An Old Consensus in the "New" Economy? Institutional Adaptation, Technological Innovation and Economic Restructuring in Finland

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The Finnish experience of the 1990s presents the scholar of political economy with a remarkable economic transformation and an intriguing political puzzle. Stated most provocatively, a diminutive postwar paper producer and high-end Soviet supplier emerged as a global telecommunications leader by the end of the millennium. In the early 1980s, over a quarter of Finnish exports went to the Soviet Union.[1] Bilateral trade contributed to industrialization during the early postwar period, but it was nursing internationally uncompetitive sectors like textiles, televisions and transportation equipment by the 1980s.[2] In 1992, this trade collapsed to 2.8% of exports, exacerbating a financial crisis and contributing to the deepest recession in the nation's history.[3] By the time trade with Russia had recovered to a rapidly rising 7.5% of exports in 2003, its character had changed radically and irrevocably. Telecommunications had replaced textiles and transportation equipment as Finland's leading manufactured export. Finland was no longer known as a paper producer or a high-end Soviet supplier, but rather as a leading innovator and "wireless giant."[4]

Bilateral trade with the Soviet Union represents one facet of a more complex, economic transformation that unfolded over the course of the 1990s. Industrial restructuring was pervasive, part of a national, "innovation-based" strategy that witnessed rapidly growing R&D expenditures and per capita high tech patent applications that ranked among the highest in the European Union. As described by Ari Hyytinen, Laura Paija, Petri Rouvinen and Pekka Ylä-Anttila (this volume), many factors including sound macroeconomic management, long-term investment in education, common telecommunications standards and a favorable regulatory environment contributed to these developments. This chapter focuses on the political bargains that underpinned radical economic restructuring and their role in facilitating change within an ostensibly stable and incremental organized economy.

At first glance, the Finnish experience would appear to support one of two common understandings about economic restructuring and institutional change. For some, Finnish restructuring represents successful liberalization or a movement "from cartels to competition" based on privatization and deregulation.[5] Others cite Finland as an example of "neo-corporatist continuity" whereby Finland relied on traditional wage-setting and policy-making instruments to facilitate economic adjustment.[6] Careful analysis of two liberal reforms (financial and trade liberalization) and two forms of neo-corporatist continuity (fiscal policy and pay determination) reveals that neither narrative fully describes the process of institutional experimentation and adaptation that transpired during the 1990s. Rather, long-standing patterns of tripartite concertation were adapted to perform radically different functions within fundamentally different fora. This shift in concertation, most vividly evident in Finnish "technology policy," emerged from an explicitly political process of institutional renegotiation that simultaneously facilitated and constrained adjustment. This chapter generalizes findings with reference to similar developments in Denmark and Ireland, but begins by situating the Finnish experience within a broader literature on contemporary political economy.

Story-Telling in a Global Economy

Contemporary literature on comparative political economy is characterized by a sharp disjuncture between liberal and organized market economies. While organized market economies come in a wide variety of shapes and sizes, this chapter focuses on "concertation" or collaborative forms of policy-making and production between organized actors and state agencies that deviate from free market competition and price signals.[7] Historically, concertation has occurred within "neo-corporatist" channels, characterized by highly centralized, encompassing, monopolistic producer groups like employer associations, universal banks, trade unions and state agencies.[8] While closely associated with neo-corporatism, the concertation refers to a cooperative policy-making process and neo-corporatism refers to the specific constellation or institutions or policies within which it occurs.[9]

Both manifestations of the organized economy are closely linked to social stability, incremental innovation and gradual adjustment. Even the most articulate efforts to link "corporatism and change" betray significant continuity. Thus, Peter Katzenstein's insightful analysis of Austria described redistributive institutions that facilitated a gradual upgrading of preexisting sectors rather than radical shifts to new industries.[10] Economic discontinuity and radical innovation, by contrast, are commonly located within the purview of the liberal market economy. Liberal financial markets facilitate the rapid reallocation of capital to emerging enterprises while decentralized wage setting fluidly and nimbly accommodates changing economic conditions. By virtue of its emphasis on competition between individual firms, the liberal market economy is said to possess a "comparative institutional advantage" in fast and flexible adjustment, even if its unstable character generates long-run inefficiencies.[11] Descriptions of institutional continuity and change in contemporary capitalism reflect this dichotomy between liberal change on the one hand and neo-corporatist continuity on the other. Consider the literature regarding national responses to technological change and economic globalization. Many scholars have described a wave of liberal reforms designed to increase flexibility and encourage innovation, citing evidence of privatization, product market deregulation, financial liberalization and/or the decentralization of collective bargaining to support their claims.[12] In contrast, other authors have emphasized institutional continuity by pointing to specific neo-corporatist features like financial concertation, the limited decentralization of collective bargaining and an enduring state role in important parts of the economy.[13]

While compelling, this dichotomous characterization of liberal change and neo-corporatist continuity is problematic in two respects. First, it neglects the way in which concertation can contribute to ostensibly liberal objectives like radical innovation and extensive economic restructuring. While commonly linked to stability and incremental adjustment, concertation varies significantly over time and space. It has been alternately associated with wage restraint, welfare state expansion, fiscal retrenchment, labor market reform, technological diffusion, skill accumulation and a number of other "redundant capacities" on the supply side of the economy.[14] In Finland, it will be demonstrated that a distinctive pattern of concertation, oriented around innovations in technology policy, contributed to a dramatic repositioning of the Finnish economy during the 1990s.

This contribution was predicated on institutional renegotiation, whereby concertation was adapted to pursue radically different ends within fundamentally different fora. Indeed, the liberalization of preexisting neo-corporatist institutions in Finland had the paradoxical effect of triggering intensive consultation and concertation between firms, employer associations, trade unions and state agencies during the 1990s. The aforementioned dichotomy between liberalization and neo-corporatist continuity obscures these dynamic and fundamentally political efforts to leverage inherited institutional capacities in responding to new economic challenges.

That said, institutional adaptation is not an automatic or functionalist response to crisis. The political bargains that underpinned radical restructuring in Finland constrained adjustment in other, problematic ways, giving rise to an ongoing process of "perpetual renegotiation."[15] In fact, a similar process of perpetual renegotiation could be said to have characterized Finnish economic development for most of the postwar period.

A Chronology of Change: The Institutional and Economic Context

Before evaluating rival narratives based on liberal change and neo-corporatist continuity, it is first necessary to establish a historical context for understanding recent developments in Finnish political economy. This section introduces institutional legacies accumulated over the course of the postwar period before describing the challenges that emerged during the early 1990s and the remarkable degree of economic restructuring that ensued.

State Intervention and Tripartite Concertation in Postwar Finland

Finland entered the 1990s as a highly organized and densely institutionalized economy bearing the imprint of several successive developmental strategies. With the economy in a condition of pronounced backwardness at the beginning of the postwar period, the Finnish state assumed a leading position in encouraging industrialization. This early postwar industrialization program, precipitated in part by heavy war indemnities imposed by the Soviet Union, was framed as an exercise in nation building. The contemporary government deliberately decided not to decrease taxes to prewar levels, while Finland's statutory pension system generated additional capital for investment. Public savings, 30% of aggregate savings in the early postwar period, was then ploughed back to firms in the form of subsidized credit.[16] Postwar investment in Finland was 25.2% of GDP in the early 1950s, 7.9% above the average for OECD Europe and second only to Norway.[17] The state assumed an even more direct role in economic development through public companies like Outokumpu (mining), Kermia (chemicals) and Neste (oil refining, petrochemicals and plastics). State-owned industry increased in salience over the course of the postwar period, generating 23% of manufacturing value-added, 27% of manufacturing investment and 30% of manufacturing exports by 1993.[18]

Private business was deeply engaged in this national project through dense inter-firm networks and close connections to the state. Immediately after the war, the state constructed joint committees of civil servants, private industrialists and bankers to organize war indemnities to the Soviet Union.[19] In subsequent years, firms were linked to the state through industrial development agencies like the Ministry of Trade and Industry. Firms were also connected within expansive universal banks and encompassing employer associations. Finland thus began to conform to the German “stakeholding” model of corporate governance and finance. Until the 1990s, Finnish industry was dominated by four main banks, each with its own industrial “family.” Simultaneously, Finnish firms also developed a dense network of employer associations, closely tied to the state and trade unions through their counseling, lobbying and collective bargaining activities. These associations originated from interwar export cartels, but merged into a unified Confederation of Finnish Industries after 1976 in tandem with the Finnish trade union movement.[20]

Labor played a marginal role in early industrialization, partly as a legacy of the civil war of 1918 and partly because of the resultant division of the trade union movement into social democratic and communist camps. Growing trade union clout as well as the desire to create a (social) democratic bulwark against the communists inspired periodic but opportunistic recourse to national collective bargaining and incomes policies following strategic devaluations during the

1950s and 1960s. Centralized collective bargaining became a permanent feature of Finland's institutional landscape in 1967 following the election of a social democratic coalition government and the creation of a more encompassing Confederation of Finnish Trade Unions (SAK). Collective bargaining increased in prominence in subsequent decades and was closely linked to rapidly expanding social protection and labor market regulation. That said, Finnish neo-corporatism never transcended its "fairweather" bias and was most successfully deployed only after recourse to a forced devaluation.[21] Notwithstanding its inconsistent character, Finland could be said to possess all of the dense organizational and institutional structures of a neo-corporatist economy by the end of the 1980s. Centralized employer associations and trade unions played a key role in pay determination and policy formulation, while universal banks linked firms together within dense, long-term financial networks. Meanwhile, the state continued to play an unusually prominent role in the economy by building up interest associations like the SAK, supporting collective bargaining with policy and tax concessions and allocating preferential credit and industrial subsidies to targeted firms and sectors.

The Finnish Recession and Economic Transformation of the 1990s

Institutional arrangements inherited from four decades of postwar development resonated with Finland's comparative advantage. The Finnish economy enjoyed a comfortable, if unremarkable, position in the international economy. Pulp, paper and forestry industries accounted for over a third of Finnish exports while bilateral trade with the Soviet Union provided a secure market for manufactured goods like textiles, televisions and transportation equipment. A devastating economic recession in the early 1990s, however, shattered Finland's stable position in the international economy. The immediate cause of the recession was poorly managed financial deregulation and liberalization, but the crisis was aggravated by the collapse of the

Soviet Union and a 70% decline in trade with Russia. By 1993, output had fallen 14% and unemployment approached 17%.[22] The recession was described as a "collective nightmare," casting doubt on traditional economic structures and strategies as concerns about "economic competitiveness" rose in political salience.[23]

By the late 1990s, Finland was being quietly heralded as a success story. From 1995 through 1999, annual GDP growth averaged 4.4%, peaking at 6.3% in 1997. Growth had declined to 2.0% by 2003, but it was still fourth highest in the Eurozone and well above the regional average of 0.5%. More significantly for the purposes of this chapter, Finland had negotiated a remarkable structural transformation toward high technology production. High technology production increased as a share of exports from 7% in 1990 to 23% by 2000, surpassing even the dominant pulp and paper industry in production volume.

The success of the ICT cluster reflects a more fundamental national transformation from "investment-driven" to "innovation-driven" growth.[24] Whereas "investment-driven" growth was characterized by greater physical and human capital inputs into relatively stable production practices, "innovation-driven" growth is marked by innovations that create fundamentally new products and industries. The pronounced shift from the accumulation of productive resources to their creative recombination is manifested in rapidly rising R&D, which climbed from 1% of GDP in the early 1980s to 3.5% of GDP by 2002. Even excluding Nokia, which accounts for a third of total R&D expenditure, Finnish R&D remains well above the EU average.[25] Among EU members, Finland stands out not only with respect to per capita R&D, but also per capita patent applications, innovation expenditure and high technology value added in manufacturing.

Defined in terms of its ability to make most efficient use of all available resources, however, it is nonetheless difficult to agree with the World Economic Forum's assessment that the Finnish economy is the “most competitive in the world”.[26] Finland’s economic transformation was achieved at a heavy price, most visibly in the form of displaced workers. Unemployment peaked at 16.6% of the labor force in 1994 and has been slow to recover, averaging 9.0% in recent years. Meanwhile, Finland exhibits considerable weaknesses with respect to its business structure, ICT use and the commercialization of ICT. As described below, these weaknesses reflect the fundamentally political bargains that underpinned radical economic restructuring. This chapter begins, however, by focusing on Finland’s status as a leading innovator and high technology producer. What political and institutional developments made possible such a radical redeployment of economic resources during the 1990s?

Finland’s Economic Transformation as a Liberal Revolution?

The Finnish experience easily lends itself to a classic liberal interpretation in which deregulation and liberalization fueled innovation, radical restructuring and economic growth.[27] The Center-Conservative government’s 1991 program to extend the ownership base of public enterprises most vividly captures the retreat of hitherto dominant, centralized actors like the state and the subsequent rise of individual firms. This program was continued over the course of the decade under the auspices of a Social Democratic-Conservative rainbow coalition government.[28] In fiscal policy, the Center-Conservative government reduced social security contributions and introduced a flat corporate tax of 25% in 1993 (26% as of 2004), thereby encouraging investment and promoting supply-side capacity. As described by Hyytinen et al in this volume, this represents but one of many liberal components in Finland’s economic transformation. This section limits the focus to financial and trade liberalization because these policies most vividly capture the hypothesized shift from dense, national-level concertation to increased competition in financial and product markets.

Decentralization and Globalization: Financial and Trade Liberalization

Finland experienced a financial revolution during the 1990s, characterized by the pronounced decline of the universal banks and rapidly increasing access to foreign finance and equity. Financial reforms during the 1980s and poorly managed deregulation triggered an economic crisis and a wave of bankruptcies in the early 1990s.[29] Financial liberalization thus had the unintended consequence of shaking up the established network of universal banks and their respective "industrial families" as cross-ownership declined dramatically during the 1990s.[30] Simultaneously, the state retreated from the practice of accumulating massive public surpluses and channeling funds back to favored firms and strategic sectors at subsidized interest rates through the Ministry of Trade and Industry and the Finnish Central Bank.[31]

As the economy recovered, these developments enabled larger Finnish companies to secure direct access to equity finance and foreign capital, becoming less dependent on universal banks and the state. Nominal market capitalization rose from 23% to 150% of GDP during the 1990s, exceeding all Nordic nations except Sweden.[32] Meanwhile, an influx of foreign capital turned the Helsinki stock exchange into "the most internationalized in the world" prior to its merger with the Swedish and Danish stock exchanges. This massive influx of foreign capital was critical in fueling the development of innovative young sectors.

Financial liberalization and internationalization not only liberated firms from traditional, hierarchical banking relationships and opened access to foreign capital, but also resulted in predictable changes in corporate governance. Traditionally dominant "stakeholding" institutions like the supervisory board disappeared from corporate practice. Meanwhile, businesses displayed a greater sensitivity toward growth and shareholder value throughout the 1990s.[33] These changes were reinforced by the corporate tax reform of 1993 that eliminated the taxation of dividends and favored equity financing over debt finance. Corporate finance and governance, widely considered as the linchpin of the neo-corporatist or coordinated market economy, changed irrevocably as price signals and market relations supplanted associational or institutional affiliation, with predictable consequences for firm behavior and strategy.

Financial liberalization coincided with new forms of competition and new market opportunities associated with accession to the European Union in 1995. In addition to improving preexisting access to large, lucrative markets in Western Europe for Finland's developing ICT sector, contemporary policy-makers in nations like Austria, Finland and Sweden viewed EU accession as a mechanism for exposing producers to greater levels of competition at home.[34] Econometric analysis suggests that Finland derived particular benefit from EU accession, with an estimated annual contribution to GDP growth of 0.8%. In addition to increased exports to the EU and greater price competition at home, Finland benefited from concrete policy reforms in areas like competition policy.[35] Liberalization started in 1989 with a corporate law reform that limited cartel formation and continued with the creation of a common cartel policy by the time of expansion. At the same time, financial integration allowed Finnish firms to make the most of these opportunities by opening up access to a wave of foreign direct investment during the 1990s. In other words, EU accession complemented financial liberalization by opening new resources to firms who sought to adapt to radically different market conditions.

Competition with Cooperation: The Limits of the Liberal Narrative

While compelling, the narrative linking liberalization to economic change neglects important aspects of the Finnish experience. Rather than creating fiercely competitive fields of atomized firms, the retreat of universal banks and the dissolution of highly centralized "industrial families" coincided with the proliferation of inter-firm networks. Indeed, liberalization could even be said to have increased cooperation by activating hitherto latent organizational institutions. Finnish business leaders and policy-makers placed an increasing emphasis on inter-firm collaboration and diffusion as a mechanism for adapting to new economic challenges. In so doing, they developed organizational linkages within peak and sectoral employer associations that are anathema to liberal principles. By the end of the decade, there was increasing discussion of a "network approach" to economic production and innovation in which "cooperation" received as much attention as "competition."[36] To more fully illustrate the limits associated with the liberal narrative, the next section considers the strengthening of centralized collective bargaining and policy-making during the 1990s.

Finnish Economic Adjustment as Neo-corporatist Continuity?

Curiously, for a nation that is trumpeted as a paragon of successful liberalization, Finland presents compelling evidence for authors seeking to document neo-corporatist continuity in the face of global and post-industrial pressures.[37] Finland has witnessed neither a decentralization of collective bargaining nor aggressive efforts to disempower labor and other special interests. Organizationally, union density has been relatively stable in Finland, falling only gradually in the late 1990s. Finnish employers remain well organized, with little evidence of the "association flight" that has been documented in Germany.[38] Indeed, in sharp contrast to literature on inter-sectoral cleavages, Finnish employer associations became more centralized during the 1990s. The wage bargaining functions of the Confederation of Finnish Employers and the lobbying functions of the Confederation of Finnish Industries were merged into the Confederation of

Industry and Employers (TT) in 1993. Most recently, TT, composed of large export firms, merged with the small and medium-sized Employers' Confederation of Service Enterprises in Finland to form Finnish Industries in 2005.

Tripartite Concertation in Collective Bargaining and Fiscal Policy

Finland experienced not only relatively stable patterns of collective wage bargaining during the 1990s, but an active "centralization" toward the end of the decade. The Finnish experience thus deviates from the pronounced turn toward decentralization observed in nations like Denmark and Sweden.[39] The initial response to the recession was not decentralization but a hitherto unprecedented two-year wage freeze in 1992 and 1993. Concertation reflected Finland's opportunistic and inconsistent pattern of "fairweather" corporatism. Intersectoral consensus was only reached in the wake of currency devaluations in 1991 and 1992, locking into place a redistribution of income between sheltered and exposed sectors rather than preventing a costly devaluation.[40] Even then, wage restraint did little to assuage growing concerns among employers about wage flexibility and adjustment capacity at the level of the firm.[41] The STK adopted a radical stance toward decentralization in the early 1990s and collective bargaining devolved to the sectoral level.

Decentralization to the sectoral level, however, failed to secure wage moderation, making employers and employees alike amenable to a return to centralized collective bargaining in 1995.[42] A national agreement was precipitated by the intervention of a newly elected rainbow coalition government in 1995. In contrast to the previous Center-Conservative government, which adopted an ambivalent attitude toward collective bargaining in the early 1990s, the rainbow coalition used targeted concessions in fiscal and tax policy to bring trade unions to the table. The 1995 agreement was described as "the peak in terms of moderation and encompassment in the history of Finnish incomes policy" and the 1997 agreement was even broader with 98% coverage.[43] Most recently, the social partners signed a collective agreement extending into 2007, underwritten by a government pledge to increase funding on economic infrastructure.

The pronounced shift in employer attitudes toward centralized bargaining was predicated on the latter's capacity to procure wage restraint. While economists remain skeptical about future developments, there is widespread consensus that collective bargaining institutions were quite successful in securing wage moderation during the 1990s.[44] Real wage growth fell from 4.5% in 1994 and 7.1% in 1995 to average 3.4% between 1996 and 1998, before increasing in line with the OECD average.[45] The most recent agreement is estimated to generate overall wage increases of 3.2%, 2.6% and 1.8% between 2006 and 2007. In economic terms, wage restraint facilitated a dramatic shift from wages to profits during the 1990s that was instrumental to the pronounced increase in private sector R&D expenditure.

Centralized collective wage agreements reflected an equally dramatic move toward tripartite concertation in fiscal policy during the 1990s. Government debt ballooned from 15% of GDP in 1990 to 59.6% of GDP by 1994 as economic recession and soaring unemployment triggered automatic stabilizers.[46] Retrenchment efforts by a Center-Conservative coalition government that was forced to adopt a go-it-alone approach to fiscal retrenchment during the early 1990s met fierce resistance from societal actors. Government plans to cut unemployment benefits faltered in the face of a threatened general strike in 1992 and the government had to back down under similar circumstances when it attempted to lower the threshold to employ a young person in 1993. Ultimately, the Center-Conservative government was able to maintain fiscal discipline through a broad array of expenditure cuts, but paid a heavy electoral price in 1995 as a result of societal polarization and trade union resistance.

As a result, the subsequent rainbow coalition government turned to tripartite concertation to create an electorally sustainable austerity package. Centralized, tripartite negotiation created tight linkages between otherwise disparate policies, allowing the government to redistribute costs across different constituencies, policy areas and time frames.[47] In so doing, the government forged a consensual approach to fiscal retrenchment focusing on cuts in pension expenditure, child allowances and study grants. While the dramatic 10% reduction in government expenditure as a share of GDP during the latter half of the 1990s was as much about economic recovery as expenditure cuts, the absolute decline was a product of concrete policy reforms.[48] In practice, trade unions supported retrenchment with the understanding that unemployment benefits, an important incentive for joining a trade union, would remain essentially untouched.[49] Consequently, while unemployment benefits were frozen between 1995 and 1999 and replacement levels were reduced by 2% in 1996, labor market reforms lagged behind Denmark and Sweden, generating a nationally distinct pattern of fiscal adjustment.[50]

Institutional Innovation and Its Contribution to Neo-corporatist "Continuity"

While Finland experienced considerable continuity in collective bargaining and fiscal policy, established institutions fulfilled radically different functions during the 1990s. Neither policy-making nor collective wage bargaining in 1990s Finland approximated the type of positive-sum nominal-social wage tradeoff described in the traditional neo-corporatist literature.[51] Rather, neo-corporatist institutions contributed to economic restructuring through wage restraint, a pronounced increase in profits and macroeconomic restraint. Concertation was originally provoked by Finland's economic and fiscal crisis, but its new role was solidified as

European Monetary Union (EMU) eliminated devaluation as an adjustment tool and placed new restraints on fiscal expenditure. These ostensibly liberal constraints on macroeconomic management triggered a conversion of traditional neo-corporatist concertation toward more "competitive" ends.[52] The Euro effectively reoriented neo-corporatist concertation away from full employment guarantees and increased social expenditure toward wage moderation and fiscal restraint. This pan-European trend acquired an innovation-intensive character in Finland as tripartite committees in the early 1990s increased public R&D while simultaneously reducing social expenditure. For example, the 2004 agreement traded wage restraint for government investment in infrastructure and R&D.

Moreover, neo-corporatist "continuity" masked fundamentally discontinuous, liberal innovations at the micro level. Thus, the share of firms reaching local agreements on issues like pay, working hours, and organizational reforms within the framework of national agreements increased from 60% in 1992 to 90% by 1998.[53] Merit-based pay and profit sharing arrangements emerged as an especially popular mechanism for achieving greater flexibility, while local negotiations increased the scope for flexible working hours, even as coordination at the sectoral and legislative level remained limited. Trade union willingness to accommodate greater firm-level flexibility in merit-based pay and working hours was instrumental in changing employer attitudes and sustaining centralized collective wage agreements during the 1990s.[54] Thus, while collective bargaining institutions appeared highly stable, continuity was predicated on institutional innovations at the firm level. Meanwhile, neo-corporatist institutions were embedded within and shaped by important liberal reforms like financial liberalization, EU accession and EMU.

Tripartite Concertation and Finnish Technology Policy

Careful analysis of the Finnish experience thus reveals that both liberal reforms and neo-corporatist legacies played important roles in economic adjustment and restructuring during the 1990s. The Finnish experience is thus best characterized as an interplay between liberalization and preexisting neo-corporatist institutions, even within those policy areas considered "most liberal" or "most corporatist." This section introduces Finnish technology policy to illustrate how ostensibly disparate or even contradictory institutions are combined in practice. "Technology policy" is of substantive interest because of its central role in promoting radical innovation and economic restructuring. Finnish technology policy has been repeatedly linked to increased private R&D, innovativeness and/or productivity in multiple survey-based and econometric studies.[55]

Technology Policy: Actors and Structure

Technology policy is not new within the Finnish lexicon, but its salience increased greatly during the 1980s and 1990s as attention shifted from investment-driven to innovation-driven economic growth. "Technology policy" can be broadly defined as the constellation of institutions that prioritizes the redeployment of human and physical capital through process and production innovations. It is most concretely captured by the government's public commitment to raise aggregate R&D expenditure as a percentage of GDP to 2% by 1990, to 2.45% by 1995 and to 2.7% by 2000.[56] The increase in aggregate R&D expenditure, which approached 3.5% of GDP by 2002, was facilitated by a continuous rise in public R&D. That said, Finnish technology policy adopted a "holistic" approach, focusing on a broader "national innovation system."[57] In this view, innovation was not generated by individual state agencies or individual firms, but was instead embedded in a network of economic relationships, institutions and policies. Technology policy thus aspired to coordinate between a diverse array of actors and issues in order to promote innovation and restructuring.[58]

In describing the actors in Finnish technology policy, it is necessary to begin with private enterprise, which represented the primary engine of innovation and structural transformation. The private sector accounted for the largest increase in R&D expenditure over the course of the 1990s, even as public R&D expanded. Public R&D funding *as a percentage of national R&D* remained far below the EU and OECD average even though public R&D funding *as a percentage of GDP* was the highest in the EU.[59] In practice, this stemmed from an intense and intentional emphasis on private sector "networking." If employer associations like The Central Association of Finnish Forest Industries were legally prohibited from the traditional practice of price fixing, they acquired a new role in the 1990s in serving as fora for technological collaboration and diffusion. The prior existence of multiple, centralized, encompassing employer associations at the national and sectoral levels provided a foundation for inter-firm cooperation, which was, in turn, aggressively linked to state agencies, conferences, committees and universities.

The state played a critical role as a catalyst by channeling resources to facilitate the construction of these dense inter-firm networks. Revenue from privatization was reallocated to long-term education and public R&D expenditure, which increased dramatically in real terms over the course of the decade.[60] Public collaboration with industry was manifest in the increasing salience of public organizations like the Finnish Research Development Fund (Tekes) and the Finnish National Fund for Research and Development (Sitra). Meanwhile, the government sought to develop venture capital for emerging enterprises through the establishment of the public Start Fund of Kera in 1990, an expanded mandate in venture capital for Sitra in 1991 and the merger of the two bodies under the auspices of a broader Government Funds of Funds (FII) in 1995. Rather than the specific regional and sector-targeted subsidies of an earlier era, this support was aimed at the horizontal promotion of R&D and technological diffusion.[61] In the end, this funding touched virtually all of Finland's large high technology firms and at least a third of its small and medium-sized enterprises (SMEs).[62]

While seldom considered, trade union cooperation was an important and necessary component in economic adjustment. Finnish labor proved remarkably supportive of policies that promoted radical innovation, despite the fact that reorganization and restructuring threatened jobs. Labor cooperation stretched back to the late 1970s, when SAK supported increased investment in microelectronics.[63] At the macro-level, tripartite concertation secured a macroeconomic restraint, a pronounced shift from wages to profits, while trade unions proved accommodating in negotiations over flexible work hours and other forms of workplace organization at the micro-level.[64] Meanwhile, trade unions were intimately involved in organizational and workplace innovations through a series of tripartite National Workplace Development Programs addressing ICT diffusion and telework arrangements.[65]

Technology Policy: Origins and Development

While new economic challenges triggered the redeployment of preexisting institutions and resources in the face of new economic challenges, Finnish technology policy did not develop automatically or functionally. Technology policy was a political construction, with state agencies assuming a leading role in provoking renegotiation through agenda setting. In response to growing concerns by business leaders and policy-makers, new economic challenges, including structural rigidities and a comparatively narrow export base, were identified during the 1980s. Significant state initiatives like financial liberalization and tax reform broke apart old bargains and forced the renegotiation of preexisting institutions. At the same time, the state responded to pressure that it actively assist firm restructuring. Given that traditional, region, sector and firm-specific industrial policy instruments were being dismantled, the 1980s necessitated a search for creative new mechanisms for managing restructuring. This search was increasingly defined in terms of "innovation-driven" growth.

The tripartite Technology Committee of 1979 (subsequently renamed the Science and Technology Policy Council) accurately captures the form of active collaboration between business leaders, university administrators, policy-makers and trade union representatives that characterized Finnish political economy during this period. The influence of the Committee and its eventual successor was reflected in its capacity to assemble the most influential economic and political actors within Finland, including the Prime Minister. As a result, the Committee wielded significant power as an agenda-setter and played a leading role in redefining national competitiveness in terms of technology innovation. More concretely, the Committee provided the impetus for specific government initiatives to promote technological development, increase R&D expenditure and facilitate inter-firm coordination. It was a Committee resolution to raise aggregate R&D expenditure to 2% of GDP by 1992, prompting the foundation of Tekes, which would eventually account for a third of public R&D expenditure.[66] A new discursive and institutional framework was thus already in place by the time of the 1991 recession, leading to an innovation-driven policy response to economic crisis rather than an emphasis on active macroeconomic management or increased investment.

While the state clearly played a critical catalytic role as an agenda-setter and as a facilitator for inter-firm coordination, political bargains reflected the political interests and leverage of the social partners. For policy-makers, "technology policy" provided a framework for packaging competitive reforms and advancing structural change without engaging in more aggressive deregulation or liberalization. Meanwhile, technology policy was relatively appealing from the perspective of large employers as it advanced financial market and capital taxation reform without threatening traditionally close collaboration between firms. Additionally, technology policy simultaneously supported adaptation by funding technological innovation and diffusion, giving large manufacturers direct input into the policy-making process through representation in bodies like the Science and Technology Policy Council.

The position of labor offers an even more revealing illustration of how technology policy was shaped by the interests and influence of preexisting societal actors. As noted above, trade union enthusiasm for technology policy presents a puzzle as rapid innovation can generate redundancies and aggravate unemployment. Labor support was partly a function of their ability to shape policy and secure compensatory measures in other policy areas. At the national level, trade unions enjoyed formal representation within Tekes and the Science and Technology Policy Council. Moreover, trade unions were actively engaged with individual firms at the workplace level, not only in collective bargaining, but also through government initiatives like the 1995 National Telework Development Program and the 2002 Committee for E-Work Cooperation.[67] The 1996 Finnish National Workplace Program, the most ambitious of several such initiatives advanced by the rainbow coalition government elected in 1995, is especially indicative. This initiative on organizational innovation and diffusion engaged state R&D agencies, capital and labor within a tripartite framework. Favorable reception by the social partners inspired a more expansive program, the 2004-2009 Workplace Development Program for the Improvement of Productivity and the Quality of Working Life.[68] While bipartite cooperation on technological innovation already existed in local-level collective bargaining, this initiative represented a more active effort by the government to engage societal actors in innovation and economic restructuring.

Technology Policy: Political Compromises and Economic Constraints

The development of Finnish technology policy may have been provoked by external economic challenges, but it is clear that it was defined by interaction and compromise between the state, businesses and trade unions. As such, it represents a fundamentally *political* solution to economic crisis rather than a functionalist one. The distinction is important, reflecting the fundamentally conflictual nature of the reform process as well as its sub-optimal implications. Notwithstanding Finland's impressive achievements in technological innovation and economic restructuring, the economy remains hobbled by a dearth of SMEs and a high unemployment rate. These problems are not exogenous but are instead directly linked to the particular political bargains that underpinned adjustment during the 1990s. To date, the Finnish pattern of adjustment reflects a highly centralized industrial structure organized around a comparatively activist state on the one hand and powerful, institutionally entrenched trade unions on the other.

Despite considerable success in diversifying production, Finland's underlying industrial structure remains more problematic. SMEs, an important source of flexibility, dynamism and innovation, are conspicuously underrepresented in Finnish political economy. The amount of entrepreneurial activity and corporate spin-offs ranks among the lowest in the OECD, while the share of employment in newly established enterprises (0.5%) falls far short of comparable nations like Sweden (1.8%) and Denmark (2.4%).[69] Earlier etatist and neo-corporatist developmental strategies were never especially attentive to the needs of SMEs and their relative marginalization within highly centralized, national-level fora like the Science and Technology Policy Council is not surprising. Somewhat paradoxically, the same level of centralization that facilitated the coordinated expansion of technology policies during the early 1990s limited their effectiveness at the end of the decade. Notwithstanding efforts to address the problem through the creation of regional Employment and Economic Development Centers in 1997 and a reorientation of Tekes funding, Finland's relatively homogenous and large-scale industrial base continues to be identified as a major weakness in performance evaluations.[70]

Moreover, while Finland has demonstrated considerable prowess in reallocating capital into radically new industries, labor has been slow to follow. Gaudy GDP growth rates in the late 1990s were not matched by equally impressive developments within the labor market. Unemployment fell only gradually and lingers at 9% despite robust economic growth. High unemployment reflects limited progress on critical policy reforms like low income-earner taxation and labor market activation. Despite progress in reducing the tax wedge on lower income earners to 40.4% by 2002, it remains significantly higher than the EU15 average of 37.8%. At the same time, Finland's expenditure on active labor market measures lags behind comparable nations like Denmark, Sweden and the Netherlands, giving it one of the highest ratios of passive to active labor market expenditure in the EU.[71]

High unemployment can be viewed as a product of the political bargains that underpinned Finnish adjustment. The decision to prioritize technological innovation and economic restructuring aggravated Finland's unemployment problem. At the same time, investment in technology policy and the pronounced shift from wages to profits was achieved in practice by giving trade unions veto power over controversial labor market reforms.[72] Hence, increases in public R&D expenditure became a politically attractive alternative to challenging trade unions on unemployment benefit reform. Despite modest restructuring in 1997, reforms were more limited than in other Nordic nations. Meanwhile, greater attention has been focused on workplace innovation than working hour reform, as the share of the labor force engaged in part-time work (8.1%) is comparable only to Greece, Italy, Portugal and Spain.[73] Finally, while collective bargaining has been perceived as quite effective in securing wage restraint, it has also inhibited labor market flexibility and wage differentials.

Slow progress on labor market reforms reflects broader problems associated with managerial reforms and Finland's ability to capitalize from ICT innovation. Despite Finland's status as a leading ICT producer, productivity gains are compromised by limited ICT use. In this sense, Finland contrasts sharply with nations like the United States that derive most of their ICT-related productivity gains from use rather than production. For example, ICT-producing manufacturing's contribution to annual aggregate labor productivity growth (0.86%) was the third highest behind Korea and Germany among twenty-one OECD nations between 1996 and 2002, while the contribution of ICT-using services (0.12%) was the fifteenth lowest.[74] An important limitation has been Finland's failure to implement the process-based and managerial reforms necessary to exploit new ICT technologies.[75] Finland's skewed industrial and institutional structure, as well as the specific political bargains that underpinned technology policy, effectively inhibit the translation of technological breakthroughs into organizational innovations.

Accordingly, attention has already shifted to a renegotiation and recombination of domestic institutions on order with the political bargains that were struck in the early 1980s and early 1990s. The highly publicized report of the Finland in the Global Economy Steering Committee has set the agenda by prioritizing innovation and knowledge-based adjustment in an increasingly open, internationalized and flexible economy. To achieve these objectives, the report recommended targeted tax cuts to encourage SME creation, employment growth, labor market flexibility and greater investment. The report also encourages increasing economic openness by increasing opportunities for foreign students, experts and investors and promoting networking abroad in growing markets like Eastern Asia. Notwithstanding the increased emphasis on tax and regulatory reform, the report recommends increasing public R&D expenditure by 7% a year with greater attention to strengthening business competence on the one hand and funding innovative start-up companies on the other. Meanwhile, a more active role for the state is envisioned in providing infrastructure to facilitate economic integration and also in active labor market policy, hitherto criticized for its limited coherence and efficacy.[76]

The current Center-Social Democratic government has embraced the report and preliminary evidence suggests that significant movement has occurred along these lines. In addition to further reductions in personal income taxation and the tax wedge, the corporate tax rate was lowered from 29% to 26% and capital income taxation was lowered from 29% to 28% in 2004. Some of these tax provisions, as well as other content directly related to the report, were included in the three-year collective bargaining agreement negotiated between employers and labor in 2004. Meanwhile, state agencies like Tekes and Sitra have shifted toward a greater focus on business services and commercial application of new technological innovations on the one hand and the needs of SMEs on the other. While the fate of these and other future reforms remains unclear, Finland’s current institutional trajectory continues to defy descriptions of liberal change. Rather, we observe a continuing process of negotiation between key economic actors and policy-makers that attempts to build on established, often latent, institutional capacities in facilitating economic adjustment.

Conclusions: Concertation in Comparative Perspective

Viewed in relation to the traditional dichotomy between liberal change and neo-corporatist continuity, the Finnish experience illuminates an enduring role for concertation in the face of new technological innovations and shifting patterns of global competition. Concertation did not emerge as an automatic or functionalist response to new challenges. Rather, it was framed by extensive and ongoing liberal innovations in finance and international trade. Paradoxically, these liberal reforms triggered new forms of concertation, most notably in technology policy. Meanwhile, preexisting concertation in wage bargaining and fiscal policy was reoriented to advance ostensibly liberal ends like radical economic restructuring. This active interplay between liberalization and concertation characterizes contemporary European political economy more generally, as demonstrated with reference to recent developments in countries like Denmark and Ireland. This chapter uses Denmark and Ireland in order to generalize to two radically different institutional environments. The former country represents an archetypical example of decentralized coordination, while the latter is more generally characterized as a liberal market economy.

Given that institutional renegotiation is shaped by inherited institutional capacities on the one hand and influential societal actors on the other, Denmark and Ireland do not represent a mirror image of the Finnish case. Lacking a pronounced tradition of etatist intervention on the supply-side of the economy, neither Denmark nor Ireland sought to improve competitiveness with recourse to radical technological innovation. Both countries, however, used concertation to grapple with a rapidly changing global economy. As in Finland, innovative forms of concertation emerged from the interaction between pre-existing neo-corporatist institutions and liberalizing reforms. Finally, just as trade union acceptance of Finnish technology policy was purchased at the expense of more extensive labor market reforms, political bargains in Denmark and Ireland simultaneously facilitated and constrained adjustment, driving a political of "perpetual renegotiation."[77]

In contrast to Finland, Denmark illustrates how new forms of concertation can successfully promote technological and process-based diffusion within existing industries. As in Finland, concertation emerged as a response to lackluster economic performance, growing unemployment and soaring fiscal and trade deficits during the late 1980s and early 1990s. In Denmark, policy makers simultaneously sought to leverage existing cooperatives between small and medium-sized enterprises and historically encompassing forms of social protection in bolstering economic competitiveness. Rather than promoting radical technological innovation, however, policy-makers used traditional cooperatives and active labor market measures to modernize existing low and medium technology industries like foodstuffs, clothing and furniture. This strategy reflected Denmark's rich tradition of inter-firm cooperation, its politically popular commitment to encompassing social protection and historically limited supply-side interventions.[78]

As in Finland, institutional adaptation was characterized by interplay between liberalizing reforms and preexisting institutions. Following polarizing and fiercely contested efforts to cut social benefits during the 1980s, policy-makers turned to labor market "activation" during the 1990s. To increase labor market participation, the government reduced unemployment benefit periods and replacement rates. At the same time, the government expanded labor market measures, adult education and vocational training, while introducing new paid leave schemes for retraining and education.[79] By 2001, Denmark was spending more on active labor market measures (1.6% of GDP) than Sweden (1.3% of GDP), despite aggressive efforts to limit employment protection, cut unemployment benefits and promote labor market turnover.[80]

Danish flexicurity supported increasing emphasis on inter-firm collaboration, technological diffusion and process-based innovation within the context of existing employer cooperatives and networks. Explicit and consistent linkages were drawn between training programs and employer associations, while enhanced labor market and education policies were designed to fit the needs of industries more dependent on experience-based knowledge than technological innovation.[81] As a result, small and medium-sized Danish enterprises could use collaboratively generated tacit or skill-based knowledge to generate productivity increases in traditional sectors. Absent more ambitious interventions in technology policy, however, Denmark lagged in high technology output and overall R&D intensity.[82] Along with the expensive fiscal outlays stemming from Denmark's reliance on encompassing social protection, this tension is likely to drive ongoing institutional adaptation and renegotiation in the future.

If the Danish case illustrated how liberalization can trigger new forms of concertation in a different organized economy, the Irish case demonstrates that concertation can flourish within an overwhelmingly liberal context. Indeed, Ireland's underdeveloped industrial linkages, fragmented trade unions and equity-based financial system reflected a strong, liberal British influence. Ireland appeared poised to follow the British lead toward still greater liberalization and deregulation as the 1980s witnessed increasing wage inflation, fiscal profligacy, soaring unemployment and ongoing capital flight. Yet the government defied virtually all contemporary expectations by turning to the social partners and forging an encompassing, tripartite three-year Program for National Recovery (PNR) in 1987.

In contrast to Finland, Ireland used concertation to promote innovation and economic structuring *from without* through the active recruitment of foreign direct investment. The PNR, which exchanged pay restraint and fiscal austerity for tax concessions, was explicitly designed to establish a cost-competitive foundation for multinational investment and economic recovery. Tripartite concertation was complemented by separate industrial policy initiatives to attract high technology multinationals and link them to domestic suppliers and entrepreneurs.[83] The initial success of the PNR formed a foundation for ongoing, three year, centralized wage agreements emphasizing wage moderation, fiscal restraint and tax concessions.[84] While consciously drawing upon earlier neo-corporatist experiments in centralized bargaining, Irish social partnership was framed by a hard currency regime and sharp limits on government spending. Moreover, tripartite concertation was focused on the active recruitment of footloose multinational capital as a strategy for economic restructuring and ongoing upmarket movement.[85]

The reliance on multinational investment as an adjustment mechanism speaks to the political and economic limitations associated with Irish social partnership. Rapid economic growth and economic restructuring has provoked an onslaught of societal demands related to wage increases, taxation and public infrastructure. These rapidly escalating demands, which resulted in the breakdown of the three-year Program for Prosperity and Fairness in 2001, threaten Ireland's ongoing reliance on cost-sensitive high technology assembly operations.

Consequently, policy-makers have sought other mechanisms for engaging multinational capital. The Irish state has aggressively promoted linkages between multinational investors and domestic entrepreneurs, while the 1990s witnessed greater emphasis on supply side investment in technical and vocational training, transportation infrastructure and indigenous research.[86] Contemporary concertation in Ireland, therefore, revolves around efforts to adapt Irish social partnership, hitherto focused on pay determination and social policy, to facilitate supply-side investment and ongoing upmarket movement.[87]

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[1] See (Economist 2000, 21)

[2] See (Pehkonen and Kangasharju 2001, 218)

[3] See (Economist 1995, 28)

[4] See (Rouvinen and Ylä-Anttila 2003)

[5] See (Steinbock 1998)

[6] See (Wilensky 2002, Katzenstein 2003)

[7] See (Lehmbruch 1979)

[8] See (Schmitter 1979)

[9] See (Baccaro 2003)

[10] See (Katzenstein 1984)

[11] See (Hall and Soskice 2001)

[12] See (Iversen 1996, Pontusson and Swenson 1996, Rehn 1996)

[13] See (Wallerstein and Golden 1997, Wilensky 2002, Katzenstein 2003)

[14]See (Calmfors and Driffill 1988, Cameron 1984, Ebbinghaus and Hassel 1999, Rhodes 2001, Ziegler 1997, Hall and Soskice 2001 and Streeck 1991 respectively.)

[15] See (Ornston 2004)

[16] See (Vartiainen 1999, 228-229)

[17] See (Boltho 1982, 33)

[18] See (Rehn 1996, 282)

[19] See (Vartiainen 1998)

[20] See (Rehn 1996)

[21] See (Rehn 1996)

[22] See (Honkapohja and Koskela 1999)

[23] See (Kiander 2002)

[24] See (Rehn 1996, Steinbock 1998, Georghiou et al 2003)

[25] See (Asplund 2003, 10-11)

[26] See (World Economic Forum 2004)

[27] See (Rehn 1996, Steinbock 1998)

[28] See (Rehn 1996, 282-284)

[29] See (Honkapohja and Koskela 1999)

[30] See (Ali-Yrkkö and Ylä-Anttila 2002, 254)

[31] See (Rehn 1996, 238)

[32] See (Hyytinen and Pajarinen 2002, 27)

[33] See (Ylä-Anttila 2000, 12)

[34] See (Rehn 1996)

[35] See (Breuss 2003, 150-153)

[36]See (Schienstock and Hämäläinen 2001, Castells and Himanen 2002 and Rouvinen and Ylä-Anttila 2003)

[37] See (Wallerstein and Golden 1997, Wilensky 2002, Katzenstein 2003)

[38] See (Asplund 2003)

[39] See (Iversen 1996, Pontusson and Swenson 1996)

[40] See (Rehn 1996, 262-263)

[41] See (Kauppinen 2001, 46)

[42] See (Economist 2000, 43)

[43] See (Pekkanen in Rehn 1996, 268 and European Commission 1999, 33)

[44] See (Vartiainen 1998, Asplund 2003)

[45] See (Economist 2000, 43)

[46] See (European Commission 1999, 27)

[47] See (Saari 2001)

[48] See (European Commission 1999, 28-29)

[49] See (Rehn 1996, 269)

[50] See (European Commission 1999, 71-72)

[51] See (Cameron 1984)

[52] See (Rhodes 2001)

[53] See (Uhmavaara, Kairinen and Niemelä 2000)

[54] See (Asplund 2003, 107)

[55]For examples, see (Vuori and Vuorinen 1994, Lehtoranta 2000, Maliranta 2000 and Georghiou et al 2003)

[56] See (Asplund 2003, 26)

[57] See (Lundvall 1992)

[58] See (Schienstock and Hämäläinen 2001)

[59] See (Asplund 2003, 33)

[60] See (Asplund 2003)

[61] See (OECD 1999, 54)

[62] See (Castells and Himanen 2002, Georghiou et al 2004)

[63] See (Vuori and Vuorinen 1994, 19)

[64] See (Asplund 2003)

[65] See (Schienstock and Hämäläinen 2001, 19, European Commission 2003b, 31)

[66] See (Georghiou et al 2003, 88)

[67] See (Asplund 2003, 92, European Commission 2003a, 31)

[68] See (European Commission 2003b, 31)

[69] See (European Commission 2004, 63)

[70] See (European Commission 2004)

[71] See (European Commission 2004, 98, 63)

[72] See (Rehn 1996, 269)

[73] See (European Commission 2004, 59)

[74] See (OECD 2004, 96)

[75] See (Rehn 2003, 3-5)

[76] See (Finland in the Global Economy 2004)

[77] See (Ornston 2004)

[78] See (Mjoset 1987, 427-428)

[79] See (Jochem 2003, 132-134)

[80] See (European Commission 2004, 63)

[81] See (Nielsen and Kesting 2003, 375-376)

[82] See (Innovation Council 2004, 61)

[83] See (O'Riain 2000)

[84] See (Hardiman 2002)

[85] See (Ornston 2004)

[86] See (Ornston 2004)

[87] See (O'Riain 2000, O'Donnell 2001)