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Capital accumulation and ground-rent in Brazil: 1953–2008

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The paper measures the size of primary-sector surpluses in the form of ground-rent appropriated by social subjects other than landowners in Brazil, and assesses their weight in supporting the process of capital accumulation during the period 1953–2008. For that purpose, the paper identifies the mechanisms through which state policies channelled a portion of ground-rent to capital, especially in the industrial sector, assessing their individual impact. The paper finds that transferred ground-rent has complemented surplus-value normally available for appropriation by capital and thus helped sustain its process of accumulation throughout most the period analysed here, including the post-1990 ‘neoliberal’ era.

Keywords: Brazil; ground-rent; capital accumulation; intersectoral income-transfers

JEL Classifications: B51, E01, E24, N56, Q18

1. Introduction

Brazil is a world-leading exporter of agrarian and mining commodities. According to most commentators, this situation is partly the outcome of high primary-commodity prices and partly the result of the economic ‘reforms’ implemented there since the early 1990s. These reforms allegedly ended with decades of ‘state-led’ import-substituting industrialisation (ISI) which had, directly or indirectly, resulted in a transfer of resources from the primary to the secondary sector to support capital accumulation, affecting the development and growth of agrarian and mining activities.

The goal of the present paper is to show that the transfer through state policies of social wealth in the form of ground-rent to social subjects other than landowners – i.e. industrial and commercial capital – has characterised the Brazilian process of capital accumulation during the so-called ‘state-led’ ISI period and beyond that period. It will be first claimed that policies associated with the promotion of import-substituting industrialisation during both the ‘developmentalist’ and ‘neoliberal’ periods, however different in their extension and reach, have been the political forms of realisation of a process of accumulation based on the appropriation/recovery of a portion of ground-rent by industrial capital to complement ordinary surplus-value. The paper will then measure the ground-rent appropriated by social subjects other than landowners and assess its importance in sustaining the process of valorisation of capital. It will be shown that, both in absolute and relative terms, transferred resources have been substantial throughout most of Brazil’s post-Second

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World War history, including the more recent, 'neoliberal' period. These conclusions will not only reinforce already known claims about the period between 1950 and 1980, but also provide new insights on specific sub-periods. Moreover, the conclusions presented below will also challenge suggestions of a structural transformation taking place in the Brazilian economy since the early 1990s. It will be shown that the valorisation of capital there has remained thereafter as dependent on the appropriation of ground-rent as it had been during the classic, 'state-led' ISI period.

For these purposes, the paper is organised as follows. The next section identifies ground-rent as the source of 'primary-sector wealth' transferred to the 'rest of the economy'. Section 3 presents a model to measure the ground-rent appropriated by social subjects other than landowners. The fourth section measures the size of the economy's total surpluses while Section 5 assesses the importance of the ground-rent appropriated by subjects other than landowners in supporting the process of valorisation of capital. The sixth section closes the paper with some conclusions.

2. Identification of the object of measurement

Most authors agree that primary, crucially agrarian, sector 'resources' were transferred to the rest of the Brazilian economy, especially industrial capital, during much of the period up to the late-1970s (see, for example, Oliveira 1986; Brandão and Carvalho 1991). Much less support, if any at all, has been received for the claim that substantial transfers also occurred during the subsequent period, especially the post-1990 neoliberal years, as argued here. Still, some authors recognise the reintroduction of a 'policy-bias' against 'agriculture' during the implementation of the 1994–1998 Plan Real (see, for example, Homen de Melo 1999). Strong differences arise, however, regarding the specific source of the transferred resources. Yet, the correct identification of the origin of these portions of social wealth is required not only to measure their quantity accurately but also to understand fully the underlying characteristics of the process, including its temporal extension.

Orthodox (i.e. neoliberal) authors, for instance, have argued that resources transferred to the industrial sector originated in the 'agriculturalist's wealth' (see, for example, Gudin 1969). This opinion has been shared by some structuralist scholars who identified a generic agrarian 'surplus' as their source (see, for example, Bacha 1978). That, however, could hardly be the case if those terms refer to a portion of the profits that in normal circumstances (i.e. under economy-wide profit-rate-equalising competitive pressures) would correspond to agrarian capital, or, relatedly, to a portion of the value of the inputs used in production processes. This, as any other productive capital, would have, on average, withdrawn from that sector of the economy, or contracted its scale of accumulation, if it was not able to realise a portion of its profits and thus valorise normally.¹ Given their magnitude, neither could those resources exclusively come from the particularly low wages paid to rural workers before the promulgation of the 1963 Rural Worker Statute.² On the contrary, they could normally come from the remaining portion of the price of agrarian and mining commodities, ground-rent. Only the extraordinary or surplus profits (i.e. rents) available, on a first instance, for appropriation in the primary sector due to landowners' monopoly over non-reproducible natural conditions of production that increase labour productivity – or allow production altogether – could be appropriated by other social subjects without affecting the normal, long-term reproduction of agrarian and mining capital.

In effect, because commercial prices of primary commodities are, unlike those of industrial goods, regulated by the conditions of production prevailing in the marginal lands necessary to be brought into production to satisfy solvent demand, surplus profits accrue to individual capitals operating on intra-marginal lands, where relatively favourable and irreproducible natural conditions enhance the productivity of labour and thus reduce production costs.³ Although attractive for agrarian and mining individual capitals, competition for the use of lands where the differentially favourable natural conditions are present increases their rental prices, and thus allows landowners to appropriate these surplus profits under the form of rent paid for the use of the land (Marx 1981, 779–811; Iñigo Carrera 2007, 11–13). Likewise, when successive applications of capital of a given size, each yielding different output, need to be undertaken on plots of land already under production to satisfy solvent demand for agrarian and mining commodities, intra-marginal portions of capital would also yield a surplus profit, even those applied to worst-quality lands (Marx 1981, 812–823).⁴ Competition by individual capitals would also transform these surplus profits into ground-rent.⁵ Both the extensive and intensive types of differential rent spring from the monopoly by landowners over portions of the planet that yield a different output, and thus profits, for capitals of a given size. Their existence is a concrete form of realisation of the equalisation of the rate of profit among individual capitals.

Moreover, since owners of marginal lands would not allow their productive use by capital without also receiving rent in exchange, commercial prices of primary commodities must rise further above the price of production (i.e. the price that covers normal production costs and average profits) corresponding to the output of worst-quality land (or lowest-yielding portions capital) in order to include a rent springing from the absolute monopoly by landowners of a means of production that cannot be produced by human labour. In the form of absolute ground-rent, landed property excludes from production portions of capital that, at a given market price, would otherwise yield average profits; it thus lifts a barrier to the investment of capital in the primary sector. Unlike the differential ground-rent, the magnitude of the rent of absolute monopoly varies not according to soil quality (or location) but to landowners' bargaining power vis-à-vis productive capital. With the exception of circumstances when the demand for primary commodities is particularly strong, absolute rent tends to be small in agrarian lands vis-à-vis differential rent. The characteristics of mining production (i.e. the possibility of withdrawing land from the market without losing potential output) tend to give mining landowners a relatively stronger bargaining power. Consequently, absolute rent tends to be relatively larger in the mining than in the agrarian sector (Marx 1981, 882–907; Iñigo Carrera 2007, 13–14).

In sum, their monopoly over natural conditions of production, which increase labour productivity or permit it altogether, allows landowners to appropriate a portion of social wealth without contributing to its creation in any sense whatsoever. In contrast to what occurs in the industrial sector, these conditions cannot be reproduced by capital and generalised; surplus profits appropriated by landowners thus become rent (Marx 1981, 783–884, 891–898).

Differential and absolute rents are integral parts of ground-rent. Yet, the social wealth that forms them originates in different sectors of the economy. The differential rent is formed of surplus-value produced outside the primary sector. The portion of social wealth materialised in the differential rent is paid by individual capitals

directly or indirectly consuming primary commodities, and through competitive, profit-rate-equalising forces, by the total social capital. Intra-marginal portions of agrarian and mining capital – and, through their competition, landowners – receive a portion of social wealth in which more socially necessary labour-time is materialised than what was involved in the production of their output. In other words, in order to be able to consume commodities produced in lowest-quality lands, social capital is forced to pay individual capitals producing in intra-marginal lands in excess of their cost of production and normal profits. On the contrary, the absolute rent is formed of surplus-value produced in the primary sector. The absolute monopoly over an irreproducible means of production gives landowners the power to appropriate a portion (or the whole depending on their relative strength) of surplus-value produced in the primary sector in cases when, due to the lower-than-average organic composition of capital (i.e. the ratio of non-wage-capital to the sum of wages) prevailing there, it would otherwise be appropriated in other sectors of the economy. Without a limiting monopoly, such as landed property, competition amongst individual capitals of a given size would force surplus-value to be redistributed from branches of economic activity with lower-than-average organic composition of capital, and thus higher-than-average proportion of wealth-creating living labour, to individual capitals in the sectors of production with the opposite characteristics. Competitive pressures thus equalise the rate of profit among capitals in different industries despite producing different amounts of surplus-value per capital advanced for valorisation. This process of equalisation of rates of profit into a general rate constitutes the total social capital, rather than individual capitals, as the immediate subject of the process of valorisation and thus of social production and consumption in capitalism. Moreover, if landowners' bargaining power vis-à-vis capital is sufficiently strong, commercial prices of primary commodities can be set further above their prices of production, allowing them to appropriate another portion of social wealth produced in other sectors of the economy. That is the case of simple absolute monopoly rent (Marx 1981, 779–907; Iñigo Carrera 2007, 15–16). Both parts of ground-rent, that springing from the monopoly over portions of land with differentially favourable conditions and that originating in the absolute monopoly over portions of the planet, are materialised in the price of primary commodities. Although a necessary concrete form of the process of capital accumulation, ground-rent reduces the mass of surplus-value available for the valorisation of the total social capital; hence its attempts and power to recover it.

The qualitative and quantitative determination of ground-rent is independent of who is its actual appropriator. If the individual primary-sector capitalist also owns the land used to produce raw materials, profit and rent would, in practice, be melted into one. If the individual capitalist not only owns the land but also works in the production of primary commodities, all forms of income (rent, profit and wages) would be merged into one (Marx 1981, 779–916). If their capital is not sufficiently large to implement the production techniques that determine the price of production of their output, however, their profit rate would tend to be – as any other small capitalist – below the average one since their unitary costs would tend to be higher than the normal ones (Marx 1981, 940–50).

In Brazil, agrarian and mining rents have been substantial during most of the period analysed here not only due to the large availability of productive lands, and thus the extended production of rent-bearing commodities, but also due to the relatively favourable natural conditions for primary-commodity production prevailing in

vast areas of its territory, and thus the high average rent materialised in their commercial prices. These conditions have determined Brazil's role in the production of relative surplus-value on a global scale and thus its participation in the international division of labour as a producer of primary commodities. To the extent that rent-bearing commodities have been consumed overseas, ground-rent has constituted an inflow of social wealth to Brazil.

3. Measuring the portion of ground-rent appropriated by social subjects other than landowners⁶

Several attempts have been made to measure the magnitude of resources transferred from the agrarian sector to the rest of the economy in Brazil. One of the most widely commented upon is a cross-country study coordinated by Krueger, Schiff, and Valdes (1988) for the World Bank – 'The political economy of agricultural pricing policy' project. This major study covered several country experiences in Asia, Africa and Latin America during 1960–1984. In essence, the World Bank methodology consists of measuring 'intersectoral income-transfers' by comparing the agrarian sector's output and its non-agrarian input-purchases at market prices with 'undistorted' values – i.e. those that would prevail without any form of state intervention affecting them directly or indirectly. In their study of the Brazilian case, Brandão and Carvalho (1991) add to the values thus obtained the direct ('non-price related') net outflow of resources through state activities (e.g. taxes, subsidies, investments). Two key methodological differences prevail between the measurement presented in the World Bank study and that undertaken below. First, and crucially, there is the issue of the identification of the object to be measured. In order to compute the total resource transfer the World Bank study includes in the equation every type of tax, explicitly or implicitly, paid and 'subsidy', directly and indirectly, received by the primary sector. A somehow similar methodology is found in Karshenas (1995). A macro, rather than microeconomic, model is presented there to measure 'intersectoral income-transfers'. The model is then used for several country experiences in Asia. The 'net contribution' of the primary sector to the rest of the economy is measured there as the combination of 'real' transfers and the 'terms of trade effect'; the former being largely made of the net outflow of 'factor income', net public and private capital transfers and direct taxes paid by the sector net of state subsidies. The main problem with these approaches is that they ignore that the fiscal system, as well as intersectoral private-capital movements, mediate the development of the unity of national processes of capital accumulation and the determination of the total social capital as the active subject of the process. Direct taxes paid by the primary-sector fund the general operation of the national state; these studies only vaguely specify the form in which state expenditures 'benefit', directly or indirectly, the different portions of the total social capital.⁷ Moreover, even if the agrarian (or mining) sector was found to be contributing proportionally more than other sectors to the funding of the national state, this would only mean that ground-rent is materialised in its output. The net outflow of resources, it was already noted, cannot normally originate in primary-sector capital's profits. As for intersectoral private-capital flows; these do not constitute *transfers* of social wealth from one sector or 'economic agent' to another. They are movements through which the total social capital constitutes itself as the subject of the national accumulation process. In other words, intersectoral private-capital flows explain how agrarian capital or surpluses are

transformed into manufacturing capital but not how the latter's valorisation is sustained through a net transfer of social wealth, as has been the case in ISI processes like the Brazilian. Hence, in order to understand fully the specific characteristics of the Brazilian process of capital accumulation, or others similarly structured, the task is not to measure every type of inter-sectoral 'income-flow'. It is to measure the effect of state policies on the appropriation by different social subjects of one specific form of social wealth, namely, the extraordinary profits available in the primary sector due to landowners' monopoly of an irreproducible means of production, land. Indeed, a portion of the Brazilian ground-rent has been appropriated by industrial capital producing primary commodities (i.e. agrarian and mining capital) through low-cost labour-power. Related to this point is the distinct treatment given in this paper and in Brandão and Carvalho (1991) to the subsidies implicit in agrarian credit. These authors never attempt to discriminate between the parts of the subsidies that, being exceptional to the sector, became ground-rent pocketed by landowners and the portions that benefit agrarian capitalists by levelling the playing field with their counterparts in others branches of the economy already having access to state credits in favourable conditions.

Secondly, the World Bank study also presents problems related to specific instruments of measurement. Among the most important, the following can be identified. The Bank study strongly underestimates the overvaluation of the Brazilian currency throughout much the 1960–1984 period and, thus, the magnitude of ground-rent appropriated by capital through exchange-rate policy. In order to measure the degree of overvaluation of national currencies, the World Bank compares market exchange rates with the so-called 'free-trade equilibrium' rates. The latter is calculated as the exchange rate that would have balanced the current account of the balance-of-payments if no 'distortions' on external trade had been imposed by state policies. This methodology, however, has several problems. First, it assumes that current-account balance is synonym with exchange rate 'equilibrium'. Yet, a national currency can be exchanged for its value (i.e. for its capacity to represent social wealth in its capitalist value-form), that is be in 'equilibrium' or on its 'purchasing power parity', while the current account shows a deficit if this is financed with external loans (e.g. the USA in the present). Moreover, in the absence of such loans, a current account can be balanced even if the national currency is exchanged domestically above its value (i.e. it is overvalued). Secondly, in this methodology, import and export prices affect the level of 'equilibrium' of exchange rates even though they do not play any role in the determination of the capacity of a national currency to represent value in the world market. According to this methodology, *ceteris paribus*, the higher the level of export prices, the lower the exchange rate necessary to bring the current account into equilibrium. Thirdly, the methodology suffers from circularity. It attempts to measure the overvaluation of a national currency using variables (e.g. the supply of and demand for foreign exchange, their respective 'elasticities' and the implicit rates of imports protection and exports subsidisation) whose magnitude depends on the degree of over/undervaluation itself. Equally problematic is the treatment given to this issue in Karshenas (1995). For this author, the 'terms of trade effect' measures the 'invisible' transfers occurring due to state policies that affect the prices of primary-sector output and of primary-sector inputs purchased from the rest of the economy. To compute this effect, current prices should be compared with 'absolute' or 'correct' (meaning 'undistorted') prices that the author recommends to proxy with prices prevailing in 'years in

which the economy shows least signs of disequilibrium, or, in other words, to opt for [...] ‘normal’ years.’ Besides its ambiguity, this methodology incorrectly fixes ‘base point’ ‘correct’ prices. Yet, ‘correct’ (or ‘equilibrium’) prices in ‘abnormal’ years do not need to be the same as those prevailing in ‘normal’ years, crucially when the prices of primary commodities are determined in global markets.

In view of these theoretical and technical limitations, the current paper presents an alternative measurement of the ground-rent channelled out of the primary sector and appropriated by capital (i.e. the ‘intersectoral resource transfers’) in Brazil since the late 1940s. The model used here adapts, to the Brazilian experience, a methodology developed in Iñigo Carrera (2007) for the Argentinean case.

The transfer of ground-rent out of landowners’ pockets and its appropriation by capital, especially in the industrial sector, has come about in Brazil through specific, although periodically changing, public policies, as well as a wide range of economic and political institutions. Together, these have characterised the Brazilian process of industrialisation, both during its ‘developmentalist’ and ‘neoliberal’ stages. In general terms, two types of policy-sets, indissolubly united, have given form to that process. Some state policies have intervened in the turnover cycle of primary-sector capital, separating a portion of the ground-rent and thus interrupting its flow towards landowners’ pockets. These have included the overvaluation of the national currency, taxes on primary-commodity exports and state control over their domestic and international trade.⁸ All these policies have transferred a portion of the ground-rent from landowners to privately-owned capitals, crucially in the industrial sector, by setting domestic prices of raw materials below their international levels and, in the case of the overvaluation of the currency, by reducing the local price of foreign exchange for specific imports and for profit repatriation by foreign-invested capitals. These policies have also transferred, on a first instance, a portion of the ground-rent to the state either directly (through the monopoly/control of foreign-exchange markets and primary-commodity trade, or the taxation of primary-commodity exports) or indirectly (through the payment of relatively high import taxes and other import-related duties with an overvalued currency). Simultaneously, other policies have allowed the appropriation of the separated portion of ground-rent by capital either through ‘market mechanisms’ or direct state actions.⁹ These have included the following: differentiated (policy-based or ‘natural’) protection of domestic and, since the early 1990s, regional markets (stronger for final goods and services than for the inputs and fixed capital used in their production); provision of services, industrial inputs and credit at subsidised rates by state-owned companies and banks; regulated expansion of domestic demand through their activities (i.e. the purchase of locally-produced goods and services at inflated prices and an oversized workforce); favourable tax treatment; and, direct subsidies. In summary, the so-called process of ISI, both during its ‘developmentalist’ and ‘neoliberal’ stages, has been the political-economy form through which the recovery of a portion of the ground-rent by capital has come about in Brazil. Landowners, unlike agrarian capitalists, have had no choice but to ‘accept’, although not without resistance, the loss of a portion of the ground-rent as a condition to unproductively consume the rest of it. In the case of publicly-owned mining lands and water resources for electricity generation, the landowning state could transfer ground-rent to capital without any political conflict whatsoever.¹⁰ The rest of Section 3 presents an analysis each of the policies that have channelled ground-rent out of the

primary sector and, in some cases, have allowed its direct appropriation by industrial capital.

3.1. Ground-rent appropriated by capital through the overvaluation of the national currency¹¹

The overvaluation of the exchange rate has been a central state policy effecting the appropriation of ground-rent by industrial capital and its junior partners.¹² Through this mechanism, exporters are required to sell the foreign exchange earned in global markets below its value, thus losing a fraction of the export price. For this policy to be 'sustainable' beyond the short run, a surplus profit – ground-rent in the case of primary commodities – must be materialised in the price of exported goods. Otherwise, the normal profitability of capital invested in the production and commercialisation of exported commodities would be negatively affected and the policy 'self-defeating'; output and thus the inflow of foreign exchange would contract. Effectively, when a national currency is overvalued, exports of non-rent-bearing goods can only be sustained, beyond the short run, through the provision of subsidies that compensate for the negative impact on normal profits. In the absence of such subsidies, as in the case of primary-commodity exports in Brazil throughout the period analysed here, the overvaluation of the currency acts as a 'tax' on exported commodities, falling ultimately on the ground-rent. Conversely, state policies can keep a national currency undervalued, if the monetary authority accesses an extraordinary source of social wealth, such as the local credit market in 1980s' Brazil, to fund the acquisition of foreign exchange. In other words, the state can finance the acquisition of foreign exchange, and thus increase its demand and price, through an expansion of the monetary base which is, subsequently, 'sterilised'.

In Brazil, a large portion of the social wealth 'retained' in the foreign-exchange market through the overvaluation of the currency has been directly appropriated by industrial capital when purchasing foreign exchange to import machinery and inputs or, in the case of foreign-owned capitals, to repatriate profits. This has lowered industrial capital's production costs in general and multiplied foreign-invested capital's profits in particular. Moreover, exchange-rate overvaluation has also reduced domestic primary-commodity prices, either when raw materials have been exported, and competition lowered their local prices and that of their close substitutes, or because they could be imported with an overvalued currency without paying compensatory tariffs. This has not only granted industrial capital the possibility to purchase primary commodities below international prices, which contain ground-rent, but also reduced the local cost of several wage-goods and thus of labour-power. On both sides, the effect of the overvaluation of the currency on domestic primary-commodity prices has allowed capital to appropriate another portion of the ground-rent, further reducing its production costs and increasing its profitability. Exchange-rate overvaluation has also transferred, on a first instance, a portion of the ground-rent to the state through import taxes and, during the first half of the 1960s, the compulsory purchase by importers of treasury bills yielding below-market, often negative, interest rates. In normal circumstances, importers could only afford paying these levies thanks to their access to low-priced foreign exchange.

In order to measure the magnitude of ground-rent transferred out of the primary sector through exchange-rate overvaluation it is first necessary to ascertain the degree of overvaluation of the Brazilian currency during the period analysed here.

A national currency is said to be on its 'parity' when its capacity to represent social wealth, its purchasing power, is the same in the domestic and international markets. Hence, a currency is said to be overvalued (undervalued) when its capacity to represent social wealth is, due to specific state policies, greater (lower) in the domestic than in the world market – i.e. than its *real* purchasing power. The measurement of the degree of over/undervaluation of a national currency thus consists of measuring the deviations between the international and domestic 'purchasing power' of a national currency. The first step in the procedure entails the identification of a base year or period when the rate at which a national currency exchanges for foreign currencies expresses the former's real capacity to represent value (purchasing power) in the world market. The period 1968–1988 is used here for that purpose. The analysis of Brazil's economic history indicates that during this period the conditions for the over/undervaluation of the national currency were, on average, absent. In the first place, and crucially, this was a period when other forms of ground-rent appropriation by social subjects other than landowners (e.g. export taxes and 'contributions') were relatively important, unlike in the precedent and subsequent periods, and therefore the bases for the overvaluation of the currency were reduced sharply. Secondly, this period includes times of both relatively high (1970s) and relatively low (1980s) international primary-commodity prices and inflows of foreign credits, thus resulting in average conditions. Unsurprisingly, the average of that period is equal to the average of 1968–1972, when most authors agree that the Brazilian currency was, due to a policy of 'min-devaluations', systematically exchanged for its value (see, for example, Moura da Silva 1977; Correa de Lago 1989, 273). The exchange rate with the US dollar is used here to represent the international purchasing power of the Brazilian currency. First, the US economy is the largest national space of accumulation and thus indicative of global trends. Secondly, the measurement of most forms of ground-rent appropriation analysed below amounts to comparing international prices (of inputs and output) expressed in US dollars with national prices. Any specific movement of the US dollar around its purchasing power parity, then, is neutralised.

The second step consists of constructing a 'theoretical' time-series that would have kept the 'purchasing power' of the Brazilian national currency vis-à-vis the US dollar constant at the level of the base period. For that purpose, the evolution of domestic prices is compared with the evolution of US prices, as the method of relative purchasing power parity (PPP) prescribes.¹³ Subsequently, market and PPP exchange rates need to be compared to measure the degree of overvaluation (undervaluation) prevailing each year. This method, however, hides a contradiction that needs to be addressed before it can render meaningful results. The evolution of domestic prices expresses two changes in opposite directions, only one of which impacts on the capacity of a national currency to represent social wealth in the world market. On the one hand, an increase in the amount of a national currency ('symbols of money') in circulation in excess of its requirements (given credit conditions) leads to a decrease in its capacity to represent value (or 'purchasing power') and thus to a (proportional) general increase in the prices of commodities (Marx 1990, 221–227). On the other hand, a general increase in the productivity of labour reduces the labour-time socially necessary to produce commodities (and thus the cost of producing them) in general and, *ceteris paribus*, their prices (Marx 1990, 128–163). Hence, given the general trend to the increase of labour productivity, an unchanged price level presupposes an increase in the amount of currency in circulation proportional to the reduction in the value of

commodities and thus a reduction in the capacity of the ‘symbols of money’ to represent value. If labour productivity increases at the same rate in the domestic (Brazilian) and foreign (US) economies, this second effect is sterilised. However, if the productivity of labour increases in the former more slowly than in latter, a constant relationship in the evolution of price indices hides a dissimilar evolution in the capacity of each national currency to represent social wealth in its value-form. In other words, the method of relative PPP would show no change in the evolution of the domestic currency to represent value vis-à-vis the foreign currency when this capacity is actually falling (Iñigo Carrera 2007, 33–34).

Consumer prices indices (CPIs) are used here to reflect the evolution of the prices of goods and services in the domestic and world markets. CPIs are affected relatively less by the effect of exchange rate over/undervaluation, and thus more suitable to measure it, than wholesale price indices, which include a larger portion of tradable goods. Ideally, the evolution of the productivity of labour processes involved in the production of the goods and services included in the basket used to calculate CPIs should be used to calculate relative PPP exchange rates. In the absence of such information, the evolution of manual industrial labour productivity is used as a proxy. The reasons for this treatment are the following. First, industrial employment is more responsive to changes in output than economy-wide employment. Hence, labour productivity in the industrial sector shows a less volatile evolution than economy-wide labour productivity. In a case such as the Brazilian with marked changes in the level of economic activity, the use of economy-wide indices of labour productivity slightly distorts the measurement of PPP exchange rates.¹⁴ Secondly, by considering only the evolution of manual worker employment, this methodology minimises the impact of the recent increase of unproductive office work, such as administrative, sales and marketing activities. The following formula synthesises the procedure to compute PPP exchange rates.

$$PPP_i = PPP_{i-1} \cdot [(CPI_i \div CPI_{i-1}) \div (CPI_{usa_i} \div CPI_{usa_{i-1}})] \\ \cdot [(LP_{usa_i} \div LP_{usa_{i-1}}) \div (LP_i \div LP_{i-1})]$$

where,

PPP_i is the PPP exchange rate for year i ;

CPI_i is the CPI in Brazil in year i ;

CPI_{usa_i} is the CPI in the USA in year i ;

LP_i is the index of labour productivity in Brazil in year i ;

LP_{usa_i} is the index of labour productivity in the USA in year i .

The third, final step in the procedure of measuring the degree of over/undervaluation of a national currency involves the comparison of annual PPP exchange rates with nominal (exports) exchange rates, using the following formula.

$$OV_i = ER_i \div PPP_i \times 100$$

where,

OV_i is the degree of overvaluation of the nominal exchange rate in year i ;

ER_i is the nominal commercial exchange rate in year i .

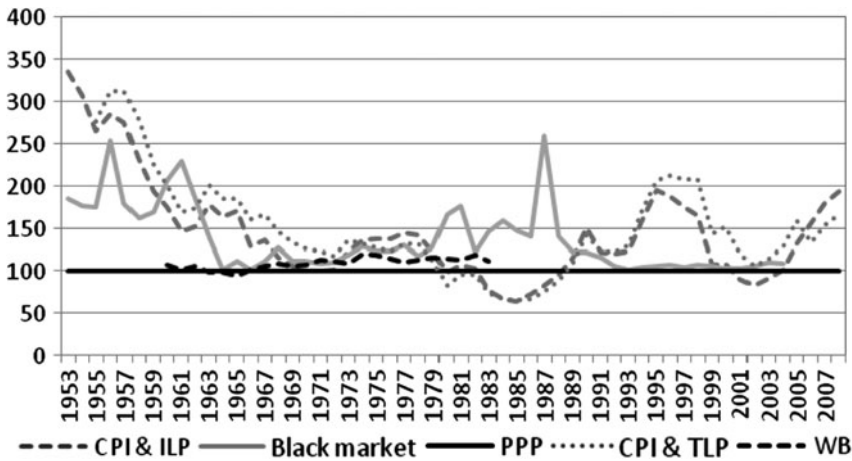


Figure 1. Fluctuations of exchange rates around their PPP.

Note: CPI & ILP = compares the evolution of market exchange rates with PPP exchange rates (100) calculated in this paper; CPI & TLP = uses total economy labour productivity; Black Market = compares the evolution of market exchange rates with ‘black’ market values; WB = uses Equilibrium Exchange Rates estimated in Brandão and Carvalho (1991, 219) to measure the degree of over/undervaluation.

If the result of the measurement is greater than 100, the nominal exchange rate is said to be overvalued and vice versa. Figure 1 plots the measure of the degree of over/undervaluation of the Brazilian currency between 1953 and 2008 computed here together with other estimations.

Thus, the magnitude of ground-rent appropriated out of the primary sector through the effect of the overvaluation of the national currency on exports and on the domestic prices of raw materials is measured using the following formula.

$$AO_i = \left[X_i * \left(1 - \frac{ER_i}{PPP_i} \right) \right] + \left[C_i * \left(1 - \frac{ER_i}{PPP_i} \right) \right]$$

where,

X_i are total primary and semi-processed commodity exports in US\$ in year i ;

C_i is the domestic consumption of primary commodities at world-market prices in year i .¹⁵

3.2. Ground-rent appropriated through export taxes

Taxes on raw material exports retain in the public treasury a portion of the price of exported commodities and proportionally reduce, through competition to avoid the tax by selling in domestic markets, the local price of taxed commodities. This holds for all primary commodities that had to pay export taxes when exported and for their close substitutes in the domestic markets.¹⁶ As in the case of the overvaluation of the currency, the tax on exported and locally-consumed commodities cannot

normally fall on any other portion of the price than ground-rent. Both effects should be accounted for when measuring the amount of ground-rent appropriated by social subjects other than landowners through this policy.

Three types of taxes on primary-commodity exports were implemented at different points of the period under analysis: the Imposto sobre Circulação de Mercadorias (ICM – sales tax) on exports collected by regional governments between 1966 and 1996; federal-government export taxes, levied during years of sharp exchange-rate devaluation; and, Contribution Quotas exclusively applied to coffee and cocoa exports during 1961–1984 and 1987–1990. The following formula measures the portion of ground-rent appropriated through the ICM and federal-government export taxes.

$$AET_i = \sum_g^n et_{gi} * X_i + \sum_g^n et_{gi} * C_i$$

where,

et_{gi} is the average rate of the export tax g prevailing in year i .

The amount of ground-rent appropriated through the so-called Contribution Quotas levied on exports of coffee and cocoa are added independently without computing the relatively marginal effect upon the internal consumption of these two commodities.

3.3. *Ground-rent appropriated through taxes specifically levied on primary-sector production*

Taxes falling specifically on primary-sector profits allow the state to appropriate a portion of extraordinary surpluses in the form of ground-rent. Only the existence of surplus profits such as ground-rent allows capital invested in the sector to pay these types of taxes and valorise normally. In Brazil, two such fiscal contributions have been levied on the mining industry since the late 1980s. First, mining companies have paid a Financial Compensation for the Exploitation of Mineral Resources (CFEM), ranging from 2% to 3% of their net sales. For iron ore, the most important mining commodity extracted in Brazil and the only one for which this tax is computed here, the rate has been 2%. Secondly, a Landownership Royalty equal to 50% of the CFEM has been paid by mining companies that do not own the land where natural resources are located.¹⁷ The following formula is used to measure the ground-rent appropriated by the state through these mining-sector taxes.

$$AMT_i = \sum_y^n t_{yi} \cdot P_{yi} \cdot Q_{yi}$$

where,

t_{yi} is the total tax rate on mining commodity y collected in year i ;

Q_{yi} is the quantity of primary commodity y produced in year i ;

P_{yi} is the price of primary commodity y in year i .

3.4. *Ground-rent appropriated through state regulations on primary commodities' domestic and international trade*

The imposition of maximum prices and the prohibition to export a portion or the whole of raw materials' production artificially expand their domestic supply and thus reduce, *ceteris paribus*, their domestic prices vis-à-vis international levels. When in place, these policies have channelled another portion of the Brazilian ground-rent to industrial capital. Conversely, public policies forcing domestic primary-commodity prices up, such as minimum-price programmes occasionally implemented in Brazil, have allowed landowners to recover a portion of ground-rent or agrarian capitalists to recover a portion of their normal profits if other policies were negatively affecting them.¹⁸ The measurement of the effect of these policies in transferring a portion of social wealth out of, or into, the primary sector is done through the comparison of export (FOB) and import (Cost, Insurance and Freight, CIF) prices, converted into local currency using commercial exchange rates,¹⁹ with their equivalents in the domestic market (Free Alongside Ship, FAS). The latter are constructed by adding the costs of transport (to port) and administrative expenses (at port) to farm-gate prices received by local producers. The following formula measures the magnitude of ground-rent transferred out of the primary sector through these policies. If FAS prices are lower than FOB or CIF prices, an extra portion of ground-rent is being channelled out of the primary sector through the above-mentioned policies, and vice versa.

$$AMR_i = \sum_y^n (P_{fob_{yi}} \cdot ER_i - P_{fas_{yi}}) \cdot Q_{yi}$$

where,

$P_{fob_{yi}}$ is the FOB price in local currency of the primary commodity y in year i ;
 $P_{fas_{yi}}$ is the FAS price in local currency of the primary commodity y in year i .²⁰

3.5. *Ground-rent appropriated through the domestic circulation of inputs and equipment used in primary production above their international prices*

The internal circulation of means of production used in the primary sector at prices above world-market levels affects the international competitiveness of primary-sector capital. Competition among individual capitals transforms this 'penalisation' into another form of ground-rent appropriation by social subjects other than landowners. This holds both in the case of exports and of domestic sales when, due to the lack of market protection for its output, agrarian/mining capital is unable to pass, like industrial-sector capital does in similar circumstances, the extra costs onto consumers. Conversely, unless it is exceptional to the sector, the internal circulation of these means of production at prices below international levels does not constitute a recovery of a portion of ground-rent by landowners but its appropriation by primary-sector capital as a specific branch of 'industrial' capital. In those cases, the social wealth in question enters in the intersectoral equalisation of the rate of profit.

The measurement of the ground-rent appropriated by others than landowners through the prices of inputs is done through the comparison of the value of

primary-sector consumption of non-primary-sector means of production at world-market (transformed into local currency using PPP exchange rates) and domestic prices. In this paper, it is computed for non-agrarian means of production used in the agrarian sector in the form of machinery, fuel-oil and fertilizers (nitrogen, phosphate and potash). In the case of fixed capital, only the portion of the means of production consumed in the relevant year is counted. The implicit 'tax' or 'subsidy' on its purchase turns over with that portion of the value of the means of production, affecting agrarian capital's annual rate of profit in the process accordingly. The prices of tractors are used to compare world-market and domestic prices of agrarian machinery. The following formula measures the magnitude of ground-rent appropriated in this form.

$$API_i = \sum_h^n [(DP_{hi} - IP_{hi}) \cdot PPP_i] \cdot Q_{hi}$$

where,

DP_{hi} is the domestic price of input h in year i ;

IP_{hi} is the international price of input h in year i ;

Q_{hi} is the quantity of input h consumed in year i .

3.6. Ground-rent appropriated through state monopoly of primary-commodity trade

State monopoly over the international trade of a specific primary commodity, as was the case with sugar until 1997, allows the state to appropriate a portion of ground-rent by purchasing domestic production below international prices. This portion of ground-rent can then be transferred to capital through low-priced commodities or through the general activities of the state. The measurement of the magnitude of these resources is done by comparing the domestic price of the commodity in question (sugar) with its international price converted into local currency at the going exports exchange rate and multiplying the difference between both by the amount of domestic production purchased by the state.²¹

$$ASM_i = \sum_y^n (IP_{yi} - DP_{yi}) \cdot Q_{yi}$$

where,

DP_{yi} is the domestic price of primary commodity y in year i ;

IP_{yi} is the international price of primary commodity y in year i .

3.7. Ground-rent appropriated, or recovered by, landowners through the provision of rural credit under differential conditions

The provision of credit for agrarian production at subsidised rates and favourable repayment conditions has been a common practice in Brazil during large parts of the period under study. Nevertheless, this practice only constitutes a recovery of a portion, or the whole, of the previously appropriated ground-rent if the conditions at which

agrarian capital gains access to credit are particularly favourable vis-à-vis other portions of the total social capital. Only in these cases do they constitute a source of extraordinary profits for agrarian capital. Competition among individual capitals to appropriate these extraordinary profits increases the demand for land and thus its rental and sale prices.²² Extraordinary profits are then transformed into ground-rent appropriated by landowners. If the interest-rate subsidy granted to agrarian capital is approximately equal to that granted to industrial capital, it would be appropriated by both types of productive capital and would not constitute a recovery of ground-rent by landowners; it would simply be transformed into a portion of their normal profits. This seems to have been the case during the entire period except for the years 1969–1982, when the conditions of agrarian credit were particularly generous.²³

Lacking information on the average rate of interest and repayment conditions on similar loans granted to industrial capital, the estimation produced by Helfand (1994) of the magnitude of the subsidy implicit in the provision of rural credit for working-capital (RCS_{wk}) and marketing (RCS_{mk}) is used here. Industrial capital had also access during that period to heavily subsidised loans for fixed-capital investments provided by state-owned banks.²⁴ The following formula measures the annual amount of ground-rent recovered by landowners through subsidised rural credit.

$$RCS_i = RCS_{wk}_i + RCS_{mk}_i$$

3.8. Ground-rent recovered by landowners through the implementation of programmes in support of domestic primary-commodity producers

State programmes implemented to purchase primary commodities at above-market prices allow landowners to recover a portion of the ground-rent. For most commodities analysed in this paper, resources recovered in this way were already measured when comparing FOB and FAS prices (see Section 3.4 above). The case of coffee was not included in that analysis.

During the 1950s and the early 1960s, the Brazilian state implemented a number of programmes in support of 'coffee growers'. The most important was the purchase of surplus production to avoid the domestic price of coffee from falling below certain levels. When the output bought was destroyed, or when purchases were done at prices above those at which the product was later sold, these interventions resulted in a subsidy to agrarian capital. This subsidy constituted an extraordinary profit for the latter, which competition tended to transform into ground-rent. This policy thus resulted in the reduction of the ground-rent appropriated by capital and the recovery of a portion of ground-rent by landowners. The annual magnitude of ground-rent that escapes the appropriation by capital in this way was equal to the net result of the operations of the Brazilian Coffee Institute (IBC). This is calculated by subtracting the value of purchases and administrative expenses from the value of coffee sales by the IBC as shown in the following formula.

$$IBC_i = IBCy_i - IBCe_i$$

where,

$IBCy_i$ is the income from coffee sales in year i ;

$IBCe_i$ are the expenditures of the IBC in year i .

3.9. Total ground-rent appropriated by social subjects other than landowners during 1947–2008

The total magnitude of ground-rent appropriated by capital is measured by adding up the resources appropriated through the different policies reviewed above. The results of the measurement are shown in Table 1 below. It can be observed there that the existence of large intersectoral income-transfers is a constant feature of the Brazilian economy throughout most of the period analysed here. In terms of resources transferred, exchange-rate overvaluation has been the main form of ground-rent appropriation by others than landowners, although export taxes were also important during 1965–1995. Moreover, it can also be seen in the table that, unsurprisingly, the magnitude of ground-rent appropriated by those other than landowners grew strongly during the three ‘commodities booms’ of the post-Second World War period – 1950–1953, 1973–1975, 2007–2008 – which resulted in the expansion of the total ground-rent. These were the periods when the ‘state-led’ ISI process was engendered, reached its peak and was resuscitated, respectively (Grinberg 2013). Conversely, the ground-rent appropriated by those other than landowners fell markedly during periods of relatively low international primary-commodity prices. Moreover, during 1984–1987 and 2001–2003, as the currency became strongly undervalued while primary-commodity prices collapsed and loanable capital outflows enlarged, landowners became net recipients of social wealth from the rest of the economy.²⁵

4. Valorisation of the total social capital

In order to assess the weight of ground-rent in supporting the process of capital accumulation, the mass of surplus-value appropriated by the total social capital needs to be compared with the portion of ground-rent appropriated by other social subjects than landowners (i.e. capital). As shown in the formula below, the mass of surplus-value appropriated by capital is equal to total value-added minus the total consumption of fixed capital and the cost of labour-power (i.e. total wages plus employer contributions to social security) used in production processes.²⁶ *Stricto sensu*, this also includes the portion of ground-rent effectively appropriated by landowners which, due to space reasons, is not estimated in this paper.²⁷

$$SV_i = VA_i - CFK_i - W_i$$

where,

SV_i is total surplus-value in year i ;

VA_i is the value added in year i ;

CFK_i is the fixed capital consumed in year i ;

W_i is the cost of labour-power in year i .

Figure 2 below plots the evolution of the total mass of (direct and indirect) wages paid and of the total surplus-value appropriated in the Brazilian economy during 1953–2008. It can be seen there that total surplus-value appropriated in Brazil, economy-wide, grew strongly until the late 1970s; stagnated during much of the 1980s; collapsed during the latter part of the 1980s and the early 1990s; and recov-

Table 1. Ground-rent appropriated by other social subjects than landowners in million 2004 R\$.

	OV	ET	MT	MR	PI	SM	RC	IBC	Total
1947	101,281	0	0	0	0	0	0	0	101,281
1948	57,817	0	0	0	0	0	0	0	57,817
1949	67,662	0	0	0	0	0	0	0	67,662
1950	85,491	0	0	0	0	0	0	0	85,491
1951	87,576	0	0	0	0	0	0	0	87,576
1952	81,330	0	0	0	0	0	0	-47	81,282
1953	84,464	0	0	0	0	0	0	-50	84,414
1954	67,830	0	0	0	0	0	0	-1,142	66,689
1955	59,691	0	0	0	0	0	0	-1,623	58,068
1956	53,859	0	0	0	0	0	0	-216	53,644
1957	50,340	0	0	0	0	0	0	-1,796	48,544
1958	30,807	0	0	0	5	0	0	-3,687	27,126
1959	28,604	0	0	0	35	0	0	-5,569	23,069
1960	22,295	0	0	0	17	0	0	-3,673	18,638
1961	12,661	7,308	0	0	161	0	0	-906	19,223
1962	12,260	6,611	0	0	213	0	0	-4,509	14,574
1963	27,130	7,283	0	0	272	0	0	-974	33,711
1964	21,339	7,068	0	0	92	0	0	537	29,035
1965	31,605	12,123	0	0	144	6,201	0	-5,585	44,488
1966	23,843	27,910	0	1,966	87	5,623	0	-179	59,250
1967	31,453	33,418	0	1,499	21	5,312	0	0	71,703
1968	15,495	36,996	0	2,492	69	6,676	0	0	61,727
1969	5,785	38,452	0	5,203	174	1,292	-104	0	50,802
1970	5,183	36,308	0	1,228	540	2,104	-302	0	45,061
1971	-1,072	37,508	0	-1,367	683	3,073	-230	0	38,594
1972	90	40,181	0	-2,744	1,096	5,551	-333	0	43,841
1973	33,195	52,309	0	19,764	996	7,283	-2,783	0	110,764
1974	65,798	60,033	0	28,110	2,105	28,269	-4,039	0	180,276
1975	62,681	51,543	0	4,558	1,262	26,148	-7,527	0	138,665
1976	56,680	44,049	0	2,457	1,302	4,659	-9,727	0	99,422
1977	64,366	44,415	0	3,359	1,005	-1,122	-7,926	0	104,098
1978	51,727	38,646	0	6,169	1,727	-2,061	-9,228	0	86,979
1979	37,608	32,874	0	5,057	2,371	-447	-19,248	0	58,216
1980	-4,700	41,133	0	18,288	4,065	15,230	-20,909	0	53,105
1981	16,212	31,911	0	13,282	4,245	5,241	-12,204	0	58,687
1982	6,324	31,398	0	419	4,361	-3,023	-14,889	0	24,590
1983	-41,915	46,488	0	4,484	5,060	1,509	-8,263	0	7,364
1984	-82,587	43,943	0	17,025	8,593	1,538	-545	0	-12,033
1985	-80,652	26,345	0	5,517	6,792	-526	-2,167	0	-44,690
1986	-52,446	19,088	0	7,966	5,075	1,631	-24,489	0	-43,175
1987	-28,532	28,160	0	9,513	7,303	-450	-7,680	0	8,314
1988	-22,860	39,947	0	16,624	9,693	2,295	-8,705	0	36,994
1989	27,678	26,914	872	14,328	11,526	4,581	-677	0	85,222
1990	54,479	21,706	762	-4,117	1,136	4,117	-393	0	77,689
1991	26,137	19,845	873	0	959	3,611	0	0	51,424
1992	24,400	15,937	770	0	2,594	3,024	0	0	46,726
1993	24,864	14,374	638	0	2,498	2,702	0	0	45,075
1994	59,445	10,478	427	0	995	2,055	0	0	73,400
1995	88,178	10,291	389	0	0	1,865	0	0	100,723
1996	72,365	5,458	347	0	184	913	0	0	79,268
1997	62,208	50	366	0	565	148	0	0	63,336
1998	50,984	4	417	0	696	0	0	0	52,101

(Continued)

Table 1. (Continued).

	OV	ET	MT	MR	PI	SM	RC	IBC	Total
1999	6,817	2	525	0	2,301	0	0	0	9,645
2000	8,823	5	552	0	2,450	0	0	0	11,831
2001	-14,166	1,446	654	0	3,314	0	0	0	-8,752
2002	-28,452	1,255	723	0	4,894	0	0	0	-21,580
2003	-17,362	685	760	0	5,684	0	0	0	-10,232
2004	800	914	871	0	6,013	0	0	0	8,598
2005	54,400	0	1,260	0	2,337	0	0	0	57,997
2006	99,805	0	1,390	0	891	0	0	0	102,087
2007	157,158	0	1,409	0	768	0	0	0	159,335
2008	233,887	0	2,152	0	-859	0	0	0	235,180

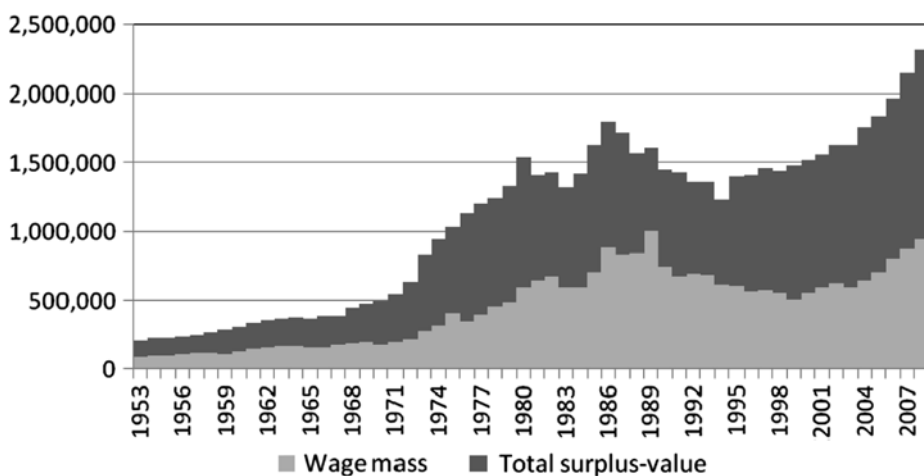


Figure 2. Wages and surpluses in billion 2004 R\$.

ered strongly thereafter. It can also be seen that the wage mass remained stagnant during much of the 1995–2008 recovery of total surpluses as real wages fell strongly and employment growth slowed.

5. Participation of ground-rent appropriated by capital in total surplus-value

As noted, the share of appropriated agrarian and mining rents in total surplus-value – i.e. their participation in supporting capital's profitability and the process of accumulation – is calculated dividing the former by the latter. Figure 3 plots the results of the measurement. The figure also shows the evolution of the portion of ground-rent appropriated by those other than landowners relative to Brazilian Gross domestic product (GDP).

It can be seen in Figure 3 that the ground-rent appropriated by capital in Brazil has been substantial, averaging 12% of total surpluses between 1953 and 2008.²⁸ There have been, however, marked differences across periods. Ground-rent

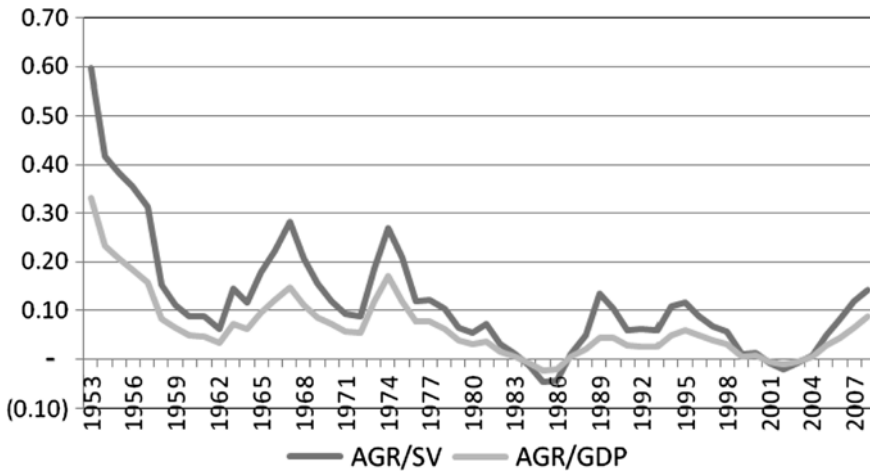


Figure 3. Relative weight of ground-rent appropriated by those other than landowners.

appropriated by capital equalled 25% of total surplus-value (mostly capital’s profits) during 1953–1963, when the ‘state-led’ ISI process accelerated under ‘populist’ governments; 15% of total profits during 1964–1980, when the ISI processes ‘deepened’ under military rule; 3.7% during 1981–1993, when the ‘state-led’ ISI process entered into a deep crisis; and 5.5% when it began to be reproduced under a neoliberal form. Yet, despite the post-1980 decline, the portion of ground-rent appropriated by those other than landowners was equal to approximately 4.8% of GDP during 1994–1997 (9.5% of total surpluses) and to 6.5 of GDP in 2006–2008

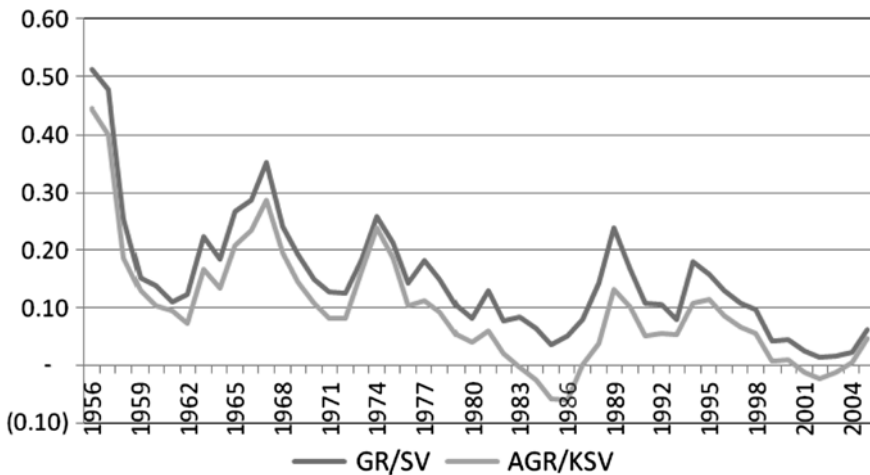


Figure 4. Ground-rent relative to total surplus-value.

Note: GR = Total ground-rent; SV = Total surplus-value; AGR = Ground-rent appropriated by others than landowners; KSV = Surplus-value appropriated by capital

(11.5% of total surplus-value approximately), both periods of relatively strong economic growth.²⁹

Finally, although not estimated in the present paper, Figure 4 shows the evolution of total ground-rent (i.e. the addition of the portions appropriated by landowners and by other social subjects) in total surplus-value, and the evolution of the ratio of ground-rent appropriated by capital to total capital's profits (i.e. total surpluses minus ground-rent appropriated by landowners).

Figure 4, it can be seen, broadly replicates, although at slightly different absolute levels, the relationships and patterns observed in Figure 3. The exception to this is the 1984–1986 period when, owing to the strong undervaluation of the exchange rate and the short-lived suspension of Contribution Quotas on coffee and cocoa exports, landowners became net recipients of normal or ordinary surplus-value that enlarged the ground-rent they effectively appropriated.

6. Conclusions

The paper presented a novel methodology to measure the magnitude of primary-sector 'resources' appropriated in other branches of the economy. The model used here was based on the identification of ground-rent as the source of social wealth channelled out of the primary sector and thus the object of measurement. The analysis identified various state policies channelling ground-rent from landed property to capital in Brazil and measured the size of the resources in question during the post-Second World War period, both in absolute terms and relative to all surpluses available for appropriation.

The main conclusion that can be drawn from this paper is that the mass of ground-rent appropriated by those other than landowners has been significant both in absolute terms and relative to capital's profits during the entire period analysed, including the post-1990 'neoliberal' years. In this way, the paper contributes to cast doubt over claims of a structural change taking place in post-1990 Brazil. As before, post-1990 periods of relatively strong growth (1994–1997 and, crucially, 2006–2008) have corresponded with moments of commodity-price and, hence, ground-rent increases. Capital's valorisation in these periods has been supported, as before 1980, by a substantial portion of ground-rent channelled through state policies.

Notes

1. On the contrary, agrarian production expanded continuously during those years. See Graham, Gauthier and Mendonca de Barros (1987, 8). Indeed, as Bacha (1978, 144) noticed, the fast expansion of coffee production during the period of high 'taxation' (i.e. 1947–1954) is an indication that normal profitability was not being affected.
2. Wage differentials between agrarian and industrial workers do not necessarily imply the payment of the rural labour-force below its value. Urban wages are normally higher than rural wages for at least two reasons. First, the cost of reproduction of the urban labour-force is higher than that of the rural labour-force because the productive attributes of the former are more complex than those of the latter. Secondly, rural workers need, *ceteris paribus*, to consume comparatively less use-values than their urban counterparts since they tend to have lower expenditures in transport, clothing, housing, etc. See Grinberg and Starosta (2009).

3. The marginal land is, by definition, the one where, *ceteris paribus*, capital sets in action the lowest level of labour productivity. This does not mean, however, that the last land brought into production to satisfy social demand is, by definition, the marginal one. Yet, it means that, unless all lands are of the same quality, at any moment there would be a plot of land which is the marginal one.
4. In primary production, crucially in the agrarian sector, the different successive (intensive) applications of capital do not change – as in industrial activities – the quality of the output. They simply change its quantity. Each portion of capital is thus associated with a different level of labour productivity. See Iñigo Carrera (2007, 102–103).
5. Equally, if rural (or mining) wages are particularly lower than urban wages, for reasons other than differences in the cost of reproducing both types of labour-power in the conditions required by capital, the rate of profit would, *ceteris paribus*, be higher in the rural than in the urban sector. Competition among capitals to appropriate these extraordinary profits would transform them into ground-rent. See Marx (1981, 765, 890).
6. This section refines the theoretical foundations and methodology, and extends the temporal extension, of the analysis presented in Grinberg (2008).
7. This is noted by Brandão and Carvalho (1991, 120–122) who find themselves in difficulty when attempting to do it.
8. Profit-rate-equalising competitive pressures have passed the ‘discount’ from agrarian and mining capital to landowners through lower rents paid for the use of land.
9. What is said here for industrial capital invested in manufacturing (industrial capital proper) holds, *mutatis mutandis*, also for its junior partners, namely, industrial capital invested in agrarian, mining and ‘service’ production and commercial capital invested in the trade of goods and money (i.e. commercial and banking capital, respectively).
10. The ‘association’ between landowners and capital for the appropriation of the Brazilian ground-rent has been inherently antagonistic. Not only have they ‘struggled’ over the appropriation of the available rent. By lowering the domestic prices of primary goods, the forms of ground-rent appropriation by capital have also limited the intensive and extensive application of capital to land, and thus lifted a barrier to the growth of primary production and of the total rent available for appropriation.
11. For the sources and base time-series used in the measurements presented in this paper, see Grinberg (2011, 416–521).
12. The specific policies through which the Brazilian state kept the exchange rate overvalued have changed throughout the period discussed here. So have the ideological forms through which the process has come about. Yet, the outcome and specific social content (e.g. being a form of ground-rent appropriation) of these policies have remained unchanged. In general terms, before the early 1990s, exchange-rate overvaluation resulted from direct and strong state intervention in, and control of, the foreign exchange market. See Brandão and Carvalho (1991) for the evolution of exchange-rate policies until the mid-1980s. Since the early 1990s, state control of the foreign-exchange market has been slightly more subtle. The state has tended, crucially during years of high primary-commodity prices and international liquidity, to accumulate large foreign-exchange reserves, and thus decrease their price, by borrowing locally funds attracted by the internationally-high yields on public-sector debt instruments. See Dias Carneiro et al. (2001, 20) for the 1990s and Arestis, Ferrari-Filho and de Paula (2011) for the more recent period.
13. The method of absolute PPP used by most international organisations is not suitable to measure the degree of exchange-rate over/undervaluation. By comparing the amount of national and foreign currency needed to buy a certain basket of goods in the domestic and world markets, and using that relationship to estimate PPP exchange rates, it fails to notice that the prices of the goods and services included in the baskets are affected themselves by the very same factor that is trying to capture through them, namely, the over/undervaluation of the currency. This method, on the contrary, is useful to produce international comparisons of the real purchasing power of national wages. Black market exchange rates are also problematic as a measure of the degree of overvaluation of a national currency. This is particularly the case when systems of multiple exchange rates are in use, as in Brazil before the early 1960s and during most of the 1980s, or when the currency is pegged or semi-pegged to a foreign currency and its commercial parity is

- supported by massive central bank foreign exchange reserves, as in Brazil during the 1994–1998 Real Plan. See Bacha and Taylor (1971); Taylor and Taylor (2004); Iñigo Carrera (2007) for a discussion of the merits and pitfalls of the different methods used to estimate the ‘equilibrium’ or parity exchange rates.
14. The discrepancy is largely unimportant throughout most of the post-Second World War period. It is the largest during 1994–1998 when the currency appears to be 10% more overvalued when using the economy-wide indices of labour productivity than when using industrial labour productivity.
 15. In this paper it is computed for the domestic consumption of the following commodities: corn, soybeans, beans, cotton, rice, sugar, beef, manioc and iron ore.
 16. See Piermartini (2004) on the effect of export taxes on the prices of domestically-consumed primary commodities and their close substitutes.
 17. See National Department of Mining Production (2011).
 18. See Brandão and Carvalho (1991, 46–79) for an overview of agrarian policies up to the 1980s.
 19. The PPP exchange rate should not be used here as the effect of the overvaluation of the exchange rate was already accounted for above.
 20. In this paper it is computed for the following commodities: cotton, corn, rice and soybeans.
 21. The PPP exchange rate should not be used here as the effect of the overvaluation of the exchange rate was already accounted for above.
 22. See also Rezende (1981) on this point.
 23. See Helfand (1994) for an analysis of agrarian credit in Brazil.
 24. See Najberg (1984) for an analysis of state credit to large industrial capitals.
 25. However, during the 1980s (crucially the latter part), and the early 1990s, a large part of the Brazilian public debt in domestic currency, which had been generated in the process of keeping the currency undervalued, was significantly reduced through a sharp inflationary process. Being landowners and wage-earners net lenders to the financial sector and capital a net borrower, in its unity this policy constituted a net transfer of resources from the former two to the latter that more than compensated for the flows in the opposite direction during 1983–1987.
 26. This is irrespective of how these profits are divided according to capital’s ownership.
 27. For the estimation of the portion of ground-rent appropriated by landowners, see Grinberg (2011, 91–94).
 28. This underestimates the real relationship between both variables because, as noted, total surpluses include the portion of ground-rent effectively appropriated by landowners.
 29. It should be noted that the estimation presented here does not include the portion of the oil rent materialised in locally consumed commodities, which has grown strongly since the mid-2000s due to output and price increases. Being the state the owner of oil lands, most of this rent has been directly or indirectly appropriated by capital. See Campodónico (2008, 41–45).

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