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EXTENDED ABSTRACT

Title: Labor market segmentation in a high underemployed developing country: The Ecuadorian case.

Authors and e-mail of all: Carlos Andrés Moreno Hurtado (camoreno1@utpl.edu.ec).

Department: Economics.

University: Universidad Técnica Particular de Loja (UTPL) / PhD Student in Universitat Autònoma de Barcelona (UAB).

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1. Introduction:

In recent decades, the economic literature has related the heterogeneous behavior of the labor market with income inequality, which is high in developing countries, such as those in Latin America. For CEPAL (2019), reducing income inequality is key to reducing poverty and, therefore, it considers that reducing labor precariousness and increasing decent work represent a way to achieve this goal. In Latin America, the labor formalization process has become one of the most debated issues by public policy decision makers. In this region, several studies have documented that labor formalization processes have coincided with the reduction of income inequality in the last two decades, but that it has slowed down in the last 10 years (e.g., Amarante & Arim, 2015; Maurizio & Vázquez, 2015). In this regard, Ecuador is an important case study, since it is characterized by high levels of informality, in a scenario with high inadequate employment (underemployed up to this point) and with high levels of income inequality.

Theoretical considerations related to labor informality have studied the existence of dual labor markets in which formal and informal workers coexist with wage gaps that are

explained by the labor market segmentation (e.g. Harris & Todaro, 1970; Peck, 1989). That is, differences in the returns of the characteristics of workers that favor those in the formal sector (e.g., Daza & Gamboa, 2013; Neog & Sahoo, 2019). Other authors have recognized that workers who are in the informal sector do so voluntarily and, therefore, the labor market is not segmented, but rather integrated (e.g., Fields, 1990; Maloney, 1999; 2004; Nguyen et al., 2013). Given the heterogeneity of labor markets, other studies have identified a mix of segmented and voluntary workers within the informal sector (e.g., Kumar & Ranjan, 2015; García, 2017). However, among this heterogeneity, as far as I know, the role that underemployment has within the labor market has not been recognized. Within sectors (formal and informal), there are workers in conditions of full employment and others in underemployment and thus, the latter are more precarious. From the above, a relevant research question arises: Does underemployment reinforce informality and labor market segmentation? The objective of the research is to analyze the role of underemployment in urban informality in Ecuador. As far as is known, there are no studies that address the above research question and therefore the article contributes significantly to the empirics in the field.

In doing so, I aim to explore the main factors that influence informality, as well as, I test the labor segmentation hypothesis in urban labor markets in Ecuador. The analysis of informality has been traditionally controversial because there is not a theoretical consensus that clearly defines the boundaries of formality or informality, nor is it easy to measure it empirically. For informality, we use the legalistic definition of Saavedra & Chong (1999). From this perspective, workers that lack of any kind of social security are in the informal sector. According to our understanding, this concept better captures the informality faced by workers in Ecuador, regarding the concept managed by the INEC (2020) that follows the productivity definition.

For Perry et al. (2007), informality represents many different things that, in turn, are related to the Standing (2011) concept of precariousness. However, according to Khamis (2012), the definition of informality falls within the limits of the so-called definition of productivity and that of legality. The first definition goes in line with sector enterprises (the informal ones) and the job status in the employment. Here, Hussmanns (2004) classifies to non-professionals, unskilled, marginal jobs, the self-employed, domestic and household workers and workers in small firms (as Maloney, 1999) into the informal labor

market. This definition, according to Gasparini & Tornarolli (2009) concerns with the type of job (e.g., salaried vs. self-employed; large vs. small firms). Meanwhile, the legalistic definition is based on the compliance of the firm or individual with legal rules and social security systems (the institutional framework). Thus, workers that lack of social security are part of the informal labor market (Saavedra & Chong, 1999).

2. Data and main treatments:

The information mainly consists in a cross-section microdata from a household survey (ENEMDU due to its acronyms in Spanish) of the IV quarter in 2019. This survey is conducted by INEC (2020) and it provides the main sociodemographic and occupational characteristics of individuals living in Ecuador. For some variables, we also take advantage of an annual labor transition matrix from the fourth quarters of ENEMDU in 2018 and 2019. We use information from urban areas, for workers aged between 15 and 64 years, who in the last week (before the survey) report have worked 10 or more hours.

For our analysis of wage differentials, we have used gross hourly income, adjusted by the consumer price index. For wage earners (employees), we have combined information from nominal gross monthly wage earnings (only pecuniary and for the principal job), and weekly worked hours as a reference of the monthly worked hours. For self-employed, we use information of the monthly net income; that is, gross income minus the amount spent on running the business. To analyze underemployment, I follow the INEC (2020) definitions for the employed population. Our sample is made up by 62.3% of fully employed and 37.7% in inadequate employment (underemployed and other non-full employment), for simplicity, underemployed.

In Ecuador, the spatial component is important for this analysis, since the incidence of labor informality is different between the metropolitan regions and in turn, this differs from the rest of the cantons. Therefore, four regions are considered: the Metropolitan District of Quito (MDQ), the Metropolitan District of Guayaquil (MDG), the provincial capitals (intermediate cities) and the rest cantons (the periphery).

3. Empirical strategy:

To address the research question, the article considers two stages. The first stage focusses on the estimation of informality through a binary response model (a probit probabilistic model). In the model, we control the potential bias for sample selection following the Heckman (1979) technique. The second stage consists in quantile wage gap decompositions following Firpo et al. (2018) and Rios-Avila (2020). The procedure of Firpo et al. (2018) consists in decompose wage differentials into aggregate components (the endowments and coefficient effects), as well as, detailed decomposition, within each component. This research mainly addresses the analysis into aggregate components. The wage gap (Δ_O^μ) decomposition can be expressed as follows:

$$\Delta_O^\mu = (E[X_C] - E[X_F])'\beta_F + E[X_C]'(\beta_C - \beta_F) + E[X_I]'(\beta_I - \beta_C) + (E[X_I] - E[X_C])'\beta_C$$

- $(E[X_C] - E[X_F])'\beta_F$: shows the wage differentials due to imbalances of the characteristics of workers among sectors (formal and informal).
- $E[X_C]'(\beta_C - \beta_F)$: denotes the specification error used to assess the quality of the model specification and the RIF approximation.
- $E[X_I]'(\beta_I - \beta_C)$: explains the wage gaps due to labor market segmentation. That is, differences in the returns of workers characteristics depending on the sector in which they work.
- $(E[X_I] - E[X_C])'\beta_C$: is the reweighting error used to evaluate the quality of the reweighting strategy.

We test the labor market segmentation hypothesis in presence and absence of underemployment, and hence, we focus on aggregate wage decompositions. Likewise, we depict our analysis by the occupational category of workers (employees and self-employed), since the heterogeneity of the labor market.

4. Results:

In the first stage of the results, we identify that men, workers with low-skills, youngers and workers in the trade activities are highly likely to belong to the informal sector. These effects are not homogeneous among wage earners and self-employed (the core of informality). For instance, within self-employed, gender do not explain informality, the returns of education to reduce informality are lower than employees and the likelihood of

informality for youth labor market is higher. For employees, working in manufactures reduce the probability of being an informal worker. Some interesting and non-common factors (as far as I know), suggest that contextual effects (household networks) are related with the odds of being informal. For instance, household members in the informal sector and children at home increase the probabilities of being an informal worker. While, household members working in the public sector reduce it. Other contextual effects suggest that urbanization increase informality. On the other hand, mobility across activity conditions increase informality. For the latter, we use data from the labor transition matrix. When workers move from any condition of activity (even starting from inactivity) and towards any form of employment, they have a high probability of falling into the informal sector. In one-year labor transition, mobility across activity conditions is higher from mobility among sectors (formal and informal). Those effects are heterogeneous across space and within regions, heterogeneous because of the occupational category.

In this first stage of results, it has been possible to identify that underemployment plays a key role in the urban informality in Ecuador. It highly increases the probabilities of being informal, even though, the self-employed occupational category. Across regions, findings are highly heterogeneous. For instance, when we consider wage earners, the returns of underemployment are lower for the MDQ, the main metropolitan area. However, if we consider self-employed, underemployment higher increases the odds in the MDQ.

In the second stage of results, findings are ambiguous. Firstly, when we test the labor market segmentation hypothesis through wage decompositions, we conclude that informality in Ecuador is "involuntary" along the wage distributions (some exceptions in the upper part of the metropolitan areas). This is true for employees and self-employed, where the endowment component scarcely explains the wage gaps between formal and informal workers. For employees, the wage gaps are higher in the bottom and upper part of the wage distribution. Meanwhile, for self-employed, wage differentials increase as a monotonically function; that is, with higher gaps in the top of the income distribution. However (secondly), if we exclude underemployment, results are not the same (for fully employed). At the beginning, wage gaps are lower than before (for wage earners and self-employed). Then, for employees in the bottom part of the wage curve, informality is voluntary. There, wage gaps are mainly explained by the endowments of the workers and thus, informality is a desirable choice. From the median (approximately) we conclude

(again) in the segmentation of the labor market. For self-employed is similar, but for them, informality is an involuntary choice from the first quartile. In other words, underemployment highly impacts income inequality of wage earners.

5. Concluding remarks:

Ecuador is a country where approximately a half of the employed workforce lacks of social security, that is, working in the informal sector, as one of the faces of the labor precariousness. However, there are other labor issues that reinforce this precariousness, as the presence of underemployment, where workers lacks of a job that guarantees the minimum living wage and legal working hours. This research aims to analyze the role of underemployment in explaining informality and income inequality due to segmented labor markets. The major contribution of the research has been to determine the key role of underemployment in the urban labor informality of Ecuador. Underemployment represents a market failure that reinforces informality and the precariousness, particularly for the bottom of the wage distribution. In addition, in conjunction with informality, underemployment represents a kind of hidden unemployment that has implications for inequality and the welfare of the population. Despite that this research does not focus on the problems derived from informality, it should be considered that the low coverage of social security (informality) in Ecuador trigger to the unequal use of the public health services, as well as, its saturation. In addition, the lack of social security carry future social problems, since those workers in the informal sector do not guarantee having old-age retirement pensions.

Some other findings of this article highlight that the Ecuadorian labor market is highly heterogeneous, and that differences in the results between territories could be explained because of sorting and/or agglomeration economies. Likewise, we highlight the role of mobility of workers across activity condition in explaining informality, as well as, the contextual effects (household informality, children at home and the share of household members in the public sector).

Keywords: Labor informality; social security; underemployment; labor market segmentation; income inequality.
JEL codes: J31, J46, J71, J81.

References:

Amarante, V., & Arim, R. (2015). *Desigualdad e informalidad: un análisis de cinco experiencias latinoamericanas* (C. E. para A. L. y el C. (CEPAL) (ed.)). Naciones Unidas. https://doi.org/10.18356/bde3cd9d-es

CEPAL. (2019). Panorama social de America Latina 2019. In *CEPAL*. https://repositorio.cepal.org/bitstream/handle/11362/44969/5/S1901133_es.pdf

Daza, N., & Gamboa, L. F. (2013). *Working Paper Series Informal-formal wage gaps in Colombia Nancy Daza Informal-formal wage gaps in Colombia ∗.*

Fields, G. S. (1990). Labour Market Modelling and the Urban Informal Sector : Theory and Evidence Labour Market Modelling and the Urban Informal Sector. *The Informal Sector Revisited*, *OECD*(Chap. 2), 49–69.

Firpo, S., Fortin, N., & Lemieux, T. (2018). Decomposing wage distributions using recentered influence function regressions. *Econometrics*, *6*(2), 1–40. https://doi.org/10.3390/econometrics6020028

García, G. A. (2017). Labor Informality: Choice or Sign of Segmentation? A Quantile Regression Approach at the Regional Level for Colombia. *Review of Development Economics*, *21*(4), 985–1017. https://doi.org/10.1111/rode.12317

Gasparini, L., & Tornarolli, L. (2009). Labor Informality in Latin America and the Caribbean: Patterns and Trends from Household Survey Microdata. *Revista Desarrollo y Sociedad*, *63*, 13–80. https://doi.org/10.13043/dys.63.1

Harris, J. R., & Todaro, M. P. (1970). *Migration , Unemployment and Developmnent : A Two-Sector Analysis*. *60*(1), 126–142.

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, *47*(1), 153–161. https://doi.org/10.2307/1912352

Hussmanns, R. (2004). Defining and measuring informal employment. In *International Labour Organization*. http://www.ilo.org/public/english/bureau/stat/download/papers/meas.pdf

INEC. (2020). *ENEMDU- diciembre 2019*. Instituto Nacional de Estadística y Censos. https://www.ecuadorencifras.gob.ec/enemdu-diciembre-2019/

Khamis, M. (2012). A Note on Informality in the Labour Market. *Journal of International Development*, *24*, 894–908.

Kumar, M., & Ranjan, R. (2015). Wage Differential between Informal and Formal Wage Worker in India. *Academic Journal of Economic Sudies*, *1*(4), 9–19.

Maloney, W. F. (1999). Does informality imply segmentation in urban labor markets? Evidence from sectoral transitions in Mexico. *World Bank Economic Review*, *13*(2), 275–302. https://doi.org/10.1093/wber/13.2.275

Maloney, W. F. (2004). Informality revisited. *World Development*, *32*(7), 1159–1178.

https://doi.org/10.1016/j.worlddev.2004.01.008

Maurizio, R., & Vázquez, G. (2015). *Desigualdad e informalidad en América Latina: el caso del Ecuador*. Comisión Económica para América Latina y el Caribe (CEPAL).

Neog, B. J., & Sahoo, B. K. (2019). Wage Discrimination in India's Formal and Informal Labor Markets. *Singapore Economic Review*. https://doi.org/10.1142/S021759081950019X

Nguyen, H. C., Nordman, C. J., & Roubaud, F. (2013). Who Suffers the Penalty?: A Panel Data Analysis of Earnings Gaps in Vietnam. *Journal of Development Studies*, *49*(12), 1694–1710. https://doi.org/10.1080/00220388.2013.822069

Peck, J. (1989). Labour Market Segmentation Theory. *Labour and Industry*, *2*(1), 119–144.

Perry, G. E., Maloney, W. F., Arias, O. S., Fajnzylber, P., Mason, A., & Saavedra-Chanduvi, J. (2007). *Informality : Exit and Exclusion*.

Rios-Avila, F. (2020). Recentered influence functions (RIFs) in Stata: RIF regression and RIF decomposition. *Stata Journal*, *20*(1), 51–94. https://doi.org/10.1177/1536867X20909690

Saavedra, J., & Chong, A. (1999). Structural reform, institutions and earnings: Evidence from the formal and informal sectors in Urban Peru. *Journal of Development Studies*, *35*(4), 95–116. https://doi.org/10.1080/00220389908422582

Standing, G. (2011). *The Precariat*. Bloomsbury Academic.