



## **Domestic Work and Slavery in the 21<sup>st</sup> Century: The Effects of Labor Policy on the Work Arrangements of Brazilian Domestic Workers**

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Even though domestic work is an essential subgroup within informality and a primary source of income for millions of unskilled women, this sector has received almost no attention from economists. To better understand the impacts of labor regulation in this sector, I follow Costa, Barbosa & Hirata (2016) and Russo & Pero (2017) in exploring the effects of a new policy (PEC das Domésticas - EC72) on the work arrangements of Brazilian domestic workers, specifically earnings, formalization, and working hours. To do so, I rely on a difference in difference analysis.

In 2020, Madalena, a black domestic worker, was released after thirty-eight years as a slave to a white family in Minas Gerais (Gortázar 2021). In this same year, Rio de Janeiro registered the first death attributed to COVID-19. The victim was a domestic worker who contracted the virus from her employer (Lemos 2021). Amid the pandemic, a sixty-three-year-old woman was found living in a slave-alike condition when her employer attempted to collect public benefits on her behalf. She worked for forty-one years without a salary or vacation (Coelho 2021). These are a few exploitation cases against domestic workers in Brazil — the largest market for such services (Pinheiro, Lira, Rezende & Fontoura 2019).

Compared to low-skilled male workers, PEC das Domésticas led to an increase in real income for all domestic workers. Monthly income raised by 1.92 percent in the first stage and 2.23 percent after the second stage of the legislation. There is a slightly increase in formalization, increasing the most in states considered to have lower labor conditions. No robust effects are identified on working hours. Overall, the effects of EC72 were more intense when working conditions were worse off than before, showing an element of diminishing returns.

This research closes the gap in the literature, indicating that PEC das Domésticas affected the labor conditions of daily and monthly workers, supporting Russo & Pero's (2017) findings. Domestic workers, as a group, experienced an increase in real earnings and formalization. Yet, more research is required to understand its marginal impacts on the labor market.

## **II. The Informal Economy**

Before Keith Hart had coined the term “informal sector” in 1971, scholars had already begun to explore the possible causes and impacts of informality on economic development. In 1954, Arthur Lewis noticed a large subsistence sector, low marginal productivity, and subsistence wages in developing economies (Lewis 1954; Chen 2012; Nazier and Ramadan 2015). He believed that, over time, development would lead to the rise of an industrial sector and the absorption of informality. His expectations didn't materialize, and sixty-one percent of the global employed population continue to earn their living informally (Bonnet, Vanek, and Chen 2019).

There is no single definition for informality, as it is very heterogeneous. Even within countries, the informal economy is highly segmented (Chen 2012). Bonnet et al. (2019) distinguish between employment in the informal sector and informal employment. The former refers to an enterprise-based, the latter to an employment-based concept, defined in terms of the employment

relationship. For a job to be informal, the employment relationship must not be, in law or practice, subject to national labor legislation or social protection. Although informality may be advantageous to entrepreneurs, it usually isn't to waged workers, as it concentrates among unskilled ones. For this research, formalized workers are those who possess a signed work card, *Carteira de Trabalho*.

Over time, the role of informality in economic development has been challenged. It represents an instrument to poverty alleviation and a poverty trap. Scholars argue that informal employment is essential for economic growth as it absorbs unskilled labor surplus. It is most critical during economic downturns when the formal sector decreases job creation (Galli & Kucera 2004; Chen 2012; Bonnet, Vanek & Chen 2019). Galli & Kucera (2004) show that informal employment substitutes unemployment, benefiting millions of workers and their dependents. Hence, the complete elimination of informality may threaten the most vulnerable and reduce economic activity.

In contrast, Nazier and Ramadan (2015) suggest that although poverty is not a determinant of informality, it may lead to poverty since, on average, informal workers earn lower income. Poverty increases the probability of employment in the informal sectors while having an informal job augments the possibility of becoming poor (Amuedo-Dornantes 2004). Formalization is the opportunity for low-paid workers to improve working conditions. Nonetheless, labor regulations may have adverse employment effects. It is necessary to determine the appropriate laws for each informality component since over-regulation, deregulation, and lack of regulation damage the workforce and the economy (Chen 2012).

### **III. Domestic Work**

Domestic work is an essential subgroup within informality. ILO estimates suggest sixty-seven million domestic workers worldwide, eighty percent female, and fifty million employed informally (ILO 2015). This category differs from other working activities as it occurs in the household and their operating contracts are frequently oral. Consequently, they are among the most vulnerable workers.

Fields (2005) proposes that the informal economy can be a last resort, a desirable sector, and both (Nazier & Ramadan 2015). Domestic work belongs to the first, as it is a substitute for unemployment. Garavito (2017) finds that the domestic work's supply function is highly inelastic, representing the importance of this sector as a source of subsistence. Pinheiro, Lira, Rezende & Fontoura (2019) show that young Brazilians become domestic workers when they have no other working opportunities.

This sector is typically related to lower social status within highly stratified societies, and it is mostly held by low-income women. In 2013, around thirty-seven percent of all domestic workers lived in Latin America, while nineteen percent in the Arab States (ILO 2017). This activity is concentrated in these regions because it is a sector that wage pays wages, a condition of highly unequal societies. They produce the demand to outsource household activities and a ready supply of cheap labor (Blofield & Jokela 2018).

Because domestic work is socially isolated, there is typically one worker per household, the lack of a joint employer prevents workers from organizing (Ramirez-Machado 2003; Blofield 2009). Among the problems encountered at the workplace, they face low wages, heavy workloads, and the absence of social and labor protection (Fakih & Marrouch 2012; Brites 2013; Gutierrez-Rodriguez 2014; Pinheiro, Lira, Rexende & Fontoura 2019). In a cross-national analysis, Ramirez-Machado (2003) finds that it is common for labor laws to exclude domestic workers from their scope or grant them lower protection levels than other workers. For countries that had enacted specific regulations, work conditions depend not only on legislation but on tradition and law enforcement.

Despite representing the primary income source for millions of low-skilled women, development scholars forgot domestic services (Ramirez-Machado 2003; Chen 2012; Fakih & Marrouch 2012; Brites 2013). Brites (2013) claims a disproportion between domestic work expansion in the real world and academic production. Most studies come from the law, history, and gender studies (Ramirez-Machado 2003; Peterson 2007; Blofield 2009; Gutierrez-Rodriguez 14; Pinheiro, Gonzalez & Fontoura 2012; Brites 2013; de Oliveira Pinto 2020).

Arthur Lewis (1954) was one of the first economist to acknowledge these workers as economic actors. In Barbados, the most critical waged-work sector was domestic services, employing sixteen percent of the population. Lewis takes a paternalistic perspective framing domestic work as a social contribution recurrent to overpopulated developing countries. Gutierrez-Rodriguez (2014) believes that, like everything related to female labor, domestic work has been perceived as unproductive. Economic scholars have focused on the determinants of labor supply and demand, such as Suen (1994) for Hong Kong, Stancanelli & Stratton (2010) for France and the UK, and Garavito (2017) for Peru. Others have analyzed labor regulations, such as Dinkelman & Ranchhod (2012) in South Africa, Fougere & Olier (2007) in France, Gudibande & Jacob (2015) in India, and Costa, Barbosa & Hirata (2016), and Russo & Pero (2017) in Brazil. However, domestic workers' economic relevance is more significant than the attention it has received in this field.

Research in Hong Kong and Lebanon demonstrate domestic work's critical contribution to women's labor participation. Cortes & Pan (2013) estimate that the foreign worker program in Hong Kong is associated with an eight to twelve percent increase in women's employment. Fakih & Marrouch (2012) find a positive correlation between domestic workers' employment and female labor force participation. Moreover, highly skilled women are more likely to hire domestic workers: the higher the earning potential, the fewer the hours one spends engaging in domestic services. Thus, even if indirectly, they contribute to economic growth through liberating skilled women to join the labor force.

In this research, the term "domestic worker" refers exclusively to women who provide paid reproductive labor at an employer's private residence (Blofield & Jokela 2018). Parreñas (2000) defines reproductive labor as the labor needed to sustain the productive labor force. It includes cleaning, cooking, washing, and taking care of children.

### A. Domestic Work in Brazil

In Brazil, over six million people, ninety-two percent women, are domestic workers — almost fifteen percent of all employed women (Pinheiro, Lira, Rezende & Fontoura 2019). It is so vital to the country that Guerra, Wajnman & Diniz (2019) calls it a national institution. Domestic work is divided into two categories: monthly and daily workers. The former must work at a single household for at least three days during a working week and receive a monthly salary. The latter work for two or more homes, spending no more than two days per week in each. By law, employers are only required to formalize monthly workers (Costa et al. 2016).

Regarding our main interest variables: salary, formalization, and working hours, Pinheiro et al. (2019) find significant changes from 1995 to 2018. Formalization expanded from just below twenty percent in 1995 to slightly above thirty percent in 2013, varying regionally: sixty-three percent in the South, while twenty-eight percent in the North. The average salary was always below the national minimum. The lowest-paid amounts are in the Northeast, while the highest are in the South and Southeast. Supporting Nazier and Ramadan (2015), in 2017, formalized workers earned income eighty percent higher than informal ones, indicating a formality premium.

It is not a coincidence that today's country with the most extensive domestic worker population once was the biggest slave market. Bentivoglio & de Freitas (2014) reinforce that domestic work began with slavery. During colonial times, the work extracted from enslaved populations was conceived as free and exploitable (Gutierrez-Rodriguez 2014). After abolishing slavery in 1888, paid domestic work became the alternative for those unable to occupy professional positions in other areas, contributing to its devaluation as a labor activity (Oliveira Pinto 2020). Throughout history, domestic work was marked by the migration of young girls from the countryside to live with families that “welcomed” them in the urban centers. They were perceived as family members, providing housework in contribution to economic support (Pinheiro et al. 2019). Goldstein (2003) mentions that this affective relationship enhances exploitation and makes it difficult for workers to demand their rights. Mori (2011) finds that workers are unlikely to demand their rights, as they fear betraying employers. This cultural aspect must be considered when analyzing labor regulation as it will likely affect outcomes.

Regarding regulation, Bentivoglio & de Freitas (2014), Pinheiro, Gonzalez & Fontoura (2012), and Roberts (2018) identify that after 1888, labor began to be regulated by 1916's Civil Code. In 1943, the Consolidation of Labor Laws (CLT) expressly excluded domestic workers from its scope. In 1972, Law No.5859 finally considered domestic work a professional category, demanding the formalization of monthly workers. With the 1988 Constitution, domestic workers once again received inadequate protection. Out of thirty-four labor rights, they were granted nine, such as minimum salary, paid weekly rest, and maternity leave. They were excluded from paid overtime, FGTS<sup>1</sup>, and unemployment insurance (UI).

While daily working hours were limited to eight for all urban workers, that didn't apply to domestic workers. In 2006, they were granted the right to civil and religious holidays, protection for pregnant workers, and employers were forbidden to discount the costs of housing, food, and

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<sup>1</sup> Severance Indemnity Fund for employees to protect workers fired without just cause.

personal hygiene products used at the workplace. Child domestic work (-18) became prohibited in 2008, and three years later, the ILO hosted a conference targeting the formalization of this sector. Because of internal and external pressure, the Brazilian National Congress approved the Constitutional Amendment 72 (EC72) in April 2013, known as PEC das Domésticas. With its approval, the last traces of slave work formally began to disappear from Brazil (Dias, Abdanur, Finamor & Ferreira 2014).

## **B. *Pec das Domésticas***

The Constitutional Amendment 72, also known as *Pec das Domésticas*, changed Art.7 of the Brazilian Constitution, equating domestic workers' rights with all other workers. Its implementation took place in two stages: first in April 2013 and, later, in October 2015. The first granted domestic workers the right to overtime compensation, salary protection, and the recognition of conventions and collective agreements. Additional rights were conceded in June 2015, such as UI, FGTS, and *Salário-Família*.<sup>2</sup> The second stage created a regime to unify the payment of taxes and labor charges to be collected by employers.<sup>3</sup> In October of the same year, an electronic tool allowed such costs to be collected, called eSocial (Russo & Pero 2017).

Costa et al. (2016) point out that PEC das Domésticas may have a different impact on daily and monthly workers since, by law, only those who work at least three days a week in the same household are considered domestic workers. However, because of their close substitution, the law may also affect daily workers. While I expect the formalization of monthly workers to increase, it is possible that daily workers experience higher salaries and working hours. Employers unwilling to abide by the law may trade monthly for daily workers, leading to a raise in working hours and salaries. If labor conditions improve for monthly workers, we may observe an increase in the labor supply as other workers enter this sector. On the condition that employers choose not to comply with the law, there are different possible outcomes. There may be no change in formalization, as workers are persuaded to remain under the same working conditions. There is also the possibility that informal monthly workers become daily workers, increasing the labor supply, and causing a less significant change in salaries. In a worst-case scenario, monthly workers become unemployed.

While the provision of rights in the first stage would not increase costs for most employers, the eSocial would (Russo & Pero 2017). In the second stage, both employers and employees experience higher costs due to FGTS and UI payments. Formalized workers become subjected to individual income tax, approximately eight to eleven percent. Employers face a higher burden, eight percent of social security contribution, 0.8 percent on insurance against accidents, eight percent for FGTS, 3.2 percent termination fine, and income tax.

Pinheiro, Gonzalez & Fontoura (2012) estimate the economic impacts of the legislation in different scenarios. Overall, workers' benefits are superior to the burden on employers. The total equalization of rights increases hiring costs by ten percent a month, and workers' monthly earnings increase approximately twelve percent. When accounting for overtime, there is an increase of almost forty percent in employers' expenses. In theory, informal workers are not to be

<sup>2</sup> Family allowance — social security benefit from the National Institute of Social Security for low-income employees who have children below fourteen years old or children with disabilities.

<sup>3</sup> See Appendix A

impacted. The increase in hiring cost of ten percent is slight compared to the costs of formalization, which increases monthly expenses by sixty percent. Formalizing labor relations increases employers' monthly costs by almost two-thirds.

Because the EC72 does not target formalization, workers affected likely receive the minimum salary before its implementation. Those formalized before the law may experience fewer working hours and higher salaries if working overtime. Informal workers may become formalized, leading to a significant increase in earnings. It may seem contradictory to expect formalization to increase, followed by a rise in hiring costs. However, domestic workers are mostly employed by wealthy households (Pinheiro et al. 2012). It is reasonable to argue that they opt-out from formalization due to convenience. Pinheiro et al. (2012) also observe that despite the growth in formal workers' remuneration from 1995 to 2009, there was no reduction in formalization or employment in domestic services.

The outcomes of the second stage, eSocial, are more complex. Because of higher costs from FGTS and unemployment benefits, employers may trade monthly for daily workers. A second hypothesis is that the labor conditions of formalized workers may improve, as the increase in hiring costs are inferior to formalization costs. On the other hand, the eSocial may increase formalization without leading to unemployment. The approval of this second stage in a relatively short period, two years from the first stage, might be perceived as a strong public attempt to protect workers' rights, causing fears among employers.

*PEC das Domésticas* differs from other regulations because of its significant repercussions on Brazilian society. When approved, Renan Calheiros, a former President of the National Congress, went live on public television to inform its implications. In 2012, for the first time, Rede Globo aired a soap opera, "*Cheias de Charme*", plotting domestic workers as main characters, attracting public attention to this issue (da Silva Pinto 2017). For those familiar with Brazil, the importance of Rede Globo's soap operas in shaping social norms is evident (La Ferrara, Chong & Duryea 2012). Da Silva Pinto (2017) also mentions "*Que Horas Ela Volta?*" a movie released in 2015, questioning the relationship between domestic workers and employers. The attention received by *PEC das Domésticas* may have encouraged workers to demand formalization, while social pressure creates incentives for employers to formalize them.

### **C. Empirical Findings on Domestic Work Regulation**

Empirical evidence does not support that weak labor regulations reduce informality (Kucera & Roncolato 2008). Kucera & Roncolato (2008) find a positive relationship between the strength of labor regulations and shares of formal employment. For Brazil, Lemos (2007) estimates that the minimum wage implementation compresses wage distribution and has a small adverse employment effect. That said, Bosch, Goni & Maloney (2007) show that contractual rigidity and labor legislation costs implemented in Brazil explain the rise of informality in the last decades. High firing costs reduce job creation since it prevents employers from dismissing workers in times of economic downturn. Amadeo, Gill & Neri (2000) refer to *Custo Brasil*, a tradition of legislations that raises costs and uncertainty, resulting in incentives for informality.

There is little evidence on the economic impacts of labor regulation on domestic work. Studies had focused on minimum wage policies, such as Gudibande & Jacob (2015) and Dinkelman &

Ranchhod (2012). The former evaluates four Indian states; The latter investigates South Africa. Gudibande & Jacob (2015) find a very weak positive impact on earnings in the short run, but no significant effects in the long run. These results are associated with weak law enforcement. Dinkelman & Ranchhod (2012) find a strong wage response in South Africa. There are improvements in work conditions across the entire domestic sector. Despite weak law enforcement, formalization more than doubles. Pension benefits increase by seven percent while wages rise thirteen to fifteen percent. These results show that similar policies have different effects, which restates the importance of elaborating policies on a context-specific basis. In both India and South Africa, areas with larger wage gaps resulted in higher treatment impacts, demonstrating an element of diminishing returns. Neither study found an effect on employment opportunities or on the probability of becoming a domestic worker.

Theodoro & Scorzafave (2011) and Flipo, Fougere & Olier (2007) investigate tax reductions on domestic services demand. The former finds that only high-income households benefit from a tax credit implemented in France, while the latter reaches inconclusive results.

Costa et al. (2016) investigate the impacts of the EC72 on domestic workers, limited to the first stage of the legislation. They find a statistically significant increase in formalization, which remains significant eighteen months after the law. Weekly hours for monthly workers reduce 2.5 percent combined to no changes on wages. For daily workers, there are no impacts in any of the indicators. The probability of being a monthly worker reduces by 0.7 percent, while the likelihood of becoming a daily worker increases by 0.2 percent. Overall, the possibility of being employed decreases by 0.9 percent. Thus, the increase in formalization may reflect that those informal monthly workers became unemployed or became daily workers.

Russo & Pero (2017) expand Costa et al.'s (2016) analysis by considering the first two stages of *Pec das Domésticas* and by using a different dataset.<sup>4</sup> A DID estimates that the first stage increases monthly income for daily workers. The probability of contributing to social security rises by two percent while there are no significant effects on working hours. Results from the second stage are less consistent. Both monthly workers' income and social security contribution increase. The lack of consistent results in this stage is unexpected since it impacts labor costs the most. Results suggest an increase in formalization and in unemployment for daily and monthly workers. It is another unexpected finding since Costa et al. (2016) find no effects on daily workers. The absence of impacts on working hours may be explained by the fact that monthly workers already worked fewer than forty hours before the legislation.

Toneto (2019) contributes to this discussion with different results. The law's entry has no significant impact on any variable analyzed. One of the main disadvantages of his work is the dataset used, *PME*. While both *PNAD* and *PNAD Contínua* cover 3,500 municipalities, *PME* only covers 145 towns in six metropolitan areas. In addition, he does not acknowledge that three of them have their specific minimum wage policies above the national.

Costa et al. (2016) find a reduction in working hours, increased formalization, and no change in wages for monthly workers. Russo & Pero (2017) see a positive impact on wages for daily and monthly workers. Regarding formalization, the divergence in results may be explained by the

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<sup>4</sup> Dataset utilized is *PNAD Contínua* (Annual Survey by Household Sample).

fact that these studies use different variables. The former considers to be a formalized worker only those who possess a signed work card. The latter uses social security contribution. Because informal workers can also contribute to social security, it is misleading to interpret an increase in contribution to higher formalization. In addition, in 2015 daily domestic workers became allowed to contribute to social security (Sebrae 2021).

Even though all three authors control for location-fixed effects, it is still necessary to develop a deeper study on the impact of this legislation in different regions of Brazil. They target workers in urban centers but forget that labor conditions are worse in the countryside (Pinheiro et al. 2019). Hence, this research accounts for workers from both rural and urban areas.

I contribute to the literature by expanding the analysis period from 2012 to 2019, which is essential since contractual adjustments require time. This timeframe also enables the analysis of three months post-implementation of the eSocial, a third shock.

In a secondary analysis, I use a methodology proposed by Dinkelman & Ranchhod (2012), considering the intensity of treatment using a wage-gap technique. I investigate how the implementation of *PEC das Domésticas* affected formalization, salaries, and working hours considering the market conditions pre-law in different states.

## IV. Data and Methodology

### A. *PNAD Contínua*

For this research, I use the dataset indicated by Russo & Pero (2017), *PNAD Contínua* (PNADC), expanding the analysis from 2012 to 2019. PNADC is a rotating panel in which a sample of households is interviewed in one month, stays out two, and returns in the next quarter, getting removed after one year. The dataset is divided into quarters, from January 2012 to December 2019. Like the data used by Costa et al. (2016) and Toneto (2020), PNADC is elaborated by the Brazilian Institute of Geography and Statistics (IBGE), and it is publicly available. Its scope and sample extension are more robust than any other public dataset. While PNAD only captures annual information, PNADC is updated monthly and quarterly. It provides indicators that enable monitoring the structural and cyclical aspects of the labor market. This dataset covers over 210 thousand households, distributed across 3,500 municipalities. It uses a probabilistic sample extracted from a selection of census sectors, which guarantees that the results represent different geographic levels. It is an advanced dataset, following international standards and the ILO guidelines.

The two main limitations of this dataset consist of its period and the absence of a specific variable to identify the same household over time. Because PNADC was first implemented in 2012 and its methodology differs from other datasets, it is impossible to combine them. IBGE no longer updates PNAD nor PME. To analyze the labor market development before 2012, one relies on different datasets. In a study like this, it would be preferred to follow the same individual over time, before and after the policy. However, PNADC only follows a group of households for a year, which represents a significant limitation.



## B. Sample Selection and Key Variables

Because *PEC das Domésticas* specifically targets domestic workers, our treatment group consists of all women workers (+18) and (-65) who reported domestic work as their primary occupation. As suggested by Dinkelman & Ranchhod (2012), Costa et al. (2016), and Russo & Pero (2017), I limit this sample to women workers because they comprise over ninety-two percent of the sector. Despite their technical classification as domestic workers, male workers engage in different activities such as gardening and pool cleaning, which could lead to misleading results. Observations from Brasília are removed due to collinearity.

Even though daily workers are not expected to be affected by the legislation, Costa et al. (2016) argue that it would be misleading not to investigate its implications on daily workers. Thus, I use three samples: one for all domestic workers, a second only with monthly workers, and a third with daily workers. PNADC provides a dummy variable (V40124) assigned ‘1’ if a domestic worker provides services for one household only, and ‘2’ if more. Daily domestic workers compose a control group.

Male workers employed in low-skilled jobs, such as street vendors and junk collectors, form a second control group. For this analysis, it is not required that the control share similar characteristics to the treatment group, as we are looking at parallel trends. However, differences in characteristics such as age and education level can lead to different trends, as they shape one’s decisions. Thus, I use low-skilled male workers because they would potentially join domestic work if they were women. It would be best to implement a strategy such as IPW, which would strengthen our causal inference. Costa et al. (2016) and Russo & Pero (2017) use this strategy. Because I expand this analysis to a longer period, and PNADC only follows a household for one year, I am limited to finding a group that would behave like domestic workers had the policy not been implemented. When there are policy improvements in a specific sector, workers have the incentives to join. Because male domestic work is rare, and it is marginalized by the Brazilian society — employers are less willing to hire a male domestic worker, male workers are unlikely to move towards this sector, which prevents marginal changes (Jordão, 2021).

Three dummy variables account for ‘Pre’ and ‘Post’ legislation. EC72 equals ‘1’ post-implementation of the first stage (second quarter of 2013); eSocial equals ‘1’ after the approval of the second stage (third quarter of 2015), and; eSocialImp equals ‘1’ after FGTS and UI begin to be collected from employers (fourth quarter of 2015).

Regarding real salary, working hours, and formalization, PNADC provides all three. In Brazil, a formalized worker must have a signed work card. I follow Costa et al. (2016) and use this as a dependent variable.

Variable (VD4031) accounts for hours worked per week, and (VD4019) for regular nominal monthly income. I convert nominal to real income by using deflators provided by IBGE. I don’t use hourly wages because this form of payment is uncommon in Brazil.

Because PNADC covers many households, the presence of outliers is inevitable. To prevent misleading results, all individuals earning salary above the 99th percentile R\$12.000, and below

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the 1st percentile R\$80, are omitted. Domestic workers are unlikely to report such high earnings, and salary close to R\$80 is below survival.

All estimates are calibrated based on the population projection of the federation units by sex and age using (V1028).

### V. Descriptive Statistics

Table 1 shows the weighted average of the analyzed variables for treatment and control groups for 2012 — a year before the first stage, and 2016 — one year after the second stage. Column (1) accounts for all adult women employed in any paid occupation. Domestic workers include both daily and monthly. Daily and monthly domestic workers are separated in columns (3) and (4). The last column refers to adult men in low-skilled positions.

**Table 1: Labor Force Characteristics (2012-2016)**

	(1) All Employed Women		(2) Domestic Workers		(3) Monthly Workers		(4) Daily Workers		(5) Men in Low-Skilled Occupations	
	2012	2016	2012	2016	2012	2016	2012	2016	2012	2016
Age	36.900	37.978	40.696	42.243	40.319	41.872	41.812	43.208	37.705	39.169
Week Working Hours	39.095	38.558	35.380	33.506	36.613	34.595	31.721	30.679	38.353	37.284
Real Salary (BRS)	1289.325	1727.940	563.931	806.993	550.617	782.993	603.454	869.318	781.027	1011.030
Percent Formalized	0.741	0.765	0.320	0.330	0.378	0.403	0.150	0.138	0.625	0.615
Years of Education	11.522	11.962	7.233	7.725	7.299	7.770	7.036	7.611	7.650	8.040
Percent Literate	0.984	0.988	0.938	0.952	0.936	0.950	0.942	0.958	0.913	0.918
Percent Black	0.070	0.076	0.118	0.124	0.117	0.124	0.120	0.126	0.111	0.124
Percent Brown	0.381	0.397	0.509	0.520	0.523	0.537	0.466	0.478	0.546	0.558
Percent White	0.541	0.517	0.370	0.350	0.356	0.335	0.411	0.391	0.338	0.311
Percent in Midwest	0.063	0.064	0.073	0.080	0.072	0.080	0.073	0.079	0.061	0.055
Percent in Northeast	0.220	0.223	0.235	0.242	0.255	0.261	0.176	0.191	0.335	0.344
Percent in North	0.067	0.069	0.068	0.065	0.077	0.071	0.044	0.050	0.106	0.104
Percent in South	0.171	0.171	0.131	0.135	0.114	0.116	0.182	0.184	0.117	0.116
Percent in Southeast	0.480	0.474	0.493	0.479	0.482	0.473	0.525	0.496	0.381	0.381
Observations	285,976	291,582	53,776	53,369	41,269	39,429	12,507	13,940	21,453	20,119

Data Source: PNAD Contínua (PNADC)

All estimates are weighted by population projection

Only adult workers (+18) and (-65) are considered

Domestic workers are slightly older than other workers, and they work fewer hours, almost four hours less than all other working women before the legislation. Monthly workers worked, on average, five hours more than daily workers, but they received income almost nine percent lower. It may explain why the number of daily workers has increased compared to monthly workers, as it represents the opportunity for higher pay and fewer working hours. On the other hand, domestic workers earn lower salary than the other two groups. The proportion of formalized monthly workers was thirty-eight percent in 2012, inferior to both control groups, but superior to daily workers. This factor may offset the incentives to become a daily worker since formalization provides labor stability and better conditions. The proportion of black and brown workers is more prominent for this category than for all other women. However, it is very similar compared to low-skilled male workers. Both these two groups have similar education levels, around eight years. Despite that, male workers report higher earnings. From 2012 to 2016, there was an increase in domestic workers' average real salary from R\$563.93 to R\$806.99. All groups experienced a pay rise, as the national minimum increased from R\$622.00 to R\$880.00. In Brazil, the nominal federal minimum pay is adjusted annually. The only group to experience a

decrease in formalization was daily domestic workers, with a significant increase in social security contribution. Weekly working hours dropped for all groups.

Although domestic workers and low-skilled male workers have different characteristics, such as sex and annual income ‘Pre’ legislation, they are similar in other key features, such as race, age, and education. We would expect that low-skilled male workers would be domestic workers if it were not because of gender. In the absence of the legislation, both groups should follow a similar trend over time. In figure 1, there is an overlap of propensity scores, considering age, education, and race, which provide evidence that there is fair enough common support, so low-skilled male workers compose an acceptable counterfactual group for treated individuals.

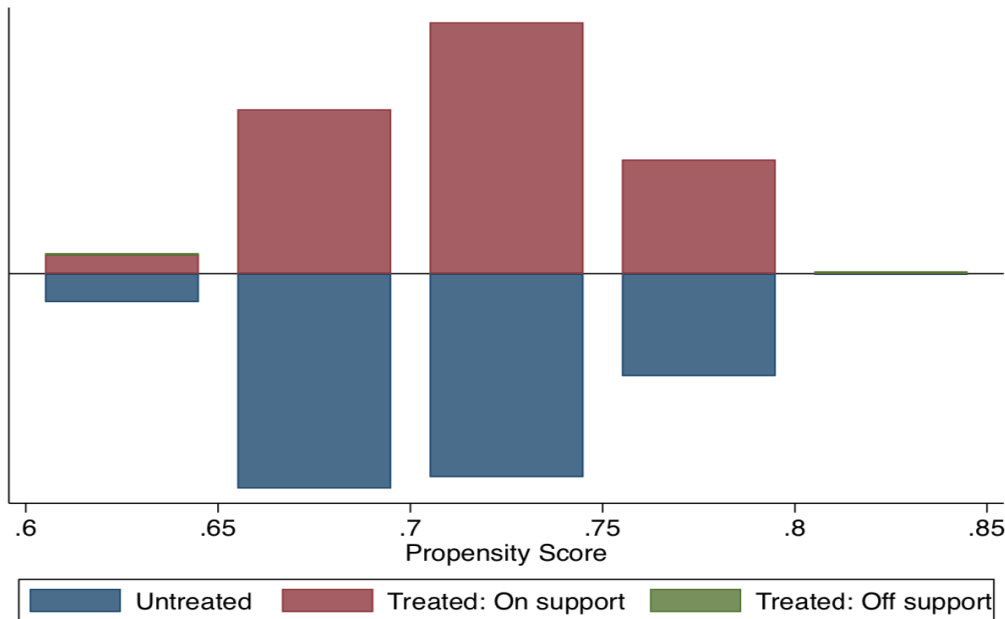


Figure 1. Common Support Overlap Domestic Workers and Low-skilled Male Workers

## VI. Empirical Analysis

Following the methodological approach adopted by Costa et al. (2016), and Russo & Pero (2017), this investigation relies on the application of a difference-in-difference technique (DID) to estimate the effects of *PEC das Domésticas* on the formalization, real salary, and working-hours of Brazilian domestic workers. The following equations are estimated:

$$(1) \quad Y_{ipt} = \beta_0 + \beta_1 EC72_t + \beta_2 DW_{it} + \beta_3 EC72_t DW_{it} + \beta_4 ESOCIAL_t + \beta_5 ESOCIAL_t DW_{it} + X_{it} \lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{ipt}$$

$$(2) \quad Y_{ipt} = \beta_0 + \beta_1 EC72_t + \beta_2 DW_{it} + \beta_3 EC72_t DW_{it} + \beta_4 ESOCIALIMP_t + \beta_5 ESOCIALIMP_t DW_{it} + X_{it} \lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{ipt}$$

## Domestic Work and Slavery

$$(3) \quad Y_{ipt} = \beta_0 + \beta_1 EC72_t + \beta_2 DW_{it} + \beta_3 EC72_t DW_{it} + \beta_4 ESOCIAL_t + \beta_5 ESOCIAL_t DW_{it} + \beta_6 ESOCIALIMP_t + \beta_7 ESOCIALIMP_t DW_{it} + X_{it}\lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{ipt}$$

$Y_{ipt}$  represents the outcome variable for individual  $i$  living in province  $p$  in period  $t$ , and  $DW_{it}$  equals '1' for all adult domestic workers at year  $t$ . There are three main outcome variables: log real monthly salary, possession of signed work card, and weekly working hours.  $EC72_t$  is a dummy equal '1' post-implementation of the first stage,  $ESOCIAL_t$  equal '1' after the approval of the second stage, and  $ESOCIALIMP_t$  equal '1' after the creation of an electronic tool allowing FGTS and UI payments to be collected. The latter has never been considered in other investigations, as they only account for EC72 and eSocial. Because the collection of extra charges began in October 2015, some employers may have waited until then to formalize or dismiss monthly workers.  $\delta_t$ ,  $\omega_t$ , and  $\gamma_p$  are time fixed effects for years, quarters, and regional fixed effects for states. They account for seasonality, annual shocks, and regional differences.  $X_{it}$  is a vector for age, years of education, race, living condition (rural or urban), and sex. For formalization, I use a logistic model.

While model (1) considers only the first stage of *PEC das Domésticas* and the passage of the eSocial, model (2) accounts for the first stage and the date when extra hiring costs began to be collected. (1) is very similar to the model proposed by Russo & Pero (2017). Model (3) is more robust and accounts for all three stages.

In (1) and (2), the coefficients of interest are  $\beta_3$  and  $\beta_5$ , which show the average outcome after each policy stage.  $\beta_3$  is expected to be positive for formalization and monthly income (Costa et al. 2016). In this case, it could mean that employers signed the workers' card and stopped paying below the minimum established by law. For working hours, it is expected to be negative. Only working hours and monthly income may be statistically significant, as this first stage implements a working hour limit and imposes overtime pay. It doesn't directly target formalization. An increase in formalization, if any, may be due to marginal changes in the labor force. It is possible that only formalized monthly workers remain employed, while others become unemployed or move to a different sector (Costa et al. 2016; Russo & Pero 2017).

$\beta_5$  is expected to be positive for both monthly income and formalization. An increase in formalization and earnings may be explained by a change in labor composition. It is possible that only workers formalized before the legislation remained employed while others not. Working hours are not expected to be affected.

In (3), we are interested in  $\beta_3$ ,  $\beta_5$ , and  $\beta_7$ . I expect them to behave like (1) and (2) but with different magnitudes.

In an additional analysis, I explore if *PEC das Domésticas* had a more significant effect on domestic work in states where labor conditions are inferior 'Pre' implementation. As suggested by Dinkelman & Ranchhod (2012), I construct a measure of treatment intensity and run new regressions:

$$(4) \quad Y_{ipt} = \beta_0 + \beta_1 EC72_t + \beta_2 SG_p + \beta_3 SG_p EC72_t + X_{it}\lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{ipt}$$

$$(5) \quad Y_{ipt} = \beta_0 + \beta_1 ESOCIAL_t + \beta_2 SG_p + \beta_3 SG_p ESOCIAL_t + X_{it}\lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{ipt}$$

$$(6) \quad Y_{ipt} = \beta_0 + \beta_1 ESOCIALIMP_t + \beta_2 SG_p + \beta_3 SG_p ESOCIALIMP_t + X_{it}\lambda + \delta_t + \omega_t + \gamma_p + \varepsilon_{itp}$$

To construct  $SG_p$ , I utilize a technique common in the minimum wage literature presented by Dinkelman & Ranchhod (2012) and Gudibande & Jacob (2015), which consists of a locally specific difference between the minimum and the median wage in the pre-treatment period. I calculate the salary gap at the provincial level:

$$(7) \quad SG_p = \log(MINSALARY_{2012}) - \log(MEDSALARY_{2012})$$

$MINSALARY_{2012}$  is the national full-time monthly salary in 2012, R\$622, and  $MEDSALARY_{2012}$  is the median nominal salary of all domestic workers (+18) and (-65) in each province. The difference between the pre-existing salary and the minimum salary is a proxy to working conditions in each Brazilian state. Because the national minimum salary represents the lowest pay one shall receive if working full-time, areas with a larger gap are expected to have inferior working conditions. São Paulo and Santa Catarina present a negative salary gap, meaning that, on average, workers in these states earn salaries superior to the national minimum. These states have their minimum salary policy, which is higher than the national.

In (4), (5), and (6), the coefficient of interest is  $\beta_3$ , which estimates the impact of treatment intensity on earnings, formalization, and working hours. It should be statistically significant if the legislation had a more meaningful impact on labor conditions in states with larger salary gaps. Gudibande & Jacob (2015) explain that  $\beta_1$  accounts for any generic shock on outcome in the post-treatment period and  $\beta_2$  measures the mean difference in results for states over time.

Because various explanatory variables are used, one of my primary concerns is the existence of multicollinearity. I carry a variance inflation factor (VIF) to detect whether these variables are linearly related.<sup>5</sup>

## VII. Results

Table 2 shows the results for equations (1), (2), and (3) for all domestic workers. There is an increase in real salary in all models after the first stage, significant at 1 percent. In (3), real income increases by 1.92 percent. There is a decrease in weekly working hours, around 1.33 hours. The likelihood of possessing a signed work card decreases, which is unexpected since Costa et al. (2016) find an increase in formalization. Lower formalization may be associated with an increase in the demand for daily workers relative to monthly workers since they are not required to be formalized.

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<sup>5</sup> See Appendix B

**Table 2: DID Estimates I**

	Real Salary			Working Hours			Formalization		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<b>EC72*Domestic</b>	0.019*** (0.006)	0.022*** (0.006)	0.019*** (0.006)	-1.330*** (0.133)	-1.358*** (0.130)	-1.330*** (0.133)	-0.109*** (0.034)	-0.116*** (0.034)	-0.109*** (0.034)
<b>eSocial*Domestic</b>	0.082*** (0.004)		0.022* (0.012)	-0.277*** (0.097)		-0.263 (0.258)	0.107*** (0.026)		-0.083 (0.069)
<b>eSocialImp*Domestic</b>		0.082*** (0.004)	0.063*** (0.011)		-0.249*** (0.095)	-0.015 (0.253)		0.126*** (0.026)	0.201*** (0.068)
<b>Observations</b>	585,235	585,235	585,235	585,235	585,235	585,235	493,599	493,599	493,599
<b>R-squared</b>	0.178	0.178	0.178	0.028	0.028	0.028	0.080	0.080	0.080

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

The control group is composed of low-skilled male workers who worked one week before the law  
All models are controlled for age, years of education, race, living condition, and sex

The second stage, eSocial, is associated with higher monthly earnings. In (3), we observe a rise of 2.23 percent. When combined with FGTS and UI payments, it loses magnitude and significance. Monthly income increases more after this stage than in the first, like Russo & Pero's (2017) findings. It is possible that because of an increase in hiring costs, employers dismiss monthly workers who were earning below the minimum salary. A second hypothesis is that implementing a second stage promoted incentives for employers to formalize or partly comply with the legislation, raising pay. Some employers may not formalize but increase salaries to prevent workers from seeking legal measures. Implementing two labor policies targeting the same group in such a short period can be perceived as a severe public attempt to promote change. Dinkelman & Ranchhod (2012) also find partial compliance in South Africa.

I find inconclusive results for weekly hours. In (1), there is a significant decline, but it isn't significant in (3). I also reach inconclusive results for formalization. In (1), there is an increase in the likelihood of possessing a signed work card, while in (3) it declines, and it isn't statistically significant.

Considering the eSocialImp, FGTS, and UI collection, I find evidence for an increase in salaries of around 6.29 percent. Working hours decline (2), but it isn't significant in (3). The eSocialImp is associated with a higher formalization likelihood for all specifications.

Overall results point out an increase in monthly income after all policy stages, larger after FGTS and UI payments are collected. Working hours decreased after the first stage, while it possibly declined after eSocial and eSocialImp, with the significance varying based on the model. After the first stage, there is a drop in the likelihood of possessing a signed working card. Formalization increases after the eSocialImp. There is ultimately an increase in formalization.

Because *PEC das Domésticas* is expected to impact monthly and daily workers differently, table 3 considers them separately. Monthly workers compose the treatment and daily workers the control group.

Table 3.: DID Estimates II

	Real Salary			Working Hours			Formalization		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<b>EC72*Domestic</b>	-0.057*** (0.007)	-0.057*** (0.007)	-0.057*** (0.007)	-0.237 (0.161)	-0.240*** (0.158)	-0.237 (0.161)	0.251*** (0.042)	0.265*** (0.041)	0.251*** (0.041)
<b>eSocial*Domestic</b>	0.028*** (0.005)		-0.001 (0.013)	-0.959*** (0.115)		-0.030 (0.299)	-0.090*** (0.032)		0.115 (0.091)
<b>eSocialImp*Domestic</b>		0.030*** (0.005)	0.031** (0.013)		-1.007*** (0.112)	-0.980*** (0.291)		-0.114*** (0.031)	-0.243*** (0.090)
<b>Observations</b>	423,300	423,300	423,300	423,300	423,300	423,300	423,201	423,201	423,201
<b>R-squared</b>	0.193	0.193	0.193	0.026	0.026	0.026	0.100	0.100	0.100

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

The control group is composed of daily domestic workers

All models controlled for age, years of education, race, and living condition

Like Russo & Pero (2017), I find that the first stage is associated with a decline in income for monthly relative to daily workers. In (3), they experience a 5.70 percent decline. This result may imply that the legislation harmed monthly workers instead of promoting better labor conditions. Because monthly and daily workers are close substitutes, the law may increase the demand for daily relative to monthly workers. In this case, the legislation fails to meet its goals since daily workers are exposed to inferior labor conditions. As pointed out by Russo & Pero (2017), a second hypothesis is that the first stage may have strengthened daily workers' bargaining power since their contract is more flexible. They experience a rise in salaries before monthly workers. As it takes time to notice market changes, before new workers join the labor force, higher demand for daily workers followed by no change in the labor supply drives wages up.

I reach inconclusive results for earnings after the second stage. However, FGTS and UI collection are associated with increased salaries for monthly relative to daily workers. They experience an increase of 3.13 percent. This may be explained by higher formalization rate, as employers begin to pay the minimum salary. The implementation of a second might be perceived as the government's determination to protect workers. Employers abide by the law, fearing legal punishment. A second possibility is that only monthly workers earning higher wages remained employed, while others became unemployed or moved to another sector. Some of them became daily workers.

It seems that the first stage is associated with a decline in working hours for monthly workers, but it is only significant in (2). After the legislation, monthly workers are only allowed to work forty hours per week. Thus, I expected a significant drop. In Table 1, the average working hours for monthly domestic workers was thirty-seven in 2012. Because they worked less than forty hours, the regulation may not have impacted workers. Working hours are affected the most with FGTS and UI payments collection.

Monthly workers experience a significant increase in formalization odds after the first stage, followed by a decline after payment collection. The first hypothesis is that the law provided incentives for employers to formalize workers. Another possibility is that the first stage led employers, fearing higher costs, to dismiss monthly workers. The decline in formalization after FGTS and UI payments may be associated with another policy implemented in 2015. That year, daily domestic workers were allowed to register as individual micro-entrepreneurs, an

opportunity out of informality (SEBRAE, 2021). This policy, not part of *PEC das Domésticas*, may have caused formalization to accelerate for this group relative to monthly workers.

**A. Robustness Checks**

My primary concern is significant changes in monthly income, formalization, and working hours of domestic workers relative to low-skilled male before the law. In other words, that the trends of the outcomes were not parallel over time. If that is the case, it could lead to biased results. To prevent this from happening, I limit the observations to a period before the first stage, April 2013, and run a simple fixed-effects model for each variable. I only consider five quarters before the law since I have no previous observations.

**Table 4: OLS Estimates I**

	<b>Real Salary</b>	<b>Working Hours</b>	<b>Formalization</b>
<b>EC72*Domestic</b>	-0.003 (0.003)	-0.212*** (0.077)	-0.019 (0.019)
<b>Observations</b>	93,951	93,951	79,486
<b>R-squared</b>	0.233	0.066	0.060

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

The control group is composed of low-skilled male workers who worked one week before the law  
Estimates are controlled for age, years of education, race, living condition, and sex

Table 4 suggests that domestic workers were not experiencing significant change in monthly earnings or formalization relative to male workers before the law. If any, they were experiencing a relative decline in income. It strengthens the causal relationship of *PEC das Domésticas* on the formalization and monthly earnings of domestic workers. However, domestic workers were already experiencing a relative decline in working hours before the law, weakening the causal inference of the policy on working hours.

Appendix C, D, and E help visualize if the interest variables follow a parallel trend before the first stage. The vertical line represents the sixth quarter of our dataset, April of 2013. It confirms that domestic workers were already experiencing a significant decline in working hours before the first stage. Thus, we should be careful when inferring a causal relationship between the legislation and working hours.

Because there is a two-year period between the first and second stage, I check the trends before the second stage to make sure the results in Appendix D can be attributed to the legislation. In Appendix F, the trend for real salary seems to be parallel. Earnings are decreasing for both groups just before the law. As the second stage is approved, the decline for low-skilled male workers is steeper relative to domestic workers. There is an almost parallel trend for formalization. Interestingly, while the likelihood to be formalized decreases significantly for male workers after the law, it increases for domestic workers. In Appendix G, the trend for working hours is not time-invariant, which reduces the significance of my results.



Another concern is that because Paraná, Rio Grande do Sul, Santa Catarina, Rio de Janeiro, and São Paulo have their minimum wage policy above the federal, these states could lead to misleading results. I omit these states and run (3) to ensure no significant changes in estimates. In Appendix H, the first stage remains associated with higher monthly income and fewer working hours. Its impact on formalization odds is negative but not significant. These states concentrate a substantial portion of all domestic workers in the country, which explains the decline in significance. Results remain like the ones previously estimated. Unexpectedly, eSocial appears only to impact working hours. The negative sign for formalization and the positive sign for monthly income coefficients remain, but they are not significant. FGTS and UI collection are associated with higher earnings and higher formalization, supporting previous results.

### VIII. Intensity of Treatment Analysis

Labor conditions in Brazil vary between states. Domestic workers earn below the minimum salary in some, while in others, they earn superior income. Labor conditions are lower in the North and Northeast, while higher in the South and Southeast (Pinheiro et al., 2019).

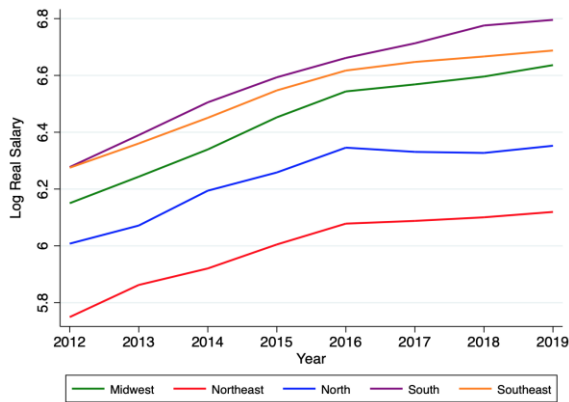


Figure 2. Domestic Workers Real Salary by Region

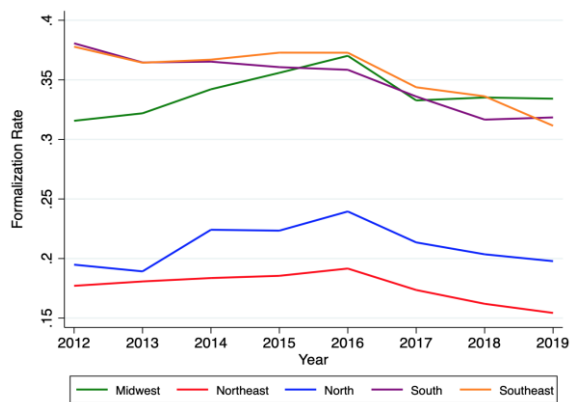


Figure 3. Domestic Workers Formalization by Region

Figures 2 and 3 show the regional discrepancy in working conditions for domestic workers in Brazil. Workers earn the least in the Northeast, while in the South and Southeast, payments are higher. The same is true for formalization. From 2012 to 2019, salaries follow a positive trend in all regions. By the end of 2015, when the second stage of *PEC das Domésticas* was implemented, patterns changed. This trend became less steep in all regions but in the South. While earnings decline in the North, it increases at a lower rate in the Midwest, Northeast, and Southeast regions. Salaries continue to rise at a steady pace in the South up to the end of 2017.

Regarding formalization, there is not a well-defined trend before 2016. After, formalization declines in all regions. It is possible that the legislation impacted each state differently. *PEC das Domésticas* is more burdensome in states with larger salary gaps since costs are higher.

Dinkelman & Ranchhod (2012) and Gudibande & Jacob (2015) find that in South Africa and India, highly unequal societies, larger wage gap regions had higher treatment intensity. Improvements in labor conditions are more significant where they are worse off before the law.

**Table 5.: Intensity of Treatment Analysis I**

	Real Salary			Working Hours			Formalization		
	(4)	(5)	(6)	(4)	(5)	(6)	(4)	(5)	(6)
<b>EC72*SG</b>	-0.048*** (0.009)			-3.437*** (0.221)			0.243*** (0.048)		
<b>eSocial*SG</b>		-0.039*** (0.007)			-3.390*** (0.161)			0.145*** (0.037)	
<b>eSocialImp*SG</b>			-0.039*** (0.007)			-3.321*** (0.159)			0.141*** (0.037)
<b>Observations</b>	423,201	423,201	423,201	423,201	423,201	423,201	423,201	423,201	423,201
<b>R-squared</b>	0.243	0.243	0.243	0.022	0.022	0.022	0.038	0.038	0.038

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

Group of analysis consists of all women domestic workers (+18) and (-65)

Estimates are controlled for age, years of education, race, and living condition

There is a significant negative relationship between SG and earnings in Table 5. Larger the salary gap, lower the increase in earnings. It goes in contrast to Gudibande & Jacob (2015) and Dinkelman & Ranchhod (2012). On the other hand, states with wider SG have a more significant decline in working hours and an increased in formalization. If *PEC Das Domésticas* had, on average, a negative effect on hours, this effect was more significant in states with inferior labor conditions before the law. In the case formalization increases, it increases the most in states with larger SG. Larger the salary gap, greater the growth in formalization and the decline in working hours.

### A. Robustness Checks

Dinkelman & Ranchhod (2012) point out the possibility that high and low salary gap states may have been trending differently after the law. To deal with that, I apply the methodology implemented by these authors.

I run (4), (5), and (6) for a group of workers for whom *PEC das Domésticas* is not relevant. Low-skilled male workers are expected to not be impacted by the law, and they do not compete with domestic workers for jobs. If the estimates are significantly like those found for domestic workers, it could be that states with larger SG were experiencing such changes over time, which may indicate exogenous shocks, leading to biased results.

In Appendix J, we find support for the results found in Appendix I. The estimates for earnings and working hours for male workers are the opposite of domestic workers. Regarding formalization, I find no significant effects, which validates our findings.

## IX. Discussion

This study points to an improvement in domestic workers' labor conditions relative to low-skilled male workers. There is a significant increase in earnings, which is an important achievement, as it represents a positive impact on workers' standards of living. The decline in working hours previously attributed to *PEC das Domésticas* was already in effect before the legislation, which weakens a causal inference. At first, the law reduces formalization, but the second stage of the policy leads to an overall increase.

When comparing these preliminary results to the literature, it is possible to find both similarities and differences. Russo & Pero (2017) observe an increase in earnings right after the first stage and no significant effects on working hours. This study finds an increase in income but a decline in working hours, which cannot be fully attributed to the legislation. The outcomes regarding formalization can't be compared, as they use a different proxy. Costa et al. (2016), who only analyzes the first stage, find an increase in formalization and a decline in working hours. This study finds a reduction in formalization after the first stage.

The intensity of treatment analysis indicates that *PEC das Domésticas* has a more intense impact in states where working conditions were worse off before the law. Earnings increase the least, working hours decline the most, while formalization raises further in states with larger salary gap. This is an important finding, indicating that labor regulations present a tendency of diminishing returns. For policymaking, it is necessary to understand that the same legislation may impact states differently. In Brazil, labor regulations are often implemented at the national level. Because of significant geographic disparities, policymakers should focus on the trade-off between federal and state policies.

When monthly and daily workers are analyzed separately, results indicate the possibility of an adverse effect of *PEC das Domésticas* on labor conditions. Like Russo & Pero (2017), this study finds that the legislation impacted monthly and daily workers differently. The first stage is associated with a decline in monthly workers income, but the second leads to an increase. In the aggregate, there is a decline in earnings. First, formalization increases, but FGTS and UI collection lead to a decline almost of the same magnitude. *PEC das Domésticas* coincided with the beginning of the most prolonged recession in modern Brazilian history. Because unemployed women are likely to join domestic work, this may impact the results. With lower disposable income, employers have less potential to hire monthly compared to daily workers. They are also more likely to dismiss those who are currently employed, impacting formalization and earnings. Second, *PEC das Domésticas* coincides with an external legislation, which enabled daily workers to formalize. This may explain the decline in formalization of monthly workers relative to daily workers right after the second stage.

These results, combined with the evidence found by Costa et al. (2016) and Russo & Pero (2017) of an increase in the probability of becoming a daily worker, suggest that *PEC das Domésticas*, by itself, may have harmed the labor market. Despite an increase in earnings, daily workers are less likely to be formalized, driving them to a more vulnerable condition. Policymakers need to design policies that minimize negative externalities by preventing legal loopholes. Because employers can hire daily workers without formalizing, they have no incentives to formalize monthly workers.

## Domestic Work and Slavery

To further understand this dynamic, scholars must investigate the impact of the 2015 legislation targeting daily workers, as it may have impacted the effects of *PEC das Domésticas*.

The main limitations of this analysis consist in the inability to control for the impacts of the Brazilian recession, and the external policy change targeting daily workers. A third limitation is that the dataset utilized does not follow the same household's sample over a long period, preventing one from observing the impacts of the legislation on the same treated group.

## X. Appendix

### Appendix A

Provisions from PEC das Domésticas

BEFORE	FIRST STAGE (April, 2013)	SECOND STAGE (Jun, 2015)
Minimum Wage	Minimum wage never below the minimum for the ones who receive variable remuneration	Employment relationship protected against arbitrary or unfair dismissal
Irreducibility of salary	Protection of salary	Unemployment-insurance in case of involuntary unemployment
13th salary	Length of regular work not over eight hours per day or forty hours per week	FGTS
Paid Vacation	Overtime compensation at least 50% over regular remuneration, with a limit of four extra hours per week	Higher compensation for night shifts
Social Security and Retirement	Reducing risks inherent to work through health, hygiene, and safety standards	Salário-Família
Paid weekly rest	Prohibition of differentiation, in exercising functions and in hiring criteria due to sex, age, color or marital status	Free assistance for children and dependents from birth to five years of age at daycare centers and preschools
Advance Notice	Recognition of conventions and collective agreements	Insurance against work accidents in charge of the employer
120-day Maternity leave	Prohibition of discrimination regarding salary and hiring criteria of disabled workers	

List of labor rights guaranteed to domestic workers before and after each stage of PEC das Domésticas

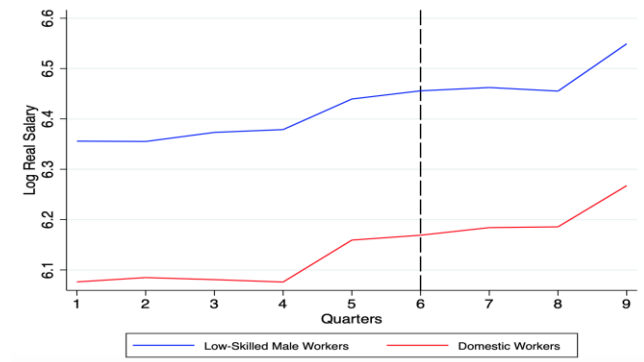
**Appendix B**

Variance Inflation Factor (VIF)

Variable	VIF	1/VIF	Variable	VIF	1/VIF
Year	4.84	0.207	1.eSocial	9.01	0.111
eSocial	3.88	0.258	1.EC72	1.74	0.575
EC72	1.68	0.595	1.eSocialImp	9.65	0.104
YearsEdu	1.27	0.787	Year	5.63	0.178
V1022	1.13	0.885	YearsEdu	1.27	0.787
Age	1.09	0.918	V1022	1.13	0.885
Quarter	1.08	0.923	Age	1.09	0.918
Sex	1.05	0.950	Quarter	1.08	0.922
RaceNumeric	1.02	0.983	Sex	1.05	0.950
<b>Mean VIF</b>	<b>1.89</b>		RaceNumeric	1.02	0.983
			<b>Mean VIF</b>	<b>3.27</b>	

**Appendix C**

Real Salary - Domestic Workers Vs. Low-Skilled Male Workers I



Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

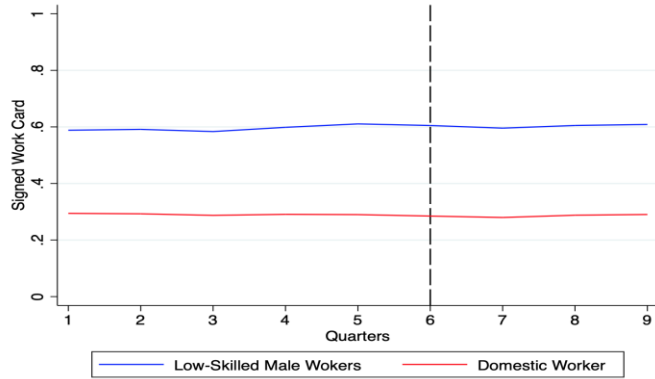
Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Real salary equal monthly real income earned from work

# Domestic Work and Slavery

## Appendix D

### Formalization Rate - Domestic Workers Vs. Low-Skilled Male Workers I



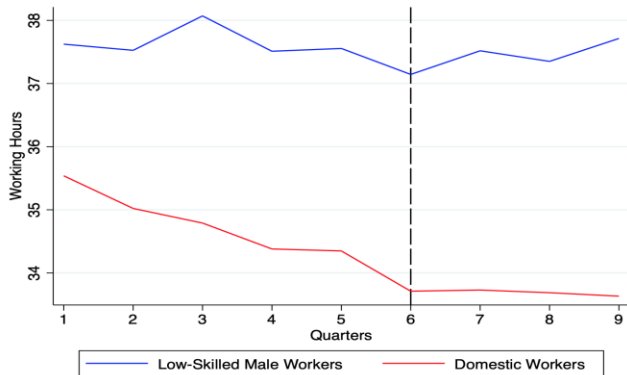
Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Signed work card is a proxy for formalization

## Appendix E

### Working Hours - Domestic Workers Vs. Low-Skilled Male Workers I



Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Working Hours equal number of hours worked per week

**Appendix F**

**Real Salary - Domestic Workers Vs. Low-Skilled Male Workers II**



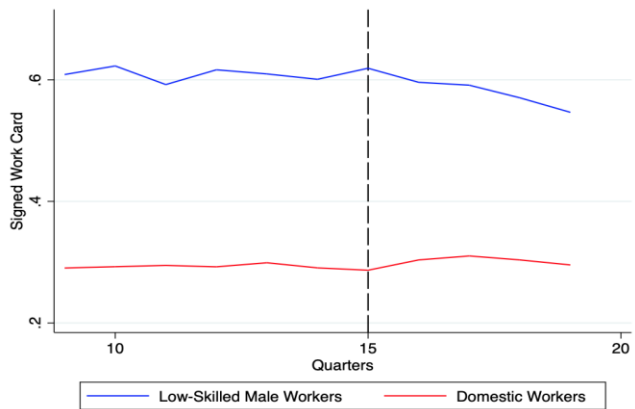
Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Real salary equal monthly real income earned from work

**Appendix G**

**Formalization Rate - Domestic Workers Vs. Low-Skilled Male Workers II**



Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

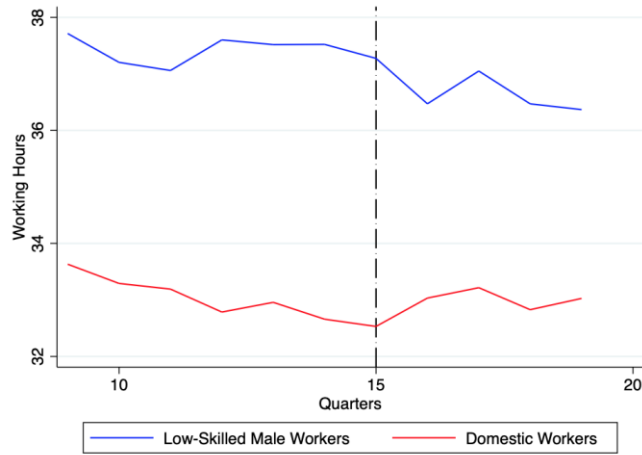
Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Signed work card is a proxy for formalization

# Domestic Work and Slavery

## Appendix H

### Working Hours - Domestic Workers Vs. Low-Skilled Male Workers II



Domestic workers are composed of women (+18) and (-65) who currently reported working as daily or monthly domestic workers

Low-skilled male workers are composed of male (+18) and (-65) who reported working one week before the law implementation

Working Hours equal number of hours worked per week

## Appendix I

### DID Estimates III

	Real Salary	Working Hours	Formalization
	(3)		
<b>EC72*Domestic</b>	0.016** (0.007)	-1.700*** (0.160)	-0.046 (0.039)
<b>eSocial*Domestic</b>	0.016 (0.014)	-1.167*** (0.312)	-0.053 (0.079)
<b>eSocialImp*Domestic</b>	0.059*** (0.014)	-0.098 (0.305)	0.256*** (0.077)
<b>Observations</b>	392,171	392,171	323,079
<b>R-squared</b>	0.127	0.019	0.087

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

Treatment group is composed of women domestic workers (+18) and (-65) who currently reported working as daily or monthly domestic workers

The control group is composed of low-skilled male workers (+18) and (-65) who reported working one week before the law implementation

All models controlled for age, years of education, race, living condition, and sex

Paraná, Rio Grande do Sul, Santa Catarina, Rio de Janeiro, and São Paulo are omitted



**Appendix J**

Intensity of Treatment II

	Real Salary			Working Hours			Formalization		
	(4)	(5)	(6)	(4)	(5)	(6)	(4)	(5)	(6)
EC72*SG	0.037** (0.015)			1.844*** (0.301)			0.086 (0.089)		
eSocial*SG		0.031*** (0.011)			1.600*** (0.223)			0.117* (0.069)	
eSocialImp*SG			0.028** (0.011)			1.437*** (0.222)			0.091 (0.069)
Observations	161,893	161,893	161,893	161,893	161,893	161,893	70,398	70,398	70,398
R-squared	0.160	0.160	0.160	0.037	0.037	0.037	0.081	0.081	0.081

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

Group of analysis consists of low-skilled male workers (+18) and (-65) who reported working one week before the law implementation

Estimates are controlled for age, years of education, race, and living condition

**XI. References**

Amadeo, Edward Joaquim, Indermit S. Gill, and Marcelo Cortes Neri. "Brazil: the pressure points in labor legislation." (2000).

Amuedo-Dorantes, Catalina. "Determinants and poverty implications of informal sector work in Chile." *Economic Development and Cultural Change* 52, no. 2 (2004): 347-368.

Anderson, Bridget. "Servants and slaves: Europe's domestic workers." *Race & Class* 39, no. 1 (1997): 37-49.

Bentivoglio, Elaine Cristina Saraiva, and Natalia Santos de Freitas. "A evolução da legislação do trabalho doméstico no Brasil." *Revista do Curso de Direito* 11, no. 11 (2014): 219-232.

Blofield, Merike. "Feudal enclaves and political reforms: Domestic workers in Latin America." *Latin American Research Review* (2009): 158-190.

Blofield, Merike, and Merita Jokela. "Paid domestic work and the struggles of care workers in Latin America." *Current Sociology* 66, no. 4 (2018): 531-546.

Bonnet, Florence, Joann Vanek, and Martha Chen. "Women and men in the informal economy: A statistical brief." *International Labour Office, Geneva* (2019).

## Domestic Work and Slavery

Bosch, Mariano, Edwin Goni, and William F. Maloney. "The determinants of rising informality in Brazil: Evidence from gross worker flows." *World Bank Policy Research Working Paper* 4375 (2007).

Brites, Jurema Gorski. "Trabalho doméstico: questões, leituras e políticas." *Cadernos de pesquisa* 43 (2013): 422-451.

Chen, Martha Alter. *The informal economy: Definitions, theories and policies*. Vol. 1, no. 26. WIEGO working Paper, 2012.

Coelho, H. "Idosa É Resgatada Em Situação Análoga À Escravidão No Rio; Patrões Não Pagaram Salário Por 41 Anos, Diz Força-Tarefa." Accessed February 3, 2021 <https://g1.globo.com/rj/rio-de-janeiro/noticia/2021/01/28/forca-tarefa-resgata-idosa-em-situacao-analoga-a-escravidao-no-rio-patroes-nao-pagaram-salario-por-41-anos-diz-superintendencia.ghtml>.

Cortes, Patricia, and Jessica Pan. "Outsourcing household production: Foreign domestic workers and native labor supply in Hong Kong." *Journal of Labor Economics* 31, no. 2 (2013): 327-371.

Costa, Joana Simões, Ana Luiza Neves de Holanda Barbosa, and Guilherme Issamu Hirata. *Efeitos da ampliação dos direitos trabalhistas sobre a formalização, jornada de trabalho e salários das empregadas domésticas*. No. 2241. Texto para Discussão, 2016.

da Silva Pinto, Licia Marta. "Dia de Empreguete, Véspera de Madame: A mudança na representação ficcional das empregadas domésticas a partir da PEC 66/2012." PhD diss., Dissertação (Mestrado em Comunicação)—Pontifícia Universidade Católica (PUC Rio), Rio de Janeiro, 2017.

da Silva, Deide Fátima, Maria das Dores Saraiva de Loreto, and Amélia Carla Sobrinho Bifano. "Ensaio da história do trabalho doméstico no Brasil: um trabalho invisível." *Cadernos de direito* 17, no. 32 (2017): 409-438.

de Oliveira Pinto, Tatiane. "Sobre as 'empregadas de antigamente': mudanças e permanências no campo do trabalho doméstico remunerado." *Mosaico* 11, no. 17 (2019): 205-226.

Dinkelman, Taryn, and Vimal Ranchhod. "Evidence on the impact of minimum wage laws in an informal sector: Domestic workers in South Africa." *Journal of Development Economics* 99, no. 1 (2012): 27-45.

Dutra, Delia. "Mulheres migrantes peruanas em Brasília. O trabalho doméstico e a produção do espaço na cidade." *Revista Interdisciplinar da Mobilidade Humana* 20, no. 39 (2012).

Fajnzylber, Pablo. "Minimum wage effects throughout the wage distribution: evidence from Brazil's formal and informal sectors." (2001).

Fakih, Ali, and Walid Marrouch. "Determinants of domestic workers' employment: Evidence from lebanese household survey data." (2012).

Fields, Gary S. "Labour market modelling and the urban informal sector: Theory and evidence." (1990).

Fields, Gary S. "A guide to multisector labor market models." (2004).

Flipo, Anne, Denis Fougère, and Lucile Olier. "Is the household demand for in-home services sensitive to tax reductions? The French case." *Journal of public economics* 91, no. 1-2 (2007): 365-385.

Friedman, Eric, Simon Johnson, Daniel Kaufmann, and Pablo Zoido-Lobaton. "Dodging the grabbing hand: the determinants of unofficial activity in 69 countries." *Journal of public economics* 76, no. 3 (2000): 459-493.

Fudge, Judy, and Kendra Strauss. "Migrants, unfree labour, and the legal construction of domestic servitude." *Migrants at work* (2014): 160-179.

Furtado, Odair, Mônica Gurjão Carvalho, and Winnie Nascimento dos Santos. "Quase da família: perspectivas interseccionais do emprego doméstico." *Revista Psicologia Política* 20, no. 48 (2020): 355-369.

Galli, Rossana, and David Kucera. "Labor standards and informal employment in Latin America." *World Development* 32, no. 5 (2004): 809-828.

Garavito, Cecilia. "Oferta de trabajo del hogar remunerado en el Perú: 2007-2014." *Cuadernos de economía* 36, no. SPE72 (2017): 265-299.

Gill, Lesley. "Precarious dependencies: gender, class, and domestic service in Bolivia." (1994): 383-409.

Goldstein, Donna M. "The Aesthetics of Domination. Class, Culture, and the Lives of Domestic Workers." In *Laughter out of place*, pp. 58-101. University of California Press, 2013.

Gortázar, N. "Caso De Madalena, Escrava Desde Os Oito Anos, Expõe Legado Vivo Da Escravidão No Brasil." Accessed January 30, 2021 <https://brasil.elpais.com/internacional/2021-01-14/madalena-escrava-desde-os-oito-anos-expoe-caso-extremo-de-racismo-no-brasil-do-seculo-xxi.html>.

Griffin, Laura. "Unravelling rights: 'Illegal' migrant domestic workers in South Africa." *South African Review of Sociology* 42, no. 2 (2011): 83-101.

Gudibande, Rohan Ravindra, and Arun Jacob. *Minimum wage law for domestic workers: Impact evaluation of the Indian experience*. No. BOOK. The Graduate Institute of International and Development Studies, Centre for Finance and Development, 2015.

Guerra, Maria de Fátima Lage, Simone Wajnman, and Bernardo Palhares Campolina Diniz. "Quem contrata trabalhadoras domésticas diaristas e mensalistas no Brasil?." *Anais* (2019): 1-24.

## Domestic Work and Slavery

Gutiérrez-Rodríguez, Encarnación. *Migration, domestic work and affect: a decolonial approach on value and the feminization of labor*. Routledge, 2010.

Gutierrez-Rodriguez, Encarnación. "Domestic work–affective labor: On feminization and the coloniality of labor." In *Women's Studies International Forum*, vol. 46, pp. 45-53. Pergamon, 2014.

G1. "Empregadora É Condenada Por Manter Mulher Em Trabalho Doméstico Análogo À Escravidão Por 35 Anos Na Bahia." Accessed January 10, 2021 <https://g1.globo.com/ba/bahia/noticia/2020/06/10/empregadora-e-condenada-por-manter-domestica-em-trabalho-analogo-a-escravidao-por-35-anos-na-bahia.ghtml>.

Harris, John R., and Michael P. Todaro. "Migration, unemployment and development: a two-sector analysis." *The American economic review* 60, no. 1 (1970): 126-142.

Hart, Keith. "Informal income opportunities and urban employment in Ghana." *The journal of modern African studies* 11, no. 1 (1973): 61-89.

Horne, Richard, Sameer Khatiwada, and Ste Kuhn. "World employment and social outlook: trends 2016." *International Labour Office–Geneva: ILO* (2016).

ILO, Labour Migration Branch. "ILO global estimates on migrant workers: results and methodology." *Geneva: International Labour Organisation (ILO)* (2015).

Jordão, P. "Trabalhadores Domésticos Gays Enfrentam Discriminação e Assédio" Accessed April 30, 2021 <https://queer.ig.com.br/2021-04-27/trabalhadores-domesticos-gays-enfrentam-discriminacao-e-assedio.html>

Kucera, David, and Leanne Roncolato. "Informal employment: Two contested policy issues." *International Labour Review* 147, no. 4 (2008): 321-348.

La Ferrara, Eliana, Alberto Chong, and Suzanne Duryea. "Soap operas and fertility: Evidence from Brazil." *American Economic Journal: Applied Economics* 4, no. 4 (2012): 1-31.

Lemos, Sara. "Minimum wage effects across the private and public sectors in Brazil." *The Journal of Development Studies* 43, no. 4 (2007): 700-720.

Lemos, V. "Ministério Público Do Trabalho Analisa Morte De Doméstica No RJ Após Patroa Ter Coronavírus. BBC News Brasil." Accessed January 15, 2021 <https://www.bbc.com/portuguese/brasil-51982465>.

Lewis, William Arthur. "Economic development with unlimited supplies of labour." (1954): 139-91.

Loayza, Norman V., Ana Maria Oviedo, and Luis Servén. *The impact of regulation on growth and informality: Cross-country evidence*. Vol. 3623. World Bank Publications, 2005.

- Loayza, Norman, and Jamele Rigolini. "Informality trends and cycles (the world bank policy research department n 4078)." *Washington: Banco Mundial* (2006).
- Mori, Natalia, Soraya Fleischer, Ângela Figueiredo, Joaze Bernardino-Costa, and Tânia Cruz. "Tensões e experiências: um retrato das trabalhadoras domésticas de Brasília e Salvador." (2011).
- Nazier, Hanan, and Racha Ramadan. "Informality and poverty: A causality dilemma with application to Egypt." *Advances in Management & Applied Economics* 5, no. 4 (2015): 31-60.
- Parreñas, Rhacel Salazar. "Migrant Filipina domestic workers and the international division of reproductive labor." *Gender & society* 14, no. 4 (2000): 560-580.
- Peterson, Elin. "The invisible carers: Framing domestic work (ers) in gender equality policies in Spain." *European Journal of Women's Studies* 14, no. 3 (2007): 265-280.
- Pinheiro, Luana, Roberto Gonzalez, and Natália Fontoura. "Expansão dos direitos das trabalhadoras domésticas no Brasil." *Nota Técnica* 10 (2012).
- Pinheiro, Luana, Fernanda Lira Goes, Marcela Rezende, and Natália de Oliveira Fontoura. *Os Desafios do Passado no Trabalho Doméstico do Século XXI: reflexões para o caso brasileiro a partir dos dados da PNAD Contínua*. No. 2528. Texto para Discussão, 2019.
- Ramirez-Machado, José Maria. "Domestic work, conditions of work and employment: A legal perspective." *Conditions of Work and Employment Series* 7 (2003).
- Russo, Felipe Mendonça, and Valéria Lúcia Pero. "Efeitos do aumento da proteção trabalhista sobre trabalhadoras domésticas: impactos da EC 72 e do Simples Doméstico." PhD diss., Dissertação (Mestrado), 2015.
- Sebrae. "Profissionais que prestam serviços domésticos podem ser MEI." Accessed February 1, 2021 [https://www.sebrae.com.br/sites/PortalSebrae/ufs/sp/conteudo\\_uf/profissionais-que-prestam-servicos-domesticos-podem-ser-mei,af7ee997bc741610VgnVCM1000004c00210aRCRD](https://www.sebrae.com.br/sites/PortalSebrae/ufs/sp/conteudo_uf/profissionais-que-prestam-servicos-domesticos-podem-ser-mei,af7ee997bc741610VgnVCM1000004c00210aRCRD).
- Stancanelli, Elena, and Leslie S. Stratton. "Her Time, his Time, or the maid's time: An analysis of the demand for domestic work." (2010).
- Suen, Wing. "Market-procured housework: The demand for domestic servants and female labor supply." *Labour Economics* 1, no. 3-4 (1994): 289-302.
- Theodoro, Maria Isabel Accoroni, and Luiz Guilherme Scorzafave. "Impacto da redução dos encargos trabalhistas sobre a formalização das empregadas domésticas." *Revista Brasileira de Economia* 65, no. 1 (2011): 93-109.
- Toneto, Carlos Augusto dos Santos. "Avaliação da ampliação dos direitos trabalhistas aos trabalhadores domésticos." PhD diss., 2019.