



# The labor market effects of immigration in developing countries: It matters not only who you are but also in which firm you work

*This policy brief synthesizes the findings and insights from Lukas Delgado-Prieto's job market paper entitled "Immigration and Worker Responses Across Firms: Evidence from Administrative Records in Colombia." The paper was presented at the 13<sup>th</sup> Conference on Immigration in OECD Countries (jointly organized by the OECD, CEPII, LISER, and PSE) held on December 11-12, 2023. It was awarded the first "Prize for the Best Immigration Economics Paper by a Junior Researcher", awarded by the PSE International Migration Chair on the occasion of the conference.*

Over the last decade, many countries have witnessed significant population outflows, including Afghanistan, Ukraine, Syria, and Venezuela, among others. Forcibly displaced migrants often relocate to neighboring countries where small firms play a crucial role in the labor market. The interplay between the formal and informal sectors is also a key characteristic of these labor markets. Because migrants often concentrate in small firms as informal workers, it becomes more relevant to study the labor market impacts of immigration while accounting for the role of firms in these contexts. However, papers that explore how firms

interact with immigration effects in developing countries are scarce, partly due to data limitations. Having access to detailed firm information makes it possible to study whether most of the adjustments to immigration occur in small, less productive firms or in larger, more productive firms. Another question that can be addressed is whether certain categories of workers in small firms are more affected by immigration than others, and how.

In [my job market paper](#) (Delgado-Prieto, 2023), I address these questions by studying the labor market impacts of one of the largest

episodes of immigration in recent history: the Venezuelan mass migration to Colombia. I rely on administrative records that cover the universe of formal workers and firms in the country and use supporting evidence from the labor force survey for the informal sector.

## Institutional context

The historical relationship between Colombia and Venezuela has seen dynamic shifts over time. Notably, there has been a substantial influx of Colombians to Venezuela in the post-1950 period, largely attributed to the oil boom. However, this trend has recently reversed since 2013 due to Venezuela's socioeconomic and political crisis, which triggered massive inflows of Venezuelan immigrants in several Latin American countries, first among them Colombia.

The episode of the Venezuelan mass-immigration to Colombia is unique in nature, primarily due to language similarities and welcoming government measures, including work regularization programs initiated since 2018 such as the Special Permit of Permanence (PEP in Spanish) or the Temporary Protection Permit (PPT in Spanish). Despite these policies, approximately 90 percent of Venezuelan immigrants (versus 50 percent of natives) have been employed in the informal

sector and are concentrated at the bottom of the native wage distribution. This fact relates to the occupational downgrading of Venezuelans since they have similar average levels of education compared to their Colombian counterparts and are even more educated for those who arrived more recently.

## Are immigration effects concentrated in small firms?

A growing number of studies analyze how firms shape wage inequality or immigrant assimilation, but less is known about how firms can determine native workers' adjustments to immigration shocks. To study this question, I exploit the unequal arrival of immigrants across local/regional labor markets (LLMs) in Colombia to quantify how native formal workers (in different types of firms) react to this shock. My empirical strategy (diff-in-diff) then compares similar workers in areas with different exposure to migration over time.

To deal with the endogenous sorting of migrants into local labor markets, I instrument migrant arrivals with past settlements and proximity to border crossings. One

typical concern with this type of instruments is that the Venezuelan crisis can affect border areas more via other shocks, like fewer trade interactions, apart from migrant arrivals. Since the trade shock started some years before the immigration shock, I show several falsification tests before immigrants massively arrived in the country, showing that the trends between border and non-border areas were not significantly different. Moreover, even when I exclude border areas from the analysis, the main results hold.

In this setup, I find that following immigration, natives working in small firms present the largest decline in their formal employment. Consistent with the fact that the majority of

Venezuelans cluster in the informal sector, [this reduces the wages of informal workers](#), which in turn decreases the demand for formal workers in small firms as they can now swap formal labor for low-priced informal labor more easily (Delgado-Prieto, 2022).

To dig more into the substitution effects between formal and informal workers across firms, I construct a partial equilibrium model where firms can hire both types of workers and show that the key parameter to explain the negative formal employment response is the high elasticity of substitution between workers' types. The model also establishes that the impact is more negative in small firms because they hire relatively more informal labor

than larger firms.

Besides firm size, the pay premiums of firms (before immigrants arrive) also play a role in explaining immigration

effects, as workers in low-paying firms experience a stronger negative effect on their earnings. Actually, native workers in high-paying firms are unaffected. Studying other

margins of adjustment, I do not find that formal native workers are relocating to other types of firms, or to other regions, in response to the immigration shock.

### Should we focus more on workers or firms?

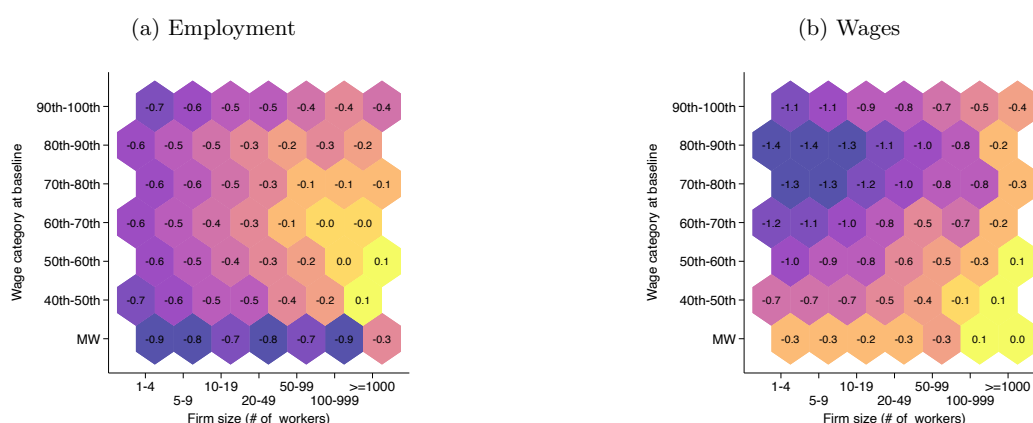
When looking at type of workers, I find that the reduction in formal employment is driven entirely by natives earning the minimum wage. For these low-wage workers, a one percentage point increase in the share of employed migrants in a given labor market reduces the probability of employment in the formal sector by 1.5 percentage points by 2018. This means (given the respective numbers of immigrant and of minimum wage earners among native workers) that each new immigrant hired displaces 0.3 minimum wage natives in the formal sector. The high minimum wage in Colombia relative to the median wage plays a key role here, because many workers are in the margin of informality with no space for

downward wage adjustments. This increases the chances of job substitution, as most of these workers are low-skilled workers who perform similar tasks as informal workers.

I also find substantial varying effects combining worker and firm characteristics, so I use a machine learning algorithm (causal forests) to analyze heterogeneity more systematically. Although worker and firm characteristics are sometimes related (e.g., minimum wage workers often work in smaller firms), according to the algorithm, most heterogeneity comes from the firm side. For example, the Figure below shows the treatment effects of the causal forests when combining

categories of workers' wages and firm size. Most notably, the employment losses primarily affect minimum wage earners in small and medium-sized firms. Conversely, the most adverse wage effects occur in the upper part of the wage distribution, particularly in small firms, and diminish as firm size increases. All this is an indication that firms play an influential part in determining the impact of immigration on workers' outcomes. The maximization of profits in formal firms that led them to substitute expensive minimum-wage workers for low-priced informal workers explains their influential role in employment outcomes, especially in small firms that are less likely to get caught by authorities.

Figure 1.  
Heat plot of treatment effects by wage category at baseline and firm size, 2015-2018



**Note:** Each hexagon is the average of individual treatment effects in the subgroup according to the trained causal forest using the OOB sample. The outcomes are the difference in individual employment or wages in 2018 relative to the pre-shock period, with the predicted unimmigration share as the treatment. The sample is restricted to natives between 25 and 55 years old. I use clusters at the FUA level for the causal forest. The causal forest uses 50% of the main sample.

## Concluding remarks

These findings suggest the need for policies that enhance the welfare of displaced native workers (i.e., unemployed or displaced from formal to informal jobs) in the short term. As the minimum wage is relatively high in Colombia, one effective approach to support the formal employment of natives is to ease the burden of other labor costs for formal employers such that

it becomes less profitable for them to substitute formal for informal workers. Simultaneously, stepping up the enforcement of fines for informal worker hiring can also deter the substitution between them.

Studying a large immigration shock equipped with administrative data for workers and firms in developing

countries is unusual. Doing so allows to uncover important findings suggesting that when facing competition from immigrant workers, the firm where you work (as a native worker) may matter more than the type of job you have.

## References

- Amior M. & Stuhler J., 2022, [\*Immigration and Monopsony: Evidence Across the Distribution of Firms\*](#), Working Paper.
- Arellano-Bover J. & San S., 2023, [\*The Role of Firms and Job Mobility in the Assimilation of Immigrants: Former Soviet Union Jews in Israel 1990-2019\*](#), Working Paper.
- Delgado-Prieto L., 2023, [\*Immigration and Worker Responses Across Firms: Evidence from Administrative Records in Colombia\*](#), Working Paper.
- Delgado-Prieto L., 2022, [\*Immigration, Wages, and Employment under Informal Labor Markets\*](#), Working Paper.

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