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Value Added Statement: how the wealth created by branches of economic activity was distributed from 1999 to 2018?

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Abstract

Purpose: This study aimed to verify the extent to which the distribution of the wealth generated by the largest publicly-held and private companies from the main branches of economic activity operating in Brazil differs in terms of the tax burden, capital remuneration (own and third parties) and personnel remuneration from 1999 to 2018.

Methodology: Value Added Statements of the largest publicly held and private companies included in the Accounting Actuarial and Financial Research Institute Foundation database between 1999 and 2018 were analyzed using multiple linear regressions. The Mann-Whitney test was performed to identify significant differences in the wealth distributed by the main sectors.

Results and contributions: The results indicate significant differences in the distribution of the wealth generated by the main branches of the economy (manufacturing, trade, services, financial institutions, and insurance companies) to employees, shareholders, and creditors. Differences were also found in the proportion of wealth allocated to the government through taxes. This study's main contributions include presenting a significant imbalance in the distribution of the wealth generated by the different branches of economic activity; the manufacturing, trade, and services branches bore a much higher tax burden than banks and insurance companies over the 20-year-period, negatively impacting the amount these three branches distributed to employees and shareholders.

Keywords: Added Value, Distribution of Wealth, Tax Burden, Economic Activities

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1. Introduction

The relevance of accounting information, understood as information that has confirmatory or predictive value and makes a difference in users' decisions, can be observed from several perspectives depending on the different interests of different users. In this sense, companies need to coordinate the interests of various stakeholders (Freeman, 1984) to minimize adverse effects resulting from conflicts of interest.

According to Haller & Stade (2014), under the concept of stakeholder theory, a company is seen as a coalition of different stakeholders, in which the creation of value results from collective effort; thus, the existence of a company is only ensured if it can create sufficient value to meet the interests of all stakeholders. Additionally, the International Integrated Reporting Council (IIRC, 2013) states that value is created over time through the application of financial and human capital, among other resources, and is unlikely to be created through the maximization of capital to the detriment of other factors.

Thus, disclosing information that allows different stakeholders to assess the wealth a company creates and verify how it is distributed to the various economic agents that contributed to its generation is essential because it shows the company's policy and priorities (Pinto & Freire, 2013). Additionally, IIRC (2013) states that it is essential to show stakeholders how the company interacts with its external environment and the different types of capital used to create value over time.

In this sense, the Value-Added Statement (VAS) was created to provide stakeholders (investors, employees, government, suppliers, etc.) with relevant information regarding wealth generation and provide society with elements to choose from among companies (Cunha, Ribeiro & Santos, 2005). Santos (2007) states that VAS aims to highlight the companies' contribution to the economic and social development of the region where it is installed, showing how much wealth it adds to the local economy and how wealth is distributed among production factors. It can also be used to evaluate public and tax policies and discuss salary policies. Hence, it is a form of accountability to society.

Therefore, based on information provided by VAS, studies compare the distribution of the wealth generated by companies by analyzing the tax burden in the trade, manufacturing, and service sectors (Santos & Hashimoto, 2003); comparing the tax burden across different presidential terms (Santos, Cunha, De Luca & Ribeiro, 2013; Koprowski et al., 2020); differences in the distribution of wealth between national and foreign banks (Pinto & Freire, 2013); between trade, manufacturing, and service companies (Cunha, Ribeiro & Santos, 2005); and between Brazilian agricultural cooperatives and for-profit organizations (Londero, Stanzani & Santos, 2019). Additionally, other studies corroborate that organizational and sectorial characteristics strongly influence wealth distribution (Mazzioni et al., 2020; Hosser et al., 2020).

Thus, based on the literature and considering that it does not include a joint analysis of the main economic branches, being restricted to the analysis of short periods, this study aims to answer the following research question: **To what extent does the amount of wealth distributed among the main branches of economic activity (industry, commerce, services, financial institutions, and insurance companies) differ, considering the accounting concept of added value disclosed in the VAS?**

This study's objective is to verify to what extent the distribution of the wealth generated by the largest publicly held and private companies in the main economic branches operating in Brazil differs in terms of the tax burden, remuneration of capital (own and third parties), and employee remuneration from 1999 to 2018.

Considering stakeholders and potential conflicts inherent to these groups, we expect a significant difference in the distribution of the wealth generated by the main branches of the economy among employees, shareholders, and creditors, due to the risks involved in the different economic activities, company assets structure, and the level of the workforce qualification, among other factors.

Regarding tax burden, although some studies indicate that the trade, industry, and service sectors are highly taxed (Santos & Hashimoto, 2003; Cunha, Ribeiro & Santos, 2005) and that this may change depending on the presidential term (Santos, Cunha, De Luca & Ribeiro, 2013), we expect no significant differences in the proportion of the wealth allocated to the government, considering that the companies are under the same jurisdiction and the Federal Constitution of 1988 establishes, according to the isonomy principle, equal treatment among taxpayers.

Thus, this study's relevance lies in presenting how the wealth generated by the largest companies in the main branches of the economy was distributed over 20 years, showing the significant differences in the amount of wealth distributed to each stakeholder. This study's results complement previous studies mainly based on descriptive statistics and the analysis of some sectors of the economy (i.e., cooperatives, banks) to highlight differences in wealth distribution. This study also expands the discussion concerning the analysis of tax burden based on the VAS among the main branches of the economy (including financial institutions and insurance companies), an aspect not addressed in previous research.

2. Theoretical Framework

2.1 Added Value – concepts

The concept of added value has been discussed for over 200 years, but the most straightforward records from an accounting perspective only began in the late 1970s. According to Consenza (2003) and Machado, Macedo & Machado (2015), in 1975, the United Kingdom was a central player in discussions concerning the Corporate Report published by the Accounting Standards Steering Committee (current Accounting Standards Committee). This report encouraged the disclosure of the added value statement through the Accounting Standards Committee, besides using this information to improve communication with employees and devise payment plans and incentives based on the generated added value.

As for the measurement of created wealth, it is important to note that there are conceptual differences between accountancy and economics. For example, economics understands added value as the result of the difference between the gross value of production and intermediate consumption (Simonsen, 1979), i.e., it represents the wealth a company creates and, therefore, its contribution to the Gross Domestic Product (GDP).

Haller & Stade (2014) show that added value can be calculated in two different manners; the first focused on performance aspects (indirect method), which reveals that value creation takes place through an entity's activities. The second focuses on social aspects (direct method), which consists of the sum of the remuneration of production factors "labor" and "capital," and the society, which is represented by the public sector (Government). In other words, the direct method focuses on the distribution of wealth in an economy. Figure 1 presents the two ways proposed by the authors:

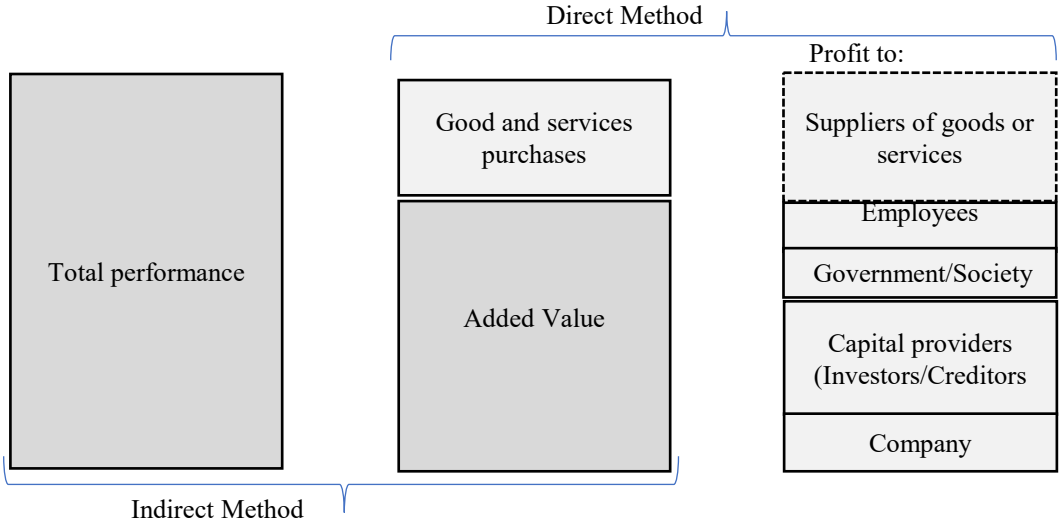

Figure 1. Basic concept of added value (Haller & Stade, 2014)

According to the direct model, added value shows the contribution (created wealth) of a company to the national economy and the company's monetary contribution to the wealth of various groups in society.

From the accounting perspective, added value is the difference between sales and the costs of inputs (including depreciation) (De Luca, 2009). Thus, the difference between economics and accountancy is only temporal because economics uses production as a factor to identify generated wealth, while accounting uses the concept of revenue realization, that is, it is based on the accrual basis (Gelbcke, Santos, Iudícibus & Martins, 2018). Figure 2 presents an adaptation of Figure 1 to represent the accounting perspective of the added value measurement.

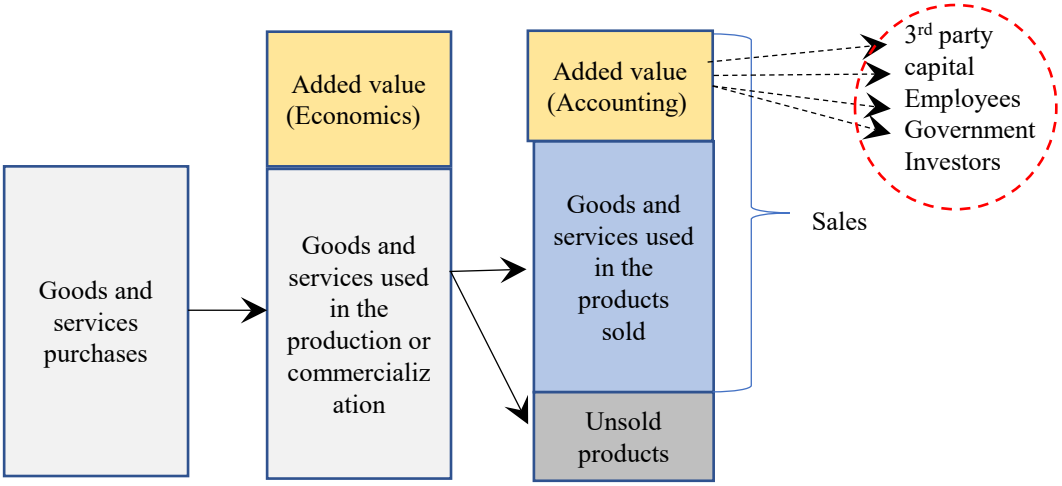

Figure 2. Accounting measurement of added value (prepared by the authors)

Figure 2 shows that added value from the accounting perspective must be validated by the market (sales) and distributed among the agents that contributed to its generation; unsold production is not included in the measurement of generated wealth.

It is worth noting that added value calculated according to the accounting concept is disclosed in the VAS, which, by presenting the amount of wealth distributed, shows a company's ability to meet the interests of multiple stakeholders, revealing a trade-off between the agents that contributed to the generation of wealth.

2.2 Added Value Statement – Social Accountability

VAS is the accounting statement that aims to show the wealth generated by a company in a given period and its distribution to those who contributed to creating it. It is a differentiated statement of a social nature because it is not restricted to showing profit as a result of deductions and financial efforts, but it presents productivity, sharing, and the social impact on the environment to which such an entity belongs.

According to Cunha (2002), VAS also shows the investors' profit, to whom the other part of the wealth generated by the company is distributed, reflecting a business concern based on social responsibility and the need to remunerate the production factors that helped to generate the company's wealth. Cunha, Ribeiro & Santos (2005) show that the VAS is an instrument able to highlight both economic and social aspects, constituting a valuable measure of these relationships, presenting its ability to generate wealth through the benefits organizations offer to society, for instance, through the workforce it absorbs from the community; hence, its ability to contribute to economic development.

It is worth noting that, although VAS is not a mandatory statement required by international accounting standards, Global Reporting Initiative (GRI) considers the direct economic value generated and distributed (EVG&D) to be a performance indicator, which is information that is very close to the added value disclosed in VAS.

Based on informational benefits, in 2008, the disclosure of VAS became mandatory for publicly held companies in Brazil, with the enactment of Law No. 11,638, from December 28th, 2007. The National Electric Energy Agency had already made it mandatory before it was required by law (Resolution No. 444, from October 26th, 2001) though and was strongly encouraged by the Securities and Exchange Commission (CVM) (CVM Guideline No. 24 of January 15th, 1992 and CVM/SNC/SEP Circular Letters No. 1 of December 29th, 2000 and No. 1 of February 14th, 2007) and Federal Accounting Council (NBC 3.7).

In summary, VAS can be seen as a statement that gives society an account of a company's ability to generate wealth and how it is distributed among stakeholders. Hence, several studies use the information disclosed in VAS to understand the ability of companies to generate wealth and benefit society from different perspectives, for instance, employee remuneration and payment of taxes to the Government, among others.

Santos & Hashimoto (2003) used VAS to study the impact of taxes on organizations from 1996 to 2001 and found that, in general, the tax burden represents the most significant component in the distribution of wealth generated by organizations, absorbing approximately 40% of the total amount generated. Based on data released by the Brazilian Federation of Banks (Febraban), the study also highlights that the tax burden was the heaviest in the beverages and tobacco, chemicals and petrochemicals, and telecommunications sectors. Additionally, the productive sectors of the economy (manufacturing, trade, and services) were the most heavily taxed when compared with the banking sector.

Ribeiro & Santos (2004) analyzed the relationship between added value, remuneration, and the number of resources that financed the assets of electricity distribution companies from 1998 to 2002. The results showed that the portion of wealth that remunerates "financing entities" (own and third-party capital) was mainly allocated to external financing agents. Finally, using descriptive analysis, Cunha, Ribeiro & Santos (2005) analyzed the generation and distribution of wealth by companies from different activity sectors (manufacturing, trade, and services) from 1999 to 2003. The authors concluded that the indicators obtained from VAS were an excellent evaluator of the distribution of wealth available to society, revealing expressive tax burden and a large percentage used to remunerate third-party capital.

Scarpin et al. (2014) studied the correlation between the added value distributed to workers and the profitability of organizations based on a sample of more than 700 companies from 21 economic sectors from 2007 to 2010. The authors verified the existence of strong correlations between the companies' profitability and the amount distributed to employees. Additionally, according to the authors, the most prominent sectors were: wholesale, retail, chemical, and petrochemical.

Regarding the banking sector, Pinto & Freire (2013) found significant differences in the average added value, remuneration of own capital, and distribution to personnel when comparing foreign and national banks. Furthermore, when studying the behavior of added value in the largest banks in Brazil from 2000 to 2009, Taiarol, Raimundini & Behr (2011) found a strong correlation between internal social investments and added value, with personnel expenses being the main element of wealth generation.

As for the political context, Santos, Cunha, De Luca & Ribeiro (2013) analyzed the behavior of wealth created by companies and its distribution in the Fernando Henrique Cardoso and Lula governments, showing different profiles of wealth distribution. They found that third-party remuneration and tax collection were prioritized from 1995 to 2002, while from 2003 to 2009 priority was given to personnel remuneration and shareholders. Koprowski et al. (2020) analyzed the amount of wealth distributed to the government and the history of revenues earned during the presidential terms of Lula (2007-2010) and Dilma (2011-2014). The conclusion is that changes in revenues did not correspond to the changes in the amount of wealth allocated to the public coffers; only in two sectors did the wealth distributed to the government result from a growth in revenue in the Lula and Dilma governments.

Regarding non-profit companies, Londero, Stanzani & Santos (2019) analyzed the creation and distribution of wealth in Brazilian agricultural cooperatives based on VAS, studying their profile and comparing it to for-profit companies. The analyses showed that most of the wealth was distributed to employees and that the tax burden was similar to other types of organizations, noting that the amounts received by cooperative members were greater than those received by investors. Such a finding was expected considering the purpose of cooperatives.

In this sense, according to Mazzioni et al. (2020), identifying the factors determining how the wealth generated by companies is distributed can help society identify what type of organization is the most beneficial for each economic agent. Additionally, Bispo, Calijuri & Lima (2009) show that comparative studies between different periods and economic sectors can help to devise economic and social planning policies (tax and salary policies).

3. Method

This theoretical-empirical study uses quantitative data analysis to answer the guiding questions. The sample adopted in this study is non-probabilistic and comprised the largest public-held and private companies in Brazil that published VAS from 1999 to 2018 and were listed in the Fipecafi database. The manufacturing, trade, services, banking, and insurance sectors were analyzed; 20,624 observations were obtained (Table 1).

Table 1
Number of companies analyzed according to sector and year

Year	Number of companies					
	Industry	Trade	Services	Banks	Insurance companies	Total
1999	550	120	272	74	0	1,016
2000	616	143	317	53	0	1,129
2001	601	125	305	77	53	1,161
2002	615	149	314	82	59	1,219
2003	617	164	341	67	57	1,246
2004	555	132	332	76	62	1,157
2005	588	172	366	69	60	1,255
2006	596	172	329	70	63	1,230
2007	569	168	324	62	61	1,184
2008	480	154	288	63	49	1,034
2009	438	152	277	67	55	989
2010	407	142	296	46	58	949
2011	398	152	297	46	32	925
2012	398	148	307	57	57	967
2013	391	135	315	49	32	922
2014	367	154	332	56	51	960
2015	299	124	281	59	54	817
2016	267	128	288	57	52	792
2017	300	136	293	55	60	844
2018	289	132	296	56	55	828
Total	**9,341**	**2,902**	**6,170**	**1,241**	**970**	**20,624**

The monetary values presented in this study are expressed in dollars and were based on the amounts disclosed in the statements published by the companies and updated to the purchasing power currency of December 31, 2018. The parity used to convert the amounts from Reais into Dollars was R$3.8748 for every US$1.00.

Multiple linear regressions were performed to verify whether there were significant differences in the distribution of wealth to the agents that contributed to its generation in the five sectors analyzed. The regressions related the amount allocated per year (for 20 years) to a given agent to the total wealth generated per year according to the sector (variable X) and compared it to the portion allocated per year by each of the other sectors to this same agent (variable Y). Additionally, the Mann-Whitney test was used to identify significant differences in the proportion of wealth distributed to the respective beneficiaries of each sector.

4. Results

The analyses performed on the sample are divided into three phases. The first phase shows the total wealth generated by the sectors and its distribution among the agents that contributed to its generation: government, personnel, external financing agents, and investors. The second phase compares the distribution of wealth among the agents, and finally, in the third phase, a quantitative analysis was conducted to verify whether there were significant differences in the distribution of wealth among the sectors.

4.1 Total Wealth Generation and Distribution

4.1.1 Total Wealth Generated

The results presented in this section were obtained from consolidated data of the companies that composed the sample each year. Table 2 presents the total wealth generated per year and industry.

Table 2
Total wealth generated by sector

Year	Nº of companies	(Values in US$ million from December 2018)					
		Manufacturing	Trade	Services	Total (*)	Banks	Insurance companies
1999	1,016	125,925	13,144	69,303	208,372	39,499	-
2000	1,129	130,638	17,060	71,758	219,456	33,747	-
2001	1,161	134,435	16,764	74,342	225,540	37,108	3,583
2002	1,219	159,430	17,679	84,880	261,989	47,503	4,397
2003	1,246	138,185	17,215	77,198	232,598	35,960	3,145
2004	1,157	142,486	16,050	87,229	245,765	40,162	3,685
2005	1,255	96,373	18,252	95,191	209,815	39,860	6,117
2006	1,230	93,391	17,150	98,434	208,975	42,669	7,265
2007	1,184	166,986	17,367	112,056	296,410	47,693	6,975
2008	1,034	119,214	20,085	102,800	242,099	45,886	8,729
2009	989	128,333	17,064	93,639	239,037	56,864	10,729
2010	949	162,445	22,268	98,223	282,936	59,831	11,509
2011	925	155,438	25,161	93,695	274,294	59,323	9,427
2012	967	137,037	23,941	86,456	247,433	59,937	11,684
2013	922	131,286	27,524	84,731	243,541	52,125	5,351
2014	960	98,527	27,210	88,290	214,027	60,548	14,049
2015	817	124,113	22,970	92,980	240,063	47,982	16,136
2016	792	120,180	25,851	100,995	247,026	65,087	16,099
2017	844	117,324	27,689	92,390	237,403	63,263	9,688
2018	828	144,640	32,354	107,227	284,222	62,670	9,398
Average percentage		53.9%	8.7%	37.4%	100%		

(*) *Does not include banks and insurance companies.*

An analysis of the progression of the total wealth generated by the largest companies operating in Brazil shows that the five sectors presented real growth over time. The manufacturing sector is the most representative, followed by services and banks.

4.1.2 Distribution of Total Wealth

Due to the conceptual differences in the calculation of wealth between the different sectors, wealth distribution was analyzed by grouping the manufacturing, trade, and services sectors, separating the banking and insurance sectors. Table 3 presents the distribution of the total wealth generated by the manufacturing, trade, and service sectors among the agents that contributed to its generation: government, personnel, external financing agents, and shareholders.

Table 3
Total wealth distributed among agents (Values in US$ million from December 2018)

Year	Industrial, trade, and service sectors				
	Government	Personnel	Funders	Shareholders	Total
1999	76,321	46,047	83,390	2,614	208,372
2000	94,524	47,667	46,486	30,779	219,456
2001	93,061	45,459	63,467	23,554	225,540
2002	104,374	45,414	107,746	4,455	261,989
2003	107,607	41,437	40,725	42,829	232,598
2004	116,716	41,973	37,093	49,983	245,765
2005	89,304	41,461	33,990	45,060	209,815
2006	89,733	45,586	32,735	40,921	208,975
2007	140,778	54,433	38,377	62,822	296,410
2008	88,471	48,435	66,566	38,627	242,099
2009	97,864	45,937	38,167	57,069	239,037
2010	113,743	52,504	43,582	73,106	282,936
2011	108,409	52,494	50,025	63,367	274,294
2012	104,794	57,254	52,502	32,884	247,433
2013	96,212	63,250	62,086	21,994	243,541
2014	74,769	55,630	53,940	29,687	214,027
2015	97,407	51,707	110,873	-19,923	240,063
2016	95,033	50,846	73,505	27,641	247,026
2017	96,248	50,978	68,837	21,339	237,403
2018	108,893	51,253	72,066	52,010	284,222
Average %	41%	20.5%	24.3%	14. d2%	

Most of the wealth generated in the manufacturing, trade, and service sectors from 1999 to 2018 was allocated to the government through taxes, fees, and contributions, with an average annual distribution of 41%. In the same period, the amount of wealth delivered to external financing agents was 24.3% per year on average; 20.5% was allocated to employees and 14.2% to shareholders. In 2015, however, shareholders' wealth decreased because of a considerable increase in the share allocated to external financing agents.

Table 4 presents the distribution of total wealth generated by the banking sector.

Table 4
Total wealth distributed among agents (Values in US$ million from December 2018)

Year	Banking sector				
	Government	Personnel	Funders	Shareholders	Total
1999	6,032	21,385	1,603	10,479	39,499
2000	6,524	20,206	1,247	5,769	33,747
2001	7,185	20,392	1,211	8,321	37,108
2002	9,563	20,481	1,508	15,950	47,503
2003	7,986	14,981	1,004	11,990	35,960
2004	9,100	17,084	1,362	12,616	40,162
2005	9,365	15,929	1,282	13,284	39,860
2006	8,421	18,020	1,240	14,988	42,669
2007	8,404	19,772	1,340	18,178	47,693
2008	7,916	18,846	1,166	17,958	45,886
2009	14,364	20,760	1,779	19,961	56,864
2010	13,721	21,901	1,785	22,424	59,831
2011	10,522	23,674	1,892	23,235	59,323
2012	11,107	25,233	2,081	21,517	59,937
2013	10,070	20,458	1,877	19,720	52,125
2014	9,789	25,925	2,376	22,457	60,548
2015	-4,994	26,746	2,345	23,886	47,982
2016	18,813	25,948	2,280	18,047	65,087
2017	13,171	26,061	2,252	21,778	63,263
2018	12,206	24,962	2,084	23,417	62,670
Average %	18.8%	43.7%	3.4%	34.1%	

Note that most of the wealth generated by banks from 1999 to 2018 was translated into personnel remuneration, in the form of salaries, taxes, and benefits, with an average annual distribution of 43.7%. In the same period, the amount of wealth allocated to shareholders was 34.1% per year, on average; 18.8% to the government and 3.4% to external financing entities. It is worth highlighting that in 2015 an increase in the CSLL rate made institutions recognize tax credits related to social contribution (deferred assets), generating a credit result, i.e., indicating wealth that was not distributed to the government. Excluding the effect of the deferred tax of the institutions most heavily impacted (Banco do Brasil, Banco Bradesco, Caixa Econômica Federal, Itaú Unibanco, and BTG Pactual), the amount distributed to the government would be 5.3% of the wealth generated in the year.

Table 5 presents the distribution of total wealth generated by the insurance sector.

Table 5
Total wealth distributed among agents (Values in US$ million from December 2018)

Year	Insurance sector				
	Government	Personnel	Funders	Shareholders	Total
1999	-	-	-	-	-
2000	-	-	-	-	-
2001	701	1,120	272	1,491	3,583
2002	798	1,234	811	1,554	4,397
2003	636	881	209	1,419	3,145
2004	805	950	147	1,784	3,685
2005	1,253	1,061	631	3,170	6,117
2006	1,598	1,214	824	3,630	7,265
2007	1,656	1,099	1,044	3,175	6,975
2008	1,564	1,070	2,243	3,852	8,729
2009	1,724	1,021	3,885	4,099	10,729
2010	2,290	1,267	3,368	4,584	11,509
2011	2,194	1,064	2,992	3,177	9,427
2012	2,581	1,545	4,059	3,498	11,684
2013	1,575	1,023	64	2,689	5,351
2014	3,314	1,451	4,872	4,412	14,049
2015	3,405	1,409	6,561	4,761	16,136
2016	3,290	1,355	7,627	3,828	16,099
2017	3,032	1,401	1,710	3,545	9,688
2018	3,027	1,369	1,582	3,419	9,398
Average %	22.4%	16.4%	21.6%	39.6%	

Most of the wealth generated by the insurance sector in the period was allocated to shareholder remuneration, such as dividends and retained profits, with an average annual distribution of 39.6%. In the same period, the share of wealth delivered to external financing entities was 21.6% per year on average, 22.4% to the government, and 16.4% to employees.

According to Rensi and Carvalho (2021), Operação Lava Jato (OLJ) negatively impacted the insurance industry as a whole, contributing to the sector's downturn since its inception, which possibly explains a decrease in the wealth generated from 2017 onwards (Table 5).

4.2 Distribution of Wealth by sector

This section presents the distribution of wealth generated by the different sectors among the agents that contributed to its generation.

4.2.1 Distribution of Wealth to the government (tax burden)

Figure 3 presents wealth distributed to the government.

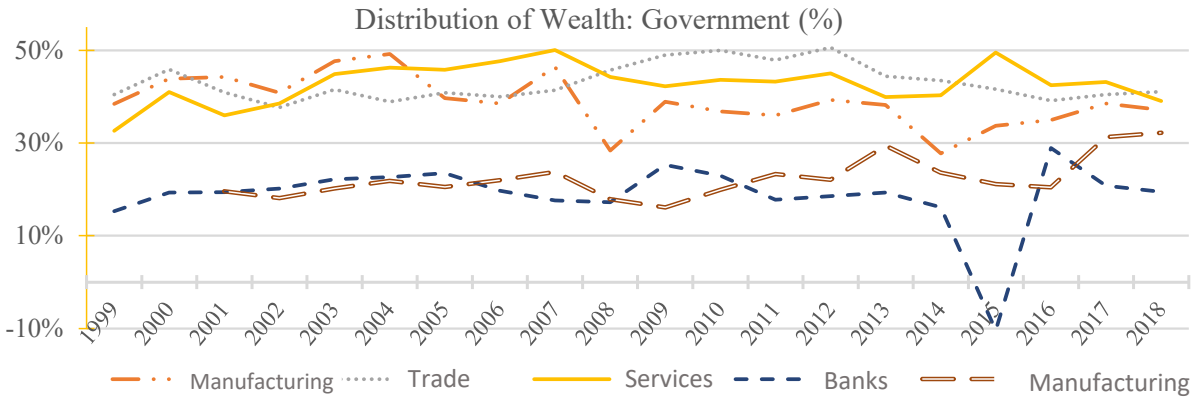

Figure 3. Distribution of wealth to the government (tax burden).

The manufacturing, trade, and service sectors were those allocating most of the wealth they created to the government in the form of taxes. The trade and service sectors presented an average annual tax burden of 43% and 42.8%, respectively, while the manufacturing sector presented an average annual distribution of 38.9%. In the case of banks and insurance companies, the allocation of wealth to the government presented an annual average of 18.8% and 22.4%, respectively, i.e., practically half of the tax burden bore by the other branches.

Based on the results shown in Figure 3, and to expand the tax burden analysis, we verified whether there were any relevant changes in tax policies due to the different presidential terms.

Table 6

Wealth distributed to the government by presidential terms

Year	Wealth Distribution – Government Tax Burden						
	Industry	Trade	Services	Banks - Febraban	Banks - Fipecafi	Insurance companies	Government
1999	38.4%	40.5%	32.6%	22.6%	15.3%	N.A.	
2000	43.9%	45.9%	41.0%	25.8%	19.3%	N.A.	
2001	44.2%	40.9%	35.9%	27.5%	19.4%	19.5%	FHC
2002	40.8%	37.6%	38.5%	23.1%	20.1%	18.2%	
FHC average	**41.8%**	**41.2%**	**37.0%**	**24.8%**	**18.5%**	**18.9%**	
2003	47.6%	41.5%	44.9%	25.2%	22.2%	20.2%	
2004	49.2%	38.9%	46.3%	26.2%	22.7%	21.8%	
2005	39.7%	40.9%	45.8%	25.1%	23.5%	20.5%	Lula
2006	38.5%	39.9%	47.6%	25.9%	19.7%	22.0%	
Lula average	**43.8%**	**40.3%**	**46.1%**	**25.6%**	**22.0%**	**21.1%**	
2007	46.4%	41.4%	50.0%	24.3%	17.6%	23.7%	
2008	28.4%	45.7%	44.2%	18.7%	17.3%	17.9%	
2009	38.9%	49.0%	42.3%	27.3%	25.3%	16.1%	Lula
2010	36.8%	49.9%	43.6%	28.2%	22.9%	19.9%	
Lula average	**37.6%**	**46.5%**	**45.0%**	**24.6%**	**20.8%**	**19.4%**	
2011	35.9%	47.9%	43.2%	22.9%	17.7%	23.3%	
2012	39.3%	50.6%	45.0%	23.0%	18.5%	22.1%	
2013	38.2%	44.4%	39.9%	23.3%	19.3%	29.4%	Dilma
2014	27.7%	43.5%	40.3%	23.9%	16.2%	23.6%	
Dilma average	**35.3%**	**46.6%**	**42.1%**	**23.3%**	**17.9%**	**24.6%**	
2015	33.7%	41.6%	49.5%	1.4%	-10.4%	21.1%	
2016	34.9%	39.2%	42.5%	N.A.	28.9%	20.4%	
2017	38.5%	40.4%	43.2%	N.A.	20.8%	31.3%	Dilma/Temer
2018	37.1%	41.0%	39.1%	N.A.	19.5%	32.2%	
Dilma/Temer average	**36.1%**	**40.6%**	**43.6%**		**14.7%**	**26.3%**	

N. A.= not available

Table 6 shows an increase in the amount of wealth allocated to the government in Lula's first term compared to FHC's second term; the service sector was the one showing a significant increase. There was a significant decrease in taxation for the manufacturing sector and a significant increase for the trade sector in Lula's second term. Dilma's first government dropped taxation for the manufacturing, services, and banking sectors and increased it for the insurance sector. In Dilma/Temer's second term, there was a decrease in the taxation of the trade sector and an increase in the other sector. It is worth noting that, although there was an increase in the CSLL rate in 2015 for the banking sector, there was a benefit arising from the recognition of tax credits, causing an effect opposite to what was expected, i.e., a reduction in the amount allocated to the government.

The information available from 1999 to 2015 provided by Febraban, which considers all banks, reveals that the tax burden for this sector was around 23%.

Thus, these results complement those by Santos, Cunha, De Luca & Ribeiro (2013), showing that, regardless of the presidential term, banks and insurance companies have always enjoyed lower tax burdens than other branches of the economy. Hence, we cannot state that tax collection was prioritized in FHC's term compared to Lula's terms; instead, we verified no relevant changes in the tax policies implemented in the years addressed here.

4.2.2 Distribution of Wealth to External Financing Agents

Figure 4 shows how the distribution of wealth progressed in the form of interest and rent.

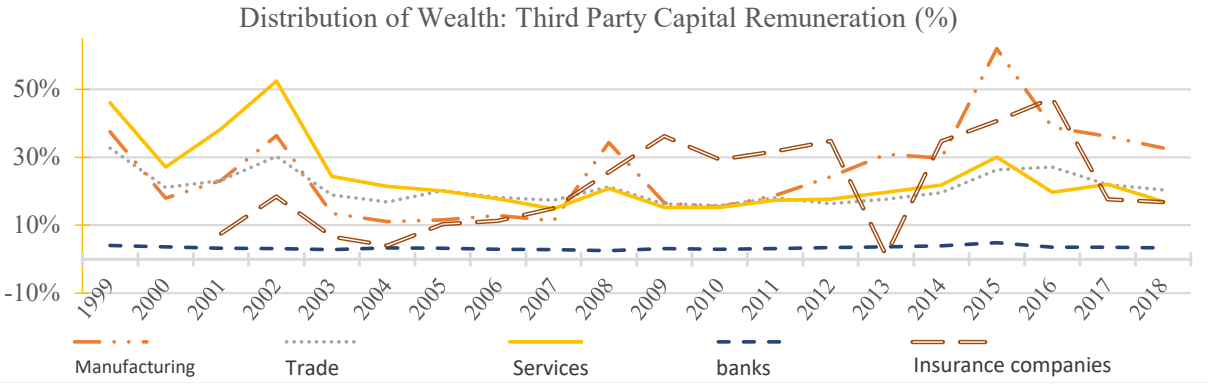

Figure 4. Distribution of wealth to funders

Note that, from 1999 to 2007, the services sector had the highest participation in distributing wealth to external financing agents, followed by the trade and manufacturing sectors. After 2007, there was an increase in the amounts distributed by the manufacturing and insurance companies, followed by the trade and service sectors, while the banking sector presented much smaller participation. As a result, the average annual distribution of wealth generated in the period by the manufacturing, service, insurance, trade, and banking sectors was 25.7%, 24.0%, 21.6%, 21.0%, and 3.4%, respectively.

The amount distributed to remunerate third-party capital is directly related to the basic interest rate of the Brazilian economy, in addition to being impacted by the exchange rate devaluation. The low figure of 3.4% for banks is a consequence of how financial intermediation expenses are classified, considering that, for these companies, these expenses are considered in the wealth net formation and not in its distribution.

4.2.3 Distribution of Wealth to Shareholders

Figure 5 shows the distribution of wealth to shareholders in the form of dividends, equity interest, and retained earnings.

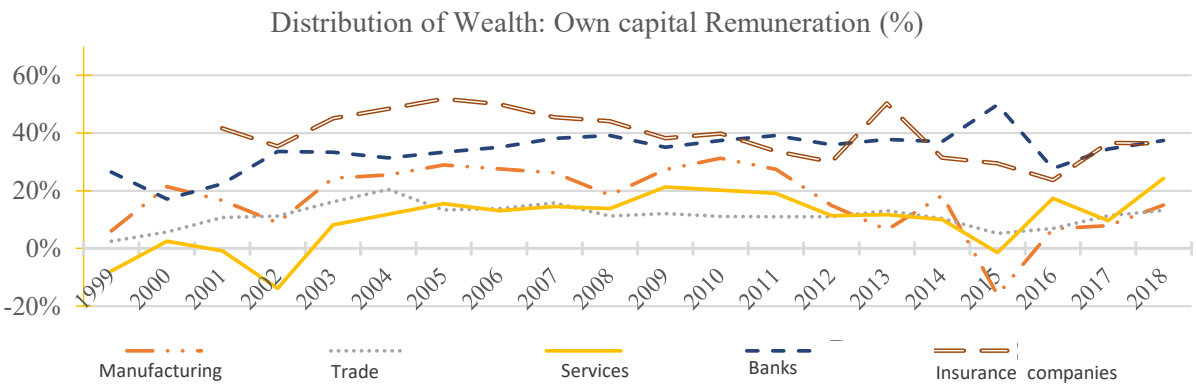

Figure 5. Distribution of wealth to shareholders

The analysis of the wealth distributed to partners and shareholders shows that banks and insurance companies were the branches that distributed the highest percentages of wealth to these agents, presenting an average annual distribution of 34.1% and 39.6%, respectively. In addition, the manufacturing sector had an average annual distribution of 17.2%, while in 2015, there was a consumption of wealth (distribution was negative) of 16% due to the economic crisis that began in 2014. In turn, trade had an average distribution of 11.3 % in the period, while the services sector had the lowest participation in the distribution of wealth to partners and shareholders throughout the period, with an average annual allocation of 10.0%.

4.2.4 Distribution of Wealth to Personnel

Figure 6 shows the distribution of wealth as employee compensation in the form of salaries, taxes, and benefits.

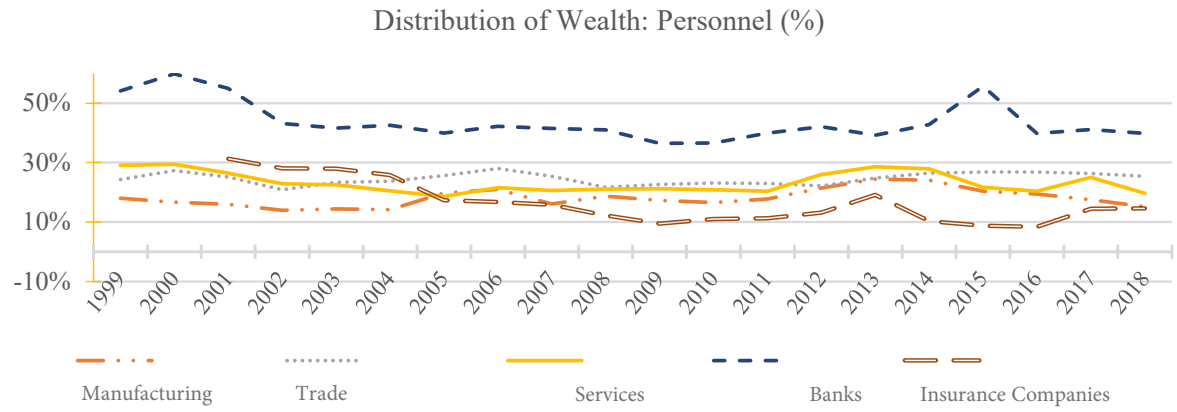

Figure 6. Distribution of wealth to personnel

The analysis of the distribution of wealth to employees shows that the largest share is in the banking sector, with 43.7%, on average. The trade and service sectors allocated approximately 24.7% and 23.2%, while the manufacturing and insurance sectors presented an average annual distribution of 18.2% and 16.4%, respectively.

4.2.5 Distribution of Wealth per Employee

To obtain a more accurate interpretation of the wealth distributed to employees, considering that the number of employees varies among the sectors, we analyzed the amount of wealth distributed per employee. This amount was calculated by dividing the added value distributed to personnel by the average number of employees (average of the number of employees existing at the beginning and end of each year) of the analyzed sectors. Table 7 presents the average number of employees in each branch per year.

The manufacturing sector historically presented the highest average number of employees, accounting for approximately 38.7% of the total number of jobs held by the companies comprising the sample. However, there was a decrease in the number of people employed in this activity from 2014 onwards. The service sector ranked second in the number of employees, accounting for approximately 31.7% of the jobs in the period. However, similar to what happened in the manufacturing sector, the number of employees in the service sector declined from 2015. Banks ranked third in the number of employees, accounting for approximately 14.9% of the jobs held in the period. A point worth mentioning is that the number of bank employees increased in the period, with slight fluctuations in some years. For example, in 2000, the average number of employees was 355,395, and in 2018, it was 469,833; i.e., it presented a growth of 32.2%. The trade sector ranked fourth in the number of people employed, accounting for approximately 13.7%; insurance companies employed fewer people.

Table 7
Average Number of employees

Year	Average number of employees according to branch					
	Industry	Trade	Services	Banks	Insurance companies	Total
1999	N.A.	N.A.	N.A.	N.A.	N.A.	0
2000	862,590	243,963	640,402	355,395	N.A.	2,102,349
2001	906,442	290,036	698,922	370,158	N.A.	2,265,558
2002	950,558	262,687	707,612	385,050	26,713	2,332,619
2003	986,835	277,035	746,241	356,256	25,156	2,391,523
2004	985,292	296,440	797,388	356,048	22,975	2,458,142
2005	1,013,257	349,502	791,146	387,178	25,122	2,566,204
2006	1,060,453	377,929	821,067	406,013	27,452	2,692,913
2007	1,214,069	346,505	957,461	420,954	28,075	2,967,062
2008	1,384,509	330,419	1,023,220	430,860	28,925	3,197,932
2009	1,308,439	322,831	1,001,486	461,964	29,060	3,123,780
2010	1,280,924	404,248	1,015,226	482,823	31,326	3,214,546
2011	1,412,927	481,746	1,021,995	499,650	32,270	3,448,587
2012	1,423,078	464,993	1,124,253	514,958	33,889	3,561,170
2013	1,431,092	509,212	1,230,559	468,159	31,640	3,670,660
2014	1,399,229	588,313	1,217,866	454,410	30,059	3,689,876
2015	1,226,078	540,340	1,074,076	488,744	34,433	3,363,671
2016	1,037,214	491,968	945,058	487,509	32,810	2,994,558
2017	910,543	562,103	979,424	480,675	31,276	2,964,020
2018	860,290	627,409	1,011,103	469,833	31,354	2,999,988

N.A.= not available

Figure 7 shows how wealth distribution behaved in each sector according to employee per year. The banks distributed the highest amount, approximately US$49,200 per employee/year; insurance companies ranked second, with an average annual distribution of US$40,600 per employee. The manufacturing and service sectors presented an average annual distribution of US$22,700 and US$20,900 per employee, respectively. Finally, the trade sector distributed the lowest wealth per employee, with an average of US$13.300/year.

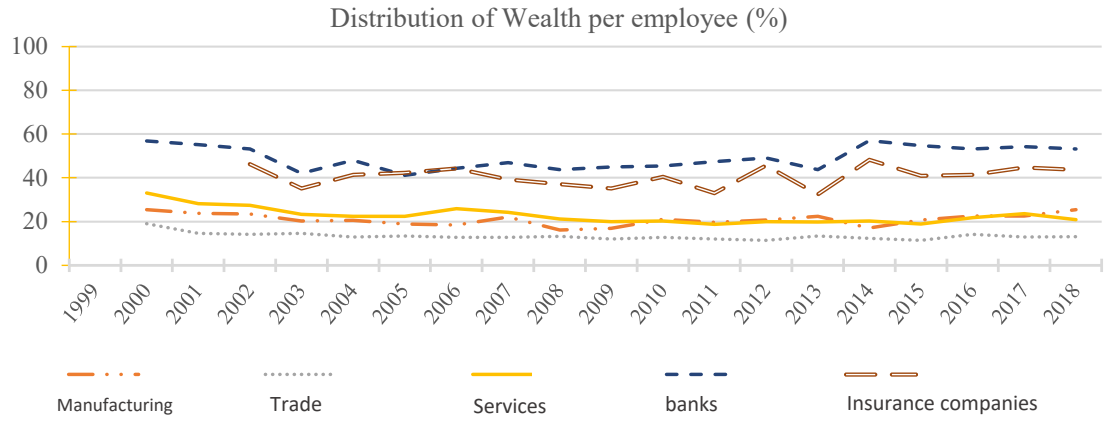

Figure 7. Wealth distributed per employee

Differences in the distribution of wealth per employee may be related to the specialization required by the activities performed in each sector, indicating that remuneration is associated with the level of workforce qualification.

4.3 Analysis of Wealth Distribution by Economic Activity

4.3.1 Distribution of Annual Wealth

Twenty variations of the regression model, represented by Equation 1, were estimated to analyze the percentage of the wealth distributed among government, personnel, external financing agents, and investors. Hence, the relationship between the wealth each branch allocated to the different agents and the total amount generated is presented for 20 years (1999 to 2018). In addition, potential unobservable macroeconomic variations were controlled using dummies for each year.

$$\frac{\sum_{i=z}^{n} DVA_{kz}}{\sum_{i=z}^{n} DVA_{z}} = \beta_0 + \beta_1 Z + \beta_6 X + \varepsilon_t \quad (1)$$

Where z represents each of the sectors: banking, insurance, manufacturing, trade, and services; k represents the agents to which wealth is directed: government, personnel, financing agents, and shareholders; Z is a dummy variable that assumes value 1 for the sectors described above, depending on the sector addressed in each of the equations; and X represents the percentage distributed by the sector analyzed to a given agent per year. Thus, the coefficient of the variable Z corresponds to the average difference of the percentage distributed to the respective agents per sector.

Table 8 presents the results of the 20 models estimated. On average, the distribution of wealth to agents – government, personnel, financing agents, and shareholders – presents a statistically different pattern between the banking, insurance, manufacturing, trade, and service sectors.

Table 8
Wealth Distribution

	Wealth Distribution			
Variables	**Government (1)**	**Personnel (2)**	**Financing agents (3)**	**Shareholders (4)**
Bank	-0.184***	0.2286***	-0.1988**	0.1543
	(0.0246)	(0.0139)	(0.0215)	(0.0331)
Insurance companies	-0.1362***	-0.1047***	0.0370	0.2033***
	(0.0302)	(0.0286)	(0.0325)	(0.0319)
Manufacturing	0.0690**	-0.0931***	0.0825**	-0.0583
	(0.0314)	(0.0275)	(0.0298)	(0.0369)
Trade	0.1209***	-0.0113**	0.0226	-0.1323**
	(0.0293)	(0.0295)	(0.0311)	(0.0343)
Services	0.1175***	-0.0293	0.0600**	-0.1483***
	(0.0294)	(0.0293)	(0.0304)	(0.0335)
E.F. year	Yes	Yes	Yes	Yes
#Observations	98	98	98	98

*, **, and *** indicate significant coefficients at 10%, 5%, and 1%, respectively. Standard errors are shown in parentheses.

The coefficients of the variables (Z) represent the average difference of the percentage distributed to the respective agents per sector. The analysis does not consider heterogeneity among the companies in the same sector. The purpose is to present the differences in wealth distribution per year according to the sector over 20 years.

Allocation of wealth to the government shows that all the estimated coefficients are significant, indicating significant differences in the distribution of wealth generated by the respective sectors to the government. The coefficients show that the banking sector presented the lowest tax burden on average, followed by the insurance sector. On the other hand, the trade and service sectors bore the highest tax burden.

Regarding employee remuneration, banks were the ones that, on average, distributed the highest wealth to employees, while insurance companies distributed the lowest amount of wealth in the form of salaries. Regarding external financing entities, the manufacturing sector distributed the highest wealth to this agent, followed by the service sector. Finally, for shareholders, the coefficients indicate that, on average, the insurance sector distributed the highest amount of wealth, followed by banks, with the service sector distributing the lowest amount of wealth to partners and shareholders, followed by the trade sector.

Thus, considering the results, the Mann-Whitney test was performed to identify differences among sectors. The analysis compared the sectors (2 to 2) for each of the four agents. Table 9 presents the results of the Mann-Whitney test for wealth distributed to government and employees.

Table 9
Analysis of Wealth Distributed to the Government and Employees

Significant Differences	Government	Employees
Highest means, equal among them	Trade and Services	Banks
Intermediate means, equal among them	Manufacturing(*)	Trade and Services
Lowest means, equal among them	Banks and Insurance companies	Insurance companies and Manufacturing

(*) no differences at 1% between manufacturing and service sectors (p-value = 0.0161)

Significant differences were found in wealth distribution; the trade and service sectors distributed the highest wealth to the government (closely followed by the manufacturing sector), while banks and insurance companies distributed the least wealth to the government. This result shows that the banking and insurance sectors enjoyed the lowest taxation proportionally to the wealth generated in their activities.

Regarding employees, banks were the ones that distributed the highest amount of wealth, while the insurance and manufacturing sectors distributed the lowest. However, even though insurance companies allocate a small percentage of wealth to employees, the average amount per employee is high, considering this sector employs the lowest number of employees. The trade, service, and manufacturing branches distributed the smallest share of wealth to employees.

Table 10 presents the results of the Mann-Whitney test for the allocations made to external financing agents and investors.

Table 10
Analysis of the wealth distributed to remunerate third-party and Own Capital

Significant Differences	Funders	Shareholders
Highest means, equal among them	Manufacturing, Trade, Services, and Insurance Companies	Banks and Insurance Companies (*)
Intermediate means, equal among them	-	Manufacturing companies (**)
Lowest means, equal among them	Banks	Trade and Services

(*) no significant differences at 1% (p-value = 0.0468)
(**) no significant differences at 1% between manufacturing and trade (p-value = 0.0173) or between manufacturing and services (p-value = 0,0305)

The results show no significant differences in the wealth allocated to remunerate third-party capital (financing agents) between the manufacturing, trade, service, and insurance sectors. However, as expected, the banking sector presented a significantly lower percentage because, as already mentioned, expenses with financial intermediation are taken into account in the creation and non-distribution of wealth.

Regarding own capital, banks and insurance companies distributed an average annual percentage significantly higher than the other branches to remunerate partners and shareholders. Thus, the results indicate no significant differences in the wealth distribution by the manufacturing, trade, service, banking, and insurance sectors, though banks and insurance companies allocated higher amounts of wealth to remunerate personnel and shareholders. The manufacturing, trade, insurance, and services sectors allocated a significant portion of wealth to the government and to remunerate third-party capital.

5. Final Considerations

This study aimed to verify the extent to which the distribution of wealth generated by the largest publicly held and private companies operating in Brazil (from the main branches of economic activity) differs in terms of the tax burden, remuneration of capital (own and third parties) and employees, from 1999 to 2018.

The analysis of the sample addressed in this study revealed real growth of the total wealth generated by the largest companies operating in Brazil for the five branches of economic activity; on average, the manufacturing sector was the most representative over the 20 years analyzed here. The service sector was the second most important, with both sectors accounting for 73.8% of the total wealth generated in the period. Most of the wealth generated by the manufacturing, trade, and service branches from 1999 to 2018 was allocated to the government. During this period, the banking sector allocated most of its wealth to remunerate employees in the form of salaries, fees, and benefits, and insurance companies allocated the highest portion to remunerate shareholders in the form of dividends and retained profits.

The results revealed significant differences in the distribution of wealth to the government; the trade and service branches distributed the largest portion of the wealth they generated to the government (followed by the manufacturing sector). In turn, the banking and insurance branches enjoyed the lowest taxation proportionally to the wealth generated in their activities.

As for personnel remuneration, banks distributed an average annual percentage of wealth significantly higher than the remaining sectors to remunerate employees. Although insurance companies distributed an average annual percentage of wealth significantly lower than banks, due to a smaller number of employees, they distributed an average amount of wealth per employee higher than the manufacturing, trade, and service sectors.

The results indicate no significant differences in wealth distribution between the manufacturing, trade, service, and insurance sectors to remunerate third-party capital. The low figure of 3.4% for banks is a consequence of how the cost of financial intermediation is classified, considering that these institutions consider such a cost in the net creation of wealth, not in its distribution. Hence, financial institutions can allocate a larger portion of wealth to the government, personnel, and shareholders. However, the results show that employees and shareholders were privileged to the detriment of the government.

Regarding own capital remuneration, banks and insurance companies distributed a significantly higher average annual wealth than the other branches to remunerate shareholders, indicating that a significant portion of the wealth these two branches generated was distributed to partners and shareholders.

Thus, the results reveal significant differences in the distribution of the wealth generated by the main branches of the economy (i.e., manufacturing, trade, services, financial institutions, and insurance companies) to employees, shareholders, and creditors. The same result was found in the proportion of wealth distributed to the government through taxes, revealing a considerable imbalance in the distribution of the sectors' wealth. Note that the manufacturing, trade, and services branches bore a much higher tax burden than banks and insurance companies over the 20 years analyzed, negatively impacting the amount these three branches distributed to employees and shareholders compared to banks and insurance companies.

These findings corroborate the results reported by Santos & Hashimoto (2003) and Cunha, Ribeiro & Santos (2005), showing that the productive sectors deal with a tax burden significantly higher than banks and insurance companies. Additionally, they allocate a portion significantly smaller than banks and insurance companies to remunerate shareholders. The results also corroborate those obtained by Koprowski et al. (2020) while differing from those reported by Santos, Cunha, De Luca & Ribeiro (2013) as they show no relevant changes in tax policies due to the different presidential terms.

Note that these results cannot be generalized because a non-probabilistic sample was adopted in this study. Additionally, the analysis considered the companies grouped according to their respective branches of economic activity. Thus, future studies might analyze the different industries composing the manufacturing, trade, and service sectors, for instance, consumer goods, steel, and metallurgy industries; wholesale and retail trading companies, agricultural products; and transport, telecommunications, and energy service companies, to identify differences related to the activities conducted by these companies.

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