

Call for Research Proposals

Private Spending on Skills Development in Latin America and the Caribbean

A Project of the Latin American and Caribbean Research Network

I. Motivation

There is broad consensus that the level and distribution of skills in a country play a key role in determining growth and inequality. Busso, Neumeyer, and Spector (2014) show that the distribution of skills in the Mexican economy can account for the large number of small unproductive firms, which hamper aggregate productivity. The connection between cognitive skills and economic growth across countries is indeed robust (Hanushek and Woessmann, 2012), and the lack of skills has been suggested as a major reason for lackluster economic performance in Latin America. As Hanushek and Woessmann (2012) state, “in growth regressions, the positive growth effect of educational achievement fully accounts for the poor growth performance of Latin American countries.” Finally, low skill levels tend to perpetuate the cycle of poverty and reduce income mobility (Brunori, Ferreira, and Peragine, 2013).

Unfortunately, there is clear evidence pointing to deficient and unequal accumulation of skills in Latin America and the Caribbean (LAC). Fifteen-year-old students in the region perform poorly on the Programme for International Student Assessment (PISA) test, even when compared to their counterparts in countries at similar levels of economic development (IDB, 2013a). Moreover, within countries there are substantial differences in academic achievement across socioeconomic groups. Students in the highest wealth quintile outperform those in the lowest wealth quintile by about 0.8 standard deviations in the countries participating in PISA 2012 (IDB, 2013a). That economic gradient is larger in Latin American countries participating in PISA than in other countries at similar income levels (Brunori, Ferreira, and Peragine, 2013). These substantial inequalities in skills across socioeconomic groups arise early in life. Steep wealth gradients in children’s cognitive skills have been documented for several LAC countries (Schady et al., 2015). For example, Chilean four-year-old children in the highest quartile outperform those in the lowest quartile by about 0.8 standard deviations, using a measure of receptive language ability.

Governments in the region recognize this critical challenge, and are increasing investment to promote skills development. Between 2000 and 2010, public expenditure in education as a percentage of GDP increased from 3.9 percent to 5.3 percent in the region (World Bank, 2014), with increases in Brazil (3.9 percent to 5.8 percent); Mexico (4.0 percent to 5.2 percent); Colombia (3.9 percent to 4.6 percent); and Argentina (4.7 percent to 6.0 percent). This increased public spending is also present in other programs that aim to promote skills acquisition. Expenditures on conditional cash transfers as a percentage of GDP have increased tenfold in the 2000–10 period, from 0.04 percent to

Private Spending on Skills Development in Latin America and the Caribbean

0.40 percent. Similarly, public expenditure in active labor market programs more than doubled between 2005 and 2010, from 0.16 percent to 0.35 percent of GDP. Moreover, the public sector is not the only sector investing in skills development. Indeed, individuals and firms invest a substantial amount of time and money in skills development, though scant information is available to assess the nature and magnitude of these investments.

What do we know about the payoffs of investing in skills development? Do these investments help to improve the labor market outcomes of individuals? In recent years, there has been an explosion in the academic literature that tries to identify the causal effects of different policy options on skills development. However, these lessons and results have not yet been used systematically to provide clear policy recommendations. This explosion has been fueled in part by randomized control trials (RCTs) and other credible evaluations. For instance, McEwan (2014) studies 77 randomized experiments and 111 treatment arms that evaluated the effects of school-based interventions on learning in primary schools in developing countries. His research enables him to assess what types of interventions are more likely to yield higher benefits to students. Similarly, Card, Kluve, and Weber (2010) present a meta-analysis of recent evaluations of active labor market policies. They study 199 separate “program estimates,” i.e., estimates of the impact of a particular program on a specific subgroup of participants. They find that job search assistance programs are more likely to yield positive results, whereas public sector employment programs are less likely to do so.

Moving forward, LAC countries are entering less-favorable phases of their business cycles wherein low growth is rapidly weakening their fiscal positions. In this context, there is a risk of reversing the positive trends in human capital investments observed in the 2000s. There will certainly be little fiscal space to continue increasing skills investment. This by no means implies that efforts to continue expanding skills in the region should come to an abrupt halt. After a decade of rapid growth in investments, however, the region has perhaps reached a point where those expenses should be rationalized (e.g., by phasing out investments found to be less effective and adjusting spending accordingly).

However, the weakening of the region’s economies may do more than limit fiscal space for further expansion of existing programs. During slowdowns and recessions, governments face a range of short-term challenges, including how to preserve income levels of vulnerable populations. At the same time, governments need to avoid the long-term, harmful effects of recessions on human capital that may arise when investment in skills development is cut (e.g., rising high school dropout rates and the accelerated deterioration of skills experienced by workers facing extended periods of unemployment). Consequently, it is important to advance research in this area, to provide policymakers with timely advice on appropriate policy responses to these important challenges.

Private Spending on Skills Development in Latin America and the Caribbean

Against this backdrop, the Inter-American Development Bank (IDB) will focus its 2017 flagship report on how governments can better promote skills development. The report will take a life-cycle perspective on the skills development process. It will analyze skills development policies from early childhood to adulthood while taking advantage of the recent knowledge explosion on this topic. The report will tackle a set of first-order questions that are central to both Bank operations and policy design in the region.

The present research network project has been launched to generate evidence of a critical aspect of the skills development process: **the skills development investments made by households and firms**. The main questions guiding this research network are: how much do families and firms invest in skills development and how do they do it? These private actors are expected to allocate a considerable share of their investments to skills. However, there is currently limited evidence regarding the level and characteristics of investments by these actors. The findings to be produced by this research network project could shed light on this important aspect of the skills development process that has received little attention to date. Moreover, documenting investments in skills development made by families and firms can complement existing evidence of public investments, thus providing a comprehensive overview of investments in this area.

The research network will fund studies on two topics related to private spending on skills development across the life cycle: **(i) understanding households' investments in skills; and (ii) understanding firms' investments in skills**. We plan to commission about 7 to 10 studies in total. The exact number of approved studies, and its distribution across the two topics, will depend on the proposals received and the budget available. We will give priority to studies that emphasize comparisons across the region. Across all studies, we will prioritize those that are based on solid theoretical models and use, to the extent possible, rigorous econometric techniques.

II. Topics

II.1. Understanding Household Investments in Education and Training

II.1.A. Background and Justification

Human capital is primarily produced in the family and in schools (Becker, 1994). Parents invest in their children's skills in a variety of ways. They invest in their children's education by taking them to school, providing them with books and supplementary materials necessary for learning, and allowing them to get after-school tutoring, if needed. But parental time investments can be even more important than monetary investments. That is, parents play a key role during the first years of a child's life as they care for and interact with their children and, in the process, promote the development of early life skills. In fact, mounting evidence shows that parental practices in the early years can have a profound influence on children's skills. This evidence is emerging from

Private Spending on Skills Development in Latin America and the Caribbean

multiple evaluations in Jamaica, Brazil, Colombia, and Ecuador that have confirmed that programs that promote better parenting practices tend to produce large improvements in children's cognitive skills (Grantham-McGregor et al., 1991; Attanasio et al., 2014; Eickmann et al., 2003; Rosero and Oosterbeek, 2011). Parents' time investments can also be important as children enter the formal education sector and transition to primary, then secondary education. During this process, parents may give up leisure time in favor of spending time with their children, helping them with their homework, taking them to school, encouraging them to learn new things and engage in extracurricular activities.

For many years, an extensive number of multidisciplinary studies have been devoted (mainly in the U.S.) to understand the determinants of cognitive achievement in children (see Hanushek, 1979, and Todd and Wolpin, 2003, for reviews of the literature). Despite increased awareness of the policy importance of understanding the determinants of educational outcomes, knowledge of the relationship between educational outcomes and perhaps the most basic input in the education production process—students' study time and effort—has remained limited (Conley et al., 2015). How important are family inputs such as parental and students' efforts in this equation and when should these investments be made?

Human capital theory suggests that the best time for investing in education and skills is at a young age, primarily because the opportunity cost of time is smaller and because there is a longer time span ahead of the investment to reap potential benefits. Moreover, evidence indicates that early childhood interventions can have lasting effects on employment, earnings, and other important social outcomes (Schweinhart, Barnes, and Weikart, 1993; Campbell et al., 2012; Gertler et al., 2014). Hence, skills investments during early childhood can generate substantial benefits over time. However, technological change quickly renders old skills obsolete, increasing the need for lifelong learning. Hence, adults also invest time and resources in improving their own skill sets, either by taking formal training courses outside the workplace, or going the self-taught route through books and other learning materials.

It is also well known that there is great heterogeneity in educational investments across populations. Significant differences arise according to family structure, culture, ethnic background, and socioeconomic status. Indeed, differences in parental investments in children are believed to be one of the main mechanisms perpetuating social structures. In the U.S., inequalities in parental monetary investments in American children have increased in recent decades, presumably limiting social mobility (Kornrich and Furstenberg, 2013). Those differences are even more pronounced across disadvantaged groups. Again, in the U.S., differences in higher education investments across ethnic and racial groups are remarkable.

Private Spending on Skills Development in Latin America and the Caribbean

There has been substantial research in recent decades regarding patterns of time use in the U.S. and other countries. However, as noted by Gronau and Hamermesh (2008), time use surveys have been applied for a long time, at least since Sorokin and Berger (1939). This literature has analyzed a variety of topics, including life-cycle consumption and labor supply; business-cycle effects; and long-run trends in time allocated to home production, leisure, and child care in the U.S. (Aguiar, Hurst, and Karabarbounis, 2012). However, how individuals allocate time has also been analyzed in a range of countries. For example, Gimenez-Nadal and Sevilla-Sanz (2011) use the Multinational Time Use Study (MTUS) and seven country-specific datasets to explore trends in time use. Also, Burda, Hamermesh, and Weil (2013) analyze time-diary data from 27 countries and document a negative relationship between GDP per capita and gender differences in total work.

More closely related to this research network project, recent research has focused on parental time investments in children. This literature has explored whether better-educated parents invest more time in their children. Guryan, Hurst, and Kearney (2008) find that indeed higher-educated parents in the U.S. spend more time with their children. For example, mothers with at least a college education spend about four hours more on child care per week than mothers with a high school diploma or less. This pattern holds for different subcategories of child care (basic, educational, recreational, and travel related). This gradient is in sharp contrast with the negative cross-sectional relationship between education and household production or leisure. Moreover, the positive relationship between education and time spent with children is also documented across and within 14 countries analyzed. Regarding trends over time, evidence suggests that time spent with children has increased in the last two decades in the U.S., though insufficient information precludes reaching a definite conclusion (Sayer, Bianchi, and Robinson, 2004; Aguiar and Hurst, 2007). Finally, evidence seems to show that the increase in time spent with children has been greater among well-educated parents than among less-educated parents (Ramey and Ramey, 2010).

In contrast to this accumulated body of evidence primarily from developed countries, little is known about households' time and monetary investments in skills development in Latin America and the Caribbean. Hence, on this subtopic of the network, we seek proposals that fill in this gap by examining such investments; the research should rely fundamentally on two sources of information: time-use surveys and expenditure surveys.

II.1.B. Objectives, Scope, and Methodology

On this subtopic, we seek proposals that provide an analysis of households' investments in skills development for one or more Latin American and Caribbean countries. In this respect, we are looking for proposals documenting investments by families, using time-use surveys and expenditure surveys.

Private Spending on Skills Development in Latin America and the Caribbean

Time-Use Surveys

Time-use surveys are available for several years in most Latin American countries. They aim to quantify the amount of time spent on work and personal activities by a member or different members of a household (usually 10 years of age or older). We seek proposals that examine time-use surveys to understand skills investments in two areas:

1. **Parental time investments in children.** We are interested in analyzing the amount of time that parents (or other family members or caregivers) spend with their children and, depending on data availability, the amount of time spent on activities that are specifically geared towards developing their children's skills. Do differences in time investments depend on the parent's gender, age, or employment status? Does time spent with children substitute for or complement time spent on work, unpaid work, and household production (e.g., household chores)? Are there differences depending on the gender or number of children? Are there important geographical differences? Are there differences across rural and urban areas? Are there significant differences between families of different socioeconomic backgrounds?

There is great heterogeneity in the amount and characteristics of the information collected in Latin American time-use surveys. The level of detail will depend on the characteristics of a given country's time-use surveys, but the data should include at least a subset of the following:

- Time spent on activities with children by different members of the household;
- Time spent caring for each household member by different members of the household;
- Distribution of time spent across different children in the household;
- Time differences across households of different size, makeup, and socioeconomic status.

2. **Individuals' time investments in their own skills development.** We are also interested in proposals that analyze the time individuals spend developing their skills. We are specifically interested in how much time each household member spends on education-related activities (e.g., time spent in training or attending an educational institution, commuting to class, and doing homework and school tasks). We are interested in exploring time investments for children, youth, and adults. Moreover, do time investments differ according to the household member's gender, age, or employment status? Does time invested in skills substitute for, or complement time invested in paid work, unpaid work, and household production? Are there differences depending on the size or makeup of the household? Are there important geographical differences (e.g., across rural and urban areas)? Do time investments differ

Private Spending on Skills Development in Latin America and the Caribbean

significantly between families of different socioeconomic backgrounds? The proposal should include at least a subset of the following information:

- Time spent on education-related activities;
- Distribution of time spent across different household members;
- Time differences across household members of different genders, age groups, and occupational backgrounds;
- Time differences across households of different size, makeup, and socioeconomic status.

Expenditure Surveys

Expenditure surveys are available for several years in most Latin American countries, and are a rich source of information regarding individual and family investments in skills. In this module, we seek proposals that examine expenditure surveys to understand skills investments in two areas:

3. **Parental monetary investments in children.** We are interested in analyses of expenditures per child and family makeup. Are there economies of scale in educational expenditures? Do the investments differ according to: gender, birth order, and number of siblings? Are there important geographical differences (e.g., across rural and urban areas)? What is the age gradient of educational expenditures? Inequality: what are the main differences in educational expenditures between high- and low-income families? Are such differences in investment contingent upon a child's gender, age, and birth order?

We are interested in obtaining detailed information. The level of detail will depend on the characteristics of the country data available, but it should include at least a subset of the following:

- Child care expenditures by type of child care (home day care vs. day care centers);
- Education expenditures: total cost of tuition, books, and other materials;
- Distribution of expenditures by education level of the child;
- Expenditures on after-school education (remedial classes, tutoring, sports);
- Expenditures on commuting to and from school;
- Total expenditures per child;
- Distribution of expenditures across children's ages;
- Distribution of expenditures depending on family attributes;
- Differences across households with male-children only, as opposed to female-children only households.
- Differences across household size and socioeconomic status.

Private Spending on Skills Development in Latin America and the Caribbean

4. **Monetary investments in individuals' skills development.** We are also interested in documenting monetary investments of individuals seeking to upgrade their skills. This analysis will focus on adult household members. We seek to track overall spending as well as potential variables that can explain spending differences across individuals. The analysis in this section should focus on tertiary education spending (universities and two-year colleges) as well as spending on training courses. In particular, we are interested in the following questions:

- How does spending vary across income levels?
- How does spending vary across family and individual attributes, such as age, gender, and level of formal education?
- How does spending vary across employment status, sector of employment, formality, employer (or previous employer), and experience in the labor market?
- How has spending evolved over time? Are there differential trends across households with different income/education levels?

We are also interested in analysis of income sources used to finance these expenditures. For example:

- Are families incurring debt to finance some of these educational expenses? Are families benefiting from educational grants?

II.2. Understanding Firms' Investments in Skills

In the second topic covered in this research network project, we seek proposals that provide an analysis of firms' investments in skills development for one or more Latin American and Caribbean countries. In this respect, we are looking for proposals that track investments by firms through the use of employer or employer-employee data surveys, or other sources.

II.2.A. Background and Justification

One-third of companies in Latin American and Caribbean countries (69 percent in Brazil and 57 percent in Argentina) identify inadequate staff training as the biggest obstacle to their operations, and as a major difficulty for innovation. In many countries in the region, the percentage of employers reporting difficulty hiring workers with the skills they need exceeds the world average. Around 90 percent of employers in Argentina, Brazil, and Chile report that they cannot find the skills they need to produce competitively (Bassi et al., 2012). Similarly, for the majority of employers in Honduras, the Bahamas, Panama, and Uruguay, skill shortages are the main difficulty faced when selecting staff (Flores, González, and Rosas, 2015).

Workers and firms invest considerable resources in training. In a worker's lifetime, a large portion of the skills investment is made after school, and much of it involves being

Private Spending on Skills Development in Latin America and the Caribbean

trained while working at a firm (Mincer, 1962). The economic literature shows that human capital is a salient factor in individual, business, and national economic growth, and there is some indication that workers and employers tend to share the returns from training (in terms of wages and productivity), and possibly its costs (Blundell et al., 1999; Bassanini et al., 2005; Konings and Vanormelingen, 2015; Dostie, 2015). Almeida and Carneiro (2009) estimate the rate of return on firm investments in human capital using formal job training in Portugal as an example.¹ Their estimates of the return on training vary substantially across firms, but on average it is -7 percent for firms that don't provide training, and 24 percent for those that do.

In general, formal job training could be a good investment for many firms and the economy, potentially yielding higher returns than either investments in physical capital or schooling. Despite this fact, formal training is seen as minimal, and the amount of that training depends on the type of firm, skill, and worker.

- **Differences in investments by type of firm.** According to Almeida and Aterido (2015), in developing countries there is a significant positive correlation between firm size and the investment in job training. Small (11–50 permanent employees), medium (50–250 employees), and large (more than 250 employees) firms train approximately 13, 30, and 40 percentage points (respectively) more than do micro firms (10 or fewer employees). Similarly, in Latin America and the Caribbean, evidence shows that small firms, which account for the vast majority of firms in the region, tend to have fewer well-qualified workers and to invest less in training their workers than do medium-sized or large companies (Flores, González, and Rosas, 2015). The evidence also suggests that many small businesses do not invest in training because they don't use complex or innovative production technologies.
- **Differences in investments by type of skill.** In terms of the types of skills acquired while working at a firm, human capital models with perfect labor markets imply that firms never invest in basic skills, and that all costs of basic skills training are borne by workers. However, when labor market frictions exist, compressing the wage structure, firms may be willing to pay for these investments (Acemoglu and Pischke, 1998, 1999). Empirical evidence for LAC shows that the majority of companies tend to train their workers in specific, rather than general, skills. The data from four surveys of firms in the Bahamas, Honduras, Panama, and Uruguay concur that between 60 percent and 70 percent give priority to job-specific skills, with much less investment in soft or transversal (mathematics or language) skills (Flores, González, and Rosas, 2015).
- **Differences in investments by type of worker.** The evidence also suggests that company-funded training mainly benefits the most qualified workers. There

¹ They use a panel of large firms with unusually detailed information about the length of training; the direct costs of training; and several firm characteristics, such as output, workforce attributes, and capital stock.

Private Spending on Skills Development in Latin America and the Caribbean

is abundant evidence that on-the-job training favors workers with higher levels of formal education (Bassanini et al., 2005; Huneus, de Mendoza, and Rucci, 2013) and that workers with higher education levels receive more training (Huneus, de Mendoza, and Rucci, 2013). Thus, training widens rather than narrows the skills gap in existence when workers join the labor market. There is also evidence on differential investments in training according to types of workers. For Latin America and the Caribbean, the amount of training workers receive over the course of their working lives is noticeably less in the case of those with less schooling (Huneus, de Mendoza, and Rucci, 2013). Similarly, evidence shows that companies tend to invest more in training people with a higher initial level of education (Huneus, de Mendoza, and Rucci, 2013; Flores, González, and Rosas, 2015).

II.2.B. Objectives, Scope, and Methodology

It seems that there are positive returns on training for firms, but questions that arise are: How much do private firms invest in skills development in the region? In which type of skills? In which “type” of workers? Do these firms favor the training of certain workers over others? There is a partial response to these questions, based mainly on the World Bank’s enterprise surveys and, more recently, on four employer surveys for the Bahamas, Honduras, Panama, and Uruguay (Flores, González, and Rosas, 2015).

This research project seeks to contribute to the incipient literature on firms’ investment in skills by funding new studies documenting the extent and nature of training spending by firms in Latin America and the Caribbean. Studies could analyze how much firms spend on skills development, how firms develop their workers’ skills, and what type of training they provide and to whom. Selected research proposals should use rigorous research methods to address the questions posed. Still, details of the final methodology will be worked out and agreed upon by the IDB team and the research centers.

Each country case study should analyze the following issues related to skills investments made by firms:

- Firm size and its relationship to skills investments;
- Specific versus general human capital investments. If possible, with an analysis of how firms make decisions regarding their investments in skills;
- Differential investments by type of worker, education level, age, and gender;
- Monetary versus nonmonetary investment (e.g., personnel time devoted to supervise trainees);
- Total spending on training in absolute terms and relative to sales or profits.

If possible, it would be desirable to include the following aspects:

- Relationship between training and productivity;

Private Spending on Skills Development in Latin America and the Caribbean

- Skill investment trends over time;
- Comparisons with OECD countries.

III. Selection Criteria

Research institutions only may submit proposals on any of the two topics described above. The final number of proposals accepted will depend on the quality and proposed budget of the proposals received. As mentioned earlier, proposed budgets will be evaluated in accordance with the scope of work proposed. Project proposals that seek extra funding to complement financing by other institutions are strongly encouraged.

Proposals will be evaluated based on the following criteria:

- a. Methodology and data (30 percent).
- b. Country coverage (20 percent).
- c. Description of the empirical analysis (20 percent).
- d. Career history and experience of the participating researchers (30 percent).

Proposals should include a detailed background section and literature review, data description including an assessment of data availability, and a detailed description of the methodology to be used. Note that the bibliographical section of this call for proposals lists some potentially relevant references. The proposals should not exceed five (5) pages in length (not including references).

Final papers will be considered for dissemination as IDB working papers or technical notes, depending on the approach followed and the nature of the methodology and analysis performed. All raw data and properly documented programming codes (i.e., do-files) that produced results should be submitted with the final draft. The project coordinators may explore the possibility of having the papers published in an academic journal, in which case they would be subject to a system of standard peer review. Otherwise, authors would be able to publish in an academic journal (again, provided they acknowledge the Bank's technical and financial contribution). Proposals may include suggestions for further dissemination of the final version of the paper.

IV. Proposal Submissions

Interested **research institutions** must submit a proposal no later than **August 31, 2015** to red@iadb.org.

The following information will be required for submitting proposals:

- All technical aspects involved in the development of the study, based on the description in this call for proposals.
- A budget indicating the time and resources that will be used within the context of the research work plan. The budget proposed should be submitted in a separate

Private Spending on Skills Development in Latin America and the Caribbean

file and not be included in the proposal. It should disaggregate items financed by the IDB and those financed by the research institution. The budget should also distinguish among amounts assigned to professional honoraria, "overhead", and other major categories of research expenditures.

- The names and curricula vitae (two pages maximum) of the technical coordinator and other researchers involved. The research team should demonstrate its ability to meet the objectives of the project, including relevant experience. It should be noted that subsequent substitutions for researchers originally specified in the proposal may be made with prior approval from the project coordinators, but the technical coordinator should see the entire project through to completion.

Institutions submitting proposals must provide the name and contact information of the legal representative having the authority to sign contracts with the IDB, if selected to conduct the study.

Proposing research institutions should be registered as Research Network members (contact Elton Mancilla at red@iadb.org for this purpose) and based in the Latin American and Caribbean region. Note that U.S. and European institutions do not qualify as members of the Research Network. However, researchers from the United States and Europe can participate as members of research teams from proposing institutions, and such collaboration is encouraged.

Note: All proposals and research papers must be submitted in **English**.

V. Coordination and Schedule

The project will be jointly administered by the Research Department (RES), the Unit of Labor Markets and Social Security (SCL/LMK), and the Education Division (SCL/EDU) of the IDB. The coordinating team consists of Matías Busso, Julián Cristiá, Julián Messina (RES/RES), Diana Hincapié (SCL/EDU), and Laura Ripani (SCL/LMK). Sebastián Galiani (University of Maryland) will act as external advisor for the research project.

The tentative schedule of activities is as follows:

- **August 31, 2015:** Due date for **proposal submissions**.
- **September 4, 2015:** Announcement of **selected research proposals**.
- **November 2–3, 2015:** **Discussion seminar** in Washington, D.C. to discuss methodologies, data availability, and strategies.
- **December 15, 2015:** Due date for delivering a **progress report**.
- **March 30, 2016:** Due date for delivering the **first draft** of research papers and any complementary documents utilized in the study.

Private Spending on Skills Development in Latin America and the Caribbean

- **June 15, 2016:** Deadline for delivering the **final version** of research papers, as well as any updated versions of the datasets utilized in the study.
- **July 30, 2016:** Deadline for the **final edited version** of research papers, in accordance with the **IDB Manual of Style** for working papers.

VI. Financial Aspects

The IDB will contribute between **US\$15,000** and **US\$30,000** (or domestic currency equivalent) for each study, depending on the scope of work proposed. The payment schedule is as follows:

- **20 percent** within 30 days of signing the formal agreement between the IDB and the research center.
- **30 percent** within 30 days of receiving and approving the progress report.
- **20 percent** within 30 days of receiving and approving the first draft of the research paper.
- **30 percent** upon the Bank's approval of the final edited version of the research paper and receipt of the databases and code utilized in the study.

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**Private Spending on Skills Development
in Latin America and the Caribbean**

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**Private Spending on Skills Development
in Latin America and the Caribbean**

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