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A country at risk of being left behind: Bolivia's quest for quality education

Lykke E. Andersen
Agnes Medinaceli
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quality education**

Lukke E. Andersen
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* This author solely worked on the 'synergies and complementarities between educational achievements, poverty, inequality, and decent work' question. Please note that this author did not contribute in any other sections.

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Preface

Southern Voice's flagship initiative on the State of the Sustainable Development Goals (SVSS) has generated country-level, evidence-based analysis to enrich the global dialogue on the 2030 Agenda. SVSS is neither a typical data-driven analysis of progress nor a traditional monitoring exercise of Sustainable Development Goals (SDGs). Instead, through this research initiative, we seek to identify the 'second-generation' challenges of the global agenda along with the policy responses to address them.

Our cross-country and regional analyses show that, on the one hand, national governments have made discernible progress in designing policy frameworks aligned with the Agenda. The governments have recognised the importance of not leaving the most vulnerable behind. On the other hand, weak coordination among relevant stakeholders and lack of horizontal coherence remain as challenges in achieving the Goals. Silo approaches continue to undermine national governments' ability to address systemic problems and create the necessary conditions to end poverty for all. Paucity of financial resources, along with no changes in the allocative priorities, are symptomatic of most of the developing countries' drive towards SDGs.

With these challenges in mind, the SVSS report identifies three layers of critical action and analysis. First, we explore who is potentially excluded from deriving the benefits of SDG delivery within the country's contextual realities. Second, we recognise that the Goals are not necessarily additive (even within a holistic agenda), and delve into the links between Goals and their interconnections, so as to maximise their synergies and protect against the trade-offs. Third, we explore the implications of the current conduct of the global institutions and policies for the national efforts to implement SDGs.

The present study aims to show the complexities of implementing and monitoring SDG 4 (quality education) in Bolivia.

We hope that this piece of Southern Voice's research will enlighten the thought process of the policy community and development practitioners in their efforts towards a fuller realisation of the 2030 Agenda.

Debapriya Bhattacharya, PhD

Team Leader, SVSS

Chair, Southern Voice and Distinguished Fellow, CPD



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Abstract

While the Sustainable Development Goals (SDGs) are universal, the challenges of reaching them are unique for each country. This paper provides a study of one particularly challenging case, namely SDG 4 (quality education) in Bolivia, an entire country at risk of being left behind due to a severe lack of data on educational achievements in the past two decades. Bolivia initiated an Education Revolution in 2007, aiming to make education more inclusive, equitable, collaborative, and relevant for reaching the ultimate goal of living well in harmony with nature. Implemented by law in 2010, this initiative appears to have been quite successful at getting almost all children through primary and secondary education, irrespective of gender, ethnicity, and income levels. Unfortunately, the labour market does not seem to value the education received. Indeed, for young, urban, non-indigenous men the first 15 years of education do nothing to increase their wages. This is at least partly due to global processes outside the control of the Bolivian Government, e.g. commodity prices, which impact the structure of the economy and the demand for qualified labour.

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Acronyms and abbreviations

FDI	Foreign Direct Investment
GDP	Gross Domestic Product
LLECE	Latin American Laboratory for Assessment of the Quality of Education
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPP	Purchasing Power Parity
SDG	Sustainable Development Goal
SDSN	Sustainable Development Solutions Network
SIMECAL	System of Measurement and Evaluation of Quality in Education
TIMMS	Trends in International Mathematics and Science Study
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

A country at risk of being left behind: Bolivia's quest for quality education

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Carla Maldonado and
Werner Hernani-Limarino*

Introduction

This study uses the case of Bolivia to show the complexities of implementing and monitoring SDG 4 (quality education) in some developing countries. The whole of Bolivia is at risk of getting left behind because of a severe lack of reliable data and analysis. The country has not participated in any international standardised tests (e.g. SIMECAL, PISA, TIMSS, LLECE) in the past two decades. As a result, it is one of the few countries in the Americas not included in the new Global Database on Education Quality, 1965–2015 (Altinok, Angrist & Patrinos, 2018), or in the World Bank's new Human Capital Index (World Bank, 2018).

The last time Bolivia participated in an international education achievement test, in 1997, public schools received the lowest scores in the region for reading comprehension in fourth grade (Casassús, Froemel, Palafox & Cusato, 1998). For several years after that, there was, understandably, a reluctance to repeat the experience, resulting in an almost complete lack of information on how students are performing in the Bolivian education system.

Education has always been a challenge in Bolivia, and it is important to acknowledge all changes that the Bolivian education system has experienced in the past century. In 1900, there were only 22,536 students in Bolivia, less than 200 educational establishments, and only one in five Bolivians could read (Contreras, 1999). The first mass education system in this Andean country was introduced in 1954, under the government of Victor Paz Estenssoro. As Contreras (1999) affirms, this reform did not emerge in response to popular demand, but followed the implementation of mass education systems in other parts of the world and aimed to promote the notion of citizenship. This reform expanded the coverage of education to rural sectors that had been excluded in the past (Cajías de la Vega, 1998). For many, it marked the shift from an elitist, discriminatory, and selective education system to one that was universal, free, and compulsory. Nevertheless, as Yapu (2008) points out, this education reform, which attempted to prioritise the inclusion of indigenous populations who only spoke native languages (such as Aymara, Quechua, and Guaraní), implemented a model that combined a technical, experimental, and

humanistic vision in Spanish. Additionally, this reform did not manage to improve the quality of education in rural areas due to the fact that the Ministry of Indigenous Affairs, the institution in charge of implementing the new education system in these communities, continued following the guidelines of the old system, which were based on the Spanish language (Contreras, 1999). In other words, it introduced a reform that did not match the realities and necessities of marginalised sectors and thus ended up excluding them again.

In 1994 another education reform was introduced. This neoliberal reform was influenced by several global trends, which were disseminated in global conferences such as in Jomtien in 1990, and prioritised access to education for all (Martínez, 1998; and Contreras, 1999). This reform aimed to improve the quality and efficiency of education by making it pertinent to the necessities of the people. In accordance with Contreras and Talavera Simoni (2003), this reform increased the public education system's coverage, improved primary education internal efficiency, and reduced access gaps between urban and rural areas.

In 2010 the Bolivian Government introduced a new education reform with the law 'Avelino Siñani–Elizardo Pérez'. This reform was conceived as an Education Revolution and aimed to liberate the country from neoliberalism, capitalism, patriarchalism, and imperialism through an education system that would make learning more inclusive of all the different groups. However, in the past 20 years, Bolivia has not participated in any international education assessments and the lack of a transparent and widely accepted system of monitoring student achievements, such as PISA or TIMSS, makes it difficult to assess the results of this reform and to construct a baseline for evaluating the implementation of SDG 4 (quality education) in Bolivia.

Despite the severe lack of data, this study tries to piece together some scattered and indirect evidence to answer the following research questions:

1. How are the SDGs in general, and SDG 4 in particular, being implemented in Bolivia?
2. Who has been left behind by the current Education Revolution in Bolivia, and why?
3. What are the critical systemic issues that affect the education system in Bolivia?
4. What are the synergies and complementarities between educational achievements, poverty, inequality, and decent work?

Carefully analysing already existing data, the research reached the surprising conclusion that virtually nobody in Bolivia is left behind in access to free education at all levels, but also that almost nobody benefits from relevant and effective learning

outcomes. Bolivia has never had more people enrolled in the formal education system; however, the labour market pays little or no premium for the education workers have received, which means that the large public and private investments in education are not contributing to increased earnings, reduced poverty, and reduced inequality.

Methodology

This study analyses already existing micro-data in creative ways to answer the main research questions. Except for a few unstructured interviews with key actors in the education sector, no new primary data gathering was carried out.

The primary sources of data were the regular household surveys carried out by the National Statistical Institute and administrative data from the Ministry of Education. This data was complemented by graduation data from different Bolivian universities, perception data from the annual Gallup surveys, and information from various sources as cited in the text.

To find out if certain population groups are being left behind in terms of access to education in Bolivia, we analyse how different population groups are progressing at five different levels of education: 1) pre-primary, 2) primary, 3) secondary, 4) tertiary, and 5) life-long learning. Whenever annual data is available from the Ministry of Education,¹ we present trend analyses, but when relying on the analysis of household surveys, we use only the two largest surveys available with all the necessary data, which are from 2007 (before the implementation of the Education Revolution) and 2017 (the latest year for which data is available).

SDG 4, however, is much more ambitious than just getting children enrolled in school. The years in school should also lead to relevant learning outcomes and skills useful for employment, decent jobs, and entrepreneurship. To evaluate how useful schooling in Bolivia is for different population groups, we used the 2007 and 2017 household surveys to assess the monetary benefits of education. We measure the direct benefits of education through its effects on hourly wages in the primary occupation.

To analyse the impacts of schooling on other development outcomes we use counterfactual simulations of joint density functions to answer the following question:

1 <http://seie.minedu.gob.bo/>

- Ceteris paribus—i.e. keeping everything else constant—what would have been the evolution of a given development outcome if we had kept the distribution of schooling constant?

The counterfactual simulation compares observed trajectories in the past with simulated trajectories keeping the schooling distribution invariable at a base year. This retrospective approach gives a fair estimate of the contribution of changes in the distribution of schooling to the development outcome under analysis, i.e. the contribution of schooling gains to observed changes in poverty, income inequality, productivity, and access to 'good' jobs.

However, education might also have indirect effects. Indeed, more education tends to affect a multitude of important life decisions, such as who to marry, when to have children, how many children to have, where to live, how to live, what to do for a living, how much to work, how to spend and invest money, what to eat, and much more. We can capture most of these indirect effects, and the direct effect on wages, by comparing the distribution of per capita household income for different education levels. Per capita household income will include several indirect effects, such as choice of spouse, family composition, probability of being economically active, probability of being unemployed, and number of hours worked.

Household survey data was also used to simulate the impacts of changes in schooling levels on poverty, inequality, and access to decent jobs, using counterfactual micro-simulations.

Finally, using OECD's Policy Coherence for Development (PCD) Analytical Framework (OECD, 2016), we analysed how certain international trends and policies support or hinder the achievement of SDG 4 implementation in Bolivia.

Findings

This section is divided into four sub-sections, summarising our findings and answers to the four research questions listed in the introduction.

How are the SDGs in general, and SDG 4 in particular, being implemented in Bolivia?

The implementation of the 2030 Agenda has not been prioritised by the Bolivian

Government, mainly because it has focused on achieving its own 2025 Patriotic Agenda for the country's 200th anniversary. However, in 2020, Bolivia will finally present its first Voluntary National Review.

The minister of Development Planning presides over an inter-institutional committee charged with monitoring the implementation of both the National Development Plan and the 2030 Agenda. All development cooperation partners in Bolivia have aligned their interventions with both the 2025 Patriotic Agenda and the 2030 Agenda and are coordinating their responses through monthly meetings of the Group of Development Partners (GruS).

However, since Bolivia has recently changed from being a low-income country to a lower-middle-income country, many bilateral development partners have left the country, and foreign aid has fallen substantially. According to the World Bank's World Development Indicators, net official development assistance to Bolivia fell from 12.1% of gross national income (GNI) in 2003, to just 2.6% in 2017 (World Bank, 2017).

During 2019, the National Statistical Institute has been carrying out a comprehensive assessment of data available for monitoring SDG implementation, which will be used as an input into a new National Strategy of Statistical Development. In addition, the Bolivian Government hosted a UN-supported Mainstreaming, Acceleration and Policy Support (MAPS) mission, to identify sets of policies and accelerators that can be included in the next five-year Economic and Social Development Plan to speed up progress towards the Goals.

The private sector is also becoming increasingly active in the SDG arena. The UN Global Compact initiative in Bolivia, led by the Confederation of Bolivian Private Businessmen supports companies to take strategic actions towards advancement of the SDGs. Additionally, the Sustainable Development Solutions Network (SDSN) now has an office in the country, which is working on a Municipal Atlas of the SDGs in Bolivia to provide a thorough diagnostic and baseline of the situation in every municipality in the country.

There have also been some noteworthy initiatives implemented at local levels. For instance, the Municipal Government of La Paz published a document that describes in detail how the city is equipped to implement the SDGs (Gobierno Autónomo Municipal de La Paz, 2018).

Focusing specifically on the implementation of SDG 4, we have found significant challenges, as well as opportunities. The main problem is the lack of data on student

learning, as Bolivia has not participated in any of the standardised tests for more than two decades. In 2015 the Bolivian Ministry of Education signed a commitment with UNESCO to monitor education achievements in Bolivia. Following this agreement, in November 2019 the first evaluation of this century was planned to take place. However, due to social and political conflicts triggered by fraudulent presidential elections in October 2019, the first evaluation is still pending. Additionally, the Ministry of Education claimed to have worked on an individual system of information that

gathered data about each student. The main objective was to carry out a self-evaluation of the achievements of the Education Revolution (Postigo, General Planning Director, Ministry of Education, interview, 2018, October 25). The former minister of education also presided over the II Regional Meeting of Education Ministers in July 2018, in which Latin American education ministers agreed to create a regional commission to monitor and evaluate SDG 4 (Postigo, General Planning Director, Ministry of Education, interview, 2018, October 25). However, no data was published, hence it was extremely difficult to monitor the quality of education in Bolivia. The interim Bolivian government sat 3 May 2019 as the new date for new presidential elections. Prior to this date no major advancements related to the measurement of quality education are expected, hence the lack of data on student learning in this Andean country will continue to impede a proper evaluation of the education system.



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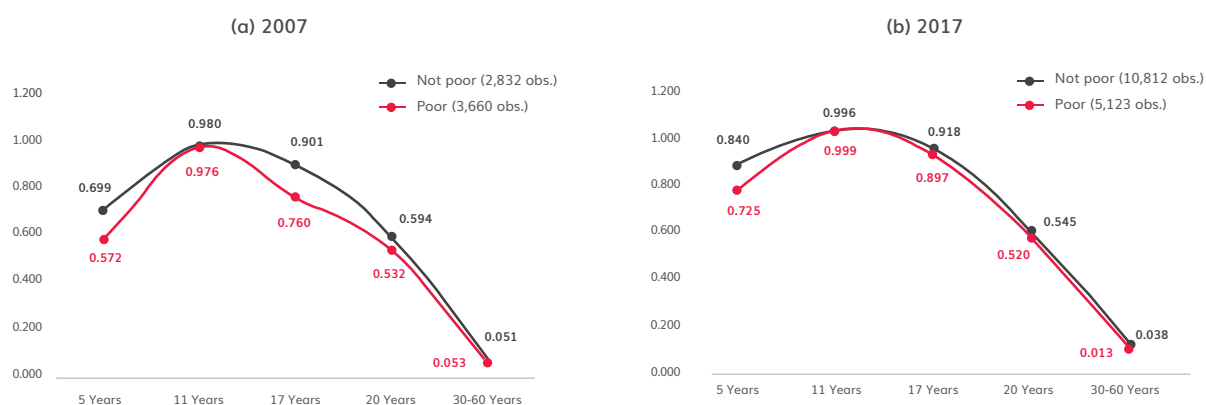
Who has been left behind by the current Education Revolution in Bolivia, and why?

Our analysis of participation in organised learning showed dramatic increases in participation rates between 2007 (before the Education Revolution) and 2017 (latest survey available), especially for disadvantaged groups (girls, indigenous people, poor, and rural inhabitants). Perhaps the most notable change between 2007 and 2017 is that the income-based gap in school attendance for the end of secondary-school age group had closed.

Figure 1 shows that, in 2007, only 76% of 17-year-olds from poor households were in school, while this was the case for 90% of 17-year-olds from non-poor households (as

defined by the national poverty lines established by the National Statistical Institute). By 2017, the gap was insignificant, with 90% of 17-year-olds from poor households still in school, very close to the 92% from non-poor households.

Figure 1. Participation rates in organised learning, by poverty status and age, 2007 and 2017



Note. Poverty status is defined by the official national poverty line each year.

Source: Authors' estimations using the 2007 and 2017 household surveys conducted by the National Statistical Institute.

Similarly, by 2017, the gender-based participation gaps had been eliminated, and girls were as likely as boys to attend school at all levels. However, girls tend to do much better than boys in the Bolivian education system, with systematically lower repetition and drop-out rates. By the end of undergraduate studies, women dominate graduating classes and are substantially over-represented among those graduating with honours. For example, at Universidad Privada Boliviana (UPB) in La Paz, at graduation in August 2018, almost 60% of the 200+ graduates were women, and 71% of the 21 graduates with Summa Cum Laude or Magna Cum Laude distinctions were women (UPB, 2018). This tendency is confirmed by an interview with the Dean of Economic Sciences, Juana Borja, at the largest public university in Bolivia, the Autonomous University Gabriel René Moreno in Santa Cruz. According to her, 73% of the students accepted in economic sciences are women, as they tend to do much better at the entry exam.

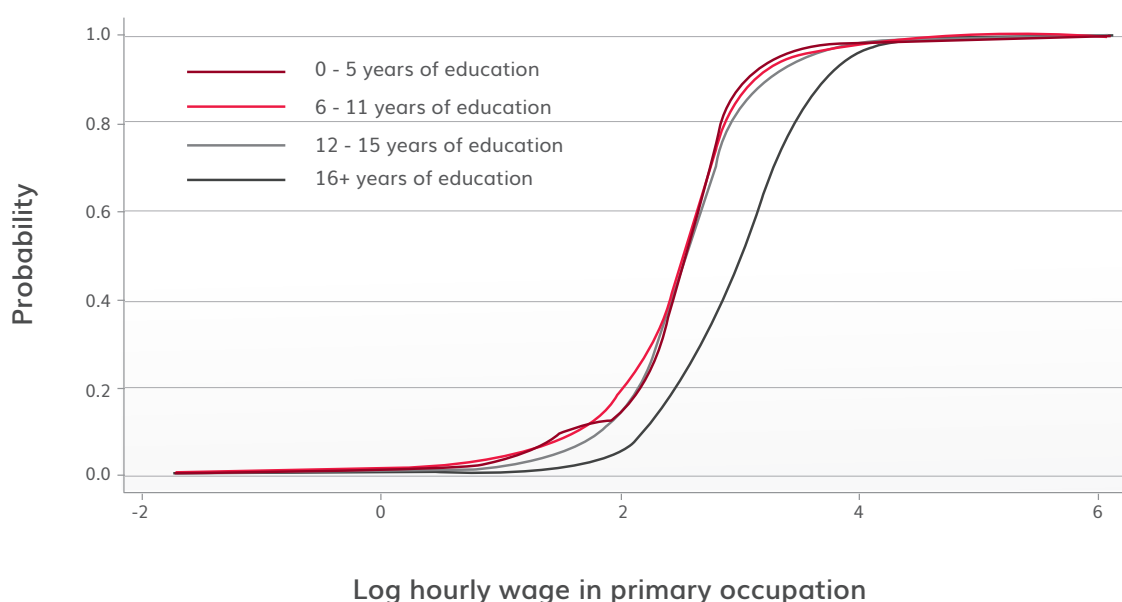
Our analysis indicates that access to education is now pretty much secured for everybody in Bolivia and that special attention is given to particularly vulnerable groups (e.g. children with special abilities and children of incarcerated parents).

However, the quality and usefulness of the education received is questionable. Our analysis shows that the direct and indirect benefits of education have decreased

substantially over the past 20 years for all types of workers.

The situation is now so dire that non-indigenous, urban males see virtually no benefits from the first 15 years of education. This is seen clearly in Figure 2, which shows the cumulative density distribution of hourly wages in the primary occupation for young (20-35-year-olds), non-indigenous, urban males in Bolivia, by education level. There are no significant differences in the wage distributions for the first three groups (0-5 years; 6-11 years; 12-15 years). The only group that receives systematically higher wages is that with at least 16 years of education.

Figure 2. The distributions of log hourly wage in primary occupation for young, non-indigenous, urban males, by education level, 2017



Source: Authors' estimations using the 2017 household survey conducted by the National Statistical Institute.

We carried out similar analyses for other sub-groups, such as female workers, indigenous workers, and rural workers, and for different combinations of sub-groups. We found that all had experienced dramatic falls in returns to education between 2007 and 2017, but that the direct benefits from education, although small, were positive for female workers, indigenous workers, and workers in rural areas, for all education levels.

When including the indirect benefits of education through the analysis of total per capita household incomes, rather than just wages, we find positive effects even for the most disadvantaged group (young, urban, non-indigenous males). For women, we find

particularly large indirect benefits with 12-15 years of education, which is most likely due to delayed child-bearing, which reduces the dependency ratio and increases per capita household income in these young households, compared to households where the woman did not complete this level of education. In general, the direct and indirect benefits of education for young women in Bolivia are approximately twice as large as the benefits men accrue.

We conclude from our detailed sub-group analysis that the group that has suffered most from the expansion of education in Bolivia is young, urban, non-indigenous males, which is the biggest sub-group, so it is a significant problem. While they may not exactly be left behind, these men are certainly being let down by the system.

It should be noted here, however, that the rapidly falling benefits of education in Bolivia do not necessarily reflect rapidly falling education quality. It could also be due to changes in the labour market. Indeed, the fall in returns to education has occurred so rapidly that it cannot be explained by a reduction in quality alone, since most of the labour force has experienced no change in their education during the drop. More likely it is due to a combination of changes in the labour market, some of which are due to global economic forces, and others which are due to local political changes, as we discuss in the next section.

The simple fact that almost all students now complete secondary school suggests that they consider education valuable, even if the labour market does not. In addition, according to the Gallup World Poll,² satisfaction with the education system in Bolivia is quite high and quite stable. In 2017, 67% of the adult population reported being satisfied with it, and only 29% reported being dissatisfied. These are the same percentages as in 2007; therefore the Education Revolution, initiated in 2007 and formally implemented in 2010, seems to have had little effect on the general population's perceptions of the education system. The relatively high level of satisfaction may also reflect low expectations, however.

Even though we do not know how much learning is going on in the Bolivian education system until the 2019 test results come out, at least one vital input has improved substantially: the number of fully qualified teachers (*docentes normalistas*) has tripled between 2000 and 2017, while the total number of children enrolled in pre-school, primary school, and secondary school only increased by 15%. Thus, there is now a fully qualified teacher for every 24 schoolchildren in Bolivia, compared to the beginning of the century, when there were, on average, 65 schoolchildren for each fully qualified teacher.

² Gallup World Poll, 2006-2017. Unpublished data provided by Jerry Hansen, Learning Solutions Consultant at Gallup.

If progress on SDG 4 in Bolivia is disappointing, it is not for lack of trying. According to the 2017 household survey, 39% of all Bolivians enrolled in some kind of formal education that year, investing both time and money in further education. Also, according to UNESCO's education indicator database, the government is spending on average 7% of the gross domestic product (GDP) on education, which is significant by international standards.

In the following section, we will discuss some critical systemic issues, external to the education system, which are affecting SDG 4 implementation in Bolivia.

What are the critical systemic issues that affect the education system in Bolivia?

Using OECD's Policy Coherence for Development (PCD) Analytical Framework (OECD, 2016), we analysed how certain international trends and policies support or hinder the achievement of SDG 4 implementation in Bolivia. Although the strong international focus and support for education have strengthened the sector, several international systemic conditions have unintentionally hampered the country's ability to advance SDG 4.

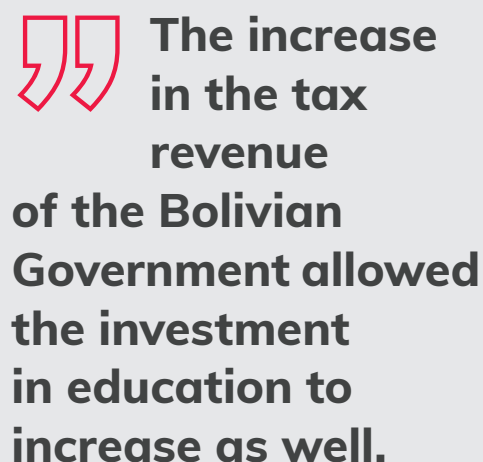
Particularly important has been the recent Commodity Super Cycle, which caused a massive, exogenous increase in the prices of all of Bolivia's major primary export products. As shown in Andersen, Jemio, & Medinaceli (2018), the natural resource rents³ that can be reaped from natural resource exploitation change dramatically during the cycle, and with the extremely high rents (windfall profits) to be reaped at the top of the cycle, capital and labour tend to gravitate to these sectors. For example, according to the calculations by Andersen et al. (2018), at the bottom of the cycle, natural resource rents in the mining sector amounted to about 27% of sectoral GDP, while at the top of the cycle rents amounted to 76% of sectoral GDP. With such massive windfall profits to be obtained, many workers abandoned other activities to take advantage of the opportunities in the mining sector, and many young men abandoned school as well. Since the boom period turned out to be extended (2006-2014), many of these young men are unlikely to return to school.

Industrial agriculture experienced a simultaneous boom with natural resource rents increasing from 41% of sectoral GDP at the bottom of the cycle to 63% at the top of the cycle (Andersen et al., 2018). This not only increased incomes for unskilled agricultural workers (mainly men), thus reducing returns to education for men, but it also caused a

³ Natural resource rents are extra income received from access to natural resources, over and above what the investment in capital and labour warrants. Natural resource rents are essentially windfall profits.

dramatic increase in deforestation (Andersen & Ledezma, 2019), thus having an adverse impact on SDG 15 (life on land), as well.

A further indirect effect of the commodities boom was an appreciation of the exchange rate, which caused a construction boom, as typically happens in the case of Dutch Disease caused by high commodity prices. Throughout the boom, the construction sector grew at an average annual rate of 9%, by far the fastest growth of any sector in Bolivia. This implied a large increase in the demand for construction workers, and due to the shortage of workers, wages in the sector increased substantially. Since construction workers usually rely on on-the-job training, this is another explanation for the fall in returns to education among male workers, and another factor that discourages young males to pursue an education.



**The increase
in the tax
revenue
of the Bolivian
Government allowed
the investment
in education to
increase as well.**

The concentration of labour and capital in extractive sectors implies an economy of low complexity, with little demand for skilled labour, as evidenced by the very low complexity ranking of Bolivia (108 out of 131) in the latest ranking of the MIT Observatory of Economic Complexity (Observatory of Economic Complexity, 2016). It is pertinent to note that this is not the case for other countries in the region; companies in other Latin American countries are demanding more skilled workers (Melguizo & Pages-Serra, 2017).

The fact that Bolivia's main export product, natural gas, is exported by pipelines directly from the gas fields to just two buyers (Brazil and Argentina), with hardly any human interference, not only means low complexity, but also low connectedness between Bolivians and foreigners. According to the DHL Global Connectedness Index 2016, Bolivia is one of the countries with the lowest connectedness score in South America after Venezuela. This is unfortunate since more connected countries tend to have more prosperous economies (Ghemawat & Altman, 2016).

The commodities boom, however, had positive effects on education. Due to the high international price of petroleum and related fuels, the Bolivian Government experienced a huge increase in tax revenues from the export of natural gas to Brazil and Argentina. Part of this revenue (5%) was earmarked for public universities and part was transferred

to municipalities for investment in education infrastructure. The revenues also helped fund education expenditures in general (Andersen & Jemio, 2016). Thus, the education sector experienced a large increase in available resources.

A second systemic issue of importance for SDG 4 in Bolivia is international migration. Bolivia is a country with negative net migration. In 2015, the country registered an estimated immigrant population of 142,989 people, 1.3% of its total population, and an estimated 799,605 Bolivians, 7.5% of the total population, were residing abroad (United Nations, 2015).

Emigration is linked to the low returns to education in Bolivia, since the people who have invested most in education often move abroad in search of additional, and better, education. This implies a significant brain drain, which can play an important role in the education system as it affects the supply as well as the demand for education. In other words, the loss of teaching capabilities as well as the migration of the best students can hinder the supply and demand of education correspondingly (te Velde, 2005).

Migration can also have positive effects on the education sector in Bolivia. According to the 2009 National Survey on Mobility and Social Stratification, remittances are frequently used to finance education (Pereira Morató, 2011). Migration would be particularly beneficial if it were only temporary and people came back to Bolivia after being educated and gaining experience and ideas abroad.

Finally, foreign direct investment also plays an important role. Although countries have acknowledged all the obstacles in the Addis Ababa Action Agenda, most governments have not given details on how the implementation of SDGs will be financed (United Nations, 2015; United Nations, 2019). Sachs et al. (2018) examine the fiscal burdens faced by 59 low-income countries and demonstrate that this group of countries will have to increase their public spending significantly⁴ in order to achieve the SDGs. According to this report, the greatest challenge faced by these countries is the fact that domestic budget revenues will not be enough to cover this increase. Gaspar et al. (2019) stress that although countries are responsible for achieving high performance on the SDGs through policies that foster economic growth and generating adequate tax revenue, developing countries require support from the private sector, donors, philanthropists, and international financial institutions.

4 The study divides low income developing countries into two income categories: LICs (low-income countries with annual per capita incomes below USD 995) and OLIDCs (other low-income developing countries with annual per capita income ranging between USD 996 and USD 2700). Authors find that LICs and OLIDCs will require government expenditures on SDGs equivalent to 46% of GDP and 39% of GDP, respectively.

Bolivia is an example of countries in the Global South that are failing to generate positive net financial flows and are thus putting at risk implementation of the 2030 Agenda altogether. According to the Economic Commission for Latin America and the Caribbean's latest annual report, while foreign direct investment (FDI) flows in Latin America and the Caribbean grew by 13.2% in 2018, in Bolivia FDI fell by 56%, from USD 712 million in 2017 to USD 316 million in 2018; the lowest level in the past 12 years and in the region (ECLAC, 2019). FDI in Bolivia as a percentage of GDP is 0.8%, significantly lower than that of other countries in the region with large extractive sectors, such as Peru and Chile (ECLAC, 2019). In addition, unlike other countries in the region, such as Brazil or Mexico,⁵ Bolivia has not generated an ecosystem that invites investors interested in greenfield projects.

What are the synergies and complementarities between educational achievements, poverty, inequality, and decent work?

Education, the process of acquiring (or facilitating learning of) knowledge, skills, values, beliefs, and habits, is a human right and a critical component of human capabilities that enable individuals to live richer lives. Education is also believed to be foundational to the political and social development of communities and nations. Most social scientists, in particular economists, cite education as the key to short- and long-term economic, social, and political development. Are these beliefs universally true? Can they be applied to each and every one of the 195 countries in the world, irrespective of their underlying conditions? Will 'an inclusive and equitable quality education' have synergies and complementarities with other development outcomes and goals?



Developing countries require support from the private sector, donors, philanthropists, and international financial institutions to achieve high performance on the SDGs.

Since much is expected from education it is not only fair, but also relevant, to ask: What are the social returns to education? And what would be the social returns to

⁵ Brazil and Mexico are the leading FDI destinations in Latin America and the Caribbean, attracting trans-Latin firms with mergers, as well as European and United States companies with greenfield projects (ECLAC, 2019).

more education? As mentioned before, education might have effects on a variety of development outcomes, including all development goals. In this section we examine the returns to education on three development goals:

- SDG 1: End poverty in all its forms.
- SDG 8: Decent work and economic growth. Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
- SDG 10: Reduce inequalities within and among countries.

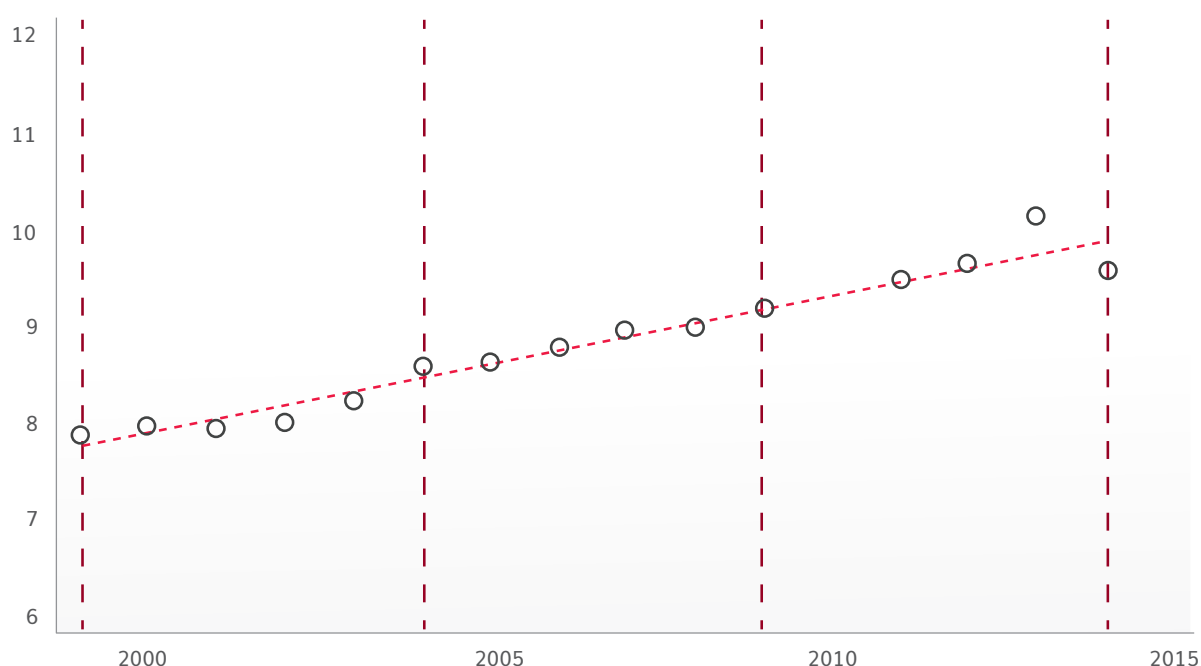
Notice that the SDGs are comprehensive frameworks with a potential large number of dimensions and target indicators within each Goal. To make this research feasible, we are forced to concentrate on specific dimensions and targets that best illustrate whether there are synergies and complementarities between education and other development goals. Therefore, we work with three sets of clearly defined target indicators:

- Proportion of population with per-capita income below the extreme and moderate international poverty line.
- Mean and median annual labour earnings and the proportion of the working population with earnings below a 'living' wage or a 'good' wage (e.g. once and twice the international poverty line).
- Per-capita income share of the bottom 20% and 40% of the per-capita family income distribution.

The focus of the analysis is on formal schooling years. Schooling years is a quantitative measure of how effectively an educational system turns years in school (contact with the system) into an observable and 'comparable' measure of skills. It does not incorporate differences in the quality of educational inputs (school quality), nor differences in the quality of outcomes (educational attainment). Nonetheless, years of schooling is directly related to the amount of resources spent in the production of skills and is directly linked to the notion of human capital, the economic value of knowledge, and the skills acquired in those years.

Figure 3 presents the evolution of average years of schooling for the working age population in Bolivia. Between 1999 and 2014, average schooling increased by almost 2 years, from around 8 to 10 years of schooling. In the counterfactual simulations carried out for this study, we fixed schooling levels at the 1999 level, in order to see what difference the increase in schooling has made on key development outcomes.

Figure 3. Average years of schooling of working age population, 1999-2014



Note. Schooling years were truncated to 17 for those with more than complete university degrees.

Working age population includes those between 15 and 64 years of age.

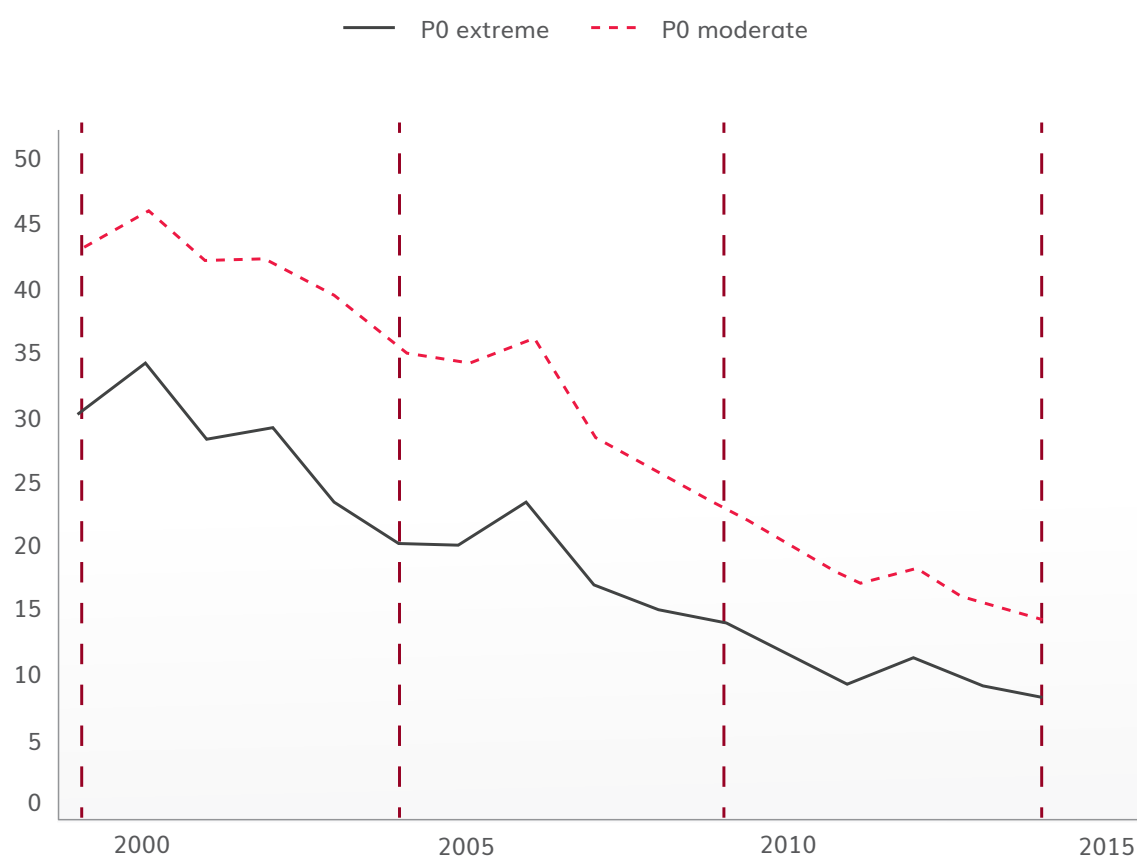
Source: Authors' calculations based on the time series of cross-sectional household surveys 1999-2014.

The first set of counterfactual simulations were carried out to evaluate the effect of increased schooling on SDG 1, which calls to end poverty in all its forms. It has seven targets and 14 indicators focused on a multidimensional definition of poverty that explicitly includes monetary poverty, in particular, the popular and well-known monetary poverty headcount.

Figure 4 presents estimates of the extreme and moderate poverty headcounts using the international lines. From 1999 to 2014, the proportion of people living in extreme poverty has decreased by 73%, from 30% to only 8% of the population; while the proportion of people living in moderate poverty has decreased by 67%, from a level of 43% to only 14% of the population.

There has been an essential reduction in poverty in Bolivia during the past 15 years. However, none of this can be explained by increases in schooling.

Figure 4. Evolution of extreme and moderate poverty headcount, 1999-2014

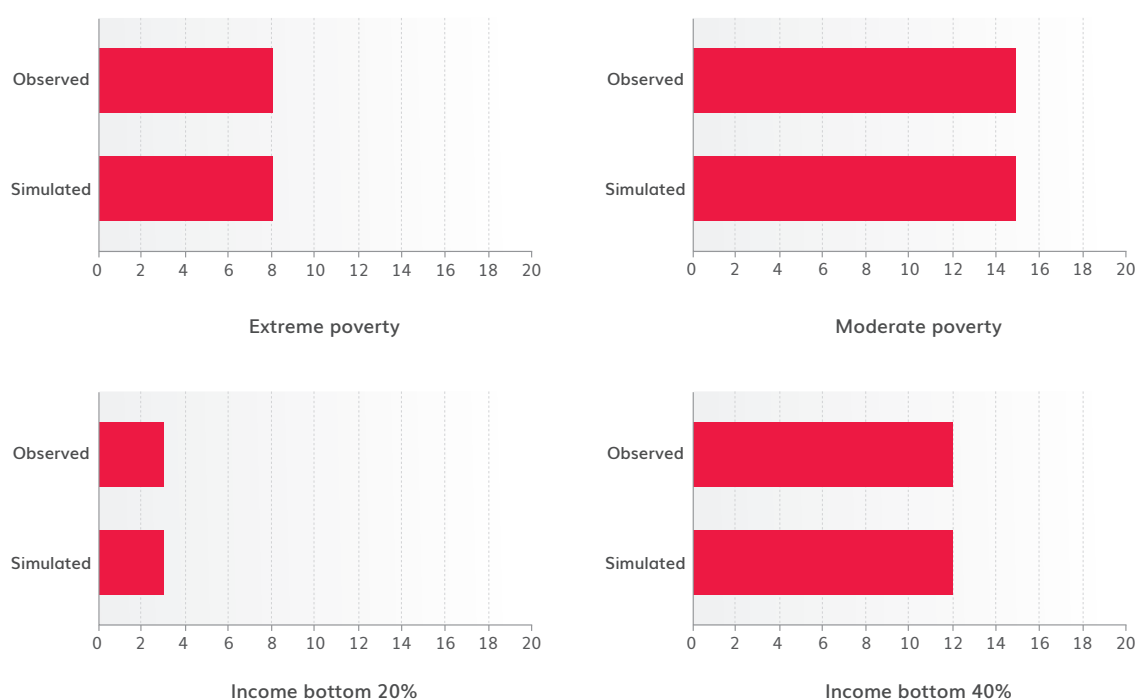


Note. Extreme poverty headcounts give the proportion of people with per-capita family income less than 1.90 PPP dollars per day in 2014. Moderate poverty headcounts give the proportion of people with per-capita family income less than 3.10 PPP dollars per day in 2014.
Source: Author's calculations based on the time series of household surveys 1999-2014.

There is no doubt that there has been an important reduction in poverty in Bolivia during the past 15 years. However, according to our micro-simulations, none of this can be explained by increases in schooling.

Figure 5 presents the estimated changes in extreme (top left) and moderate (top right) monetary poverty due to schooling gains. No change in extreme or moderate poverty would be observed in 2014 if we had observed the schooling distribution of 1999. In other words, there were no gains in terms of extreme or moderate monetary poverty reduction associated with the observed schooling gains.

Figure 5. Changes in SDG 1 and SDG 10 indicators due to schooling gains



Note. Extreme poverty headcounts give the proportion of people with per-capita family income less than 1.90 PPP dollars per day in 2014. Moderate poverty headcounts give the proportion of people with per-capita family income less than 3.10 PPP dollars per day in 2014.

Source: Author's calculations based on the time series of household surveys 1999-2014.

Figure 5 also presents the estimated changes in per-capita family income shares of the 20th percentile (bottom left) and 40th percentile (bottom right) due to schooling gains. Again, no change in the per-capita income shares of the 20th and 40th percentiles would be observed in 2014 despite the years of schooling gains. This implies that the increase in years of schooling appears to have played no part in the reduction in inequality observed during the period of analysis.

Conclusions and implications

This study has analysed the implementation of SDG 4 (quality education) in the case of Bolivia. It is a particularly challenging case because Bolivia has not participated in any of the international achievement tests this century, so it is not clear how students are progressing. This has left the door open for speculation, which is never desirable.

The lack of information is particularly problematic since Bolivia embarked on its Education Revolution in 2007, trying to break free from the previous neoliberal education model, and instead trying to make education more inclusive, equitable, collaborative, and relevant for reaching the ultimate goal of living well in harmony with nature. Thus, things may have changed substantially since the dismal achievement results of 1997, either for better or for worse.

Many education indicators seem to have improved since 2007. Gender gaps, ethnicity gaps, and income-based gaps in school attendance at primary and secondary levels were almost eliminated by 2017. About 90% of children complete secondary education, and the ones who drop out before, tend to do so by choice rather than exclusion.

We do not know how much children are actually learning while in school, but at least one vital input has improved substantially: the number of fully qualified teachers (*docentes normalistas*) has tripled between 2000 and 2017, meaning there is now a fully qualified teacher for each 24 schoolchildren in Bolivia.

However, it seems that the labour market in Bolivia does not value this education. It currently favours cheap manual labourers, such as construction workers, maids, and mining workers, while highly educated university graduates work for free as interns in the very limited number of establishments that actually require highly skilled workers.

This is to a large extent the result of global economic forces, which have forced Bolivia to specialise in the export of unprocessed primary products (such as natural gas and minerals), leading to an economy of low complexity and low connectedness, which reduces the demand for skilled labour.

While almost all young people now complete at least 12 years of education, the labour market prefers construction workers with experience rather than theoretical knowledge, which leads to a mismatch between supply and demand for educated workers.

One group that has suffered particularly from the expansion of education in Bolivia is young, urban, non-indigenous, working males, who currently see little or no benefits from the first 15 years of education. This group constitutes a very important demographic, which has been particularly let down by the education system and the labour market. This group is about 13 times larger than the group of young, rural, indigenous, working women, about which the international development community tends to be most concerned.

The lack of demand for highly skilled workers in Bolivia means that the most impressive people tend to leave the country in search of opportunities that reward their

skills and talents. According to the United Nations (2015), about 7.5% of Bolivians live abroad, and more than half of those are women. This is of course a very unfortunate situation for a country that invests so much in education.

The fact that education is not valued in the labour market also means that most of the expected synergies from education, in the form of reduced poverty, reduced inequality, and reduced gender inequality, do not materialise in Bolivia. The micro-simulations carried out show that there are hardly any differences in poverty, inequality, or gender gaps between the factual simulations (with increased education) and the counterfactual simulations (without increased education).

With few benefits, and no synergies, from education, we are left with a significant trade-off. The private and public investments in education in Bolivia are enormous. According to the 2017 household survey, 39% of all Bolivians enrolled in some kind of formal education that year, investing both time and money in further education. Additionally, according to UNESCO's education indicator database, the government is spending on average 7% of GDP on education. All that time and money could potentially have been invested in other areas with more benefits for the population and the economy.

Several recommendations arise from the analysis presented in this study. First, it is important for the country to participate once again in standardised achievement tests, in order for the Ministry of Education to obtain information about how the Education Revolution is progressing. Such diagnostic information is important for identifying problems and implementing corrective measures. Fortunately, Bolivia is preparing for that, and was scheduled to implement the LLECE test in November 2019. However, due to internal conflicts which led to a sudden change of government, this test was not conducted. Bolivia's interim government set 3 May 2019 as the date for new presidential elections. Hopefully, the next elected government will continue with the planned agenda and will support the evaluation of students learning. In the meantime, it would be premature for us to make specific recommendations on how to achieve quality education in Bolivia at this moment, without sufficient diagnostics data. But as soon as the new LLECE data is available, we recommend, and expect, a series of research papers identifying the strengths and weaknesses of the current education system and outlining key changes needed. This should be carried out both through in-depth studies of the Bolivian data, and through cross-national comparisons.

Second, since the main purpose of a free, public education system is to provide a level playing field and secure equal opportunities for all children irrespective of their family background, it would be important to investigate to what extent the Bolivian education system achieves this goal. The data presented in this study suggests that the playing field

has indeed become more level recently, but not necessarily in a good way. While we were aiming for equal access to attractive opportunities, we seem to have achieved equal access to poor opportunities, forcing many young people to migrate in search of decent returns to education and hard work.

Third, and on a more positive note, since the fall in returns to schooling in Bolivia is to a large extent driven by external factors, such as commodity prices, as well as internal political factors, the situation could change quite quickly again. The currently large investments in education may therefore not be wasted after all. In this rapidly changing world, with exponential technological advances, it certainly seems better to err on the side of too much education rather than too little.

Finally, it is pertinent for the Ministry of Education to work and coordinate with other Ministries in Bolivia and the private sector to strengthen the links between the education system and the labour market. One of the reasons we see few benefits of formal schooling may be that the comparison group of people who are not studying are learning and acquiring useful skills at least as quickly on the job, but at a much lower cost, and with more benefits for the worker, the employer, and the economy. Apprenticeships and internships could thus become a much more important part of the education system.

Some highly successful businesses in Bolivia have already made the training of their employees an integral part of their business model. The world-renowned restaurant Gustu, for example, operates a cooking school for disadvantaged youth, and they have already trained thousands of Bolivian cooks, some of whom work at the restaurant in La Paz, but many of whom have started their own Gustu spin-offs, thus contributing to the ongoing culinary revolution in Bolivia. Similarly, the software company Jalasoft in Cochabamba has an educational foundation which trains the world-class software engineers that the company needs, as well as many more who start their own software companies in a region that is quickly becoming Bolivia's Silicon Valley. On-the-job training is obviously also widespread in small informal family businesses, but practical, on-the-job, technical training could become more formal and better integrated with the education system, as it is in Germany, for example.

Indeed, if Bolivia is to achieve the ambitious goal of ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all, then it needs to mobilise many more actors, and make much better use of new learning technologies.

References

- Altinok, N., Angrist, N. & Patrinos, H. A. (2018). *Global Data Set on Education Quality (1965-2015)*. (Policy Research Working Paper No. 8314). Retrieved from: <http://documents.worldbank.org/curated/en/706141516721172989/Global-data-set-on-education-quality-1965-2015>
- Andersen, L. E., Jemio, L. C. & Medinaceli, A. (2018). Bolivia's Green National Accounts through a Commodity Supercycle. *Latin American Journal of Economic Development*, 29, 51-84. Retrieved from: http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S207447062018000100003&lng=es&nrm=iso
- Andersen, L. E. & Jemio, L. C. (2016). *Decentralization and Poverty Reduction in Bolivia: Challenges and Opportunities*. (Development Research Working Paper Series No. 01/2016). Institute for Advanced Development Studies (INESAD). La Paz: Bolivia.
- Andersen, L. E. & Ledezma, J. C. (2019) "Deforestation and wildfires in Bolivia". SDSN Bolivia Blog, 22 August 2019. Retrieved from: <https://www.sdsnbolivia.org/en/deforestacion-e-incendios-forestales-en-bolivia/>
- Cajías de la Vega, B. (1998). 1955: De una educación de castas a una educación de masas. *Revista Ciencia y Cultura*, Nro. 3., Universidad Católica Boliviana.
- Casassús, J., Froemel, J. E., Palafox, J. C. & Cusato, S. (1998). *First international comparative study of language, mathematics, and associated factors in third and fourth grades*. Retrieved from: <https://unesdoc.unesco.org/ark:/48223/pf0000123130.locale=en>
- Contreras, M. E. (1999). Educación: Reformas y Desafíos de la Educación. In: Campero Prudencio, F. (Ed.) *Bolivia en el siglo XX: la formación de la Bolivia contemporánea*, 39, 483-507. La Paz: Harvard Club de Bolivia.
- Contreras, M. E. & Talavera Simoni, M. L. (2003). The Bolivian Education Reform 1992-2002: Case Studies in Large-Scale Education Reform. *Education Reform and Management Publication Series, Vol. II, No. 2*. Washington DC: The World Bank.
- Economic Commission for Latin America and the Caribbean. (2019). *Foreign Direct Investment in Latin America and the Caribbean, 2019*. Santiago: Economic Commission for Latin America and the Caribbean (ECLAC).
- Gaspar, V., Amaglobeli, D., Garcia-Escribano, M., Prady, D. & Soto, M. (2019). *Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs*. IMF Staff Discussion Note: SDN/19/03. Washington DC: International Monetary Fund.
- Ghemawat, P. & Altman, S. A. (2016). *DHL Global Connectedness Index 2016: The State of Globalization in an Age of Ambiguity*. NYU Stern School of Business and IESE Business School.
- Gobierno Autónomo Municipal de La Paz (2018). *Objetivos de Desarrollo Sostenible y su Localización en el Municipio de La Paz*. Retrieved from: <http://sitservicios.lapaz.bo/sit/ods/>

- Martínez, F. (1998). Los primeros pasos liberales hacia la unificación escolar en Bolivia (en torno a la Ley 06/02/1900 y clausura subsecuente del Colegio Seminario de Cochabamba. *Historia de la educación latinoamericana*, 1, 63-94.
- Melguizo, A. & Pages-Serra, C. (2017, March). *In Latin America, companies still can't find the skilled workers they need*. Retrieved from: <https://www.weforum.org/agenda/2017/03/in-latin-america-companies-still-can-t-find-the-skilled-workers-they-need/>.
- National Institute of Statistics. (2007). *Bolivia Household Survey* [DataFile]. Retrieved from: <https://www.ine.gob.bo/index.php/banco/base-de-datos-sociales>
- National Institute of Statistics (2017). *Bolivia Household Survey* [DataFile]. Retrieved from: <https://www.ine.gob.bo/index.php/banco/base-de-datos-sociales>
- Observatory of Economic Complexity. (2016). *Economic Complexity Rankings*. Retrieved from: <https://atlas.media.mit.edu/en/rankings/country/eci/>
- Organisation for Economic Co-operation and Development. (2016). *Better Policies for Sustainable Development 2016: A New Framework for Policy Coherence*. Retrieved from: <https://doi.org/10.1787/9789264256996-en>.
- Pereira Morató, R. (2011). *Perfil Migratorio de Bolivia*. Buenos Aires: Organización Internacional para las Migraciones (OIM), Oficina Regional para América del Sur.
- Sachs, J., Fajans-Turner, V., Smith, T., Kennedy-Cuomo, C., Parejo, T. & Loni, S. (2018). *Closing the SDG Budget Gap*. New York: Move Humanity and Sustainable Development Solutions Network.
- United Nations Educational, Scientific, and Cultural Organization. (n.d.). *Education Indicator* [Data Base]. Retrieved from: <http://data.uis.unesco.org>.
- United Nations. (2015). *International Migration Stock*. [Total international Migrant Stock]. Retrieved from United Nations website: <http://www.un.org/en/development/desa/population/migration/data/estimates2/estimates15.shtml>
- United Nations. (2019). *Financing for Sustainable Development Report 2019*. Inter-agency Task Force Financing for Developing. New York: United Nations.
- Universidad Privada Boliviana. (2018). Colación de Grado: XII Colación de Grado – Carreras de Pregrado, XV Colación de Grado – Programas de Postgrado. Campus Fernando Illanes de la Riva, La Paz. Agosto.
- te Velde, D. W. (2005). *Globalisation and Education. What do the trade, investment and migration literature tells us?* (Working Paper 254). Retrieved from: <https://www.odl.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2484.pdf>
- World Bank. (2017). Net ODA Received (% of GNI) [Data file]. Retrieved from: <https://data.worldbank.org/indicator/DT.ODA.ODAT.GN.ZS?locations=BO>.
- World Bank. (2018). *The Human Capital Project*. Retrieved from: <https://openknowledge.worldbank.org/bitstream/handle/10986/30498/33252.pdf?sequence=4&isAllowed=y>
- Yapu, M. (2008). Políticas Educativas y Socialización de Niños: Un estudio sobre la reforma educativa boliviana de 1994. *Temas Sociales*, 28, 336-365.



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