

Labor Market Policies and Informality: A Cross-Country Analysis of Latin America*

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Abstract

This paper examines the macroeconomic consequences of targeted transfer policies in economies with high informality and unemployment. We build on the framework of Cisneros-Acevedo and Ruggieri (2022) and extend it to incorporate two types of transfers: an unemployment insurance benefit targeted to workers formerly employed in the formal sector, and a cash transfer available to those without jobs. We calibrate the model separately for five Latin American countries—Peru, Colombia, Ecuador, Mexico, and Chile—which differ in aggregate income, enforcement capacity, levels of informality, and firm productivity. The model captures cross-country differences in informality rates and formal-sector wages. Cash transfers to the unemployed can increase aggregate productivity by reallocating labor away from low-productivity firms, at a cost of higher unemployment. Conversely, unemployment insurance for formal workers does not generate efficiency gains, as it disincentivizes productive employment. The aggregate effects of these transfers are heterogeneous across countries, highlighting the need for tailored policy design.

Keywords: Informality, enforcement, cash transfer, optimal policy.

JEL Classification: J46, F16, F14, O17

*All errors are ours.

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1 Introduction

Informality remains a defining feature of labor markets worldwide, especially in developing countries, where informal workers often represent a substantial share of the total workforce. In Latin America and the Caribbean, for instance, informality has consistently hovered around 50% of workers over the last two decades, despite various policy efforts to reduce it (World Bank, 2021; OECD, 2021). Informality typically encompasses both individuals who are not covered by government labor regulations or social security systems, as well as firms that operate outside the regulatory framework and do not pay taxes (Maloney, 2004; Bosch and Maloney, 2010; Levy, 2010). The factors behind such high informality rates are multiple, ranging from rigid labor markets and insufficiently inclusive social protection systems to underlying economic structures that constrain opportunities for productive formal employment (Perry et al., 2007; Loayza and Rigolini, 2006; De Soto, 1989). Understanding informality is therefore essential, as it affects not only worker welfare but also shapes aggregate productivity and growth dynamics in developing economies.

Within Latin America, countries exhibit significant heterogeneity in informality, productivity, enforcement capacity, and inequality. In Peru, informality remains persistently high, with over 70% of workers engaged in informal employment, often in low-productivity micro-enterprises—an outcome that constrains both labor productivity and access to social protection (World Bank, 2023). Colombia and Ecuador similarly grapple with high informality rates of approximately 60%, coupled with weak enforcement of labor regulations, which exacerbates inequality and limits opportunities for formal employment (OECD, 2025). Mexico, despite being an upper-middle-income country, continues to face informality rates of around 50%, reflecting deep-seated structural challenges in the labor market and disparities in social security coverage (IDB, 2023). By contrast, Chile boasts a lower informality rate of around 30%, driven by stronger enforcement and more comprehensive social protection systems; nonetheless, it continues to experience significant income inequality (OECD, 2025). These disparities underscore the need for policy interventions that are tailored to the unique labor market dynamics and enforcement capacities of each country.

This paper studies the impact of targeted transfers on labor market outcomes and aggregate productivity using a general equilibrium framework inspired by the model in Cisneros-Acevedo and Ruggieri (2022). We extend the model to incorporate two types of transfers: an unemployment insurance scheme for workers who were formerly employed in the formal sector, and a cash transfer targeting individuals without formal employment, many of whom are informally employed. The model is estimated for five Latin American countries—Colombia, Ecuador, Peru, Chile, and Mexico—which differ in aggregate income, enforcement capacity, levels of informality, and

firm productivity. Our goal is to identify the optimal transfer design that maximizes aggregate output while accounting for the heterogeneity in labor markets and productivity across these economies.

Our findings show that providing unemployment insurance to workers holding a formal job does not generate efficiency gains in any of the studied economies. These workers tend to be employed in high-productivity, formal firms. Providing unemployment insurance to them increases their reservation wage. By raising the cost of labor to their employers, this force discourages formalization, reallocates jobs away from relatively high-productivity firms, and leads to productivity losses. In contrast, providing untargeted cash transfers to jobless workers triggers the opposite mechanism. Potential recipients become more selective in their job search as a result of a better outside option. This force increases wages across the board, leading, in this case, low-productivity, informal firms to exit the market, and reallocating workers to relatively more productive firms. This reallocation of labor enhances aggregate productivity.

We find that the optimal transfer to the unemployed is positive in each country. On the other hand, efficiency gains come at a cost of higher unemployment, as higher cash transfers prompt workers to leave self-employment and search for wage and salary jobs. The optimal transfer design varies across countries, depending on factors such as productivity dispersion and enforcement capacity.

This paper speaks to several strands of literature. First, it contributes to the literature that studies the causes and consequences of informality in general equilibrium. [Ulyssea \(2018\)](#) analyzes how informality affects productivity, output, and welfare. [Meghir et al. \(2015\)](#) study labor market frictions and search decisions across formal and informal employment, but abstract from firm dynamics and tax structures. [Dix-Carneiro et al. \(2021\)](#) incorporate formal and informal employers in a multi-sector model to study trade and inequality. We extend this literature by analyzing how alternative transfer policies, i.e., unemployment insurance for formal workers and cash transfers for unemployed workers, affect labor market allocation, informality, unemployment, and aggregate productivity across countries.

This paper also contributes to recent work on policy design in economies with high informality. Our model builds on [Cisneros-Acevedo and Ruggieri \(2022\)](#), who develop a framework to analyze labor market responses to transfer policies in settings with informality and heterogeneity in firm productivity. We extend their approach by explicitly modeling both formal and informal-targeted transfers and analyzing their differential impacts on labor reallocation and output. Related work by [Beylis et al. \(2025b\)](#) uses an occupational choice model with social protection distortions to quantify misallocation costs associated with informal self-employment. [Bosch et al. \(2025\)](#) examine how minimum wage policy interacts with labor market frictions and wage rigidities in generating informality and welfare losses. [Feinmann et al. \(2025\)](#) docu-

ment extensive use of “payments under the table” among workers in formal firms, underscoring the importance of understanding partial compliance in assessing formalization.

Finally, our analysis relates to the literature on workers’ preferences over job types and the amenity value of informality. [Beylis and Cerutti \(2025\)](#) and [Beylis et al. \(2025a\)](#) quantify the high willingness to pay for job flexibility, independence, and autonomy among informal self-employed workers. Our findings on the distributional impacts of cash transfers complement this work by illustrating how policy can reshape the allocation of workers across sectors in ways that consider both economic efficiency and subjective job valuation.

The remainder of the paper is organized as follows. Section 2 presents the quantitative model that forms the basis of our analysis. Section 3 describes the data sources used to calibrate the model for each country. In Section 4, we discuss our quantitative estimates, and in Section 5, we examine the implications for optimal policy design. Section 6 concludes.

2 Model Overview

This paper builds on the dynamic general equilibrium model developed by [Cisneros-Acevedo and Ruggieri \(2022\)](#), which is designed to capture key features of labor markets in economies characterized by high levels of informality. The model incorporates a dual labor market with search and matching frictions, heterogeneous firms that endogenously sort into the formal and the informal sectors, and homogeneous workers who make endogenous occupational choices.

Time is discrete, and the economy is populated by a continuum of infinitely lived agents who are ex-ante homogeneous, who differ ex-post in their employment status and the firm they work for. [At any point in time, individuals may be employed formally, employed informally, unemployed, or self-employed.](#) Formal jobs are subject to payroll taxation and offer access to social insurance, whereas informal jobs are unregulated and untaxed, but offer lower productivity. Unemployed individuals receive no transfers in the baseline specification. Agents randomly search for jobs and choose optimally between employment opportunities, subject to frictions in the matching process.

The labor market is dual, i.e., jobs are either formal or informal. In both jobs, wages are determined through Nash bargaining between workers and firms. [Firms endogenously sort into the formal or informal sector, weighing larger operating scale against regulatory and tax costs.](#) Both types of firms post vacancies and face vacancy creation costs, with job creation responding endogenously to policy and market conditions.

The production side features a continuum of firms that differ in their technological productivity. Output is produced using labor, with the decision to operate formally or informally being endogenous. Formal firms are subject to payroll taxes and compliance costs, while informal firms operate with lower productivity but avoid taxation. Firms decide on their formality status and hiring policy.

The government collects taxes on formal labor and firm income and balances its budget period by period. In the baseline model, there are no social transfers, which creates strong incentives for workers to accept informal jobs when unemployed, and for firms to evade regulation. As such, institutional settings and public policy might have significant implications for equilibrium outcomes, particularly the extent and nature of informality.

This paper extends the baseline model by incorporating two forms of government transfers: (i) an unemployment insurance scheme for workers who separate from formal jobs, and (ii) a cash transfer targeted at individuals who are without jobs. These extensions alter household decisions regarding search, potentially increasing their reservation value, and changing the incentives for formal versus informal job creation.

3 Data

The calibration of the model relies on a set of empirical moments constructed from national household and firm-level survey data, as well as administrative sources. These moments reflect structural characteristics of labor markets, firm organization, and institutional settings in each country. A complete list of data sources is provided in Table 1 and a detailed explanation of moment construction in Appendix A.

Real lending rates are computed as the difference between the annual average lending rate and the annual inflation rate. Payroll taxes and corporate income tax rates are recorded at the country-year level and reflect statutory rates applicable to formal firms and workers. The payroll tax rate aggregates all employee-side social contributions, including pension, health, unemployment, and other mandatory deductions.

Unemployment benefits are expressed as replacement rates, defined as the average percentage of a worker's previous wage covered by unemployment insurance, conditional on eligibility. This measure accounts only for individuals who meet the criteria for monthly benefits and excludes informal sector workers who do not contribute to the system.

Labor market transition rates are calculated using longitudinal microdata. Employment-to-unemployment and unemployment-to-employment transitions are measured as the flow of individuals between these states over time, relative to the stock in the origin state. Transitions from unemployment to informal employment are analogously de-

Table 1: Data sources

	Country	Source	Year
Unemployment Benefit	Chile	OECD (2022)	2022
	Colombia	Medina et al. (2013)	2013
	Ecuador	H. Xavier Jara (2018)	2018
	Mexico	No unemployment benefit scheme	2021
	Peru	No unemployment benefit scheme	2007-2014
Transition Rates			
Empl-to-Unempl and Unempl-to-Empl	Chile	Donovan et al. (2023)	2021
	Colombia	Cuesta and Bohorquez (2014)	2009
	Ecuador	Donovan et al. (2023)	2021
	Mexico	Donovan et al. (2023)	2021
	Peru	Reynaga and Ramírez-Rondán (2021)	2007-2014
Unempl-to- Informal Empl	Chile	Villena-Roldan (2024)	2023
	Colombia	Cuesta and Bohorquez (2014)	2009
	Ecuador	Vega Nunez (2017)	2012
	Mexico	Salas-Páez et al. (2022)	2019
	Peru	Reynaga and Ramírez-Rondán (2021)	2007-2014
Real lending rate	All	World Bank Open Data	2023
Corporate income tax rate	All	Wamser et al. (2024)	2020
Payroll Tax	All	Papaya Global (2024)	2023
Registered Firms			
Average firm size Share of registered firms Tenure	Chile	WB Enterprise Survey	2010
	Colombia	WB Enterprise Survey	2018
	Ecuador	WB Enterprise Survey	2017
	Mexico	WB Enterprise Survey	2023
	Peru	WB Enterprise Survey	2006,2010,2017
(In)formal Employment			
Unregistered Firm Metrics and Informality Indicators [‡]	Chile*	CASEN	2022
	Colombia	GEIH	2023
	Ecuador	INEC	2023
	Mexico [†]	ENOE	2024
	Peru	WB Informal enterprise survey	2010

NOTES: [[‡]] With the exception of Peru, the data sources for all countries are their specific country household surveys. The calculated moments include unregistered firm size; the share of unregistered firms by employee count; average unregistered firm age; the share of wage employment; the shares of extensive- and intensive-informal employment; and the average wages for intensive-informal, extensive-informal, and formal employment. [*] The extensive-informal wage for Chile is sourced from INE (2018), while data on extensive- and intensive-informal wage employment come from Henriquez Amestoy (2019).

defined, capturing the dynamics of informality entry.

Firm characteristics are based on the World Bank Enterprise Survey, which provides cross-sectional information on registered firms. Average firm size is measured by the number of registered employees per firm, and firm size distributions are captured using both discrete ranges and percentiles. Additional indicators include firm age, all averaged at the country level.

Lastly, data on informal employment are drawn from household surveys and reflect heterogeneity in definitions and data availability across countries. Wage employment includes individuals who are not self-employed or employers. Informality is classified as either extensive (unregistered workers in registered firms) or intensive (unregistered workers in unregistered firms). The model incorporates shares of informal employment, as well as average wages by employment type and unregistered firm characteristics (e.g., size, age), constructed separately by country according to the availability and survey definitions.

4 Estimation

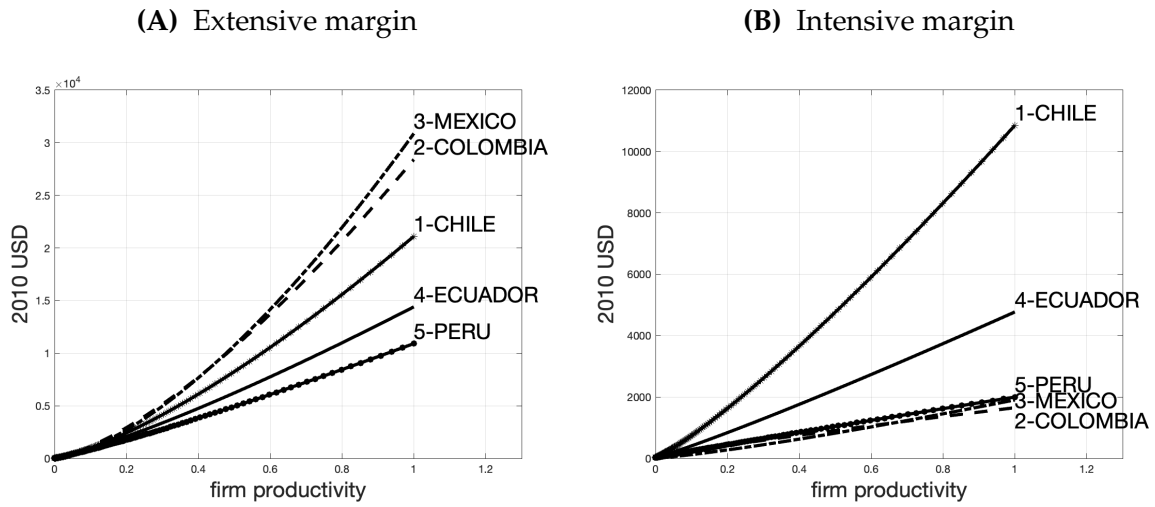
To estimate the model, we target informality rates, firm size, labor market outcomes, and wage patterns across five Latin American countries. These moments reflect heterogeneity in the prevalence and structure of informal employment and the behavior of informality along both the extensive and intensive margins. Table B.1 in Appendix B summarizes the values of key moments that guide our estimation strategy.

The data suggest that Chile and Mexico stand out relative to Colombia, Ecuador, and Peru. Chile exhibits the lowest levels of informality on the extensive margin and the lowest rate of self-employment among the five countries. While it does not have the lowest intensive-margin informality, it exhibits the largest and most dispersed size of formal firms, along with the highest average firm age. Both features are consistent with stronger enforcement and stability among formal firms.

Mexico, on the other hand, shows a distinctive pattern: while it maintains relatively moderate informality overall and a low extensive-margin informality rate (0.142), it exhibits the highest share of informal employment on the intensive margin (0.374). This suggests that while entry into the formal sector may be relatively well-regulated, enforcement within formal firms is more lax, allowing widespread informal hiring practices. In contrast, Chile's low intensive-margin informality (0.102) suggests that once firms enter the formal sector, they are more likely to remain fully compliant.

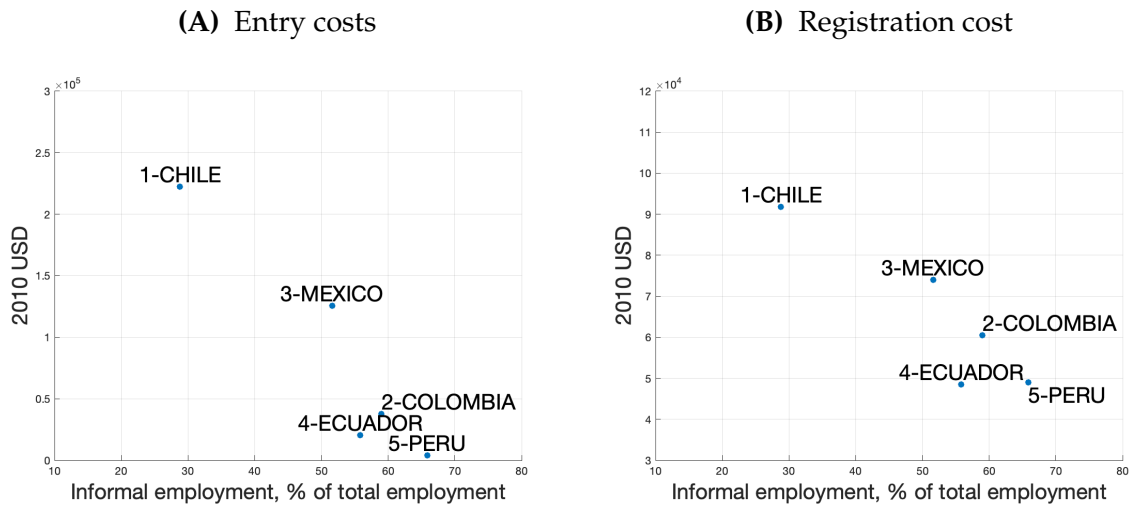
These patterns of informality are reflected in the model-based point estimates. Figure 1 reports the estimated expected penalty of operating informally along the extensive (panel A) and the intensive margins (panel B), for firms with different produc-

Figure 1: Expected penalty of operating informally



NOTES: This figure reports the estimated expected penalty of operating informally along the extensive margin (panel A) and intensive margin (panel B) for firms with different productivity, across targeted countries.

Figure 2: Entry and registration cost

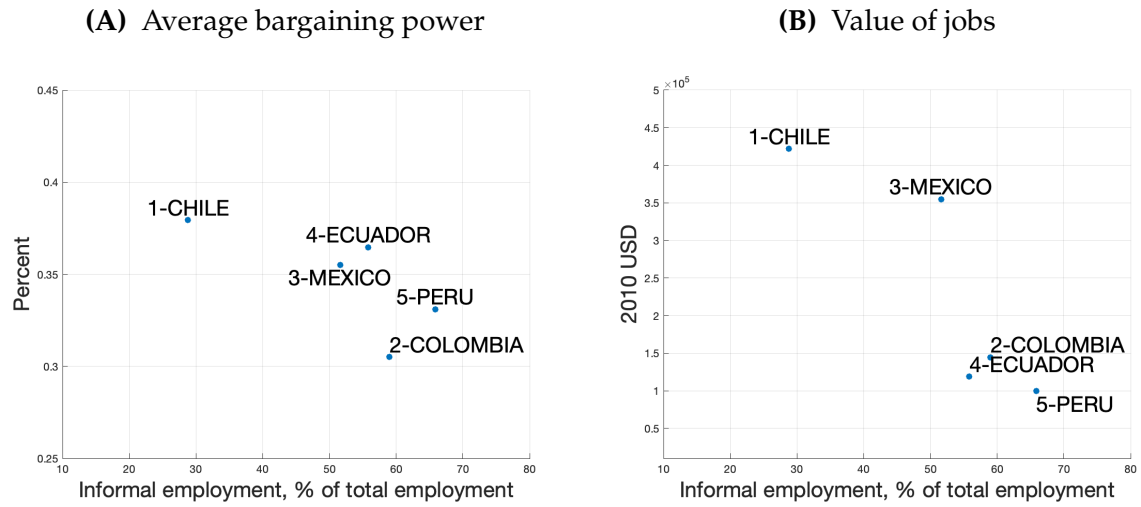


NOTES: This figure reports the estimated entry costs (panel A) and average registration costs (panel B) of firms across targeted countries. Countries are ranked by the percentage of informal employment.

tivity across the targeted countries. Figure 2 reports the estimates for the entry cost (panel A) and the average registration costs (panel B) across the targeted countries.

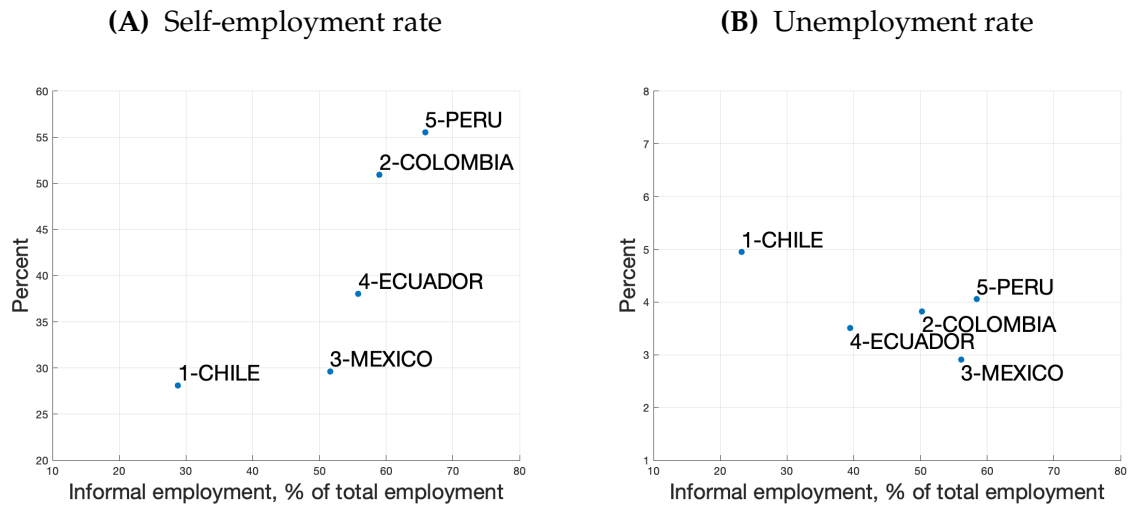
Countries with stricter enforcement—either on firm entry (extensive margin) or on informal hiring within formal firms (intensive margin)—tend to generate higher formalization rates. The data indicate that Mexico likely imposes higher expected penalties for informal firm entry, while Chile enforces formality more strongly within already formal firms. Colombia, Ecuador, and Peru show a different pattern, characterized by high informality across margins, smaller formal firms, and weaker enforce-

Figure 3: Bargaining power and value of jobs



NOTES: This figure reports the estimated average bargaining power of workers (panel A) and the model-based value of wage and salary jobs (panel B) across targeted countries. Countries are ranked by the percentage of informal employment.

Figure 4: Employment status



NOTES: This figure reports the model-predicted rate of self-employment (panel A) and unemployment (panel B). Countries are ranked by the percentage of informal employment.

ment, implying lower costs of operating informally and fewer barriers to informal hiring.

At the same time, a stricter enforcements, paired with a stronger bargaining power of workers (panel A in Figure 3) translates into a higher estimated value of wage and salary jobs (panel B in Figure 3), which contributes to match the lower rate of self-employment in Chile and Mexico, as opposed to Colombia, Ecuador, and Peru.

Finally, as extensively discussed in Cisneros-Acevedo and Ruggieri (2022), countries with a stricter enforcement on informality, and a higher value of wage and salary

jobs, display also a higher unemployment rate (panel B in Figure 4), suggesting that higher aggregate productivity efficiency observed in some country could be unevenly distributed in the population.

5 Optimal policies

In this section, we conduct and discuss two policy experiments. In the first one, we transfer resources to unemployed workers. In the second one, we provide unemployment insurance only to workers employed in formal jobs. Both policies are financed with lump-sum taxes on workers. We implement these policies on top of existing transfers, which are taken into account in the estimation of our benchmark economy, and look for values of transfers that maximize aggregate income in each targeted economy.

Table 2 summarizes the results. Figure C.1 in Appendix C reports how real income per capita (normalized with respect to the benchmark) changes as we increase transfers to the unemployment and unemployment insurance to formal workers, in each targeted country.

Table 2: Optimal policy across countries

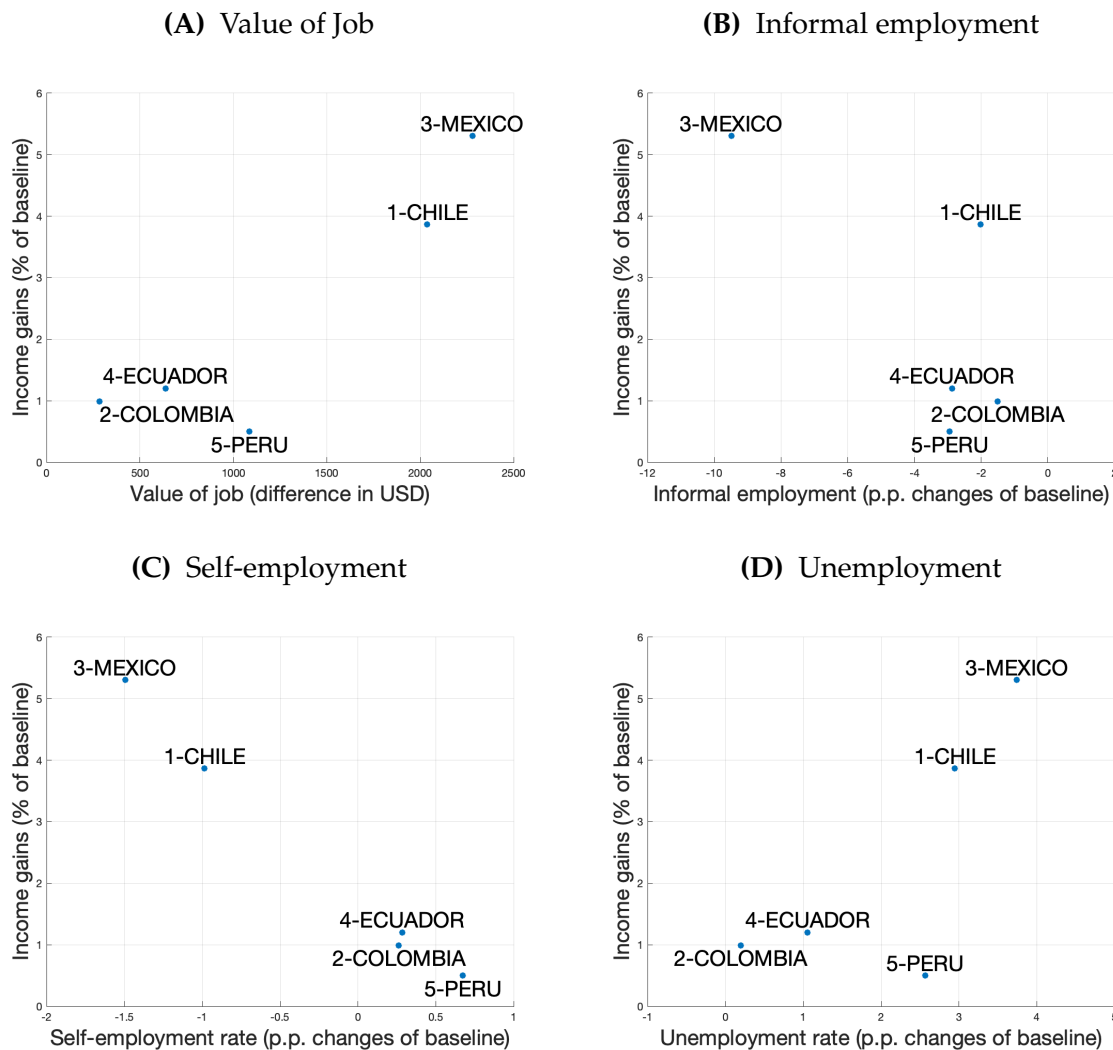
	Country				
	CHL	COL	MEX	ECU	PER
Optimal UT, %	15.1	2.52	19.9	5.03	10.2
Income gains, % of benchmark	3.86	0.99	5.30	1.20	0.50
Optimal UI to formal workers, %	0	0	0	0	0
Income gains, % of benchmark	-	-	-	-	-

NOTE: This table reports the value for cash transfer to the unemployed (UT) and unemployment insurance to formal workers (UI) the maximize aggregate income. Both UT and UI are expressed as a percent of the average wage in the economy.

Two major results emerge from this counterfactual exercise. First, in each country, the unemployment transfer that maximizes aggregate income is positive. Consider the cases of Chile and Mexico. In these two countries, real income per capita would increase by between 4 and 5%, by implementing a transfer to the unemployed of between 15% to 20% of the average wage in the economy, respectively. Income gains would still be positive but smaller in magnitude in Colombia, Ecuador, and Peru, ranging between 1 and 2% of the benchmark aggregate income. On the other hand, increasing unemployment insurance to formal workers would lead to aggregate income losses; hence, the optimal value is 0 in each targeted country. In every targeted

country, the cost of insuring formal workers, in terms of extra taxes, would outweigh their benefits.

Figure 5: Labor market outcomes with optimal cash transfer



NOTES: This figure scatter the aggregate income gains that can be achieved from the optimal cash transfer to the unemployed relative to the benchmark, against the change in value of wage and salary jobs (panel A), the change in informality rate (panel B), the change in self-employment rate (panel C) and the change in unemployment rate (panel D).

What drives these results? The following mechanisms are at play. First, a higher transfer to the unemployed increases their outside options, pushing up the overall cost of labor to their employers. This force generates positive selection of firms along their productivity level; as only the most productive firms can afford to pay a higher wage, workers reallocate away from low-productivity firms, leading to overall productivity gains. The opposite happens when unemployment insurance is targeted at formal workers only. Because these workers are already more likely to be employed in the high-productivity formal firms, providing higher insurance only to them discourages formalization, reallocates jobs away from relatively low-productivity firms, and leads

to productivity losses.

Figure 5 shows how selected labor market outcomes change when we implement the optimal policies. While the optimal cash transfer increases the value of wage and salary jobs and fosters formalization through positive selection of firms and reallocation of workers, it also generates a higher unemployment rate, as it prompts workers to leave self-employment and to search for wage and salary jobs.

Finally, heterogeneity in the efficiency gains across countries suggests policy design might interact with the broader institutional context: a social protection system is more effective when complemented by stricter enforcement and credible monitoring. The complementarities between enforcement strategies and the structure of labor markets might help explain why Chile and Mexico benefit more from transfer reforms in our model, compared to Colombia, Ecuador, and Peru.

6 Conclusion

In this paper, we study the aggregate consequences of targeted transfer policies in economies with high informal employment and unemployment. We do it using a rich model of firm dynamics, featuring an occupational choice, search friction in the labor market, and imperfectly enforced legislation, and calibrated to five Latin American countries—Colombia, Ecuador, Peru, Chile, and Mexico.

We show that providing unemployment insurance to workers holding formal jobs does not generate efficiency gains in any of the targeted economies, whereas providing untargeted cash transfers to jobless workers increases aggregate income at a cost of a higher unemployment rate. Finally, our results suggest that the institutional context might interact with policy design, explaining why countries with stricter legislation enforcement benefit more from transfer policies.

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Appendix

A Data

A.1 Taxes and Lending Rates

The real lending rate is the difference between the yearly average lending interest rate and the yearly average interest rate. The statutory corporate income tax rate is at the country and year level. The payroll tax rate is at the country and year level. It is the sum of all employee payroll contributions, which may include health insurance, pension, unemployment, and other insurances or contributions. It is expressed as a percentage.

A.2 Unemployment Benefits

The unemployment benefit for Chile, Colombia, and Ecuador is measured as the average percentage of a person's previous wage that is replaced by unemployment insurance –commonly referred to as the replacement rate. This is multiplied by the share of unemployed persons who receive unemployment benefits. This calculation only considers individuals who are eligible for unemployment benefits and whose recent employment history qualifies them for ongoing monthly payments.

A.3 Transition Rates

The employment to unemployment and unemployment to employment transition rates are calculated as the number of persons who change from employment to unemployment (unemployment to employment) divided by the total number of employed (unemployed) persons in a particular quarter of the year. The unemployment to informal transition rates are calculated similarly with the number of unemployed persons gaining informal employment in a given quarter divided by the total unemployed population.

A.4 Registered Firm Data

All data on registered (formal) firms come from the World Bank Enterprise Survey, which provides firm-level information. The average firm size is calculated as the mean number of registered employees per firm, averaged across all registered firms within a given country and year.

The share of firms by size category represents the proportion of registered firms that

fall into specified employment ranges—namely: 1–49, 50–99, 100–199, 200–499, 500–999, and 1000 or more employees—relative to all registered firms in the same country and year.

Firm size percentiles (20th, 40th, 60th, 80th, and 90th) are calculated based on the number of employees per firm. Finally, data on the average age of registered firms, also taken from the Enterprise Survey, are reported at the country level.

A.5 (In)formal Employment Data

Wage employment is defined as any employed person who is a non-employer or self-employed person and earns some form of wage or income. The share of wage employment is the number of wage-employed persons out of all employed persons in a given month or year. The share of self-employed is equal to 1 minus the share of wage employment. The share of extensive-informal wage employment refers to the number of unregistered employees working in registered firms out of all wage-employed persons in a given month or year. The share of intensive-informal wage employment refers the number of unregistered employees working in unregistered firms out of all wage-employed persons in a given month or year. Further variables include the average wage paid to formal workers, the average wage paid to intensive-informal workers, and the average wage paid to extensive-informal workers. Due to variations in questions in the household surveys and variations in definitions of informality, the remaining variables used in the model need to be defined separately.

A.5.1 Chile

Unregistered firms in Chile are defined as firms that are not registered in the national tax registry. Note that this question is only asked to employers or self-employed in the household survey, so it is impossible to identify employees working in unregistered firms. Unregistered employees are defined as employees without a signed, written contract, or are not paying into pension, or are not paying into health insurance. In the household survey, neither employers nor employees report an exact count of employees in the firm. Thus, firm size is an estimation using the ranges of 1; 2-5; 6-9; 10-49; 50-199; and 200+ employees working in the same firm as self-reported by all employed individuals. The share of unregistered employees working in registered firms of a certain size out of all employees in registered firm uses the ranges of 1-19; 20-49; 50+ employees. The average age of unregistered firms refers to the cross-country average reported by La Porta and Shleifer (2008).

A.5.2 Colombia

Unregistered firms in Colombia are defined as firms that are not enrolled in the national chamber of commerce. Unregistered employees are defined as employees without a signed, written contract, or are not paying into pension, or are not paying into health insurance. Neither employers nor employees report an exact count of employees in the firm. Thus, firm size is an estimation using the ranges of 1; 2-3; 4-5; 6-10; 11-19; 20-30; 31-50; 51-100; 101-200; and 201+ employees working in the same firm as self-reported by all employed individuals. The share of unregistered employees working in registered firms of a certain size out of all employees in registered firm uses the ranges of 1-19; 20-49; 50+ employees. The average age of unregistered firms is based on the duration of spells as employers.

A.5.3 Mexico

Unregistered firms in Mexico are defined as firms that do not keep accounting records. Unregistered employees are defined as employees not paying into pension, have no sick leave, have no vacation days, nor receive a bonus (or so-called 13th salary). Employees do not report an exact count of employees in the firm. However, employers and self-employed do report an exact amount. Thus, firm size uses exact amounts, when data are available, and otherwise is an estimation using the ranges of 1; 2-5; 6-10; 11-15; 16-20; 21-30; 31-50; 51-100; 101-250; 251-500; and 501+ employees working in the same firm as self-reported by all employed individuals. The share of unregistered employees working in registered firms of a certain size out of all employees in registered firm uses the ranges of 1-19; 20-49; 50+ employees. The average age of unregistered firms is based on the duration of spells as employers.

A.5.4 Ecuador

Unregistered firms in Ecuador are defined as firms that are not registered with the national tax registry or firms that do not keep accounting records. Unregistered employees are workers who do not pay to social security, while being employed. Both employers and employees report the exact number of persons working in the firm they are employed in. Thus, the average unregistered firm size is exact based on the sample. Employers and self-employed report their average sales. The share of unregistered employees working in registered firms of a certain size out of all employees in registered firm uses the ranges of 1-25; 26-49; 50+ employees. The average age of unregistered firms refers to the cross-country average reported by [La Porta and Shleifer](#)

(2008).

A.5.5 Peru

Unregistered firms in Peru are defined as firms that do not keep accounting or financial records mandated by the Peruvian Tax Collection Agency (SUNAT). Unregistered employees are defined as either domestic workers, workers who claim that SUNAT did not make deductions from their income (up until 2011), or who claim that their employers did not contribute to their health insurance (2012 onwards). Both employers and employees report the exact number of persons working in the firm they are employed in. Thus, the average unregistered firm size is exact based on the sample. The share of unregistered employees working in registered firms of a certain size out of all employees in registered firm uses the ranges of 1-19; 20-49; 50-99; 100-199; and 200+ employees. The average age of unregistered firms is based on the duration of spells as employers.

B Targeted Moments Across Countries

Table B.1 reports the list of targeted moments

Table B.1: Targeted moments

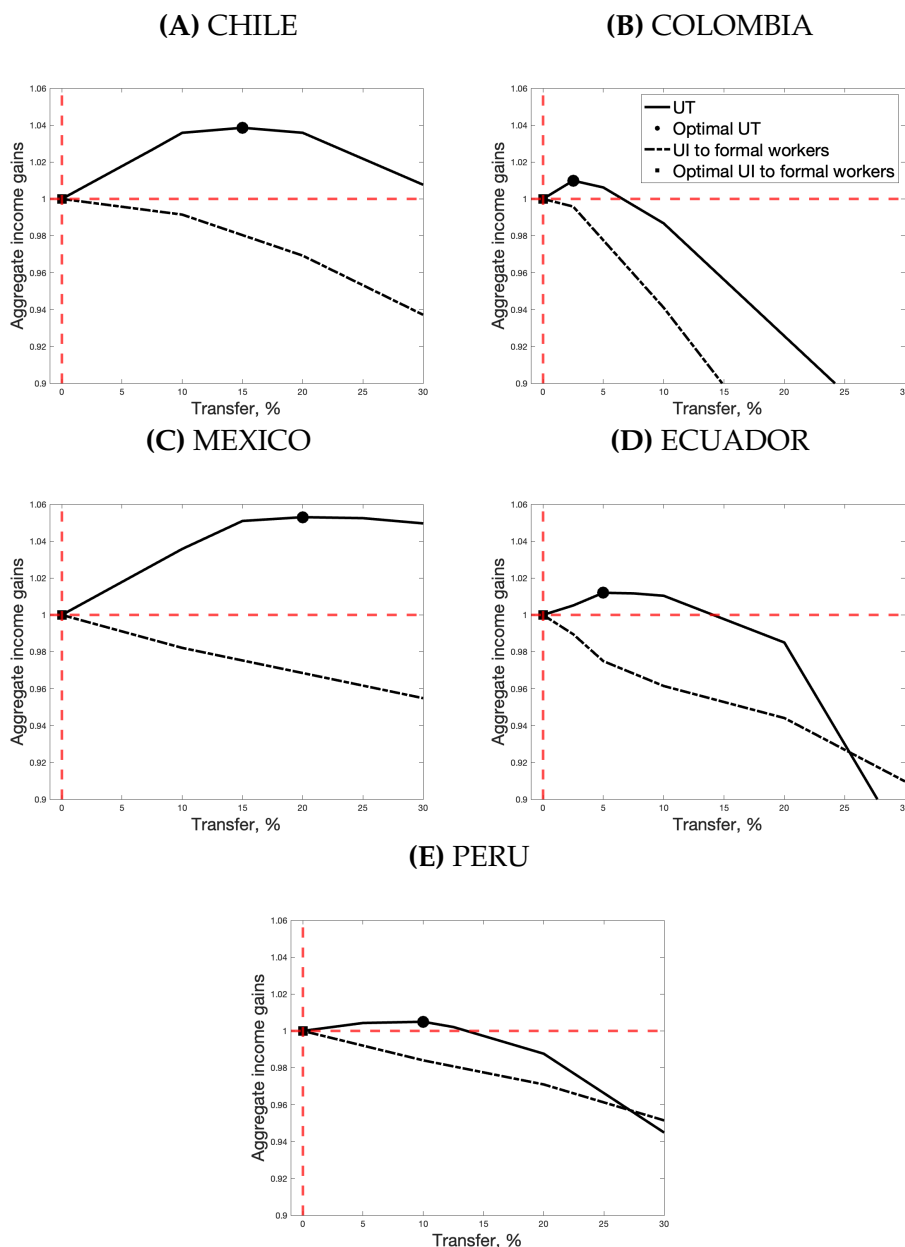
Variables	Country				
	CHL	COL	MEX	ECU	PER
<i>Informal firms</i>					
Log firm size, average	0.442	0.431	0.313	0.618	0.266
Log firm size, dispersion	0.997	0.887	0.503	0.632	0.425
Share of firms, 1 employee	0.761	0.668	0.671	0.434	0.687
Share of firms, 2 employees	-	-	-	-	0.223
Share of firms, 2-3 employees	-	0.169	-	0.388	-
Firm age, average	9.90	9.31	10.45	9.90	9.61
<i>Formal firms</i>					
Log firm size, average	3.569	2.721	2.686	2.875	3.227
Log firm size, dispersion	1.427	1.095	1.164	1.096	1.303
Firm size, 20th pctl	11	6	6	8	8
Firm size, 40th pctl	20	9	8	12	14
Firm size, 60th pctl	40	14	14	18	27
Firm size, 80th pctl	125	38	32	36	70
Log firm size, 20th pctl	2.398	1.792	1.792	2.080	2.079
Log firm size, 40th pctl	2.996	2.197	2.079	2.485	2.639
Log firm size, 60th pctl	3.689	2.639	2.639	2.890	3.296
Log firm size, 80th pctl	4.828	3.638	3.466	3.585	4.249
Share of firms, 1-49 employees	0.664	0.864	0.846	0.837	0.753
Share of firms, 50-99 employees	-	0.060	0.075	-	0.109
Share of firms, 100-199 employees	-	0.039	0.037	-	0.059
Share of firms, 50-199 employees	0.198	-	-	0.121	-
Firm age, average	24.65	16.34	18.76	17.85	17.62
<i>Labor market outcomes</i>					
Self-employment	0.284	0.505	0.294	0.377	0.550
Informal emp., extensive	0.186	0.250	0.142	0.367	0.436
Informal emp., intensive	0.102	0.309	0.374	0.223	0.223
Informal emp., intensive 1-19 employees	0.401	0.309	0.493	-	0.544
Informal emp., intensive 20-49 employees	0.142	0.351	0.320	-	0.461
Informal emp., intensive 1-25 employees	-	-	-	0.253	-
Informal emp., intensive 26-49 employees	-	-	-	0.208	-
Informal emp., intensive 50+ employees	0.077	0.251	0.185	0.170	-
Informal emp., intensive 50-99 employees	-	-	-	-	0.351
Informal emp., intensive 100-199 employees	-	-	-	-	0.281
Informal emp., intensive 200+ employees	-	-	-	-	0.166
NE-E transition, overall	0.360	0.399	0.548	0.382	0.437
NE-E transition, informal	0.115	0.150	0.286	0.110	0.283
E-NE transition, overall	0.038	0.051	0.020	0.032	0.076
<i>Wages</i>					
Wage gap, formal vs intensive informal	0.657	0.387	0.409	1.132	1.372
Wage gap, intensive vs extensive informal	0.275	0.583	0.195	0.238	0.229
Min to median wage ratio	0.730	0.858	0.763	0.948	0.950

SOURCE: This table reports the list of targeted empirical moments across country. See Appendix A for a description of the data and relative sources.

C Counterfactual experiment

Figures C.1 reports how aggregate real income varies with different level of cash transfers to the unemployed and unemployment insurance to formal workers, relative to the benchmark, across targeted countries.

Figure C.1: Optimal labor market policies across countries



NOTES: This figure reports the values of aggregate income (normalized with respect to the benchmark value) for each targeted country, as we increase transfers to the unemployed (UT, continuous black line) or unemployed insurance to formal workers (UI, dashed black line). The dashed red line of each panel refers to the economy in its estimated benchmark. Both UT and UI are reported in the x-axis as a percent of the average wage in the economy. Circles and squares identify the UT and UI that maximizes aggregate income.