



September 2025

Measuring the Contribution of Development Projects to Employment: IDB Invest's Pilot Framework

Authors:
Lucas Figal Garone
Victoria Luca
Lucas Navarro
Rodolfo Stucchi

Measuring the Contribution of Development Projects to Employment: IDB Invest's Pilot Framework

Copyright © 2025 Inter-American Investment Corporation (IIC). This work is licensed under a Creative Commons IGO 3.0 Attribution-NonCommercial-NoDerivatives (CC-IGO BY-NC-ND 3.0 IGO) license (<http://creativecommons.org/licenses/by-nc-nd/3.0/igo/legalcode>) and may be reproduced with attribution to the IIC and for any non-commercial purpose. No derivative work is allowed.

Any dispute related to the use of the works of the IIC that cannot be settled amicably shall be submitted to arbitration pursuant to the UNCITRAL rules. The use of the IIC's name for any purpose other than for attribution, and the use of IIC's logo shall be subject to a separate written license agreement between the IIC and the user and is not authorized as part of this CC-IGO license.

Following a peer review process, and with previous written consent by the Inter-American Investment Corporation (IIC), a revised version of this work may also be reproduced in any academic journal, including those indexed by the American Economic Association's Econ-Lit, provided that the IIC is credited and that the author(s) receive no income from the publication. Therefore, the restriction to receive income from such publication shall only extend to the publication's author(s). With regard to such restriction, in case of any inconsistency between the Creative Commons IGO 3.0 Attribution-NonCommercial-NoDerivatives license and these statements, the latter shall prevail.

Note that link provided above includes additional terms and conditions of the license.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank Group, its respective Boards of Directors, or the countries they represent.

Cover: Greta Design

Photo Credit: Shutterstock

September 2025

Measuring the Contribution of Development Projects to Employment: IDB Invest's Pilot Framework

Lucas Figal Garone*, Victoria Luca†, Lucas Navarro‡, Rodolfo Stucchi§

September 2025

Abstract

This document presents a pilot framework for measuring the contribution to employment of IDB Invest's portfolio of development projects in Latin America and the Caribbean. The methodology estimates *direct jobs supported*, *direct jobs created*, and *indirect jobs created* across three categories of projects: Infrastructure, Corporates, and Financial Intermediaries. It draws on project-specific data, country-level statistics, and standard economic models. While acknowledging certain limitations, the framework represents a first step forward in IDB Invest's efforts to assess its impact on labor market outcomes to promote sustainable, inclusive economic growth.

JEL codes: C67, C81, E24, J23, O19, O54

Keywords: Employment, jobs, job creation, development, DFIs, Latin America and the Caribbean

We wish to thank Camilo Mondragon-Velez (World Bank), Guillermo Cruces (UdeSA-CEDLAS), Xiao Jiang and Massimiliano La Marca (ILO), and Gustavo Crespi, Maria Paula Gerardino and Graciana Rucci (IDB) for useful comments and suggestions. Carla Daniele Barra and Ignacio Fichetti Peralta provided excellent research assistance. The opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the IDB Group, its respective Boards of Directors, or the countries they represent. The usual disclaimers apply.

* **Corresponding author.** Development Effectiveness Division, IDB Invest, Buenos Aires, Argentina, and Universidad de San Andrés, Buenos Aires, Argentina. E-mail: lfigal@iadb.org

† Development Effectiveness Division, IDB Invest, Washington DC, US. E-mail: vluca@iadb.org

‡ Department of Economics, Universidad Nacional de Córdoba, Argentina. E-mail: lucas.navarro@unc.edu.ar

§ Development Effectiveness Division, IDB Invest, Washington DC, US. E-mail: rstucchi@iadb.org

1. Introduction

Creating quality jobs in Latin America and the Caribbean (LAC) remains a major challenge, constrained by unfavorable structural labor market conditions. A combination of factors, such as low levels of education and innovation, excessive labor and tax regulations, weak rule of law, and limited competition, has hindered economic growth over the past few decades, resulting in insufficient job creation (Crespi, *et al.*, 2014; Galindo and Nuguer, 2023; Galindo and Izquierdo, 2024).

Development Finance Institutions (DFIs) play a vital role in addressing these challenges by promoting sustainable and inclusive economic growth. At the core of their mission is the creation of quality employment, achieved through a combination of financing and technical assistance. DFIs place particular emphasis on supporting projects that drive economic development through the private sector.

As the private sector arm of the IDB Group, IDB Invest partners with companies and financial intermediaries to advance sustainable and inclusive economic growth. Its financing portfolio includes a broad spectrum of initiatives, from large-scale infrastructure projects to capital expenditures, working capital, and trade financing. Through these investments, IDB Invest contributes both directly and indirectly to the creation of formal employment throughout the region.

However, assessing the impact of DFI projects on employment poses significant challenges. Although efforts have been made to develop a standardized methodology for measuring job creation, there is currently no universally accepted approach. As a result, DFIs have adopted related concepts such as “employment or jobs supported” which are easier to quantify but have limitations in terms of conceptual clarity and scope. Within this framework, “employment supported” typically refers to the number of individuals employed by a firm during the period it receives DFI support. While this metric does not capture new jobs created, it is relatively straightforward to measure and thus easier to standardize. In contrast, measuring the number of direct or indirect jobs created involves substantial technical and data-related challenges, which have complicated the development of a consistent and robust methodology.

This document introduces a conceptual framework to measure the contribution of IDB Invest projects to employment across its three business segments: Infrastructure, Corporates, and Financial Intermediaries. Depending on the type of project, and drawing on client data, country-specific aggregate statistics, and standard economic models, the framework proposes a methodology to estimate both jobs supported, and direct and indirect jobs created.

To the best of our knowledge, this paper represents the first attempt to develop a framework for systematically and comprehensively measuring the contribution of a portfolio of development projects to employment. It is an initial step in an ongoing effort to establish a robust approach for quantifying ex-ante and ex-post employment effects of IDB Invest projects. At this stage, certain dimensions of indirect contributions, such as forward-linkages, induced and spillover effects, are not yet incorporated into the analysis. Finally, it is important to emphasize that while the methodology is designed to estimate contributions at a portfolio level, rigorous impact evaluations with proper counterfactual analysis are necessary at the project level to enable causal attribution.

This document is structured as follows. Section 1 provides an overview of labor markets in the region and explores IDB Invest’s potential to enhance employment outcomes. Section 2 introduces key definitions and outlines the general methodology. Sections 3, 4, and 5 describe the methodological approaches for each employment measure considered: direct jobs supported, direct jobs created, and indirect jobs created, respectively. Finally, Section 6 presents the results of a pilot of the framework for IDB Invest’s 2024 reporting cycle and concludes.

1.1. Background: Employment in Latin America and the Caribbean

The employment landscape in LAC faces important challenges, including high levels of informality, unemployment, and low productivity, factors that perpetuate poverty and inequality. In this context, there is a pressing need to both increase and enhance employment opportunities throughout the region. Addressing these issues requires a dual approach: fostering formal job creation through close collaboration with the private sector and ensuring that the public sector promotes a supportive environment for job creation through favorable labor, tax, and economic policies.

Moreover, it is essential to implement targeted measures that facilitate the transition from informal to formal employment. These include the provision of high-quality labor market services and effective training programs.⁵ Such actions are critical to strengthening labor market outcomes, particularly given the uncertainties surrounding the impact of artificial intelligence and other technological advances on the future of work, in a region characterized by a highly informal labor market (Cazzaniga *et al.*, 2024).

Key labor market outcomes in LAC

Labor market conditions in LAC continue to lag behind those of other regions, largely due to structural factors such as low labor productivity and overly rigid labor regulations. These issues contribute to significant labor market segmentation, dividing formal, protected employment from informal, unregulated jobs (Alaimo *et al.*, 2015). This segmentation, combined with the region’s lower share of jobs that can be performed remotely and a higher prevalence of contact-intensive occupations, made LAC particularly vulnerable to the impacts of the COVID-19 pandemic (IMF, 2020).

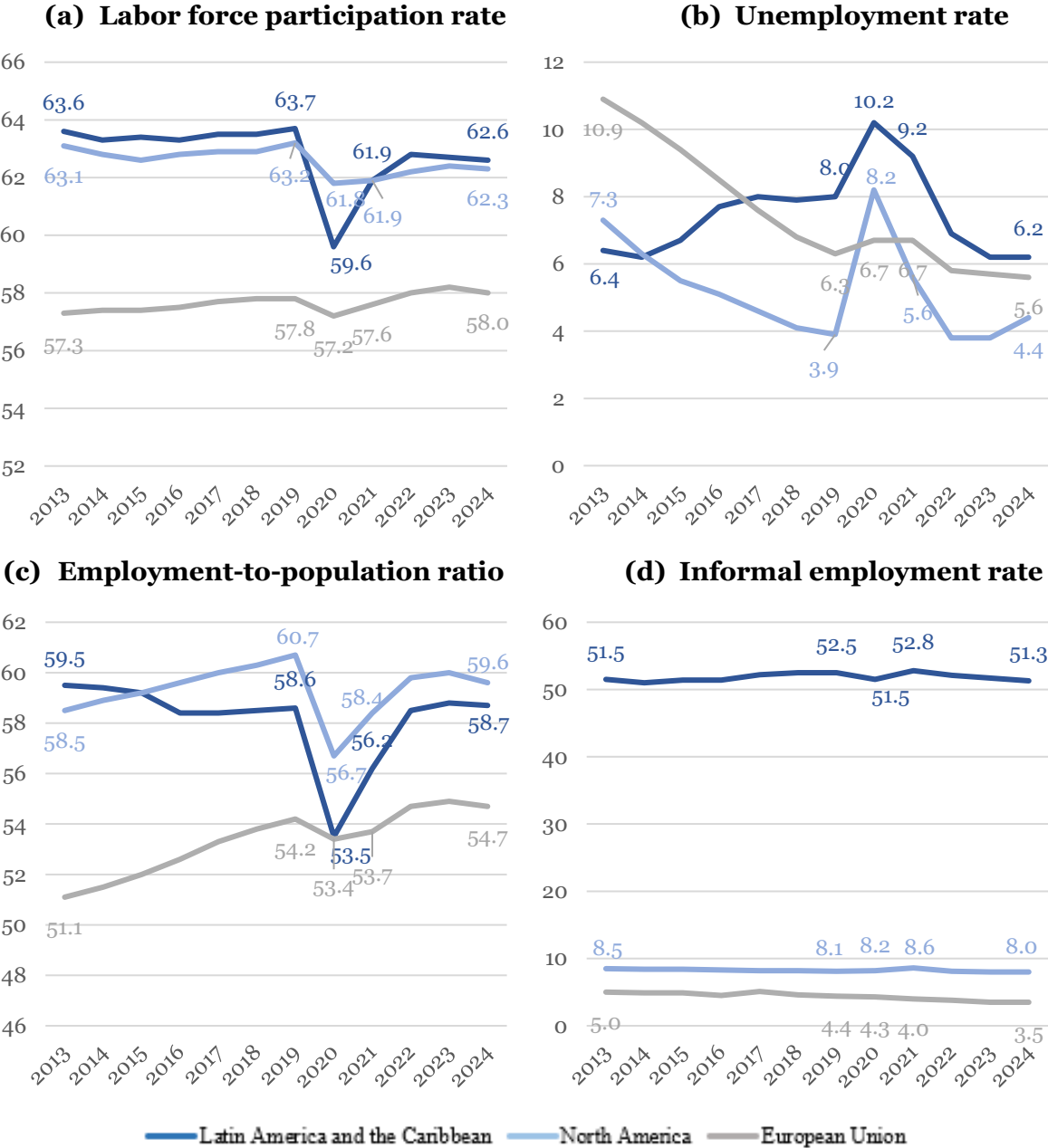
Labor force participation rate. Figure 1(a) illustrates the evolution of the labor force participation rate –the percentage of the working-age population that is either employed or actively seeking employment– across North America (NA), the European Union (EU) and LAC over the 2013-2024 period.⁶ Leading up to the COVID-19 pandemic, LAC’s participation rate averaged 63%, slightly higher than that of NA and largely above the EU’s level. One key factor behind this transatlantic difference is demographic: Europe’s older population results in a larger share of individuals who are no longer part of the labor force.

⁵ While training programs are a key policy tool, evidence on their effectiveness is mixed (Card *et al.*, 2018; McKenzie, 2017). Successful programs often share features such as close alignment with labor market demand, hands-on or on-the-job training components, high-quality trainers, and follow-up support (Attanasio *et al.*, 2017; Almeida *et al.*, 2014). Design and implementation quality are critical to ensuring training translates into improved labor market outcomes.

⁶ See Annex A.1 for data sources and definitions of country groupings. North America includes the United States and Canada, while Mexico is analyzed as part of LAC. The European Union refers to its 28 member countries, based on the composition prior to the United Kingdom's exit.

A striking pattern emerges in the figure when comparing the evolution of labor force participation rates during and after the pandemic. In 2020, the rate in LAC dropped by 4.1 percentage points (p.p.), significantly more than in the EU (0.6 p.p.) and NA (1.4 p.p.). This sharper decline in LAC is largely attributed to stricter lockdown measures and a much smaller share of protected formal employment compared to other regions. During the recovery phase, the EU's labor force participation rate returned to pre-pandemic levels, while in 2024, both LAC and NA still lagged behind, with average rates of 1.1 and 0.9 p.p. below their 2019 levels, respectively. Overall, the figure highlights that LAC was the region most severely affected by the pandemic and has been the slowest to recover.

Figure 1: Aggregate labor market indicators. Annual averages (%). 2013-2024



Source: Author's own elaboration based on International Labor Organization (ILO) data.

Unemployment rate. Regarding the unemployment rate –the percentage of the labor force that is unemployed and actively seeking work– Figure 1(b) shows that recent trends in LAC have also been unfavorable. Even before the COVID-19 pandemic, unemployment was on the rise, increasing from 6.4% in 2013 to 8% in 2019, as these economies slowed following the end of the commodity boom. This trend contrasts with NA and the EU, where unemployment declined over the same period.

The pandemic exacerbated the situation in LAC, pushing the unemployment rate above 10%. In contrast, the EU experienced only a modest increase –less than half a percentage point– thanks to stricter labor market regulations and higher levels of formal employment that helped protect jobs. NA saw a sharper rise, with unemployment peaking at 8.2% in 2020. However, due to more flexible labor markets and robust fiscal and monetary stimulus, NA’s labor market rebounded more quickly than LAC’s in the post-pandemic period. Unemployment rates fell across the three regions after the pandemic, reaching their lowest levels in a decade in both the EU and NA. Although the recovery in LAC was slower, the unemployment rate declined to 6.2% in 2024, the lowest level since 2013.

Employment rate. The employment rate –the share of the working-age population that is employed– also declined in LAC in the years before the pandemic. As shown in Figure 1(c), the rate fell by 0.9 p.p. between 2013 and 2019, dropping from 59.5% to 58.6%. In contrast both NA and the EU experienced rising employment rates over the same period. Employment levels declined worldwide in 2020 due to the impact of COVID-19. NA and LAC were hit hardest, with employment rates dropping by 4 and 5.1 p.p., respectively, compared to 2019. In contrast, the EU experienced a more modest decline of just 0.8 p.p.

Although employment rebounded globally in the post-pandemic period, the pace and extent of recovery varied across regions. These differences reflect not only the structure of labor market institutions but also the macroeconomic recovery strategies adopted by each country. Since 2022, the employment rate in the EU has reached its highest level in a decade. In NA, the recovery was swift but still fell short of returning to pre-pandemic levels. Meanwhile, LAC experienced a rapid rebound, with the employment rate slightly surpassing pre-COVID levels by 2023 and 2024.

Informality. Finally, a defining feature of the labor market in LAC is its high level of informality –measured as the share of salaried and self-employed workers in unregistered jobs.⁷ While often indicative of labor market weakness, informal employment remains a crucial source of income in the region. As shown in Figure 1(d), informal jobs account for over 50% of total employment in LAC. This stands in stark contrast to the EU and NA, where informal employment represented just 8% and 3.5% of total jobs in 2024, respectively. Informality rates have remained relatively stable over the past decade across all three regions, showing little fluctuation even during the pandemic.

In summary, the analysis of the key aggregate indicators reveals that labor markets in LAC continue to underperform relative to those in the EU and NA. Several overarching conclusions emerge: (i) even prior to the COVID-19 pandemic, unemployment in LAC was on the rise, likely reflecting the end of the commodity boom; (ii) all countries in the region exhibit persistently high levels of labor informality; (iii) gender gaps are more pronounced in LAC, with women facing lower participation, lower employment rates, and higher unemployment;⁸ (iv) the COVID-19

⁷ See Annex A.1 for a detailed definition of informality.

⁸ See Annex A.2 for a detailed analysis on country-level labor market outcomes and gender disparities.

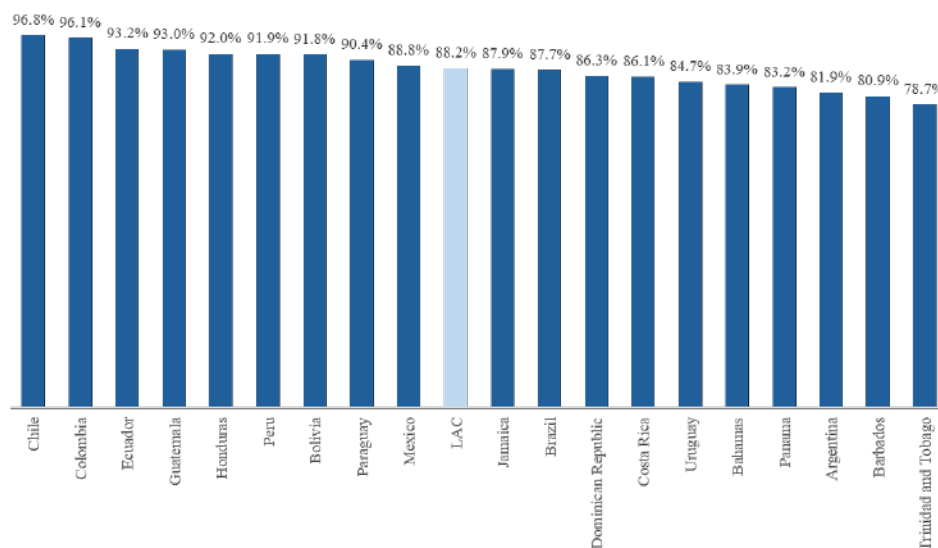
pandemic furthered weakened labor markets, reducing participation, which, as of 2024, remains below pre-pandemic levels, and increasing unemployment; and (v) labor markets conditions vary significantly across countries mainly due to differences in economic growth and productivity, level of informality and regulatory rigidities, human capital and demographic profiles, productive (sectoral) structure, and institutional strength and social protection, highlighting the region’s structural heterogeneity.

Private employment and economic growth

The private sector is the primary source of formal employment in LAC. As shown in Figure 2, by 2024, private sector jobs accounted for 88.2% of total employment.⁹ Several countries reported above-average shares of private sector employment, including Chile (96.8%), Colombia (96.1%), Ecuador (93.2%), Guatemala (93.0%), Peru (91.9%), Bolivia (91.8%), Paraguay (90.4%), and Mexico (88.8%). Conversely, some countries reported lower-than-average shares, such as Trinidad and Tobago (78.7%), Barbados (80.9%), Argentina (81.9%), and Panama (83.2%).

Moreover, private sector employment growth is closely tied to economic growth. Figure 3 illustrates the positive correlation between annual private employment growth and GDP growth across LAC countries from 2013 to 2024, with each point representing a country-year observation. This positive relationship remains consistent when considering GDP per capita and total employment growth, although the correlation is slightly weaker. Additionally, the correlation between annual changes in unemployment and GDP growth reveals a negative slope, further reinforcing the link between labor market dynamics and economic activity.

Figure 2: Private employment participation in total employment in LAC (%). 2024



Source: Authors’ own elaboration based on International Labor Organization (ILO).¹⁰

⁹ These figures include both paid employment and self-employment outside of the public sector, defined as general government plus public corporations (see ILO, [Labour Force Statistics](#) and [Worker and sector profiles](#)).

¹⁰ The figure for Latin America and the Caribbean is a simple average of the data for all countries. For Argentina, Bahamas, Bolivia, Barbados, Dominican Republic, Guatemala, Honduras, Jamaica, Trinidad and Tobago, and Uruguay we consider 2023 data (2024 data is not available). The data for Peru is extracted from the [OECD report](#).

Figure 3: Private employment growth and GDP growth in LAC. 2013 to 2024
(Year-over-Year Change)



Source: Authors' own elaboration based on ILO and World Bank.

1.2. How IDB Invest promotes employment

IDB Invest is committed to promoting sustainable and inclusive economic growth and job creation by supporting private sector development across LAC. Its portfolio spans a wide range of projects, including large-scale infrastructure, capital investments, working capital financing, and trade-related initiatives.

IDB Invest's operations comprise 11 priority sectors, structured around three core business segments: Infrastructure, Corporates, and Financial Intermediaries (see Figure 4). Financing for Infrastructure and Corporates is primarily delivered through direct lending to large enterprises. In contrast, support for Micro, Small and Medium Enterprises (MSMEs) is typically provided indirectly, either through partnerships with Financial Intermediaries (FIs) and via anchor companies that serve as intermediaries within supply chains.

Figure 4: IDB Invest business segments

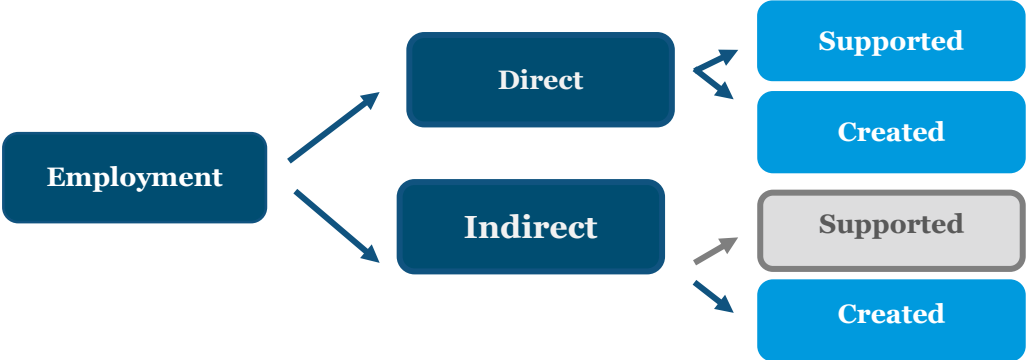


Projects supported by IDB Invest can generate both direct and indirect employment effects (see Figure 5). Following the Harmonized Indicators for Private Sector Operations (HIPSO) and the HIPSO Working Group (2023), the distinction between direct and indirect employment is based not on the type of financing (e.g., direct or indirect), but rather on the nature of the employment effect –whether it occurs inside or outside the direct influence of the project.¹¹ Therefore,

- **Direct employment** refers to jobs related to the construction and operation of infrastructure projects, the expansion of corporate clients, and the growth of MSMEs that receive financing through FIs.
- **Indirect employment**, by contrast, arises from: (i) backward effects (i.e., supply chain/upstream linkages); (ii) forward effects¹² (i.e., downstream linkages); and (iii) induced or spillover effects (i.e., increased demand resulting from higher household income, wages, and dividends).

This document focuses on direct employment (both supported and created), and indirect-backward employment (created). These are the impacts most likely to be influenced by the kinds of projects financed by IDB Invest. Moreover, while forward and spillover effects may be relevant for certain types of projects, the ability to measure them credibly is significantly more limited (IFC, 2013; Attridge *et al.*, 2019; Elhan-Kayalar and Oum, 2022; JIM, 2023). As such, these effects are not assessed across the entire portfolio but may be analyzed for selected projects through impact evaluations or the estimation and calibration of economic models.

Figure 5: Dimensions of employment effects



¹¹ <https://indicators.ifipartnership.org/>. HIPSO is a set of standardized indicators used by DFIs to measure and report the development outcomes of private sector projects. The initiative seeks to establish a common framework for assessing the impact of private sector projects, enhancing comparability and promoting transparency across institutions.

¹² Forward effects refer to jobs created as a result of the benefits generated by a completed project. For example, improved access to electricity from an infrastructure project can enhance firms’ efficiency and production, thereby contributing to job creation downstream.

2. General definitions and methodologies

Unit of analysis

To estimate contribution to employment, projects are categorized into two groups:

- **Real Sector (RS) projects:** these include infrastructure and corporate projects. For infrastructure projects, the unit of analysis is the specific investment; for corporate projects, it is the borrower company.
- **Financial Intermediary (FI) projects:** these involve on-lending through FIs, investment funds, and anchor companies. Here, the unit of analysis is the final beneficiary –typically MSMEs.

Dimensions of employment effects

We identify three different types of employment effects associated with these projects:

- **Direct jobs supported (DJS):** number of employees working within the investment project, the client company, or the final beneficiaries.
- **Direct jobs created (DJC):** number of new employees hired as a direct result of the project.
- **Indirect jobs created (IJC):** number of new jobs generated across the economy due to increased demand for inputs (goods and/or services) resulting from the project.

Project vs. Financing

Since employment effects are assessed at the project level, total financing may include a combination of direct funding from IDB Invest, other DFIs and banks, and/or resources mobilized through different financial instruments.

Gross vs. Net jobs

For both direct (*DJC*) and indirect job creation (*IJC*), it is important to distinguish between **gross and net jobs**. Gross job counts do not account for positions lost elsewhere in the economy due to the project, such as those resulting from crowding-out effects.

From a macroeconomic perspective, when labor is scarce or market conditions are tight, development projects tend to generate fewer net employment gains. As HM Treasury (2022) suggests, if the local employment rate is at or above the national average, or if the anticipated number of new jobs is large relative to local unemployment, multipliers are likely to fall at the lower end of the range, reflecting greater displacement.

According to IFC (2013), in countries with very high unemployment, job creation typically involves drawing underemployed or unemployed people into the labor force. In countries with large informal sectors, expanding formal-sector employment may pull workers out of informal activities and into formal roles. And in countries that are already near full employment, new jobs tend to attract workers into higher value-added positions that offer better wages and benefits.

Given all the above, failing to adjust for job losses in competitor firms caused by the project leads to an overestimation of its employment contribution (Massa, 2013). Measuring net employment

effects is challenging and depends on many factors, such as the state of the business cycle and the intensity of competition. As IFC (2013) explains, calculating net jobs created (or destroyed) and the reallocation of jobs within the economy is methodologically very demanding, and is therefore often overlooked in most analyses.

Kluge and Stöterau (2014) argue that before applying multiplier effects, direct employment impacts must be adjusted for counterfactual, substitution, and displacement effects. Substitution effects arise when employment gains within the target population come at the expense of other members of that same group who do not participate in the project. Displacement effects occur when positive employment outcomes for the target group are offset by negative impacts on individuals or firms outside it. They recommend downward adjustments of 10-30% for displacements effects and 20-40% for substitution effects, noting that these corrections can reduce gross impacts by as much as 70%. Elhan-Kayalar and Oum (2022) suggest refining these adjustments rates based on empirical evidence.

From a cost-benefit analysis perspective (Guillermo-Peon and Harberger, 2012), every worker hired for a project has an opportunity cost determined by their prior labor market status. Under our methodology, we exclude from net job creation any roles filled by workers displaced from other formal-sector positions. In contrast, hires drawn from the informal sector (whether salaried or self-employed) as well as those coming from unemployment or from outside the labor force, are counted toward net jobs created. Applying these adjustments requires reliable data on flows between different labor market states. Since such transition data are available for only a handful of countries in the region, we adopt a less data-intensive, though inherently less precise, approach.

For that purpose, consider that the working age population P is defined as $P=L+U+OLF$, where L is the number of employed workers, U is the number of unemployed workers, and OLF is the number of workers out of the labor force. Define the employment rate (e) as the fraction of the working-age population who are employed ($e=L/P$). Net jobs created come from the fraction of P not employed ($U+OLF$), that is $1 - e$, and from the fraction inf of employed workers who have an informal-sector job. Therefore, indicators of jobs created can be adjusted by:

$$Adj = [1 - e(1 - inf)]$$

Note that the employment rate (e) is directly linked to both the unemployment rate and the labor force participation rate. The unemployment rate (u) is the fraction of the labor force (N) that is unemployed –actively searching for a job. Then, $u=U/N$, where U is the number of unemployed and $N=L+U$. The labor force participation rate (p) is the fraction of the working age population (P) that is in the labor force: $p=N/P$. From these definitions, it follows that $e=p(1-u)$.¹³ Therefore,

$$Adj = [1 - p(1 - u)(1 - inf)]$$

In other words, all else equal, net job creation due to development projects increases with higher unemployment and informality rates and decreases as the labor force participation rate rises. Figure 6 presents the estimated adjustment factor for each LAC country. If data are available, country-level informality can be replaced with country-sector level informality. This methodology relies on an aggregate proxy to estimate potential labor displacements effects caused by the project across the broader economy. Consequently, it may misrepresent firm-specific or localized dynamics, especially in informal economies, and does not fully account for displacement effects across regions and sectors.

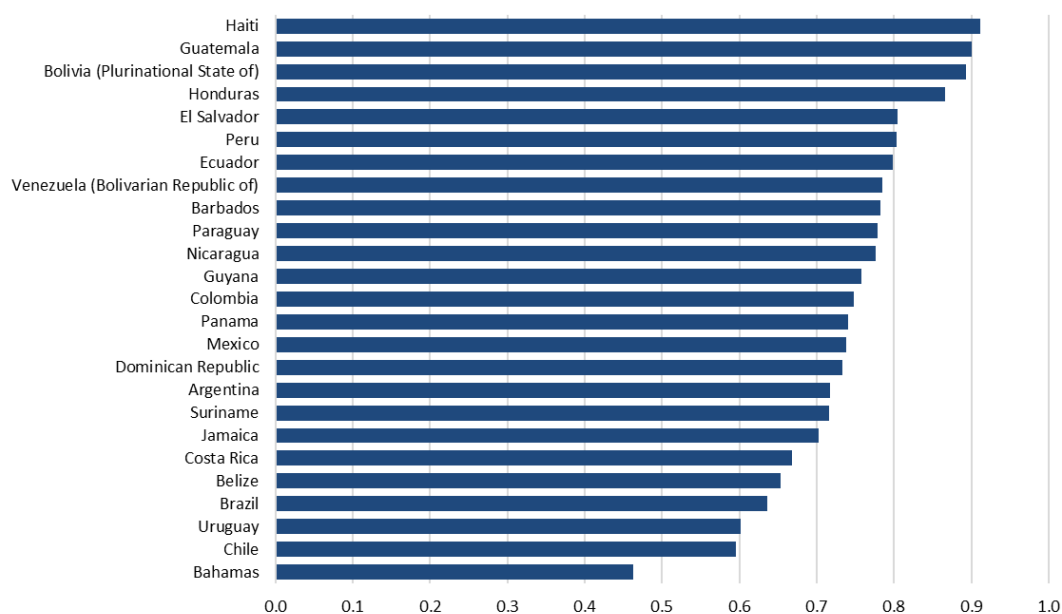
¹³ That is, given that $e = \frac{L}{P}$, $u = \frac{U}{N}$, $p = \frac{N}{P}$ and $N = L + U$, we can write: $e = \frac{L}{P} = \frac{N-U}{P} = \frac{N}{P} - \frac{U}{P} = \frac{N}{P} - \frac{UN}{NP} = p(1 - u)$.

Methodological summary

The primary objective of this document is to present a methodology for measuring and reporting the contribution to employment of a portfolio of development projects. It should be noted that this approach does not constitute an impact evaluation with an econometric counterfactual, nor is it intended to replace such analyses.

Table 1 summarizes the methodology by project type and employment dimension. Each approach draws on client-provided data, country-specific aggregate statistics, and standard economic models. Calculations can be performed ex-ante to estimate expected employment outcomes, applied ex post for implementation monitoring, and used during the evaluation phase to assess realized impacts.

Figure 6: Adjustment factor by LAC country



Source: Authors' elaboration based on the latest information available from ILOSTAT, and the World Bank and UNDP LAC High Frequency Phone Surveys.

In brief, estimates of *DJS* for RS draw on data directly provided by the client or project. *DJC* is then derived by applying a counterfactual analysis to those *DJS* figures. For FI projects, where firm-level data are typically unavailable, we infer *DJS* from financing information and aggregate country statistics and use a reduced-form model to estimate *DJC*. Data constraints in FI projects also compel a conservative approach to *IJC*, which we quantify only for RS projects using a standard Input-Output (I-O) model built on Social Accounting Matrices (SAM) and country-level aggregates.

Table 1: Overview of methodologies for measuring contribution to employment

Type of project	Type of employment effect		
	Direct Jobs Supported (<i>DJS</i>)	Direct Jobs Created (<i>DJC</i>)	Indirect Jobs Created (<i>IJC</i>)
Real sector (RS)	Jobs information provided by the project or company	Calculation based on <i>DJS</i> and counterfactual approach	Input-Output model
Financial Intermediaries (FIs)	Calculation based on financing information provided by the FI and aggregate country data	Reduced form model	[Not applicable]

3. Direct Jobs Supported (DJS)

Direct jobs supported (*DJS*) are defined as the number of full-time equivalent (FTE) workers in formal, permanent jobs, as per local definition, employed by the investment project, client company, or final beneficiaries (e.g., MSMEs reached through FIs) at the end of the reporting period.

This measure captures the retention of existing jobs and the creation of new ones (i.e., *DJC*). While *DJC* is a flow measure of employment, *DJS* represents the stock of employees at the end of the reporting period. Measuring *DJS* underscores the project's contribution to sustaining jobs over the long-term.

3.1. Real sector (RS)

Methodology

DJS data for RS projects are reported by the project or company in accordance with the following guidelines:¹⁴

- *DJS* includes formal, permanent jobs associated with the normal operations and maintenance of the company or project.
- Temporary workers (e.g., construction or seasonal staff) are excluded unless explicitly classified as long-term operation roles.
- It covers both individuals hired directly and those contracted through third-party agencies, provided they work on operations or maintenance related to the project or company.

¹⁴ These guidelines also apply to Funds projects reporting this information for companies supported through financing or equity.

Guidance for FTE: Part-time jobs are converted to FTE jobs on a pro rata basis, based on local definitions. If the information is not available, the rule-of-thumb is that two part-time jobs are equivalent to one full-time job.

Data requirements

Variable	Description	Source	Observations
FTE workers	Number of full-time equivalent (FTE) workers	Project or company	Included as default in the project Monitoring & Evaluation (M&E) plan.

Main assumptions and limitations

- Projects contribute to the long-term preservation of existing jobs.
- Data reliability depends on project or company-reported figures, assuming accurate and consistent counts. However, we acknowledge self-reported data may contain unobserved measurement errors.
- Consistent definitions of “formal” and “permanent” employment are used across all projects, in alignment with local labor regulations.
- Informal jobs supported by the project are excluded, potentially understating, *ceteris paribus*, total job support in economies with sizable informal sectors.

3.2. Financial Intermediaries (FIs)

Methodology

Since detailed employment data for MSMEs supported through FIs are typically unavailable, we estimate *DJS* for FIs by relying on: (i) information reported by the FI; and (ii) aggregate country data. We define *DJS* in period *t* of an FI project as follows:

$$DJS_t = N_t \times (\bar{L}_t * \bar{h}_t)$$

where N_t is the number of firms financed by the FI project, \bar{L}_t is the country’s (or country-sector) average level of private formal employment in MSMEs, and \bar{h}_t is the country’s (or country-sector) average ratio of hours actually worked to the standard hours of a full-time job.

To refine the calculation of *DJS*, each FI project must clearly specify its target group of firms *N* – whether micro, small, medium, MSME, SME or MSE. The average employment figures used in the formula are then adjusted to match the specified group. For example, if the FI targets SMEs rather than MSMEs, we consider the average FTE private formal employment for SMEs for calculating *DJS*. We use formal employment statistics by firm size from each country’s official government sources. If no country-specific data are available, we use weighted regional averages as proxies.

Data requirements

Variable	Description	Source	Observations
N	Number of micro, small and/or medium enterprises financed	Project or company	Included as default in the M&E Plan. During project structuring, the primary target group of firms to be financed should be identified.
\bar{L}_{MSMEs}	Average private formal employment in MSMEs (or any subgroup within MSMEs)	Official government sources	When specific data are unavailable, we use the weighted regional average of MSME employment as a proxy.
\bar{h}	Average ratio of hours actually worked to the standard hours of a full-time job	ILOSTAT	The metric is constructed using the mean weekly hours actually worked per employee. If country-specific data are unavailable, we use the regional average as a proxy.

Main assumptions and limitations

- Projects contribute to the long-term preservation of existing jobs.
- Data reliability depends on FI figures, assuming accurate and consistent counts. However, we acknowledge self-reported data may contain unobserved measurement errors.
- In the absence of firm or sector-level data, country-specific aggregate MSME employment figures are used as a substitute. This may not accurately reflect sector- or firm-specific characteristics.
- Informal jobs supported by the project are excluded, potentially understating, *ceteris paribus*, total job support in economies with sizable informal sectors.

4. Direct Jobs Created (DJC)

Direct jobs created (DJC) are defined as the number of new FTE workers in formal, permanent jobs, as per local definition, hired as a direct result of the project during the reporting period.

The **concept of a counterfactual is essential for calculating DJC**, as it requires estimating what employment would have been without the project. Therefore, *DJC* includes only those jobs created above this counterfactual level. Any employment changes that would have occurred independently of the project should be excluded from the *DJC* count.

4.1. Real sector (RS)

Following a counterfactual approach, we define *DJC* as:

$$DJC_t = [DJS_{t,p} - DJS_{t,np}] \times [1 - p_t(1 - u_t)(1 - inf_t)]$$

where $DJS_{t,p}$ denotes the number of *DJS* at time t in the scenario **with** the project, $DJS_{t,np}$ represents the number of *DJS* in the scenario **without** the project, p_t is the labor force participation rate, u_t is the unemployment rate and inf_t is the country-level informality rate. The second term in brackets is the adjustment factor accounting for potential labor-displacement effects elsewhere in the economy due to the project.

Methodology – Ex-ante analysis (during project structuring)

For simplicity, assume two periods: t_0 as the baseline year and t_1 as the supervision year. Based on the information available at t_0 , the expected direct job creation in t_1 , denoted by $\widehat{DJC}_{t_1}^{t_0}$, is estimated as follows:

$$\widehat{DJC}_{t_1}^{t_0} = [\widehat{DJS}_{t_1,p}^{t_0} - \widehat{DJS}_{t_1,np}^{t_0}] \times [1 - p_{t_0}(1 - u_{t_0})(1 - inf_{t_0})]$$

where $\widehat{DJS}_{t_1,p}^{t_0}$ is the expected number of *DJS* in the scenario **with** the project at t_1 , and $\widehat{DJS}_{t_1,np}^{t_0}$ the expected number of *DJS* in the scenario **without** the project at t_1 . Subscripts refer to the period under analysis, and superscripts indicate when the estimation is made.

Project Finance

For project finance with an economic analysis at the project level (e.g., greenfield projects or brownfield projects that report jobs separately from existing operations), we assume $\widehat{DJS}_{t_1,np}^{t_0} = 0$, because the project covers the entirety of the investment and no jobs would have been created without it. Therefore, the estimated job creation simplifies to:

$$\widehat{DJC}_{t_1}^{t_0} = \widehat{DJS}_{t_1,p}^{t_0} \times [1 - p_{t_1}(1 - u_{t_1})(1 - inf_{t_1})]$$

Here, $\widehat{DJS}_{t_1,p}^{t_0}$ will be reported by the project during structuring phase.

Corporate Finance

For corporate finance, $\widehat{DJS}_{t_1,p}^{t_0}$ and $\widehat{DJS}_{t_1,np}^{t_0}$ are estimated based on **projections of value-added** and, where applicable, **total factor productivity** (TFP). Specifically, $\widehat{DJS}_{t_1,p}^{t_0}$ is drawn from the Base Case of the project economic analysis (scenario with the project), while $\widehat{DJS}_{t_1,np}^{t_0}$ relies on projections from the without-project scenario.

In this approach, changes in value added and TFP are converted into employment changes. Using elasticities, employment growth can be expressed as:

$$g_L = \varepsilon_{L,Y} \times g_Y + \varepsilon_{L,A} \times g_A$$

Here, g_Y is the value-added growth rate, g_A the TFP growth rate, and g_L the employment growth rate. $\varepsilon_{L,Y}$ and $\varepsilon_{L,A}$ represent the employment-value added and employment-TFP elasticities, respectively.

To derive the employment elasticities, we first obtain the conditional labor demand from the firm's cost-minimization problem under a Cobb-Douglas production, defined as $Y = AK^\alpha L^\beta$. Here, Y is value added, A is TFP, K is capital, L is employment, and α and β are output elasticities of capital and labor, respectively.

In this problem, the firm minimizes total cost, $w \cdot L + r \cdot K$, where w and r are the wage rate and the capital interest rate, respectively. The Appendix shows that the optimal labor demand L^* , solving this problem is:

$$L^* = \left(\frac{Y}{A} \times \left(\frac{\beta r}{\alpha w} \right)^\alpha \right)^{\frac{1}{\alpha + \beta}}$$

From this, the employment-value added and employment-TFP elasticities are derived as:

$$\varepsilon_{L,Y} = \frac{\partial L^*}{\partial Y} \frac{Y}{L^*} = \frac{1}{\alpha + \beta}$$

$$\varepsilon_{L,A} = \frac{\partial L^*}{\partial A} \frac{A}{L^*} = -\frac{1}{\alpha + \beta}$$

Substituting these elasticities into the employment growth expression, we get

$$g_L = \frac{1}{\alpha + \beta} (g_Y - g_A).$$

This formula shows that the employment growth rate is determined by both value-added growth and productivity growth. Moreover, under constant returns to scale ($\alpha + \beta = 1$), employment growth simplifies to the difference between value-added and productivity growth, that is,

$$g_L = g_Y - g_A.$$

Therefore, using the observed baseline data for direct jobs supported, DJS_{t_0} , and projections of value-added and TFP growth, both with and without the project, we can estimate:

$$\widehat{DJS}_{t_1,p}^{t_0} = DJS_{t_0} \times (1 + g_{L,p})$$

$$\widehat{DJS}_{t_1,np}^{t_0} = DJS_{t_0} \times (1 + g_{L,np})$$

Where $g_{L,p} = \frac{1}{\alpha+\beta}(g_{Y,p} - g_{A,p})$ and $g_{L,np} = \frac{1}{\alpha+\beta}(g_{Y,np} - g_{A,np})$ are the estimated employment growth rates with and without project.

In summary, the ex-ante estimated job creation is calculated as:

$$\widehat{DJC}_{t_1}^{t_0} = [DJS_{t_0} \times (1 + g_{L,p}) - DJS_{t_0} \times (1 + g_{L,np})] \times [1 - p_{t_0}(1 - u_{t_0})(1 - inf_{t_0})]$$

which simplifies to

$$\widehat{DJC}_{t_1}^{t_0} = DJS_{t_0} \times (g_{L,p} - g_{L,np}) \times [1 - p_{t_0}(1 - u_{t_0})(1 - inf_{t_0})]$$

In the following table, we present a simple ex-ante analysis for corporate finance based on these assumptions: value-added growth of 40% with the project versus 10% without; no change in TFP; constant returns to scale; a labor participation rate of 62%, an unemployment rate of 6%; and an informality rate of 50%:

	Baseline = t_0	t_1
With project	$DJS_{t_0} = 100$	$\widehat{DJS}_{t_1,p}^{t_0} = 100 \times (1 + 0.4) = 140$
Without project		$\widehat{DJS}_{t_1,np}^{t_0} = 100 \times (1 + 0.1) = 110$
Actual DJC	$DJC_{t_1} = (140 - 110) \times [1 - 0.62 \times (1 - 0.06) \times (1 - 0.5)] = 21$	

Note that in this example, $\widehat{DJS}_{t_1,np}^{t_0} = 110$ while $DJS_{t_0} = 100$, which means employment would rise for reasons unrelated to the project. This underscores that simply comparing $\widehat{DJS}_{t_1,p}^{t_0}$ with DJS_{t_0} , without accounting for the counterfactual, would produce a misleading estimate of jobs actually created by the project.

Methodology – Ex-post analysis (during project supervision)

Project Finance

In line with the ex-ante approach, for project finance we assume:

$$\widehat{DJS}_{t_1,np} = DJS_{t_1,np} = 0.$$

Thus, direct job creation is:

$$DJC_{t_1} = DJS_{t_1,p} \times [1 - p_{t_1}(1 - u_{t_1})(1 - inf_{t_1})]$$

Corporate Finance

During the ex-post analysis, we observe $DJS_{t_1,p}$ but not $DJS_{t_1,np}$. Therefore, for supervision, job creation is calculated as:

$$DJC_{t_1} = [DJS_{t_1} - \widehat{DJS}_{t_1,np}^{t_1}] \times [1 - p_{t_1}(1 - u_{t_1})(1 - inf_{t_1})]$$

Building on the previous example, the table below presents the ex-post analysis:

	Baseline = t_0	t_1
With project	$DJS_{t_0} = 100$	$\widehat{DJS}_{t_1,p}^{t_0} = 140 ; DJS_{t_1,p} = 135$
Without project		$\widehat{DJS}_{t_1,np}^{t_0} = 110 ; \widehat{DJS}_{t_1,np}^{t_1} = 110$
Actual DJC	$DJC_{t_1} = (135 - 110) \times [1 - 0.62 \times (1 - 0.06) \times (1 - 0.5)] = 18$	

Following the previous example, if we set $DJS_{t_1,p} = 95$ and assume a 20% decline in the country-sector GDP in t_1 (with labor force participation, unemployment, and informality rates unchanged), we obtain:

	Baseline = t_0	t_1
With project	$DJS_{t_0} = 100$	$\widehat{DJS}_{t_1,p}^{t_0} = 140 ; DJS_{t_1,p} = 95$
Without project		$\widehat{DJS}_{t_1,np}^{t_0} = 110 ; \widehat{DJS}_{t_1,np}^{t_1} = 100 \times (1 - 0.2) = 80$
Actual DJC	$DJC_{t_1} = (95 - 80) \times [1 - 0.62 \times (1 - 0.06) \times (1 - 0.5)] = 11$	

Data requirements

All

Variable	Description	Source	Observations
DJS	Actual values of direct jobs supported	Project or company	Included as default in the M&E plan.
u	Country-level unemployment rate	ILOSTAT	ILO indicator: Unemployment rate – ILO modelled estimates (%)– Annual (15+)
p	Country-level labor force participation rate	ILOSTAT	ILO indicator: Labor force participation rate– ILO modelled estimates (%) – Annual (15+)
inf	Country (or country-sector) level informality rate	ILOSTAT; World Bank and UNDP LAC High Frequency Phone Surveys.	ILO indicator: Informal employment rate (%) – Annual. For countries with no available ILO data, 2021 World Bank and UNDP LAC High Frequency Phone Surveys are used.

Project Finance

Variable	Description	Source	Observations
$\widehat{DJS}_{t_1,p}^{t_0}$	Direct jobs supported projection	Project or company	To be collected during project structuring.

Corporate Finance

Variable	Description	Source	Observations
DJS_{t_0}	Direct jobs supported at baseline	Project or company	To be collected during project structuring.
g_Y	Value-added growth rate. Value-added = Total sales – COGS – Other operative costs	Project's financial model	$g_{Y,p}$ to be obtained from the Base Case (scenario with the project). $g_{Y,np}$ to be estimated from the scenario without the project.
g_A	TFP growth rate	Project's financial model	$g_{A,p}$ to be obtained from the scenario with the project. $g_{A,np}$ to be estimated from the scenario without the project.

Main assumptions and limitations

- Data reliability depends on project or company-reported figures, assuming accurate and consistent counts. However, we acknowledge self-reported data may contain unobserved measurement errors.
- The estimates of counterfactual employment for Corporate Finance projects are assumed to be precise and to incorporate both the project’s anticipated value-added and its eventual gains in TFP.
- Some calculations rely on official labor statistics. Using aggregate labor market data can obscure sector- and firm-specific variations.
- Informal jobs supported by the project are excluded, potentially understating, *ceteris paribus*, total job support in economies with sizable informal sectors.

4.2. Financial Intermediaries (FIs)

Methodology

As a starting point, we assume that the financing amount is allocated to expand the capital stock of MSMEs.¹⁵ Therefore, our analysis focuses on projects that fund capital expenditures (CAPEX) –investments in fixed assets such as machinery, equipment, and other long-term resources– typically backed by long-term financing. By contrast, short-term financing generally addresses working capital needs like payroll, inventory, and seasonal cash-flow fluctuations.¹⁶ Moreover, in line with the *DJS* methodology, we exclude any FI projects aimed primarily at promoting financial inclusion for individuals or subsistence-level enterprises (e.g., microfinance) from this analysis.

Define $C = \Delta K$, where C denotes the dollar amount of financing provided to an MSME by the project, and K represents its capital stock. The central question is how this increase in capital stock of capital impacts employment.

In line with the Real Sector approach, we assume a Cobb-Douglas production function $Y = AK^\alpha L^\beta$ where A denotes TFP, K is capital input, L is labor input, and $\alpha + \beta \leq 1$. By solving the cost-minimization problem via its first-order conditions (see the Appendix for details), we obtain the labor demand:

$$L = K \frac{\beta r}{\alpha w}$$

Under these assumptions, the employment-capital elasticity, $\varepsilon_{L,K}$, equals 1. Therefore, the employment growth rate, $g_L = \frac{\Delta L}{L}$, resulting from FIs’ financing of MSMEs is:

$$g_L = \varepsilon_{L,K} \cdot g_K = 1 \cdot g_K,$$

¹⁵ This assumes there is no crowding in nor out at the financing level.

¹⁶ Focusing on the employment effects of long-term capital expenditure (CAPEX) loans is supported by empirical evidence. Impact evaluations backed by the IDB Group, which compare short- and long-term lending in the region (Eslava et al, 2014; Giuliadori et al., 2020; Aparicio et al., 2021), consistently find that only long-term financing leads to positive increases in investment and employment.

where $g_K = \frac{\Delta K}{K} = \frac{C}{K}$ is the growth rate of the MSME's capital stock attributable to the project.

Put differently, because $g_L = g_K$, it follows that:

$$\Delta L = \Delta K \times \frac{L}{K}.$$

This final expression indicates that the change in employment is directly proportional to the increase in capital stock, scaled by the current labor-to-capital ratio.¹⁷

Firm-level data on labor (L) and capital (K) are typically unavailable for FI projects, so we estimate the labor-to-capital ratio $\left(\frac{L}{K}\right)$ using aggregate figures. To tailor this ratio to MSMEs, we adjust it according to their share of private employment and private capital stock. Because MSMEs tend to be more labor-intensive and less capital-intensive than the economy-wide average, we apply a multiplier greater than one to the aggregate $\left(\frac{L}{K}\right)$ ratio. If size-specific data are lacking, however, using the economy-wide ratio still provides a conservative, lower-bound estimate. Thus,

$$\Delta L = C \times \frac{L_c}{K_c} \times \delta_{MSME}$$

where C represents the financing amount directed to MSMEs by the project, L_c denotes total formal private employment at the country (or country-sector) level, K_c is the private capital stock in real terms at the country (or country-sector) level, and δ_{MSME} is the MSME size adjustment factor.

Consequently, DJC at time t is calculated as follows:

$$DJC_t = \left[C_t \times \frac{L_{c,t}}{K_{c,t}} \times \delta_{MSME,t} \right] \times \bar{h}_t \times [1 - p_t(1 - u_t)(1 - inf_t)]$$

where \bar{h}_t is the country's average ratio of actual hours worked to the standard full-time hours. Under this approach, the only key project-level to estimate is C_t .

Following a counterfactual approach, the net increase in MSME financing attributable to the project, C_t , can be expressed as:

$$\begin{aligned} C_t &= F_{t,p} - F_{t,np} \\ C_t &= (F_{t_0} + \Delta F_{t,p}) - (F_{t_0} + \Delta F_{t,np}) \\ C_t &= \Delta F_{t,p} - \Delta F_{t,np} \end{aligned}$$

where $F_{t,p}$ is the MSME financing at time t under the scenario with the project, and $F_{t,np}$ denotes MSME financing at time t without the project.

Assuming that $\Delta F_{t,np} = 0$, and thus, $C_t = \Delta F_{t,p}$, we can estimate C_t as follows:

$$C_t = \Delta F_{t,p} = F_{FI,t} + \sum_i^n F_i (F_{FI} \text{ tenor}; \overline{F_{MSMES} \text{ tenor}}_t; K_{FI,t}; NPL_{MSMES,t})$$

where $F_{FI,t}$ is the amount of financing that IDB Invest provides to the FI, serving as the initial pool of funds available for on-lending to MSMEs. The second term, $\sum_i^n F_i$, captures the subsequent n disbursements to MSMEs arising from the revolving nature of the financing. It depends on four

¹⁷ This means that even if there is the possibility of substitution between factors, factor proportions remain the same, as with a fixed proportions production technology.

factors: the tenor of the IDB Invest financing ($F_{FI} \text{ tenor}$), the average tenor of MSME loans ($\overline{F_{MSMEs} \text{ tenor}_t}$), the outstanding capital of the IDB Invest financing over time ($K_{FI,t}$) and the share of MSME non-performing loans ($NPL_{MSMEs,t}$). A longer IDB Invest tenor relative to the average MSME loan tenor allows the FI to redeploy funds multiple times, while a higher $K_{FI,t}$ and a lower $NPL_{MSMEs,t}$ indicates more capital remains available for MSME lending.

Overall, this formula estimates the total financing channeled to MSMEs by combining the resources provided by IDB Invest with the potential for redeployment over time. It captures the FI's on-lending capacity, accounting for the tenor structure of both IDB Invest financing and MSME loans, as well as the remaining capital after serving existing obligations. Notably, the project-induced MSME financing (C_t) cannot exceed the FI's overall MSME funding allocation.

The main limitations in calculating C_t stem from assuming that all IDB Invest financing directly increases MSME lending, and that the counterfactual remains fixed over time. In the extreme, IDB Invest funds might simply replace other financing sources, leaving the FI's total MSME lending unchanged. In that case, C_t would be zero and $DJC = 0$. Ideally, C_t should capture the net increase in MSME financing directly attributable to the IDB Invest project.

In each supervision year, the estimate is updated using the actual values of the time-varying variables (denoted with subscript t).

Representative example of ex-ante analysis (during project structuring)

All financing to be disbursed in Year 1 + Bullet amortization

- IDB Invest financing to the FI ($F_{FI,t}$): US\$100 million
- Tenor of the IDB Invest financing ($F_{FI} \text{ tenor}$): 4 years
- Average tenor of the financing to MSMEs ($\overline{F_{MSMEs} \text{ tenor}_t}$): 2 years
- Outstanding capital of IDB Invest financing ($K_{FI,t}$): US\$100 million (bullet amortization schedule, exposure remains constant throughout the project)
- MSME NPLs ($NPL_{MSMEs,t}$): 5%
- Employment-capital ratio ($\frac{L_{c,t}}{K_{c,t}}$): 0.000015; MSME size adjustment ratio ($\delta_{MSME,t}$): 1
- Hours actually worked over regular work hours of a full-time job (\bar{h}_t): 1
- Labor participation rate (p_t): 62%; Unemployment rate (u_t): 6% Informality rate (inf_t): 50%

	Year 1	Year 2	Year 3	Year 4	Total
C	100m	0	95m	0	100m + 95m = 195m
Projected DJC	$[100m \times 0.000015 \times 1] \times 1 \times [1 - 0.62 \times (1 - 0.06) \times (1 - 0.5)]/2 = 1,063/2 = \mathbf{531}$	531	$531 * 0.95 = \mathbf{504}$	504	2,070

(Total financing to MSMEs disbursed in Year 1)

(After 2 years, 95% of the funds are disbursed again since there is no amortization)

Data requirements

Variable	Description	Source	Observations
$F_{FI} \text{ tenor}$	Tenor of IDB Invest financing	Project	To be collected during project structuring.
$\overline{F_{MSMEs} \text{ tenor}}$	Average tenor of MSME financing	Project	To be collected during project structuring and supervision.
$K_{FI,t}$	Outstanding capital of IDB Invest financing over time	Project	To be collected during project structuring.
L_c	Country (or country-sector) level formal private employment	ILOSTAT	ILO indicator: Employment by sex, economic activity and public/private sector (thousands).
K_c	Country (or country-sector) level private capital stock	IMF	IMF indicator: Private capital stock in billions of nominal national currency.
u	Country-level unemployment rate	ILOSTAT	ILO indicator: Unemployment rate by sex and age – ILO modelled estimates (%) – Annual (15+)
p	Country-level labor force participation rate	ILOSTAT	ILO indicator: Labor force participation rate by sex and age – ILO modelled estimates (%) – Annual (15+)
inf	Country (or country-sector) level informality rate	ILOSTAT ; World Bank and UNDP LAC HFPS	ILO indicator: Informal employment rate (%) – Annual. For countries with no available ILO data, 2021 World Bank and UNDP LAC High Frequency Phone Surveys are used.
\bar{h}	Average ratio of hours actually worked to the regular work hours of a full-time job	ILOSTAT	ILO indicator: Mean weekly hours actually worked per employee.

Main assumptions and limitations

- All financing is assumed to be fully utilized for CAPEX by MSMEs rather than for working capital, payroll, or debt repayment. Therefore, employment effects may be overstated if the financing is used for purposes other than CAPEX.
- Data reliability depends on FI figures, assuming accurate and consistent counts. However, we acknowledge self-reported data may contain unobserved measurement errors.
- MSMEs are assumed to maintain a constant labor-to-capital ratio, enabling the estimation of employment effects from changes in capital stock. Assuming a linear relationship between capital investment and job creation, with constant elasticities, ignores potential nonlinear dynamics and diminishing returns.
- Some calculations rely on official labor statistics. Using aggregate labor market data can obscure sector- and firm-specific variations.
- Informal jobs supported by the project are excluded, potentially understating, *ceteris paribus*, total job support in economies with sizable informal sectors.

5. Indirect jobs created (IJC)

Indirect jobs created (IJC) are defined by the number of jobs generated in the economy as a result of the project's increased demand for inputs.

Measuring indirect employment creation is essential to assess the broader impact of development projects. In this section, we focus on estimating *IJC* arising through the backward linkages of an RS project —its supply-chain effects— while deferring the analysis of *IJC* for FI projects to future work.

We begin by assuming that funded investments lead firms to purchase intermediate inputs. The resulting increase in domestic demand for those goods and services prompts local suppliers to expand production and hire additional workers. A common approach to capturing these spillover effects is the use of output multipliers derived from Input-Output (IO) models (JIM, 2023).¹⁸

The second assumption addresses how increased output demand from other firms translates into job creation. We use the inverse of sectoral labor productivity —assuming it remains constant— to estimate the labor input required per unit of output. This approach allows us to calculate the additional number of jobs, both formal and informal, needed to meet the higher production levels in each sector, under the assumption of constant productivity.¹⁹

¹⁸ These models rely on Social Account Matrices (SAM) to map all financial flows across aggregated economic sectors. Output multipliers capture the idea that a one-dollar increase in demand for sector A generates more than one dollar in total production. This amplification occurs because each input-supplying sector must ramp up its output to meet the new demand.

¹⁹ Using a fixed employment-intensity ratio means assuming that upstream sectors' productivity remains unchanged after the project. This is a reasonable simplification when the investment is relatively small and does not significantly alter suppliers' operations. However, for large-scale projects, productivity gains along the supply chain may be expected, making the fixed-intensity assumption less accurate.

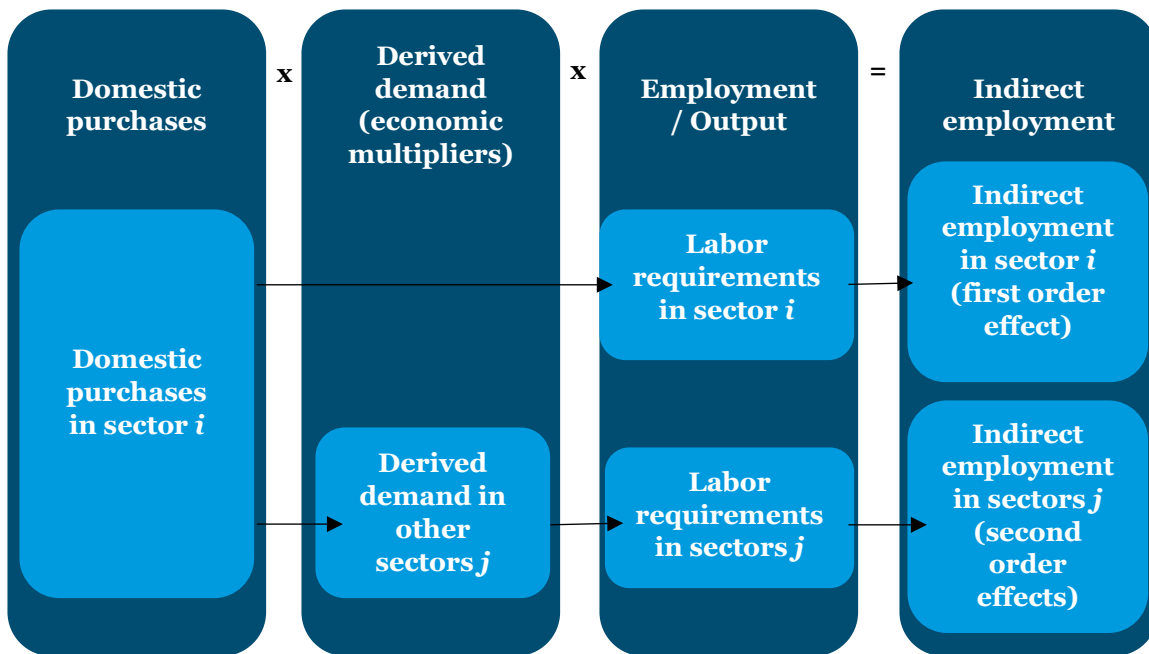
Let IJC_i denote the number of indirect jobs generated in the economy by an increase in domestic purchases in sector i . Then we have:

$$IJC_i = \underbrace{D_i \times \frac{L_i}{Y_i}}_{1st\ order\ effect} + \underbrace{\sum_j D_i \times b_{ij} \times \frac{L_j}{Y_j}}_{2nd\ order\ effect}$$

Where D_i is the project-driven domestic purchases in sector i , b_{ij} is the derived-demand coefficient (economic multiplier) showing how much sector j must increase output for each additional unit of demand in sector i , and $\frac{L}{Y}$ is the employment-output intensity, i.e., employment requirements per unit of output. The first term aggregates employment gains in the project's direct suppliers (first-order effects), while the second term captures jobs created further downstream as those suppliers ramp up their own input purchases (second-order effects).

Figure 7 outlines the four-step chain of indirect employment effects: (i) The rise in domestic purchases of intermediate inputs in a given sector (column 1); (ii) The resulting additional demand for goods and services from other sectors (column 2); (iii) Output expansion in those sectors, with workers hired according to their labor-per-unit-of-output requirements; (iv) The aggregation of job gains across all affected sectors (column 4), which yields the total indirect employment generated by the initial rise in domestic purchases.

Figure 7: Indirect employment effects of domestic purchases



Accounting for increases in domestic purchases across all economic sectors, the total number of *IJC* is:

$$IJC = \sum_i IJC_i = \left[\sum_i \underbrace{D_i \times \frac{L_i}{Y_i}}_{1st\ order\ effect} + \sum_i \sum_j \underbrace{D_i \times b_{ij} \times \frac{L_j}{Y_j}}_{2nd\ order\ effect} \right] \times [1 - p(1 - u)(1 - inf)]$$

Data requirements

Variable	Description	Source	Observations
D_i	Domestic purchases by sector	Project	In nominal local currency, deflated if needed using Producer Price Inflation (PPI) if available or Headline consumer price inflation (CPI) from the World Bank's Global Database of Inflation .
b_{ij}	Leontief economic multiplier	SAM/IO	Latest available from official government sources or from Open IEEM platform .
$Y_{i/j}$	Sectorial output		
$L_{i/j}$	Sectorial FTE employment	ILOSTAT	Constructed using the following indicators from processed household surveys: (i) Employment by sex and economic activity (thousands); (ii) Informal employment by sex and economic activity (thousands); (iii) Mean weekly hours actually worked per employee by sex and economic activity.
u	Country-level unemployment rate	ILOSTAT	ILO indicator: Unemployment rate– ILO modelled estimates (%) – Annual (15+)
p	Country-level labor force participation rate	ILOSTAT	ILO indicator: Labor force participation rate– ILO modelled estimates (%) – Annual (15+)
inf	Country (or country-sector) level informality rate	ILOSTAT	ILO indicator: Informal employment rate (%) – Annual.

Domestic purchases by sector. Aligning sector disaggregation with available country information on SAM/IOT, employment, and output, we consider the 14-sector ISIC Rev.4. If applicable, we request data separately for the construction and operation phases, and for corporates projects we gather domestic-purchases figures both before and during the project implementation. We then convert all data to real terms using producer prices indexes –or wholesale or consumer price indexes if producer prices are not available.

Labor productivity. Projecting employment effects for future periods, we adjust the employment-output ratio only when labor productivity growth is positive, such that $\left(\frac{L_j}{Y_j}\right)_{t+1} = \frac{1}{\left(\frac{Y_j}{L_j}\right)_t \times (1+lpg)}$, where lpg is the annual labor productivity growth rate that reduces employment requirements per unit of output. We draw updated productivity-per-hour data from the Conference Board²⁰ and use its five-year average growth rate to estimate lpg .

Main assumptions and limitations

- The methodology assumes that investments funded directly lead to higher domestic purchases of intermediate goods and services (demand effect), thereby boosting employment in supplier industries.²¹ It assumes that firms will buy from local suppliers in the same proportion as existing firms, and that local suppliers can scale output accordingly. This way, the model only considers supplier-side employment effects, excluding job creation in downstream industries and other broader spillover effects.
- The *IJC* estimate is partly based on national level economic multipliers from I-O models and SAM, assuming these accurately capture intersectoral linkages and employment effects. Therefore, the methodology may fail to capture regional, firm-level, or industry-specific variations in employment intensity.
- Domestic purchases data reliability depends on project or company-reported figures, assuming accurate and consistent counts. However, we acknowledge self-reported data may contain unobserved measurement errors.
- Labor productivity is assumed constant over time, meaning the employment-output ratio does not change despite potential efficiency improvements or technological advances. With technical coefficients and input prices fixed by construction, the model cannot account for economies of scale, substitution toward cheaper inputs, or productivity gains.
- The model assumes a perfectly elastic labor supply, which may not hold if labor is scarce or lacks the skills required to meet project needs.

²⁰ <https://www.conference-board.org/data/economydatabase/total-economy-database-productivity>

²¹ Models like JIM (2023) assess project impacts on total purchases (both domestic and imported) which can overstate local employment effects. Our methodology relies on beneficiary-reported increases in domestic procurement, avoiding this bias.

6. Pilot results and final remarks

The tables below present preliminary results from applying our framework to estimate *DJS* and *DJC* across active projects in our portfolio for 2024. The implementation of the methodology for calculating *IJC* is still in progress and will be included in future versions of this document.

Direct jobs supported

Table 2A shows the *DJS* results for the 2024 period. Real Sector-Project Finance mainly refers to infrastructure projects. These projects do not necessarily have substantial direct, permanent employment; instead, they give rise to significant temporary construction jobs, which fall outside the scope of this indicator. In contrast, Real Sector-Corporate Finance projects capture the ongoing (existing + new) headcount within the large companies we supported. Finally, the figures for FIs illustrate the broad reach these entities can achieve. Through their capillarity and tailored lending products, FIs enable credit access for a vast number of MSMEs, thereby supporting a large number of jobs.

Table 2A. Pilot results for Direct Jobs Supported during 2024

	Direct Jobs Supported (DJS)
Real sector - Project Finance	3,949
Real sector - Corporate Finance	472,652
Financial Intermediaries (FIs)	1,362,105
Total	1,838,706

Source: Authors' own elaboration. Note results may be updated as new information from clients becomes available throughout the supervision cycle.

Direct jobs created

Table 2B presents the *DJC* results for the 2024 period.²² As anticipated, the greatest contribution to job creation comes from Real Sector-Corporate Finance projects, typically large-scale expansions and scale-ups of established companies. These initiatives often involve operating new plants, opening new production lines, expanding service offerings, or entering new markets, each driving multiple rounds of recruitment for managerial, technical, and operational jobs. FIs financing CAPEX for MSMEs also generate a significant uptick in employment. Conversely, Real Sector-Project Finance projects such as highways, bridges, or wind farms tend to create relatively few permanent jobs. While they mobilize large workforces during the construction phase, long-term staffing needs generally stabilize around small maintenance teams. As a result, their contribution to direct job creation remains modest compared with corporate expansions and MSME CAPEX financing.

²² These results were presented in IDB (2025).

Table 2B. Pilot results for Direct Jobs Created during 2024

	Direct Jobs Created (DJC)	DJC per US\$1 million
Real sector - Project Finance	593	0.5
Real sector - Corporate Finance	17,558	7.8
Financial Intermediaries (FIs)	10,589	6.6
Total	28,740	5.8

Source: Authors' own elaboration. Note results may be updated as new information from clients becomes available throughout the supervision cycle.

Results for *DJC* align closely with the literature on jobs multiplier. Figal Garone *et al.* (2025) estimate that an additional US\$1 million in credit to MSMEs in LAC generates 6.5 permanent jobs per year. They also find that this effect is stronger among the fastest-growing firms and for investments in fixed assets. Brown and Earle (2013) report that each US\$1 million in loans in the United States created 5.4 jobs, while Brown and Earle (2015) estimate between three and four jobs per million dollars. The Centre for Economics and Business Research (2016) finds a similar multiplier in the United Kingdom. Finally, the IFC (2021) estimates SME loans in developing economies yield 8.15 jobs per US\$1 million.²³

In conclusion, although the analysis in this paper depends on certain methodological assumptions and faces unavoidable data constraints, its findings align with those in the existing literature. This preliminary employment assessment provides DFIs and other institutions implementing development projects with a key tool for measuring and communicating their contribution to employment. Embedding this framework into portfolio management not only enhances transparency and accountability but also enables the optimization of resource allocation and the design of targeted interventions that maximize sustainable employment outcomes.

This study represents an initial effort to quantify the contribution to employment of a portfolio of development projects by systematically assessing the direct jobs it supported and created. Future extensions should not only improve and test the validity of the current framework but also broaden it to capture the full spectrum of jobs effects. This includes indirect jobs supported, forward linkages that reflect downstream economic activity, and spillover effects. Moreover, subsequent work must delve into the qualitative dimension of employment. Key areas for measurement include wage levels, skills requirements, job stability and duration, opportunities for skills development, gender equality, sustainability, and inclusion.

²³ See also Arraiz *et al.* (2014), Chodorow-Reich (2014), Bentolila *et al.* (2017) and Amamou *et al.* (2020).

References

- Alaimo, V., Bosch, M., Kaplan, D. S., Pagés, C., & Ripani, L. (2015). *Jobs for Growth*. Available at: <https://doi.org/10.18235/0000139>
- Almeida, R., Behrman, J., & Robalino, D. (2014). *The right skills for the job? Rethinking training policies for workers*. World Bank.
- Amamou, R., Gereben, Á., & Wolski, M. (2020). *Making a difference: Assessing the impact of the EIB's funding to SMEs* (No. 2020/04). EIB Working Papers.
- Aparicio, G., Bobić, V., De Olloqui, F., Fernández Díez, M. C., Gerardino, M. P., Mitnik, O. A., & Vargas, S. (2021). *Liquidity or Capital?: The Impacts of Easing Credit Constraints in Rural Mexico*. <https://doi.org/10.18235/0003336>
- Arraiz, I., Meléndez, M., & Stucchi, R. (2014). *Partial credit guarantees and firm performance: evidence from Colombia*. *Small Business Economics*, 43(3), 711-724.
- Attanasio, O., Kugler, A., & Meghir, C. (2011). *Subsidizing vocational training for disadvantaged youth in Colombia: Evidence from a randomized trial*. *American Economic Journal: Applied Economics*, 3(3), 188–220.
- Attridge, S., Calleja, R. and Lemma, A. (2019). *The Impact of Development Finance Institutions*. Available at: <https://odi.org/en/publications/the-impact-of-development-finance-institutions-rapid-evidence-assessment/>
- Bentolila, S., Jansen, M., & Jiménez, G. (2018). *When credit dries up: Job losses in the great recession*. *Journal of the European Economic Association*, 16(3), 650-695.
- Brown, D. J., & Earle, J. S. (2013). *Do SBA loans create jobs?* Center for Economic Studies Paper No. CES-WP-12-27. Washington, DC: US Census Bureau.
- Brown, D. J., & Earle, J. S. (2015). *Finance and growth at the firm level: Evidence from SBA loans*. IZA Discussion Paper No. 9267. Bonn: Institute of Labor Economics.
- Card, D., Kluge, J., & Weber, A. (2018). *What works? A meta analysis of recent active labor market program evaluations*. *Journal of the European Economic Association*, 16(3), 894–931.
- Cazzaniga, M., Jaumotte, M. F., Li, L., Melina, M. G., Panton, A. J., Pizzinelli, C., Rockall, E. J. and Tavares, M. M. (2024). *Gen-AI: Artificial intelligence and the future of work*. International Monetary Fund. Available at: <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2024/01/14/Gen-AI-Artificial-Intelligence-and-the-Future-of-Work-542379>
- Centre for Economics and Business Research (2016). *Small business, big impact – The changing face of business finance*. London: CEBR.
- Chodorow-Reich, G. (2014). *The employment effects of credit market disruptions: Firm-level evidence from the 2008–9 financial crisis*. *The Quarterly Journal of Economics*, 129(1), 1-59.
- Crespi, G., Fernández-Arias, E., and Stein, E. (2014). *Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation*. Inter-American Development Bank. Available at: <http://dx.doi.org/10.18235/0006382>
- Elhan-Kayalar, Y. and Oum, S. (2022). *Estimating the Job Creation Impact of Development Assistance*. Asian Development Bank. Available at: <https://www.adb.org/publications/job-creation-impact-development-assistance>

Eslava, M., Maffioli, A., & Meléndez, M. (2011). *Second-tier government banks and firm performance: Micro-evidence from Colombia* (No. IDB-WP-294). IDB Working Paper Series.

Figal Garone, L., Luca, V., & Stucchi, R. (2025). *Access to credit and employment growth: Evidence from MSMEs in LAC*. Forthcoming in IDB Invest Development through the Private Sector Series.

Galindo, A. and Izquierdo, A. (2024). *Latin American and Caribbean Macroeconomic Report*, Inter-American Development Bank. IDB-AN-367. Available at: <http://dx.doi.org/10.18235/0005667>

Galindo, A. and Nuguer, V. (2023). *Latin American and Caribbean Macroeconomic Report*, Inter-American Development Bank. IDB-AN-345. Available at: <http://dx.doi.org/10.18235/0004780>

Giuliodori, D., Guinazú, S., Correa, J. M., & Stucchi, R. (2020). *The impact of guarantees on SMEs access to credit and employment*. IDB Invest Development through the Private Sector Series TN No. 25.

Guillermo-Peon, S. B. and Harberger, A. C. (2012). *Measuring The Social Opportunity Cost of Labor in Mexico*. Journal of Benefit-Cost Analysis, Volume 3, Issue 2 2012 Article 1. Available at: <https://doi.org/10.1515/2152-2812.1104>

HIPSO Working Group (2023). *JOBS - HIPSO Working Group on Indirect Jobs*.

HM Treasury (2022). *The Green Book*. United Kingdom. Available at: <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>

IDB (2025). *Impact Report 2025: Transforming for Scale and Impact*. Inter-American Development Bank, IDB Invest and IDB Lab. Available at: <https://www.idbinvest.org/en/publications/impact-report-2025-transforming-scale-and-impact>

IMF (2020). *Regional Economic Outlook for Western Hemisphere*. October 2020. Available at: <https://www.imf.org/en/Publications/REO/WH/Issues/2020/10/13/regional-economic-outlook-western-hemisphere>

International Finance Corporation (2013). *IFC Job Study: assessing private sector contributions to job creation and poverty reduction*, World Bank. Available at: <https://documents1.worldbank.org/curated/en/157191468326714061/pdf/835080WPOIFCoJobBox382079BooPUBLICo.pdf>

International Finance Corporation (2021). *Small Business, Big Growth: How Investing in SMEs Creates Jobs*. World Bank. Available at: <https://doi.org/10.1596/37842>

JIM (2023). *Joint Impact Model v3.1 Methodology*. Available at: https://www.jointimpactmodel.org/files/ugd/1b74f3_393509761f0147cd9012fc7614507f2e.pdf

Kluge, J. and Stöterau, J. (2014). *A Systematic Framework for Measuring Aggregate Employment Impacts of Development Cooperation*. GIZ Berlin. Available at: https://energypedia.info/images/5/54/A_Systematic_Framework_for_Measuring_Employment_Impacts_of_Development_Cooperation_Interventions.pdf

Massa, I. (2013). *A brief review of the role of development finance institutions in promoting jobs and productivity change*, Overseas Development Institute (ODI). Available at: <https://odi.org/en/publications/a-brief-review-of-the-role-of-development-finance-institutions-in-promoting-jobs-and-productivity-change/>

McKenzie, D. (2017). *How effective are active labor market policies in developing countries? A critical review of recent evidence*. World Bank Research Observer, 32(2), 127–154.

Switek, M. and Jimenez, L. (2024). *Women Powering Growth: The Potential of Female Workers in Latin America*. Milken Institute. Available at: <https://milkeninstitute.org/sites/default/files/2024-08/WomenPoweringGrowth.pdf>

Annex

A.1. Labor market data definitions and sources

Latin America and the Caribbean (LAC) includes Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago and Uruguay. North America (NA) includes the United States and Canada, while Mexico is analyzed as part of Latin America and the Caribbean. The European Union (EU) includes 28 member countries, considering the composition prior to the United Kingdom's exit: Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

To ensure comparability across countries and regions, all analyzed data –except informal employment at country level– are drawn from the International Labor Organization's (ILO) modelled estimates. This series delivers a comprehensive set of internationally comparable labor statistics by combining nationally reported figures with imputed values for countries lacking data. ILO generates these imputations through a suite of econometric models, and the resulting country-level dataset, merging reported and imputed observations, provides a unique, globally consistent picture of labor market indicators.

The **labor participation rate** is measured as the share of the working-age population that is active in the labor market, encompassing both those in employment and those seeking work. The active population, also known as the labor force, comprises all individuals who are either employed or unemployed but looking for a job.

The **unemployment rate** represents the share of the labor force who, despite being active in the labor market, do not have a job. ILO defines unemployed persons as working-age individuals who: i) did not work in wage or self-employed during the reference period; ii) were available to start such work in that period; and c) were actively seeking wage employment or self-employment.

ILO defines the **employment-to-population ratio** as the proportion of a country's working-age population that is employed. Employed persons include anyone of working age who, during a specified reference period (such as a day or week), falls into one of the following categories: i) paid employment –individuals who hold a job, whether they are currently at work or temporarily absent; ii) self-employment –individuals who run their own enterprise, whether they are actively working or not.

Informal employment includes individuals whose main or secondary jobs falls into one of the following categories:

1. Own-account workers, employers, and members of producers' cooperatives running informal-sector enterprises. The informality of their work stems directly from the characteristics of the enterprise itself.
2. Own-account workers producing goods exclusively for their household's final use (e.g., subsistence farming or do-it-yourself construction of their own dwellings).

3. Contributing family workers, whether they are employed in formal or informal-sector enterprises. Their jobs are informal because they typically lack written employment contracts and are generally not covered by labor laws, social security regulations, or collective agreements.

4. Employees in informal jobs, whether in formal sector-enterprises, informal-sector enterprises, or households as paid domestic workers. They are considered informal when their employment relationship, in law or in practice, is not subject to national labor legislation, income taxation, social protection, or entitlement to employment benefits (e.g., paid annual or sick leave). Contributory factors may include non-declaration of jobs or employees, casual or short-term contracts, wages below statutory thresholds, employment by unincorporated enterprises or households, work performed off-site, or unenforced labor regulations. Key operational criteria include lack of social security coverage, no entitlement to paid leave, and absence of a written contract.

For informal employment, the ILO's modeled estimates do not cover most countries. To maintain consistency, we rely on the ILO's 2022 harmonized series, which applies uniform criteria across national data. However, this series also lack coverage for some countries in 2022. When 2022 data are missing, we proceed as follows: (i) use the most recent available year from the ILO series, if it remains timely; (ii) if the ILO series offers no suitable data, adopt a dependable secondary source with more current information. Country-specific choices: Jamaica and Panama, ILO data for 2021; Barbados, ILO data for 2016; Belize, Guyana, Haiti, Honduras, Nicaragua, Panama, and Suriname, 2021 figures from the World Bank and UNDP LAC High-Frequency Phone Surveys.

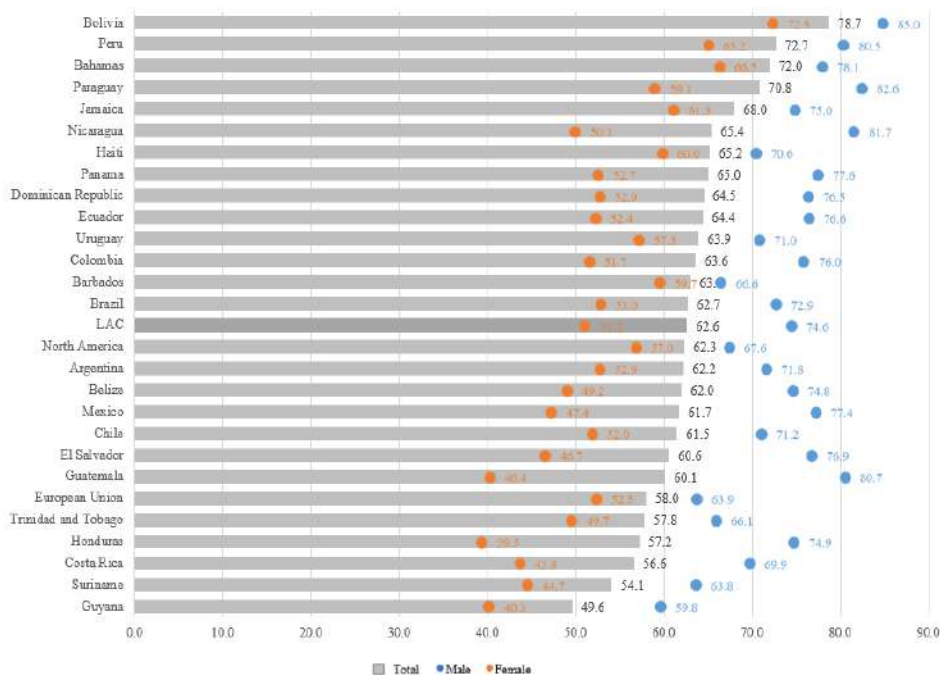
A.2. Country-level labor market outcomes and gender disparities

Labor force participation rate. Labor market conditions vary considerably across countries in the LAC region. In terms of labor force participation, five countries report rates lower than the EU average: Trinidad and Tobago (57.8%), Honduras (57.2%), Costa Rica (56.6%), Suriname (54.3%), and Guyana (49.6%). In contrast, more than half of countries in the region have participation rates that exceed the average for NA. Among these, Bolivia (78.7%), Peru (72.7%), The Bahamas (72%), and Paraguay (70.8%) are particularly notable.

Women's labor force participation in LAC stands at 51.2%, lower than in both the EU (52.5%) and NA (57%). The gender gap in labor participation in LAC, 23.4 p.p., is more than twice that of NA (10.6 p.p.) and the EU (11.4 p.p.).

Within LAC, female participation rates vary significantly across countries. The highest rates are observed in Bolivia (72.5%), The Bahamas (66.5%), and Peru (65.2%). In contrast, Honduras (39.5%), Guyana (40.3%), and Guatemala (40.4%) report the lowest levels of female participation. Barbados and Haiti exhibit the smallest gender gaps in labor force participation (6.9 p.p. and 10.6 p.p., respectively), both narrower than those observed in NA and the EU. On the other end of the spectrum, Guatemala (40.3 p.p.), Honduras (35.4 p.p.), and Nicaragua (31.6 p.p.) display the widest gender gaps in the region.

**Figure A.2.1: Labor force participation rate in LAC countries. Annual average.
2024
(In percentages)**



Source: Author's own elaboration based on ILO data.

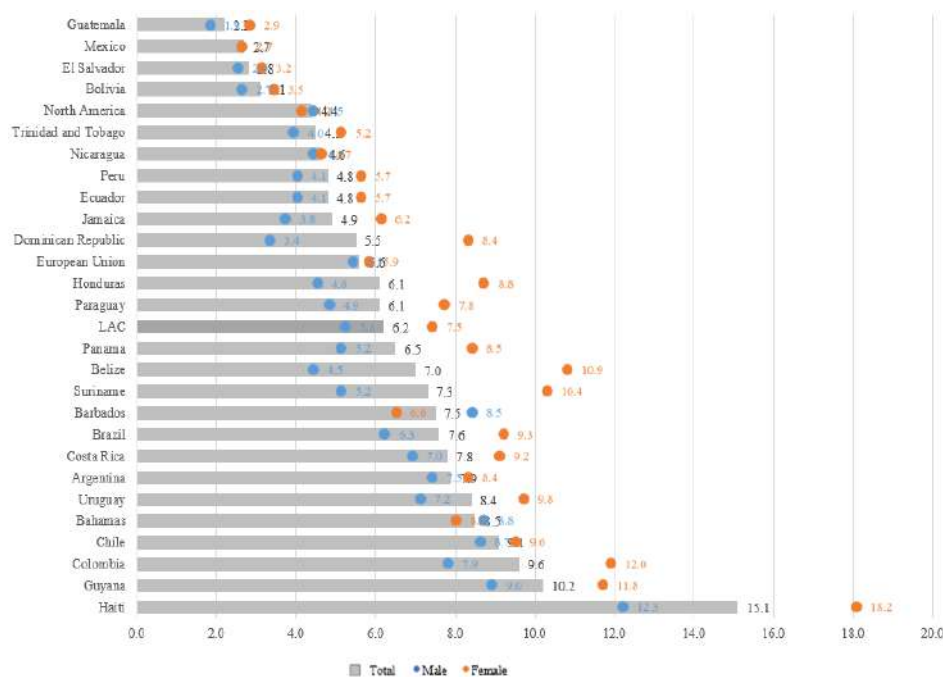
Unemployment rate. As noted earlier, the unemployment rate in the LAC region reached 6.2% in 2024, affecting nearly 20 million people.²⁴ However, unemployment levels vary widely across countries. On one end, Guatemala (2.2%), Mexico (2.7%), El Salvador (2.8%), and Bolivia (3.1%) report unemployment rates below NA (4.4%). On the other end, Haiti (15.1%), Guyana (10.2%), and Colombia (9.6%) exhibit the highest rates in the region.

Gender disparities in unemployment are particularly pronounced in LAC. The female unemployment rate is 2.2 p.p. higher than the male one –compared to just 0.4 p.p. in the EU, and a negative gap of 0.3 p.p. in NA, where women face slightly lower unemployment rates than men. As a result, the overall unemployment rate for women in LAC stands at 7.5%, higher than both the EU (5.9%) and NA (4.2%).

Within LAC, only a few countries show no gender gap disadvantaging women. Barbados (-1.9 p.p.), The Bahamas (-0.7 p.p.), and Mexico (0.0 p.p.) report either no gap or a gap in favor of women, aligning with the trend observed in NA. Nicaragua also performs relatively well, with a gender gap of just 0.2 p.p. –smaller than that of the EU. In contrast, the largest gender gaps in unemployment are observed in Belize (6.4 p.p.), Haiti (5.9 p.p.), Suriname (5.2 p.p.) and the Dominican Republic (5 p.p.).

²⁴ According to ILO modelled estimates.

Figure A.2.2: Unemployment rate in LAC countries. Annual average. 2024
(In percentages)



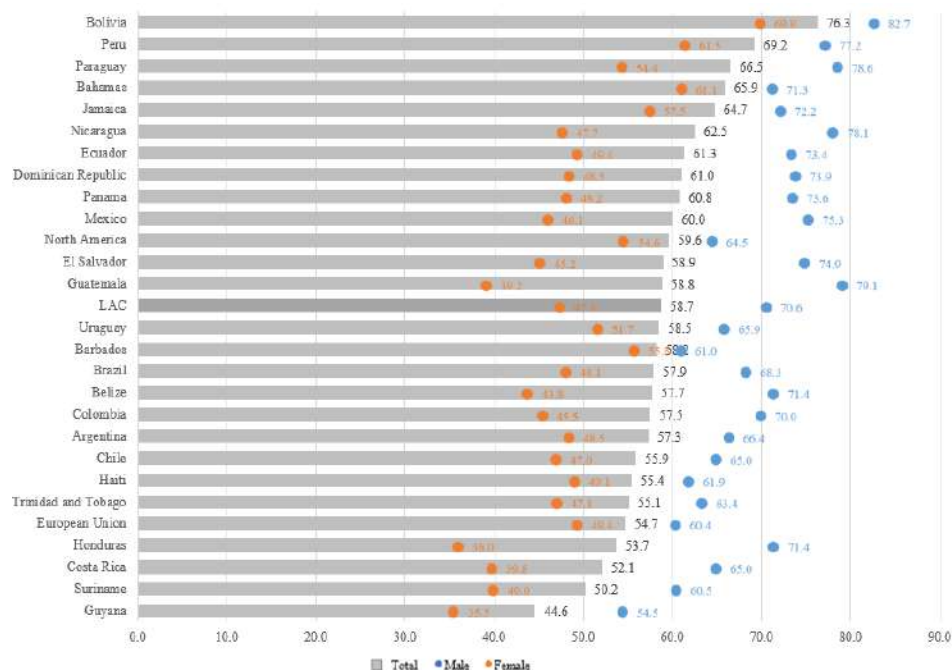
Source: Author's own elaboration based on ILO data.

Employment rate. Employment-to-population ratios vary significantly across countries in the LAC region. Guyana reports the lowest rate at 44.6%, followed by Suriname (50.2%), Costa Rica (52.1%), and Honduras (53.7%), all below the EU average of 54.7%. In contrast, Bolivia (76.3%), Peru (69.2%), and Paraguay (66.5%) exhibit the highest employment rates in the region.

The female employment rate in LAC stands at 47.4%, lower than in both the EU (49.4%) and NA (54.6%). Within the region, Bolivia (69.9%), Peru (61.5%), The Bahamas (61.1%), Jamaica (57.5%), and Barbados (55.8%) lead in female employment. Conversely, the lowest female employment rates are observed in Guyana (35.5%), Honduras (36%), Guatemala (39.2%), Costa Rica (39.8%), and Suriname (40%).

The gender gap in employment-to-population ratios in LAC is 23.2 p.p., more than twice that of the EU (11 p.p.) and NA (9.9 p.p.). Within the region, Barbados (5.2 p.p.) and The Bahamas (10.2 p.p.) have the smallest gender gaps. At the other end of the distribution, Guatemala (39.9 p.p.), Honduras (35.4 p.p.), Nicaragua (30.4 p.p.), El Salvador (29.7 p.p.), and Mexico (29.2 p.p.) record the largest disparities. These disparities reflect broader structural barriers to female labor force participation in the region. Among the most significant are insufficient maternity leave policies, limited access to childcare, and substantial child penalties. Even in countries where low-cost childcare is legally mandated, gaps between policy and implementation often limit its effectiveness. Additional obstacles include persistent gender pay gaps, occupational segregation, high levels of informal employment, and widespread discrimination and bias in hiring and promotion practices (Switek and Jimenez, 2024).

Figure A.2.3: Employment-to-population ratio in LAC countries. Annual average.
2024
(In percentages)



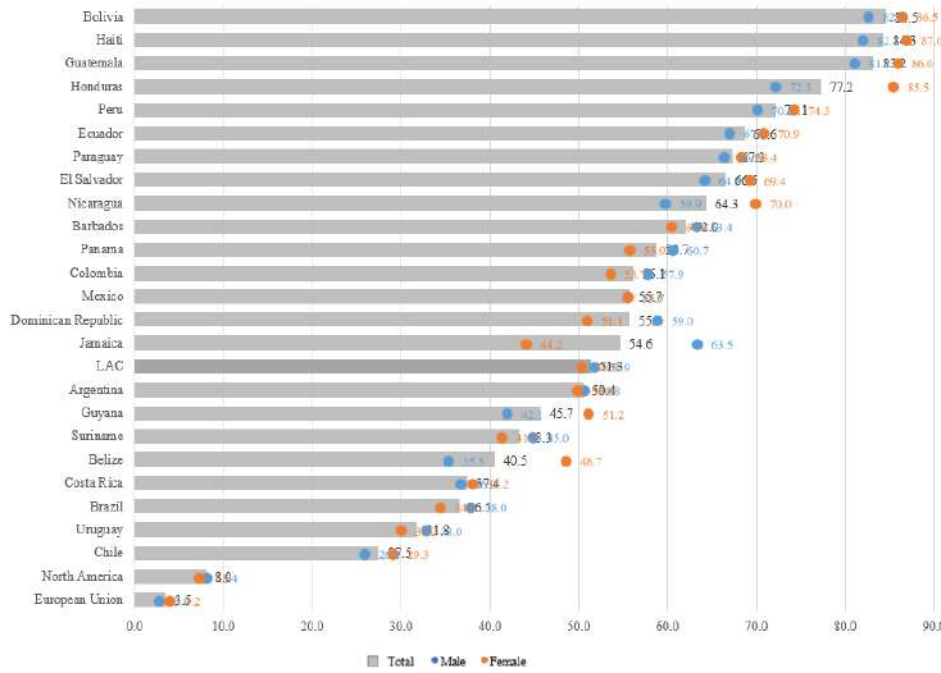
Source: Author's own elaboration based on ILO data.

Informality. Informal employment also varies widely across the LAC region.²⁵ Uruguay (31.8%) and Chile (27.5%) report the lowest levels of labor informality, though these rates remain significantly higher than those observed in NA and the EU. Conversely, Bolivia (84.5%), Haiti (84.3%), Guatemala (83.2%), and Honduras (77.2%) exhibit the highest informality rates in the region.

Consistent with overall trends, the rate of informal employment among women in LAC (50.5%) is substantially higher than in NA (7.5%) and the EU (4.2%). Nevertheless, the gender gap in informality is actually favorable to women in LAC: female informality is 1.4 p.p. lower than that of men. A similar pattern is observed in NA, where the gap is -0.9 p.p. In several LAC countries, women experience significantly lower informality rates than men, for example, Jamaica (-19.3 p.p.), the Dominican Republic (-7.9 p.p.), and Panama (-4.8 p.p.). In contrast, some countries exhibit gender gaps in informality that exceed 10 p.p., including Belize (13.2 p.p.), Honduras (13.2 p.p.) and Nicaragua (10.1 p.p.).

²⁵ See Annex A.1 for details on measurement and data sources.

Figure A.2.4: Informal employment rate in LAC countries. Annual average.
Last available data*
(In percentages)



Source: Author's own elaboration based on ILO data, and World Bank and UNDP LAC High Frequency Phone Surveys.

**Note: Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Paraguay, Peru (ILO, 2024); Argentina, Bolivia, Dominican Republic, El Salvador, Guatemala, Jamaica, Uruguay (ILO, 2023); Barbados (ILO, 2016; Belize, Guyana, Haiti, Honduras, Nicaragua, and Suriname (World Bank and UNDP LAC High Frequency Phone Surveys, 2021).*

A.3. Solving the firm's Cost Minimization Problem and calculating TFP

Consider the Cobb-Douglas production function:

$$Y = AK^\alpha L^\beta \tag{1}$$

where Y is value added, A is TFP, K is the stock of capital, L is the level of employment, and α and β are output elasticities of capital and labor, respectively.

The firm seeks to minimize its total cost of production, given a target output Y . The cost function is:

$$C = w \cdot L + r \cdot K$$

where w is the wage rate and r are is the interest rate of capital. To solve the cost-minimization problem, we form the Lagrangian:

$$\mathcal{L} = w \cdot L + r \cdot K + \lambda(Y - AK^\alpha L^\beta)$$

where λ is the Lagrange multiplier. The first-order condition with respect to K is,

$$\frac{\partial \mathcal{L}}{\partial K} = r - \lambda \alpha AK^{\alpha-1} L^\beta = 0 \tag{2}$$

$$\frac{\partial \mathcal{L}}{\partial L} = w - \lambda \beta AK^\alpha L^{\beta-1} = 0 \tag{3}$$

$$\frac{\partial \mathcal{L}}{\partial \lambda} = Y - AK^\alpha L^\beta = 0 \quad (4)$$

By solving equations (2) and (3) for λ and setting them equal, we get:

$$\frac{r}{\alpha AK^{\alpha-1} L^\beta} = \frac{w}{\beta AK^\alpha L^{\beta-1}}$$

Rearranging this expression yields,

$$\frac{K}{L} = \frac{\alpha w}{\beta r} \quad (5)$$

Equation (5) defines the firm's optimal input mix. Solving for K and substituting back into the production function (1) gives the conditional labor demand:

$$L^* = \left(\frac{Y}{A} \cdot \left(\frac{\beta r}{\alpha w} \right)^\alpha \right)^{\frac{1}{\alpha+\beta}}$$

We use this expression as our starting point for estimating *DJC* by real-sector projects. Equation (5) can also be rearranged to express labor demand directly as a function of capital:

$$L = K \frac{\beta r}{\alpha w} \quad (6)$$

Equation (6) underpins our calculation of the employment-capital elasticity needed to estimate *DJC* in FIs projects.

A.4. Input Output Model

Table A.4.1 presents a typical Input-Output Table (IOT) disaggregated in 14 sectors by activity code. In this layout, columns buyer sectors and rows denote seller sectors, showing how value flows between industries. Columns represent purchasing sectors; rows represent supplying sectors. In the intermediate demand quadrant, each entry $X_{i,j}$ is the value of output that sector i sells to sector j . The row total of a given sector –its intermediate sales plus final demand (consumption, investment, exports)– must equal the column total, which is its intermediate inputs plus value added. Both totals correspond to that sector's gross value of production.

The technical coefficients matrix, or technology matrix, is a key element of the IO model derived from the IOT. It quantifies the direct input requirements needed to produce one unit of output in each sector. To construct this matrix, divide each $X_{i,j}$ from the IOT by the sum of each column represented by X_j . The resulting coefficient $a_{i,j}$ represents the amount of input from sector i required to produce one unit of output in sector j :

$$A = \begin{pmatrix} a_{1,1} & \dots & a_{1,14} \\ \vdots & \ddots & \vdots \\ a_{14,1} & \dots & a_{14,14} \end{pmatrix} \text{ where } a_{i,j} = \frac{X_{i,j}}{X_j}$$

Table A.4.1: Input-Output Table

ISIC Sector	Intermediate demand														Final demand	Output
	A	B	C	D, E	F	G	H, J	I	K	L, M, N	O	P	Q	R, S, T, U		
A	$X_{1,1}$...				$X_{1,7}$							$X_{1,14}$		X_1
B																
C																
D, E	⋮		⋮				⋮							⋮		⋮
F																
G																
H, J	$X_{7,1}$...				$X_{7,7}$							$X_{7,14}$		X_7
I																
K																
L, M, N																
O	⋮		⋮				⋮							⋮		⋮
P																
Q																
R, S, T, U	$X_{14,1}$...				$X_{14,7}$							$X_{14,14}$		X_{14}
Value added																
Output	X_1		...				X_7							X_{14}		

The Leontief Inverse matrix quantifies the total input requirements –both direct and indirect– needed to deliver one unit of output in each sector. By accounting for all upstream, multiplicative linkages, its elements tell you how much input from sector i is ultimately required to satisfy one unit of final demand in sector j . To compute the Leontief Inverse, subtract the technical coefficients matrix A from the identity matrix I and invert the result:

$$(I - A)^{-1} = \begin{pmatrix} b_{1,1} & \dots & b_{1,14} \\ \vdots & \ddots & \vdots \\ b_{14,1} & \dots & b_{14,14} \end{pmatrix}$$

Table A.4.2 presents a simplified Leontief Inverse matrix. Each element $b_{i,j}$ measures how many units of sector i to are required –both directly and indirectly– to deliver one unit of final demand in sector j . For instance, if a project boosts final demand for sector A by 1 dollar, the economy’s gross output must rise by 1.734 dollars across all sectors to satisfy all upstream (indirect) and own-sector (direct) requirements.

Table A.4.2: Leontief Inverse matrix (economic multipliers)

ISIC Sector	A	B	C	D, E	F	G	H, J	I	K	L, M, N	O	P	Q	R, S, T, U
A	1.071			...			$b_{1,7}$...			$b_{1,14}$
B	0.017													
C	0.351													
D, E	0.048			∴			∴				∴			∴
F	0.003													
G	0.094													
H, J	0.063			...			$b_{7,7}$...			$b_{7,14}$
I	0.001													
K	0.034													
L, M, N	0.049													
O	0.000			∴			∴				∴			∴
P	0.001													
Q	0.000													
R, S, T, U	0.002			...			$b_{14,7}$...			$b_{14,14}$
Total requirements	1.734			...			b_7				...			b_{14}

Table A.4.3: ISIC, Rev. 4 - Sector descriptions

ISIC code	Description
A	Agriculture, forestry, and fishing
B	Mining and quarrying
C	Manufacturing
D	Electricity, gas, steam, and air conditioning supply
E	Water supply; sewerage, waste management, and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M	Professional, scientific, and technical activities
N	Administrative and support service activities
O	Public administration and defense; compulsory social security
P	Education
Q	Human health and social work activities
R	Arts, entertainment, and recreation
S	Other service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Activities of extraterritorial organizations and bodies