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**TEXTO PARA DISCUSSÃO Nº 664**

**ECONOMIC GROWTH, INCOME DISTRIBUTION, AND FINANCIAL SYSTEM: AN  
ANALYSIS BASED ON FINANCIAL SOCIAL ACCOUNTING MATRICES FOR THE  
BRAZILIAN ECONOMY**

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FACULDADE DE CIÊNCIAS ECONÔMICAS  
CENTRO DE DESENVOLVIMENTO E PLANEJAMENTO REGIONAL**

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## **RESUMO**

Este estudo analisa a relação entre distribuição de renda, crescimento econômico e sistema financeiro para a economia brasileira de 2005 a 2017. Nosso principal objetivo é investigar o papel do setor financeiro sobre o crescimento econômico e a estrutura distributiva. Em termos metodológicos, este trabalho baseia-se no modelo de contabilidade social, através da estimação de multiplicadores de contabilidade social, os quais foram obtidos a partir de matrizes de contabilidade social financeira para os anos de 2005, 2008 e 2017. Os resultados sugerem que o setor financeiro contribuiu para o crescimento econômico e para o rendimento dos agentes. No entanto, também provocou efeitos negativos na distribuição do rendimento – o que está associado ao acesso desigual aos produtos financeiros entre os décimos de renda. Esse resultado realça a importância das políticas destinadas a facilitar o acesso ao setor financeiro por parte dos indivíduos com rendimentos mais baixos.

*Palavras-chave:* distribuição de renda, crescimento econômico, sistema financeiro.

## **ABSTRACT**

This study analyzes the relationship between income distribution, economic growth, and the financial system for the Brazilian economy from 2005 to 2017. Our main goal is to investigate the role of the financial sector in explaining economic growth and the distributive structure. In terms of methodology, this work is based on the social accounting model, via the estimation of social accounting multipliers. These were obtained from financial social accounting matrices for the years 2005, 2008 and 2017. Our results suggest that the financial sector has contributed to economic growth and agents' income. However, it has also brought about negative effects on income distribution, due to the unequal access to financial products across income deciles – which highlights the importance of policies aimed at facilitating access to the financial sector by lower income individuals.

*Keywords:* income distribution, economic growth, financial system

*JEL Classification:* O11, O47, N20

## 1. INTRODUCTION

Historically, the Brazilian economy has been marked by high levels of income inequality. In the 2000s, there was an improvement in these indicators in parallel with an increase in the growth rates of all GDP components (Medeiros, 2015), an increase in formal employment contributing to an increase in the formalization of labor relations (Cardoso, 2001) and a reduced unemployment rate. Associated with this situation and the adoption of measures that provided the population greater access to banking services, there has been a significant increase in credit in the Brazilian economy (Silva and Zilberman, 2017), contributing to an increase in the degree of household indebtedness (Rolim, 2018). This scenario of economic growth extended until 2010, when the economy slowed down, triggering a new phase marked by a slowdown in consumption and a reduction in autonomous investment and inflation (Baltar, 2014), a scenario leading to a further increase in unemployment rates.

This study aims to investigate the relationship between income distribution, economic growth, and the financial system for the Brazilian economy from the 2000s onwards. More specifically, it intends to investigate the role of the financial sector over the analyzed period and its contribution to economic growth and the distributive structure, in addition to analyzing the fragility or viability of the current growth model based on agents' consumption and indebtedness. By exploring these interconnections in greater depth, the study provides additional inputs to understand the role of the financial sector in the trajectory of economic growth and in income distribution, as well as its relationship with the productive structure.

While this theme has been explored by several authors (among others, Batuo et al., 2010; Botta et al., 2018; Clarke et al., 2006; Levine, 2021; Rehman et al., 2008), the results are not yet conclusive, specifically with regard to the relationship between the financial sector and income distribution. In this context, it is hoped that this study can elucidate some aspects involving this dynamic, as well as the interconnections of this sector with others.

The work is based on the social accounting model in order to estimate the social accounting multipliers. These were obtained from financial social accounting matrices (FSAM) for the years 2005, 2008 and 2017 prepared by the Laboratory of Territorial and Sectoral Analysis (LATES) and, in case of 2005 and 2008 matrices, published by Burkowski (2015) and Burkowski et al. (2014, 2016). Based on these matrices, the work proposes a disaggregation of the institutional sector of families in the current and capital accounts according to deciles of the family income. This procedure included the compatibility between data from the National Accounts System and microdata from the household budget surveys (Family Budget Survey – POF of Brazilian Institute of Geography and Statistics – IBGE) for the years 2002/2003, 2008/2009, and 2017/2018, from which we obtained the shares of families in the income flows decile.

This work advances other empirical works that use the approach of the circular flow of income by including the financial flow in addition to the real and monetary flows in order to capture information on the variation of assets and liabilities of economic agents, disaggregated for the institutional sector of families according to their income. From this perspective, the proposed analysis makes it possible to follow the role of the financial system in this period in terms of its influence on economic growth and income distribution, and to explore the relationship between the degree of household indebtedness and the trajectory of economic growth. The study also contributes by presenting a tool that makes it possible to explore one of the channels of action of the financial system—that is, the productive structure. The interconnection between these elements has not yet been studied for the Brazilian economy.

This article is divided into five sections. The next section considers the theoretical framework that subsidizes this study. The third presents the databases and the model used in the analysis. Then the results for the years 2005, 2008, and 2017 are presented. The last section presents the final considerations of this study.

## **2. INCOME DISTRIBUTION AND FINANCIAL SYSTEM**

The relevance of the financial sector in different economies has grown significantly over the years, which is why this situation has been addressed by different currents of economic thought. In general, the literature highlights the potential of the financial sector to stimulate economic growth (Levine, 2021), not only in the medium term but in the long term as well (Amitrano, 2011). This work offers advances in relation to others by presenting a methodology that makes it possible to understand how this sector contributes to economic growth.

One aspect related to this growth stimulus is its influence on the allocation of capital and, consequently, on the demand for work, so impacting poverty and income distribution (Levine, 2021).

However, income distribution plays a dual role in this dynamic—that is, it is influenced by this impact on economic growth and also contributes to boosting this stimulus to economic growth. In this context, the work of Iyigun and Owen (2004) suggests that the economy's ability to recover from shocks is influenced by income distribution, to the extent that the ability to obtain credit depends on income. In other words, as access to credit depends on income, income distribution captures information about individuals who have credit constraints and who cannot contribute to smooth consumption. Thus, the results indicate that development of the financial system helps to explain the relationship between income inequality and fluctuations in aggregate consumption.

Despite this positive effect on economic performance, the direction of the impact of the financial sector on the distribution structure is still not agreed in the literature (Batuo et al., 2010; Levine, 2021). On the one hand, some studies argue that the growth of this sector is associated with an improvement in income distribution (Batuo et al., 2010).

Indeed, Rehman et al. (2008) show that regardless of the country's stage of development, this sector has effects in terms of improving income distribution. More specifically, their results show that

for a set of countries grouped into low-income, lower-middle-income, and upper-middle income, this sector has effects in the sense of reducing income inequality. For countries classified as high-income, the result, although in the same direction, is not statistically significant.

Similarly, Clarke et al.'s (2006) work finds evidence that there is a reduction in inequality with the development of this sector, which leads them to reject the hypothesis that the development of this sector only benefits individuals with greater purchasing power. However, the authors also find weak evidence to suggest that at low levels of development in this sector, inequality can increase. This result is important because it seems to associate the impact on the distributive structure with the degree of development of the sector.

On the other hand, some studies highlight the opposite effect—that is, deterioration in the distributive structure. From this perspective, as Palley (2007) presents, this process of deterioration significantly alters the income distribution of an economy, contributing to increased income inequality and wage stagnation. In this sense, as the work Botta et al. (2018) shows for the US economy, in the face of credit expansion, wealth inequality tends to increase, a result associated with the increase in indebtedness of middle and lower classes families to maintain their level of consumption.

One aspect about income distribution concerns access to credit: the effect on the distribution structure can be negative as a result of disparity in access among the population (Batuo et al., 2010). This assumes crucial relevance for the Brazilian economy, considering that in 2008/2009, according to POF data, a significant portion of the population still did not have access to banking services (Lana, 2015).

Still with regard to income distribution, in developing countries, financialization seems to be associated with an increase in income concentration insofar as it does not necessarily contribute to increasing productive investment. That is:

financialization becomes an even bigger structural obstacle, since it causes functional reconcentration of incomes in favor of the holders of capital without necessarily inducing them to raise the level of productive investment, a basic factor in the generation of employment and income (Araujo et al., 2012, p. 26).

In this regard, it is important to highlight the importance of the performance of development banks, which act to raise funds and direct them via productive credit (Musacchio et al., 2017), in addition to contributing to the generation of employment, income, and wellbeing of the population, thus stimulating economic development.

Thus, as noted, although there seems to be some consensus regarding the impact of the financial sector on economic growth, there is still a lack of clarity as to its effects on income distribution, as well as the mechanisms through which the sector operates in the distributive structure. This work is intended to help understand these issues, focusing on the Brazilian economy in the 2000s.

### **3. METHODOLOGY**

This paper aims to analyze the relationship between income distribution, economic growth, and the financial system for the Brazilian economy, starting in the 2000s, incorporating aspects related to the productive structure. Therefore, this study is based on the financial social accounting matrices



(FSAM) for the years 2005, 2008, and 2017 prepared by the Laboratory of Territorial and Sectorial Analysis (LATES) and, in case of the 2005 and 2008 FSAM's, published by Burkowski (2015) and Burkowski et al. (2014, 2016).

The Social Accounting Matrix (SAM) is the record of transactions carried out in the economy, during a given period, in a way that presents the interdependencies between the various economic entities – sectors, products, institutions, factors and agents. It captures transactions and transfers carried out between all agents in the economic system (WONG et al., 2009). The SAM incorporates income flows into productive flows in order to highlight the generation and distribution of primary and secondary income in the economy (BURKOWSKI et al., 2016). Thus, SAM is an important tool for analyzing distributional aspects of a country (CARDOSO, 2016).

Since its original conception, some advances have been made in order to portray economic reality more accurately. Among them, the incorporation of the Financial Account into the SAM stands out – an evolution that adds the flows of financial assets and liabilities to the production and income flows. In doing so, it enables the development of the extended approach of the matrix – now called the Financial Social Accounting Matrix (FSAM). This matrix details the Capital Account, in order to show the performance of the financial market, as well as its impact on income distribution (WONG, et al., 2009) .

Based on the FSAM for the Brazilian economy, the work proposes the disaggregation of the families institutional sector into deciles of per capita family income for the first two years of analysis, and deciles of family income for the year of 2017 . This disaggregation comprises the current and capital accounts in the matrices. This procedure was carried out based on the compatibility of data from the National Accounts System (SNA) and microdata from the household budget survey in order to maintain the totals present in the SNA. This procedure makes it possible to build an instrument that allows understanding of the income distribution–economic growth–financial system) dynamic from the perspective of personal income distribution .

Based on the FSAM, disaggregated according to family income, the input-output multipliers were estimated, expanded by the Miyazawa factor (1976). From the construction of the matrix of technical production coefficients, the first step toward obtaining the multipliers, it is possible to assess the impact of changes in exogenous variables on endogenous variables . The definition of accounts that must be considered exogenous are necessary for this model to present infinite solutions . Thus, considering the purpose of this study, only the Government and Rest of the World accounts were considered exogenous. This definition is also used in Burkowski (2015).

An additional step carried out in this work is the aggregation of economic activity sectors according to the new OECD taxonomy of economic activities, based on R&D intensity (Rueda-Galindo and Verger, 2016). With this aggregation, the matrices for the years 2005 and 2008 show 37 sectors of economic activity, and the matrix for 2017 shows 41 sectors. Appendix A deals with these classifications.

#### 4. FINANCIAL MULTIPLIERS FOR THE BRAZILIAN ECONOMY: 2005, 2008 AND 2017

Considering the procedures presented above, this section presents the results obtained from the financial multipliers in order to explore the impact of the financial sector not only on the final product of the economy, but also on the composition of the origin and destination of institutional agents' income and sectors of economic activity. It should be noted that this analysis makes it possible to investigate the impact on each of the ten representative families, which is an advance on previous investigations of this theme. This analysis will be carried out based on the following two multipliers: financial sector and financial instrument.

The financial sector multiplier (MFS) shows the influence of the financial intermediation sector on the other sectors of economic activity and can be seen in column I29 of Tables B.1 (2005) and B.2 (2008) and in column I32 of Table B.3 (2017) in Appendix B. According to Table B.1, it is noted that, in 2005, the increase of one monetary unit in this sector produced a total multiplier effect on final output of 3.15 monetary units, which represents 3 percent of the total impact on the economy from demand shocks across all sectors. Of this total, after the stimulus in the sector itself, the sectors of commerce (0.17), other information services (0.14), and food, beverages, and tobacco (0.14) were the most stimulated by exogenous shocks in the demand for this sector. It is important to point out that the first two sectors of activity are non-manufacturing, of low technological intensity; the third, also non-manufacturing, of medium-low technological intensity; and the fourth, manufacturing, of medium-low intensity.

In 2008, exogenous shocks to the sector's demand caused a total impact of 3.14 monetary units, of which 40 percent were directed to the sector itself (Table B.2 in Appendix B). Trade activity (0.19), other information services (0.15), and administrative activities and complementary services (0.14) were the most stimulated. These are all non-manufacturing sectors of low technological intensity, with the exception of the third sector, whose classification is medium-low intensity.

Table B.3 of Appendix B of this work reveals that exogenous injections in this sector in 2017 had a multiplier effect on the economy of 3.04 monetary units. Of this total, a significant portion (41%) returned to the sector itself. Among the most stimulated sectors, after the sector itself, commerce (0.23), real estate activities (0.13) and food, beverages, and tobacco (0.12) stand out. These are non-manufacturing sectors of low technological intensity in the case of the first three, and, in the case of the tobacco, medium-low technological intensity manufacturing.

The analysis arising from the impacts of financial instruments is based on the multipliers of financial instruments on the sector's product, impact multipliers of financial instruments on the current income of institutional agents and impact multipliers of financial instruments on the flow of resources for investment by institutional agents, for the three years analyzed. Tables 1 (2005 and 2008) and 2 (2017) present the multipliers of financial instruments in the productive sectors, reflecting the impact of shocks in financial instruments on the sector's products. Considering the net effect, it can be seen in 2005, on the one hand, that the instrument 'loans and financing' (F4) had the greatest impact on the products of the sectors, followed by the instrument 'other credits and debits' (F7), a result that ratifies the influence of the financial sector and, more specifically, of household indebtedness, on economic growth, from its stimulus of consumption.

On the other hand, the instrument ‘securities except shares’ (F3), presented a negative net effect on the sector’s product of -0.36 monetary units, meaning that the externality resulting from exogenous shocks of a monetary unit in this instrument is lower to the shock initially received. This instrument captures the influence of negotiable instruments, and consists in general of a form of raising funds in the financial market by companies. Thus, this result highlights the influence of this type of asset on the economy in the sense of offering less incentive to stimulate economic growth.

In 2008, the instrument ‘currency and financial deposits’ (F2) had the greatest net impact on the output of the sectors, with an additional 2.27 monetary units to the initial shock of one monetary unit. This instrument include the means of circulation used for payment—that is, checks, credit cards, money orders, and savings deposits, among others. The relevance of this instrument also relates to greater access to the financial system in general, and to credit specifically, that families obtained during this period, which contributed to guarantee greater stimulus to aggregate demand through consumption. These results reinforce its importance for economic growth.

The multiplier effect of shocks in the instrument ‘loans and other financing’ (F4) stood out, highlighting the influence of household indebtedness on economic growth. It is also noted that ‘other credits and debits’ (F7) is the instrument with the lowest multiplicative power.

In 2017, the ‘other credits and debits’ instrument (F7) had the most significant impact on the sector’s products, followed by the ‘loans and financing’ instrument (F4). In addition, the instrument ‘securities other than shares’ (F3) had a negative effect of -1.38 monetary units on the sector’s products, associated with the very characteristic of this instrument, as explained above.

**TABLE 1: MULTIPLIERS OF FINANCIAL INSTRUMENTS OVER THE PRODUCT OF SECTORS (FSAM) – BRAZIL, 2005 AND 2008**

Sectors	2005						2008					
	F2	F3	F4	F5	F6	F7	F2	F3	F4	F5	F6	F7
I1 Agriculture, livestock, forestry and fishing	0,07	0,02	0,08	0,06	0,07	0,07	0,14	0,05	0,07	0,07	0,07	0,04
I2 Coke, petroleum products and biofuels	0,08	0,03	0,09	0,08	0,08	0,08	0,13	0,05	0,07	0,06	0,07	0,04
I3 Extractive industry	0,01	0,01	0,02	0,01	0,01	0,01	0,03	0,01	0,01	0,01	0,01	0,01
I4 Food, drink and smoke	0,07	0,03	0,08	0,06	0,07	0,07	0,13	0,05	0,07	0,06	0,07	0,04
I5 Textiles products	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I6 Clothing and accessories	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I7 Footwear and leather goods	0,01	0,00	0,01	0,01	0,01	0,01	0,01	0,00	0,01	0,00	0,01	0,00
I8 Wood products	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I9 Pulp, paper and paper products	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I10 Print-integrated editing and editing	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,00
I11 Chemicals	0,06	0,02	0,07	0,05	0,06	0,06	0,11	0,04	0,06	0,05	0,06	0,03
I12 Pharmaceutical	0,01	0,00	0,01	0,01	0,01	0,01	0,01	0,00	0,01	0,01	0,01	0,00
I13 Rubber and plastic material products	0,03	0,01	0,03	0,02	0,03	0,03	0,05	0,02	0,03	0,02	0,03	0,01
I14 Non-metallic mineral products	0,04	0,01	0,04	0,04	0,04	0,04	0,07	0,03	0,04	0,04	0,04	0,02
I15 Metal products	0,10	0,04	0,11	0,10	0,10	0,10	0,20	0,08	0,10	0,10	0,10	0,06
I16 Metallurgy	0,01	0,01	0,02	0,01	0,01	0,02	0,03	0,01	0,02	0,01	0,02	0,01
I17 Machines and equipment	0,07	0,03	0,08	0,07	0,07	0,08	0,16	0,06	0,09	0,08	0,08	0,05
I18 Electric machines and equipment	0,03	0,01	0,03	0,03	0,03	0,03	0,06	0,02	0,03	0,03	0,03	0,02
I19 Computers, electronics and optical products	0,06	0,02	0,06	0,05	0,05	0,06	0,08	0,03	0,05	0,04	0,04	0,02
I20 Medical and dental instruments	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I21 Automotive vehicles and auto parts	0,09	0,03	0,11	0,09	0,09	0,10	0,21	0,08	0,11	0,10	0,11	0,06
I22 Railway vehicles, military combat vehicles and others	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I23 Furniture	0,02	0,01	0,02	0,02	0,02	0,02	0,03	0,01	0,02	0,02	0,02	0,01
I24 Electricity and gas, water, sewage and urban cleaning	0,05	0,02	0,06	0,05	0,05	0,05	0,09	0,03	0,05	0,04	0,04	0,03
I25 Construction	0,30	0,11	0,33	0,28	0,29	0,30	0,46	0,17	0,24	0,22	0,23	0,14
I26 Trading	0,15	0,06	0,17	0,14	0,15	0,16	0,34	0,13	0,18	0,16	0,17	0,10
I27 Transport, storage and courier	0,08	0,03	0,08	0,07	0,07	0,08	0,16	0,06	0,08	0,08	0,08	0,05
I28 Other information services	0,05	0,02	0,05	0,04	0,04	0,05	0,08	0,03	0,04	0,04	0,04	0,03
I29 Financial, insurance and related services	0,07	0,02	0,07	0,06	0,06	0,07	0,14	0,05	0,07	0,07	0,07	0,04
I30 Real estate activities	0,06	0,02	0,07	0,06	0,06	0,06	0,11	0,04	0,06	0,05	0,05	0,03
I31 Maintenance, repair and installation of machinery and equipment	0,01	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
I32 Accommodation and food	0,02	0,01	0,02	0,02	0,02	0,02	0,04	0,01	0,02	0,02	0,02	0,01
I33 Administrative activities and complementary services	0,05	0,02	0,05	0,05	0,05	0,05	0,10	0,04	0,05	0,05	0,05	0,03
I34 Health and business education	0,03	0,01	0,03	0,03	0,03	0,03	0,05	0,02	0,03	0,03	0,03	0,02
I35 Arts, recreation, domestic services, international organizations and others	0,04	0,01	0,04	0,04	0,04	0,04	0,07	0,02	0,03	0,03	0,03	0,02
I36 Health and public education	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
I37 Public administration and social security	0,01	0,00	0,01	0,01	0,01	0,01	0,01	0,00	0,01	0,01	0,01	0,00
<b>Total multiplier of financial instruments</b>	<b>1,74</b>	<b>0,64</b>	<b>1,95</b>	<b>1,64</b>	<b>1,68</b>	<b>1,78</b>	<b>3,27</b>	<b>1,23</b>	<b>1,72</b>	<b>1,56</b>	<b>1,67</b>	<b>0,99</b>

Source: Own elaboration based on POF for 2002-2003 and 2008-2009 (IBGE) and data from Burkowski et al (2014, 2016) and Burkowski (2015).

**TABLE 2: MULTIPLIERS OF FINANCIAL INSTRUMENTS OVER THE PRODUCT OF SECTORS (FSAM) –BRAZIL, 2017**

<b>Setores</b>	<b>F2</b>	<b>F3</b>	<b>F4</b>	<b>F5</b>	<b>F6</b>	<b>F7</b>
I1 Agriculture, livestock, forestry and fishing	0,06	-0,01	0,08	0,06	0,07	0,31
I2 Non-metallic mineral products	0,03	-0,01	0,04	0,03	0,04	0,17
I3 Coke, petroleum products and biofuels	0,06	-0,01	0,09	0,05	0,06	0,28
I4 Extractive industry	0,01	0,00	0,00	0,01	0,01	0,03
I5 Metallurgy	0,04	-0,01	0,05	0,03	0,04	0,18
I6 Food, drink and smoke	0,06	-0,01	0,08	0,06	0,06	0,31
I7 Textile products	0,01	0,00	0,01	0,01	0,01	0,03
I8 Clothing and accessories	0,01	0,00	0,01	0,01	0,01	0,03
I9 Footwear and leather goods	0,00	0,00	0,01	0,00	0,00	0,02
I10 Wood products	0,01	0,00	0,01	0,01	0,01	0,03
I11 Pulp, paper and paper products	0,01	0,00	0,01	0,01	0,01	0,05
I12 Printing and playback of recordings	0,00	0,00	0,00	0,00	0,00	0,01
I13 Chemicals	0,05	-0,01	0,05	0,05	0,05	0,23
I14 Pharmaceutical	0,01	0,00	0,01	0,01	0,01	0,03
I15 Rubber and plastic material products	0,02	0,00	0,03	0,02	0,02	0,10
I16 Metal products	0,02	-0,01	0,04	0,02	0,03	0,12
I17 Medical and dental instruments	0,03	-0,01	0,06	0,03	0,03	0,16
I18 Electric machines and equipment	0,02	0,00	0,03	0,02	0,02	0,10
I19 Machines and equipment	0,05	-0,01	0,08	0,05	0,05	0,23
I20 Automotive vehicles and auto parts	0,06	-0,01	0,09	0,06	0,06	0,30
I21 Railway vehicles, military combat vehicles and others	0,00	0,00	0,01	0,00	0,00	0,01
I22 Furniture	0,01	0,00	0,03	0,01	0,01	0,07
I23 Maintenance, repair and installation of machinery and equipment	0,02	0,00	0,03	0,02	0,02	0,09
I24 Electricity and gas, water, sewage and urban cleaning	0,04	-0,01	0,06	0,04	0,05	0,22
I25 Construction	0,32	-0,08	0,31	0,32	0,34	1,63
I26 Trading	0,19	-0,04	0,29	0,19	0,20	0,95
I27 Transport, storage and courier	0,07	-0,02	0,10	0,07	0,07	0,35
I28 Accommodation and food	0,02	-0,01	0,03	0,02	0,03	0,12
I29 Print-integrated editing and editing	0,00	0,00	0,00	0,00	0,00	0,01
I30 Telecommunications	0,02	-0,01	0,03	0,02	0,03	0,12
I31 Systems development (software)	0,06	-0,02	0,15	0,06	0,07	0,32
I32 Financial, insurance and related services	0,07	-0,02	0,10	0,07	0,07	0,36
I33 Real estate activities	0,06	-0,01	0,09	0,06	0,06	0,31
I34 Professional, scientific and technical activities, except R&D	0,04	-0,01	0,06	0,04	0,05	0,22
I35 Scientific research and development	0,01	0,00	0,01	0,01	0,01	0,04
I36 Other information services	0,01	0,00	0,01	0,01	0,01	0,03
I37 Administrative activities and complementary services	0,03	-0,01	0,05	0,03	0,03	0,16
I38 Public administration and social security	0,01	0,00	0,01	0,01	0,01	0,06
I39 Health and public education	0,01	0,00	0,01	0,01	0,01	0,05
I40 Health and commercial education	0,03	-0,01	0,05	0,03	0,04	0,17
I41 Arts, recreation, domestic services, international organizations and others	0,03	-0,01	0,04	0,03	0,03	0,13
<b>Total multiplier of financial instruments</b>	<b>1,61</b>	<b>-0,38</b>	<b>2,22</b>	<b>1,59</b>	<b>1,71</b>	<b>8,14</b>

Source: Own elaboration based on the 2017-2018 POF (IBGE) and LATES (2010-2017).

It is also noteworthy in relation to the instrument ‘cash and deposits’ (F2) that in both years analyzed, the multiplier effect resulting from exogenous injections was positive for the output of the sectors. Moreover, between 2005 and 2008, this effect increased significantly, a situation that possibly stems from greater access to credit and the financial system in general by families in this period, as well as from the improvement in distributional indicators. Between 2008 and 2017, in turn, the multiplier effect of shocks in this instrument decreased, so that, in 2017, it reached levels lower than those observed

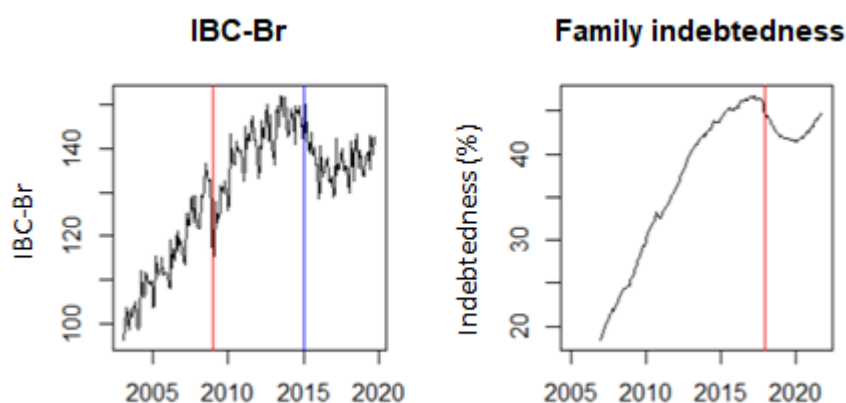
in 2005. This result is possibly related to the deterioration of distributive indicators, which acted to make it difficult for families to access these means of payment.

With regard to the instrument ‘loans and other financing’ (F4), it is noted that in both 2005 and 2008, the multiplier effect arising from exogenous shocks positively impacted the sector’s product. However, this effect decreased between these years, a situation that is associated with the international financial crisis that affected economic performance and, consequently, was reflected in the lower magnitude of the multipliers for that year (Burkowski, 2015). Thus, while in 2005 exogenous injections of one monetary unit produced a multiplier effect on the output of sectors of 0.95 additional monetary units, this impact in 2008 was 0.72 monetary units, representing a 24 percent decrease in that period.

For the year 2017, there was an increase in impact, reaching 1.22 monetary units in addition to initial shock. It is interesting to relate this result to the evidence presented in Figure 1: the degree of household indebtedness increased and reached maximum values between 2015 and 2016, suggesting that this greater impact on the output of sectors may be associated with higher degree of indebtedness of families.

This result is evidence in favor of the relationship between ‘loans and other financing’ and economic growth in a way that an increase in credit to the families contributed to economic growth’s rate. However, it is necessary to analyze which direction it will follow in the following periods, an investigation that it is not possible to carry out at the moment due to the unavailability of data. The relationship between GDP growth and financial sector growth is also observed for a sample of OECD countries (Denk and Cournède, 2015).

*FIGURE 1: Evolution of the Economic Activity Index (IBC-Br) and household indebtedness within the National Financial System in relation to accumulated income in the last twelve months (%), 2003–2019*



Source: Own elaboration based on Central Bank of Brazil (BACEN) data.

Despite these findings, this result also suggests the fragility of a growth model based on agents' indebtedness. Although it provides gains, these benefits were not enough to sustain economic growth. This result may be associated with the characteristics of the sectors of economic activity most stimulated by shocks in this financial instrument. It can therefore be seen that in 2005, as well as in 2008 and 2017,

exogenous shocks in this financial instrument (F4) caused higher multiplier effects in the construction and commerce sectors – non-manufacturing activities with low technological intensity (Tables 1 and 2).

It is also interesting to note that in the analyzed years, regardless of the instrument, the same sectors are always the most stimulated, although in different magnitudes, which suggests that expansionist credit policies have more expressive effects on them (Burkowski, 2015). In 2005, the average impact on the construction and commerce sectors was 0.27 and 0.14 monetary units, respectively. In 2008, this shock, on average, was around 0.24 and 0.18 monetary units, respectively. In 2017, the average multiplier effect was 0.47 and 0.29 monetary units, respectively. It should also be noted that in 2017 the instrument ‘securities except shares’ (F3) had negative effects for all sectors, the smallest effects being observed in these two sectors. This result is associated with the situation presented in the analysis of Table 1.

Tables 3 and 4 present the impact of financial instrument multipliers on the income of institutional agents for the years 2005 and 2008, and for 2017, respectively. With regard to the impact on the agents’ income, it is noted that the greatest impact in 2005 resulted from shocks in the instrument ‘loans and financing’ (F4), followed by the instruments ‘other credits and debits’ (F7) and ‘cash and deposits’ (F2): an increase of one monetary unit in these instruments increased the agents’ income by 0.25, 0.14, or 0.12 monetary units, respectively, additional to the initial shock of one monetary unit.

It is also noted that the net multiplier effect resulting from shocks in the instrument ‘securities except shares’ (F3) was negative in 2005 – that is, exogenous injections of one monetary unit in this instrument reduced the income of agents by -0.59 monetary units, net of the initial shock of one monetary unit. It should be noted that the gross effect of this instrument was positive, but smaller than the initial shock. In addition, this instrument captures information on negotiable securities which, in general, consist of a form of raising funds by companies, which may or may not be converted into real investment. If this conversion does not occur, it is a form of speculative capital, which is consistent with these results, given the smaller multiplicative effect observed for that year.

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**TABLE 3: MULTIPLIERS OF THE IMPACT OF FINANCIAL INSTRUMENTS ON THE CURRENT INCOME OF INSTITUTIONAL AGENTS (FSAM) – BRAZIL, 2005 AND 2008**

		2005						2008					
Sectors		F2	F3	F4	F5	F6	F7	F2	F3	F4	F5	F6	F7
Current account	<b>Companies</b>	0,54	0,20	0,61	0,51	0,52	0,56	0,98	0,37	0,51	0,47	0,50	0,30
	<b>D1</b>	0,01	0,00	0,01	0,01	0,01	0,01	0,008	0,003	0,004	0,004	0,004	0,002
	<b>D2</b>	0,01	0,00	0,02	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01
	<b>D3</b>	0,02	0,01	0,02	0,02	0,02	0,02	0,03	0,01	0,01	0,01	0,01	0,01
	<b>D4</b>	0,02	0,01	0,03	0,02	0,02	0,02	0,04	0,01	0,02	0,02	0,02	0,01
	<b>D5</b>	0,03	0,01	0,03	0,03	0,03	0,03	0,05	0,02	0,02	0,02	0,02	0,01
	<b>D6</b>	0,03	0,01	0,04	0,03	0,03	0,04	0,06	0,02	0,03	0,03	0,03	0,02
	<b>D7</b>	0,04	0,02	0,05	0,04	0,04	0,05	0,08	0,03	0,04	0,04	0,04	0,02
	<b>D8</b>	0,06	0,02	0,07	0,05	0,06	0,06	0,11	0,04	0,06	0,05	0,06	0,03
	<b>D9</b>	0,09	0,03	0,10	0,08	0,09	0,09	0,17	0,06	0,09	0,08	0,08	0,05
	<b>D10</b>	0,26	0,09	0,29	0,24	0,25	0,26	0,54	0,20	0,29	0,26	0,28	0,16
<b>Total MIF</b>		<b>1,12</b>	<b>0,41</b>	<b>1,25</b>	<b>1,06</b>	<b>1,08</b>	<b>1,14</b>	<b>2,07</b>	<b>0,78</b>	<b>1,09</b>	<b>0,99</b>	<b>1,06</b>	<b>0,63</b>

Source: Own elaboration based on POF for 2002-2003 and 2008-2009 (IBGE) and data from Burkowski et al. (2014, 2016) and Burkowski (2015).

**TABLE 4: MULTIPLIERS OF THE IMPACT OF FINANCIAL INSTRUMENTS ON THE CURRENT INCOME OF INSTITUTIONAL AGENTS (FSAM) – BRAZIL, 2017**

Sectors		F2	F3	F4	F5	F6	F7
Current account	<b>Companies</b>	0,40	-0,10	0,55	0,39	0,42	2,02
	<b>D1</b>	0,03	-0,01	0,04	0,02	0,03	0,13
	<b>D2</b>	0,03	-0,01	0,05	0,03	0,04	0,17
	<b>D3</b>	0,04	-0,01	0,05	0,04	0,04	0,19
	<b>D4</b>	0,04	-0,01	0,06	0,04	0,04	0,21
	<b>D5</b>	0,04	-0,01	0,06	0,04	0,05	0,22
	<b>D6</b>	0,05	-0,01	0,07	0,05	0,05	0,25
	<b>D7</b>	0,05	-0,01	0,07	0,05	0,06	0,27
	<b>D8</b>	0,06	-0,02	0,09	0,06	0,07	0,33
	<b>D9</b>	0,08	-0,02	0,12	0,08	0,09	0,42
	<b>D10</b>	0,18	-0,04	0,25	0,17	0,19	0,89
<b>Total MIF</b>		<b>1,01</b>	<b>-0,24</b>	<b>1,40</b>	<b>1,00</b>	<b>1,07</b>	<b>5,10</b>

Source: Own elaboration based on the 2017-2018 POF (IBGE) and LATES (2010-2017).

Regarding the total impact, a significant portion (49%) was allocated to companies' income, regardless of the financial instrument. The effect on family income increased as we moved towards the highest deciles of the distribution, so that the impact on the income of families in the last decile was about 45 percent of the total impact on household income. This percentage is the same for all types of financial instrument.

The 2008 scenario presented some changes. Firstly, it is noted that only 'cash and deposits' (F2), 'loans and other financing' (F4), and 'technical insurance reserves' (F6) had positive effects on the income of institutional agents. The other instruments already had a net multiplier effect lower than the shock initially received from a monetary unit.



Secondly, there was a change in the distribution of these impacts. In effect, there was a 6 percent increase in the impact on companies' income in 2008 compared to 2005. Also, in proportional terms, there was a reduction in the effects on families' incomes as a result of the reduction in impact on the income of individuals in the lowest deciles of the distribution. There was, also, an increase in the impact on the income of those in the intermediate strata.

With regard to the impact on household income, Table 3 reveals, on the one hand, that the exogenous injection of one monetary unit in these instruments increased the household income of the first decile by 0.003 monetary units, which is a 38 percent decrease in relation to the stimulus received in 2005. This downward movement is also observed in the income of families from the second to the fourth deciles. On the other hand, the impact on the income of families from the fifth decile of the distribution increased. This impact is stronger as we advanced towards the top of the distribution.

This result raises two concerns. The first is related to the income concentration effect of these instruments, which contributes to intensifying income inequality in the economy. The second concerns the fact that this evidence indicates greater difficulty accessing the financial system for individuals in the lower strata of the income distribution, and so refers to the need to develop mechanisms that facilitate access to this system by these individuals in order to eliminate, or at least minimize, this distortion. In this sense, these multipliers reveal the concentration of income and wealth among families in the Brazilian economy.

It should be noted, however, that although these results refer to the effects of the financial system on income inequality, no exercise of causality between these two variables was carried out in this work. Thus, these results portray only the situation observed in each year of analysis.

Table 4 reveals that in 2017 the instrument 'other credits and other debts' (F7) had a more relevant impact on the current income of institutional agents than others instruments, followed by the instrument 'loans and financing' (F4). Indeed, in that year, exogenous shocks to the F7 instrument increased the income of these agents by 4.10 monetary units, net of the initial shock of one monetary unit. It is also noted that, regardless of the financial instrument, a significant portion of this impact (40%) was directed to the income of companies; in relation to the portion directed to families, about 4 percent was directed to families in the first decile and 29 percent to families in the last decile of the distribution.

This situation makes it possible to identify another dimension to the problem of income concentration insofar as, as can be seen, it explains the way in which the income concentration occurs via the financial system. It is important to highlight, again, that the results for the year 2017 are not comparable with those obtained for the other two years of analysis.

Tables 5 and 6 present the influence of financial instruments on the flow of resources for investments<sup>1</sup> by institutional agents, families, and companies. It can be noted that, in 2005, exogenous shocks of one monetary unit in financial instruments impacted the flow of resources for investment by agents by 17.68 monetary units, of which 15.44 monetary units reflect impacts on companies' resources.

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<sup>1</sup> As Burkowski (2015) presents, by transferring their savings to the financial market, agents obtain capital resources to invest, and the "total investment funds available in the economy as a whole is increased by capital revenues from the rest of the world" (Burkowski, 2015, p. 26).

**TABLE 5: MULTIPLIERS OF THE IMPACT OF FINANCIAL INSTRUMENTS ON THE FLOW OF RESOURCES FOR INVESTMENTS BY INSTITUTIONAL AGENTS (FSAM) – BRAZIL, 2005 AND 2008**

		2005						2008					
Sectors		F2	F3	F4	F5	F6	F7	F2	F3	F4	F5	F6	F7
Capital Account	<b>Companies</b>	3,13	1,14	2,55	2,95	3,02	2,65	4,79	1,80	2,08	2,28	2,45	1,23
	<b>D1</b>	0,00	0,00	0,02	0,00	0,00	0,01	-0,01	0,00	0,00	0,00	0,00	0,00
	<b>D2</b>	0,00	0,00	0,00	0,00	0,00	0,00	-0,01	0,00	0,00	0,00	0,00	0,00
	<b>D3</b>	0,01	0,00	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
	<b>D4</b>	0,01	0,00	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
	<b>D5</b>	0,01	0,00	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
	<b>D6</b>	0,01	0,00	0,02	0,01	0,01	0,01	0,02	0,01	0,02	0,01	0,01	0,01
	<b>D7</b>	0,01	0,00	0,01	0,01	0,01	0,02	0,02	0,01	0,02	0,01	0,01	0,01
	<b>D8</b>	0,02	0,01	0,06	0,02	0,02	0,03	0,03	0,01	0,03	0,01	0,02	0,01
	<b>D9</b>	0,04	0,01	0,09	0,04	0,04	0,06	0,17	0,06	0,19	0,08	0,09	0,07
	<b>D10</b>	0,20	0,07	0,44	0,19	0,19	0,38	0,29	0,11	0,16	0,14	0,15	0,31
<b>Total MIF</b>		<b>3,43</b>	<b>1,26</b>	<b>3,24</b>	<b>3,25</b>	<b>3,32</b>	<b>3,19</b>	<b>5,29</b>	<b>1,99</b>	<b>2,49</b>	<b>2,52</b>	<b>2,71</b>	<b>1,63</b>

Source: Own elaboration based on POF for 2002-2003 and 2008-2009 (IBGE) and data from Burkowski et al. (2014, 2016) and Burkowski (2015).

**TABLE 6: MULTIPLIERS OF THE IMPACT OF FINANCIAL INSTRUMENTS ON THE FLOW OF FUNDS FOR INVESTMENTS BY INSTITUTIONAL AGENTS (FSAM) – BRAZIL, 2017**

Sectors		F2	F3	F4	F5	F6	F7
Capital Account	<b>Companies</b>	2,33	-0,56	0,67	2,29	2,47	11,68
	<b>D1</b>	-0,02	0,00	0,00	-0,02	-0,02	-0,08
	<b>D2</b>	0,01	0,00	0,04	0,01	0,01	0,03
	<b>D3</b>	0,00	0,00	0,04	0,00	0,00	0,02
	<b>D4</b>	0,00	0,00	0,04	0,00	0,00	0,01
	<b>D5</b>	0,00	0,00	0,04	0,00	0,00	-0,01
	<b>D6</b>	0,00	0,00	0,05	0,00	0,00	0,02
	<b>D7</b>	0,00	0,00	0,06	0,00	0,00	0,02
	<b>D8</b>	0,02	0,00	0,10	0,02	0,02	0,09
	<b>D9</b>	0,04	-0,01	0,17	0,04	0,04	0,20
	<b>D10</b>	0,12	-0,03	0,38	0,12	0,13	0,72
<b>Total MIF</b>		<b>2,50</b>	<b>-0,60</b>	<b>1,60</b>	<b>2,47</b>	<b>2,66</b>	<b>12,70</b>

Source: Own elaboration based on the 2017-2018 POF (IBGE) and LATES (2010-2017).

The instruments ‘cash and deposits’ (F2) and ‘loans and financing’ (F4) had the greatest impact on the flow of resources for investments by companies and households, respectively. Regarding the impact on family resources, it is noted that these instruments showed increasing effects as one moves

towards the top of the income distribution. It is also noteworthy, according to Burkowski (2015), that the instrument ‘shares and other participations’ (F5) is not used by families as a source of investment.<sup>2</sup>

In 2008, it is noted that shocks to these instruments caused multiplier effects on the flow of funds for investment by agents of 16.62 monetary units, which represents a decrease of 6 percent in relation to the previous year, a result that reflects the impact of the crisis financial year (2008) on the Brazilian economy. Of this total, around 88 percent impacted companies’ investment funds.

Also, the instrument ‘cash and deposits’ (F2) had stronger effects on the flow of resources from both companies and families. With regard to families, this impact increases as we moved towards the top of the distribution. This characteristic, together with that shown by the financial multipliers presented in Tables 3 and 4, highlights the concentrating power of the financial sector, which tends to increase income inequality in the Brazilian economy, possibly associated with unequal access to this sector.

In 2017, around 84 percent, on average, of the multiplier effect resulting from shocks in these instruments impacted the flow of funds for investment by companies. The instrument ‘other credits and other debts’ (F7) had a more significant impact on the flow of funds from companies. As in previous years, regardless of the financial instrument, exogenous shocks had increasing effects according to the position of families in the income distribution, wherein the flow of resources for investments by those in higher deciles had a more significant impact.

As can be seen, in the analyzed period, the financial sector acted to stimulate economic growth, increasing the GDP of several sectors. However, from the multipliers of financial instruments, it is also noted that this sector has intensified income inequality in the Brazilian economy, a situation that is possibly related to disparities in access to these instruments between income classes. It should also be noted that the analysis developed in this study does not explore the causal relationship between growth in the financial system, economic growth, and income distribution, but only performs a static analysis of each year studied. Furthermore, as already noted, the data do not allow comparison between the results obtained in 2005 and 2008 and those found for the year 2017.

## CONCLUSION

This work has analyzed the interdependence between income distribution, economic growth, and the financial system for the Brazilian economy from the 2000s onwards. For this purpose, the methodological approach was based on the multipliers of the social accounting model, which were estimated from the FSAMs elaborated by LATES for the years 2005, 2008, and 2017, and disaggregated by family income deciles based on family budget surveys (POFs/IBGE) for the years 2002/2003, 2008/2009, and 2017/2018. In addition, with a view to capturing information on the productivity of sectors, the matrices constructed for this work were aggregated according to the new OECD taxonomy of economic activities based on R&D intensity (Rueda-Galindo and Verger, 2016).

This work presents some limitations of a methodological nature, with regard to the accounting system used to construct the matrices, which makes it difficult to carry out an analysis that allows monitoring the evolution of the productive structure over the period analyzed, and in terms of the fact

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<sup>2</sup> Thus the result for this instrument for families has no meaning.

that the financial multipliers manage to capture only aspects related to the real function of the financial sector: the methodology used does not make it possible to obtain information about the other functions of this sector. There are also practical and conceptual limitations regarding the unavailability of data to build a single typology for the disaggregation of the institutional sector ‘families’, and the limitations present in the household budget surveys (POF/IBGE), which made it difficult to build proxies to capture some flows, both real and financial.

Despite these limitations, the study makes advances by making it possible to analyze the relationship between economic growth and income distribution from a perspective that reflects real financial flows in the economy, as well as their interconnections from the current productive structure. Furthermore, the analysis innovates by explaining and measuring the influence of the financial sector on the dynamics of economic growth and income distribution, and by exploring the influence of agents’ indebtedness on the trajectory of economic growth.

The results show that the financial sector contributed to stimulate economic growth in the analyzed period. Also observed was the influence of greater access to credit and increased indebtedness on the performance of the economy in this period. Thus, these multipliers showed the importance of this sector in stimulating the output of other sectors and, in this respect, stimulating economic growth.

In addition, our results suggest a correlation between the degree of household indebtedness and economic growth: in the analyzed period, the instrument ‘loans and financing’ seems to have stimulated economic growth rates.

It was also noted that the most stimulated sectors in general were sectors characterized by less technological intensity, which reinforces the difficulty of sustaining economic growth rates over time, considering the productivity of the most privileged sectors. This intensifies the existing distortions in terms of income distribution. Furthermore, the work explained one of the ways in which the expansion of the financial system acts to intensify income inequality. Indeed, it was observed from the multipliers of the financial instruments that the greatest stimuli were directed to the income and investment funds of families belonging to the highest deciles of the distribution, a characteristic associated with greater access to this system in general, as well as the greater diversity of products that these families have access to compared to those in the lowest deciles of the distribution. This situation, in turn, points to the importance of developing policies aimed at expanding access to this sector in order to minimize these distortions.

It is worth mentioning the differentiated performance of the development banks in terms of both a countercyclical movement in the granting of financing and the implementation of policies aimed at economic and social development through productive credit, promoting economic development. Indeed, these institutions act to mitigate some of the bottlenecks in the productive structure, directly impacting economic growth and income concentration. Future work can explore these aspects with a view to investigating in greater depth the impacts resulting from this action by these institutions on the economy as a whole.

This analysis therefore highlights the importance of developing economic policies aimed at breaking with this scenario. This is particularly important given the greater difficulty in accessing the financial system for individuals in the lower strata of the income distribution. The results of this work refer to the relevance of structural aspects of our economy with a view to promoting economic growth

that is not only sustainable over time, but, above all, is inclusive with a view to promoting greater wellbeing for the population.

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## APPENDICES

### APPENDIX A

#### OECD Taxonomy of Economic Activities, Based on R&D Intensity

The aggregation of sectors for estimating the social and financial accounting matrix (FSAM) multipliers followed the OECD classification of economic activities by technological intensity. In this taxonomy, activities are segregated into five groups according to R&D intensity: high, medium-high, average, medium-low, and low intensity. Figure A.1 presents this classification of economic activities, manufacturing, and non-manufacturing sectors, as well as the CNAE division they represent. It should be noted that this figure was prepared based on the work of Rueda-Galindo and Verger (2016).<sup>3</sup>

As can be seen from the figure, activities 84 to 88, referring to public administration, defense, and social security, and education and human health were excluded from the classification. This stems from the fact that “most of the R&D in these industries is carried out by sectors other than the business enterprises (namely government and higher education)” (Rueda-Galindo and Verger, 2016, p. 8).

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<sup>3</sup> Due to space limitations, this appendix will not present tables detailing the compatibility of this taxonomy with the analyzed financial social accounting matrices. However, this material is available on demand and in Vieira (2021).



FIGURE A.1: ECD taxonomy of economic activities by R&D intensity

R&D intensity	Division Manufacturing	Division Non manufacturing
High	30.4 Aircraft and related components 21 Pharmaceutical 26 Computers, electronics and optical products	72 Research and Development 62.02 Systems development (software) 62 - 63 Other information services (except 62.02)
Medium-high	25.5 Weapons and ammunition 29 Motor vehicles and auto parts 32.5 Medical and dental instruments 28 Machines and equipment 20 Chemicals 27 Electric machines and equipment 30X Rail vehicles, military combat vehicles and others (includes 30.3, 30.5 and 30.9)	
Medium	22 Rubber and plastic material products 30.1 Boat building 32X Miscellaneous products (except 32.5) 23 Non-metallic mineral products 24 Metallurgy 33 Maintenance, recovery and installation of machinery and equipment	
Medium-low	13 Textile products 15 Footwear and leather goods 17 Pulp, paper and paper products 10 - 12 Food, drink and smoke 14 Clothing and accessories 25X Metal products (except 25.5) 19 Coke, petroleum products and biofuels 31 Furniture  16 Wood products 18 Printing and playback of recordings	69 - 75X Professional, scientific and technical activities, except R&D (codes 69-75, except 72) 61 Telecommunications 05 - 09 Extractive industry 58 Print-integrated editing and editing
Low		64 - 66 Financial, insurance and related services 35 - 39 Electricity and gas, water, sewage and urban cleaning 59 - 60 Film activities, video production, radio and television activities 45 - 47 Trading 01 - 03 Agriculture, livestock, forestry and fishing 41 - 43 Construction 77 - 82 Administrative activities and complementary services 90 - 99 Arts, recreation, domestic services, international organizations and other service activities 49 - 53 Transport, storage and courier 55 - 56 Accommodation and food 68 Real estate activities

Source: Own elaboration based on Ruedo-Galindo and Verger (2016).





