STRUCTURAL CHANGE AND NONPRODUCTIVE EXPANSION IN BRAZIL: A MIYAZAWA ANALYSIS

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ABSTRACT

This article examines the interaction between productive and nonproductive activities in the Brazilian economy between 2000 and 2019. Following the Marxian distinction between productive and nonproductive sectors and using the Miyazawa input-output framework, the paper evaluates the productive sector's dependence on nonproductive activities within the economic structure. We find that the rising share of nonproductive activities in the economy is associated with a declining capacity to stimulate productive output and productive employment. In the Marxian tradition, this represents an important constraint on accumulation and growth, contributing to the Brazilian economy's quasi-stagnation.

Keywords: Marxian economics, nonproductive activities, input-output analysis, structural change.
JEL Classification: B51, C67, O11, P16.

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CAMBIO ESTRUCTURAL Y EXPANSIÓN NO PRODUCTIVA EN BRASIL:
UN ANÁLISIS DE MIYAZAWA

RESUMEN

Este artículo examina la interacción entre actividades productivas y no productivas en la economía brasileña entre 2000 y 2019. Siguiendo la distinción marxista entre sectores productivos y no productivos y utilizando el marco de insumo-producto de Miyazawa, el trabajo evalúa la dependencia del sector productivo respecto de las actividades no productivas dentro de la estructura económica. Encontramos que el aumento de la participación de las actividades no productivas en la economía está asociado con una menor capacidad para estimular la producción y el empleo productivos. En términos marxistas, esto representa una restricción importante para la acumulación y el crecimiento, contribuyendo al cuasi-estancamiento de la economía brasileña.

Palabras clave: economía marxista, actividades no productivas, análisis insumo-producto, cambio estructural.

Clasificación JEL: B51, C67, O11, P16.

1. INTRODUCTION

Brazil's economy has undergone profound structural transformations over the past few decades. The literature on Brazilian quasi-stagnation has largely interpreted these changes through the lenses of deindustrialization and financialization. While these perspectives have generated important insights, they tend to overlook a key dimension of structural change: the expansion of nonproductive activities and its implications for the internal organization of production and sectoral interdependence. As a result, existing accounts often fail to capture how the growing weight of circulation-related activities reshapes the conditions of surplus generation and accumulation.

The main argument of this paper is that separating nonproductive from productive activities is pivotal to understanding structural change and how the expansion of nonproductive activities affects surplus generation and accumulation. We examine the productive boundary of the economy and its relationship to the broader economic structure. Unlike

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neoclassical and Keynesian views, we use a classical/Marxian framework, in which circulation, distribution, and social maintenance activities are not considered productive. Following Shaikh and Tonak (1994), these activities remain outside the production sphere. This distinction is crucial, as it allows us to explore how the growth of nonproductive activities is associated with a reduction in the surplus generated and tends to constrain capital accumulation. More specifically, we argue that a central dimension of Brazil's quasi-stagnation is a process of reverse structural change, understood as a shift away from value-producing activities toward nonproductive ones. In this sense, output growth, or the lack thereof, engenders structural transformation, which, in turn, shapes the trajectory of an economy's expansion or stagnation (Rada, 2021).

This paper contributes to the literature by examining the interaction between productive and nonproductive activities in Brazil from 2000 to 2019 using a Miyazawa input-output framework. Rather than focusing solely on sectoral shares or output composition, we develop a structural measure of the dependence of value-producing sectors on activities associated with circulation, intermediation, and redistribution. This approach allows us to assess not only the expansion of nonproductive activities but also how their changing role affects the productive sectors' capacity to generate productive employment and sustain surplus creation.

Consistent with this argument, we show that Brazil's recent structural change and persistent low growth cannot be adequately understood through the lens of deindustrialization and financialization alone. Instead, they reflect a broader reconfiguration in which an increasing share of economic activity is linked to the circulation and appropriation of surplus rather than its production. This transformation entails a structural shift in which productive sectors become increasingly dependent on nonproductive inputs, while the latter exhibit a declining capacity to stimulate productive output and employment multipliers. The result is a weakening of the accumulation process, as a growing portion of economic activity becomes detached from the expansion of value production.

To investigate this process, we analyze input-output data for Brazil over the period 2000-2019, distinguishing between two subperiods: 2000-2010, characterized by expansion, and 2010-2019, marked by crisis and stagnation. Following Shaikh and Tonak (1994), Moseley (1992), and Gymnopoulos and Tsaliki (2026), we define nonproductive activi-

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ties as those centered on circulation, intermediation, and redistribution rather than the direct production of value and surplus value. Within this framework, we use the Miyazawa decomposition to assess the degree of interdependence between productive and nonproductive sectors and to evaluate how changes in their interaction reshape productive employment multipliers.

Our results indicate that, despite the rising share of nonproductive activities in the economy, their capacity to generate productive linkages has declined over time. In other words, the expansion of nonproductive activities has become progressively less effective in generating productive employment. Brazil's weak economic performance thus appears to be associated not only with the expansion of nonproductive activities but also with the growing difficulty of translating this expansion into productive employment and surplus generation. In this sense, the paper suggests that recent structural change in Brazil is better understood as a shift toward a pattern of accumulation increasingly centered on surplus appropriation rather than surplus production.

The remainder of the paper is organized as follows. Section 2 presents the Marxian approach to productive and nonproductive activities. Section 3 describes the method and dataset. Section 4 reports the results. The final section concludes.

2. NONPRODUCTIVE ACTIVITIES AND THE ECONOMY: A BRIEF REVIEW

The Marxian tradition provides a coherent framework to analyze nonproductive expansion by grounding the distinction between value creation and value circulation. At its core lies the differentiation between productive and nonproductive labor, which defines the boundaries of surplus value generation in capitalist economies.

Within this framework, productive activity is restricted to labor that generates surplus value. This view partially aligns with the classical political economy perspective, especially that of Adam Smith (2003 [1776]). Smith, in describing labor that produces value, stated that "(…) the labour of the manufacturer fixes and realizes itself in some particular subject or vendible commodity" (pp. 422-423). He thus relates productive labor to the production of tangible objects. Other activities are considered nonproductive insofar as they do not create new value

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by producing vendible commodities. Although socially necessary, such activities reduce the share of surplus available for accumulation.

Smith also proposed a second, related criterion based on social relations, distinguishing between labor employed in capitalist production and labor that serves private consumption. In Smith (2003, p. 423), both aspects are connected: "The labour of the menial servant, on the contrary, does not fix or realize itself in any particular subject or vendible commodity. His services generally perish in the very instant of their performance, and seldom leave any trace or value behind them (…)".

Karl Marx reformulated this distinction by shifting the focus from the material form of output to the social relations of production. Labor is productive insofar as it is subsumed under capital and generates surplus value, regardless of whether output is material or immaterial. This broader definition allows some service activities to be classified as productive when integrated into the circuit of capital and contributing to value creation (Savran and Tonak, 1999; Tregenna, 2011).

Nonetheless, a substantial set of activities remains nonproductive because it circulates or redistributes value rather than creating it. Following Shaikh and Tonak (1994), the economy can be divided into four spheres: production, distribution, social reproduction, and personal consumption, of which only production generates value and surplus value. Distributive activities such as finance and commerce circulate existing value, while activities linked to social reproduction, including public administration, absorb it.

Nonproductive expansion is a structural feature of modern capitalism. Competitive pressures lead firms to allocate increasing resources to functions such as marketing, management, and financial intermediation, none of which directly generate value (Tsoulfidis and Tsaliki, 2019). At the same time, the growing institutional complexity of capitalist economies raises demand for coordination and regulatory activities. Social pressures also can induce the provision of free public goods such as public education and health care systems.

At the macroeconomic level, however, nonproductive activities perform a contradictory role. Financial expansion may sustain aggregate demand by relaxing credit constraints and supporting consumption, thereby facilitating the realization of surplus in the short run (Park and Rieu, 2020; Campbell and Bakir, 2022). In this sense, such activities

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contribute to the circulation and realization of value, even if they do not generate it.

This duality gives rise to a central tension. While nonproductive activities may support demand in the short and medium term (Dutt, 1992), their expansion can constrain long-run accumulation by reducing the share of surplus available for productive investment (Moseley, 1997; Cronin, 2001). As their weight increases, a growing portion of surplus is absorbed outside the sphere of value production, potentially weakening accumulation dynamics (Shaikh and Tonak, 1994; Mohun, 2005).

As Marx (1980 [1863]) already noted, expenditures on nonproductive labor may stimulate production through consumption while simultaneously diverting surplus away from accumulation. The key issue, therefore, is not their existence but their effects on the allocation of surplus.

Nonproductive expansion thus constitutes a central dimension of structural change, reflecting a reconfiguration of economic activity in which an increasing share of output is linked to the circulation and appropriation of surplus rather than its production. Building on this perspective, this article examines the evolution of the nonproductive share in Brazil and its implications for reverse structural transformation and low growth.

3. METHOD AND DATA

This section is divided into two subsections. Section 3.1 presents the method used to estimate the impact of nonproductive activities on productive employment multipliers and their decompositions. A similar methodological procedure was applied by Fritz, Sonis, and Hewings (1998) to the case of the interaction between polluting and nonpolluting activities. Following this, section 3.2 reports the dataset used in the empirical analysis.

3.1. Method

The Brazilian economy is divided into two groups: nonproductive and productive sectors. Here, the subscripts p and n denote productive and nonproductive activities, respectively. This structure is represented by the block matrix of direct input coefficients:

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$$\mathrm{A} = \begin{pmatrix} A_{nn} & A_{np} \\ A_{pn} & A_{pp} \end{pmatrix} \quad [1]$$

where A_{nn} and A_{pp} capture intra-group flows, while A_{pn} and A_{np} represent inter-group linkages. For instance, A_{nn} captures flows within nonproductive activities.

The corresponding Leontief inverses, interpreted as Miyazawa internal multipliers, are:

$$\mathrm{B}_n = (\mathrm{I} - A_{nn})^{-1} \quad [2]$$

$$\mathrm{B}_p = (\mathrm{I} - A_{pp})^{-1} \quad [3]$$

Following Miyazawa (1966), internal propagation comprises both internal direct and indirect demand. They capture the intersectoral propagation effects within each group.

The external multipliers proposed by Sonis and Hewings (1993) are as follows:

$$\mathrm{D}_n = (\mathrm{I} - A_{nn} - A_{np}B_pA_{pn})^{-1} \quad [4]$$

$$\mathrm{D}_p = (\mathrm{I} - A_{pp} - A_{pn}B_nA_{np})^{-1} \quad [5]$$

Equations [4] and [5] capture both intra-sectoral propagation and the induced effects arising from interactions between nonproductive and productive activities.

The following decomposition of the matrix in equation [1] can be obtained (see Sonis and Hewings, 1993):

$$(\mathrm{I} - \mathrm{A})^{-1} = \begin{pmatrix} A_{nn}D_nB_n & A_{np}D_p \\ D_pA_{pn}B_n & D_p \end{pmatrix} \quad [6]$$

This interpretation of the Leontief inverse gives the analytical basis for examining the interactions between productive and nonproductive sectors. Given that the focus of this paper is the capacity of nonpro-

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ductive activities to generate productive employment, the influence of productive sectors on nonproductive ones receives less emphasis, as it is not central for productive employment generation.

Furthermore, the Miyazawa external multipliers for the nonproductive and productive sectors, respectively, are defined as:

$$D_{nn} = (I - B_n A_{np} B_p A_{pn})^{-1} \quad [7]$$

$$D_{pp} = (I - B_p A_{pn} B_n A_{np})^{-1} \quad [8]$$

External multipliers capture what may be understood as self-influence, the feedback loops that operate within the system itself and reverberate at the mesoeconomic level.

The matrix D_{pp} captures the direct, indirect, and induced effects of the demand for inputs originating in the nonproductive sectors on the level of production in the productive sectors. The external multipliers allow us to isolate the cross-sectoral propagation mechanisms linking the two groups of activities, highlighting the extent to which changes in nonproductive activities affect the generation of productive employment through the structure of production.

The multipliers in equations [4] and [5] can then be expressed as:

$$D_n = D_{nn} B_n \quad [9]$$

$$D_p = D_{pp} B_p \quad [10]$$

The decomposition of $(I - A)^{-1}$ identifies the transmission channels across blocks. In particular, $D_p A_{pn} B_n$ captures how the internal propagation of nonproductive sectors affects productive output.

Premultiplying $D_p A_{pn} B_n$ by the diagonal matrix of productive employment coefficients, $\hat{E}$, yields the productive employment, P_n, associated with nonproductive sectors:

$$P_n = \hat{E}(D_p A_{pn} B_n) \quad [11]$$

Its elements capture the increase in productive employment embodied in productive activities resulting from a unit increase in final demand

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in nonproductive sectors. Column sums define total productive employment multipliers.

Following Fritz, Sonis, and Hewings (1998), these multipliers can be decomposed into analytically distinct components:

$$\hat{E}A_{pn} \quad [12]$$

$$\hat{E}A_{pn}B_{n} \quad [13]$$

$$\hat{E}B_{p}A_{pn}B_{n} \quad [14]$$

$$\hat{E}D_{pp}B_{p}A_{pn}B_{n} \quad [15]$$

Equation [12] denotes the productive employment created by the direct input demand of nonproductive activities. Equation [13] stands for the productive employment created by the direct and indirect input requirements of the nonproductive activities. Next, equation [14] informs the productive employment generated by internal propagation of nonproductive activities and the induced direct and indirect production of the productive sectors. Finally, equation [15] refers to the total productive employment multiplier of nonproductive activities. Equations [12]-[15] correspond, respectively, to direct requirements, direct and indirect requirements, internal propagation within productive sectors, and the total multiplier including both internal and external propagation.

Let the corresponding column sums for sector j_n be $m^1_{j_n}$, $m^2_{j_n}$, $m^3_{j_n}$, and m_{j_n}. The decomposition is given by:

$$\frac{m^1_{j_n}}{m_{jn}} \quad [16]$$

$$\frac{m^2_{j_n} - m^1_{j_n}}{m_{jn}} \quad [17]$$

$$\frac{m^3_{j_n} - m^2_{j_n}}{m_{jn}} \quad [18]$$

$$\frac{m_{j_n} - m^3_{j_n}}{m_{jn}} \quad [19]$$

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which measure the shares of direct, indirect, internal, and external propagation, respectively, in the total productive employment multiplier, m_{j_n}.

For productive sectors, the total productive employment multiplier, P_p, can be decomposed into internal and external propagation as follows:

$$P_p = B_p + B_p A_{pn} D_n A_{np} B_p \quad [20]$$

yielding:

$$P_p = \hat{E}B_p + \hat{E}B_p A_{pn} D_n A_{np} B_p \quad [21]$$

The first term in equation [21] captures internal propagation within productive sectors; the second reflects external propagation through interactions with nonproductive activities.

Let $m^1_{j_p}$, $m^2_{j_p}$, and m_{j_p} denote the corresponding column sums. The decomposition is:

$$\frac{m^1_{j_p}}{m_{j_p}} \quad [22]$$

$$\frac{m^2_{j_p}}{m_{j_p}} \quad [23]$$

measuring the shares of internal and external propagation in the total productive employment multiplier, m_{j_p}.

This framework provides a consistent basis to identify how nonproductive activities shape productive employment dynamics, particularly through the interaction between surplus absorption and value-generating sectors.

3.2. Dataset

The empirical analysis uses input-output tables for Brazil covering the period 2000-2019. These tables were estimated by Passoni and Freitas (2023), using official national accounts as benchmarks for selected years. The dataset is widely employed in studies of structural change in

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Brazil and provides a consistent basis for sectoral analysis. All variables are expressed in constant 2010 Brazilian reais and cover 42 activities, including gross output, final demand, and intermediate consumption.

We used disaggregated tables with 42 activities for empirical analysis. This classification is adopted by IBGE (Instituto Brasileiro de Geografia e Estatística), ensuring analytical consistency across related activities.

Following Shaikh and Tonak (1994), nonproductive sectors include trade, finance, real estate, other services, and public administration. They primarily facilitate circulation and surplus absorption rather than direct surplus value production. In contrast, productive sectors, including agriculture, extractive industries, manufacturing, utilities, construction, transport, and information services, are directly involved in value creation. See Appendix A for a list of activities.

Based on this classification, the input-output system is reorganized to distinguish between productive and nonproductive activities. This allows us to examine how intersectoral linkages transmit the effects of nonproductive expansion to the productive sphere, particularly through the generation of productive employment embodied in productive activities.

The use of the input-output tables that distinguish productive and nonproductive activities allows us to decompose productive employment multipliers derived from the Miyazawa framework. This approach makes it possible to identify the relative contributions of direct requirements, indirect linkages, and internal and external propagation mechanisms. The results are presented and discussed in the next section.

4. ESTIMATED RESULTS

4.1. The Brazilian economy from 2000 to 2019: A structural interpretation

Brazil's growth during the first two decades of the twenty-first century was accompanied by structural transformation and a marked difference in performance between the two decades. Between 2000 and 2010, GDP (Gross Domestic Product) grew at an annual rate of 3.68 percent, well below the postwar benchmark (Marquetti, Hoff, and Miebach, 2020), while from 2010 to 2019 growth declined to 0.35 percent per year. In both periods, however, expansion was instead driven by a dual process:

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commodity exports and the rising weight of activities linked to the circulation and appropriation of surplus.

This trajectory was enabled by favorable external conditions. Global growth, particularly in China, stimulated commodity demand, improved terms of trade, and relaxed balance-of-payments constraints. Export revenues and capital inflows supported reserve accumulation and countercyclical policy during the 2008 crisis (Borghi, 2017). Domestically, demand expansion relied on public investment, income redistribution, and credit growth, with the PAC, real wage increases, and Bolsa Família sustaining consumption, while public banks expanding credit (Marquetti, Hoff, and Miebach, 2020).

However, this expansion boosted nonproductive activities. For example, the growing provision of public goods and services led to an expansion of public-sector employment, which reached 11.41 million workers in 2014 (IPEA, 2026). As shown in Table 1, nonproductive sectors' output grew faster than productive ones in both subperiods (3.76% vs. 3.15% in 2000-2010 and 1.17% vs. 0.52% in 2011-2019), while their relative weight increased over time. The ratio of nonproductive to productive activities rose from 68.69 to 76.17, indicating a persistent reallocation toward sectors associated with circulation and intermediation. This pattern suggests that demand growth became increasingly mediated by activities that do not generate value but redistribute and absorb it.

Table 1. Average annual growth rates and annual shares

Sectors	2000-2010	2011-2019
Productive	3.15	0.52
Nonproductive	3.76	1.17
Total	3.38	0.78
Average shares	**2000-2010**	**2011-2019**
Productive	67.72	42.27
Nonproductive	67.08	45.41
Nonproductive/Productive	68.69	76.17

Source: authors' elaboration.

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Empirical evidence further corroborates this shift. Between 2002 and 2014, the ratio of nonproductive employment to productive employment rose from 0.83 to 0.97, and the ratio of nonproductive to productive gross output from 0.70 to 0.86 (Morrone, Marquetti, and Miebach, 2023). This process intensified after the 2008 financial crisis, as overall production decelerated more sharply. At the same time, real wages outpaced labor productivity, particularly in productive sectors, compressing profit margins (Marquetti, Hoff, and Miebach, 2020; Martins and Rugitsky, 2021).

The key transformation lies in the increasing embeddedness of nonproductive activities within the production structure. Productive sectors rely more intensively on inputs associated with circulation, raising the nonproductive content of output. Structural change thus reflects a shift from surplus generation toward surplus absorption. In this sense, recent dynamics are better understood as a broader expansion of nonproductive activities across the system (Shaikh and Tonak, 1994).

Figure 1 illustrates the upward trend in the ratios of nonproductive to productive gross output and employment over time. Both ratios display a clear upward trend, indicating a relative expansion of nonproductive activities. This pattern holds across different phases of the business cycle.

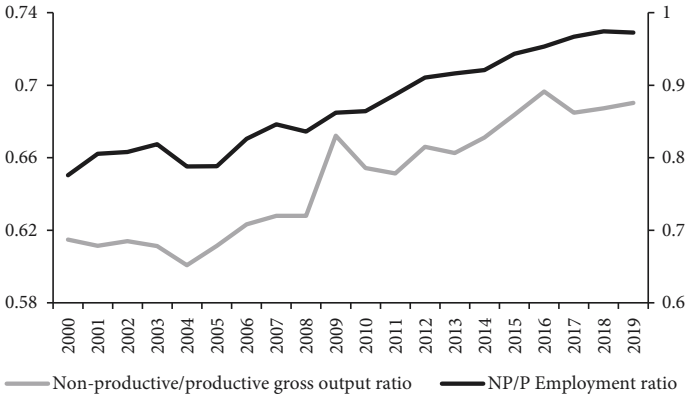
Between 2008 and 2009, both ratios rise markedly, contributing to a steeper upward trajectory. In line with Mattick (1969), this shift is likely associated with countercyclical policies implemented after the 2008 Great Recession, alongside the slowdown in aggregate output growth.

The limits of this pattern emerged after 2010. As commodity prices declined and nonproductive activities expanded, economic growth lost momentum (Marquetti *et al.*, 2025). By 2014, the demand-led, commodity-based regime had exhausted its dynamism, giving way to stagnation marked by low growth and declining profitability (Filgueiras, 2017; Marquetti, Hoff, and Miebach, 2020; Pinheiro-Machado, 2019).

Between 2015 and 2019, this structural constraint persisted. Figure 1 shows the continued expansion of nonproductive activities, which was associated with a decline in economic growth rates. Figure 2 displays the percentage changes in Brazilian gross output from 2000 to 2019, illustrating this decline.

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Figure 1. Nonproductive/productive gross output ratio (left axis) and nonproductive/productive employment ratio (right axis) in Brazil, 2000-2019



Source: authors' elaboration.

Figure 2. Percentage changes in Brazilian gross output in Brazil, 2001-2019



Source: authors' elaboration.

4.2. Productive employment multipliers and the decompositions

The changes of productive employment multipliers offer a structural perspective on the role of nonproductive activities in the Brazilian economy and on the growing difficulty of sustaining aggregate growth. The results reveal a systematic decline in the capacity of the economic structure to translate demand impulses into productive

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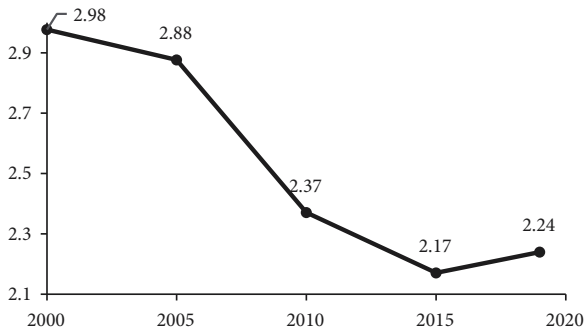
employment, particularly when such demand originates in nonproductive sectors.

Figure 3 presents the productive employment multipliers associated with nonproductive sectors. A downward trend is observed over the period. The average multiplier declines from 2.98 in 2000 to 2.24 in 2019, indicating that a unit increase in final demand linked to nonproductive activities generates progressively fewer productive jobs over time. This result is consistent with the hypothesis that the expansion of nonproductive activities has become increasingly disconnected from the dynamics of value creation.

A similar pattern emerges when we examine productive sectors in Figure 4, although the decline is less pronounced. This suggests that the weakening in the capacity to generate productive employment is not confined to the nonproductive sphere, but may reflect a broader transformation in the structure of production. However, the more pronounced decline associated with nonproductive demand points to a structural asymmetry: as nonproductive activities expand, their ability to induce productive employment appears to diminish significantly.

The decomposition of productive employment multipliers provides further insights into the mechanisms underlying this process. As presented in Figure 5, all nonproductive activities, except real estate, presented negative changes between 2000 and 2019. In this sense, trade presented the most significant negative changes.

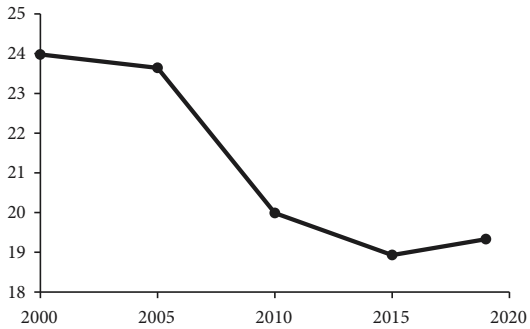
Figure 3. Productive employment multipliers of the Brazilian nonproductive sectors



Source: authors' elaboration.

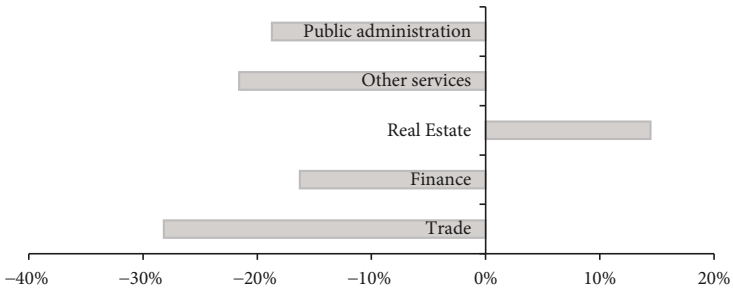
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Figure 4. Productive employment multipliers of the Brazilian productive industries: 2000-2019



Source: authors' elaboration.

Figure 5. Changes in productive employment multipliers of nonproductive sectors, 2000-2019



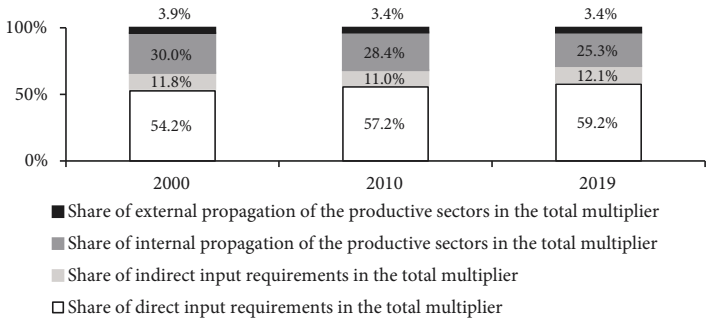
Source: authors' elaboration.

Figure 6 shows that the share of direct input requirements in total multipliers rises from 0.54 in 2000 to 0.59 in 2019. This pattern suggests a progressive weakening of intersectoral propagation, as productive employment generation becomes increasingly concentrated in first-round effects.

In contrast, internal propagation within productive sectors declines markedly. Its share falls from 0.30 to 0.25 over the same period, suggesting a weakening of the endogenous capacity of the productive system to amplify demand through its internal linkages. This erosion of internal propagation is a key structural feature of the period and reflects the declining density of productive interconnections.

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Figure 6. Shares in mean productive employment multipliers of nonproductive sectors in Brazil



Source: authors' elaboration.

External propagation, capturing the effects transmitted through interactions with nonproductive sectors, remains relatively small and declines slightly over time. Its share falls from approximately 3.9% to 3.4%. This finding reinforces the view that nonproductive activities do not compensate for the weakening of productive linkages. On the contrary, their expansion is associated with a limited and declining capacity to sustain productive employment-generating spillovers.

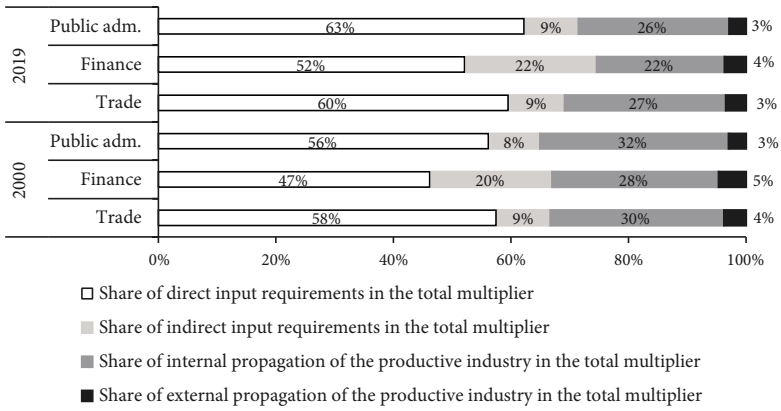
4.2.1. Further productive employment decompositions

The sectoral decomposition in Figure 7 highlights important heterogeneities within nonproductive activities. Trade, finance, real estate, other services, and public administration exhibit distinct patterns in their contributions to productive employment multipliers. In general, changes in direct shares are positive across most sectors —particularly in public administration and finance— indicating a growing reliance on immediate input requirements. However, these increases are followed by declines in internal and external propagation components.

Figure 7 indicates that public administration, finance, and trade experienced reductions in internal propagation between 2000 and 2019, whereas external propagation remained limited and largely stable throughout the period. This suggests that their expansion is increasingly decoupled from the generation of productive employment. In other

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Figure 7. Shares in total productive employment multipliers of selective nonproductive sectors



Source: authors' elaboration.

words, these sectors absorb a growing share of economic activity without generating commensurate productive linkages.

Figures 8-12 report the percentage changes in the shares of direct, indirect, internal, and external propagation over time. As mentioned, propagation effects capture how changes in demand spread through the economic system via intersectoral linkages. Direct propagation reflects first-round effects, that is, the immediate input requirements associated with a given level of output. Indirect propagation captures the subsequent rounds of interaction, incorporating the further effects that arise as sectors demand inputs from one another as the economic structure changes. When sectors are grouped into distinct spheres, such as productive and nonproductive activities, propagation can be further decomposed into internal and external components. Internal propagation captures the linkages within a given group of sectors. External propagation captures cross-group interactions and feedback loops, in which activity in one sphere affects another and subsequently feeds back into the original group.

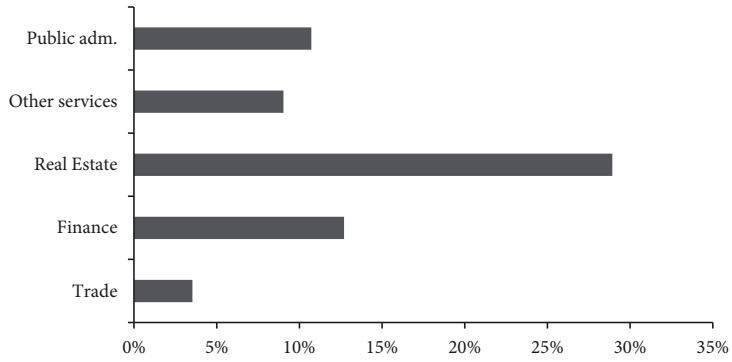
The results indicate that the share of indirect input requirements increased modestly across most nonproductive activities, except for real estate. Other services recorded the largest positive percentage change, exceeding 10%, whereas real estate declined by nearly 30% between

05_MORRONE ET AL_vf26.indd 91 01/07/2026 10:29:18 a. m.

2000 and 2019. More broadly, the rising share of direct input requirements suggests an increasing concentration of productive employment generation in immediate input linkages.

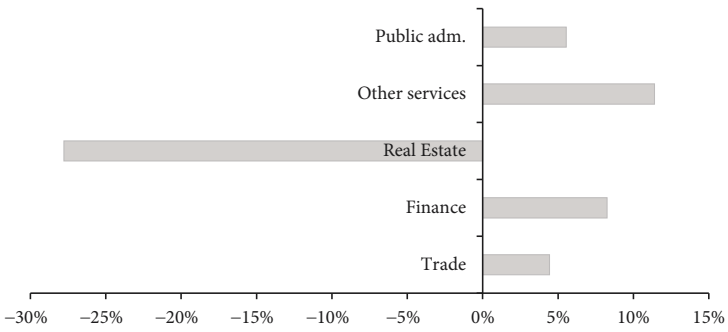
However, these positive changes were not accompanied by similar dynamics in propagation mechanisms. The internal and external propagation effects of productive activities in the total multiplier declined between 2000 and 2019. Both internal and external propagation effects exhibit negative changes over the same period, indicating a weakening

Figure 8. Changes in shares of direct inputs in productive employment multipliers of nonproductive sectors in Brazil, 2000-2019



Source: authors' elaboration.

Figure 9. Changes in shares of indirect inputs in productive employment multipliers of nonproductive sectors in Brazil, 2000-2019



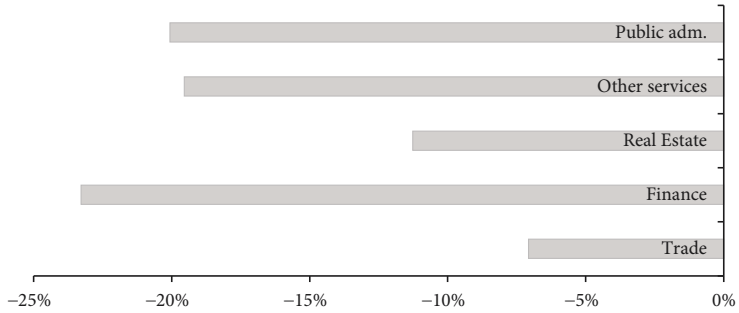
Source: authors' elaboration.

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of the intersectoral transmission channels that sustain productive employment generation.

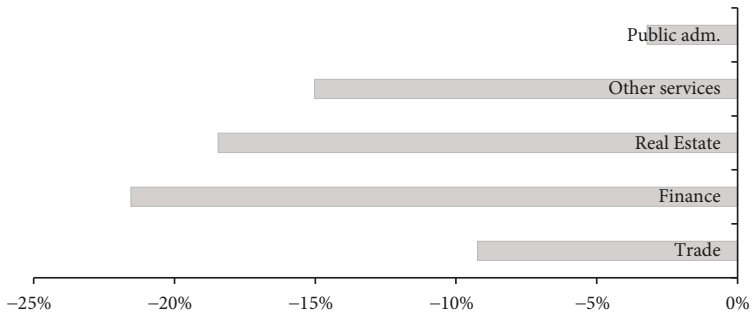
Consistent with this pattern, the share of external multipliers in total productive employment multipliers of productive sectors declined between 2000 and 2019, reinforcing the evidence of a reduced capacity of the economic structure to generate productive employment through cross-sectoral interactions. This drop further indicates that the role of nonproductive activities in influencing productive employment generation is declining over time.

Figure 10. Changes in shares of internal propagation in productive employment multipliers of nonproductive sectors in Brazil, 2000-2019



Source: authors' elaboration.

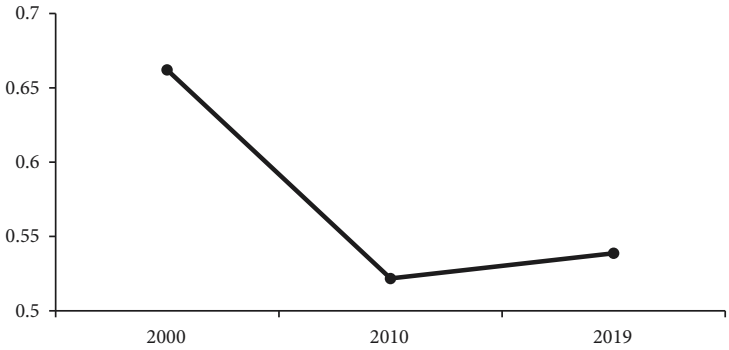
Figure 11. Changes in shares of external propagation in productive employment multipliers of nonproductive sectors in Brazil, 2000-2019



Source: authors' elaboration.

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Figure 12. Shares of external multipliers in total productive employment multipliers of productive sectors in Brazil, 2000, 2010, and 2019



Source: authors' elaboration.

Taken together, these results point to a structural reconfiguration in which the expansion of nonproductive activities is associated with a weakening of the mechanisms that traditionally sustain employment generation within the productive sphere. The results are consistent with the Marxian literature, particularly the contributions of Shaikh and Tonak (1994), and Tsoulfidis and Tsaliki (2019). The rise of nonproductive demand is thus accompanied by a weakening of both internal and cross-sectoral propagation, limiting its capacity to stimulate productive employment.

Morrone, Marquetti, and Miebach (2023) found that the share of nonproductive activities in the economy increased between 2002 and 2014. They also showed that the dependence of productive activities on nonproductive ones increased. Extending the analysis to a longer time span and using annual observations, we find that the expansion of nonproductive activities in the economy as a whole was associated with a declining capacity of nonproductive sectors to generate productive employment. Our findings suggest that the growing share of nonproductive activities in the economy does not translate into a greater contribution to the creation of productive employment.

In this sense, focusing solely on deindustrialization and financialization provides only a partial view of the Brazilian economy. In the Brazilian case, deindustrialization and financialization reflect, respec-

05_MORRONE ET AL_vf26.indd 94 01/07/2026 10:29:18 a. m.

tively, the contraction of the productive sphere and the expansion of the nonproductive sphere, reconfiguring the economy's structure and reshaping its growth dynamics. Understanding the interaction between the productive and nonproductive spheres is central to capturing the underlying dynamics of Brazil's quasi-stagnation.

5. FINAL REMARKS

This article examined the interaction between productive and nonproductive activities in Brazil between 2000 and 2019 using a Miyazawa input-output framework. By focusing on productive employment multipliers and their decomposition, the analysis provided a structural interpretation of how nonproductive expansion reshapes the dynamics of employment generation and surplus creation.

The results indicate that the expansion of nonproductive activities constitutes a central dimension of Brazil's recent structural transformation. While these activities have grown both in absolute and relative terms, their capacity to generate productive employment has declined over time. This dual movement, expansion combined with declining effectiveness, lies at the core of the Brazilian quasi-stagnation.

From a structural perspective, the key finding is the weakening of propagation mechanisms within the productive system. The increasing importance of direct requirements, alongside the decline of internal and external propagation, suggests that the economy has become less capable of amplifying demand through intersectoral linkages. Productive employment generation is increasingly confined to immediate effects, with diminishing spillovers across sectors.

This transformation reflects a broader shift in the pattern of accumulation. As nonproductive activities expand, a growing share of surplus is absorbed in circulation and intermediation rather than reinvested in value-generating activities. Although such activities may support demand in the short run, their limited capacity to sustain productive output and employment constrains long-term accumulation.

The findings also contribute to the debate on structural change in Brazil. They suggest that explanations based solely on deindustrialization or financialization are incomplete. Instead, the expansion of nonproductive activities should be understood as a systemic process

05_MORRONE ET AL_vf26.indd 95 01/07/2026 10:29:18 a. m.

that alters the internal organization of production and weakens the link between demand and productive employment. One possible explanation for this phenomenon lies in the very processes of financialization and deindustrialization. As the relative importance of domestic productive sectors declined, given Brazil's role in the international division of labor, nonproductive sectors, particularly those associated with the circulation of value, became increasingly internationalized and established more direct links with their foreign counterparts. It remains to be explored in future studies how Brazil's position in the international division of labor conditions the evolution of nonproductive activities.

In this sense, the Brazilian economy appears to be undergoing a transition toward a pattern of growth increasingly centered on surplus appropriation rather than surplus production. This shift has important implications for economic policy. Strategies aimed at restoring growth cannot rely solely on demand expansion if such demand is channeled through sectors with limited capacity to generate productive linkages. Reversing the current trajectory requires strengthening the productive structure and its intersectoral connections, thereby enhancing the economy's ability to translate demand into productive employment and sustained accumulation. ◄

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APPENDIX A

Table A.1 presents a list of productive and nonproductive activities. We follow Shaikh and Tonak (1994) in classifying activities as productive or nonproductive.

05_MORRONE ET AL_vf26.indd 98 01/07/2026 10:29:18 a. m.

Table A.1 Sectors' classification in Brazil

Activities	Nonproductive/productive
Trade	Nonproductive
Financial intermediation, insurance and supplementary pension	
Real estate activities and rentals	
Business services	
Public administration, defense, and social security	
Agriculture, forestry, logging, livestock, and fishing	Productive
Extraction of oil and gas, including support activities	
Extraction of iron ore, including beneficiation and agglomeration	
Other extractive industries	
Food and beverages	
Tobacco products manufacturing	
Textile manufacturing	
Apparel and clothing accessories manufacturing	
Footwear and leather products manufacturing	
Wood products manufacturing	
Pulp, paper, and paper products manufacturing	
Printing and reproduction of recorded media	
Petroleum refining and coke production	
Biofuels manufacturing	
Manufacture of organic and inorganic chemicals, resins, and elastomers	
Pharmaceutical products	
Perfumery, hygiene, and cleaning products	
Manufacture of explosives, disinfectants, paints, and miscell. chemicals	

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Table A.1 Sectors' classification in Brazil (concluded)

Activities	Nonproductive/productive
Rubber and plastic products	Productive
Cement and other non-metallic mineral products	
Iron and steel manufacturing and steel products	
Non-ferrous metallurgy	
Fabricated metal products (except machinery and equipment)	
Machinery, equipment, furniture, and miscellaneous manufact. products	
Household appliances and electronic equipment	
Automobiles, pickup trucks, trucks, and buses	
Motor vehicle parts and accessories	
Other transport equipment	
Electricity, gas, water supply, sewerage, and urban cleaning	
Construction	
Transport, storage, and postal services	
Accommodation and food services	
Information services	
Private health	
Private education	
Public health	Not defined
Public education	

Note: following Shaikh and Tonak (1994), we excluded public health and public education from the category of nonproductive activities.

Source: authors' elaboration.

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