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# The Impacts of the Brazilian Labour Reform on Employment, Output, and Labour Productivity

**Summary:** This paper discusses the role played by the recent Brazilian Labour Reform (BLR) in conditioning the level and the rate of growth of employment, value added and productivity in the Brazilian economy from 2017. Our main findings are that after BLR, the share of informal employment, value added and productivity increased, as well as those shares in low productivity sectors. Furthermore, we show that the employment created in low-productivity sectors (formal and informal) were moved to high-productivity sectors in the years after the implementation of the 2017 labour reform, the aggregate levels of value added and productivity would have been much higher than otherwise.

**Keywords:** Brazilian labour reform, Employment structure, Value added and productivity levels, Informality.

**JEL:** E24, J46, J50, J65, J83, O40.

The world of labour has undergone rapid transformations over the last decades. On the one hand, they encompass technical-productive changes related to the new Digital Revolution 4.0. On the other hand, some institutional changes provided a redefinition of capital and labour relations. Both transformations are entwined and linked to the informational capitalism new era.

In Latin American economies, these transformations have deeper and problematic meanings. First, because of the marginal role they play in Global Value Chains (GVC). Second, due to the idiosyncratic and structural characteristics of their labour markets.

In the Brazilian case, the labour reform approved in 2017, and deepened in the following years, constitutes a hallmark of the institutional changes that swept the labour markets of underdeveloped countries. However, this type of reform might have impacts that go beyond labour markets themselves, especially on gross domestic product (GDP) and labour productivity, as later may have considerable links to the degree of formalisation of the economy and on the workers' legal status.

The main hypothesis of the paper is that the 2017 reform either set in motion or enhanced a new dynamic of job creation, whose fundamental characteristic relies on low-productivity occupations and, particularly, in the deepening of informality and precarious work. As a result, it would not only exacerbate the structural problems of the Brazilian labour market, but would also sharpen the historical tendency towards labour income squeeze, reducing GDP and labour productivity growth rates.

Therefore, Sections 1 and 2 of the paper discuss the main features of the Brazilian labour market regulation in comparison to the rest of the world, as well as its recent reform. In Section 3, we make a brief review of the empirical literature on labour market reform impacts. Section 4 describes the methodology used in the paper. In Section 5 we analyze the main recent occupational changes in the Brazilian labour market, assessing the impact of the 2017 reform on the occupational and productive structure. Two strategies underpin this analysis. In the first one, we test if the Brazilian labour market transformation started before the reform and got just an impulse from it. In the second, we test if the reform itself was the main driver of the transformation. Finally, given the main findings obtained, a decomposition analysis is used to evaluate the effects of changes in the occupational structure by economic sector on GDP and labour productivity growth rates. Subsequently, the main conclusions of the paper are presented.

## 1. A Brief Review of Brazilian Labour Market: Regulation, Protection and Structural Particularities

The Brazilian labour law dates back 1943, when the Consolidation of Labour Law (CLT) was signed under the dictatorship of President Getulio Vargas. During its history, Brazil has added many layers of labour protection, especially after the democratic Constitution of 1988. If it is fair to say that Brazilian labour market regulation has always ensured some security and leveled the playing field, it has been also far from being one of the friendliest to workers worldwide.

**Table 1** Employment Protection Legislation (EPL) - Selected Indicators 2020

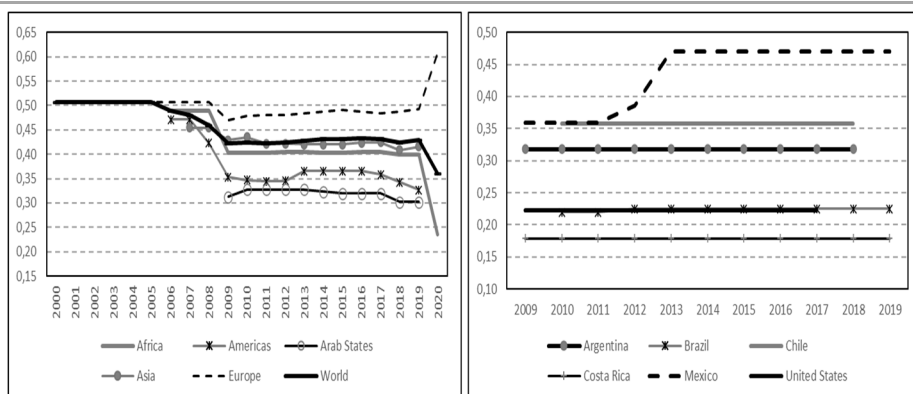
| Indicators  | World |     | Brazil |     |
|---|-------|-----|--------|-----|
|   | No    | Yes | No     | Yes |
| Fixed-term contracts prohibited for permanent tasks?  | 131   | 71  |        | X   |
| Restrictions on night work?   | 160   | 42  |        | X   |
| Restrictions on weekly holiday?   | 158   | 44  | X      |     |
| Restrictions on overtime work?  | 173   | 29  | X      |     |
| Dismissal due to redundancy allowed by law?   | 4     | 198 |        | X   |
| Third-party notification if one worker is dismissed?  | 98    | 100 | X      |     |
| Third-party approval if one worker is dismissed?  | 165   | 33  | X      |     |
| Third-party notification if nine workers are dismissed?                                     | 77    | 121 | X      |     |
| Third-party approval if nine workers are dismissed?   | 160   | 38  | X      |     |
| Retraining or reassignment obligation before redundancy?                                    | 155   | 43  | X      |     |
| Indicators  | World |     | Brazil |     |
| Maximum length of a single fixed-term contract (months)                                     | 29,9  |     | 24,0   |     |
| Maximum length of probationary period (months)  | 10,1  |     | 3,0    |     |
| Paid annual leave for a worker with 1 year of tenure (working days)                         | 8,9   |     | 26,0   |     |
| Notice period for redundancy dismissal for a worker with 1 year of tenure (weeks of salary) | 7,0   |     | 4,7    |     |
| Severance pay for redundancy dismissal for a worker with 1 year of tenure (weeks of salary) | 3,1   |     | 1,7    |     |

Source: Authors' calculations based on data from the World Bank.

Concerning Employment Protection Legislation (EPL), Brazilian legislation stands out in some issues, such as the prohibition of fixed-term contracts for permanent

tasks, restrictions on night work, maximum length of probationary period and paid annual leave. Table 1 shows the number of countries in the world which complies with some EPL in accordance with ILO conventions, as well as how far is the Brazilian regulation *vis a vis* the rest of the world. Besides, it also compares some EPL numeric indicators.

According to the ILO “De Juri” legislation database (EPLex), which measures the intensity of labour protection, comparing countries’ labour law with international labour conventions and principles, Brazil is in the lower bond of workers’ safety. While the World EPLex indicator ranges from 0,5 in 2000 to 0,43 in 2019 and 0,35 in 2020, Brazil’s indicator has been stable around 0,23 since 2010.



Source: Authors' calculations based on data from the International Labour Organization.

Figure 1 “De Juri” Legislation Indicator (EPLex)

Table 2 shows in which sense countries, Brazil included, comply with unemployment benefits (UB), according to ILO conventions. With regards to this matter, Brazil seems to be among the safest Latin American countries, especially in the availability of an unemployment protection scheme and the eligibility of an unemployment program after 1 year of contribution. However, it has higher minimum required contribution period, and lower duration of the unemployment benefit after 1 year of contribution, in comparison to the majority of countries in the continent.

In addition to regularization and protection issues, encompassing factors such as unemployment benefits, it is of great importance highlighting that the Brazilian labour market has structural characteristics derived from its peripheral condition which deserves special consideration. Certainly, a relevant one refers to the importance that underemployment, marginality and subsistence assume in occupational structure (Celso Furtado 1966; Edmar L. Bacha 1971; Lúcio Kowarick 1975; Alexandre de Freitas Barbosa 2016). In this sense, the informal economy (encompassing both sector and occupation dimensions) plays a fundamental role for income generation and unemployment compensation in the country.

This specific context shows that, unlike what has historically been observed in relation to developed countries, the real dimension of the problems faced by the Brazilian labour market exceeds open unemployment, requiring the incorporation of other

analytical dimensions, such as underemployment, informality, discouragement and underutilization, for example. Another fundamental and particular issue concerning both labour market and productive structure, notably in Latin American economies, consists of heterogeneity (William Arthur Lewis 1954; Furtado 1966; Octavio Rodriguez 2009). This means the coexistence of high and low productive sectors, in a way that this last one prevails in economy, constituting a broad space for informality.

**Table 2** Unemployment Benefits

| Region / Indicators        | Availability of an unemployment protection scheme? |           | Eligibility of an unemployment scheme after 1 year of contribution? |           | Are there eligibility conditions for unemployment benefit? |           | Minimum required contribution period (months) | Duration of the unemployment benefit after 1 year of contribution (weeks) |
|----------------------------|--|-----------|---|-----------|--|-----------|---|---|
|                            | No   | Yes       | No  | Yes       | No   | Yes       |   |   |
| East Asia & Pacific        | 16   | 11        | 19  | 8         | 16   | 11        | 15,8  | 19,7  |
| Europe & Central Asia      | 3  | 24        | 6   | 21        | 3  | 24        | 10,0  | 20,2  |
| Latin America & Caribbean  | 23   | 11        | 24  | 10        | 23   | 11        | 10,9  | 19,6  |
| <b>Brazil</b>              |  | <b>X</b>  |   | <b>X</b>  |  | <b>X</b>  | <b>12,0</b>                                   | <b>17,2</b>   |
| Middle East & North Africa | 10   | 10        | 14  | 6         | 10   | 10        | 19,4  | 16,2  |
| South Asia                 | 8  | 3         | 10  | 1         | 8  | 3         | 16,0  | 4,7   |
| Sub-Saharan Africa         | 45   | 4         | 46  | 3         | 45   | 4         | 6,5   | 17,3  |
| <b>World</b>               | <b>105</b>   | <b>97</b> | <b>123</b>  | <b>79</b> | <b>105</b>   | <b>97</b> | <b>11,5</b>                                   | <b>22,8</b>   |

Source: Authors' calculations based on data from the World Bank.

Without a wide discussion that has taken these structural aspects into consideration, a labour reform was implemented with the promise of increasing employment generation and enhancing formalization. Therefore, some of the main changes promoted not only seem insufficient to attack the crucial problems beyond unemployment, but also show great potential to deepen them, as discussed in the next section.

## 2. The Brazilian Labour Reform (BLR)

In 2017, the Brazilian Congress approved one of the most comprehensive and deepest labour law reforms in the country's history, hereafter Brazilian Labour Reform (BLR). It was implemented through The Labour Reform Act (Ordinary Law No. 13,467/2017).

Despite the great amount of changes encompassed (more than two hundred articles) which could be analyzed, it can be said that the Brazilian Labour Reform has touched upon four main aspects: (1) the prevalence of agreements over legislation and the undermining of workers' position in the bargain; (2) the weakening of Employment Protection Legislation (EPL); (3) the deregulation of Wage Settings (WS); (4) the worsening of Working Time conditions (Instituto de Economia and Centro de Estudos Sindicais e de Economia do Trabalho 2017; Sandro Sacchet de Carvalho 2017; José Dari Krein 2018; Krein and Ana Paula Fragnani Colombi 2019). In sum, the BLR pushes the Brazilian economy towards a more flexible and deregulated labour market, as a promise of increasing job creation.

Concerning the first aspect, instead of strengthening workers' power in the bargain, as suggested by the literature on wage bargain under monopsony (Pierre Cahuc,

Stéphane Carcillo, and André Zylberberg 2014), BLR weakens their position. First, because of the reduction of financial support of unions, not only through the repeal of mandatory union fees, but also due to the creation of procedures and difficulties to any kind of contribution to unions. Secondly, the new regulation fosters worker representation in the workplace in detriment of collective representation at higher levels of aggregation, opening even the possibility of individual negotiation, excluding the unions in the definition of the clauses of the employment contract. Finally, BLR withdraws the union's role of supervising the dismissal of workers with more than one year of employment (João Leal Fernandes 2017; Krein 2018).

In relation to the second aspect (EPL), it is possible to divide the main changes in two broad categories: (1) new requirements and procedures of layoff and dismissal of workers with permanent contracts; (2) the creation of more precarious and atypical forms of hiring (Carvalho 2017; Departamento Intersindical de Estatística e Estudos Socioeconômicos 2017; Instituto de Economia and Centro de Estudos Sindicais e de Economia do Trabalho 2017; Krein 2018; Krein and Colombi 2019).

In the first case, the BLR makes the layoff and dismissal easier, once it ends the obligation for the termination of the employment contract to be made inside the Union building or in the labour Court, also extinguishes free legal assistance to employees, as well as the obligation of severance payments immediately after the ending of the contract, besides other alterations that reduce frictions to dismissal.

Concerning the creation of more precarious and atypical forms of hiring, BRL introduces the intermittent contract (in which the employer is not required to offer any minimum number of working hours to the employee, similar to United Kingdom's zero-hour contracts); expand part-time working hours (from 25 to 30 without possibility to pay for overtime); and extend temporary contract's duration. Additionally, the new regulation also expands outsourcing, allowing companies to subcontracting workers to their core activities. Furthermore, it assures that hiring self-employers does not constitute a regular employment relationship, by any means, even if there is an exclusivity agreement.

The third aspect (WS) can be considered one of the most important chapters of the reform, inasmuch as it gives a lot of power to employers to reduce wage costs. According to the new law, it becomes possible to reduce wages through collective bargaining or even by individual agreement, if the worker earns more than twice the upper limit of social security benefits. Besides, according to article 611-A, collective and individual agreements may even swap regular and fixed wages for profit sharing plans, compensation through goods, bonuses and services, as well as payments according to productivity. In turn, tips can be taken by companies, which define its distribution. Finally, awards and allowances do not form part of the employee's remuneration anymore, the reason why they are not part of the labour and social security charge (Carvalho 2017; Departamento Intersindical de Estatística e Estudos Socioeconômicos 2017; Instituto de Economia and Centro de Estudos Sindicais e de Economia do Trabalho 2017; Krein 2018; Krein and Colombi 2019).

Finally, the fourth aspect (which refers to the worsening of working time conditions) results from changes related to the possibility of extension of working day (also provided by individual agreement); the legalization of twelve consecutive hours

of work followed by thirty-six rest periods for any worker; the disregarding of itinerary to work, as well as preparatory and ancillary activities as part of the workday; among other important changes increasing the work intensity (Departamento Intersindical de Estatística e Estudos Socioeconômicos 2017; Instituto de Economia and Centro de Estudos Sindicais e de Economia do Trabalho 2017; Krein 2018).

It should be also noted that the changes encompassed by BLR end up, in a certain way, contributing to the worsening of structural problems in the country, such as informality and underutilization of labor. As an example, access to justice, which ended up becoming more difficult and expensive to the worker, is one factor that certainly contributes a lot to the increase of informality (Victor Araújo Filgueiras 2019). This happens mainly because workers that do not have a recognized formal employment bond, and who would access the Justice in order to claim it, tend not to do so, after BLR. The reduction of lawsuits constitutes an incentive for employers to hire workers in informal condition.

In the same way the creation of new types of contract (such as the intermittent) or the alteration in the sense of deepening others (like the expansion of part-time) contribute to increase underemployed population, consequently, underutilization. Underemployed population tend to apply for GIG economy jobs, in order to complement income, which means, again, a stimulus to increase informality.

Other two important modifications, previously discussed, which also tend to contribute to informal employment rise, refers to unrestricting outsourcing and the understanding about hiring self-employed, which would not constitute a regular employment relationship, even in the presence of exclusivity agreement. These changes give an incentive for the replacement of traditional formal employment by self-employed services provision. Thus, BLR encourages the strategy of not formalizing the condition of employees by employers, encouraging the use of precarious hiring modalities masked by some sort of legal protection (such as the appearance of formality).

Considered the main changes brought by the BLR and their most problematic aspects with regard to the aggravation of structural issues in the Brazilian labor market (such as informality and underemployment), the next section presents a brief synthesis of the literature on the determinants and effects of labour reforms, encompassing works of empirical nature.

### 3. Labour Market Reforms, Its Determinants and Impacts: A Short Review of the Empirical Literature

The empirical debate about the relationship between the labour market reforms and economic performance has grown considerably in the last few years. According to International Labour Organization (ILO 2015a), the comprehensive set of policy interventions has twofold meanings. On the one hand, it can be seen either as a result of poor social and economic performance, such as in developed countries, or a consequence of rapid economic growth, for instance, in developing ones.

On the other hand, their impacts on GDP, employment and productivity have been quite controversial (Emilliano Brancaccio, Fabiana De Cristofaro, and Raffaele Giammetti 2020). First, there is the question of the type of reform, if unemployment

benefits or EPL and the direction of the effects, for example, null, positive, and negative outcomes. Secondly, there is the question of time-effect, i.e., if there are short or long-term effects. Finally, it has been argued that the impact might be state dependent, i.e., it can depend on the business cycle and on the kind of macroeconomic policies that have been implemented around the reform.

Concerning the type and direction of reform, Tito Boeri, Cahuc, and Zylberberg (2005) found that while UB reforms have positive effects on unemployment, especially on unemployment duration, EPL impacts are ambiguous. While for Horst Feldmann (2009) and Lorenzo E. Bernal-Verdugo, Davide Furceri, and Dominique M. Guillaume (2012) stringent labour market regulations increase unemployment, for Matteo Cacciatore, Romain Duval, and Giuseppi Fiori (2012) and ILO (2015a), deregulation of labour markets increases unemployment and decreases employment.

In the same vein, studies such as World Bank (2013), International Monetary Fund (2015) and ILO (2015b) have found either no statistically significant effect of EPL reforms on macroeconomic variables or just modest impacts. These findings can be the result of either the so called the “plateau effect”, or the lack of good data and difficulties in measuring the stringency of labour legislation, as well as the fact that the impacts happen just in specific groups of workers and not in the entire labour market (Andrea Bassani and Duval 2006, 2009).

With regards to the time-effect, Boeri and Juan F. Jimeno (2005), Boeri and Pietro Garibaldi (2007), Britta Gehrke and Enzo Weber (2017), Duval, Furceri, and João Jalle (2020) found that, for a panel of advanced countries, EPL reforms have had positive effects on macroeconomic variables just in the short-term or have delayed effects and fade away over time. However, ILO (2015a) found that deregulation has negative macroeconomic impacts in the short-term. In turn, Gerhard Rünstler (2021) found that EPL effects are small in the short-term and build up gradually, reaching its maximum effect around five years after the reform.

As for state-dependence, Romain Bouis, Orsetta Causa, and Lisl Demmou (2012), Cacciatore, Duval, and Fiori (2012), ILO (2015a), Rünstler (2021) and Romain Aumond, Valerio Di Tommaso, and Gerhard Runstler (2022) found that deregulation policies lower employment in states of low growth or tight macroeconomic policies and increases it during high growth or expansionary macroeconomic policies.

Regarding the Brazilian case, the only two studies we found are Bruno Ottoni and Thiago Barreira (2021) and Gustavo Pereira Serra, Ana Bottega, and Marina Da Silva Sanches (2021). In both cases, the authors used the Synthetic Control Method (SCM). However, while the first focused on the impact of the Brazilian Labour Reform on the natural rate of unemployment in the long-term, the second one examined its effect on the effective rate of unemployment in the short-term. Besides these distinct strategies of investigation, their conclusions are quite divergent. According to Ottoni and Barreira (2021), BLR will have permanent and positive effects on the Brazilian labour market, reducing the natural rate of unemployment in the next 10 to 13 years. In turn, Serra, Bottega, and Sanches (2021) ensure that it is not possible to say that BLR had any kind of impact (null, positive or negative) on the effective rate of unemployment between 2017 and 2020.

## 4. Methodology

### 4.1 General Procedure

In order to analyze the main recent occupational changes in the Brazilian labour market, as related in the introduction, we assess the impact of the 2017 reform on the occupational structure in its quantitative and qualitative dimensions. Considering that the reform came into force as of November 2017, we compare the periods before and after it, i.e. between 2012-2017 and 2018-2019.

Exploratory data analysis techniques are used to summarise the main characteristics of the Brazilian occupations according to their occupational position<sup>1</sup>, employment category<sup>2</sup>, degree of formalisation, economic sector, income, and educational level. Besides that, a decomposition analysis is used to evaluate the effects of changes in the occupational structure by economic sector on GDP and labour productivity growth rates.

To do so, the paper uses descriptive statistics from Continuous National Household Sample Survey (Pnad-C) and System of National Accounts (SNA), both provided by Brazilian Institute of Geography and Statistics (IBGE). Once the focus of the analysis relies on occupational and productive structure, the concepts of formality and informality takes a great deal of the discussion, since the degree assumed by one or another constitutes a key factor for development indicators, mainly in the case of peripheral economies (Rodriguez 2009).

To assess the impacts of the 2017 BLR on occupational structure, labor productivity and GDP, as already said, we gathered annual data for the 2012-2019 period due to the availability of National Accounts data. Furthermore, we divided this period according to two notable political-economic episodes, namely the 2015 political-economic crisis, whose turning point was the impeachment of President Dilma Rousseff in 2016, and the Labor Reform itself, that came into force as of November 2017.

Therefore, we defined the following sub-periods in the analysis: 2012-2014 (before the 2015 political-economic turmoil and before the 2017 Labor Reform), 2015-2017 (after the 2015 political-economic crisis and before the 2017 Labor Reform) and 2018-2019 (after the 2017 Labor Reform). To properly compare these sub-periods, we present data for 2012, 2014, 2017, and 2019 and we calculate the corresponding compound annual growth rate.

### 4.2 Definitions Adopted and Methodological Issues Concerning Data Source

Informality represents one of the most distinguishing traces of Brazilian labour market, not only to occupational structure characterization, but also to heterogeneous productive structure. The concept has initially been assigned to peripheral economies, mainly related to the notion of low productivity. Since ILO's first recognition of the term in the 1970's, there has been a lot of discussion about its definition (and its relationship to other concepts such as precarity) and measurement.

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<sup>1</sup> Associated with the working relationship between the person and the enterprise in which one works.

<sup>2</sup> Type of work performed and the legal status of the workers.



In this paper, we dealt with two important dimensions of informality. The first is related to the labour market and occupations, being represented by informal employment. The second one is associated with the goods markets and is represented by the informal sector.

According to ILO<sup>3</sup>, it is possible to distinguish some important features of the informal sector: (1) it is associated to productive unities in some economic activities; (2) it as part of household institutional sector in SNA, splitted into “Own-account workers” and “Employers”; (3) it is related to the legal registration of productive units; (4) it is also associated with the small size and turnover of companies (System of National Accounts by European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank 2008); (5) it encompasses households undertaking production for own final use, and including owner occupation of dwellings.

Regarding informal employment, the ILO<sup>4</sup> stated the following occupations as informal: Own-Account Workers and Employers in informal sector, Unpaid Family Workers, Informal Employees (which refers to those ones not subjected to labour legislation and to social protection) and Members of Producers’ Cooperatives.

In Brazil, informal employment data is provided by the Pnad-C microdata, carried out quarterly by IBGE, since 2012. In this paper, we annualized data, getting information accumulated *per* year (in the first interview), for the 2012-2019 period. Pnad-C microdata provides data on informal employment, considering the following occupational positions: (1) Own-Account Workers in informal sector; (2) Employers in informal sector; (3) Unpaid Family Workers; (4) Informal Employees (not subjected to labour legislation and to social protection); (5) Domestic Workers (in other household unincorporated enterprises).

Table 3 presents institutional sector considered in the System of National Accounts and the Occupational position and job category available in Pnad-C microdata. As can be seen, informal employment corresponds to numbers 1, 2, 3, 5, 6, 7, 9 and 10; while general employment in informal sector is constituted by numbers 1, 3, 4, 6 and 10. Informal employment can also be present outside informal sector, which refers to numbers 2, 5, 7 and 9.

In view of International Conference of Labour Statisticians (ICLS’s) recommendations and the information available on Pnad-C annual microdata, the economic sectors were divided into formal and informal (considering, in this case, both informal enterprises and other household unincorporated enterprises) in this paper. This option was made to consider other household unincorporated enterprises together with informal enterprises, constituting, then, the households (which cannot be taken as a formal sector, according to ICLS’s definitions aiming the SNA). Another option made in this study refers to the adoption of the size of enterprise as the key variable to classify and

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<sup>3</sup> See, for example, the 15<sup>th</sup> and 17<sup>th</sup> International Conference of Labour Statisticians (ICLS), as well as Ralf Hussmanns (2004).

<sup>4</sup> See, for example, the 17<sup>th</sup> International Conference of Labour Statisticians (ICLS).

distinguish formal and informal sectors<sup>5</sup>, in such a way that 1-5 occupied (including partners and unpaid family workers) represents informal, and more than 5, formal.

**Table 3** Institutional Sectors and Occupational Positions and Job Categories Present in Brazilian Data

| Occupational position and job category<br>- inside Pnad-C data |                | Institutional sectors considered in the SNA   |                      |  |
|--|----------------|---|----------------------|--|
|  |                | Formal enterprises<br>(government, financial<br>enterprises, non-<br>financial enterprises) | Households           |  |
|  |                |   | Informal enterprises | Other household<br>unincorporated<br>enterprises |
| Own-account worker   | Registered     | x   |                      |  |
|  | Not registered |   | 1                    | 2  |
| Employer   | Registered     | x   |                      |  |
|  | Not registered |   | 3                    |  |
| Private sector employee  | Formal         | x   | 4                    |  |
|  | Informal       | 5   | 6                    |  |
| Domestic workers   | Formal         |   |                      | x  |
|  | Informal       |   |                      | 7  |
| Public sector employee   |                | 8   |                      |  |
| Unpaid family workers  |                | 9   | 10                   |  |

Source: Authors' elaboration based on SNA and Pnad-C data (IBGE 2022)<sup>6</sup>.

In this sense, formal sector's employment (being this one formal or informal) comprehends: (1) public sector employees (formal, temporary, military, and statutory); (2) formal and informal employees in enterprises composed by **more than 5 occupied**; (3) unpaid family workers under this same condition; and (4) own-account workers and employers whose enterprises applies this same rule. In turn, informal sector's employment (formal or informal) refers to: (1) formal and informal employees in enterprises composed by **1-5 occupied**; (2) unpaid family workers under this same condition; (3) own-account workers and employers whose enterprises applies this same rule; and (4) formal and informal domestic workers.

### 4.3 GDP and Labor Productivity

Regarding GDP and productivity growth, we followed Gabriel Coelho Squeff (2015) and Claudio Roberto Amitrano and Squeff (2017). We used data from the IBGE National Accounts to calculate value added, occupations, and labor productivity in the Formal and Informal sectors disaggregated by economic activity. We set that all value added and occupations generated in the institutional sector *Households* belong to the informal sector, whereas the other four institutional sectors – *Non-financial*

<sup>5</sup> Another common way to distinguish formal from informal sector refers to the enterprise's legal registry (National Registry of Legal Entities, in Brazil). For this paper's purpose, this wasn't the best option due to the fact that Pnad-C microdata presents some limits on this analysis before 2016.

<sup>6</sup> Instituto Brasileiro de Geografia e Estatística (IBGE). 2022. PNAD Contínua - Pesquisa Nacional por Amostra de Domicílios Contínua. <https://www.ibge.gov.br/estatisticas/sociais/trabalho/9171-pesquisa-nacional-por-amostra-de-domicilios-continua-mensal.html> (accessed May 10, 2022).

*corporations, Financial corporations, General government, and Non-profit institutions serving households* – were summed and labelled as Formal.

National Accounts data by institutional sector are only disaggregated by the following 12 economic activities: Agriculture, Mining, Manufacturing, Utilities, Construction, Commerce, Transportation, Information Services, Financial Institutions, Rents, Other Services, and Public Administration.

Considering that the economic activity Public Administration are solely generated by the institutional sector *General government*, we ended up with 12 economic activities in the Formal sector and 11 economic activities in the Informal sector. The latter was treated as a group, whereas the Formal sector was split in two groups according to the labor productivity levels of its economic activities in 2012.

The High-productivity formal sector consists of the sum of all economic activities whose productivity level is higher than the Formal sector productivity level. Therefore, the High-productivity formal sector comprises the following eight economic activities: Mining, Manufacturing, Utilities, Transportation, Information Services, Financial Institutions, Rents, and Public Administration. Inversely, the Low-productivity formal sector encompasses four economic activities – Agriculture, Construction, Commerce, and Other Services – whose labor productivity was lower than the Formal sector as a whole.

Value added at current prices were converted to 2019 prices using the change in volume of the gross value added at basic prices according to economic activities, independently of the formal/informal sector. Thus, labor productivity was calculated by dividing value added at 2019 prices by the corresponding number of occupations.

As it can be seen, due to our methodology, it was possible to connect goods and labour markets, gathering in the same set formal activities and workers, as well as the ones which are not formal. In the next section, and following this methodology to organize sectors/occupations, we analyze the main trend in Brazilian labour market after the BLR.

## 5. Occupations, Labor Productivity and GDP

### 5.1 Occupational Changes in Course: Employment and Sector's Informality

As previously discussed, Brazilian labour market presents several structural issues deeply connected to its peripheral condition, among which the prevalence of a subsistence sector certainly stands out. Two fundamental traces of Latin-American economic structures well describe subsistence system: underemployment and heterogeneity – the last term referring to the coexistence of low and high productivity activities, in a way that the first ones prevail in economy (Rodriguez 2009).

Considering these particular features, any institutional changes targeting flexibility in order to decrease labour's costs and, this way, stimulate employment – such as the case of 2017 Brazilian Labour Reform – deserve careful analysis, since Brazilian labour market's problems exceed simple unemployment, but also comprehend other critical issues, such as underutilization, historical wage squeeze, discouragement, and a large informality degree (which means lack of social protection), just to name a few.

Productive heterogeneity and underemployment seem to have profound consequences in underdeveloped countries, not only in terms of labour market's structure, but also in relation to goods and services market's performance, as both characteristics are strongly related to low productivity. That said, this section aims at presenting Brazilian labour market information derived from Pnad-C microdata, in order to delineate occupational structure and evaluate its development at the light of 2017 BLR, and also SNA data to connect these changes with productive structure. The purpose consists of analyzing a possible change in occupational structure in course, in the sense of deepening informality, and its correspondent consequences to economic activities distribution, especially, to the Brazilian economic productivity and growth.

As can be seen in Table 4, during the period 2012-2014, Brazilian labour force increased substantially between 2012 and 2019, but unemployed people represented a great portion of this enlargement. Between 2012 and 2019, more than 5,5 million individuals were added to this statistic. In turn, unemployment rate experienced an upward trend mainly in the 2016-2019 period (registering the highest level, of 12,6%, in 2017). Discouraged also presented a deep increase, starting with 1,9 million, in 2012, and reaching 4,7 million, in 2019. As observed in relation to unemployment, the highest rates of discouraged can be seen in the 2017-2019 period, and the lowest ones in the 2012-2014. The same applies to underutilization, which presented record levels, year after year, between 2016 and 2018.

**Table 4** Brazilian Labour Market Indicators during the Period 2012-2019

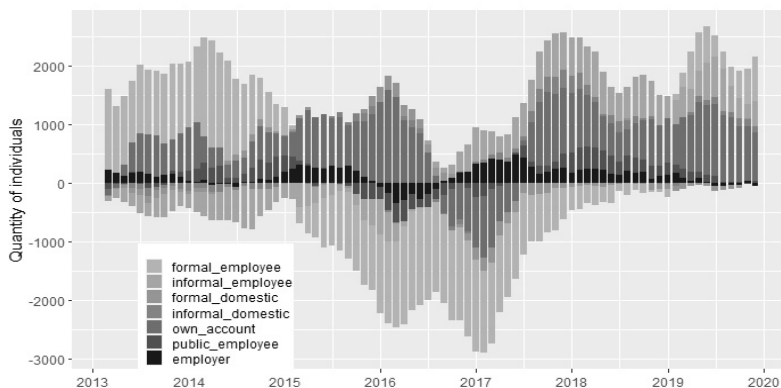
| Indicators            | Period before labour reform      |         |         |                           |         |         | After labour reform |         |
|-----------------------|----------------------------------|---------|---------|---------------------------|---------|---------|---------------------|---------|
|                       | Before political-economic crisis |         |         | Political-economic crisis |         |         | 2018                | 2019    |
|                       | 2012                             | 2013    | 2014    | 2015                      | 2016    | 2017    |                     |         |
| Working-age pop.      | 154.304                          | 156.552 | 158.703 | 160.960                   | 162.705 | 164.571 | 166.394             | 168.186 |
| Labour force          | 96.735                           | 98.442  | 99.104  | 101.400                   | 102.612 | 104.292 | 105.514             | 107.562 |
| a) Employed           | 89.598                           | 91.258  | 92.146  | 92.400                    | 90.652  | 91.108  | 92.676              | 94.861  |
| b) Unemployed         | 7.137                            | 7.185   | 6.958   | 9.008                     | 11.959  | 13.184  | 12.838              | 12.701  |
| Unemployment (%)      | 7.4%                             | 7.3%    | 7.0%    | 8.9%                      | 11.7%   | 12.6%   | 12.2%               | 11.8%   |
| Discouraged (%)       | 1.9%                             | 1.8%    | 1.5%    | 1.9%                      | 3.1%    | 3.7%    | 4.2%                | 4.1%    |
| Number of discouraged | 1.930                            | 1.913   | 1.606   | 2.062                     | 3.406   | 4.132   | 4.821               | 4.750   |
| Underutilization (%)  | 18.4%                            | 16.4%   | 15.1%   | 17.4%                     | 21.0%   | 23.9%   | 24.40%              | 24.2%   |

Source: Authors' calculation based on annual Pnad-C microdata (IBGE 2022).

These indicators show that the Brazilian political-economic crisis had great impact over employment and suggest that labour reform adopted at the end of 2017 has been inefficient in terms of promoting a large and consistent recovery. Brazilian labour reform seems to have had a weak effect on hiring. In turn, there is suggestive evidence that some impact on occupational structure could have happened. After the 2015-2016 crisis, informality has shown greater participation in employment generation, which denotes that the recovery has been promoted mainly on informal occupation, especially informal employees and own account workers (Figure 2).

According to Table 5, informal employment had a substantial increase along the period 2012-2019. In a similar way, employment in informal sector experienced a significant rise, increasing nearly the same numbers. Formal employment, as well as employment in formal sector registered the opposite tendency. Growth rates also showed that between 2012 and 2014 formal categories rise far more than informal ones, while

between 2015 and 2017, not only the last ones presented higher rates, but formals (employment and sector) decreased. Finally, between 2018 and 2019 informal employment had a greater rise than formal one, but employment in formal sector grew a bit more than in its counterpart.



Source: Authors' elaboration based on quarterly Pnad-C (IBGE 2022).

**Figure 2** Decomposition of Interannual Variation of Occupied Population in Brazilian Labour Market - 2012 to 2019 (Quarterly)

**Table 5** Brazilian Formal and Informal Employment, in Formal and Informal Sectors

| Participation rate (%)        | 2012      | 2014   | 2015      | 2017   | 2018      | 2019   |
|-------------------------------|-----------|--------|-----------|--------|-----------|--------|
| Informal employment           | 44.5      | 43.4   | 44.2      | 47     | 47.6      | 47.8   |
| Formal employment             | 55.5      | 56.6   | 55.8      | 53     | 52.4      | 52.2   |
| Employment in informal sector | 44.1      | 43.7   | 45.1      | 48     | 47.7      | 47.6   |
| Employment in formal sector   | 55.9      | 56.3   | 54.9      | 52     | 52.3      | 52.3   |
| Number of persons (in 1.000)  | 2012      | 2014   | 2015      | 2017   | 2018      | 2019   |
| Informal employment           | 39.875    | 40.070 | 40.838    | 42.825 | 44.142    | 45.379 |
| Formal employment             | 49.820    | 52.178 | 51.562    | 48.379 | 48.630    | 49.577 |
| Employment in informal sector | 39.563    | 40.335 | 41.634    | 43.741 | 44.283    | 45.193 |
| Employment in formal sector   | 50.133    | 51.914 | 50.744    | 47.416 | 48.482    | 49.703 |
| Growth rate (%)               | 2012/2014 |        | 2015/2017 |        | 2018/2019 |        |
| Informal employment           | 0.2%      |        | 2.4%      |        | 2.8%      |        |
| Formal employment             | 2.3%      |        | -3.1%     |        | 1.9%      |        |
| Employment in informal sector | 1.0%      |        | 2.5%      |        | 2.1%      |        |
| Employment in formal sector   | 1.8%      |        | -3.3%     |        | 2.5%      |        |

Source: Authors' calculation based on annual Pnad-C microdata (IBGE 2022).

As previously discussed in literature review, in general, informal sector comprehends predominantly low productivity activities. Despite that, formal sector also accounts for some low productivity activities, although in lower magnitude. This way, following high and low productivity classification (obtained with SNA data), formal sector was divided into these two categories. First, this classification was applied to Pnad-C microdata, resulting in a percentual distribution along formal and informal employment and high productivity formal, low productivity formal and informal sectors. This percentual distribution was, then, applied to SNA data in order to estimate

informal and formal employment distribution among the sectors. Table 6 shows the results obtained with this procedure.

**Table 6** Employment Distribution by Sector - 2012, 2014, 2017, and 2019 (%)

| 2012                       |            |        |       |
|----------------------------|------------|--------|-------|
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.5        | 23.8   | 25.3  |
| Formal - low productivity  | 5.5        | 27.0   | 32.5  |
| Informal                   | 36.3       | 5.9    | 42.2  |
| Total                      | 43.4       | 56.6   | 100   |
| 2014                       |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.4        | 24.4   | 25.8  |
| Formal - low productivity  | 5.2        | 28.7   | 33.9  |
| Informal                   | 34.6       | 5.7    | 40.3  |
| Total                      | 41.2       | 58.8   | 100   |
| 2015                       |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.3        | 24.1   | 25.4  |
| Formal - low productivity  | 4.8        | 28.8   | 33.6  |
| Informal                   | 35.3       | 5.7    | 41.0  |
| Total                      | 41.4       | 58.6   | 100.0 |
| 2017                       |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.3        | 23.5   | 24.9  |
| Formal - low productivity  | 5.3        | 27.8   | 33.1  |
| Informal                   | 36.2       | 5.8    | 42.0  |
| Total                      | 42.9       | 57.1   | 100   |
| 2018                       |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.4        | 23.5   | 24.8  |
| Formal - low productivity  | 5.7        | 28.0   | 33.8  |
| Informal                   | 36.2       | 5.3    | 41.4  |
| Total                      | 43.2       | 56.8   | 100   |
| 2019                       |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.5        | 23.4   | 24.8  |
| Formal - low productivity  | 5.7        | 27.4   | 33.1  |
| Informal                   | 36.8       | 5.3    | 42.1  |
| Total                      | 44.0       | 56.0   | 100   |

Source: Authors' calculation based on annual Pnad-C microdata and SNA data (IBGE 2022).

Once again, informal employment participation in economy evidences a deep rise in the period, after a great fall between 2012 and 2014 (from 43,4% to 41,2%), the following years register gradual and significant increase (achieving 44% in the final year). Informal sector participation decreases between the same years (falling almost 2 points between 2012 and 2014) and presents a more modest rise in the following years. Formal low productivity sector participation grew between the two initial years, showing some stability then, having achieved a higher proportion in 2018. Formal high productivity participation showed a downward tendency after 2014.

According to Table 7, informal employment (allocated in high and low productivity formal sector, and also in informal sector) decreased between the years 2012 and 2014, but informal employment in formal high productivity sector registered the highest fall. Between 2015 and 2017, the inverse situation occurred, which means informal employment experienced a rise in all sectors (the highest one in formal low productivity). Between 2018 and 2019, informal employment showed another rise in all sectors, with special magnitude in the formal high productivity. It is also possible to see that informal sector decreased in the first analyzed period, and that it raised in the two last ones, in a greater amount between 2018 and 2019. In the crisis period (between 2015 and 2017) employment decreased in formal sectors (high and low) and increased in the informal one, only. Finally, between 2018 and 2019, informal sector presented the highest growth rate, formal high productivity also raised, while formal low productivity decreased. It is worth noting that the increase in the two first sectors derived substantially from informal employment.

**Table 7** Formal and Informal Employment by Sector, Growth Rates, 2012-2014, 2015-2017, and 2018-2019 (%)

| 2012-2014                  |            |        |       |
|----------------------------|------------|--------|-------|
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | -3.7%      | 1.9%   | 1.5%  |
| Formal - low productivity  | -2.4%      | 3.8%   | 2.8%  |
| Informal                   | -1.7%      | -1.0%  | -1.6% |
| Total                      | -1.9%      | 2.5%   | 0.6%  |
| 2015-2017                  |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 1.1%       | -1.5%  | -1.4% |
| Formal - low productivity  | 4.8%       | -2.2%  | -1.2% |
| Informal                   | 0.9%       | 0.7%   | 0.9%  |
| Total                      | 1.3%       | -1.6%  | -0.4% |
| 2018-2019                  |            |        |       |
| Sector                     | Employment |        | Total |
|                            | Informal   | Formal |       |
| Formal - high productivity | 9.7%       | 1.0%   | 1.5%  |
| Formal - low productivity  | 1.1%       | -0.8%  | -0.4% |
| Informal                   | 3.3%       | 1.5%   | 3.1%  |
| Total                      | 3.2%       | 0.2%   | 1.5%  |

Source: Authors' calculation based on annual Pnad-C microdata (IBGE 2022).

As indicators exhibited in this section show, the period 2012-2019 reported an important occupational change in Brazilian labour market, which can be generally described by an upward trend in informality, not only referring to employment but also to sector dimension (although the first one registered a larger rise). In addition, the data which combined Pnad-C and SNA statistics (Table 7) showed that the 2018-2019 sub-period, therefore, after the labor reform, registered the highest growth rates for informal employment and also for informal sector.

## 5.2 Labor Productivity and GDP Growth

Since 2016, the Brazilian economy has gone through one of its worst economic downturns in history. Political dispute, international shocks and macroeconomic mismanagement led to a recession in that year and a slow recovery.

Table 8 depicts the compound annual growth rate of GDP, value added, occupations, and labor productivity for Brazil according to sub-periods<sup>7</sup>. Between 2012 and 2014, Brazil presented high annual growth rates of GDP (1.7%) and value added (1.7%) and even higher figures in occupations (2.2%). Consequently, labor productivity (-0.5%) decreased in this sub-period.

In the 2015-2017 period, all indicators have deteriorated sharply: GDP (-1.9%), value added (-1.6%), occupations (-1.2%), and labor productivity (0.4%). And in the last sub-period (2018-2019), there was an economic recovery without changing the downward trend in labor productivity – GDP (1.5%), value added (1.4%), occupations (2.1%), and productivity (-0.7%). Therefore, by the end of the 2010s GDP (0.1%) and value added (0.2%) were virtually at the same level of 2012, whereas occupations were higher (0.7%) and, thus, labor productivity (-0.5%) lower.

**Table 8** GDP and Labor Productivity (Compound Annual Growth Rate)

| Indicator          | 2012-2014 | 2015-2017 | 2018-2019 | 2012-2019 |
|--------------------|-----------|-----------|-----------|-----------|
| GDP                | 1.7%      | -1.9%     | 1.5%      | 0.1%      |
| Value added        | 1.7%      | -1.6%     | 1.4%      | 0.2%      |
| Occupations        | 2.2%      | -1.2%     | 2.1%      | 0.7%      |
| Labor productivity | -0.5%     | -0.4%     | -0.7%     | -0.5%     |

Source: Authors' own calculations based on IBGE (2022) data.

The next step to assess the impact of the BLR consists in evaluating value added, occupations, and labor productivity by sector (Table 9). Accordingly, throughout expansionary phases the Informal sector presented higher growth rates than the High and Low formal sectors. In the 2012-2014 sub-period, value added in the Informal sector grew 2.5% per annum compared to 0.9% in the High-productivity formal sector. Likewise, after the BLR the Informal sector presented the highest growth rate among the three sectors.

<sup>7</sup> Obviously, GDP and value added presented rather similar figures, since the latter is the main component of the former. Nevertheless, we decided to present both indicators because GDP is the most important macroeconomic indicator of the economy, whereas value added is used for the calculation of labor productivity in the remaining of the paper.



Inversely, during the recession (2015–2017), the contraction in the Informal sector (-1.1%) were smaller than in the Low-productivity formal sector (-2.9%). As a result, in the whole period (2012–2019) the growth of value added in the Informal sector was four times greater than the total economy.

**Table 9** Labor Productivity by Sector (Compound Annual Growth Rate)

| Indicator and sector            | 2012-2014 | 2015-2017 | 2018-2019 | 2012-2019 |
|---------------------------------|-----------|-----------|-----------|-----------|
| a) Value added                  | 1.7%      | -1.6%     | 1.4%      | 0.2%      |
| Informal sector                 | 2.5%      | -1.1%     | 2.3%      | 0.9%      |
| Low-productivity formal sector  | 2.0%      | -2.9%     | 2.2%      | -0.1%     |
| High-productivity formal sector | 0.9%      | -1.1%     | 0.4%      | -0.1%     |
| b) Occupations                  | 2.2%      | -1.2%     | 2.1%      | 0.7%      |
| Informal sector                 | 2.2%      | -0.2%     | 3.2%      | 1.5%      |
| Low-productivity formal sector  | 2.8%      | -1.8%     | 1.4%      | 0.4%      |
| High-productivity formal sector | 1.5%      | -2.2%     | 1.2%      | -0.2%     |
| c) Labor productivity           | -0.5%     | -0.4%     | -0.7%     | -0.5%     |
| Informal sector                 | 0.3%      | -0.9%     | -0.9%     | -0.6%     |
| Low-productivity formal sector  | -0.7%     | -1.1%     | 0.8%      | -0.5%     |
| High-productivity formal sector | -0.7%     | 1.2%      | -0.8%     | 0.1%      |

Source: Authors' own calculations based on data from IBGE (2022).

Regarding occupations in the whole period, Informal sector (1.5%) was once more the leading sector in terms of growth. Inversely, Low-productivity formal sector growth was rather small (0.4%) and in the High-productivity formal sector (-0.2%) it was negative. The Informal sector grew significantly in expansionary phases and presented a contraction of 1.2% per annum in the 2015–2017 sub-period. More importantly, after the BLR the growth of occupations in the informal sector (3.2%) was quite significant compared to the other two formal sectors (Low, 1.4% and High, 1.2%).

Thus, as a result of the above different and opposite patterns, labor productivity growth in the Informal sector was negative in the sub-periods 2015–2017 (-0.9%) and 2018–2019 (-0.9%) and in the whole period (-0.6%). After the BLR the Low-productivity formal sector (0.8%) was the only sector with positive labor productivity growth.

### 5.3 Decomposition Analysis

In this part of the paper, given the main findings obtained in the previous one, a decomposition analysis is used to evaluate the effects of changes in the occupational structure by the economic sector on GDP and labour productivity growth rates.

Since Raul Prebisch (1947) and Lewis (1954), there has been a comprehensive literature on dual economies and structural heterogeneity in underdeveloped countries. Recently, Lawrence M. Kahn (2010), Margaret McMillan, Dani Rodrik, and Inigo Verdusco-Gallo (2014) and Amitrano and Squeff (2017) among others, have shown

the importance of labour market transformations, especially employment structural change, in determining GDP and labour productivity growth.

A simple way to see these impacts is through sectoral GDP decomposition, in which aggregate value added ( $Y_t$ ) is the sum of three components: (1) high-productivity formal sector value added ( $Y_{F_{Ht}}$ ); (2) low-productivity formal sector value added ( $Y_{F_{Lt}}$ ); (3) informal sector value added ( $Y_{I_t}$ ), whose productivity is low. After some algebraic manipulations, GDP can be explained by structural change in employment composition such as:

$$Y_{t+1} = \frac{Y_{F_{Ht}}}{N_{F_{Ht}}} \cdot [N_{F_{Ht}} + \Delta N_{F_{Ht}}] + \frac{Y_{F_{Lt}}}{N_{F_{Lt}}} \cdot [N_{F_{Lt}} + \beta \cdot \Delta N_{F_{Ht}}] + \frac{Y_{I_t}}{N_{I_t}} \cdot [N_{I_t} + (1 - \beta) \cdot \Delta N_{F_{Ht}}] \quad (1)$$

In which,  $N$  is employment,  $\Delta N_{F_{Ht}} = \beta \cdot \Delta N_{F_{Ht}} + (1 - \beta) \cdot \Delta N_{F_{Ht}}$  (2) and  $\beta$  is the share of employment in the high-productivity formal sector that has shifted to low-productivity formal sector, while  $(1 - \beta)$  is the employment share from that sector that has gone to the informal sector.

Thus, a decomposition analysis is used to show what would have happened if the employment created in low-productivity sectors (formal and informal) were moved to high-productivity sectors in the years before and after the implementation of the 2017 labour reform.

In this sense, the result we want to evaluate is:

$$Y_{t+1} = \frac{Y_{F_{Ht}}}{N_{F_{Ht}}} \cdot [N_{F_{Ht}} + \Delta N_{F_{Ht}} + \Delta N_{F_{Lt}} + \Delta N_{I_t}] + \frac{Y_{F_{Lt}}}{N_{F_{Lt}}} \cdot [N_{F_{Lt}} - \Delta N_{F_{Lt}}] + \frac{Y_{I_t}}{N_{I_t}} \cdot [N_{I_t} - \Delta N_{I_t}] \quad (2)$$

According to our data, moving all employment variation from low-productivity and informal sectors to high-productivity sectors, keeping total employment constant, we would get the following result.

## Simulation

**Table 10** New Number of Occupations, According to Sector of Production and Economic Activity (in 1.000)

| Years    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    | 2018    | 2019    |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Total    | 100.960 | 102.537 | 105.473 | 101.955 | 100.362 | 101.618 | 104.340 | 105.996 |
| Formal   | 59.202  | 60.779  | 63.961  | 58.346  | 58.138  | 59.508  | 60.938  | 61.184  |
| Low      | 33.269  | 33.269  | 34.114  | 35.127  | 34.040  | 33.223  | 33.222  | 34.304  |
| High     | 25.933  | 27.510  | 29.847  | 23.219  | 24.098  | 26.285  | 27.716  | 26.881  |
| Informal | 41.758  | 41.758  | 41.512  | 43.609  | 42.225  | 42.110  | 43.402  | 44.811  |

Source: Authors' calculations.

**Table 11** New Level of Value Added, according to Sector of Production and Economic Activity (in 1.000)

| Years        | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total (S)    | 6.286 | 6.524 | 6.764 | 6.088 | 6.048 | 6.316 | 6.515 | 6.482 |
| Formal (S)   | 5.063 | 5.217 | 5.516 | 4.769 | 4.799 | 5.086 | 5.255 | 5.196 |
| Low (S)      | 1.865 | 1.876 | 1.885 | 1.898 | 1.796 | 1.776 | 1.761 | 1.863 |
| High (S)     | 3.198 | 3.341 | 3.631 | 2.871 | 3.002 | 3.310 | 3.494 | 3.333 |
| Informal (S) | 1.247 | 1.307 | 1.247 | 1.319 | 1.249 | 1.231 | 1.260 | 1.287 |

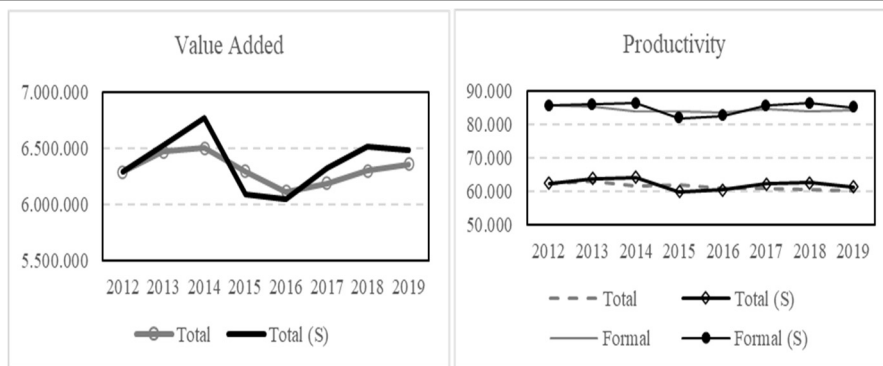
Source: Authors' calculations.

**Table 12** New Productivity Level, according to Sector of Production and Economic Activity (in 1.000)

| Years       | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------|------|------|------|------|------|------|------|------|
| Total (S)   | 62   | 64   | 64   | 60   | 60   | 62   | 62   | 61   |
| Formal (S)  | 86   | 86   | 86   | 82   | 83   | 85   | 86   | 85   |
| Low (S)     | 56   | 56   | 55   | 54   | 53   | 53   | 53   | 54   |
| High (S)    | 123  | 121  | 122  | 124  | 125  | 126  | 126  | 124  |
| Informal(S) | 30   | 31   | 30   | 30   | 30   | 29   | 29   | 29   |

Source: Authors' calculations.

According to these data, the total and formal value added, as well as productivity levels would be higher in the end of the period if all employment variation in the period was due to high-productivity sectors. However, during the crisis these values would be worse, since the product-employment elasticity in high-productivity sectors is higher than in low-productivity sectors.



Source: Authors' calculations.

**Figure 3** Actual and Simulated (S) Value Added and Productivity

In sum, the Brazilian labour market reforms might have not only promoted a negative qualitative change in the composition of employment, but also might have had negative impacts on GDP and labour productivity growth.

## 6. Conclusion

The Brazilian labour market has very particular characteristics, in view of its peripheral condition, revealing that labour's market problems go quite beyond the simple aspect of open unemployment. Its historical conformation relies on issues such as underemployment, informality, the persistence of low wages (detached from the trajectory of labour productivity, given the existence of a subsistence sector), underutilization and discouragement, to name some of the most striking elements, which still reproduce in time.

The framework of legal protection and regulation does not, in this sense, cover a reality that has already been identified by some as the massive presence of semi-formality. It is within this complex scenario that the labour reform (BLR) is implemented, incorporating changes that, in a way, institutionalize informality, or create incentives for it. The introduction of contracts of a more precarious nature (such as the intermittent one), the burden on workers to access justice, unrestricted outsourcing, and the lack of recognition of the employment relationship in cases such as the exclusive self-employed constitute great examples of this situation.

The fact is that, by potentially aggravating the already high level of informality in the Brazilian labor market, these changes also have important repercussions on the goods market, from the perspective of productivity. Since the 1950s, ECLAC structuralism has clearly identified the fundamental links between underemployment and low productivity within peripheral economies, and the way in which these two historical-structural phenomena combine themselves in the reproduction of underdevelopment.

Data from the Pnad-C pointed to an unequivocal reversal of the downward trend in informality that was projected at the beginning of the 2010s. This reversal begins with the economic-political crisis of the years 2015-2016, with a change in the occupational structure that can be noticed by the increase of employees without a formal contract and self-employed (mostly informal). Combined with the SNA statistics, it was possible to notice that both informal employment and the informal sector grew in the 2015-2017 and 2018-2019 periods, with greater emphasis on this second moment.

In turn, informal employment, informal value added and informal productivity grew at a faster pace along this period than higher and low productivity formal sectors.

Finally, according to our simulation exercise, the Brazilian labour market reforms might have not only deepened a negative qualitative change in the composition of employment (which seems to begin with the recession in 2015-2016), but also might have had negative impacts on GDP and labour productivity growth. It looks like BLR enhanced informality practices (permitting them by laws) that historically existed in Brazilian economy, and which were invigorated in the period of political and economical crisis.

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