boom. Not only does Sweden feature an exceptionally large number of ICT specialists; the digital skills of the country’s population as a whole are at or near the top of all EU countries.<sup>48</sup> The success of the Swedish gaming industry, as well as firms such as Skype and Spotify, are partly a function of the fact that the country has a population that consists of very sophisticated consumers (as well as producers) of ICT.<sup>49</sup>

In sum, while Germany was doubling down in its traditional areas of manufacturing strength, Sweden moved into higher technology manufacturing and services. State policy played a key role in promoting ICT, but the producer group landscape was critically important in facilitating a shift in Sweden’s growth regime. The crosscutting interests of key producer group actors in Sweden prevented the emergence of a sector-based cross-class alliance of the sort that dominates the German political economy. Diversified business groups faced strong incentives to shift resources into more knowledge-intensive activities, and Ericsson played a central role, functioning “as an organizational and technological hub both within the ICT sector and between new and traditional industries in Sweden.”<sup>50</sup> State policy actively promoted the move upmarket through policies that also reinforced the shift in the balance of power within the labor movement away from the blue-collar LO and toward white-collar unions.

### **The Dutch Growth Regime: Transitioning Back**

Meanwhile, of the three countries considered here, the Netherlands has shifted the furthest, at least from its goals of the immediate post-war period. The institutions of

Dutch corporatism had been expressly created in the 1940s to promote manufacturing to transform the country “from an agricultural into an industrial economy.”<sup>51</sup> However, industrial development in the 1950s and 1960s was premised on low-cost strategies that became unsustainable in the 1970s when revenues from natural resources caused a steep appreciation of the Dutch currency. The collapse of Dutch manufacturing created an organizational vacuum within the institutions of Dutch corporatism, allowing the state to engineer a more dramatic reconfiguration of the country’s growth model, one that has come to be premised on a new “owner-worker” alliance.<sup>52</sup>

Producer groups in the Netherlands in the immediate post-war period closely resembled those in Germany in the 1950s and 1960s, with unions dominated by blue-collar workers and manufacturing interests enjoying privileged access to government. Unlike in Germany, however, Dutch social partnership relied more heavily on direct state support through the government’s regular use of extension clauses to massively amplify the reach of union contracts.<sup>53</sup>

The institutions of corporatism that had been created to promote manufacturing survived its collapse. However, the goals and functions of the heralded Polder model were transformed in the 1980s as the government turned toward services and as social partnership came to revolve around negotiating an orderly retreat from manufacturing, especially via early retirement. Unions are full partners in the joint management of occupational pension funds, which grew over the 1990s from “sleepy bureaucratic” investors into “prominent financial institutions in their own right.”<sup>54</sup> These developments transformed union interests, paving the way for the consolidation of a new worker-owner alliance around finance and international business services. Again, I review the most significant changes in industrial relations, labor market policy, education, and innovation policy.

Industrial relations in the 1970s and 1980s were still dominated by manufacturing interests and were largely devoted to negotiating the terms on which industrial downsizing would occur. In Germany, the adjustments of the 1970s and early 1980s had left manufacturing leaner but also more competitive, while in the Netherlands manufacturing continued its decline. Membership in Dutch unions plummeted to below 20 percent, and the country’s leading firms (including Philips, Shell, and Unilever) turned toward global expansion and diversification. With collective bargaining centered on industrial retrenchment and downsizing, supplemental “second tier” (collectively bargained) pensions became a major theme in industrial relations. Thanks to a 1949 law that allowed the Ministry of Social Affairs to declare occupational pensions negotiated at the industry level compulsory for all firms in the sector, 90 percent of Dutch wage earners participate in industry-wide funds co-managed by the social partners.<sup>55</sup>

On the employer side, the collapse of the heavily subsidized Rijn-Schelde-Verolme shipyards in 1983 spelled “an end to the old industry policy.”<sup>56</sup> The Ministry of Economic Affairs, which had previously interacted directly with leading manufacturers, now distanced itself and downgraded its Department of Industry. Within top government circles, new voices emphatically argued against intervening on behalf of

industry and advocated a turn toward services.<sup>57</sup> The Dutch insurance industry (comprised of ABN, Rabo, ING, and Aegon) became increasingly influential in this period, and the Dutch temporary agency firm Randstad grew mightily to become the second largest player in the industry worldwide.<sup>58</sup>

Labor market policy in these years began to reflect and reinforce the changed economic landscape as the government retreated from policies aimed at preserving manufacturing and promoted service employment instead. In part prompted by EU mandates, the government encouraged the entry of women into the labor market by removing some of the discriminatory policies (e.g., in the tax code) that had traditionally discouraged female employment—changes that coincided with a reduction in benefits for their under- or unemployed husbands.<sup>59</sup> Within a single generation the Netherlands experienced a very significant increase in female labor market participation.<sup>60</sup> Dutch women who had not expected to enter the paid workforce had mostly opted for the general rather than vocational track in upper secondary school, and thus entered the labor market with exactly the kind of skills (e.g., foreign languages) that service firms sought. The lack of public day care in this Christian Democratic country meant that most women worked part-time, but this did not pose a problem for the service industries they entered, where scheduling was anyway more fluid than in traditional manufacturing sectors.

Unions, initially skeptical about the rise in part-time employment, changed their tune in the early 1990s as growing levels of household debt rendered many families dependent on that second income to make their mortgage payments.<sup>61</sup> This shift brought their interests into alignment with those of service firms who valued the flexibility of part-time work. A major corporatist bargain in 1993 resulted in legislation upgrading the status and benefits of part-time work by prohibiting discrimination on the basis of working hours and ensuring equal treatment in wages, overtime pay, holidays, bonuses, occupational pensions, and training.<sup>62</sup>

The government's innovation policy further reflected and reinforced the growing influence of business services. A 1996 government report advocated using resources from the “old economy” (i.e., the exploitation of natural gas), to support the transition toward the “knowledge economy.”<sup>63</sup> Marja Wagenaar, social democratic MP from 1997 to 2002, emphasized “huge demand” on the part of the country's internationally oriented industry and finance sectors to use the gas revenues to develop a high quality glass-fiber ICT network.<sup>64</sup> So, at about the same time that the Swedes were investing in the dissemination of IT skills, the Dutch focused on IT infrastructure beginning with the construction of a vast IT network (1996–1998), continuing with policies promoting the widespread use of ICT (1998–2001), and finally extending its application (beginning in 2001).<sup>65</sup> The Netherlands emerged from these initiatives as a leader in e-health, e-education, and e-government. By 2013 it also led all other EU countries in the number of households with access to the internet at home, as well as in usage rates among its citizens.<sup>66</sup>

The move into knowledge-intensive business services was also accompanied and supported by important reforms to the education system. While Germany was avoiding



a break with traditional firm-based VET, the Dutch state was engaged in reforms that promoted the kind of general skills that most observers see as central to the development of services, especially high-end services.<sup>67</sup> While Germany continues to valorize practical training and discourage overly “bookish” studies, the Dutch government began favoring general education, arguing that while “practical skills can be relatively easily acquired” during an employee’s working life, “gaps in basic knowledge are difficult to make up later.”<sup>68</sup>

Thus, and again unlike in Germany, there has been a very significant increase in university attendance in the Netherlands, which over the past generation has nearly caught up to the U.S. As Figure 4 showed, the trend in tertiary educational attainment in the Netherlands tracks rather closely with developments in Sweden, with large increases beginning in the 1990s. Changes in education in turn fueled steep increases in employment across a range of professional services between 1994 and 2008 as employment in lower-skill jobs shrank.<sup>69</sup>

Dutch unions continue to over-represent male manufacturing workers, but the transition out of manufacturing itself tied them closer to services and ultimately to financial services. One contributing factor, already noted, is the widespread dependence of households on 1.5 incomes (thus also women’s employment) in a country characterized by extremely high consumer debt.<sup>70</sup> However, the bigger part of the story is the pension funds that are co-managed by the unions. Dutch pension funds are truly massive, amounting in 2012 to 160 percent of the country’s GDP (compared to German and Swedish pension funds, which account for a mere 6.3 percent and 9.2 percent of GDP, respectively).<sup>71</sup>

As Dutch pension funds grew to become large institutional investors operating on a global scale, unions became reliable allies in the financialization of the Dutch economy.<sup>72</sup> A senior policy officer within the Dutch Social-Economic Council (SER) emphasizes the way in which joint pension management stabilizes Dutch corporatism: “The joint management of sector-wide pension funds is an important foundation of the institutional strength of Dutch unions.”<sup>73</sup> He notes that their shared stake in the health of the second-tier pensions means that the social partners work together in this area “on an intense and ongoing basis.”

These dynamics explain the very different reactions of the Germans and Dutch to the financial crisis of the late 2000s. In Germany the crisis mobilized a cross-class coalition of corporate insiders (managers and unions) against (financial) outsiders, while in the Netherlands, an alternative “worker-owner” coalition (unions + financial interests) dampened pressure for stricter regulation, not as a matter of regulatory capture but instead of “consensual politics.”<sup>74</sup>

The transition into knowledge-intensive business services and finance represents, thus, a significant change in the Dutch political economy, especially when compared to the low-cost industrial strategies the country was pursuing in the 1950s and 1960s. In a phrase that no German policy-maker would ever utter, a representative of the Dutch Education Ministry says: “We think of ourselves as a service economy—finance and services.”<sup>75</sup> The collapse of Dutch manufacturing in the 1970s had dramatically altered

the producer group landscape even as the path out of manufacturing laid the groundwork for a new cross-class coalition by transforming Dutch workers into owners.<sup>76</sup> The venerable Polder model did not break down, but it was significantly reconfigured and came increasingly to serve FIRE industries.

## **Conclusion**

This article has documented the political underpinnings of three quite different pathways toward a knowledge economy. The German case stands out for the remarkable continuity in the composition of economic activity, even as traditional products and production processes are being revolutionized by digital technologies. In this case, a powerful and resilient cross-class coalition in manufacturing, supported and reinforced by state policy, is presiding over the transition to the knowledge economy.

Sweden has seen a series of subtler changes as many of the same business conglomerates that dominated the postwar growth regime have transitioned into different types of economic activity. Encompassing unions and crosscutting cleavages mitigated German-style dualism, facilitating a shift in resources into higher value added markets in both manufacturing and services. Here state policy served as a midwife, assisting the move up market through innovation and education policies that created the infrastructure within which knowledge-intensive firms could thrive, while further enhancing the already-growing size and power of salaried employees within the labor movement.

The Netherlands, finally, has witnessed a more profound shift, as the collapse of the original low-cost manufacturing strategy paved the way for a more significant coalitional realignment to occur within the traditional institutions of social partnership. In this case, active government support for the transition to services and the evolution of organized labor's interests laid the foundation for a redirection of the Dutch political economy back to its historic strengths in trade and finance, though now in a decidedly higher-tech direction.

The three trajectories of change outlined here do not exhaust all possible routes toward a knowledge economy transition; other countries may chart different courses depending on the political dynamics and coalitions. Moreover, all three of the pathways documented here appear to be economically viable in sense of producing growth, at least in medium run. However, each is vulnerable to somewhat different pathologies and associated with different distributional outcomes. Germany's manufacturing-based export-led growth is wildly successful in international markets. However, the continued emphasis on traditional sectors like automobiles still leaves German producers exposed to relentless cost pressures that are unlikely to let up, and that have already contributed to a growing divide between labor market insiders and outsiders. Thus, despite its enviable trade surplus, the German political economy has also seen higher levels of low-wage work and poverty.

The Swedish growth regime is more complex and to some observers more balanced.<sup>77</sup> While it is true that the economy is performing well on many levels, the

changes described above have set in motion potentially unsettling dynamics. High union coverage among low-skill workers has placed a more solid floor on downward wage pressures, but inequality in Sweden at the upper end of the income spectrum has risen as white collar interests have grown in size and strength. Employers have seized on these developments, attempting to sideline the blue-collar confederation (LO) entirely, which, if successful, would have a profound effect on Sweden's hitherto relatively egalitarian model of capitalism.

Finally, the Dutch growth regime also has its strengths, including, among other things, vastly improved levels of female labor market participation in a country that was once a spectacular laggard on this score. At the same time, however, the growing role of finance renders the Dutch political economy vulnerable to some of the pathologies that we have traditionally associated with liberal market economies such as the United States, including boom-bust-bubble dynamics and a further weakening and fragmentation of unions. As Engelen et al. have pointed out, the Netherlands is an extreme outlier in the context of the varieties-of-capitalism literature, combining as it does high coordination with high financialization.<sup>78</sup> It remains to be seen how stable that combination will prove over the longer run.

Stepping back from the three countries explored in this article, two further overarching conclusions come into view. The first, wholly consistent with one of the core messages of the original varieties-of-capitalism framework, is that the shared pressures of technological change are unlikely to result in convergence on a single dominant model of capitalism. Second, the distinct trajectories that we have observed across these three coordinated market economies—including in some cases moves into areas of strength we have traditionally associated with the liberal model—suggest limits to the capacity of the VofC framework as originally conceived to capture current developments. My analysis suggests that a more dynamic understanding of political-economic resilience and change requires a shift in attention from the specific arrangements that support different models of capitalism to the changing political coalitions on which these models rest.

## NOTES

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30. The philosophy of the Wallenberg business group, featured on its brochures, quotes a 1946 letter from Marcus Wallenberg to his brother Jacob: ‘to move from the old, to what is about to come, is the only tradition worth keeping.’”

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35. Jonas Pontusson, *The Limits of Social Democracy* (Ithaca: Cornell University Press, 1992), 138.

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37. Author interview with Anders Hektor, senior member of the IT policy unit, Swedish Ministry for Enterprise and Innovation, Stockholm, May 2017.

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39. Hans Fogelberg, "Research on IT Use and Users in Sweden, with Particular Focus on 1990–2010," Working Paper of the Division of History of Science and Technology, 2011 [TRITA/HST/2011/1], 15–16; Fredrik Augustsson, *They Did IT: The Formation and Organisation of Interactive Media Production in Sweden* (Stockholm: National Institute for Working Life, 2005), ch. 5.

40. SOU 1994: 118 passim; On the "IT in Schools" program (ITiS), see especially, Augustsson, 88–89.

41. Augustsson, 89, fn 37.

42. Fogelberg, 34.

43. Author interview with Mats Essemeyr, Confederation of Salaried Employees [TCO], 2017.

44. Fogelberg, 34.

45. The rapid diffusion of internet, broadband, and computers in the late 1990s (and beyond) is documented in *Svenskarna och Internet* (<http://www.soi2016.se/allmant-om-internetutvecklingen/>).

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