

THE MAKING OF TVET SYSTEMS IN MIDDLE-INCOME COUNTRIES: INSIGHTS ON BRAZIL AND CHILE

Article

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Abstract: Although the challenges of Technical and Vocational Education and Training (TVET) have become apparent in middle-income countries, the making of these systems has not been systematically theorised and compared. This article discusses such processes in Brazil—a recognised emerging economy, and Chile—one of the last economies to join the high income group. The former has built a standardised TVET system dominated by both the state and companies. In the latter, the standardisation of TVET is low and neither the state nor companies are very active. Drawing on international and the national literatures, the article points at two important factors that have significantly shaped TVET systems in these countries. Firstly, the international agenda has contributed to expanding these systems within the wider framework of lifelong learning policies. Secondly, endogenous sequences of political change and institutional consolidation have configured particular arrangements in each country. Currently, Brazil and Chile face major challenges in integrating sub-sectors of TVET and overcoming inequalities.

Keywords: TVET. Public policies. Middle-income countries. Comparative education.

Preprint. Final version:

Xavier Rambla, Remi Castioni & Leandro Sepúlveda (2020) The making of TVET systems in middle-income countries: insights on Brazil and Chile, *Journal of Education and Work*, 33:1, 67-80, DOI: 10.1080/13639080.2019.1704704

Introduction

In the 1960s international organisations started to discuss Technical and Vocational Education and Training (TVET). For instance, the first director of the UNESCO International Institute for Educational Planning complained of the lack of capacity of education systems to produce the necessary quantity and types of manpower (Coombs, 1968: 74). In 1975, the European Common Market formed a specialised agency (CEDEFOP) to address this issue. In Latin America, the International Labour Organisation created the Inter-American Centre for Knowledge Development in Vocational Training (CINTERFOR), that is based in Uruguay. At the same time, the Conference of Ministers of Education of CEPAL (CME-CEPAL, 1966) started to encourage technical training for manufacturing, because at that time mainstream forecasts estimated the continent would follow a path of intense industrialisation.

Nonetheless, in the following decades the World Bank sidelined TVET on the grounds that it did not yield as high rates of return as primary education. When this organisation strictly conditioned the reforms of highly indebted countries in the eighties, their governments had to concentrate public spending on primary education at the expense of secondary and vocational education. Graduates of primary education were expected to find opportunities for vocational education in the private sector (Heyneman, 2003).

Over time, in the early 2000s international and regional organisations became concerned with TVET again. UNESCO created a specialised agency (UNEVOC), which launched the very concept of TVET. CEDEFOP continued working in the European Union, and other regional organisations such as the Common Market of the Southern Cone (MERCOSUL) established a specialised committee to coordinate the TVET of the member states. More recent developments showcase interest in the smart regulation and development of TVET, not least because the *Education for All Monitoring Report*, the OECD's *Skills Strategy*, the EU's *Youth Guarantee Scheme*, and Sustainable Development Goals (4.3 and 4.4) have prioritised this issue (United Nations General Assembly, 2015).

This article acknowledges the research and policies that endeavour to widen the focus of TVET. The restrictive interest of human capital theory on rates of return is no longer acceptable. Currently, leading scholars notice that vocational education and training should not be reduced to employment rates, individual productivity and monetary returns. These scholars notice that qualification frameworks, career guidance services, quality assurance schemes and labour market intelligence configure very different TVET systems. The literature discusses whether these systems convey meaningful pedagogies and eventually foster social justice (McGrath & Powell, 2016).

In this context, understanding the formation of TVET systems in Brazil and Chile assumes relevance. The first section outlines a theoretical argument and a set of research questions. The second section justifies the validity of this comparative analysis. The third and fourth sections elaborate on the cases of Brazil and Chile. A final section compares these two cases.

The making of TVET systems

The literature on international development has recently identified a 'middle-income trap'. The point is that many middle-income economies have had growth accelerations but have flat lined before achieving a high-income status. Exports of raw materials and low value-added manufactures typically

trigger those accelerations, but normally the strength of these factors declines above a tipping point. In this view, middle-income economies can only progress by competing with more sophisticated exporting countries that have complex innovation systems. A key hypothesis states that sophisticated exports require quite different human resources and institutional capacities that many middle-income economies lack (Eichengreen, Park & Shin, 2014). However, this literature claims that strong human capital policies have, in some cases, pushed economies into a high-income status at a more rapid pace than other ones (Agénor, 2017).

On these grounds, the World Bank advises governments to build systems of mature ‘workforce development’ by improving their strategy, governance and service delivery so that policies become mutually reinforcing and connect learning and doing. In this view, sophisticated policies favour employers who engage in vocational education and training, that their graduates can earn a good income and that all stakeholders are encouraged to learn, thereby making the whole system more resilient.

In the perspective of the Bank, the rational choice of TVET policies greatly contributes to developing a mature workforce that upgrades human capital (SABER-WfD, 2013: 4, 17). Although governments are often unable to conduct experiments that produce strong evidence of the impact of policies, decision-makers can obtain information by observing the experience of a given policy in a rich sample of countries. In these cases, decision-makers borrow policies where they appear applicable (Mukand & Rodrik, 2005).

However, this argument neglects important processes of policy making in the field of education. Contrary to these hypotheses, policy borrowing and transfer depend on context as much as on content. Decision-makers do not solve dilemmas in the abstract but within complex social networks that link politicians and officers who work in ministries and international organisations. All political players frame international best practices according to their beliefs on effectiveness, economic development, justice, rights and other general moral values (Steiner-Khamisi & Waldow, 2012). Within countries, decision-making is an interactive process in which government, business, labour and other strands of the civil society play a role. For this reason, one-size-fits-all institutional patterns do not reproduce the same effects everywhere (Evans, 2004). Instead, varying coalitions of actors succeed in leading change at different times. When the outcome of political struggles sets the conditions of institutional functioning, the new institutional routines posit the conditions that trigger the formation of other coalitions. These sequences of stability and change constitute distinct patterns of structural elaboration (Maurer, 2012).

As such, the making of TVET systems is not the outcome of rational choices among clearly defined policies. Instead, circuitous processes of international policy transfer and patterns of interaction between governments and business have fashioned these systems over long periods of time.

The article addresses a first group of research questions on the interaction between governments and international policy actors in Brazil and Chile and assesses the international influence on the development of TVET systems. We should see this analysis in terms of the change in the international climate in which, for example, the SDGs agreed on openly including TVET in key goals and benchmarks (King, 2015).

A second set of research questions contrasts this initial insight with the processes of structural elaboration of TVET systems in Brazil and Chile. Have multinational corporations cooperated with governments? Have employers' associations, unions and private providers coordinated their action? Are employers interested on general or specific types of skills?

The Theoretical Perspective on a Comparison of TVET in Brazil and Chile

Business and governments must necessarily contribute to any design of a TVET system that deals with possible inconsistencies between the legislation, the administrative procedures and other aspects of education and employment policies. Comparative research has identified a group of (normally, Anglo-Saxon) Liberal Market Economies (LMEs) where these actors mostly draw on market coordination, and another group of Coordinated Market Economies (CME; e.g. Germany, Japan, Sweden) where they mostly draw on strategic coordination. Market coordination sets the rules of competition, while strategic competition consists of sharing interests through networks of top officers across companies. Although there is evidence of both types everywhere, the predominance of either market or strategic coordination distinguishes LMEs from CMEs (Hall & Gingerich, 2009). The specialised literature on TVET has observed that coordination between these actors shapes particular modes of skills formation, which are outcomes of contingent and contentious processes of conflict and negotiation (Busemeyer, 2009; Busemeyer & Trampush, 2011). Our analysis of Brazil and Chile will inquire whether and which coordination arrangements prevail in each country. In turn, this will be prompted by an analysis of the power structures that have informed the nature of coordination in both countries. While Brazil has traditionally looked for models in CMEs, in the 1980s the Chilean dictatorship introduced reforms that were inspired on LMEs.

Often, coordination is not the consequence of an explicit decision but the outcome of complex interactions in which actors deploy their own strategies and meet other actors who pursue their own strategies. International comparative analyses of skill formation in a variety of countries have concluded that these complex interactions have been determinant in CMEs. There, unions have launched campaigns and strikes to defend the social rights of workers in the same way as in many other countries. But these conflicts have evolved into cooperative arrangements because employers have become interested in maintaining a specialised workforce at the same time as workers received guarantees of some social rights (Busemeyer, 2009).

Although it is not plausible to extrapolate this finding to many other countries, it has inspired some research on middle-income countries. In fact, many multinational corporations are reluctant to cooperate with governments, particularly if their institutional capacity is weaker than in high-income countries (Lauder, Brown & Ashton, 2008; Pilz & Li, 2014). However, some studies show that the governments of Chile, the Dominican Republic, Jordan, Ireland and Singapore have succeeded in upgrading whole economic sectors to higher value-added activities by adopting "strategic, pro-active, and coherent (...) policies for capability advancement" (Paus, 2012: 115). So, it would not be plausible to assume that these countries either reproduce the cooperative arrangements of CMEs or completely fail to do so. It is necessary to spell out how complex interactions produce a variety of arrangements.

From the theoretical literature, the two questions that were signalled in the introduction to this paper

emerge: what international influences in any have shaped the TVET systems in Brazil and Chile and what have been the key internal relationships between business and governments that have structured TVET in these countries.

A comparative analysis of Brazil and Chile

This section addresses the research questions in order to underpin the relevance of a comparative analysis of Brazil and Chile. While Table 1 and 2 highlight commonalities and differences with both Liberal Market Economies (LME) and CMEs, Table 3 lays out the specific answers for the two selected countries.

Table 1 indicates that the institutional arrangements of LMEs and CMEs have been observed in quite different conditions to the socio-economic outlook of Brazil and Chile, although some aspects are better in the latter. On the one hand, not only the product per capita of Brazil and Chile is lower but also the gap between the HDI and the inequality-adjusted HDI is higher (like other Latin American countries). On the other hand, the HDI rank is lower than its GNPpc rank in Brazil whereas it is higher in Chile. In this country, high school enrolment rates actually improve the HDI.

TABLE 1 BY HERE

According to Table 2, our comparative analysis should account for differences regarding the role of the state and companies and the degree of standardisation as well as for similarity regarding the low degree of stratification. Although the literature does not justify a general assessment of all the criteria proposed by Pilz (2016), some of his key distinctions are noticeable. First, while the state and the business community have dominated skills formation in Brazil, companies have not played a major role in Chile. In the former, both parties have collaborated in vocational training for decades. In the latter, business has played a very weak role while government has engaged in standardising the curriculum, funding infrastructure and building institutional capacity. Second, school systems are not clearly stratified into academic and vocational tracks in any of the two countries. Most students are supposed to follow the same school track until they are sixteen. At upper levels, class origins strongly influence who enrolls in upper VET and who enrolls in higher education. Third, in Brazil TVET is highly standardised as far as teacher training, budget, the curriculum and school-leaving age are concerned. In Chile, secondary TVET is poorly aligned with tertiary TVET and most programmes are not articulated with the labour market (OECD, 2017). Finally, although Pilz (2016) distinguishes teacher- and student-centred as well as theory- and practice-based pedagogies, so far the available evidence is too poor to underpin a conclusion on any of the two countries.

TABLE 2 BY HERE

Table 3 maps out tentative answers to the research questions. Governments have engaged with the international agenda in both countries. In each of them, different administrations were sensitive to international debates in the fifties and sixties, and were submitted to the conditions of the World Bank in the eighties. Recent administrations have also been aware of UNEVOC recommendations. On the other hand, the patterns of interaction between business and governments are dissimilar. Multinational corporations have not engaged with TVET policies in any country. National employers have been more

active in Brazil, while private providers of TVET are more present in Chile, mostly in upper-secondary TVET programmes.

TABLE 3 BY HERE

This comparative analysis follows the logics of abduction. Basically, abduction sketches explanatory hypotheses of case studies by scrutinising the endogenous and the exogenous factors of a phenomenon in order to contrast previous hypotheses with empirical evidence and to illuminate new hypotheses. Our comparative analysis starts with contextualising TVET systems in Brazil and Chile, then proceeds to answer the same research questions (on international influences and collaboration between business and government), and finally highlights two further hypotheses (on institutional coordination and inequalities) (Phillips and Schweisfurth, 2014: 119; Swedberg, 2017).

TVET policy reforms in Brazil

In 1909, the first vocational education and training schools were created. Some decades afterwards, in 1937 the Constitution of the New State regulated vocational training for the first time. Significantly, that piece of legislation established that secondary education was to “train the leading elites of the country” while vocational education was to “provide appropriate training to the offspring of workers, to the helpless, the unlucky and those who have to enter the labour force early” (Werebbe, 1994: 57). In the 1940s, the Framework Act(s) on Vocational Education in the manufacturing (Act n. 4073/1942) and the commercial (Act n. 6141/1943) sectors confirmed this dichotomy. Both the National System of Industrial Apprenticeship (SENAI) and the National System of Commercial Apprenticeship (SENAC) transformed the already existing apprentice schools, which were integrated in completely different institutions to the school system.

In the fifties and sixties, Brazil experimented intensive economic growth and significant increases of GNI per capita. Essentially, the acceleration of the economic output was the consequence of industrialisation. The new industries used SENAI and trained their workers on the job, in part because they did not have expert workers. Many people found a job in civil construction, since infrastructures became an important policy goal. Governments invested heavily in building roads, and decided to build the new capital of Brasilia from scratch. In addition, most industries concentrated in the urban axis between Rio de Janeiro and Sao Paulo. Many peasants migrated from the old plantations of the North East to work in the new factories that started to operate in these big cities. At that time, President Juscelino Kubitschek created the Federal Centres of Vocational Education as one more measure of a wide-ranging reform.

Between 1964 and 1985 authoritarian governments maintained a similar interest in TVET that was instrumental to industrialisation. These governments attempted to follow the guidelines issued by the World Bank. The dictatorship centralised education under the power of the Federation. Thus, the single official party could hoard the appointment of teachers. At the same time, the government launched intensive plans to foster literacy and expand vocational education. These plans aimed at approaching education to production. In order to avoid a massive expansion of higher education, policy-makers opened many courses for middle- rank technicians and assistants. At the end of this period the 1980s

debt crisis severely reduced the budget for public policies such as education.

When the parliament of Brazil approved the Federal Constitution in 1988, it also outlined a TVET system. Remarkably, the Constitution mentioned professional qualification in the very definition of the right to education:

Education is a right of everybody. In collaboration with society, the state and the family are responsible for promoting education in order to guarantee that all citizens achieve their full personal development. The state and the family guarantee that citizens are also capable to perform the practice of citizenship and become qualified for work (Constitution of Brazil: Chapter III, Title V, article 205).

The Constitution established a Fund for the Protection of Workers (FAT, in Portuguese). Government, employers and unions (CODEFAT) sit in the FAT Deliberative Council. FAT revenue comes from employers' contributions to deliver unemployment and other benefits (arts. 201 and 209). Currently, the fund manages a US\$ 100 billion endowment, with a yearly revenue of about US\$ 25 billion. A big share (40%) is allocated to the National Bank of Economic and Social Development (BNDES), which pays for new employment programmes, unemployment benefits (for 8 million workers), bonus payments (for 13 million workers), vocational training and labour market intermediaries (about 2000 providers compete for public calls). These benefits are linked to TVET according to the ILO Convention number 88 from 1948.

Since the Constitution was passed, the FAT has funded SENAI, SENAC and similar schemes for specific trades. Companies ask for training courses in close interaction with the officers of these institutions. Nevertheless, this training has not matched the needs of the labour market. In 2007, only 2,9% of the labour force worked on the IT sector but 11,48% of SENAI graduates obtained a qualification in this speciality. At the opposite side, 34,98% of the labour force worked in retail and services, but 5,31% of the graduates were qualified for these economic sectors (Ebling, 2012).

In the nineties, President Fernando Henrique Cardoso and his minister of education, Paulo Renato de Souza (1995-2002), introduced the concepts of individual human capital and personal responsibility for skills and qualification. The Federal Act on the Guidelines and the Bases of Education (Act n. 9394/1996) dealt with TVET in articles 36 to 42. The National Plan for TVET aspired to reach at last one fifth of the labour force. Although many youth remained excluded, currently about 10% of the 8 million students enrolled in the education system undertake TVET programmes (OECD, 2014).

Between 2003 and 2016, the main policy of the Lula and Rousseff administrations lied on building an integrated system. In 2008 the parliament decided that vocational education would be delivered either as a subject of the academic education curriculum or as a programme of further education. The National Plan for Professional Qualification also attempted to guarantee training for at least 160 hours. However, many students only attended vocational education part time in further education programmes. Private provision catered to about 40% of students. Although the new Federal Institutes of Education, Science and Technology started to work in 2008, TVET places grew less than undergraduate, graduate and doctoral places in higher education (Magalhães & Cationi, 2018).

In order to strengthen the educational component of VET, the Federal government created

PRONATEC (Programme for Expanding TVET and Employment, Act 12.513/2011), which was expected to articulate the whole TVET system as well as overcoming FAT shortcomings in collaborating with non-profits. Unlike the previous national plans for TVET and qualifications, unions and employer associations did not play any role in PRONATEC (Balestro et al, 2011). PRONATEC is aligned with the 2011-2021 National Educational Plan (Act 13.005/2014), which implements and updates a constitutional requirement every decade. The Eleventh Goal of the National Educational Plan aims at multiplying by three the amount of students registered in secondary education related to TVET. Half of the increase is to be provided by public institutions. Although the Ministry argues that PRONATEC had catered to about 8 million people, its funding was severely cut down in 2015 (Fasolo & Castioni, 2017).

PRONATEC funded students to undertake courses in either SENAI or SENAC or in Federal Institutes. The Ministry of Education worked with other ministries and local stakeholders in order to design PRONATEC training courses. The Ministry of Social Development actually demanded the bulk of the courses. This ministry maintained a continuous conversation with local employers. It also used the courses as a resource for the beneficiaries of welfare (*Bolsa Família*). So far, observers notice a significant social divide between the intake of SENAI and SENAC and the intake of Federal Institutes. The former mostly attracts students coming from families with low socio-economic status, while the latter increasingly enrol middle-class students (Fasolo & Castioni, 2017).

In Brazil, the school system and the Public Employment Service have not agreed on a common qualifications framework. Schools deliver academic credentials according to the educational legislation. Both FAT and PRONATEC provide training courses according to the official classification of occupations. Academic credentials and qualifications for occupations are not aligned at all. Interestingly, the majority of occupations do not require a basic educational credential (Castioni, 2013).

To wrap up, business and governments have collaborated in building apprenticeship schemes for some trades. Governments are responsible for the school system. They are committed to the goals that the constitution grounds on an ambitious understanding of the right to education. However, vocational training for employment is not aligned with school-based vocational education. The respective ministries have not even defined a common qualifications framework.

TVET policy reforms in Chile

In 1849, the School of Arts and Crafts was established in Santiago de Chile in order to train middle-rank technicians for the incipient national industry. The School became the State Technical University in 1947. In 1941, the Ministry of Education established the Department of Vocational Education, which mostly delivered low-prestige courses on home economics to female students (Loyola, 2018). In 1952, some reforms were piloted in order to articulate Industrial Training, Feminine Technical Training and Commercial Training, but all these schemes remained isolated from the regular school system.

In 1965, Eduardo Frei Montalva administration attempted to reform academic and vocational education altogether for the first time. That reform enlarged the length of compulsory schooling by reducing secondary education to four years of instruction. Students either followed a purely academic or a mixed academic-vocational track within the same comprehensive schools during this secondary education (Schiefelbein, 1971). Drawing on the contemporary international interest in human capital, the reform

facilitated students of vocational education to get a secondary education credential. Thus, these graduates were supposed to become the middle cadres of industrial corporations (Núñez, 1990). The new curriculum of vocational education combined general education with more specialised training (Leyton, 2002).

The most remarkable change consisted of including TVET within regular secondary education so that students eventually obtained the official certificate of secondary education and became eligible for higher education. The official decree was quite explicit about this objective:

Technical and Vocational Education will allow students to complete 12 years of instruction. Its goal will be that students manage to perform the trades and technical functions required by the economic, social and cultural development of the country. A further goal is that graduates are able to enrol in higher education. Technical and Vocational Education will integrate previous general studies as much as possible (Decree 1965/ 27952).

At the same time, a parallel reform created the National Institute for Vocational Training (INACAP). Although INACAP was a private foundation, the government controlled the board. During the left-wing administration of Popular Unity (1970- 73) the government and the unions managed the institute. Interestingly, at that moment the key mission was training the necessary amount of human resources that the national development plans calculated. In a similar way as the State Technical University, INACAP emphasised the professional promotion of middle-rank employees:

The Institute will aim at providing workers with the means and conditions for their technical training and professional promotion in the frame of social and economic development plans as well as programmes targeted to increase the productivity of companies (Cerda, 1975).

General Pinochet regime completely changed the education system by endowing municipalities with the main responsibility and widening the room for private providers. As far as TVET is concerned, in 1981 academic secondary education was divided into purely academic, mixed and purely vocational tracks. But eventually, since this reform was only implemented at a very small scale, the comprehensive secondary school was maintained as it had been approved in 1965. In the whole country, around 300 schools started to deliver vocational education, mostly in trades related to industry (Corvalán and Santibáñez, 1987).

In order to approach education and employment, the government also outsourced the management of seventy TVET institutions to the business sector. The previous regulations regarding curriculum and specialities were lifted so that each institution was allowed to choose which areas of training were delivered. Since the board of INACAP became completely private, the institute started to operate as a for-profit provider of tertiary- level vocational training (until 2017). Thus, the new international agenda endorsed by the Washington Consensus resonated with these reforms. That agenda encouraged governments to de- regulate public services at the same time as the business sector had to play a major role in vocational training.

However, in the 1980s that agenda had contradictory effects and was unable to deliver the expected results (Cox, 1986). Firstly, since any further measure bridged the divide between intellectual and manual labour, the business-friendly managers of vocational training institutions did not eventually

strengthen significant links with the labour market. Secondly, since the new private supply of vocational training merely responded to a very narrow assessment of tasks, the outcome was disappointing in terms of pedagogic quality and career guidance (Miranda, 2003; Núñez, 1991). Thirdly, enrolment in vocational tracks eventually declined. Analysts highlighted two different factors of such decline. On the one hand, public spending on vocational tracks was significantly reduced not only with regard to the GDP but also with regard to public spending on academic tracks. On the other hand, new voucher schools offered a growing number of places of vocational tertiary education. Since this level was extremely de-regulated, this expansion did neither guarantee sufficient quality of training nor clear correspondence with the labour market (Suspanc, 1995).

In the nineties, new democratic governments attempted to reform the educational system in order to balance the impact of the privatisation and fiscal restraint policies enacted by the dictatorship. These reforms did not transform the institutional arrangements based on market-driven schemes, but the new authorities struggled to strengthen the role of the state in designing policies and allocating resources. Then, an array of wide-ranging programmes were launched and public spending significantly increased. Apparently, the general guidelines of these reforms accepted the role of private providers and deployed public mechanisms to check their actions and thus regulate the system (Cox, 2005).

The new Ministry of Education adopted a set of emergency measures while a high-level commission worked on the design of more stable policies. Remarkably, the conclusions of this commission were critical of the current state of TVET, explicitly relied on the priority of general education, and assumed that TVET only had to develop general skills (Comité de Modernización Educativa, 1994: 40, 60, 80). In this vein, the national school system privileged academic over vocational tracks. In addition, international organisations reminded Chilean governments of the low rates of return of secondary education vocational programmes as well as of the narrow concept of qualifications and skills that these programmes normally adopted (Messina and Weinberg, 1996).

The Ministry of Education also invited many employers to discuss their vision of TVET in workshops. Although their voices were taken into account, the diversity of the participants remained problematic. In essence, these workshops concluded that vocational schools had to improve the soft skills of graduates regarding their attitude towards work and their capacity to share their work with a team rather than their specific professional knowledge. These conclusions emphasized that workers should become never-ending learners in a world of continuous technological change (Scharager and Rittershausen, 1992). However, crucial aspects were overlooked. On the one hand, although the share of free-lance jobs and small and medium firms in the labour force significantly grew, autonomy and entrepreneurship were not really discussed. On the other hand, it remained unclear whether training providers were aware of the skills that firms were demanding, particularly to what extent the labour market demanded the skills of the recent graduates (Tedesco, 1993).

The emergency measures conveyed more resources to vocational schools and endeavoured to improve their links with employers. Among them, an experimental measure consisted of creating a new type of high school that provided both academic and vocational courses (*polivalente*). However, over time only a few high schools adopted this structure. It became a last resource for some public schools whose intake had seriously declined. Ulterior policy reviews noticed that these high schools normally catered to the worst-off. Some of them attempted to cope with the challenge by reducing the academic curriculum to the basics and teaching vocational courses to low-income and low-performing students.

But this measure was not continued in the middle term, not least because policy reviewers became very critical of the approach (Cariola, 2003).

In 1998, the Chilean government approved a more ambitious reform that standardised the curricula of vocational education. For the first time, this reform aimed at articulating secondary TVET into a coherent system, although tertiary-level TVET was not included. Actually, some international organisations had reacted to the previously prevailing sceptic perspectives by emphasizing the importance of an encompassing approach and a national consensus for developing such systems (CEPAL- UNESCO: 1992). These messages resonated with the emerging conclusions of key national experts on the shortcomings of the current institutional arrangements. First, these experts noticed that administrative de-regulation had eventually multiplied educational programmes too much. They claimed that this fragmentation did not really underpin students' learning. Second, their reports unveiled an underground polarisation of vocational schools in terms of pedagogic quality. Third, these policy reviews also detected that many buildings were in significant decay and that many schools used obsolete tools to teach students. Fourth, didactic and bibliographical resources were often lacking. And finally, the reviews observed a remarkable mismatch between the profile of graduates and the available jobs (Montero, 1993; Salamé, 1993). One year before the admission of Chile, the OECD (2004) reported analogous shortcomings of vocational education in the country.

The new curriculum connected vocational education with higher education at the same time as it took skills for employment into account. This new curriculum defined forty-six specialities according to general guidelines that were open to revision and adaptation. It designed specific pathways in which students could accredit skills in successive modular units (*'formación diferenciada'*). This model still remains in force because it proved to be responsive enough to socio-economic transformations.

In 2002 an inter-ministry endeavour designed and launched *Chile Califica*, that was supported by the World Bank. This programme attempted to recognise the learning outcomes of on-the-job experience and training as well as to structure pathways that suited the life trajectories of most workers. Remarkably, this policy has been the main attempt to articulate a system encompassing secondary and tertiary vocational education as well as shorter vocational training programmes. However, despite the initial momentum, *Chile Califica* declined and was gradually fragmented as public funding diminished. There was not a strong political interest in building a true TVET system, since policy-makers relied on a market-friendly approach that sidelined effective regulation.

In contrast with the stable curriculum and the short-lived endeavour to improve qualifications, a series of official debates on the governance of the Chilean TVET system have ended in deadlock. Thus, the government convened the External Commission for Outlining a TVET System. In 2009 the Commission reported on the system of vocational training and labour intermediation. But any of these recommendations was really taken into account. Two big obstacles have been the political cost of departing from pro-market tenets as well as the institutional isolation of the government departments of education and labour. In 2017, a new commission proposed a set of guidelines that the new administration is unlikely to receive. In short, these suggestions highlight the need to introduce more flexible pathways, the potential of a public-private agency operating in the area of TVET, and the importance of linking courses with the qualifications framework (Ministry of Education- Chile, 2018).

Neither single companies nor employers' associations have played an active role in building a TVET

system in Chile. However, some of them have engaged in relevant initiatives for TVET. For instance, since the dictatorship a number of corporations run secondary schools throughout the country. Many provide support to the local schools. Corporate social responsibility inspires some activity in this sense. In addition, multinational companies operate in the mining sector, mostly based in the copper industry located in the North of the country. This industry uses high-level technology but only employs a small share of the labour force. These mining companies have supported the recent endeavours to improve the qualifications framework.

To wrap up, in the 1960s Chilean governments attempted to overhaul the national TVET system by reforming the school curriculum and creating a specialised agency (INACAP). Afterwards, the dictatorship introduced market-friendly provision of training. Democratic governments have partly succeeded in updating the school curriculum. However, the attempt to connect training with qualifications by means of Chile Califica was short-lived. Several national commissions have drafted new proposals of reform, but governments have not put these ideas into practice. As a consequence, the institutional scaffolding does not fully articulate programmes and levels. Market mechanisms eventually regulate skills supply.

The making of TVET systems in Brazil and Chile

In Brazil and Chile, the origins of TVET systems date back more than one hundred years. International influences inspired some reforms during the middle decades of the twentieth century. Afterwards, military dictatorships and the ulterior democratic governments decided to build these systems in different ways. By taking stock of the evidence presented in Table 1, Table 2 and the two previous sections, in this section we attempt to argue for plausible answers to the research questions listed in Table 3. To be precise, the literature on policy transfer and the literature on the varieties of capitalism have inspired our main research questions.

The literature on policy transfer interrogates the relationship between governments, international organisations and multinationals (Lauder et al, 2008; Jakobi, 2012; King, 2015; Pilz and Li (2014). Did governments follow international advice to promote vocational schools (1960s), sideline this educational programme (1980s) and build TVET systems (since 2000)? Apparently, international organisations exerted significant influence but prevailing institutional arrangements have maintained their specific logic in each country. By the middle decades of the twentieth century, interest in TVET policies grew in both countries as policy-makers lost trust in import-substitution industrialisation. Afterwards, both democratic and military governments were attentive to the international agenda in both Brazil and Chile. However, the timing, the providers and the orientation of TVET have been different.

About fifty years ago, President Kubitscheck of Brazil and President Frei Montalva of Chile drew on CEPAL and other mainstream international ideas to reform vocational education in their countries. Brazil attempted to complement a scheme of apprenticeships that had been borrowed from Germany twenty years before. Democratic as well as authoritarian administrations followed the contemporary international guidelines that recommended to underpin industrialisation in this way. In the long run, it is noticeable that Brazil started quite early to deploy TVET policies in which employers and unions collaborated (albeit partially). This TVET system underpins a large economy where internal demand has been an important driver of economic growth. Brazil is significantly different to Chile in this

aspect.

In 1965, Chile passed a comprehensive act that linked schooling with vocational education. But ten years later the dictatorship introduced market- driven TVET provision. When the World Bank downplayed the importance of TVET while endorsing Structural Adjustment Programmes in the eighties, in both countries governments concentrated the bulk of public resources on primary education. Afterwards, in Brazil Cardoso and Lula- Rousseff administrations as well as in Chile *Concertación* and *Alianza* administrations selectively drew on the global agenda in order to introduce other reforms that set the foundations of TVET systems. In the long run, school-based TVET prevailed, the market of private providers expanded quite substantially, and employers became more interested in general TVET than in collaborating with unions in particular economic sectors.

Our current knowledge of TVET in the two countries does not detect a relevant role of multinationals. As a rule, national industries have intervened in important decisions, although their participation has not been crucial. But multinationals have not launched noticeable strategies to pursue their particular interests. However, this general observation does not preclude that singular multinationals have deployed their schemes. Thus, in Chile mining seems to be the only important (but small) sector of the labour force where multinationals have deployed a general approach to TVET.

The literature on the varieties of capitalism explores the interaction between governments, unions and employers (Busemeyer and Trampush, 2011; Paus, 2012). Did unions and the business community cooperate with governments in order to build TVET systems in Brazil and Chile? The point is that governments have been the main protagonists. Since Brazilian corporations avail of a big internal market, SENAI and similar schemes have helped employers to train technicians in a variety of trades. However, governments fund these schemes and set the agenda. Lately, PRONATEC has become another pillar of the system driven by government. In Chile, employers have hardly contributed to develop TVET for a very simple reason. Despite flawed institutional coordination, Chilean corporations can already hire a large number of upper TVET graduates. Although a number of presidents have convened commissions on TVET, the conclusions have not been implemented.

These different approaches posit a telling hypothesis to understand the standardisation of TVET in both countries. Table 2 reports that both the state and companies are the main stakeholders in Brazil. The legal underpinning of both SENAI (and similar schemes) and PRONATEC indicate that training providers use similar budgets to deliver courses. These providers must also recruit teachers according to similar criteria and have to teach the same curriculum. In contrast, the activity of the state and companies is quite low in Chile, particularly as far as tertiary vocational education is concerned. Since private providers operate in an unregulated market, the budget, teaching staff and the curricula of courses vary greatly. Remarkably, the dominance of state and companies has rendered higher standardisation in Brazil, while the state has standardised the curriculum and funding but institutional coordination has remained weak in Chile.

So far, our comparative analysis of Brazil and Chile indicates that research questions on international influence and cooperation between employers and unions shed light on the making of TVET systems. Although it is not plausible to classify these two countries into clear-cut categories of countries that have been either sensitive or insensitive to external recommendations and have been either positive or negative examples of cooperation, these factors have greatly contributed to shape institutional systems

in Brazil and Chile. The general hypotheses remain quite plausible.

In addition, our comparative analysis suggests some further hypotheses.

Firstly, despite international influences and the initiatives of governments and important collaboration with employers in Brazil, TVET systems are not integrated in any of these two countries. The Brazilian TVET system suffers from a deep cleavage between the employment-related SENAI (and similar schemes) and the school system (including Federal Institutes). In Chile, governments have been active at drafting reforms and experimenting with curricula and qualification frameworks. However, they have not clearly succeeded in either involving big corporations or regulating private providers of vocational courses. The problem is specially poignant as far as tertiary vocational education is concerned. In short, the making of ‘mature’ TVET systems seems to be much more complex than the linear adoption of best practices that the World Bank endorses (SABER-WfD, 2013). Additionally, some international literature may have exaggerated the coherence of the Chilean system (Paus, 2012).

Secondly, the literature on TVET should pay more attention to the inequalities that Table 1 has estimated. Remarkably, inequality splits the intake of Federal Institutes and SENAI in Brazil. Besides, both the Cardoso and Lula initiatives to increase enrolment in vocational training did not meet the official goals. In Chile, inequality splits the intake of middle and tertiary vocational education. Besides, initiatives targeted to improve the skills of the worst-off have repeatedly failed, for instance, ‘*polivalente*’ schools, comprehensive programmes and the *Chile Califica* scheme of skills recognition.

Conclusion

Since the global agenda of TVET has reached a variety of economies such as Brazil and Chile, the main policy actors (i.e. governments, business and unions) have engaged in building an institutional system in each country. Both international influence and collaboration between policy actors have contributed to make TVET systems in these middle-income countries.

Our comparative exercise has been open to emerging hypotheses that the literature has not systematically discussed yet. Thus, accounts of Brazil and Chile strongly suggest that vocational education, vocational training and official standards do not fit into a coherent institutional system. In addition, inequality posits a huge challenge.

In brief, our paper concludes by inviting readers to frame the making of TVET systems within a wider understanding of Sustainable Development Goals. At least in Brazil and Chile, the connections between education, production and consumption, decent work and inequality are noteworthy.

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