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Varieties of Skills Profiles in Latin America: a reassessment of the hierarchical model of capitalism

Introduction

Education and the acquisition of skills are the cornerstones of economic growth and technological progress. Today, it is widely agreed that Latin America's lack of a skilled workforce is one of the most daunting impediments to achieving higher levels of economic and social development.¹ Not surprisingly, the region has been portrayed as being caught in a 'low skills, bad jobs trap'.² Yet, while this relation between skills and development is relatively clear and widely shared, there is an important gap in understanding the politics behind successful skills-formation policies.

A wave of recent contributions in political science has significantly advanced our understanding of the politics behind skills formation.³ Many of these take as a starting point the comparative capitalisms literature, reflecting the importance of a theoretical and empirical investigation of the enduring variation in skills formation among countries as a key step to advance the analysis of the political causes behind this variation.⁴ Latin America has been conspicuously absent from these debates and analysis of skills formation

¹ Eric A. Hanushek and Ludger Woessmann, *The Knowledge Capital of Nations. Education and the Economics of Growth* (Cambridge, MA: MIT Press, 2015); Carmen Pagés, Gaelle Pierre, and Stefano Scarpetta, *Job Creation in Latin America and the Caribbean: Recent Trends and Policy Challenges* (Washington D.C. and Houndmills, Basingstoke: World Bank and Palgrave Macmillan, 2019); Jeffrey Puryear and Tamara Ortega Goodspeed, 'How Can Education Help Latin America Develop?', *Journal of Emerging Market Economies*, 3:1 (2011), pp. 111-134.

² Ben Ross Schneider and Sebastian Karcher, 'Complementarities and Continuities in the Political Economy of Labour Markets in Latin America', *Socio-Economic Review*, 8:4 (2010), p. 633.

³ See Marius Busemeyer and Christine Trampusch, 'Review Article: Comparative Political Science and the Study of Education', *British Journal of Political Science*, 41: 2 (2011), pp. 413-443; Thomas Gift and Eric Wibbels, 'Reading, Writing, and the Regrettable Status of Education Research in Comparative Politics', *Annual Review of Political Science*, 17 (2014), pp. 291-312.

⁴ Marius Busemeyer, *Skills and Inequality. Partisan Politics and the Political Economy of Education Reforms in Western Welfare States* (New York: Cambridge University Press, 2015); Cathie Jo Martin, 'Skill Builders and the Evolution of National Vocational Training Systems' In Chris Warhust, Ken Mayhew, David Finegold and John Buchanan (eds.), *The Oxford Handbook of Skills and Training* (Oxford: Oxford University Press, 2017), pp. 36-53.

in the region remains scarce. There exist general assessments about the lack of a skilled workforce, the low quality of skills, and the mismatch between skills supply and labour market demand.⁵ However, beyond a pair of characterizations of the institutions involved in technical and vocational education and training (VET), there is no systematic analysis of the type and level of skills supply.⁶ As Schneider has compellingly argued, in order to advance toward a better understanding of skills formation in Latin America –as well as its relationship to countries’ prospects for development –, it is crucial to study skills supply through education and training systems.⁷ This article intends precisely to contribute to the understanding of cross-case variation in skills supply in Latin America as a necessary step in order to achieve a better understanding of the politics behind such variation.

Our analysis takes as a starting point –and contributes to– two strands of literature. Primarily, we aim to contribute to the literature on Latin American capitalisms and their development perspectives.⁸ The most extended interpretation of Latin America's variety of capitalism is that of Ben Ross Schneider and his colleagues.⁹ In a study of the region's labour markets and their relation with skills formation, Schneider and Karcher have argued that "from a comparative perspective what stands out is the relative absence of significant variation, compared both with other regions and other dimensions of change in the political economies of Latin America".¹⁰ This assessment has led Schneider and colleagues to

⁵ See Matías Busso, Marina Bassi, Sergio Urzúa, Jaime Vargas, *Disconnected. Skills, Education, and Employment in Latin America* (Washington D.C.: Inter-American Development Bank, 2012); Carolina González-Velosa, David Rosas and Roberto Flores, 'On-the-Job Training in Latin America and the Caribbean: Recent Evidence' In Matteo Grazzi and Carlo Pietrobelli (eds.), *Firm Innovation and Productivity in Latin America and the Caribbean* (Washington D.C.: Inter-American Development Bank, 2016), pp.137-165; Pagés et al., *Job Creation in Latin America*.

⁶Juan José Llisterri, Nicolo Gligo, Oriol Homs and Domenec Ruíz-Devesa, 'Educación técnica y formación profesional en América Latina. El reto de la productividad', *Serie Políticas Públicas y Transformación Productiva*, No. 13 (Caracas: Banco de Desarrollo de América Latina (CAF), 2013); María Paola Sevilla, 'Panorama de la educación técnica profesional en América Latina y el Caribe', *Serie Políticas Sociales*, No. 222 (Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL), 2017).

⁷ Ben Ross Schneider, *Hierarchical Capitalism in Latin America: Business, Labour, and the Challenges of Equitable Development* (New York: Cambridge University Press, 2013).

⁸ See Aldo Madariaga, 'Variedades de capitalismo y su contribución al estudio del desarrollo en América Latina' *Política y Gobierno*, 25:2 (2018), pp. 441-468; Matthias Ebenau, 'Comparative capitalisms and Latin American neodevelopmentalism: A critical political economy view' *Capital & Class*, 38:1 (2014), pp. 102–114.

⁹ Schneider, *Hierarchical Capitalism*; Schneider and Karcher, 'Complementarities and Continuities'; Ben Ross Schneider and David Soskice, 'Inequality in developed countries and Latin America: coordinated, liberal and hierarchical systems', *Economy and Society*, 38:1 (2009), pp. 17-52.

¹⁰ Schneider and Karcher, 'Complementarities and Continuities ', p. 632.

portray the region as belonging to an overarching variety of capitalism they have called Hierarchical Market Economies (HMEs). Although the analysis of skills formation systems and their relationship with skills demand and a series of complementary institutions is one of the strongest aspects of these studies, the focus on overarching commonalities conceals the large and meaningful intra-regional differences related with education and skills. Conversely, alternative conceptualizations of the region's capitalist diversity that do consider intra-regional differences do not devote a significant space to analysing skills as part of these varieties.¹¹ Due to the central role that skills formation plays in conceptualizations of capitalism's institutional diversity and its consequences in terms of economic and social development, one key contribution of this article is, precisely, to advance the understanding of skills formation as a constituting part of Latin America's varieties of capitalism. In this context, our analysis challenges the dominant idea that the region is characterized by an overall pattern of skills supply, as depicted in the HME model.

Secondly, we draw from –and contribute to– the literature on welfare, social policy and development. There is a long research tradition devoted to understanding the variation in Latin America's social policy regimes, the politics explaining this variation, and their contribution to the 'incorporation' of excluded populations in economic and social development dynamics.¹² In some of these works, education features as a key component of welfare and social policy.¹³ However, by subsuming the analysis of skills formation under the rubric of 'human capital', 'education policy', and/or 'social policy reform', these works obscure the intrinsic dynamic of education as skills formation, and its close relation

¹¹ For example, Bizberg claims that "We are not able to include other relevant elements such as the educational and qualification system (...) for lack of space". Ilan Bizberg, 'Types of capitalism in Latin America', *Revue Interventions économiques*, 49 (2014), fn. 2. See also Juan A. Bogliaccini, *Small latecomers into the global market power conflict and institutional change in Chile and Uruguay* (The University of North Carolina at Chapel Hill, PhD Dissertation, 2012).

¹² Fernando Filgueira, *Welfare and Democracy in Latin America: The Development, Crises, and Aftermath of Universal, Dual, and Exclusionary Social States* (Geneva: UNRISD, 2005); Stephen Haggard and Robert Kaufman, *Development, Democracy and Welfare States* (Princeton NJ: Princeton University Press, 2008); Evelyne Huber and John Stephens, *Democracy and the Left. Social Policy and Inequality in Latin America* (Chicago: Chicago University Press, 2012); Juliana Martínez-Franzoni, 'Welfare Regimes in Latin America: Capturing Constellations of Markets, Families, and Policies', *Latin American Politics and Society*, 50:2 (2008), pp.67-100; Jennifer Pribble, *Welfare and Party Politics in Latin America* (New York: Cambridge University Press, 2013); Alex Segura-Ubierno, *The political economy of the welfare state in Latin America: globalization, democracy, and development* (New York: Cambridge University Press, 2007).

¹³ Huber and Stephens, 'Democracy and the Left'; Pribble, *Welfare and Party Politics*; Segura-Ubierno, *The Political Economy of the welfare state*; Haggard and Kaufman, *Development, Democracy and Welfare*.

with productive structures and labour markets.¹⁴ Studies of education as skills formation have found an intricate relationship between welfare systems and skills formation systems.¹⁵ However, as Hanushek and Woessmann have convincingly argued, the difference between overall education and a concrete focus on cognitive skills is key to understanding the effect of education on development.¹⁶

In this article, we study education from the lens of skills formation. As opposed to the existing literature on education policy, we put special emphasis on VET at different educational levels, considering skills formation and human capital formation as possible alternative paths of incorporation behind social policy reform efforts.¹⁷ In order to do so, we provide what is –to the best of our knowledge– the first systematic characterization of the variety of skills portfolios in the region, or what we call *Skills Supply Profiles*, and their underlying configurations.

The literature of the two avenues of research mentioned above have relied greatly on theoretical and empirical classification techniques to show cross-case variation, in particular, cluster analysis.¹⁸ Following this approach, we use quantitative data on skills supply –education enrolment, attainment and cognitive scores– to build clusters of countries in terms of their skills portfolio. The use of cluster analysis allows us to generate groups that are both empirically grounded and theoretically sound. We argue that there exist four configurations of skills profiles in the region: *Universalizing, Dual Academic-*

¹⁴ But see Juliana Martínez-Franzoni and Diego Sánchez-Ancochea, 'Can Latin American Production Regimes Complement Universalistic Welfare Regimes? Implications from the Costa Rican Case', *Latin American Research Review*, 48:2 (2013), pp. 148–173.

¹⁵ Busemeyer, *Skills and Inequality*; Torben Iversen and John D. Stephens, 'Partisan Politics, the Welfare State, and Three Worlds of Human Capital Formation', *Comparative Political Studies*, 41: 4-5 (2008), pp.600-637.

¹⁶ Hanushek and Woessmann, *The Knowledge Capital of Nations*.

¹⁷ See Segura-Ubiergo, *The Political Economy of the welfare state*. Although skills formation usually also covers lifelong learning and in-firm training, data for the region are very scattered which makes it difficult to systematically study them. Moreover, existing research shows that in-firm training in the region is very low outside large internationalized firms. See Juan Eberhard, Gabriel Moraga, Eleonora Nun and Aldo Madariaga, 'The On-the-Job Training Decision in Latin America', *IDB Working Paper Series*, No. IDB-WP-772 (Washington DC: Inter-American Development Bank, 2017); Schneider, *Hierarchical Capitalism*.

¹⁸ E.g. Bruno Amable, *The Diversity of Modern Capitalism* (New York: Oxford University Press, 2003); Martin R. Schneider and Mihai Paunescu, 'Changing varieties of capitalism and revealed comparative advantages from 1990 to 2005: a test of the Hall and Soskice claims', *Socio-Economic Review*, 10: 4 (2012), pp. 731–753; Gosta Esping Andersen, *The Three Worlds of Welfare Capitalism* (Princeton University Press, 1990); Martínez-Franzoni, 'Welfare Regimes in Latin America'. See John S. Ahlquist and Christian Breunig, 'Country clustering in comparative political economy', *MPIfG discussion paper*, No. 09/5 (Cologne: Max-Planck-Institut für Gesellschaftsforschung, 2009).

oriented, Dual VET-oriented and Exclusionary. Although our analysis is cross-sectional and describes a post-structural adjustment scenario, we make use of secondary sources and data for assessing longitudinal trajectories from the Import Substitution Industrialization (ISI) period to the present, when describing these profiles.

The article is organized as follows. First, we ground our work on the literature reviewed and highlight the common challenges that Latin American countries face in terms of skills formation and the relation this has to their development prospects. Second, advancing to our main argument, we show that underneath common traits and developmental challenges lie a variety of configurations we call Skills Supply Profiles. We develop this concept and its main characteristics, and conduct our empirical analysis using the cluster analysis technique. Third, we identify and characterise the region's skills profiles. We characterize them with a special focus on six cases, Chile, Brazil, Bolivia, Guatemala, Mexico, and Uruguay, representing meaningful dynamics within each. We conclude by underlying how our results help advance the understanding of the relationship between skills and development in Latin America.

Common Traits of Skills Formation in Latin American Capitalism(s)

We define *skills* as the abilities acquired through formal and informal education that provide concrete know-how and allow the performance –and potential improvement– of specific tasks.¹⁹ For the most part, these abilities are acquired in standardized educational and training contexts, and comprise both specific and broad knowledge.²⁰ Skills are valued in different ways in the labour market in relation to their capacity to be used in concrete jobs, and to increase the productivity of labour. By *Skills Supply Profile* we refer to the overall quantity, quality and type of skills that an economy offers, and that are embodied in the workforce's diverse characteristics and capacity to participate in processes of

¹⁹ The concept of 'skills' is a contested one between disciplinary boundaries and has acquired different meanings in time and space. For a discussion, see Jonathan Payne, 'The Changing Meaning of Skill: Still Contested, Still Important', In Chris Warhust, Ken Mayhew, David Finegold and John Buchanan (eds.), *The Oxford Handbook of Skills and Training* (Oxford: Oxford University Press, 2017), pp. 54-71.

²⁰ In this article, we focus on the formal dimensions of skills acquisition. However, this should not obscure the fact that much of this acquisition occurs through prolonged experience and routinized problem-solving on-the-job. Sanjaya Lall, 'Skills, competitiveness and policy in developing countries', *Greek Economic Review*, 19:2 (1999), pp. 81-104.

economic production and transformation, broadly conceived. In the next section we define what we mean by quantity, quality and type of skills.

There is a direct relation between skills profiles and development.²¹ On the one hand, a high supply of skills promotes industrial upgrading from lower to higher value-added sectors and the incorporation of more complex technologies and production processes. As the comparative capitalism literature has highlighted, the types of skills provided –whether general-academic or specific-technical– allows for different economic specialization patterns.²² On the other hand, the growth in the demand for skills due to companies incorporating more capital and/or using technologies and processes that are more complex induces countries and workers to respond by increasing their supply.

The value of skills is socially constructed, and their supply and demand are intricately linked to political and historical processes.²³ Development scholars have argued that concrete policy interventions in the two sides are needed to produce successful development experiences.²⁴ While upgrading skills portfolios through expanding education and training is a pre-condition for producing higher value-added goods, productive development policies are key to incentivizing investment in economic sectors with higher technological content and skills requirements. Historically, Latin American economies have lacked both.

Low-productivity Economies and Early De-industrialization

In Latin America, the analysis of economic structure as a hindrance to development, in the attempt to understand the characteristics of the backwardness of the region's capitalisms, has a long pedigree. There is a striking historical continuity in this assessment: Latin America is characterized by a pattern of specialization in low-productivity activities and

²¹ Hanushek and Woessmann, *The Knowledge Capital of Nations*; Claudia Goldin and Lawrence F. Katz, *The Race Between Education and Technology* (Cambridge, MA: Belknap Press, 2008). Lall, 'Skills, competitiveness and policy'.

²² Busemeyer, *Skills and Inequality*; Iversen and Stephens, 'Partisan Politics, the Welfare State, and Three Worlds'.

²³ Payne, 'The Changing Meaning of Skill', pp. 56-7.

²⁴ Lall, 'Skills, competitiveness and policy'. Sanjaya Lall, 'The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98', *Oxford Development Studies*, 28:3 (2000), pp. 337-369.

the export of raw materials and products with little technological sophistication and that require few skills to manufacture or extract.²⁵ Even the countries that advanced more in producing and exporting higher technology-content products are placed in the early stages of global value chains, where productive processes tend to be simple assembly ones, requiring minimal skills sets.²⁶ Moreover, the region is said to be part of an ‘early de-industrialization pattern’: a premature expansion of the service sector in detriment to higher skills-demanding manufacturing sectors.²⁷ In the post-structural adjustment period, this expansion of services did not lead to high productivity service sectors like in advanced countries, but the opposite, increasing the segments of low productivity services and informal jobs that require minimum skills.

Based on ECLAC calculations, Figure 1 shows changes in the share of employment within two categories of different economic sectors, aggregated according to their productivity levels: low productivity (agriculture, commerce and services), and high productivity (financial activity, electricity and mining).²⁸ If there were significant changes, we would expect to see the upper-left area and the lower-right area populated by low and high productivity, respectively. The data show that this is far from the truth.

With the exception of Costa Rica and Mexico, employment in high-productivity sectors has increased only a few percentage points and remains at a regional average of less than 8%. Conversely, employment in low productivity sectors has remained relatively static, at a high 67%, on average. The contribution of each sector to GDP is exactly the opposite: two-thirds are produced by the high-productivity sector, while only around 10% is generated by the employment-intensive low productivity sector.²⁹ For comparison purposes, around 2010 in the Republic of Korea, only one-third of employment was in low productivity sectors, while high-productivity sectors accounted for about 28% of employment.³⁰

²⁵ E.g. Eva A. Paus, 'Productivity Growth in Latin America: The Limits of Neoliberal Reforms', *World Development*, 32: 3 (2004), pp. 427–445. ECLAC, *Structural Change for Equality. An Integrated Approach to Development* (Santiago: Economic Commission for Latin America & the Caribbean, 2012).

²⁶ Paus, 'Productivity Growth in Latin America'.

²⁷ José G. Palma, 'Industrialization, 'Premature' Deindustrialization and the Dutch Disease', *Revista NECAT*, 3:5 (2014), pp. 7-23.

²⁸ The sectors are grouped by ECLAC considering their average labor productivity. Medium productivity considers construction, manufacturing and transportation.

²⁹ ECLAC, *Structural Change*, pp. 209-210.

³⁰ ECLAC, *Structural Change*, p. 211.

Figure 1: *Employment in low- and high-productivity sectors. Latin America, 1990-2014*
<FIGURE 1>

Source: Authors' elaboration based on data from ECLAC Cepalstat.

This characteristic of Latin America's economies has been called 'structural heterogeneity'; that is, the 'coexistence in a single economy of production sectors that would be characteristic of economies at different stages of development, with low productivity segments figuring heavily.'³¹ This overarching situation reduces demand for skills and incentives to invest in skills, as it segments the labour market in two broad strata: one large segment for low skilled workers, with high labour rotation and mobility across economic sectors, who enter and exit formality following economic cycles; and small elites of workers with higher skills, higher wages and higher job security.³²

Low-skilled Workforce and Underdeveloped Education Systems

Latin American social policy was developed in tandem with the consolidation of nation-states and acquired a new impetus under ISI.³³ Scholars argue that the character of industrialization made these systems similar to those of Southern European corporatist welfare states: a bias toward the urban and male workforce and heavily weighted toward social security benefits, particularly pension schemes, in social expenditure.³⁴ In the case of education, the focus was mostly in universalizing primary education, while academic programs were the most common in secondary and post-secondary education. With time, countries built vocational training institutions (VTIs) similar to those existing in continental Europe.³⁵ However, with the exception of Brazil, they did so relatively late in their industrialization process (in the 1960s and 1970s) and had already begun rolling them

³¹ ECLAC, *Structural Change*, p. 198.

³² Schneider, *Hierarchical Capitalism*, pp. 91-92; Schneider and Karcher, 'Complementarities and Continuities'.

³³ Haggard and Kaufman, *Development, Democracy and Welfare*; Filgueira, *Welfare and Democracy*.

³⁴ See Filgueira, *Welfare and Democracy in Latin America*; Armando Barrientos, 'Labour markets and the (hyphenated) welfare regime in Latin America', *Economy and Society*, 38:1 (2009), pp. 87-108.

³⁵ ECLAC/ILO, *The employment situation in Latin America and the Caribbean. Challenges and innovations in Labour Training* (Santiago: Economic Commission for Latin America and the Caribbean, International Labor Office, 2013).

out in the 1980s with an increase in unemployment from ailing manufacturing industries, the rise of the Washington Consensus, and a focus on targeted training policies as a substitute for social policy for the unemployed and “unemployable”, rather than as mechanisms of skills formation to meet industrial demand or technological upgrading.³⁶ Therefore, as a general rule, VTIs did not play an important role in skills formation, and active labour market policies were practically inexistent before the 1980s.

During the 1980s, it became clear that both ISI and the associated social policy regimes were exhausted. Although they had led the first phase of social incorporation in the region, they had created a situation of strong segmentation between protected formal workers and a large mass of informal and poor workers with no access to education and not covered by social security. In addition, the heavy weight of contributory schemes on public expenditure made state efforts, in reality, regressive.³⁷

The emphasis on social security and the neglect of education showed a stark contrast with the success of the East Asian economic miracles and their human capital-oriented social policy and industrialization processes.³⁸ While Latin American countries had better education and development indicators than East Asian countries in the 1960s, by the 1980s the region was clearly lagging behind the East Asian Newly Industrialized Countries (NICs). This is largely explained by the emphasis put on education policy and the type of education. In the 1980s, while expenditure in education was similar in both regions, East Asian NICs spent more and more equally in the early stages (primary and secondary), while dropout rates in Latin America more than doubled those of East Asia.³⁹ More significantly, East Asian NICs put special emphasis on learning and improving skills rather than just increasing school attendance and attainment.⁴⁰ Therefore, after the 1990s a new impetus was given to human capital and in particular skills formation, as a strategy for social incorporation.⁴¹

³⁶ See Lawrence Wolff and Claudio de Moura Castro, ‘Education and Training. The Task Ahead’ in Pedro Pablo Kuczynski and John Williamson (eds.), *After de Washington Consensus. Restarting Growth and Reform in Latin America*, (Washington DC: Institute for International Economics, 2003), pp. 181-211.

³⁷ For a discussion, see Haggard and Kaufman, *Development, Democracy and Welfare*.

³⁸ Haggard and Kaufman, *Development, Democracy and Welfare*; Hanushek and Woessmann, *The Knowledge Capital of Nations*.

³⁹ Haggard and Kaufman, *Development, Democracy and Welfare*, pp. 35-8.

⁴⁰ Hanushek and Woessmann, *The Knowledge Capital of Nations*.

⁴¹ Segura-Ubiergo, *The Political Economy of the welfare state*; Wolff and Moura Castro, ‘Education and Training’.

In spite of this renewed attention, different analyses agree that Latin America still has significantly lower skills levels compared to developed countries.⁴² While Latin America has been able to close gaps in primary education, the difference widens to 20 percentage points in secondary, and more than 30 in tertiary education, when compared to the OECD.⁴³ The region has advanced more rapidly in increasing the share of students that attend tertiary education –from 22 to 44 per cent between 1999 and 2014–, than attend secondary education, the latter advancing only ten points in the same period. Latin America is also conspicuously behind in terms of the acquisition of cognitive skills. In the 40 occasions in which Latin American countries participated in international achievement tests from 1964 to 2003, the average rank was 31.8 among an average of 34.5 participants.⁴⁴ Finally, a commonality of Latin American countries is the high segmentation of the different education levels in terms of their quality and effective provision of skills for the job market.⁴⁵ In this respect, education is not unlike other domains of social policy in Latin America, characterized by a “strong stratification of benefits, access conditions and ranks of protection”.⁴⁶ In other words, Latin America suffers from chronic problems in the quantity and quality of education, which severely impair its ability to engage in higher technology and productive economic processes.

Varieties of Skills Profiles in Latin America

As we have seen, skills supply in Latin America shows important commonalities distinguishing it from other regions. However, these commonalities conceal significant intra-regional differences. Hanushek and Woessmann, for example, consider the Latin American intra-regional variation in cognitive scores to be 'huge' in comparative terms.⁴⁷ Meanwhile, Schneider and Karcher concede that beneath the overall similarities, there are

⁴² Pagés et al., *Job Creation in Latin America*; Schneider, *Hierarchical Capitalism*.

⁴³ Data from UNESCO-UIS Database.

⁴⁴ Hanushek and Woessmann, *The Knowledge Capital of Nations*, p. 117

⁴⁵ See Busso et al., *Disconnected*. For an analysis of Chile, the region's best performer according to international standards, see Alejandra Mizala and Florencia Torche, 'Bringing the Schools Back in: Bringing the Schools Back In: the Stratification of Educational Achievement in the Chilean Voucher System', *International Journal of Educational Development*, 32:1 (2012), pp. 132–144.

⁴⁶ Filgueira, *Welfare and Democracy in Latin America*, p. 14.

⁴⁷ Hanushek and Woessmann, *The Knowledge Capital of Nations*, p. 119

important variations between poorer and more developed countries.⁴⁸ As several authors have acknowledged, educational coverage and attainment, economic structures and other institutions, in many ways put South American countries closer to the Mediterranean and/or Liberal varieties of capitalism in the advanced world, than those of less advanced Central American countries.⁴⁹ We propose that such intra-regional differences are meaningful and challenge the idea that there is only one configuration of skills for the entire region, as the HME model claims.

The literature concerned with the varieties of skills formation in advanced countries focuses on institutional variables such as the prominence of education provision between state or private institutions, the degree of involvement of the state, business chambers and trade unions in defining training policies, or whether training takes place on-the-job or in school.⁵⁰ Now, several authors have raised their concerns about directly translating this literature toward a Latin American context.⁵¹ The greatest concern lies in the application of institutional categories to political economies with significant inter- and intra- national differences in state capacity, and the associated variance in institutional strength and enforcement.⁵² Thus, unlike the literature dealing with advanced countries and centred on institutional differences, we use outcome variables to analyse differences in Latin America. This is consistent with our definition of skills supply profiles and with our emphasis on the relation between the varieties of skills formation and development.

The proposed concept of *Skills Supply Profile* is based on two secondary-level dimensions or attributes: the stock and flow of skills supply. The stock of skills reflects the skills already available in the workforce and represents the historical efforts of

⁴⁸ Schneider and Karcher, 'Complementarities and Continuities', p. 633.

⁴⁹ Juan A. Bogliaccini and Fernando Filgueira, 'Capitalismo en el cono sur de América Latina luego del final del Consenso en Washington: ¿notas sin partitura?', *Revista del CLAD Reforma y Democracia*, 50(2011), pp. 45-82; Andrew Schrank, 'Understanding Latin American political economy: varieties of capitalism or fiscal sociology?', *Economy and Society*, 38:1 (2009), pp. 53-61.

⁵⁰ E.g. Busemeyer, *Skills and Inequality*; Iversen and Stephens, 'Partisan Politics, the Welfare State'; Marius Busemeyer, 'Asset specificity, institutional complementarities and the variety of skill regimes in coordinated market economies', *Socio-Economic Review*, 7: 3 (2009), pp. 375–406.

⁵¹ See especially Schrank, 'Understanding Latin America'.

⁵² See Steven Levitsky and María Victoria Murillo, 'Building Institutions on Weak Foundations' *Journal of Democracy* 24:2 (2013), pp. 93-107. Steven Levitsky and María Victoria Murillo, 'Variation in Institutional Strength', *Annual Review of Political Science* 12:1 (2009), pp. 115-133; Marcus J. Kurtz, *Latin American State Building in Comparative Perspective: Social foundations of institutional order* (New York: Cambridge University Press, 2013); Hillel D. Soifer, *State Building in Latin America* (New York: Cambridge University Press, 2015).

governments at social incorporation through skills formation. The flow of skills reflects the rate at which skilled individuals join the workforce from the education system and represents recent government efforts at using skills formation as incorporation.⁵³ The flow of skills has, in turn, three components: quantity, quality and type of skills being produced in the formal education system.

We argue that both types of measures are important in understanding skills supply because countries not only differ in the overall skill level of their workforce (*stock*), but also in how these portfolios are changing as education systems improve their coverage and feed the labour market with more skilled workers (*flows*). Moreover, while it is true that cognitive scores are key indicators for skills acquisition, we argue that the differences in enrollment and attainment within the Latin American region also warrant their inclusion for distinguishing different configurations of skills portfolios. This point was already raised by Filgueira in his classification of welfare regimes in the region, when he acknowledged the importance of the “coverage” dimension of social policy as a basic classification criterion for Latin America, but that is not relevant for classifying advanced welfare states where coverage is universal.⁵⁴ In his words, “when the analyst faces population coverage that vary in a rank from 20% to 90% of the population, she should seriously look into this point, incorporate it as a discriminate criteria and try to explain it.”⁵⁵ In fact, in the advanced world, coverage and quality vary little among countries and therefore, the type of skills available in different skills profiles becomes the most important indicator.⁵⁶ This reinforces the need to focus on different outcome variables when analysing differences in the Latin American region.

One significant challenge for the analysis of the variety of skills profiles in Latin America is the availability and quality of data. Official publications offer different data for the same country; data are available only for recent dates making historical analyses more difficult; and the complexities of educational systems makes data hard to compare. In order to solve this, we make use of the most reliable data in addition to different measures of educational attainment, enrollment and quality of education that reflect both skills stocks

⁵³ This is, of course, an approximate measure and it should be complemented with data on dropout.

⁵⁴ Filgueira, *Welfare and Democracy in Latin America*, p. 11–12.

⁵⁵ Filgueira, *Welfare and Democracy in Latin America*, p. 12.

⁵⁶ See Iversen and Stephens, ‘Partisan Politics, the Welfare State’.

and flows. The stock of skills is measured by two slow-moving indicators that allow a precise estimation of the percentage of young potential labour force participants with minimum general skills: the percentage of the economically active population (15 years or more) with only zero to five years of education (that is, approximately primary education) and the percentage of population between ages 20 to 24 that have completed secondary education.⁵⁷ Being that Latin America is a poorly-skilled region, these indicators do discriminate countries by the stock of skills available in their workforce, particularly the laggard Central American countries from the more advanced South American countries.

The quantity component is represented by a measure of net enrollment in secondary education and a measure of gross enrollment in tertiary education. An indicator of cognitive skills, based on data from UNESCO's Latin-American Laboratory for the Assessment of the Quality of Education (LLECE), measures the quality dimension.⁵⁸ Finally, two indicators measure types of skills. We include a measure of enrollment in secondary VET as a percentage of all students enrolled in upper-secondary education and a measure of enrollment in tertiary VET (corresponding to ISCED-5 programs) as a percentage of all students enrolled in tertiary education.⁵⁹

We ran a hierarchical cluster analysis to distinguish different skills supply profiles.⁶⁰ Cluster analysis determines classifications of units –in this case countries– on the basis of the combination of a predetermined selection criterion –in this case stocks and

⁵⁷ These two variables come from ECLAC Cepalstat database.

⁵⁸ LLECE's regional studies evaluate 3rd and 6th grade students' competences in Math, Reading, Writing and Natural Sciences in a comparative perspective taking national curricula to set common learning standards in the region. In the third edition (2013) it involved 15 countries and one sub-national unit. See UNESCO, *Comparación de resultados del segundo y tercer estudio regional comparativo y explicativo: SERCE Y TERCE 2006-2013* (Santiago de Chile: UNESCO, 2014). The scores are taken from the average provided by Hanushek and Woessmann, *The Knowledge Capital of Nations*. We have discarded the use of "quality" data coming from the PISA program because it is available for only eight countries in the region. Due to the nature of the cluster analysis and its results based on agglomeration of similar cases, this drop in the number of cases affects the results of the classification exercise. Nevertheless, a comparison between the two measures (LLECE and PISA) shows very similar results. Taking Math and Reading averages for their latest edition, the ranking of countries is almost equal except for Colombia and Peru swapping the 6th and 7th place, two countries that we categorize as belonging to the same cluster.

⁵⁹ Data on Upper-Secondary VET come from Sevilla, 'Panorama de la educación técnica'; data on post-secondary VET come from the UNESCO-UIS database.

⁶⁰ We use the Agglomerative Hierarchical Clustering method as we conceive groups to be potentially nested, therefore opening the possibility for the existence of sub-clusters. We use a prototype-based approach in which clusters are represented by centroids, using Ward's agglomeration methods in order to minimize the sum of the squared distances of points from their cluster centroids. We have also defined a matrix of Euclidean distances.

flows of skills supply– trying to minimize the difference between units in a group and to maximize the differences between groups. Each country in a cluster, therefore, it is similar to the others in that cluster and different from countries in the other clusters.⁶¹ In this way, the clusters represent different types of skills profiles. As hierarchical cluster analysis locates the closest two countries and combines them to form pairs, subsequently joining them together, clusters emerge from the data, facilitating the appearance of taxonomies of skills profiles.

Cluster analysis has been widely applied in the comparative capitalisms literature to replace purely theoretical exercises in the identification of meaningful variations among countries.⁶² Using the clustering technique allows us to use groups of variables to overcome the problem of relying on just a few indicators which are based on data of varying quality. Moreover, we use a number of available tests to check the robustness of the selected clustering solution.⁶³ Finally, privileging parsimony, we attempted to fit the model by excluding as much redundant information as possible, while not jeopardizing its robustness.

The hierarchical type of cluster analysis we used offers an exploratory rather than a confirmatory analysis of the data, and therefore, needs to be complemented with theoretical assessments of the clusters.⁶⁴ In other words, the choice of clusters is not justified solely on statistical grounds, but also, on substantive grounds. Finally, to overcome the problems of having only a “snapshot” cluster solution, in the next section we show how our clusters have moved historically –in this case, between ISI and the open market economic model.⁶⁵

⁶¹ See Laurence G. Grimm and Paul R. Yarnold, *Reading and understanding more multivariate statistics* (Washington, DC: American Psychological Association, 2000); Duncan Cramer, *Advanced Quantitative Data Analysis* (Maidenhead: Mcgraw-Hill, 2003).

⁶² See Amable, *The Diversity of Modern Capitalism*; Schneider and Paunescu, 'Changing varieties of capitalism'. For a discussion of the technique in comparative political economy, see Ahlquist and Breunig, 'Country clustering'.

⁶³ See online appendix.

⁶⁴ Ahlquist and Breunig, 'Country clustering', p. 11.

⁶⁵ For a similar exercise, see Schneider and Paunescu, 'Changing varieties of capitalism'.

The results of the cluster analysis are displayed graphically using a dendrogram to facilitate the view of the process by which countries cluster (figure 2). Table 1 offers a summary of the variables included in the analysis and detailed above.⁶⁶

Figure 2. *Varieties of Skills Profiles Dendrogram*

<FIGURE 2>

Source: Authors' elaboration based on data from UNESCO-UIS; ECLAC Cepalstat; and Sevilla, 2017.

Notes: Enrollment and attainment data are averages for 2010-12. We assigned the data on cognitive skills for Nicaragua based on TERCE.

Table 1. *Skills Supply Profiles in Latin America*

<TABLE 1>

Sources: See sources in Figure 2

Based on the cluster analysis, we propose that there are two predominant cleavages related to the level and type of skills that account for the different groupings.⁶⁷ A first cleavage is the degree to which countries have succeeded in universalizing the attainment of 12-years of education, which reflects greater institutional capacity over previous decades. Countries may stagnate, but rarely regress after achieving a certain level.⁶⁸ Here, we identify countries as universalizing, dual, or exclusionary. These labels are explained below, together with the characterisation of each.

In contrast to the literature on welfare development, when focusing on skills supply we see a significant movement between groups, particularly from countries in the laggard

⁶⁶ We have included Bolivia, Guatemala and Peru in the table. These countries did not enter the cluster analysis for lack of data in the Sevilla indicators for upper-secondary VET, but they can be clearly assigned to one of the clusters given the data they have for the rest of variables. For other Latin American countries, data is missing in at least two of the variables and, therefore, we decided to leave them out of the analysis.

⁶⁷ Given a scenario of incomplete incorporation into education, our quality measure does not generate a separate cleavage from the previous two, but reinforces them. In any case, since cognitive scores only consider the portion of the population that is effectively attending school at a corresponding age, quality measures need to be taken with caution precisely because of the important differences the region presents in coverage and attainment.

⁶⁸ See Kurtz, *Latin American state building*; Soifer, *State Building in Latin America*.

group of exclusionary or dual welfare states—Colombia, Brazil and Venezuela (plus Bolivia and Peru)—toward the universalizing skills profile. This is an important finding in itself, as it suggests that a number of countries have been able to break the path dependency of low state capacity and jump onto the bandwagon of incorporation through skills formation. Although medium to low state capacity levels in these countries may put a question mark on the sustainability of the observed changes, drawing on specific policy legacies reform coalitions in these countries have undoubtedly advanced in the universalization of skills profiles by bringing in support from new constituencies, increasing resources and expanding access.⁶⁹ A second important finding is that many of the countries identified as universal welfare states, namely Argentina, Uruguay and Costa Rica, fall behind when considering their skills profiles. These countries –together with Chile– were the pioneers in establishing public education systems and in universalizing primary education. However, at a time when all countries in the region have managed to universalize enrollment in primary education and the challenges have moved to universalizing a minimum of 12 years of education (secondary education), these countries have remained stuck in levels that are more reminiscent of dual systems, which combine stratified access and lack of universalization.⁷⁰ Contrary to the situation in the previous group, it seems that existing policy legacies and organized actors in these countries have acted as veto players for further institutional reforms, even in the context of high state capacity and institutional strength.⁷¹ Figure 3 shows this transfer of countries between groups when analysed from the point of view of social policy or skills formation incorporation strategies.

Figure 3: *Country groups in social policy and skills formation incorporation strategies*

<FIGURE 3>

Source: Author's elaboration based on Filgueira, 2005 and Segura-Ubiergo, 2008.

⁶⁹ See Juan A. Bogliaccini and Aldo Madariaga, 'State capacity and social investment: explaining variation in skills formation reforms in Latin America' in Julian Garrizman, Silja Häusermann and Bruno Palier (eds.) *The World Politics of Social Investment (v1)*. (forthcoming 2020)

⁷⁰ We substantiate this in more detail below.

⁷¹ See Bogliaccini and Madariaga, 'State capacity and social investment'.

The second cleavage is the degree to which a VET system developed alongside general education and the role it fulfils in skills supply. In relation to the prevalence of VET versus academic programs, this cleavage distinguishes between profiles that have a greater reliance and orientation toward incorporating VET alternatives, and those that have a lower prevalence of VET and are therefore more oriented to academic programs. In terms of the role of VET, it distinguishes between relying on VET as a way to provide an alternative education for poor populations (i.e. the Washington Consensus view) and skills formation proper, that is, to meet the skills demand of industry and to push for technological upgrade.

Based on this discussion, we propose a solution of four clusters representing four skills supply profiles: *Universalizing*, *Dual Academic-oriented*, *Dual VET-oriented* and *Exclusionary*. We treat these clusters as a typological classification rather than simply a continuum between high and low, which gives precedence to the understanding of skills “profiles” rather than just their levels.⁷²

Using the two cleavages explained above, we advance the characterization of our four types using secondary sources, in order to illustrate these profiles’ main features as well as their historical trajectories. We use information from specific countries to illustrate each profile’s dynamics.

Universalizing Skills Profile

We call the skills profile characterized by a virtuous circle of skills supply in the last two decades ‘*Universalizing*’. This label captures the successful efforts that the countries in this cluster have made and continue to make in terms of incorporating their populations through skills formation, evidenced by their approach toward the levels of education completion at the secondary level of advance countries. The term captures, at the same time, the still-insufficient current levels achieved in other domains, such as tertiary education and improvement of educational quality. This group is composed of Brazil, Colombia, Venezuela and Chile, and we include Bolivia and Peru given that they show similar

⁷² See also Bogliaccini and Filgueira, ‘Capitalismo en el Cono Sur ’; Filgueira, *Welfare and Democracy in Latin America*; Martínez-Franzoni, ‘Welfare Regimes in Latin America’.

indicators.⁷³ Between 2000 and 2015, these countries have decreased the degree of population with only primary school or less by about 12 points, on average, and have increased the completion of secondary education by around 25 points (see Table 2). These countries have also excelled in the improvement of educational quality. At the secondary level, they show a preeminence of general schooling, while there is a relatively high development of VET at the tertiary level.

Table 2: *Changes in education attainment and cognitive scores, 2000-2015*

<TABLE 2>

Source: Authors' elaboration based on ECLAC Cepalstat and UNESCO.⁷⁴

All countries in this group –including Chile– have benefited from the recent commodity boom, strengthening the demand for skilled labour from capital-intensive industries such as oil, mining and forestry. This has also produced unusually high revenues from commodity exports, which has facilitated a supply response in terms of new policies and institutions. Although in many respects Chile is an outlier, it shares with this cluster the important advance, in the last decades, of universalizing the completion of secondary education and improving quality (although from very different starting levels), as well as the commodity boom dynamic driving the increase in educational expenditure.

The demand for skills from booming sectors, the extra state revenue they generated, and an extraordinary capacity to form stable government coalitions during the period permitted the countries in this cluster to overcome their uneven institutional and policy legacies in terms of skills formation. Bolivia, Brazil, and Chile share the characteristic of being highly innovative in the last two decades but present highly diversified profiles in terms of policies and emphases. Below, we devote a separate section for Chile.

Bolivia shows impressive educational advances in the last fifteen years (2000-2014). Much of this has gone to VET, especially in the post-secondary level. The percentage of people aged 20-24 that completed secondary education increased 32 points, reaching close to 80%, among the highest in the region today (see Table 2). Expenditure in

⁷³ We analyse the case of Chile separately because of its particularities as an outlier.

⁷⁴ UNESCO, *Comparación de resultados*.

education increased to 6.3% of GDP, also among the highest in the region. Enrollment in VET at the secondary level remained relatively stable while VET at the post-secondary level more than doubled from 7.1% in 2000 to around 15% in 2011.⁷⁵

After decades of failed reform efforts, in 2010 the Morales government managed to pass comprehensive educational reform, with wide support. The educational reform known as 'Avelino Siñani-Elizardo Pérez' strengthened the link between education and the productive sector, both in its general and VET components, with an emphasis on communitarian economies and indigenous culture, in step with the government's overall orientation.⁷⁶ The law also created new public institutions at the post-secondary VET level and technological universities to serve the necessities of indigenous communities.

While secondary and tertiary education in Bolivia is mostly public, private provision is particularly salient in post-secondary VET: 77% in technical institutes and close to 50% in universities.⁷⁷ The main actor in the sector is INFOCAL (*Instituto de Formación y Capacitación Laboral*), which was transferred in the 1980s from the state to the main employer association, CEPB (*Confederación de Empresarios Privados de Bolivia*). In spite of this, research has shown evidence that weak coordinating capacities among private employers in the realm of skills formation have reduced the ability to set common standards, making the supply of courses grow disproportionately and without control over labour-market adequacy or quality, therefore reducing the recognition of skills acquired through VET.⁷⁸

Brazil has also shown an impressive advancement in the last decades in closing educational gaps. The percentage of population aged 20-24 that completed secondary grew by more than 30 points, approaching the region's leaders (see Table 2). As Table 2 shows, educational quality as measured in regional test scores, has also improved notably. This is reflected in an important expenditure effort between 2000 and 2012.⁷⁹ VET provision is

⁷⁵ Data from UNESCO UIS and Sevilla, 'Panorama de la educación técnica', p. 36.

⁷⁶ Sevilla, 'Panorama de la educación técnica', pp.26-7; Mario Yapu, 'Desafíos de la educación técnica y profesional y política educativa en Bolivia', *EDETANIA*, 48(2015), pp. 81-100.

⁷⁷ Kathleen Lizárraga, *Educación técnica y producción en Bolivia* (La Paz: Programa de Investigación Estratégica en Bolivia (PIEB), 2011), p.xv; p.49.

⁷⁸ Lizárraga, *Educación técnica y producción*, p.xv; Kathleen Lizárraga, 'Formación para el trabajo en Bolivia: La paradoja de un país extractivo', *Development Research Working Paper Series*, No. 03/2015 (La Paz: Institute for Advanced Development Studies (INESAD), 2015), p.10.

⁷⁹ OECD, *Education Policy Outlook: Brazil* (Paris: Organization for Economic Cooperation and Development, 2015) p.15.

very low at the secondary level, covering only around 4% of students in 2014 (up from 2% in 2003), but has increased importantly in the post-secondary level, from around 4% in 2003 to more than 13% in 2012.⁸⁰

While general education is also mostly state-run in Brazil, along the lines of the other countries in this cluster, VET counts a strong private component, with close to 50% and 80% provided by the private sector at the secondary and post-secondary levels, respectively.⁸¹ The most prominent institutions involve those of the so-called 'S-system', a publicly financed (through payroll taxes) but privately administered VET system going back to the ISI years.⁸² The S-system covers secondary and post-secondary formal education as well as training courses.

Brazilian employers have been actively working across all programs, and the employer administration of the S-system has increased their power and coordinating capacity in VET and education in general, maintaining its overall high quality and recognition. In fact, the S-system is responsible for the provision of around 43% of all VET in the country.⁸³ Moreover, in parallel to strengthening state provision, public efforts at incorporating poorer populations into the VET systems through demand-side transfers and scholarships, have sought to integrate these public efforts with the S-system institutions.

Chile: The Universalizing Outlier

Chile appears to be an outlier in the region, as it has advanced greatly in coverage and quality even starting from relatively very high levels. Between 2000 and 2015, Chile increased the number of people aged 20-24 with completed secondary education, reaching close to 85% (see Table 2). This expansion occurred due to the growth of the private system, which comprises over 50% of enrolment in secondary and tertiary education. In the case

⁸⁰ Data from UNESCO-UIS

⁸¹ Sevilla, 'Panorama de la educación técnica', p.72.

⁸² "S" system institutions operate at the sectoral level. The more important ones are the SEINAI-Sesi for the manufacturing industry and the SENAC-Sesc for commerce and services, both founded in the 1940s. Several other institutions have been established since the 1990s, including SEBRAE (technical assistance to SMEs), SENAR (for the agriculture sector), Senat-Sest (for the transport industry), and SESCOOP (for urban cooperatives).

⁸³ André Portela Souza, Lycia Lima, Amanda Arabage, Juliana Camargo, Thiago de Lucena, Sammara Soares, 'Vocational Education and Training in Brazil', *IADB Discussion Paper*, IDB-DP-387 (2015), Washington D.C: Inter-American Development Bank.

of post-secondary VET, private provision is virtually full.⁸⁴ Educational expansion in the post-secondary VET has been especially significant, increasing from around 30% of the higher-education system in 2000 to over 50%, thanks to state-subsidized loan and scholarship programs.

Three aspects separate Chile from the rest of the countries in this cluster. First, Chile has managed to universalize not only secondary education, but also the tertiary educational level. Second, the strong VET orientation has translated into higher percentage of VET programs both at the tertiary level –like the other countries in this cluster– as well as at the secondary level. Finally, the quality of Chilean educational programs as measured through cognitive scores has continued to improve and is currently the best in the region. In other words, Chile has been able to universalize education at all levels, put a strong emphasis on VET at all levels, and maintain a relatively –for the region– high quality. However, Chile’s problems remain the high segmentation of its educational system between good and bad schools and between private and public providers, and its varied successes.⁸⁵ The situation with the growing VET component is telling.

In Chile’s VET segment, the private sector as a whole does not have a unified structure to coordinate efforts; this is one of the main shortcomings of the country’s skills formation system.⁸⁶ In fact, while business chambers administer a handful of relatively high quality secondary and post-secondary institutions, a majority of private providers are for-profit institutions with varied degrees of coordination with the private sector, as well as varying degrees of educational quality. In this context, different efforts by governments to promote policies including bi-partite or tri-partite coordination instances –such as the defunct Chile Califica and the current Chile Valora– have either failed to engage the private sector in broad coordination efforts or, importantly, narrowed the scope of topics to define, like certification criteria, study profiles and trajectories, etc.

⁸⁴ Sevilla, 'Panorama de la educación técnica', p.36.

⁸⁵ Busso et al., *Disconnected*. On segmentation and quality differentials, see Alejandra Mizala and Florencia Torche, 'Bringing the Schools Back in: Bringing the Schools Back In: the Stratification of Educational Achievement in the Chilean Voucher System', *International Journal of Educational Development*, 32:1 (2012), pp. 132–144.

⁸⁶ Interview by the authors with Director of the Human Capital Agenda at the peak employers association (CPC), former official at Ministry of Education, and the Director of the Department of Secondary Education, Ministry of Education. Santiago, april-may 2017.

Overall, the 'Universalizing' profile combines a rapid increase in attainment rates with a clear focus on VET development, albeit using highly diversified strategies. VET schemes are highly valued by employers in countries with higher business coordination like Brazil, and less so in countries with lower coordination like Bolivia and Chile. Moreover, rapid coverage expansion poses challenges in terms of the segmentation between private and public providers, VET and general education, and within the VET system, between secondary and post-secondary. Chile's trajectory is telling: while the country has significantly improved coverage on all levels and even reduced quality differentials among educational segments, these remain among the highest when comparing with the OECD, and when measured with PISA scores, overall educational quality shows no significant advance in the last decade.⁸⁷ The large private sector in Chile has been both a way to get around political stalemate over educational policy –contributing to advances in coverage and attainment– and a problem when it comes to regulating the quality and equality of educational services, as evidenced in the continued segmentation of the skills formation system.

Exclusionary Skills Profile

In the antipodes of the universalizing profile, we find the Exclusionary profile. The Exclusionary skills profile includes Honduras and Nicaragua, and we have also included Guatemala, given this country's coincidences of indicators with countries in this cluster (see Table 1). The name 'Exclusionary' conveys the idea that these countries did not have successful processes of social incorporation during the twentieth and twenty-first centuries, both in terms of the general development of welfare institutions and also in the particular case of skills formation.⁸⁸

The Exclusionary profile shows the lowest average levels of education enrollment, attainment, and cognitive scores in the region, as well as the smallest gains in these indicators in the past fifteen years. Interestingly, two countries in this cluster, Honduras

⁸⁷ Despite increases in PISA scores (mathematics and reading) from 2006 to 2016, differences are not statistically significant.

⁸⁸ See Filgueira, *Welfare and Democracy in Latin America*.

and Guatemala, combine this with a high provision of VET at the secondary level. The magnitude of enrolment in secondary VET *vis-a-vis* academic programs in these countries reflects the segmented nature of the slow incorporation process into secondary education. While traditional programs remain populated with the upper sectors of society, VET-oriented programs are used as a substitute to get around the problem of low enrollment, low completion and large dropout rates, and not as a source of specific skills formation.

The case of Guatemala, a country that with all probability belongs to this cluster, is a good illustration of these dynamics. Since at least the 1970s, the country has tried to implement a VET-type of educational alternative, in order to provide a vocational exit even to populations with only primary schooling, which runs contrary to common practice in the world and the region, where VET alternatives are present mostly at the upper-secondary level. These were the Experimental Basic Education Institutes with Vocational Orientation (PEMEM) founded in 1973 and existing until today, but which lost significance over time as the country turned its efforts –almost exclusively– toward increasing primary education coverage.

The penetration and policy-role of international financial assistance in these countries is the highest in the region. Almost every new educational program, in particular those oriented towards enhancing VET to populations not covered by the existing educational institutions, is financed and designed from abroad and therefore, have finite operation horizons and relatively narrow objectives in terms of skills formation.⁸⁹

Skills formation for the workforce in the three countries is instituted primarily through VTIs formally dependent on Labour Ministries. Although utilizing different strategies, these VTIs are run primarily by employers, while funded mostly by employers and international donors. The Guatemalan INTECAP (*Instituto Técnico de Capacitación y Productividad*) stands out in the region because of its quality and employers' diploma recognition. This recognition goes hand-in-hand with their strong involvement in the institute and the government's weak capacity for policy-orientation. It has, therefore, a high orientation toward the relatively narrow skills demands from employers specialized in labour-intensive sectors such as agriculture, low-productivity services like tourism and

⁸⁹ Interview by the authors with GIZ (German development cooperation service) and USAID employees, Guatemala City, June 2018.

call-centres, or capital-intensive agricultural manufactures like palm oil and sugar. Moreover, although INTECAP gives upper-secondary school diplomas, they represent a tiny fraction of the overall enrolment in this level.⁹⁰

Our last two profiles pertain to a common root that we call, “dual”. Duality reflects the existence of “the stratified aspects that characterized mature systems without presenting the universalized coverage of the stratified universalism regimes”.⁹¹ In other words, these profiles leave important parts of the population without access to even a basic level of general skills through secondary education, and the differences between those who stay in education and those who do not generate radically segmented (in fact, dual) life and work dynamics among the population.

Dual Academic-oriented Profile

We call 'Dual Academic-oriented' a skills profile that combines strong institutional legacies and state capacities with a lack of meaningful advance in covering education gaps over the last two decades. Although governments in this cluster's countries have accompanied the regional upward trend in education investment as a share of GDP, they have not undertaken major reforms to increase skills supply. Therefore, while showing overall relatively high coverage and quality indicators, they have stagnated to a point in which they have reinforced their dualism instead of advancing in the universalization of their skills formation systems. Uruguay and Argentina, for example, are among the countries that have advanced less in closing educational gaps in the last two decades despite also being among those with highest institutional strength and state capacity in Latin America, and with earlier universalization of primary schooling. While Costa Rica improved its secondary completion, the country lagged well behind the more successful universalizing countries in terms of secondary education completion and coverage. Moreover, Costa Rica and Uruguay are the only countries with an overall reduction in cognitive scores in the region over the last decades, while Argentina is among those with the lowest gains (see Table 2).

⁹⁰ Interview by the authors with INTECAP acting director, Guatemala City, June 2018.

⁹¹ Filgueira, *Welfare and Democracy in Latin America*, p. 24.

In this context, relatively high –for the region– enrollment in tertiary education reflects efforts in depurating secondary systems for the high achievers to reach university, but without offering alternatives to those left behind. In fact, these countries are characterized by relatively low levels of VET compared to the rest of the region, particularly at the post-secondary level. Moreover, differently from cases like Brazil and Colombia –or even Guatemala–, VET schemes in this profile are not particularly valued by employers. In other words, while very successful in the first incorporation phase during ISI, these countries have not been able to further advance in skills formation in the second incorporation process.

The case of Uruguay illustrates well the dynamics of this group. Despite being an earlier developer of the welfare state and public education in the region, the advancement of education over the last decades has been disappointing and it is not far-fetched to suggest that the country has stagnated on this matter.⁹² In fact, between 2000 and 2014 the country increased its share of population aged 20-24 who completed secondary education by only 7%, lagging behind the rest of the region together with some of the Central-American laggards (see Table 2). With respect to VET, despite recent efforts, enrolment at the secondary level has increased only by about 1 percentage point from 2000 to 2013.⁹³

Given that the country has strong institutions and above-average state capacity for the region, part of the explanation for this lies in the inability of societal actors to form coalitions pushing the necessary reforms.⁹⁴ On the one hand, strong teachers unions have stalled educational reform in the country under both centre-right and leftist governments.⁹⁵ On the other, leading export sectors –mostly cattle exporters and agro-industrial production of soybeans or rice– are capital-intensive activities posing little pressure on governments for expanding the skilled workforce. In fact, with the rapid incorporation of technology in the last two decades, these sectors have demanded less but better-skilled labour.⁹⁶

⁹² Juan A. Bogliaccini, and Federico Rodríguez, 'Education system institutions and educational inequalities in Uruguay', *CEPAL Review* 116:august (2015): pp.85-99

⁹³ Data from UNESCO UIS database.

⁹⁴ See Bogliaccini and Madariaga, 'State capacity and social investment'.

⁹⁵ Pribble, *Welfare and Party Politics*

⁹⁶ See Ignacio Apella and Gonzalo Zunino. *Technological change and the labor market in Argentina and Uruguay: a task content analysis* (Washington D.C: The World Bank, 2017).

Overall, the ‘Dual Academic-oriented’ profile has lagged behind the universalizing group in terms of incorporation through skills formation. The legacy of incorporation – including strong unions– has increased the costs of educational reform, while low skills demand –and an uncoordinated employer sector– has reduced reform pressures.

Dual VET-oriented Profile

The profile we name 'Dual VET-oriented' combines a moderate and uneven advance in coverage, albeit with a prevalence of VET at both secondary and post-secondary levels. This group is the most heterogeneous of the four and resembles what in the comparative capitalisms literature are labelled hybrid or mixed regimes.⁹⁷ It includes countries as diverse as El Salvador, Mexico, Ecuador and Panama. Here, inclusion into social protection and in particular education has been a late if still uneven achievement of the second incorporation period. Improvement seems confined to extending primary education, but with disappointing gains, particularly in terms of secondary education. Ecuador appears to be the country closest to entering the universalizing group. In fact, Ecuador has improved significantly its indicators in all levels, has heavily invested in both academic and VET tertiary education, and has significantly improved cognitive scores, while still falling behind the universalizing group’s great catch-up (see Table 2).⁹⁸ In the case of Panama, although it had a higher development of social policy during the twentieth century, its lower educational indicators cluster the country with Mexico and Ecuador rather than Costa Rica, Argentina and Uruguay. Finally, El Salvador is a country that seems to be exiting the group of exclusionary profiles and entering the Dual VET-oriented, with important improvements in primary education but less impressive ones in secondary education and quality.

A more interesting case in this regime is Mexico, which has made some improvements over time yet not enough to put the country on a course towards reaching the universalizing group, as seems to be the case with Ecuador. In spite of some

⁹⁷ See Schneider and Paunescu, 'Changing varieties of capitalism'.

⁹⁸ See Ben Ross Schneider, Pablo Cevallos Estarellas and Barbara Bruns, 'The Politics of Transforming Education in Ecuador: Confrontation and Continuity, 2006-17' *RISE Working Paper* 18/021 (Research on Improving Systems of Education, 2018).

advancement, particularly in reducing the population with less than five years of education, 50% of the country's population between 20 and 24 years old still does not complete secondary education (Table 2). Moreover, the flow of skills doesn't seem to be geared toward increasing the stock of skills, with enrollment in both secondary and tertiary education among the lowest in the region, only ahead of countries in the Exclusionary group (Table 1). This, coupled with stark regional disparities and large labour market informality, make the prospect of incorporation through skills formation a difficult one.

Although Mexico was among the most advanced countries in the region in terms of industrialization, the country was not able to form a strong and coordinated skills formation system, as Brazil did.⁹⁹ Unlike in Brazil, where the S-system became a central focus for the expansion of skills formation in time, during the second half of the twentieth century Mexico saw the emergence of a myriad of state institutions catering to the necessities of specific sectors and firms, without coordination and with an increasing overlapping of functions in time. A brief historical recount and the number of institutions and names that arise, serves to make the point. In the mid-1960s Mexico founded the CECATIs and ICATs, training institutions for employed workers under the umbrella of the Ministry of Education; during the 1970s, other institutions were founded to cover secondary VET: DGETA's for agrarian sciences, the DGETI's for industrial sciences, and the DGECyTM for maritime and fishing sciences. These were catalogued as specialized "bachilleratos tecnológicos", allowing access to tertiary education. Meanwhile a different institution, CONALEP, was founded to provide dual-education and direct labour-market access. Finally, the old Instituto Politécnico Nacional (IPN) was supposed to concentrate on post-secondary studies. As the country entered the Washington Consensus, the old ISI institutions adapted by reducing their specialization and increasing the overlapping of their functions, therefore reinforcing their lack of coordination, which, according to some experts, is the main drawback of the system.¹⁰⁰ For example, CONALEP courses no longer give direct labour market access alone but can now lead to higher education, while the "bachilleratos

⁹⁹ See Ivico Ahumada Lobo, 'Formación profesional y capacitación en México', *Serie Macroeconomía del Desarrollo* n. 153 (2014), México DF: Comisión Económica para América Latina y el Caribe (CEPAL), pp. 54-55.

¹⁰⁰ OECD, *Mexico. Policy priorities to upgrade the skills and knowledge of mexicans for greater productivity and innovation* (Paris: OECD, 2015).

tecnológicos” provide, today, an undifferentiated supply of courses, mostly in the realm of administrative sciences.¹⁰¹

The proliferation of institutions and programs also obscures an inability to effectively tackle existing problems and gaps in terms of skills formation. One example is the active labour market programs linked to the public and private supply of VET. In the context of the debt crisis, Mexico established the PROBECAT program to provide a monetary transfer and short-term training to the unemployed. PROBECAT was made permanent in 1988, establishing a training scholarship for the (mostly young) unemployed that could be redeemed in a number of ways in school-based (public and private) and in-firm training, but without awarding a certificate for the acquired competencies. This problem remained over time after each iteration of the program –which changed names to SICAT in 2002 and again to BÉCATE in 2005, while maintaining its basic structure and benefits– and became a key explanation for the program’s shortcomings in terms of effective skills formation and labour market incorporation.¹⁰² This occurred in spite of the program being one of the “most evaluated programs in Latin America”.¹⁰³ Today, the new flagship scholarships program of the presidency of Andrés Manuel López Obrador, “Jóvenes construyendo futuro”, follows in the same footsteps, providing funding for in-firm training with few obligations as to the type and content of training and the possible certification of the acquired competencies.

This situation also reflected pervasive regional disparities in terms of economic development and the resilience of the informal segment of the labour market. After entering NAFTA, the dynamic northern regions were revitalized by the arrival of MNCs strengthening productive and trade links with the US. Inversely, the more backward southern regions have maintained productive structures closer to their southern Central-American neighbours. However, fierce competition from China and the displacement of US demand for more skilled production to this country has reduced the demand for higher-

¹⁰¹ Ahumada Lobo ‘Formación profesional’.

¹⁰² Ahumada Lobo ‘Formación profesional’, p. 30.

¹⁰³ Ivico Ahumada Lobo, ‘Requerimientos para una efectiva política de capacitación de los trabajadores’, in José Luis Calva (coord.), *Educación, ciencia, tecnología y competitividad*, (Ciudad de México: UNAM / Porrúa, 2007), p. 296.

skilled workers even in the more dynamic industries.¹⁰⁴ As a result, manufacturing employment has shrunk and this sector has provided only meagre impulse to sustain employment and economic growth, resulting in a decreasing demand for skilled workers, and many students with VET degrees have ended up in the informal sector.¹⁰⁵

In sum, the Dual VET-oriented profile is the most heterogeneous of the four. The stock of skills is moderate, evidencing only partial success of incorporation efforts in different periods. As the Mexican case exemplifies, this is due to, among other things, lack of coordination and a proliferation of institutions and programs that do not effectively tackle existing problems and gaps. At the same time, the flows of skills reflect a sluggish skills demand and overall inability to upgrade old institutions to new purposes.

Conclusions

Following the comparative capitalisms literature, in this article we have attempted to provide a novel characterization of the intra-regional variation in skills formation systems in Latin America as a necessary stage toward understanding the politics behind that variation. We claim that while sharing certain underlying characteristics, skills formation systems are distinct from welfare regimes and should be analysed as potentially complementary but separate structures, offering particular characteristics for social incorporation strategies and for economic development.

Our analysis challenges the dominant idea that the region is characterized by an overall pattern of skills supply, as depicted in the HME model. While showing that the region shares common patterns, underlying differences in skills supply generate distinctive configurations. Overall, investment in skills remains scarce as economic structures dominated by low-productivity sectors demand mostly general and low skills, relative to advanced economies. However, while this is true for the entire region, we have highlighted meaningful intra-regional differences, evidenced by the stock of skills as well as its current flows in terms of quantity, quality and type. Based on these indicators, we have argued for

¹⁰⁴ John Sargent and Linda Matthews, 'Capital Intensity, Technology Intensity, and Skill Development in Post China/WTO Maquiladoras', *World Development* 36:4 (2008), pp. 541–559.

¹⁰⁵ Ahumada Lobo, 'Formación profesional', pp. 54-55.

the existence of four skills supply profiles in the region: Universalizing, Dual Academic-Oriented, Dual-VET Oriented and Exclusionary.

The Universalizing group provides overall high stocks of general skills, high flows in secondary education, increasing quality and a preference for VET alternatives, particularly at the post-secondary level. Apart from Chile, and despite improvements, they still lag in terms of the universalization of tertiary education. The period of the commodity boom provided a crucial context for countries in this group to increase their provision and level of skills, and countries hitherto considered laggards have jumped on the bandwagon of social incorporation thanks to their successful skills formation strategies. A combination of private and state provision and an increasing role for VET alternatives seems to be behind these success stories. Despite starting from a comparatively more advanced situation, Chile continued to improve in all its indicators. The fact that the country still shows significant quality differentials among educational systems and levels and has not been able to catch up with advanced countries, suggests that there is still a large margin for governments in general to improve in their skills formation incorporation strategies. The comparison between the successful case of Brazil and those of Bolivia and Chile shows the importance of employer coordination in the context of skills formation systems with a large component of private provision.

Conversely, other formerly more advanced countries in the region like Argentina, Costa Rica and Uruguay, have been unable to further advance in closing skills formation gaps. Therefore, at a relatively high level of stocks for the region, they have remained behind in terms of quantity flows, have seen their quality reduced, and have relied mostly on academic-oriented programs. In this context, this has consolidated dual systems where opportunities are highly segmented and educational tracks try to conduct the best students into accessing tertiary education without offering meaningful alternatives to those left behind. Conversely, countries in the 'Dual VET-oriented' group share with the latter the duality of their skills formation trajectories, though at a comparatively lower level due to lower accumulated stocks of skills. They have advanced unevenly in the last decades, mostly reducing gaps in primary education, but have been far from successful in terms of universalizing secondary education and in improving quality. Unlike the other dual profile group members, they present a high presence of VET alternatives in both secondary and

post-secondary levels. Finally, the Exclusionary profile shows disappointing results in terms of stocks and flows of skills. As we have shown through the case of Guatemala, in these countries –also characterized by large agricultural and low-productivity sectors– the scant demand for skills is satisfied through business solutions, with little state presence. Unlike in the dual groups, in this case a relatively successful educational track is restricted to a very few. In a context of very low state capacities, employers have solved their small requirements of skilled labour by managing highly coordinated vocational training institutions while leaving the immense majority lacking the most basic skills even in terms of completion of primary education.

Overall, the proposed skills profiles are meaningful for understanding the opportunities and challenges of development-oriented policies in a region in which both production and political regimes have changed dramatically since the end of inward-oriented growth models. The picture we paint suggests that in many cases there seems to be an inconsistency between overall human and economic development levels and investment in skills formation. In the aftermath of the liberalization period, old regional leaders such as Argentina, Costa Rica and Uruguay have lost steam against rapid improvers such as Bolivia, Colombia and Brazil. These differences are meaningful precisely because they signal diverse political and economic trajectories and, arguably, their future evolution. In other words, they present interesting grounds for a more fine-grained investigation of the politics behind different skills supply profiles.