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REVIEW ARTICLE

Tertiary education as social policy: Comparative theoretical perspectives

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Abstract

In this paper, we conduct an in-depth review of and commentary on two frameworks for international comparative work focused on education systems and skill formation – specifically, welfare regime and production regime approaches. We focus on how tertiary education is understood to function relationally within a national policy repertoire and explore the interplay between education and economic systems. Whereas the welfare regime literature illuminates why some regimes are conducive to human capital production and create more equitable educational and labour market opportunities, the production regime literature focuses on the ways that actors such as government, educational institutions, and unions optimise skill formation. These two theoretical perspectives offer both rival and complementary explanations of varying patterns in public investment, differentiation in education systems, and participation rates in tertiary education across countries. Our analytical account provides useful insights for understanding different national education policies and framing future research, including informing these perspectives with the more recent theoretical contributions of the social investment approach. In relation to changing conceptions of the knowledge economy, education, skill development, and the nature of employment, these two theoretical perspectives continue to provide useful conceptual lenses to examine the education/skill / employment nexus.

Keywords: tertiary education; social policy; comparative research; welfare regimes; production regime theory

Introduction

In the international policy community, there is a growing awareness that rising inequality is one of the major risks to our future prosperity and security (Picketty, 2020; Stiglitz, 2012). Globally, countries are confronted with the task of addressing rising inequality by simultaneously attempting to curb the income gap between rich and poor while boosting economic growth. How can countries around the world attain or maintain high productivity and related issues of flexibility and responsiveness of the labour force while simultaneously promoting social cohesion and reducing inequality? Such questions are fuelling the policy debate on the nature, duration, and cost of education, training, and skill acquisition required to meet the demands of the workforce nationally and globally.

Questions about the ideal education/skill/employment nexus have long been cast in an international comparative context. For years, the Organisation for Economic Co-operation and Development (OECD) has conducted multiple country comparisons and increasingly places high priority on tertiary – particularly university – completion rates, which often serve as a proxy for investment in human

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capital. In doing so, organisations such as the OECD support and recommend policies for increasing investment in tertiary education. Although there is overall consensus that skills are key for the development of knowledge-based societies, one-size-fits-all approaches are increasingly criticised, and controversy about the optimal balance of (1) general versus specific skills, (2) academic versus vocational education, and (3) education at the secondary versus the tertiary level remains.

In this article, two theoretical frameworks are presented that allow researchers and practitioners to contrast and compare different modes of relation and coordination implemented by countries internationally in an attempt to balance educational and training needs and labour market supply and demand. We are primarily concerned with how tertiary education and vocational education and training (VET) systems within a state are understood to function relationally with economic systems, a component necessary to provide the skills deemed necessary within a society. This exploration of education as social policy focuses on how industrialised countries have expanded their systems of skill acquisition, which often aims to meet both labour market and demographic ideals (Azmanova, 2012). That is, education and skill generation were, and are, largely understood to be mechanisms that can instil democratic ideals of social equity while preparing individuals and groups for labour-market entry. Along with these ideals, educational expansion was and continues to be guided by diverse actors, such as governments, educational institutions, firms, and unions. Building on the groundbreaking work of Busemeyer (2015) that draws together comparative welfare state research, varieties of capitalism literature, educational institutions, and social inequality, this review endeavours to offer analytical tools to understand different national approaches and to inform future policy research regarding how different education and training systems are organised, whether they are effective, and why.

Education as social policy: Theoretical perspectives

Education has long been highlighted as a “special” type of social policy (Wilensky, 1975). Although both national and regional public policy clearly targets education, its role and importance have often been underestimated in comparative research on the welfare state (Busemeyer, 2015). Researchers reintegrating education in welfare research do so based on the argument that “skills and education are at the core of the welfare state” (Iversen & Stephens, 2008, p. 602). Education connects to other parts of the welfare state via numerous policy linkages, including both social protection and economic performance. The importance of including education in this type of research is illustrated by findings showing that education systems and educational spending have “profound implications for the distribution of income” (Iversen & Stephens, 2008, p. 602).

Educational success, especially at the secondary and higher levels, is a known instrument of social mobility (Beller & Hout, 2006; Kerckhoff, 1995). It increases socioeconomic opportunities and enhances earnings and the ability of individuals to accumulate personal wealth, which reduces their dependence on government support. Formal education is also both a direct and indirect strategy for securing social protection via employment, allowing individuals to further safeguard their welfare through employer-mediated protection (Hega & Hokenmaier, 2002). Viewed in this way, education can be seen as a type of prospective social redistribution that shapes future earnings. This underscores the complementarity that exists between education, which encourages “equality of opportunities,” and social insurance policies, which promote “equality of outcomes” (Wilensky, 1975).

Comparative understandings of how different countries address the task of optimising skill formation and structuring their education system in specific ways can be deepened through theories that compare modern societies according to their basic architecture of welfare provision and degree of economic coordination. Since the mid-20th century in all OECD countries, participation in tertiary education has risen dramatically. Yet, significant differences persist in the expansion of national tertiary education systems that cannot be explained by levels of economic development.

Some rich countries, particularly in the German-speaking world, have maintained vocational education and training systems at the secondary level. Consequently, enrolment at the tertiary level is

comparatively low. Vocational training for specific skills at a relatively early age plays an important skill formation role in these countries. On the other end of the spectrum are some English-speaking countries where vocational training at the secondary level plays a minimal role. In these countries, most or all of the process of skill formation takes place at the tertiary level. Hence, enrolment at the tertiary level is relatively high. Two comparative theoretical perspectives that help explain such national differences are a welfare regime and a production regime approach, which allow us to examine how different countries organise, support, and fund education and training. Each typology is discussed in turn.

Welfare regime theory

In the most general terms, a welfare state or the system of social protection refers to a “polity in which state responsibilities extend beyond the mere maintenance of internal order and external security to a public responsibility for the wellbeing of citizens” (Alber, 1988, p. 451). Gøsta Esping-Andersen, in his 1990 book entitled *The Three Worlds of Welfare Capitalism*, identified a typology of welfare regimes based upon three principles: (1) de-commodification, defined as the “degree to which individuals, or families, can uphold a socially acceptable standard of living independently of market participation” (p. 37) (particularly in terms of pensions, unemployment and sickness benefits); (2) the nature of regime-specific social stratification; and (3) the private-public mix (the relative roles of the state, the family, the voluntary sector and the market in welfare provision). Welfare states are characterised by different arrangements among the state, market, and family and are shaped by both political traditions and coherent modes of welfare policy of each type (Esping-Andersen, 1990). The specific nature of their provisions bears important consequences for the socioeconomic opportunities and outcomes of individuals and groups (Hega & Hokenmaier, 2002).

Types of welfare state regimes

Using these three principles – de-commodification, social stratification, and private-public mix – Esping-Andersen (1990) classified 18 OECD countries into three ideal regime types: social democratic, liberal, and conservative. Each represents a qualitatively different form of social protection that orders social relations across industrialised countries.

Social democratic welfare state regimes comprise the smallest regime cluster. The Nordic countries (Denmark, Norway, Sweden, Finland) belong in this category. Welfare provisions typically offer universal, generous benefits, treat all residents equally, and provide higher standards than minimal need. In other words, the state sets a high equity standard. The social democratic regime type thus reflects the values of solidarity and equality. The object of social democratic welfare policy is to guarantee that individuals and families “can uphold a socially acceptable standard of living independently of market participation” (Esping-Andersen, 1990, p. 37) but without discouraging individual aspirations or denying the opportunity for socioeconomic achievement.

In the liberal welfare regime type (Canada, USA, Australia, New Zealand, UK, Ireland), welfare coverage is typically minimal and benefits are modest, recipients are usually means-tested and often stigmatised. Characteristically, liberal welfare states have a low degree of de-commodification and a strong emphasis on market solutions in social provision. Market and private insurance plans may be encouraged by the state as an alternative to public protection. Specifically, the liberal welfare type orients economic welfare toward dependency on the market. Hence, this reflects the values of individual responsibility, efficiency, and the view that the state should rely primarily on market forces and work with these forces to prevent destitution and provide essential social services (Huber & Stephens, 2014).

Protection of hierarchy, preservation of social structures, and striving for harmony is the focus of conservative welfare regimes (France, Japan, Italy, Switzerland, Germany, Netherlands, Austria). One such structure is the traditional family. Strong de-commodification is accomplished with the state as the primary provider of welfare insurance. The benefits of welfare programs are often earning-related, administered through employers, and geared towards maintaining existing social patterns. The primary

provider of welfare insurance is the state, with the market and private insurance having only marginal roles. The state is charged with ensuring the elimination of poverty but not changing the social order; it performs only the functions that are not performed well by the family or civil society (van Kersbergen, 1995).

Criticisms of welfare regime theory

Since its publication in 1990, *The Three Worlds of Welfare Capitalism* has become one of the most central and most cited contributions to recent comparative social policy (Powell, Yörük, & Bargu, 2020). Nevertheless, this typology is not without criticism. Four criticisms have drawn the most attention in the literature: nations are misclassified, his approach is “gender blind,” his original typology does not consider the redistributive effect of social policies but only expenditures, and classifications are too few or incomplete. Mitchell (1992) argued that typologies like Esping-Andersen’s are “beset by boundary problems which result in the misclassification of some countries” (p. 73). However, there is now a growing consensus that welfare states are rarely pure types and are usually hybrid cases (Arts & Gelissen, 2002; Ferragina & Seeleib-Kaiser, 2011). Addressing feminist critiques, more recent analyses attempt to identify policies associated with (de)familization and (de)genderization and incorporate them into welfare state classifications (Chybalski & Marcinkiewicz, 2021; Saxonberg, 2013). Researchers have also integrated redistributive social services such as health care and social services (Bambra, 2007; Powell & Barrientos, 2004). Finally, numerous additional welfare state types have been proposed since the publication of Esping-Anderson’s original typology. These include a fourth “southern European” world of welfare capitalism described as having “high standards of employment protection” that results in labour markets characterised by high levels of youth unemployment and low participation by women (Manow, Palier, & Schwander, 2018); the radical welfare state (Castles & Mitchell, 1992); the “southern” world of welfare (Bonoli, 1997; Ferrera, 1996; Leibfried, 1992); “the three worlds of post-Soviet transition” (Malinovskiy & Shibanova, 2023); as well as East Asian and post-Soviet welfare state types (Aidukaite, 2009; Fenger, 2007; Kwiek, 2014; London, 2018).

Welfare regime theory and education

The welfare state complex comprises not only a nation’s social policy repertoire but also includes the varying roles of the state, family, and market in providing social protection. In the 1950s, education was incorporated as an essential part of a coherent welfare policy structure (along with health care, education, housing, and employment) in Western industrialised nations. Education has been acknowledged in the research literature as “clearly one component of a nation’s total public policy package and... not independent of other social policies” (Hokenmaier, 1998, p. 710). However, while education is understood to play a central role in social stratification more generally, education and skill acquisition and the interaction between education systems and labour markets were largely neglected from early analyses employing welfare regime theory; it is still frequently ignored in the social policy literature (Busemeyer & Nikolai, 2010; Di Stasio & Solga, 2017).

Researchers began to develop welfare regime approaches focused on education in the early 2000s. In a seminal comparison of social and educational policy in advanced industrial societies, Hega and Hokenmaier (2002) focused on the educational system/social protection nexus by looking at the relationship between spending on education and spending on social insurance programs. Specifically, they analysed social insurance spending as a percentage of GDP and the ratio of educational expenditures as a percentage of total public spending and as a proportion of GDP. They tested a hypothesis originally proposed by Heidenheimer (1981), in which competing aims of national policies, such as reducing inequality and increasing social mobility, are understood to often result in “trade-offs” among programs, services, and system development. Some welfare regimes have given political and budgetary preference to social insurance programs over educational programs. In other welfare states, higher levels of public investment in policies and programs to enhance educational opportunities beyond a primary level may

be viewed as an alternative policy strategy to income maintenance programs and other social insurance guarantees.

Hega and Hokenmaier (2002) determined that conservative nations tend to place greater emphasis on social insurance expenditures rather than on education, relative to the other welfare state types. Germany fits into this pattern where it tends to lead in social insurance spending as a percentage of total public spending but is a laggard in educational spending. Lack of support for educational expansion suggests choices by certain regime types to favour the reproduction of existing class structures and labour market conditions. In contrast, in liberal nations, expenditures on social insurance are relatively low in comparison with other OECD countries, while expenditures on and participation in education are high, due to an overt focus on human capital formation. The final group of social democratic countries does not exhibit a trade-off; rather, spending on social protection and education are both high.

Allmendinger and Leibfried (2003) used the criteria of skill differentiation and overall levels of educational attainment to construct a welfare regime typology of education systems. They divided countries according to the extent of differentiation in competencies and the absolute level of competencies, using outcomes from the Programme for International Student Assessment (PISA) scores and years of schooling or credentials attained. They identify four worlds of competence production that differ in their focus on educational preventative policy and compensatory social policy. They are fairly similar to Esping-Andersen's "Three Worlds," with the addition of a "peripheral" southern grouping.

Peter, Edgerton, and Roberts (2010) also examined secondary education from a welfare regime perspective. By measuring between-school and within-school educational inequality (socio-economic gradients) in student achievement using PISA 2003 mathematics, reading, and science assessment scores, they found support for Esping-Andersen's "three worlds" typology. The highest between-school inequalities were in the grouping of conservative welfare states and the lowest between- and within-school inequalities in the social-democratic grouping. The liberal grouping showed moderate within- and between-school inequality.

An Anglo-American, Scandinavian, and Continental welfare regime classification is employed by Ansell (2008), on which to map three types of higher education arrangements: partially private, mass public, and elite. He argues that higher education policy materialises from choices made from a "trilemma" of enrolment levels, subsidisation provided, and overall public cost. The Anglo-American regime is associated with the "partially private" higher education systems characterised by high enrolment and high private but low public spending. The Scandinavian regime corresponds with a "mass public" higher education system defined by high enrolment, costs that are highly subsidised, and high public spending. The "elite" label is reserved for the Continental welfare regime, where costs are highly subsidised and levels of private financing and enrolment are low.

Examining the different national approaches to higher education involvement, funding, tuition, and student financial aid through a multivariate comparative analysis of 16 OECD countries, Pechar and Andres (2011) assert that there is a convincing relationship between higher education policies and given welfare regimes "in terms of participation in tertiary education, pre-tertiary prerequisites, educational funding, and levels of tuition and levels of borrowing" (p. 41). For example, based on enrolment and graduation patterns, they revealed that conservative regimes clearly have the lowest tertiary education growth and the liberal regimes have the highest. Liberal regimes had the largest total expenditure on educational institutions as a percentage of GDP at the tertiary level, followed by social-democratic regimes, and conservative regimes in last place. As for tuition fees and student aid, the Nordic countries have "no or low tuition fees together with generous student support systems," while the liberal countries are defined by "high levels of tuition fees and along with well-developed student support systems; and the conservative countries have low levels of tuition fees and less developed student support systems" (p. 41).

More recently, Johnson (2023) confirms earlier findings by showing that both public expenditure and the share of private expenditure on higher education correspond with the three welfare regimes. That is, high public spending is clearly associated with social-democratic regimes, low levels with liberal regimes, and medium levels with conservative regimes. Compared with the other regimes, liberal regimes exhibit the highest share of private funding. In addition, he demonstrates that public/private investment in

higher education is most closely aligned with liberal regimes, lowest in conservative regimes, with social-democratic regimes falling in the middle. In terms of higher education funding, liberal (more market-type) and social-democratic regimes (more combined blocked funding) are at opposite ends of the continuum, with conservative welfare regimes (balanced mix of blocked and competitive funding) in the middle. Regarding mechanisms for financial support of students, liberal regimes rely on loans and means-tested grants for economically disadvantaged students; support is offered through scholarships, grants, and loans in social-democratic regimes. Student financial support in conservative regimes is described as “less well developed” (p. 218) with more dependence on family support in southern European countries.

Willemse and de Beer (2012) also use a welfare state approach to analyse the field of higher education. Using both theoretical and empirical methods to measure decommodification and stratification, they tested groupings of countries by educational system characteristics and found that they mapped broadly onto original regime types. They determined that social democratic nations lead in both social insurance and educational commitments. State policy largely maintains low or no educational fees, accessible and generous grants and loans, and high public/low private expenditure, resulting in high educational enrolment rates. Liberal welfare states, such as the USA, perform strongly in all categories of educational spending and lead in general education participation at the secondary level. Conservative countries, such as Germany and Austria, with their “dual systems” of vocational education, have high enrolments and spending for vocational education and offer a large variety of vocational curriculum, but also maintain hierarchical educational outcomes that result in social differentiation.

Studies focused on education often reclassify or include countries not captured within the original framework provided by Esping Anderson. For example, in examining education expenditure and equality, West and Nikolai (2013) specify four country groupings: Nordic countries, with publicly funded comprehensive school systems, integrated vocational education, and high equality of opportunity; Continental countries, with highly tracked and stratified school systems, differentiated vocational education, and large social background effects on educational outcomes; Mediterranean countries, with moderate public expenditure, low stratification in early education and high stratification in later education, and standardization and vocational specificity relatively less pronounced than in the Continental countries; and English-speaking countries, with high public expenditure on all levels of education, a quasi-market model of schooling, and more inequalitarian outcomes than the Nordic cluster.

Other researchers have moved the focus from education spending to participation in education and average years of education. Education spending shows annual flows, while average years of education measure the stock of accumulated education in a society (Mosher, 2015). Mosher argues that this measure better captures the impact of education on social welfare within a nation because it is not shaped by “the additional education produced in a year, but [rather] by all of the accumulated education that exists in society” (p. 243). Because liberal welfare regimes focus more on education relative to welfare spending as a functional substitute (or “trade-off” as described earlier), he argues that liberal countries are more comfortable with this “equality of opportunity” approach of intervening in education rather than directly redistributing within society through social spending.

Ansell and Gingrich (2018) argue that the dynamics of institutional environments, specifically those of wage compression and protected professions, result in the different “fortunes” in terms of occupational outcomes of university graduates. Building on their earlier research (Ansell & Gingrich, 2013), they employ these two dimensions (protected versus unprotected professions; wage compression versus wage dispersion) to advance four ideal types – credentialism, mismatch, social investment, and winner takes all – that they demonstrate map on to the four welfare democracies defined by Manow, Pailer, and Schwander (2018). These ideal types help explain the unevenness of mass upskilling in various OECD countries.

Garritzmann (2016) depicts a “four worlds of student finance” typology defined by average annual tuition costs and the “proportion of students receiving subsidies” (p. 89). Predictably, continental European countries are associated with low tuition/low subsidies; the Nordic countries with low tuition/high-subsidies; and Anglo-Saxon countries with high tuition/high-subsidies. Also included in

the analyses are Asian and Latin American countries, some of which can be classified as high tuition/low subsidies. In earlier work (Garrizmann, 2015), he observes that since these patterns were established beginning in the 1950s and extending through to the 1980s, “no country has witnessed radical change in its tuition-subsidy regime” (p.141) but rather has demonstrated an even more entrenched path dependencies of these original patterns. Johnson (2023) employs Garrizmann’s “four worlds” typology to demonstrate the extent of generosity of student support systems defined as a combination of low fees and high levels of student support. Conservative regime countries register low on both dimensions, social-democratic regimes high on student support and low on student fees, and liberal regimes high on both dimensions.

Continuing with the student funding system motif, which he states has been “largely neglected in the comparative welfare state literature,” Czarnecki (2022) employs the concepts of decommodification versus commodification, individualisation versus familialisation, and universal versus targeted distribution of fees and benefits based on family income to offer a three-dimensional conceptualisation of student social rights. However, analyses based on this conceptualisation led him to conclude that “many countries do not fall into clearly identifiable clusters” (p. 329).

Other studies have focused on the differing impacts of education on particular life domains and quality of life, as shaped by welfare state contexts. Jongbloed and Pullman (2016) show that welfare regime types have an impact on the association between education and well-being, finding that decommodified institutional arrangements reduce educational inequalities while stratifying forces strengthen the education gradient in well-being. Massing and Gauly (2017) ascertain that gender significantly influences participation in adult education and training and that this differs across welfare state regimes. Other studies have examined relationships between education and health (Leão et al., 2018), health inequalities (Eikemo et al., 2008), and social mobility (Beller & Hout, 2006).

Since the early 2000s, a new wave of globalisation has had an impact on most policy dimensions that are dealt with in these theories. It can be argued that the discretion of national governments to shape social and educational policies according to their own traditions has become comparatively weaker over time. In recent decades, growing global competition and international agreements, such as the Bologna Process, have limited the power of national governments. Some argue that there has been a general convergence of social policy beyond an era of liberalisation into an era of knowledge-based growth (Hall, 2022). Production regime theory casts light on such assumptions by illuminating these dynamics in relation to distinctive national characteristics.

Production regime theory

Varieties of capitalism (VoC) offers a framework for understanding institutional and national similarities and differences between developed economies by pledging to go beyond modernisation approaches of the 1960s, neo-corporatism frameworks of the 1970s, and social systems of production approaches of the 1980s and 90s (Estevez-Abe, Iversen, & Soskice, 2001). This perspective begins with the premise that institutional structures “depend on the presence of regulatory regimes that are the preserve of the nation-state” (Estevez-Abe, Iversen, & Soskice, 2001, p. 4). Varieties of capitalism are formulated as production regimes where the “strategic interactions” of regulatory regimes affect behaviour and shift the focus to an actor-centred approach. The conditions for interaction are based on key relationships of social action that, under this perspective, are not simply individuals and groups but include governments, producer groups, and firms. Indeed, this approach encompasses “private and public enterprises (industrial and financial), associations of capital interests (business associations and employer organizations) and of labour, labour market institutions, and government agencies involved in economic policy-making” (Huber & Stephens, 2001, p. 2).

Production regime typologies have emerged from the VoC literature and focus on different forms of coordination that exist within capitalist economies (Estevez-Abe, Iversen, & Soskice, 2001). Firms take centre stage in this approach by establishing relationships externally and internally to effectively

coordinate with other social actors, including those in spheres of industrial relations, education and training, corporate governance, inter-firm relations, and employees. How firms coordinate within these five spheres differs among national political economies and forms two typologies for analysis: liberal market economies and coordinated market economies. Within liberal market economies like the USA and Canada, competitive market arrangements primarily establish the activity of firms, while in more coordinated markets like Germany or Sweden, economic activity is dependent on non-market relations and strategic interaction by other actors. Social actors are understood to gravitate toward modes of coordination for which institutional and organisational support exists and support that is culturally, informally, and historically sanctioned within production regimes.

Education and training are key spheres of this perspective. According to Estevez-Abe, Iversen, and Soskice (2001), “firms face the problem of securing the work force with suitable skills, while workers face the problem of deciding how much to invest in what skills” (Estevez-Abe, Iversen, & Soskice, 2001, p. 7). Coordination across institutions serves to ensure that all stakeholders benefit, resulting in “institutional complementarities” across policy spheres. This largely employer-centred approach also relies upon the rational economic behaviour of individuals (Estevez-Abe, Iversen, & Soskice, 2001, p. 149). For example, individuals must consider the cost of training, including possible lost wages during training duration, the expected wage premium for specific skills, and the risk of possible loss within their current job and skill status. Thus, different national contexts are associated with different types of individual risks that are at least in part shaped by the desire of employers to gain competitive advantage via worker skill sets (Lauder, Brown, & Ashton, 2008). Based on different logics of skill formation, this approach allows for country comparisons that focus on two contrasting ideal types of political economies (Saar & Räs, 2017).

Types of production regimes

Liberal market economies (LMEs) (e.g., Canada, USA, UK) are characterised by hierarchical structures and competitive market arrangements. Other characteristics include fragmented coordination and cooperation among employers, a short-term financing perspective, and a system that promotes adversarial industrial relations (Estevez-Abe, Iversen, & Soskice, 2001; Thelen, 2004). Scepticism of firms in LMEs to participate in the education and training of future employees is based on concerns about whether workers will learn skills that are useful to the firm and the extent to which employees trained at one firm will be poached by firms that do not provide training. From the perspective of future workers, participation in firm-based training schemes is contingent on the belief that training will lead to paid employment. LMEs favour an approach where the demand to produce individuals who possess high skills is fuelled by intensive competition among firms (Estevez-Abe, Iversen, & Soskice, 2001).

In contrast, coordinated market economies (CMEs) traditionally take a long-term orientation and a cooperative approach to labour management and skills training. Firms depend on and foster relationships with the formal educational system, government, unions, and other actors. These relationships result in a coordinated approach to defining core competencies and determining how to train workers. A strong vocational education sector allows for these non-market-based institutional relations between employers and educational institutions. Through the establishment of extensive networks and related exchange of information, CMEs take a “patient capital” approach to returns on training investment. CMEs are generally collaborative which is more inclined to result in labour markets that are less competitive. However, there are differences within CMEs. In countries considered conservative (e.g., Germany) from a welfare regime perspective, the goal is long term employment security and modest unemployment replacement, which, because of a tendency toward rigidity, is sometimes referred to as Eurosclerosis. Wood (2015) comments that such rigidity is a form of “path dependency in terms of values and culture underpinning variant forms of political settlement” (p. 139). Social democratic regimes (e.g., Sweden) have adopted a “flexicurity” approach where permitted higher levels of job turnover are redressed with retraining schemes.

Production regimes and skill development

The VoC framework brings the nexus of skills, firms, and the state to the forefront of analysis. A typology of skill that encompasses three differential forms is emphasised: firm-specific skills acquired through on-the-job training; industry-specific skills acquired through vocational and apprenticeship education; and general skills recognised across specific firms and industries (Estevez-Abe, Iversen, & Soskice, 2001). This typology highlights the differing forms of skill investment required by employers, where and how skills are recognised, and the specificity and portability of skills. While the approach has been criticised for overlooking significant within-regime variations in skill formation (Saar & Räs, 2017), it has become a key way of distinguishing VET systems in comparative research (Skolnik, 2021).

Utilising the VoC framework to analyse skill formation, Estevez-Abe, Iversen, and Soskice (2001) divide the OECD countries into two opposing welfare production regimes: Anglo-Saxon and Continental European. Moreover, they subdivide the latter into a principal group and three related subgroups, which results in a total of five clusters. Anglo-Saxon countries are characterised as general skill regimes with low social protection and a general-skill biased skill formation approach. The Anglo-Saxon regime provides the largest returns to tertiary degrees and includes Australia, Canada, Ireland, New Zealand, the UK, and the USA.

They define Continental European countries as specific skill regimes, where moderate social protection is provided by the state and both general and industry-specific skills are emphasised. This regime is exemplified by Norway, France, and Finland. Close to this group, a first subgroup emerges for those with firm-specific vocational and skill training, but where employment protection is high and unemployment protection is fairly low, such as Italy and Japan. In contrast, a second subgroup, including Denmark, the Netherlands, and Switzerland, is defined by its industry-specific vocational and skill training. High unemployment protection and only moderate employment protection are typical of this group, in opposition to the previous group. The last subgroup is defined by both high unemployment and high employment protections, with unique mixes of firm- and industry-level skills, as seen in Austria, Belgium, Germany, and Sweden.

A VoC analysis of skill formation also considers the active link between models of capitalism and their corresponding welfare regimes and modes of social protection. Insecurity will result, argue Estevez-Abe, Iversen, and Soskice (2001), in a downturn of certain skill investment, as “in the absence of institutional interventions into workers’ payoff structure[s], general rather than asset-specific skill acquisition represents the utility-maximizing strategy” (p. 150). Employment, unemployment, and wage protection all contribute to the type of skills deemed a secure investment by an individual. The forms of social protection available influence the types of skills sought by individuals and firms and what structures of training are supported through state institutions and government policies (154). From a political economy perspective, the skill base of a population is associated with a range of outcomes. This includes linking skill to economic productivity, resources for innovation, and even economic disparity across certain forms of social segregation (Brown, Green, & Lauder, 2001; Mayer & Solga, 2009).

Lauder, Brown, and Ashton (2008) critique and extend this perspective, asserting that national institutions of skill formation are undergoing fundamental changes as a result of globalisation and the growing role of multinational companies (MNCs) in skill development. However, they distinguish between skill generation and skill utilisation, highlighting that convergences and divergences in each domain may differ. They develop the concept of “skills capture” to explore the changing – and globalised – nature of how skills are determined, where these skills are developed, and what rewards are associated with these skills. They show that MNCs increasingly influence the skill formation process and use “skills capture” to build and maintain their competitiveness in a global context and posit that this leads to changes privileging diverse national movements toward LME regime arrangements in the ways that skills are constructed.

Production regime theory and education

The typology of skill formulated by the VoC perspective allows for cross-national comparisons that consider the way in which different skill regimes function. This has implications for equality, the labour market, and educational segregation, as differing skill and training systems have varying impacts on those deemed academically strong or weak and on education-to-work transitions (Estevez-Abe, Iversen, & Soskice, 2001). Rather than considering skill only through institutional relations, more recent work under the VoC framework attempts to untangle the social value of skill and how it is perceived to affect action. Skill, in this sense, is understood as emerging within a web of relations among firms, associations, institutions, the state, and individuals. Skills differ in their portability and atrophy rate, which affect the choices that individuals make in plotting their life courses. Thus, the VoC framework, while proposing to be a typology rather than a formulation of existing capitalism, social action, and choice, makes several inroads into what skills are and how they socially function and influence individual action.

VoC frameworks of analysis are used in educational research to understand higher education systems. For example, the work of Graf (2009) expands the original VoC schema in order to study education systems within liberal and coordinated market economies. Under Graf's framework, liberal market higher education systems interact with other actors and institutions "through reactions to demand and supply conditions in competitive markets" (p. 571). Market signals have an impact on institutional change, both through direct and formal contracts and informal and arm's length relations. Importantly, institutions and systems of higher education do not operate on a purely market model and cannot be likened to for-profit firms; rather, the way in which an institution is embedded in a particular network of relations may mirror market-like conduct.

Comparatively, higher education coordination within coordinated market economies is less reliant on market influence and other means of institutional interaction regulating systems. As Graf (2009) argues, "uncertainty about actors' behaviour is reduced and the formation of credible commitments, deliberation, effective information sharing, and monitoring of behaviour is supported" (p. 571). From a VoC perspective, under mutually reinforcing forms of coordination, institutions come to complement and increase their efficiency of one another. In examining higher education systems through this lens, one can hypothesise that increased coordination can lead to a comparative institutional advantage.

Investments in human capital and firm-level staff training are central to national institutional archetypes in the VoC literature explored above. Comparative capitalism understandings of these processes have resulted in a number of country groupings (Goergen *et al.*, 2012). CMEs have comparatively stronger industry-and-employer-linked vocational training systems than LMEs. Because LMEs have highly fluid labour markets and low employment protection, vocational training typically occurs in formal education institutions and focuses on generic rather than firm-specific skills. In contrast, CMEs are often typified by high job security economies where organisation-specific or firm-specific skills become more advantageous for both workers and employers. These central distinctions hold true for many countries, but some differ in important ways. For example, Sweden and Finland have weaker vocational training systems than other CMEs, and the Netherlands and Denmark have distinct "flexicurity" models, where job protection is weaker but generous social security benefits and strong continuous education compensate (Goergen *et al.*, 2012). The southern European or Mediterranean countries (including Portugal, Spain, Italy, and Greece) also escape easy categorisation, as they combine characteristics of both CMEs and LMEs.

Patterns of participation in adult learning have received particular attention from the VoC perspective (Saar, Ure, & Desjardins, 2013). This research highlights the concept of "institutional complementarity" to contextualise the functionality of an institution in relation to the other national institutions that coexist alongside it (Saar, Ure, & Desjardins, 2013). Analyses typically begin with a two-category VoC framework to develop more detailed categories. For example, Roosmaa and Saar (2017) delineate seven categories of countries in regards to barriers to adult education participation: social democratic, liberal, southern European, continental/corporatist, and three types of post-socialist (neoliberal, embedded neoliberal, and Balkan). Other approaches focus solely on VET systems. For example, Pilz (2016) creates a new typology beginning with existing skill formation theories but adds

elements specific to training systems, including characteristics related to stratification and standardisation of VET.

Recently, authors have also proposed “varieties of academic capitalism” in university higher education (Schulze-Cleven & Olson, 2017). These reflect the typical “three worlds” as well as the trade-off that occurs in higher education between increasing enrolment, maintaining a high level of public subsidisation, and controlling the overall public cost (Ansell, 2008). University education in all groupings has experienced extensive liberalisation, which Schulze-Cleven and Olson (2017) define as “the strengthening of market principles—self-reliance, rivalry, and decentralised decision-making—in university governance” (p. 814), but that this has occurred in the form of path-dependent national trajectories.

The VoC literature also highlights the evolving nature and definitions of skills, changing patterns of higher education participation, and related roles of key stakeholders in CMEs. Over the past few decades, the transition to a knowledge society and the emergence of other confluent forces have led to institutional change in both the service and core manufacturing sectors (Diessner, Durazzi, & Hope, 2022; Durazzi, 2019; Thelen, 2019). Depending on the CME country, these forces include some or all of the following: increasing demand by students and parents for general secondary school and university level credentials; declining demand for those trained at the vocational level to fill intermediate occupations; more managerial and professional occupations requiring university level credentials; expanding dominance of information and communications technology (ICT) in both manufacturing and knowledge-intensive sectors; increasing calls by employers for workers with higher skill levels particularly in STEM fields; and a shift in power among large employers, unions, and government regarding the specification of skill acquisition levels for workers.

The evolution of the skill/education/employment nexus has taken various forms in CME countries. In Germany, the forces above have led to a pivot away from vocational training and its signature dual system and toward higher education – that is, university education – which Durazzi and Benassi (2020) describe as having been located “traditionally at the margins” (p. 320). They report a dramatic increase in student enrolment in the academic (*Gymnasium*) stream (40% in 2012) that has led to higher demand for university-level education. Expansion has occurred mainly in *Fachhochschulen* (universities of applied science), in conjunction with the emergence of dual study programs where employers select the students they wish to sponsor for places in specific types of degree programs (most often engineering) in institutions of the employers’ choosing (Diessner, Durazzi, & Hope, 2022; Thelen, 2019). Students who earn places in these “highly prized dual-study programs” (Thelen, 2019, p. 302) are doubly certified in that they earn both vocational certificates and bachelor’s degrees. In addition, they are paid apprenticeship wages during their studies (Thelen, 2019). These monetary and non-monetary efforts serve to both secure young workers to firms and to prevent poaching. As such, expansion of higher education has occurred hand-in-hand with a growing high-tech manufacturing sector (Ansell & Gingrich, 2013). However, the uptake of such programs at around 100,000 students is rather low (Diessner, Durazzi, & Hope, 2022).

A consequence of this shift away from vocational training and the dual system at the secondary level toward university education and dual study programs has also resulted in a power shift from traditional coordinating bodies toward large employers. Another consequence has been the increasing likelihood of social exclusion by those who are academically less able to gain entry to university-level studies, as the low-skilled positions they previously would have held are increasing subject to outsourcing and more precarious employment arrangements. This is in contrast to increased stabilisation of employment for employees in manufacturing with high-level skills (Diessner, Durazzi, & Hope, 2022; Durazzi & Benassi, 2020; Thelen, 2019).

Germany has remained closely aligned with traditional manufacturing sectors and “rather than softening the line between vocational and university tracks [it has] instead subsume[d] part of the higher education system to the firm-dominated logic of the traditional vocational system” (Thelen, 2019, p. 303–304). Nonetheless, the increasing presence of ICT within the German manufacturing sector has augmented demand for those with university level engineering and IT credentials (Diessner, Durazzi, & Hope, 2022). Conversely, CME countries Sweden and the Netherlands have, as Thelen (2019) explains,

evolved in an “apparent liberal direction” (p. 298) by developing their high-tech sectors and strongly incorporating ICT-related products into their export mix. Since the 1990s, several policy initiatives in Sweden have eliminated firm-based apprenticeships and have extended access to higher education to all secondary students. In addition, several state initiatives have been implemented to increase the digital skills of the entire population. In the Netherlands, a decline in the manufacturing sector led to a transition to the knowledge economy through the promotion of education (primarily in *hogescholen* or universities of applied sciences) (Durazzi, 2019; Marques, Suleman, & Costa, 2022) that emphasises general skills conducive to employment in knowledge-intensive high-end services in business and finance. Similar to Sweden, reforms in the Netherlands have resulted in large increases in university attendance. Employment in business services, and particularly FIRE (finance, insurance, and real estate), in the Netherlands has expanded to represent over a quarter of total employment in 2015.

Several authors have called for a reconceptualisation of the traditional association of LMEs with transferable general-level skill acquisition and CMEs with the acquisition of specific skills that are less transferable. According to Ansell and Gingrich (2013), the distinction between general and specific skills is not nuanced enough to capture the general skills held by workers employed in dynamic private sector services (e.g., FIRE services) versus those in non-dynamic and public-sector services (e.g. social services). Diessner, Durazzi, and Hope (2022) advance the concept of skill-based liberalization. In the case of transitioning to the knowledge economy in Germany, they argue that this concept transcends the well-established approaches of dualisation and liberalisation by acknowledging both liberalisation and technological change and that institutional change takes place at both core and peripheral sectors. Durazzi (2019, 2023) posits that a focus on the extent of skill breadth (narrow/broad) and combinations of skills (technical and discipline-specific to generalist) in relation to academic discipline and nature of employment sector (i.e., high-end services versus the manufacturing sector) more accurately illuminates the skill dynamics at play. Additionally, Marques, Suleman, and Costa (2022) warn that while investment in higher education may run the risk of overqualification of its graduates, countries that have been successful in making the transition to a knowledge-based economy are less likely to experience this phenomenon.

By applying the VoC framework to educational systems, this “varieties of education” approach has also been used to understand social inequalities more broadly in terms of income inequality. Österman (2018) determined that tracking within secondary education impedes equality of educational opportunity but can also lead to higher incomes for those who graduate from vocational education, while collective wage bargaining helps generate more equal opportunities in terms of relative income in contexts without overt tracking. However, the usefulness of these distinctions when examining education systems from a comparative perspective has been questioned. Some researchers argue that “grand typologies” present important limitations when attempting to explain cross-country differences. This is due to difficulties providing a clear link between empirical results and theory, as well as the variety of specific sub-domains to which these theories have been applied (Reichart & Kaufmann-Kuchta, 2021).

Discussion

Combining welfare and production regime theory to study education

For some years there has been a call for welfare and production regime typologies to be integrated in a combined approach (Schröder, 2009). This would allow the advantages of each perspective to complement one another, utilising both functionalist explanations and understandings of class conflicts. In real-world examples of countries, Esping-Andersen’s ideal-typical groupings overlap with VoC divisions, as liberal market economies are virtually always liberal welfare states and all coordinated market economies are social democratic or conservative welfare states (Busemeyer, 2015; Schröder, 2009). Thus, general “families of nations” emerge, and these can be used to understand educational systems from a comparative perspective.

For example, Iversen and Stephens (2008) conceptualise “three distinct worlds of human capital formation” that reflect similarities with both production regime and welfare regime groupings. They define human capital formation broadly to include daycare or preschool, primary and secondary school, tertiary education, active labour market policies, and vocational education and training. The first group of countries is comprised of the social democratic CMEs (Denmark, Finland, Norway, and Sweden), which have proportional representation (PR) electoral institutions, high spending on all levels of education, public provision of day care, well-developed vocational training systems, and paid parental leave. The second group is the Christian democratic CMEs (Austria, Germany, Switzerland, Belgium, and the Netherlands) with strong Christian Democratic (CD) parties, well-functioning vocational training and collective bargaining systems, lower spending on primary education, an emphasis on the traditional male breadwinner family, and an opposition to women’s labour force participation. The third group of countries is the LMEs (Australia, Canada, Ireland, New Zealand, the UK, and the USA), with majoritarian electoral institutions, high government spending on higher education, a general skill focus, and a weakly institutionalised transition from school to work. Some countries do not fit neatly into one of these three groups. For example, France and Italy are similar to CD CMEs in many ways but have less well-functioning vocational systems, and Japan has a unique group-coordinated focus on firm-specific skills and training.

Also using this type of integrated perspective at the junction between welfare and production regime approaches, Andres and Pechar (2013) combine welfare regime and production regime approaches as an institutional lens to study educational systems. They explore why some wealthy nations have quite low tertiary graduation rates (e.g., Austria, Germany, and Switzerland), and why “many countries with high tertiary graduation rates show low levels of social equity, while many countries with low tertiary graduation rates show high levels of social equity” (p. 247). They use evidence on educational attainment, patterns and key aspects of economic functioning and development, and their relationship to social inequality.

Finally, while not specific to higher education, the relatively recent social investment approach also offers a powerful new way to theorise education as social policy (Garritzmann, Hausermann, & Palier, 2022; Hemerijck, 2018). This theoretical perspective makes sense of the prospective nature of education as social policy by focusing on policy that “prepares rather than repairs,” by equipping individuals in advance with the skills needed to cope with risks over the life course (Garritzmann, Hausermann, & Palier, 2022; Hemerijck, 2015). Moving away from the focus on (re)distributive efforts, the social investment approach looks at policy functions from both problem- and interaction-orientated lenses (Hemerijck, Ronchi, & Plavgo, 2023) by examining how social policy creates, mobilises, and preserves human capital and capabilities (Sen, 2005; Wolff & De-Shalit, 2007). Welfare policy is conceptualised as filling three main functions: (1) developing and maintaining lifelong human capital and capabilities; (2) facilitating work-life balance and gendered labour market and life-course transitions; and (3) providing inclusive safety nets (Hemerijck, 2017; Van Kersbergen & Hemerijck, 2012). These “stocks,” “flows,” and “buffers,” as Hemerijck (2017) terms them, allow for a nuanced examination of different interconnected configurations of social policy. As such, it moves away from tightly coupled, path-dependent policy repertoires (Hemerijck, Ronchi, & Plavgo, 2023).

This paradigm builds on a number of conceptual advancements in different fields, including that of the capabilities approach in economics (Sen, 2005; Wolff & De-Shalit, 2007), the life course perspective in sociology (Bernardi, Huinink, & Settersten, 2019; Hagestad & Dykstra, 2016), and lifelong learning in education (Field, 2001). It has built on the foundations of a 2002 report (Esping-Andersen et al., 2002) that explored the changing nature of social risks, the need for a dynamic life-course perspective when examining social policy, dramatic changes in gender roles, as well as the need to view social policy as going beyond economic redistribution to “capacitating” social justice. This approach has greatly influenced current directions in social policy research. Other researchers are now theorising and comparing “social investment policies” globally by presenting social policy in terms of goals, functions, and political support coalitions needed for different state investments in human capital, work-care support strategies, and active labour market policies (Garritzmann, Hausermann, & Palier, 2022).

Importantly, this approach puts education front and centre, as raising and maintaining human capital and capabilities throughout the life course (from infancy to old age) is a primary pillar of the social investment approach (Morel & Palme, 2017). Empirical studies looking at loosely coupled bundles of policy mixes have begun to explore the longer-term impacts of social investment policies (Plavgo & Hemerijck, 2021), but more empirical exploration is needed (Hemerijck, Ronchi, & Plavgo, 2023). This provides an important opportunity for research focused on higher education that can explain very recent changes in ideational dynamics and educational policy paradigms that have included expansion and upskilling across a variety of welfare contexts (Garrizmann, Hausermann, & Palier, 2022).

Conclusion

While the production regime literature highlights the extent of coordination of education and training in relation to the labour market, the welfare regime literature helps us understand why some regimes are conducive to human capital production and are able to create more equitable educational and eventual labour market opportunities. Esping-Andersen's original typology has been deemed a "modern classic" (Emmenegger *et al.*, 2015) that "has become a canon in comparative social policy against which any subsequent work must situate itself" (Powell, Yörük, & Bargu, 2020, p. 61). Similarly, production regime literature is key in drawing our attention to the role of education and training in relation to both social actors and social structures (Durazzi, 2019). These two theoretical perspectives offer both rival and exclusionary, as well as complementary and compatible, explanations of education and training. They also connect related issues of employment and unemployment, job security, and tertiary participation across countries and regions.

Recent theorising and empirical work around the social investment functions of welfare policy provides a third, emerging lens from which to view social policy mixes (Garrizmann, Hausermann, & Palier, 2022; Hemerijck, 2017). These new approaches to social policy highlight the central role of higher education in welfare policy repertoires, notably in the context of knowledge-based capitalist growth regimes (Hall, 2022). They also allow for the examination of various policy mixes beyond ideal-type groupings of countries, including complementarities and interactions among specific social investment policies. However, both the originality and the difficulty in some of these innovative approaches lie in their ambitious aim to address the complex interconnected configurations of stock-flow buffer policies in both micro- and macro-longitudinal perspectives (Hemerijck, Ronchi, & Plavgo, 2023).

While broad typologies have significant disadvantages, they also provide important benefits to researchers conducting international comparative studies. In particular, these approaches allow "initial systematic access" (Pilz, 2016, p. 296) to different national tertiary education and VET systems by contextualising social structure and institutions, the labour market, and approaches to education and allowing for systemic comparison of different national characteristics. Theoretical frameworks based on the welfare regime and production regime literature provide useful conceptual foundations to examine the education/skill/employment nexus by providing a first step towards clarifying "the relationships between educational investment, educational institutions, and the distribution of life chances" (Busemeyer & Nikolai, 2010, p. 509) in an international comparative perspective.

Education and training systems are framed as crucial dimensions in the competitiveness of national economies. A strong indicator of this dynamic is the rising influence of the OECD on national policies (e.g., PISA, PIAAC, EAG). Moreover, global university rankings have an impact on tertiary education policies in many countries. Countries react to such pressures by instituting reforms that may reinforce or deviate from the policy logic of different regimes. The comparative theoretical perspectives of welfare and production regimes can help researchers situate educational policy as a central component of social policy by uncovering the assumptions upon which these frameworks rely and identifying necessary preconditions that would lead to policy actions that can be achievable. Moreover, comparative country analyses based on sound theoretical foundations "presents an opportunity to look beyond our own

national horizons” (Greener, 2022) to examine successful policies and practices from which we can study and learn.

Currently, countries face unique trade-offs when endeavouring to balance educational and training needs in relation to labour market supply and demand. Because of the exogenous shock of the COVID pandemic, together with ageing populations and other factors, funding for education and training will continue to compete with health care, old age security, and other components of a welfare state’s safety net. How countries deal with and respond to these trade-offs depends on both their welfare and production regimes and the related political traditions and path dependencies within which they are embedded. Recent literature also shows how they depend on emerging social investment reforms that focus on proactively developing human capital and capabilities to avoid social risks in the context of a knowledge-based globalised era of capitalist growth.

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