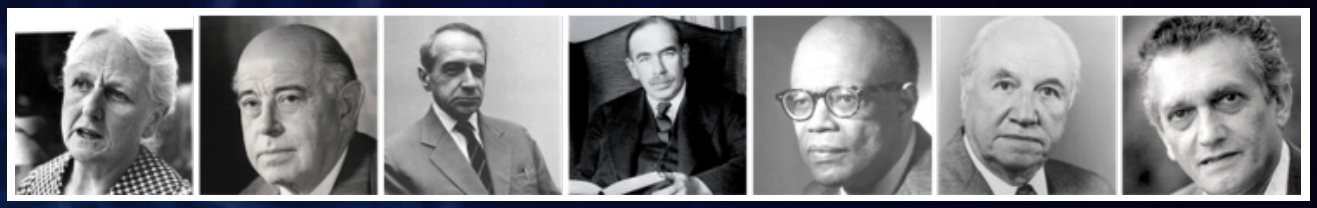


Structuralist Development Macroeconomics Research Group

STRUCTURALIST DEVELOPMENT MACROECONOMICS BULLETIN

2021 | Nº 1

CNPq Conselho Nacional de Desenvolvimento Científico e Tecnológico

UnB

SDM Research Group

PRESENTATION

To contribute to the international economic debate, guided by the plurality of ideas, the Structuralist Development Macroeconomics Research Group (SDMRG) organized the **Structuralist Development Macroeconomics Bulletin (SDMB)**. This bulletin is an electronic journal with two issues per year with the objective of presenting technical analysis of the main themes related to the research goals of the SDMRG, such as:

- Growth and Distribution in Post Keynesian Models
- Growth, Infrastructure and Convergence Clubs
- Financial Gragility and Business Cycles
- Developmental Macroeconomics
- Stock-Flow Consistent Models
- Monetary Policy, Exchange Rate Regime and Sustainability of Public Debt

Formally, the issues of this Bulletin will be divided into two main axes: macroeconomics and economic development. The articles published here are shorter in comparison to a traditional scientific paper. However, the analyzes presented will be more in-depth than a newspapers article, but accessible for readers who are not specialists in Economics.

SUMMARY

EDITORIAL

The pandemic of the new coronavirus (COVID-19) has transformed society very fast. Regarding the economy it has not been different. In a short period of time, sectors were unable to operate, the agility and biosecurity in relationships prove to be profoundly decisive for the economic wheel to continue turning with sanitary security. The impacts occurred in different ways, and the actions to confront sanitary and economic problems are the great differentials for the success of these challenges. One of the most important points demonstrated by the pandemic is precisely that the role of the State is fundamental to confront the current problems and that the liberal thought has once again failed to efficiently resolve complex situations such as those of the pandemic.

The examples were countless, without the support of massive funding from the state and public institutions, we would not have instruments to support the fight against the virus, such as vaccines, which were developed in record time. Another emblematic examples was the case of the success of an emergency aid program in Brazil in 2020. Despite the initial thinking of the economic staff that claimed it would fight the crisis with "structural" reforms, and presented several resistances in relatio we would not have instruments to support the fight against the virus, such as vaccines, which were developed in record time we would not have instruments to support the fight against the virus, such as vaccines, which were developed in record time n to this policy, with a lot of pressure from civil society and national congress, the aid was approved and helped to prevent a near double-digit drop in Brazilian gross domestic product in 2020.

With the beggining of the immunization the hope of a new direction is lit. The world economy has been repidly resuming economic activity, but unevenly, because of the policies adopted by each government authority throughout the pandemic. The main world economies adpted a strongly expansionist monetary policy, as well as fiscal policies to increase spending and tax relief to support families and companies.

A lot was discussed among researchers from the *Structuralist Development Macroeconomics Research Group* (SDMRG), about the macroeconomic policies to e adopted in this moment of pandemic. To contribute to the international economic debate, the SDMRG organized the Development Macroeconomics Bulletin (DMB), an electronic journal with two issues per year.

The Development Macroeconomics Bulletin (DMB) is divided into two main axes, macroeconomics, and economic development. This first issue is composed of four articles in the field of macroeconomics, in which diverse subjects are approached, such as the "Covid-19 pandemic crisis an analysis of the Brazilian economy, written by Luiz Fernando de Paula, Camila Vaz and Pedro Lange Netto Machado. The second article addresses the ecological structural change in labor productivity that drives economic development, by Giulio Guarini. The third article is about fiscal policy in the trajectory of long-term economic growth in developed economies, especially in the economies that make up the euro zone, by Jesus Ferreiro and Carmen Gomez. To fourth article is about the financial balance of institutional sectors i, an analysis of the stagnation of the Brazilian economy in the 2010s, by Carmem Feijo and Leandro Monteiro.

In the second part of this issue on of economic development, there are three articles that present several relevant discussions on this theme. The first article is about the issue of how negative externalities affect growth and income distribution; this article was written by Gabriel Porcile. The second presents a central-peripheral model in the post-industrial context in which it demonstrates that the modern services sector plays a relevant role in the process of economic growth, was written by Fabricio J. Missio, Wallace M. Pereira, Frederico G. Jayme Junior. The third article addresses the role of the manufacturing industry and the real exchange rate in economic development, a contraposition to neoclassical thinking in which economic growth is only the result of the accumulation of physical and human capital and technological progress, written by José Luis Oreiro. This diversity of themes reflects the heterogeneity of researchers in discussing themes of economic sciences at a global level, but consistent with New Developmentalism thinking.

Therefore, in a comprehensive way and with the collaboration of several leading researchers in their fields, we bring to the public the first issue of the Development Macroeconomics Bulletin (DMB), based on the main themes related to the objectives of the study by the Structuralist Development Macroeconomics Research Group (SDMRG) , through more shorter articles in comparison to a traditional scientific article, but accessible to both to readers that are trained in economics and those who are not.. In this way, the DMB contributes to the debate on economic themes

Good reading!

Kerssia Preda Kamenach

Development Macroeconomics Bulletin's Co-Editor

Mateus Boldrine Abrita

Development Macroeconomics Bulletin's Editor

AXIS 1

MACROECONOMICS

BRAZIL BETWEEN THE "OLD NORMAL" AND INTERNATIONAL TRENDS FOR RECOVERY FROM THE COVID-19 PANDEMIC CRISIS

Luiz Fernando de Paula[1]

Camila Vaz e Pedro Lange Neto Machado[2]

1. The Brazilian economy facing the COVID-19 crisis

The Brazilian economy, like most economies in the world, was strongly affected by the crisis associated with the Covid-19 pandemic. It was stagnant before the health crisis, with high unemployment and over 40% of the economically active population in informal or "uber-work," and social inequality worsened in the 2015/2019 period: the Gini Index increased from 0.525 in 2015 to 0.543 in 2019 (Barbosa et al, 2020). The Brazilian government had a faltering response - often pushed by the unfolding events and/or initiatives of the national congress - in the face of a crisis that proved to be swift and acute. In the face of this, there was a need to confront problems related to the fall in income in the informal sector, the rise in unemployment, the solvency of companies, the fall in revenues of states and municipalities (responsible for operating health services), the liquidity constraint in the banking sector, in addition to the social and health consequences of the pandemic sanitary crisis.

In fact, the effect of the coronavirus crisis on the economy was immediate, with strong portfolio capital outflows, which generated a 27.3% exchange rate devaluation between March 11 and May 14; a credit rationing that hit small and medium-sized businesses; a sharp reduction in the GDP growth rate, hitting the economy in particular in the 2nd quarter, pulled by the services sector and industrial sector; and a sharp increase in the unemployment rate (from 11.0% in December 2019 to 14.4% in August 2020).

The Brazilian government's initial response to the economic and social crisis that resulted from the coronavirus pandemic was ambiguous. The first reaction to the public health crisis from Economy Minister Paulo Guedes, an economist known for his Chicago School training – he gained his PhD in Economics from the University of Chicago in 1978 – was that "reforms are the best answer to face the coronavirus crisis". In March 2020, the federal government implemented a set of countercyclical measures with no fiscal impact, which included: (i) postponing payment of company tax contributions; (ii) postponing and/or reducing by up to 95% employers' social security contributions for companies with up to 100 employees affected by the pandemic; and (iii) anticipating wage bonuses for workers and 13th wage payments to retirees. It also redeployed resources to the Unified Health System (SUS) and took steps to reduce the queue for the "Bolsa Família" conditional cash transfer program (to include more than 1 million beneficiaries) and initially provided a total of R$ 16 billion in financial aid to states and municipalities. These measures proved clearly insufficient to deal with the economic and social crisis. This forced the federal government, after a strong civil society campaign and at the initiative of the National Congress, to implement an emergency cash

1 Professor of Economics at the Federal University of Rio de Janeiro (IE/UFRJ, Brazil), Voluntary Professor at the University of the State of Rio de Janeiro (IESP-UERJ, Brazil) and CNPq and FAPERJ researcher.

2 PhD candidates in Political Science at IES-UERJ, and GEEP associate researcher.

transfer program for the most vulnerable, as a huge portion of the population are informal workers, as well as an emergency program for maintaining formal employment. As pointed out by Blofield et al (2021, p.5), "Like Argentina, Brazil moved quickly to alleviate the economic fallout from COVID-19 (...), although unlike in Brazil, a share of the impetus came from civil society and the opposition rather than the executive itself".

One fundamental step towards meeting the economic crisis that resulted from the public health crisis was the state of public calamity decreed by Congress (Legislative Decree No. 6, of 20 March 2020) until 31 December 2020, which allowed the Brazilian government to miss fiscal targets set by the Fiscal Responsibility Law and the Budget Guidelines Law and increase spending to address the effects of the coronavirus crisis, despite the context of strongly falling tax revenues.

A second step was Congress's approval of the so-called "War Budget" (Proposal of Constitutional Amendment No. 10/2020, of 17 April 2020, later approved by the Congress as Constitutional Amendment No. 106, of 8 May 2020), exclusively for expenditures to combat the coronavirus pandemic-related crisis and free from the constraints of the now-constitutional cap on federal government spending and the so-called "golden rule", which prohibits public debt issues to cover current expenses.

To support state and municipal governments, as only the federal government is able to issue public debt in Brazil, there was a need not only to mitigate the fall in local tax revenues, but also – since competence for health care is shared among the union, states and municipalities – to finance measures for coping with the public health effects of COVID-19. Initially, Provisional Measure No. 939, of 02 April 2020, allowed an extraordinary credit line of R$ 16 billion to be opened. On 2 May 2020, the Senate approved provision of R$ 60 billion in financial assistance from the Union to states and municipalities and suspended approximately R$ 50 billion in subnational entities' debts to the Union, with R$ 10 billion to be used exclusively for health and social assistance and the other R$ 50 billion to combat the COVID-19 pandemic and mitigate its financial impacts.

The government was under strong social and political pressure to implement an emergency income transfer program for informal and unemployed workers. Initially reluctant to implement such a program, the federal government ended up proposing a R$ 200 voucher for three months, while Congress was pushing for approval of a minimum R$ 500. This pressure led to the enactment of Law 13.982, of 2 April 2020, under which an emergency program would transfer monthly aid of R$ 600 (about half the official minimum wage and about US$ 107)) to around 65.9 million beneficiaries (approximately 1/3 of the Brazilian population), initially for 3 months, then extended due to legislative pressure for 2 further months. The program focused on unemployed, the self-employed and informal workers and those registered with other social programs such as Bolsa Familia, in all cases only for families with income up to 3 minimum wages. After these five instalments has been paid, debate arose as to whether to continue the program, leading the federal government to institute Provisional Measure No. 1.000, establishing four more monthly instalments of R$ 300 until December 2020.

As regards preserving formal employment, once again the measures taken by the federal government were clearly ambiguous. To begin with, President Bolsonaro proposed suspending employment contracts and reducing the working day without any payment of wages. Under strong political pressure from Congress, he subsequently proposed some income compensation for reduced working hours and wages. Accordingly, Provisional Measure 936/20 (1 April 2020) instituted the Emergency Employment and Income Maintenance Program, authorising employers to reduce wages and working hours temporarily or suspend employment contracts for up to 60 days, while assuring employees they would be retained during that period and receive emergency benefit payments from the Brazilian government. Working hours and wages could be reduced by 25%, 50% or 75%, for a maximum of 90 days, by individual or collective agreement, or by any percentage (including 100%), by collective agreement alone. For companies with revenues of less than R$ 4.8 million, the federal government paid the equivalent of 100% of the unemployment

insurance the employee would be entitled to receive. For companies with revenues of more than R$ 4.8 million, the employer paid 30% of the employee's wages as compensatory aid and the federal government, the equivalent of 70% of the unemployment insurance due. The program was extended three times in 2020 and ended in December.

The emergency aid program (EA) for vulnerable individuals accounted for more than 50% of the federal government's expenditures and contributed to rapid improvement in income distribution, offsetting low-income families' loss of income, particularly for those earning less than half a minimum wage. Using data from the November 2020 PNAD/Covid19 survey, Table 1 divides the population equally into 10 groups in ascending order of average effective income. The table then compares average effective income with and without EA and calculates the percentage difference between them. When EA is included in total income, the first and second deciles show average gains of 76% and 32%, respectively, demonstrating the strong distributional impact of EA for low-income groups. In the other deciles, gain declines with increasing income. Gonçalves et al. (2021) calculated the Gini Index without EA (0.5429) and with EA (0.4972), and found a significant variation of 8.4% in a very short period. In addition to reducing social inequality, the emergency aid program also strongly relieved poverty and extreme poverty: the percentage of the population below the poverty line decreased from 23.7% in May to 18.4% in August 2020, while the percentage in extreme poverty was almost halved, from 4.18 % to 2.29 %.

Table 1. Average household income per capita of total effective income, by decile with and without Emergency Aid (EA) (R$)

Decile	Average effective income		Percentage Variation
	without EA	with EA	
1	36.47	153.19	76.2
2	227.40	332.98	31.7
3	369.07	474.48	22.2
4	512.06	607.33	15.7
5	665.12	755.29	11.9
6	853.64	943.82	9.6
7	1,059.72	1,110.46	4.6
8	1,360.16	1,420.79	4.3
9	1,969.81	2,017.75	2.4
10	4,898.67	4,933.30	0.7

Source: Gonçalves et al. (2021: 7), with data from PNAD Covid19.

The performance of the Brazilian economy in 2020 (-5.3% p.a.) compared to the largest Latin American economies, shows a much better performance than the Latin American average (-7.7% p.a.) and the largest economies in the region, such as Argentina (-10.5%) and Mexico (-9.0%) (ECLAC, 2021). In the first quarter of 2021, there is a new drop in Brazilian economic activity due to the second (and strong) wave of the pandemic, which resulted in partial shutdowns in several Brazilian states, and to the negative effects on income due to the increase in the inflation rate caused by supply shocks (increase in commodity prices and currency devaluation).

In 2021, there was a delay by the federal government in reacting to the economic problems resulting from the second wave of the coronavirus, which, combined with the delay in vaccination, led to a partial paralysis of economic activities, delaying a more robust economic recovery. Only on March 11, 2021, did the Brazilian Congress approve a new four-month emergency aid of R$ 250 per family, effective as of April. The total amount approved by Congress, based on the government's proposal, was R$ 44 billion - much less than the emergency aid program in 2020, which totaled R$ 230 billion (Paula, 2021).

The economic recovery worsened throughout the year, with the combination of high inflation (forecasted at 8.2% p.a. for 2021, according to the Focus of 09/10/21) - the result of a supply shock caused by the rise in commodity prices, currency devaluation and input shortage problems -; a rise in the Selic rate (forecasted to reach more than 8.0% p.a. a by the end of the year); the increased tensions between the Powers of the Republic caused by President Jair Bolsonaro; and the growing risk of the country suffering from energy shortages; all these factors led to increasingly lower economic growth revisions for 2022. The forecast for the GDP growth rate according to the mentioned Focus is 5.04% p.a. in 2021 (due to the effect of the so-called "statistical loading", resulting from a much reduced GDP growth base in 2020) and only 1.7% p.a,. in 2022; but, according to the newspaper *Valor Econômico* (2021), the most recent forecasts have led to the projection of a growth rate below 1% in 2022. All this has been accompanied by a rate of unemployment of more than 14% throughout the first half of 2021, and a possible worsening of poverty indexes in the year 2021.

From this stems our assessment that there is no strategy from the federal government to implement a credible sustainable growth agenda; for example, there is no government program aimed at investing in infrastructure. There is only a return to the "old normal": an agenda of liberal reforms, contrary to what has been implemented in other countries; and in line with the *"Plano Mais Brasil"*, advocated by the Bolsonaro government in 2019, and composed of three Proposals for Amendment to the Constitution (PECs): Emergency PEC, PEC of the Federative Pact and PEC of Public Funds. Among the measures already approved by the government, in 2021, are the Central Bank Autonomy and the Emergency PEC; the latter has suffered a number of changes since its initial proposal.

2. Return to the "old normal"?

The resumption of the agenda of liberal reforms and fiscal austerity intended by the Bolsonaro government is in line, as seen, with the economic strategy that was being implemented before the pandemic, called "*Tupiniquim Tatcherism*" by Oreiro and Paula (2021). However, the shock caused by the COVID-19 crisis accelerated trends in the international economic debate that point in another direction, which contradict fundamental precepts of the liberal agenda defended by Paulo Guedes. In this article, we use as a proxy for this debate documents from the Fiscal Monitor, a biannual publication of the IMF, released in 2020 and 2021. As will be seen below, the gap between the Brazilian government's economic policy and what is being considered as necessary, worldwide, for the recovery from the crisis is clear.

In fact, these agendas already diverge in their respective starting points. This is because the IMF - as well as other multilateral organizations - assumes the occurrence of lockdowns in the most acute moments of the pandemic, in order to structure its recommendations on phases of greater or lesser restrictions on countries' economic activities (IMF, 2020, p. 2). As the Bolsonaro government adopts an anti-scientific stance regarding the positive effects of lockdown on pandemic control, this fundamental step is sabotaged beforehand. Moreover, in view of the delay in the vaccination program that occurred in the country, it is important to mention that the IMF (2021) stresses the importance of vaccination on a global scale, which, in its words, could be the public project "with the highest return ever identified".

In any case, let's look at what the IMF proposes for the management of national economies in this context. In the *Fiscal Monitor: Policies for recovery*, released in October 2020, a central point in its recommendations is the need for fiscal expansion and public investment in this process, both for advanced and emerging economies. To make this possible, governments should, according to the study, resort to issuing more debt and taxing the wealthiest strata of society - depending on their respective fiscal and tax conditions. In the first instance, the focus

should be on transferring income to the most vulnerable sectors of society, ensuring the survival of both individuals and companies.

As already suggested, the emergency aid, between April and December 2020, was efficient in this purpose, guaranteeing income for informal workers and, at the same time, reducing the fall in GDP. According to Sanches, Cardomingo, and Carvalho (2021), had it not been implemented, the fall in Brazilian GDP could have been 8.4% to 14.8%. But the IMF (2020) is also emphatic in saying that this aid should not be abruptly withdrawn, which contrasts with what happened between January and March 2021, a period in which the emergency aid was cancelled in Brazil, only to be resumed later with a reduced value. Moreover, a more progressive tax system was never on the government's horizon, despite the notorious regressiveness of the Brazilian tax system (Morgan, 2018).

The second moment in which the role of the state is indispensable is that of economic recovery. In this regard, public investment is seen as an important channel for stimulating the economy, with its substantive impacts on growth and employment generation, especially in times of uncertainty, having already been documented by the academic literature. In this sense, the IMF (2020) considers that the State's priorities should be the improvement of the health network, the expansion of digital infrastructure - given the demands and trends in the services sector - and the transition to a more sustainable development model, in line with the challenges of global warming and environmental protection. According to the study, the increase in public investment in these areas would have rapid positive effects also on the dynamics of private investment, causing the economy to enter a virtuous cycle of growth.

The April 2021 Fiscal Monitor follows the same line. First of all, it is important to note the emphasis the study places on the importance of fiscal actions taken during the Covid-19 pandemic to mitigate its social, health, and economic effects. Moreover, it is emphasized that the pandemic is not yet under control, which would reinforce the importance of maintaining fiscal support, even though it may be reformulated, for example, by improving the targeting of support. Even though, in fact, the document gives importance to the risks associated with the increase in public debt, the institution stresses that it would be necessary to balance them with the risks resulting from the extinction of aid support.

In addition, the study places special emphasis on social inequalities, both those prior to the pandemic of Covid-19, which, according to the institution, caused the effects of the pandemic to disproportionately affect certain social groups, as well as the expansion of pre-existing inequalities caused by the pandemic (IMF, 2021). Thus, it suggests the need for measures to ensure access to basic services, such as health and education, and the strengthening of policies that reduce inequalities, as well as the strengthening of the State's capacity for taxation.

The IMF recommendations are part of a trend in the international debate around the management of national economies, which has given greater prominence to the role of the state (Cherif, Engher, and Hasanov, 2020). Martin Sandbu (2021), based on the recent positions of the IMF and the World Bank, suggests that there would be a "new Washington Consensus," which, in turn, would be less fiscalist, since the focus of these institutions would now be on making public spending efficient rather than on reducing it.

3. Conclusion

At the time of writing (September 2021), the post-pandemic is only a conjecture: there is no way to know how long the health crisis will persist, even if the advance in vaccination puts its control on the horizon. On the other hand, the legacy of the socioeconomic crisis requires solutions that are still under debate, but that point in different directions from the consensuses consolidated at the end of the 20th century. The acceptance of new guidelines for overcoming the crisis, however, tends to come up against the political dynamics of the countries that face it.

In the case of Brazil, this challenge is likely to be particularly dramatic. This is because, as we have tried to demonstrate, the Bolsonaro government does not seem willing to abandon its agenda of fiscal austerity and liberalizing reforms to the economy, despite the financial market's doubts about this. In section 2, we saw that the government momentarily deviated from this path, under pressure from Congress and public opinion, by implementing a series of measures aimed at containing the crisis in 2020. But the strategy of returning to the "old normal" became evident again in 2021, especially with the approval of the Central Bank's autonomy, as discussed in section 3.

At the same time, this highlights the gap between the government's strategy for recovery from the crisis and what has been discussed internationally in this regard. In this case, we have seen how the IMF proposes measures that contrast both with what the organization itself historically defended and with the imperatives of the Bolsonaro government's economic policy: in general terms, policies that demand a greater role for the State in stimulating economic recovery and providing social welfare, especially public health. It remains to be seen to what extent this trend will impact the impetus for a return to the "old normal" of the Brazilian government, and how it will influence the projects in dispute in the country in the election year of 2022.

4. References

Cherif, R.; Engher, M.;e Hasanov, F. (2020). Crouching Beliefs, Hidden Biases: The Rise and Fall of Growth Narratives. *IMF Working Paper*, WP/20/228.

ECLAC (2021). *Statistical Yearbook for Latin America and the Caribbean 2020*. Santiago: CEPAL.

FMI (2020). Fiscal Monitor: Policies for the Recovery. Acessado em 14 de março de 2021 e disponível em <https://www.imf.org/en/Publications/FM/Issues/2020/09/30/october-2020-fiscal-monitor>.

FMI (2021) *Fiscal Monitor: A Fair Shot*. Washington, April.

Gonçalves, R., Nascimento, J.C., Oliveira, A.A., Michelman, C., Guidolin e P., Melo, G. (2021). Impactos do auxílio emergencial na renda e no índice de Gini. *Nota do Cecon* n.16, abril.

Morgan, M. (2018). Income inequality, growth and elite taxation in Brazil: new evidence combining survey and fiscal data, 2001–2015. IPC-IG *Working Paper* no. 165, fevereiro.

OECD (2021), https://www.oecd.org/economy/weekly-tracker-of-gdp-growth, accesso em 05/04/2021.

Oreiro, J.L.; Paula, L.F. (2021). *Macroeconomia da Estagnação Brasileira*. Rio de Janeiro: Alta Books.

Paula, L.F. (2021). The coronavirus crisis and countercyclical policies in Brazil. *European Journal of Economics and Economic Policies: Intervention*, v. 18, n.21, p. 177-197.

Sanches, M.; Cardomingo, M.; Carvalho, L. (2021). Quão mais fundo poderia ter sido esse poço? Analisando o efeito estabilizador do Auxílio Emergencial em 2020. *Nota de Política Econômica* n.007, MADE/USP, fevereiro.

Vilella, C., Vaz, C., Bustamante, J. (2020). Levantamento e análise de medidas econômicas adotadas durante a pandemia da COVID-19. *Nota de Política Econômica GESP IE/UFRJ*, junho.

THE IMPACT OF ECOLOGICAL STRUCTURAL CHANGE ON LABOR PRODUCTIVITY

Giulio Guarini[1]

1. Introduction

The objetive of this article is to empirically investigate the potential impact of ecological structural change on labor productivity, following to the work of Guarini and Oreiro (2022), that integrate ecological issues into New Developmentalism (Bresser-Pereira, 2019; Oreiro, 2020) in line with the post-Keynesian "Ecological Macroeconomics"[2]. The New Developmentalism emphasizes that structural change, especially in middle-income countries, can reactivate growth processes interrupted by the trap based on de-industrialization and overvaluation of exchange rate. This is an ecological trap in which the exploitation of natural resources causes environmental disasters, economic depression, and the exacerbation of inequalities (Bresser-Pereira, 2016). Thus, an appropriate structural change can transform the economy according to a multidimensional vision of sustainability composed of environmental, economic and social instances. This is what promoted at the international and institutional level by the United Nations (2015) through the 2030 Agenda initiative on Sustainable Development Goals. In particular, UNIDO (2015) supports strategies for Inclusive Sustainable Industrial Development, where, for instance, cleaner productions can couple the reduction of natural resources and energy use, with competitiveness and opportunities for social inclusion. In this global vision, it is interesting to study the link between ecological structural change and labor productivity.

2. Conceptual framework

According to Guarini and Oreiro (2022), the core of the ecological conversion of the economic system can be considered ecological structural change. From the supply side, it may involve increasing the share (in terms of employment and/or value added) of the sector with higher green efficiency (i.e., lower CO_2 emissions per output). On the demand side, it may involve redirecting all components of aggregate demand toward final and intermediate goods and services consistent with environmental and social sustainability. To be economically and politically viable, this process can evolve through if integrated with the drivers of economic development. In addition, it should become a *fortiori* a channel to meet the economic aspirations of poor and emerging countries and in general should become an exit strategy for all countries from economic and pandemic crisis. In this perspective, it becomes pertinent to study the impact of ecological structural change on labor productivity, whose increases remain fundamental to traditional structural change and growth processes. Other studies investigate the negative impact on labor productivity of climate change focusing on other factors: for instance, on reducing work capacity caused by the increased frequency of breaks and reduced work intensity for preventing negative heat-related effects (Matsumoto, 2019).

To this end, three famous labor productivity functions are considered, that are coherent with the developmentalist analysis and in the general with the post-Keynesian approach. The first function is the following:

1 Associate Professor at the Tuscia University, Viterbo, Italy.

2 See for intance Hardt and O'Neil, 2017; Fontana and Sawyer, 2016; Guarini and Porcile, 2016; Galindo et al., 2020.

$$(i)\ g = \alpha_0 + \alpha_1 y$$

Where: g and y are the growth rates of labor productivity (income-employment ratio) and income, respectively. The parameter $\alpha_0 > 0$ is called the Verdoorn-Kaldor effect that captures the dynamic and static economies of scale. Sylos Labini renames it the Smith-Kaldor effect by underlying the Smithian theorem of the division of labor according to which the division of labor and market enlargement effectively interact themselves (Sylos Labini, 2010).

The second function considered is the technical progress function of Kaldor (1957):

$$(ii)\ g = \beta_0 + \beta_1 k$$

Where: k is the growth rate of capital-labor ratio. The parameter $\beta_1 > 0$ can be named "mechanization effect" and represents the impact of technical progress, expressed through the capital accumulation, on economic development both in terms of an increase of efficiency and of the enlargement and diversification of products and services, with high level of value added per worker. The third function is proposed by Oreiro et al. (2020): it introduces in the technical progress function (ii) a variable concerning the structural change, namely the share of manufacturing (or industry) with respect to the national income (λ), and the labor force rate (n).

$$(iii)\ g = \gamma_0 + \gamma_1 \lambda k + \gamma_2 n$$

The term $\gamma_1 \lambda k$ indicates the labor productivity impact of the mechanization, that can be influenced by the evolution of the division of labor: given the growth rate of capital-labor ratio the higher level of manufacturing share generates positive effects on labor productivity dynamic. In this sense, parameter $\gamma_1 > 0$ can be named "structural change effect". Finally, the "labor market effect" $\gamma_2 > 0$ reflects two matching elements: firstly, because technical progress is basically labor saving, the main way to integrate workers on that process is to make them more efficient and more able to generate productivity gains; secondly, when the bargaining power of worker rises thanks to higher level of labor forces, the entrepreneurs react by introducing technics labor saving. According to Guarini and Oreiro (2022), the current analysis estimates whether and how ecological structural change can generate productivity gains, by inserting in those functions a proxy related to the renewable energy and by making it to interact with Smith-Kaldor effect, mechanization effect, structural change effect and industrialization variable.

All these effects can reflect many potential complementarities characterizing the green innovation processes, mainly studied through the analysis of the relationship between environmental efficiency and labor productivity at microlevel (such as Mazzanti and Zoboli, 2008, 2009) and macrolevel (such as Guarini, 2015). Specifically, can exist complementarities: a) between brown and green technologies, when these latter represent technological frontier; b) between green end-off pipe technologies and clean production technologies, when the reduction of pollution in the standard production process stimulates the production of new green intermediate goods; c) between green technologies and environmental management system, when the introduction of a new (green) technologies entails a hard reorganization of mansions and tasks; d) between industrial and environmental policies, when the ecological conversion strategy generate new opportunities of business for traditional sectors in terms of competitiveness and market enlargement (European Commission, 1999).

Moreover, all the aforementioned effects are correlated with the dynamic economies of scale. Indeed, ecological structural change implies the double externality where the reduction of negative externality (namely pollution) goes alongside the generation of positive externalities concerning learning processes, knowledge transfer. Thereby, green innovations imply the acquisition of new knowledge and skills, because they appear complex, multidisciplinary, and multifactorial. In this optic, inter-firm networks and multi-partner cooperation are so necessary for innovation that the open innovation becomes one of the main modes of green innovation (Ghisetti et al. 2015).

3. Empirical analysis

In the empirical analysis, the ecological structural change is approximated by variable REN indicating the average between the share of renewable energy with respect to total energy production and the share of renewable energy with respect to total energy consumption. This last variable is one of the targets of the Sustainable Development Goals: namely the target 7.2.1 of the 7 Goal "Ensure access to affordable, reliable, sustainable and modern energy for all". Ecological structural change can be strongly influenced by the increasing relevance of renewable energy as all international and national policy strategy indicate (UNIDO, 2015). Variable REN can synthetize the multifold nature of green innovations: changes of REN can be caused both by technological product innovations in the energy sector for the ecological switch of the production and by socioeconomic process innovations of the macroeconomic subjects (families, enterprises, public sector) to make their energy consumption sustainable. In the environmental literature is underlined the potential gains of renewable energy in terms of efficiency measured in its economic, environmental and social dimensions (Kara al. 2021). The equations estimated are the following:

(1) $dPROD_{it} = \delta_0 + \delta_1 dPROD_{it-1} + \delta_2 dGDP_{it} + \delta_3 dREN_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(2) $dPROD_{it} = \delta_0 + \delta_1 dPROD_{it-1} + \delta_2 dGDP_{it} + \delta_3 dREN_{it} + \delta_4 dREN_{it\_}dGDP_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(3) $dPROD_{it} = \delta_0 + \delta_1 dPROD_{it-1} + \delta_2 dGDP_{it} + \delta_3 dREN_{it} + \delta_5 dIND + \delta_6 dREN_{it\_}dIND_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(4) $dPROD_{it} = \theta_0 + \theta_1 dPROD_{it-1} + \theta_2 dCAP_{it} + \theta_3 dREN_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(5) $dPROD_{it} = \theta_0 + \theta_1 dPROD_{it-1} + \theta_2 dCAP_{it} + \theta_3 dREN_{it} + \theta_5 dIND + \theta_6 dREN_{it\_}dIND_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(6) $dPROD_{it} = \theta_0 + \theta_1 dPROD_{it-1} + \theta_2 dCAP_{it} + \theta_3 dREN_{it} + \theta_4 dREN_{it\_}dCAP_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(7) $dPROD_{it} = \mu_0 + \mu_1 dPROD_{it-1} + \mu_2\ IND_{it\_}dCAP_{it} + \mu_3 dLAB + \mu_4 dREN_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(8) $dPROD_{it} = \mu_0 + \mu_1\ dPROD_{it-1} + \mu_2\ IND_{it\_}dCAP_{it} + \mu_3\ dLAB + \mu_4\ dREN_{it} + \mu_5\ dREN_{it\_}IND_{it\_}dCAP_{it} + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

(9) $dPROD_{it} = \nu_0 + \nu_1 dPROD_{it-1} + \nu_2\ REN_{it\_}dCAP_{it} + \nu_3 dLAB + \sum_{c=1}^{t} \omega_t \rho_t + \varepsilon_{it}$

Variables PROD, GDP, IND, CAP, LAB indicate the natural logarithms of labor productivity, Gross Domestic Product, the share of industry with respect to the added values, the capital-labor ratio, the labor force ratio. Parameter ρ stands for a time dummy from year 1 (2000) to year c (2017) and ε_{it} represents the robust error term that consists of both unobserved country-specific effects and observation-specific errors. Letter "d" indicates the growth rate of the corresponding variable. According to availability about renewable energy data, database is composed of 37 countries (OECD and non-OECD countries)[3]. The source for the renewable energy variables is the World Energy Balances dataset provided by the International Energy Agency (IEA, 2020), while the source for the other variables is the World Development Indicators dataset. Analysis points out on the significance of parameters δ_4, δ_6, θ_4, θ_6, μ_5, $\nu_2 > 0$ that can test the influence of ecological structural change on the Smith-Kaldor effect, mechanization effect, structural change effect and industrialization. The econometric method is the system generalized method of moments – GMM- (Blundell and Bond, 1998; Roodman, 2009) that has two main advantages, very relevant for the post-Keynesian perspective. It permits to take into account: firstly, the potential path dependence of economic development processes by inserting, in the appropriate mode, the lagged term of the dependent variable; secondly, the circular relations across factors by controlling all the estimates for the potential endogeneity, thereby for the potential simultaneity regarding all regressors. Let us to comment the results in Table 1.

3 Countries considered are: Australia, China, Japan, Korea Rep., New Zealand (East Asia and Pacific); Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom (Europe and Central Asia; with Chile, Mexico (Latin America and Caribbean); Israæl; United States; India.

The path dependence of labor productivity dynamic appears verified in three cases, showing a cumulative process: in these cases, the coefficient of dPROD-1 is significant and positive. All the main effects described in equations i), ii) and iii), namely Smith-Kaldor effect, mechanization effect and structural change effect seem significative: the coefficients of dGDP, dCAP and IND_CAP are all significant and positive. While, the labor market effect represented by the coefficient of dLAB appears ambiguous: in two cases is not significant and negative, while in one case is coherent with the conceptual framework, namely significant and positive. The more interesting and stimulating results regard variable dREN, that is the focus of study. When it is considered without interactions it has a positive impact on labor productivity and only in equation (1) it is not significant. All interactions considered are effective. Indeed, the ecological structural change impact on labor productivity seems complementary with Smith--Kaldor effect, mechanization effect, structural change effect and industrialization: coefficients δ_4, δ_6, θ_4, θ_6, μ_5, v_5 are all positive and significant. Those coefficients are so high that contribute always to a positive global effect of dREN, even when in the regression the coefficient of the single variable dREN is negative (such as in the equations 2, 5, 8). Thus, the impact of renewable energy on economic performance appears effective when it is inserted in other technological and economic dynamics; likewise, some studies show as institutional capacity and financial development can influence that impact (Opeyemi et al.2019). Finally, the all positive and significant interaction between variable dIND and variable dREN is coherent with some analyses according to which the main effective channel to the environmental sustainability for the industry is to reorient its production process to the usage of renewable energy (Pontoglio, 2010) and also it indicates that the ecological structural change can represent an effective modern regeneration of industry similar to the "productive sophistication" proposed by Bresser-Pereira (2019).

Table 1. The impact of eco-structural change on labor productivity

	Dependent variable: dPROD								
	1	2	3	4	5	6	7	8	9
$dPROD_{-1}$	0.140	0.203**	0.0890	-0.115	0.253**	0.0452	-0.0640	0.614***	0.0891
	(0.99)	(2.43)	(0.92)	(-0.74)	(2.06)	(0.26)	(-0.35)	(2.85)	(1.43)
dGDP	0.739***	0.401***	0.337**						
	(7.98)	(3.82)	(2.57)						
dCAP				0.191***	0.108*	0.0466			
				(3.98)	(1.86)	(0.84)			
IND_dCAP							0.0566***	0.0423***	
							(2.72)	(2.66)	
dLAB							-0.0029	-0.00187	0.178*
							(-0.13)	(-0.06)	
dIND			0.0474			0.0138			
			(0.53)			(0.15)			
dREN	0.0300	-0.0367	0.0473**	0.0228*	-0.0593	0.0787*	0.0447*	-0.0581	
	(0.95)	(-1.28)	(1.97)	(1.71)	(-1.18)	(1.94)	(1.73)	(-0.99)	
dREN_dGDP		2.014**							
		(2.31)							
dREN_dIND			0.932*			1.725***			
			(1.88)			(2.59)			
dREN_dCAP					0.565***				
					(4.95)				
dREN_IND_dCAP								0.239***	
								(3.77)	
REN_dCAP									0.0285**
									(2.57)
Constant	-0.0001	-0.0251*	0.0125**	0.0169***	0.0151*	0.0146**	0.0224	0.0172	-0.753*
	(-0.02)	(-1.89)	(2.40)	(4.69)	(1.76)	(2.33)	(0.22)	(0.13)	(-1.75)
Temporal dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	576	576	576	560	560	560	560	560	560
AR(1)	0.0002	0.0219	0.0008	0.0026	0.0003	0.0053	0.0218	0.0025	0.00003
AR(2)	0.926	0.459	0.825	0.997	0.221	0.686	0.897	0.144	0.606
Hansen test	0.155	0.998	0.812	0.882	0.998	0.301	0.998	0.840	0.992

Note: GMM-SYS estimator with robust standard errors; z statistics in parentheses; *, **, *** indicate 10%, 5%, 1% significance levels. About tests are reported p-values.

4. Concluding remarks

This This brief article has showed that the ecological structural change can positively impact on labor productivity through the interaction with the drivers of economic development such as economies of scale determinants, technical progress and industrialization. The analysis considers macroeconomic variables in order to provide empirical findings useful for corroborate and address theoretical and policy contributions in the area of Ecological Macroeconomics and New Developmentalism. The limits of the analyses can represent a stimulus for new further researches about ecological structural change that could: a) consider other variables representing ecological structural change; b) take into account heterogeneity across countries with diverse economic conditions; c) introduce some proxies of policies initiatives; d) verify the relationship between the exchange rate and the ecological structural change, in order to analyze the Dutch disease from an ecological point of view.

5. References

Blundell, R., Bond, S., (1998). "Initial conditions and moment restrictions in dynamic panel data models". J*ournal of Econometrics*. 87: 115–143.

Bresser-Pereira, L., (2019). "From classical developmentalism and post-Keynesian macroeconomics to new developmentalism". *Brazilian Review of Political Economy* 39 (2), 187–210.

Bresser-Pereira L., (2016) "Reflecting on new developmentalism and classical developmentalism", *Review of Keynesian Economics*, 4 (3): 331–352.

European Commission (1999) Sustainable Industrial Development, *Commission Staff Working Paper*, SEC(1999) 1729

Fontana, Giuseppe, Sawyer, Malcolm, 2016. "Towards post-Keynesian ecological macroeconomics". *Ecological Economics* 121, 186–195.

Galindo L., Guarini G., Porcile G. (2020)"Environmental innovations, income distribution, international competitiveness and environmental policies: a Kaleckian growth model with a balance of payments constraint", *Structural Change and Economic Dynamics* 53:16-25.

Ghisetti, G., Marzucchi, A., Montresor, S., (2015). "The open eco-innovation mode. An empirical investigation of eleven European countries". *Res. Policy* 44 (5), 1080–1093.

Guarini G. (2015) "Complementarity between environmental efficiency and labour productivity in a cumulative growth process", *PSL Quarterly Review*, 68 (272): 41-56.

Guarini G., Porcile G. (2016) "Sustainability in a post-Keynesian growth model for an open economy" *Ecological Economics* 126: 14–22.

Guarini G., Oreiro J. (2022) "An Ecological view of New Developmentalism: A Proposal of Integration", *Revista de Economia Politica-Brazilian Journal of Political Economy* 42 (1).

Hardt L., O'Neill D.W., (2017) "Ecological Macroeconomic Models: Assessing Current Developments" E*cological Economics*, (134): 198-211.

Kara S.E., Ibrahim M.D., Daneshvar S. (2021) Dual Efficiency and Productivity Analysis of Renewable Energy Alternatives of OECD Countries, *Sustainability*, 13(13), 7401

Kaldor, N. , 1957. A model of economic growth. *The Econ. Journal* 67(268), 591–624 .

Matsumoto K. (2019) "Climate change impacts on socioeconomic activities through labor productivity changes considering interactions between socioeconomic and climate systems", *Journal of Cleaner Production*, 216: 528-541.

Mazzanti M. and Zoboli R. (2008), "Complementarities, Firm Strategies and Environmental Innovations: Empirical Evidence for a District Based Manufacturing System", *Environmental Sciences*, 5(1): 17-40.

Mazzanti M. and Zoboli R. (2009), "Environmental Efficiency and Labour Productivity: Trade-Off or Joint Dynamics? A Theoretical Investigation and Empirical Evidence from Italy Using NAMEA", *Ecological Economics*, 68.(4): 1182-1194.

Opeyemia A., Uchenna E., Simplice A., Evans O. (2019) "Renewable energy, trade performance and the conditional role of finance and institutional capacity in sub-Sahara African countries" *Energy Policy*, 132: 490-498.

Oreiro, J.L. (2020). "New Developmentalism: beyond competitive exchange rate". *Brazilian Journal of Political Economy*, 40 (2) 238-242.

Oreiro J. L., da Silva K.M., Dávila-Fernández M.J. (2020) "New Developmentalist model of structural change, economic growth and middle-income traps", *Structural Change and Economic Dynamics* 55: 26–38.

Pontoglio S (2010) An early assessment of the influence on eco-innovation of the EU Emissions Trading Scheme—evidence from the Italian paper industry. In: Mazzanti M, Montini A (eds) *Environmental efficiency, innovation and economic performance*. Routledge, New York.

Roodman, D., (2009). How to do xtabond2: An introduction to "difference" and "system" GMM in Stata. *Stata Journal* 9, 86–136.

Sylos Labini P. (2010) *Underdevelopment: A Strategy for Reform*, Cambridge University Press, Cambridge.

UNIDO (2015) *Introduction to UNIDO - Inclusive and Sustainable Industrial Development*.

United Nations (2015) *Transforming our world: the 2030 Agenda for Sustainable Development*.

6. Appendix

Tabela A1. Descriptive statics

Variable		Mean	Std. Dev.	Min	Max	Observations
dPROD	overall	0,0191177	0,0309187	-0,1001348	0,1919432	N = 697
	between		0,0170291	-0,0038089	0,0898677	n = 41
	within		0,0259353	-0,1009466	0,1838503	T = 17
$dPROD_{-1}$	overall	0,0192283	0,0313275	-0,1001348	0,1919432	N = 656
	between		0,0171941	-0,0044433	0,0914162	n = 41
	within		0,0263162	-0,1010547	0,185551	T = 16
dGDP	overall	0,0266786	0,0344947	-0,1603355	0,2244415	N = 714
	between		0,0167499	-0,0008439	0,089293	n = 42
	within		0,0302593	-0,1734302	0,208733	T = 17
dCAP	overall	0,0188107	0,0909555	-0,591011	0,421278	N = 680
	between		0,0216936	-0,0225957	0,0754635	n = 40
	within		0,0883933	-0,5837004	0,4143333	T = 17
dLAB	overall	0,0032344	0,0108818	-0,0639701	0,0449867	N = 714
	between		0,0037618	-0,0075369	0,0113659	n = 42
	within		0,0102264	-0,0588343	0,0425756	T = 17
IND	overall	3,221557	0,2450045	2,352989	3,861937	N = 756
	between		0,2329978	2,565787	3,801078	n = 42
	within		0,0834364	2,818503	3,671857	T = 18
dIND	overall	-0,0079704	0,0422445	-0,1697006	0,4326799	N = 714
	between		0,0093466	-0,0501973	0,0074739	n = 42
	within		0,0412214	-0,1749435	0,4172356	T = 17
REN	overall	2,642244	1,097311	-1,336054	4,163986	N = 666
	between		1,05937	-1,177306	4,136191	n = 37
	within		0,3324406	1,35563	3,852282	T = 18
dREN	overall	0,0257459	0,1033484	-0,7276399	0,6284196	N = 629
	between		0,0472386	-0,1354212	0,1468619	n = 37
	within		0,0922294	-0,7450824	0,5691125	T = 17

FISCAL POLICY AND ECONOMIC GROWTH IN THE EURO AREA

Jesus Ferreiro and Carmen Gomez[1]

1. Introduction

Among the determinants of the processes of development, economic growth and long-term structural change, the Structural Development Macroeconomics highlights the key role played in these processes by the macroeconomic policy regime (the strategy of fiscal, monetary and exchange rate policies) applied in the different economies (Oreiro, da Silva and Dávila-Fernández, 2020).

Although Structural Development Macroeconomics has focused on the study of developing and emerging economies, mainly in Latin America, this article focuses on the effects generated by macroeconomic policy strategies on the long-term economic growth path in developed economies, specifically in the case of the European economies that make up the euro area. The reason for this is the growing consensus that macroeconomic policy in the euro area, especially fiscal policy, based on strong economic orthodoxy, has adversely affected economic growth, while at the same time generating growing economic and social imbalances. In other words, the macroeconomic policy strategy would be one of the main causes of the secular stagnation affecting the euro area and its lower dynamism compared to other advanced and emerging economies (Blanchard, Felman and Subramanian, 2021).

2. Economic growth in the Euro Area

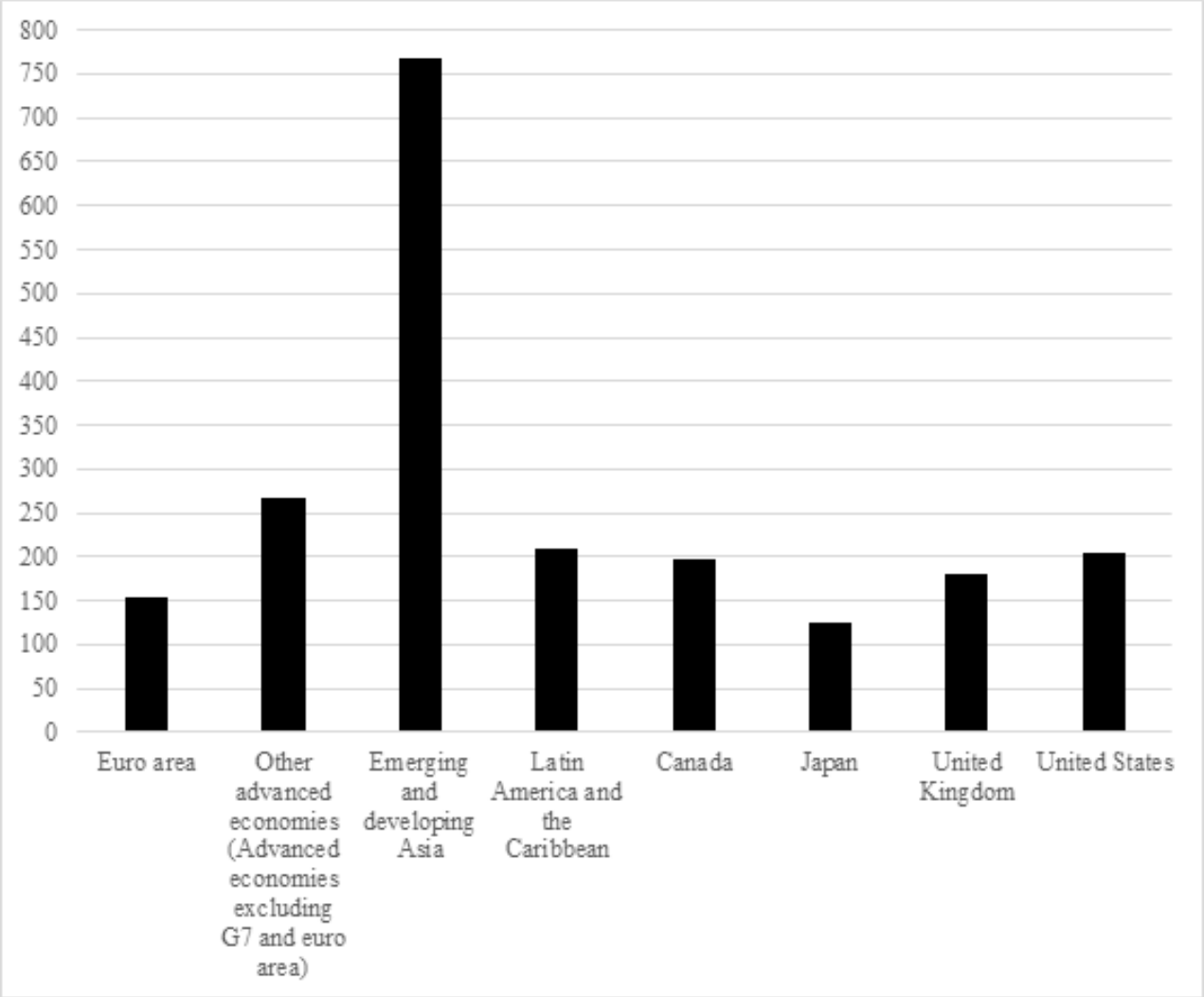
From its origins, the process of building a monetary union in Europe had the immediate objective of generating a framework of exchange rate and macroeconomic stability that would make it possible, in the longer term, to guarantee the achievement of a path of continuous and sustained growth. Monetary integration would accelerate the process of liberalization and economic integration of the different national markets, thus allowing the acceleration of economic growth rates in the long term.

This economic impulse would be fuelled by the elimination of the exchange rate instability generated by the coexistence of a system of fixed but adjustable exchange rates (the European Monetary System EMS) with an insufficiently coordinated framework of autonomous national monetary and fiscal policies, as witnessed by the EMS crisis of the early 1990s. On the other hand, monetary, exchange-rate and financial integration, together with the loss of autonomy of monetary and fiscal policies, would accelerate the process of structural reforms, especially in goods, services and labour markets. The result of this process would be a structural change in the European economies that would make it possible to solve the problems of Eurosclerosis suffered by European countries and accelerate the pace of economic growth.

However, three decades after the signing of the Maastricht Treaty in 1992, which marked the beginning of the process of monetary integration in the European Union, the results of this process in terms of boosting economic growth are far from positive.

Figure 1. Gross Domestic Product in 2019 (GDP year 1991=100)

1 Department of Public Policies and Economic History, University of the Basque Country UPV/EHU (Bilbao, Spain), and Structuralist Development Macroeconomics Research Group.

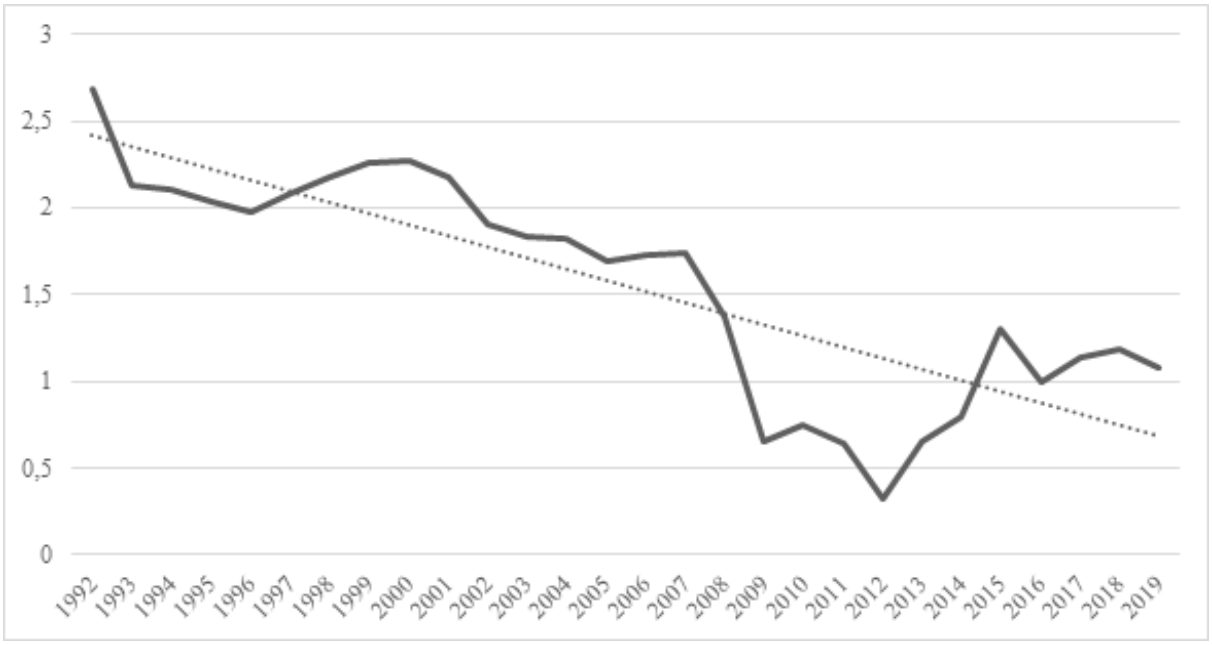


Source: Our calculations based on International Monetary Fund, World Economic Outlook Database, April 2021.

The data in Figure 1 show the GDP of various countries and world regions in 2019 based on 1991 GDP. The results are clear, reflecting the weaker dynamism of the euro area not only compared to emerging and developing economies but also compared to other developed economies, including other European countries that are not part of the euro area.

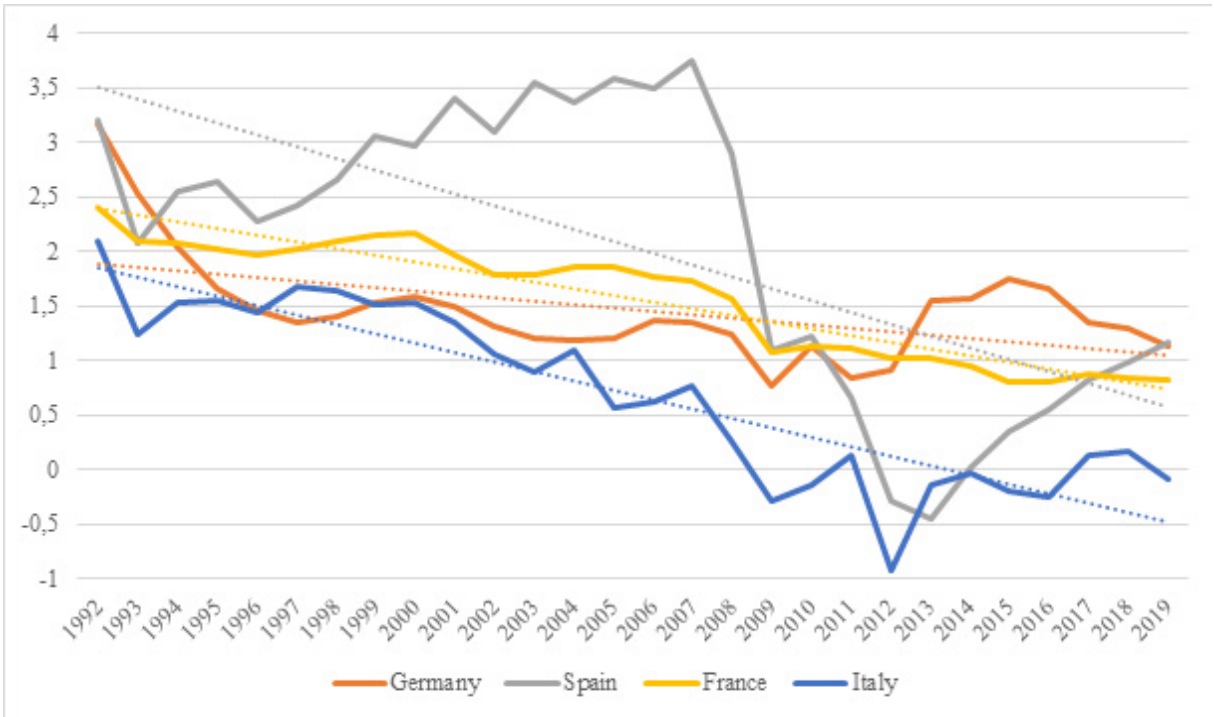
This slow growth has meant that both short and long-term economic growth rates in the euro area have been declining over time. Thus, if we approximate the long-term growth potential with the potential growth rate, as shown in Figure 2, the potential growth rate of the euro area has been progressively weakening, reaching 1.1% in 2019.

Figure 2. Growth rate of potential output in the Euro area (%)



Source: Our estimates based on AMECO Database.

Figure 3. Potential output growth rate of the main Euro area countries (%)



Source: Our estimates based on AMECO Database.

It is important to note that this poor performance is replicated in the case of the four largest economies in the euro area: Germany, France, Italy and Spain. As figure 3 shows, the growth rate of potential output in these four economies has been declining since 1992. If we look at the dotted lines, which show the linear trend for each economy, the potential growth rates would not exceed 1%, and would even be negative in the case of Italy.

3. The fiscal policy framework in the Euro area

The The existence of a single monetary policy without a genuine single fiscal policy within the euro area (remember that the budget of the European Union cannot exceed 1.2% of the gross national income of the EU) made it necessary to establish rules that would guarantee an adequate coordination of national fiscal policies with each other and with the single monetary policy.

Thus, the Maastricht Treaty established fiscal rules that affected both the candidates to join the Eurozone (the nominal convergence criteria) and the member countries, establishing sanctions for the latter in the event of non-compliance. The aim of these rules was to avoid the generation of Excessive Public Deficits (object of sanctions), understood as the existence of public deficits higher than 3% of GDP and a gross public debt of all public administrations higher than 60% of GDP.

Furthermore, the Maastricht Treaty prohibited monetary or privileged financing of fiscal imbalances in both Community and national budgets, as well as the bail-out of a country by other States or European institutions (no bail-out), which implies the absence of international solidarity.

The signing of the Stability and Growth Pact (SGP) in 1997 implicitly reformed the Maastricht Treaty by obliging the candidate countries and members of the euro area to adopt a much more restrictive budgetary policy than that set out in the Treaty.

The SGP defined the exceptional circumstances under which budgetary imbalances could not be defined as "excessive deficits" (thus avoiding sanctions for excessive deficits), as well as the maximum permissible duration of such imbalances, which was not set in the Treaty.

The SGP used automatic and discretionary criteria to assess the situation of national public finances. Thus, a deficit above 3% of national GDP would not be considered as excessive in the case of a decline in real GDP of more than 2%, and any deficit above 3% of GDP would be considered as excessive if real GDP growth exceeds -0.75%. However, if the fall in real GDP ranges between -2% and -0.75%, the interpretation of a deficit above the reference values would be subject to a discretionary decision by the European Council. In addition, the SGP stipulated that the duration of the exceptionality is limited to one year irrespective of the length of the recessionary period.

In addition, the SGP sets a medium-term objective (MTO) for countries to achieve a budget balance in surplus or at least close to balance. In 2005, the SGP was reformed, obliging countries to set specific medium-term budgetary objectives. These targets vary for each euro area Member State or candidate country depending on national economic and budgetary positions and developments, as well as the fiscal risk to the sustainability of public finances, including the prospect of demographic changes.

These medium-term objectives are set in structural terms, discounting the effects of the business cycle on government revenue and expenditure and one-off fiscal measures. National medium-term structural balance targets can range from a structural balance (or surplus) to a structural deficit of 1% of potential GDP.

Clearly, the ultimate purpose of the fiscal rules affecting the euro area is to ensure long-term budgetary stability by minimising, if not preventing, the generation of structural deficits. In this way, the active use of discretionary fiscal policy as an instrument of macroeconomic policy was reduced to a minimum, so that fiscal policy was limited to the operation of automatic stabilisers.

Although the outbreak of the Global Financial Crisis and the ensuing Great Recession led to the widespread implementation of expansionary policies, this action was purely temporary. In fact, in order to reinforce fiscal austerity, as of 2011 the European Union approved new measures to ensure that European states adopt the necessary

budgetary measures to reduce their fiscal imbalances, bringing them closer to the limits established in the Maastricht Treaty and, in the long term, to ensure that the budget balance is in surplus, or at least close to a balanced budget. In 2011 the Directive on Requirements for budgetary frameworks of euro area countries (known as the "Six pack") was adopted. A year later, in 2012, the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union was approved, of which the so-called Fiscal Compact forms part. Finally, in 2013, the "Two pack" was approved, two regulations that regulate the procedure for the supervision of budgetary plans and measures for the adjustment of excessive deficits in the euro area countries.

The implications of these provisions for fiscal policy are clearly set out in Article 3 of the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, according to which general government budget balances shall be in balance or in surplus. Budgetary stability will be considered to be achieved even if a State records a deficit, provided that the structural balance complies with the medium-term objective (which may not be less than -0.5% of GDP). It also establishes that deviation from the medium-term objective or from the adjustment path towards it can only be recorded temporarily under "exceptional circumstances".

In sum, the fiscal rules approved after the outbreak of the Global Financial Crisis accentuated the restrictive character of the fiscal rules set in the Maastricht Treaty and the Stability and Growth Pact. These new rules further limit the possibility of applying discretionary fiscal measures, reducing fiscal policy to the operation of automatic stabilisers.

In addition to the measures to reinforce compliance with the medium-term budgetary objectives, determining that countries must meet this objective or be in the process of achieving it by adjusting their structural balance annually at a rate of 0.5% of GDP, the establishment of an Expenditure Benchmark was also approved. According to this expenditure rule, if a country strictly complies with its MTO, the growth rate of public spending must not exceed the potential growth rate in the medium term unless this higher spending is accompanied by discretionary fiscal measures that increase public revenue.

4. The economic effects of fiscal policy in the Euro area

Although it is clear that the fiscal rules in the euro area are based on the principle of fiscal austerity, understood as the absence of budget deficits, from the orthodox point of view that underpinned this strategy it was considered that it would not have a significant negative impact, at least in the long term. On the one hand, the principle of expansionary fiscal consolidations was accepted, in such a way that by reducing public deficits, economic growth would be accelerated by favouring lower interest rates and by allowing the use of capital dedicated to financing public indebtedness by the private sector, especially by private investment. On the other hand, it was accepted that the level of public spending was excessive, focused on unproductive items, so that a fiscal adjustment strategy based on spending cuts would stimulate economic growth. If, in addition, spending cuts were accompanied by tax cuts, especially in direct taxes[2], the economic stimulus would be even greater (Ferreiro, Carrasco and Gomez, 2014).

However, there is now a growing consensus that this strategy, far from achieving the expected results, has had a negative impact on the euro area economy. The reason for this is twofold.

First, fiscal policy action within the euro area has been marked by a markedly procyclical stance, mostly restrictive during recessions, as seen during the Great Recession in the period 2011 to 2013 (Ferreiro, Galvez and Gonzalez, 2015). It is important to note that this procyclical bias of fiscal policy in the euro area countries does not occur, at least with the same intensity, in the case of the non-euro EU countries. This means that fiscal policy in the

2 Obviously, this implies that, in order to avoid a negative effect in the form of higher deficits, tax cuts must be accompanied by at least an equivalent decrease in public spending.

euro area has not played a stabilising role, so that it has contributed to maintaining, if not increasing, the economic imbalances of a large number of euro area countries.

In fact, this procyclical bias of fiscal policy, especially during recessions, would be a key element in understanding how the negative shocks affecting the euro area have a lasting, if not permanent, impact on long-term growth, as well as in understanding the scale of the structural imbalances affecting these economies, such as unemployment, among others.

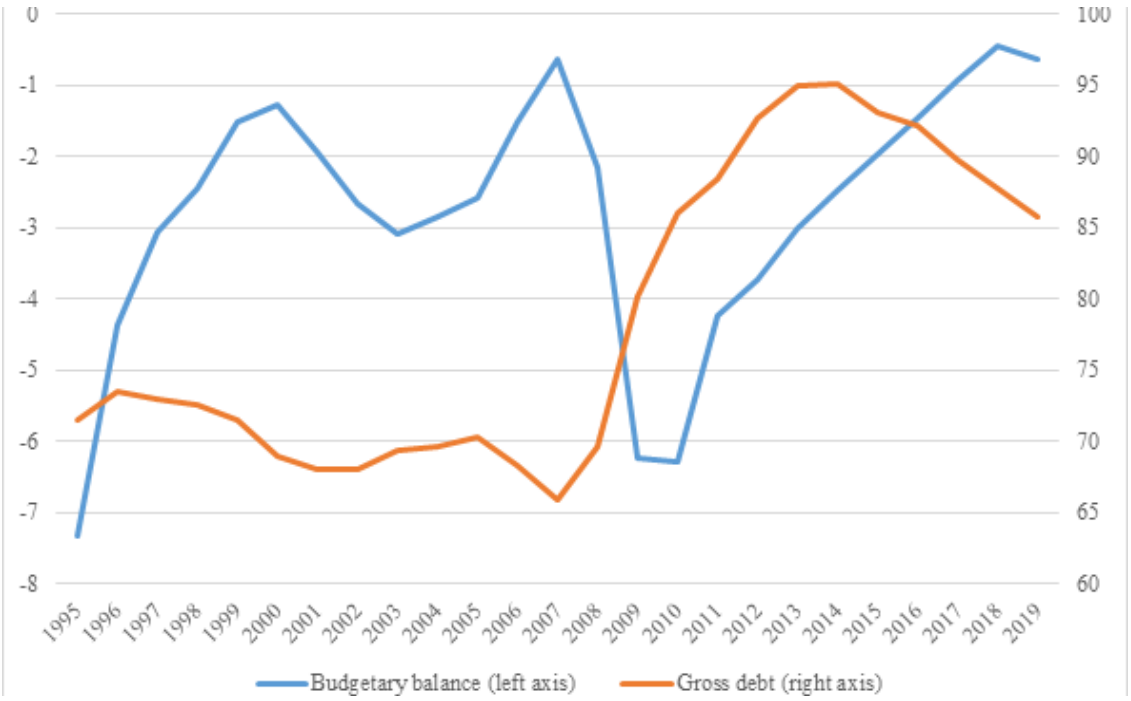
Second, the fiscal adjustment strategy in the euro area has been based not so much on increasing revenue as on cutting expenditure. According to data from the AMECO database, the size of public revenue in the euro area has risen from 45.6% of GDP in 1995 to 46.4% in 2019. However, in the case of public expenditure at the same dates, its size would have fallen from 52.9% of GDP to 47% of GDP. In fact, had it not been for the increase in public spending on health care and public pensions resulting from the ageing process affecting most European countries, the decline in public spending would have been greater.

Contrary to the optimistic view on the effects of austerity policies on economic activity, almost all studies on fiscal policy multipliers carried out since the outbreak of the financial crisis conclude that fiscal policy multipliers are higher than 1, being much higher in periods of recession. This is why the fiscal adjustment measures applied in recessionary phases would have had a profound negative impact on economic growth in the euro area.

This negative effect would have been aggravated by the composition of the spending cuts, which would have focused on the items that the literature on the quality of public finances considers to be "productive spending", i.e. spending that favours economic growth, such as public investment, education, training, healthcare, etc. In this way, long-term economic growth potential would have been equally affected by fiscal adjustment measures (Ferreiro et al., 2011).

Indeed, a paradoxical outcome of fiscal policy in the euro area is that fiscal austerity policy itself would have prevented the correction of fiscal imbalances in the euro area.

Figure 4. General government balance and gross debit in the Euro area (% of GDP)



Source: AMECO Database.

As Figure 4 shows, the objective of a balanced budget is far from being achieved and, recurrently, the euro area has systematically recorded budget deficits. More striking is the case of public debt, whose size has never been below 65% of GDP since 1995 and in 2019 will be above 85% of GDP.

Fiscal austerity policies, by having a negative effect on economic growth, paradoxically affect the objective of achieving a balanced budget and the process of reducing the size of public debt, objectives whose achievement depends not only on the adoption of measures to reduce the nominal size of budgetary imbalances but also on the existence of a context of economic expansion that reduces the nominal value of public deficits through the play of automatic stabilisers and the size in relative terms, as a percentage of GDP, thanks to the increase in economic activity.

5. Conclusions

The experience of the euro area clearly shows how the existence of fiscal rules that promote the indiscriminate application of fiscal austerity policies can have a negative effect on economic activity and long-term growth, as well as another series of collateral negative effects (in terms of employment, inequality, welfare, etc.). In fact, the existence or even the strengthening of these rules does not even guarantee the objectives of achieving a balanced budget and reducing the size of public debt.

It should be borne in mind that these effects can be aggravated in the event that economies suffer adverse shocks other than the fluctuations of the economic cycle itself. The effects of the Global Financial Crisis and the Great Recession and the current Covid-19 pandemic demonstrate this. There is therefore an urgent need to rethink fiscal rules and fiscal policy in order to achieve high and sustained economic growth.

6. References

Blanchard, O., Felman, J. and Subramanian, A. (2021) "Does the new fiscal consensus in advanced economies travel to emerging markets?" *PIIE Policy Brief* 21/7.

Ferreiro, J., Carrasco, C.A. and Gómez, C. (2014) "Convergence of public expenditures and implementation of a single model of public finances in the European Union", *Revista de Economía Mundial*, 37, pp. 75-102.

Ferreiro, J., Gálvez, C. and González, A. (2015) "Fiscal Policies in the European Union during the crisis", P*anoeconomicus*, 62(2) (Special Issue), pp. 131-155.

Ferreiro, J., Garcia del Valle, T., Gómez, C. and Serrano, F. (2011) "Is there a role for active fiscal policies? Supply-side and demand-side effects of fiscal policy", in Arestis, P. (ed.) *Microeconomics, Macroeconomics and Economic Policy*, Palgrave Macmillan, Basingstoke, pp. 191-207.

Oreiro, J.L., da Silva, K.M. and Dávila-Fernández, M.J. (2020) "A New Developmentalist model of structural change, economic growth and middle-income traps", *Structural Change and Economic Dynamics*, 55, pp. 26-38.

THE STAGNATION OF THE BRAZILIAN ECONOMY IN THE 2010S: AN INTERPRETATION BASED ON THE FINANCIAL BALANCE OF THE INSTITUTIONAL SECTORS

Carmem Feijó[1]

Leandro Monteiro[2]

1. Introduction

The Brazilian investment rate decelerated in the 2010s. Two important events can be highlighted to explain the recent trajectory: the deceleration of the world trade in the aftermath of the global financial crisis and the change in the economic policy in the first half of the 2010s – known as the 'new macroeconomic matrix', followed by an agenda of fiscal austerity from 2015 onwards. The new macroeconomic policy arrangement aimed at reducing the real interest rate and inducing a depreciation of the real exchange rate. This attempt did not work, and the Brazilian economy dove into a severe recession in 2015-2016 when real GDP decreased 3.4% py. In 2019, before the COVID-19 pandemic, the Brazilian economy had not yet recovered to the pre-crisis level. The severe reduction in the economic activity was characterized mainly, but not only by a strong reduction in public investments.

Our analysis will be based on the behavior of the flows and the financial stocks of institutional sectors according to the Integrated Economic Accounts for the 2000-2017 period. Assuming that the expenditure flow of one institutional sector is the budget constraint of the other, the accommodation of institutional sector balances in the aggregate allows us to obtain important information about the growth trajectory in a specific macroeconomic context. In the Brazilian case, we will show that the policy decisions of the economic authorities after 2010 worsened the financing capacity of the non-financial companies concerning the 2000s, mainly because of cuts in the public investment which had a negative impact on economic growth. Our analysis also shows the negative correlation between investment and the increasing importance of the financial sector in the Brazilian economy after 2015. This phenomenon is characterized by Epstein (2005) and others as the advance of the financialization process in modern economies (see also Palley, 2013). Stockhammer (2008) and Jayadev and Epstein (2007) report that the growing importance of financial revenue in total revenue for non-financial companies has been strong in industrialized countries, but peripheral countries also show similar evidence[3].

1 Professor at Fluminense Federal University.

2 Ph.D. candidate at Fluminense Federal University.

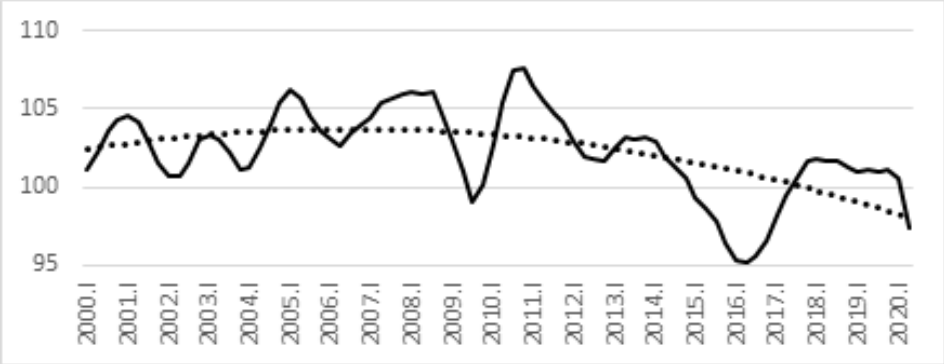
3 Along these lines, Bruno's (2011) contribution allows us to identify how the phenomenon of financialization has been an obstacle to the development of the Brazilian economy, as capital holders exercise a strong preference for liquidity. Feijó et al. (2019) present empirical evidence of the phenomenon of financialization in the reduction of the pace of growth of the Brazilian economy, highlighting the dependence on foreign savings and the retraction of the industrial sector. See also Bresser-Pereira et al (2020).

This note is divided into three sections. The first section presents, in brief, the recent evolution of the Brazilian economy. The following section presents the growth trajectory of the Brazilian economy in light of the financial balances of the institutional sectors. A final section concludes the article.

2. The Brazilian economy in the 2010s: a brief remark

The loss of dynamism in the Brazilian economy is made clear compared to the previous decade's. Figure 1, with the observed GDP growth rate and an adjusted trend line, illustrates the two moments in the evolution of GDP growth from 2000 to 2019.

Figure 1. Index of a 12 month moving average of GDP (chained series in volume at 1995 prices with seasonal adjustment) and trend line (polynomial of order 2 - dotted line) - 2000-2019



Source: Brazilian Institute of Geography and Statistics (IBGE) - Quarterly National Accouunts.

Table 1 shows the growth rate of the main components of aggregate demand. From 2000 until 2009, the export growth rate was almost twice the investment and private consumption growth rates. As of 2010, export growth slows down, investment is stagnant, and the average GDP growth rate drops to below half of the previous period.

Table 1. Average annual GDP growth rate and components of aggregate demand (%)

	GDP	Consumption	Government	Gross Fixed Capital Formation	Exports	Imports
2001-2009	3.3	3.0	4.4	3.6	5.4	3.4
2010-2017	1.4	2.1	-0.6	0.0	3.2	2.5

Source: Brazilian Institute of Geography and Statistics (IBGE) - Quartarly National Accounts.

After the 2008 financial crisis, the world economic scenario was adverse. In the last year of President Lula da Silva's government, the Brazilian economic authorities adopted several countercyclical policies[4] that enabled a rapid recovery of economic growth in 2010 (GDP growth of 7.5%). However, uncertainty in the world scenario persisted in the following years, and GDP growth slowed down.

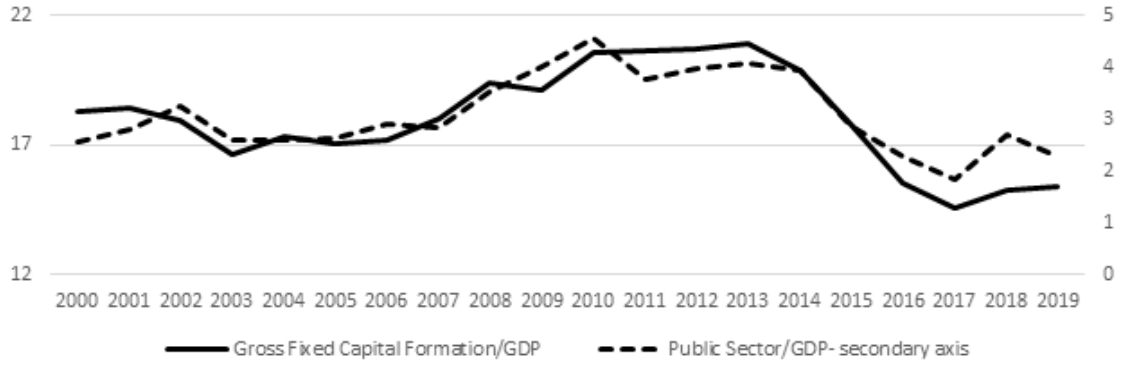
4 Within the scope of monetary policy, the Central Bank took several measures to increase the liquidity of the interbank market, with a reduction in compulsory deposits by banks, a cut in the basic interest rate (Selic) in January/2009 and expansion of credit. As part of the countercyclical fiscal policy, there was a stimulus package (1.3% of GDP in 2009) adopted by the Ministry of Finance based on expansion of government spending, tax cuts and agricultural subsidies. It is also worth mentioning the expansion of public investment in the housing sector with the "Minha Casa Minha Vida" program, the Growth Acceleration Program (PAC) and the expansion of the ´Bolsa-Família´ income transfer program (Barbosa-Filho e Souza, 2010 and Araújo et al., 2020).

At the time of transition to President Dilma Roussef's government (2011), an issue was whether the flexibilization model of the macroeconomic tripod[5] adopted at the end of the Lula da Silva government had been exhausted (Oreiro, 2015; Nassif et al 2020). In this context, the government of President Dilma Rousseff chooses to continue to ease the macroeconomic tripod policy, aiming at lower the real interest rates, a more competitive real exchange rate, and, above all, fiscal consolidation to encourage the resumption of private investment (Singer, 2015; Barbosa -Filho, 2018). Fiscal policy suffered a twist concerning the 2000s. It moved to supply-side incentives through tax exemptions to non-financial companies instead of demand-side incentives through public investments[6]. This change in the economic policy arrangement became known as the 'new economic matrix.' However, the minimum wage policy, an essential commitment of both presidents' policy agenda, continued, despite the lower growth rates of the economy. Therefore, from the point of view of the functional distribution of income, Marquetti et al. (2016) state that as the behavior of wages continued to rise in the 2010s, the rate of profit began to show continuous declines.

The new policy arrangement did not deliver the expected results. Martins and Rugitsky (2018) argue that the reduction in the rate of profit increased the distributive conflict and reduced the stimulus to investment from 2010 on and, as of 2015, increased pressure for fiscal austerity. In the authors' assessment, the drop in the rate of profit was the main factor for the reduction of economic activity during President Dilma Roussef's government[7]. According to Oreiro et al. (2021), the deceleration occurred, as there was a drop in the rate of return on equity of companies, especially in the industrial sector, which experienced an increase in wages above productivity in previous years.

Figure 2 shows the evolution of the aggregate investment and the public investment as a proportion of GDP since 2000. It illustrates the crowding-in character of public investment, indicating that the slowdown in aggregate investment coincides with the fall in public investment following the discretionary spending restraint measures implemented from 2011 under the 'new economic matrix'.

Figure 2. Gross Fixed Capital Formation/GDP (%): Total Economy and Government Sector (2000-2019)



Source: Brazilian Institute of Geography and Statistics (IBGE), Quarterly National Accounts; Fiscal Policy Observatory (IBRE-FGV).

3. The growth trajectory of the Brazilian economy according to the financial balances by institutional sectors

According to our interpretation, the slowdown of the Brazilian economic growth in the 2010s is directly related to the drop in the investment rate. In this section, we will look at the evolution of the financial balances of the

5 The macroeconomic tripod´ is the policy arrangement of inflation targeting, targets of fiscal surplus and flexible exchange rate.

6 See Carvalho (2018), that named the new macroeconomic matrix as the ´agenda FIESP´.

7 See also Carvalho and Rugitsky (2015).

institutional sectors since 2000, assuming that a favorable scenario for the investment rate would imply a positive contribution of the external sector to the private sector and/or an increase in the government deficits.

The analysis is based on the accounting identity that states that the sum of the total net income of an economy must be zero in the following form:

(Private Investment – Savings) + (Government Expenditures – Taxes) + (Exports – Imports) = 0

Private Sector Deficit + Deficit government sector = External Deficit

Figure 3 details the evolution of the financial balances of the Private, Government, and External sectors. The external balance (current account balance) deteriorates between 2009 and 2014, reaching -4.53% of GDP in 2014. The financial balance of the private sector (households and financial and non-financial companies) also showed a relative deterioration, considering that in 2009-2014 the average financial surplus was 0.23% of the GDP, well below the 3.70% observed in 2000-2008. The government sector's balance sheet deficit, in its turn, was 3.55% on average from 2009-2014 and got worse as the Brazilian economy slows down from 2015 onwards. The government sector's financial deficit jumps to 7.32% of GDP between 2015-2017 on average.

Figure 3. Sectoral balance of the Brazilian economy by institutional sectors - %GDP

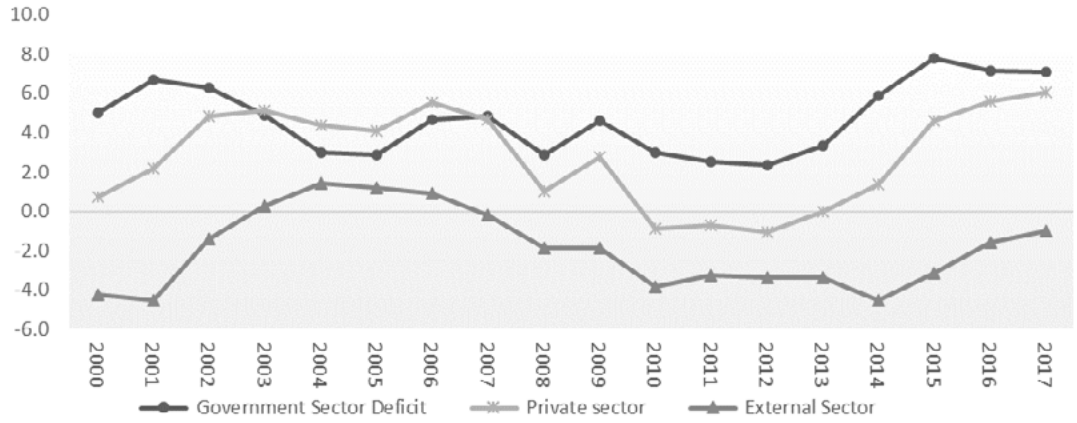
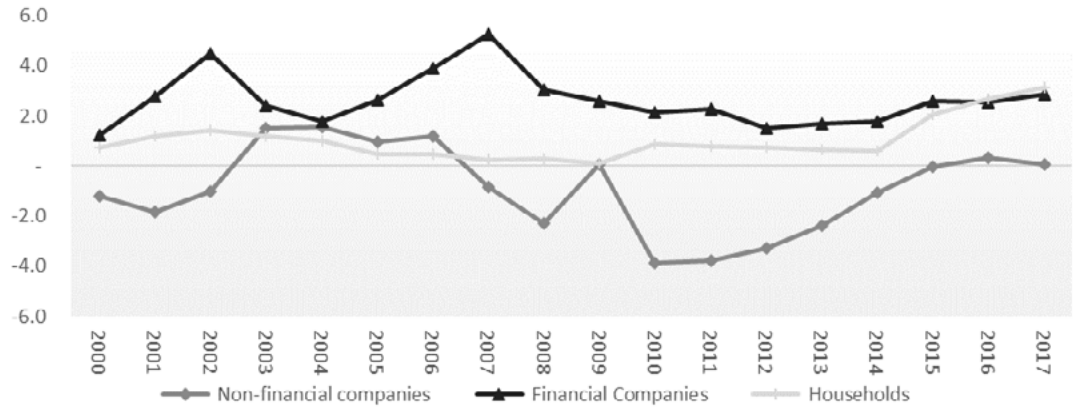


Figure 4 details the composition of the financial balance of the private sector. The non-financial companies presented consecutive deficits in their balance sheets between 2008 and 2016, with negative implications regarding the investment capacity of these companies[8].

8 The IBGE data used to build the financial balances show that non-financial companies had an average participation of 60% in the total Gross Formation of Fixed Capital between 2000 and 2008 against an average of 53% between 2009 and 2017.

Figure 4. Sectoral balance of the private sector - %GDP



Source: Brazilian Institute of Geography and Statistics (IBGE), Integrated Economic Accounts, own elaboration.

Table 2 shows the allocation of stock of financial balances of the non-financial and financial companies, the government sector, and the external sector for two periods: 2010 (the first-year data is available)-2014 and 2015-2017. It is noteworthy that positive value means a net accumulation of assets and vice versa.

Between 2010 and 2014, the average balance of the financial sector's net financial assets was positive at 1.9% of GDP (penultimate line). Loans held by the financial sector represented 3.8% of GDP, on average, and the non-financial sector, in turn, accumulated 4.6% of credit liabilities in the same period. As non-financial companies were increasing their investment spending, at least until 2013, it can be said that financial sector loans were, at least in large part, directed towards investment financing. The scenario changes from 2015 onwards when the Brazilian economy enters into a recession.

Table 2. Allocation of the financial result as a percentage of GDP and investment rate: 2010-2014 and 2015-2017

Items / Years	Financial Companies		Non-financial Companies		Government Sector		External Sector	
	2010-2014	2015-2017	2010-2014	2015-2017	2010-2014	2015-2017	2010-2014	2015-2017
Currency and deposits	-2.4%	-1.1%	0.6%	-0.6%	0.0%	1.5%	-0.6%	-0.6%
Debt securities	3.7%	7.2%	1.0%	1.1%	-5.2%	-8.6%	0.1%	-0.6%
Loans	3.8%	1.1%	-4.6%	0.3%	2.1%	0.4%	2.1%	0.6%
Equity and investment fund holdings	-1.9%	-3.9%	-3.4%	-1.1%	0.6%	0.3%	2.2%	2.5%
Insurance, pension and standardized guarantee	-1.8%	-2.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
Financial derivatives	0.1%	0.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Other accounts receivable / payable	0.4%	1.1%	3.6%	0.6%	-0.9%	-1.0%	-0.1%	0.1%
Total	1.9%	2.7%	-2.9%	0.1%	-3.4%	-7.3%	3.7%	1.9%
Average investment growth rate	11.4%	-13.7%	5.7%	-14.3%	8.4%	-20.1%		

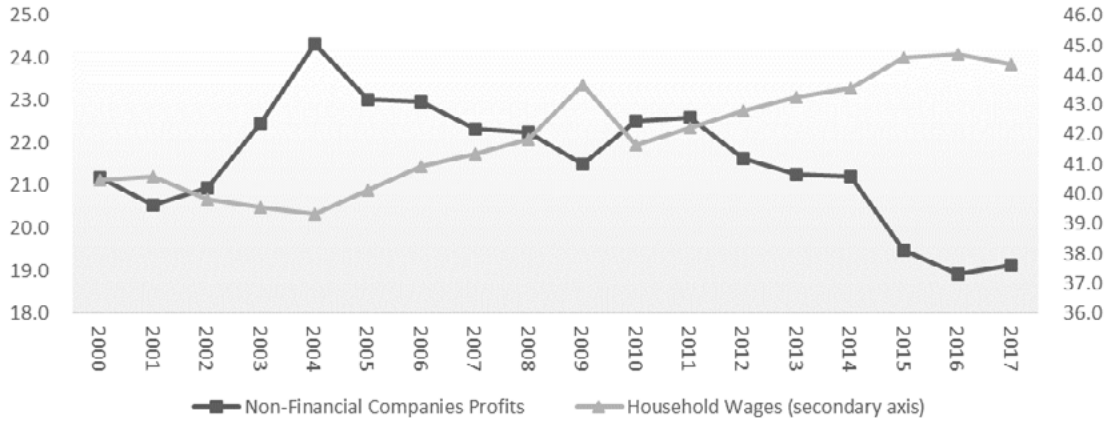
Source: Brazilian Institute of Geography and Statistics (IBGE), Integrated Economic Accounts, own elaboration.

With the decrease in the economy's investment rate between 2015-2017, non-financial companies adjusted their indebtedness level, as their debt profile improved with the reduction of their financial liabilities (balance of loans went from - 4, 6% of GDP to 0.3% in 2015-2017). The financial companies sector, in turn, registered a balance of net financial assets of 2.7% of GDP, a percentage higher than in the previous period when investment in fixed assets was increasing. An important feature of the period is that the financial sector redirected part of its positive financial balances to financing the government sector.

Looking closer to the evolution of the composition of the stocks of financial assets detained by the financial companies, it is interesting to note that the holding of debt securities increased from an average of 3.7% of GDP between 2010-2014 (period of investment growth) to an average of 7.2% between 2015-2017 (period of decline of investment and declining real interest rates). This result indicates how the financial sector is gaining weight in the economy financing the government sector: public debt securities in the hands of the government sector went from - 5.2% in 2010-2014 to -8.6% in 2015-2017, while debts of non-financial companies remained stable at around 1% and the external sector varied only 0.7%.

Figure 5 complements the analysis in Table 2 regarding the sources of investment financing for non-financial companies. The profit share of non-financial companies started to decrease as of 2010 (from 22.5% of GDP to 19.1% in 2017). The evolution of the participation in gross profits contrasts with the evolution of the total remuneration of the household sector (jumped from 65.7% in 2004 to 73.6% in 2017). This fact corroborates the profit squeeze hypothesis of Oreiro (2017), Oreiro et al. (2021), Martins and Rugitsky (2018), and Carvalho and Rugitsky (2015).

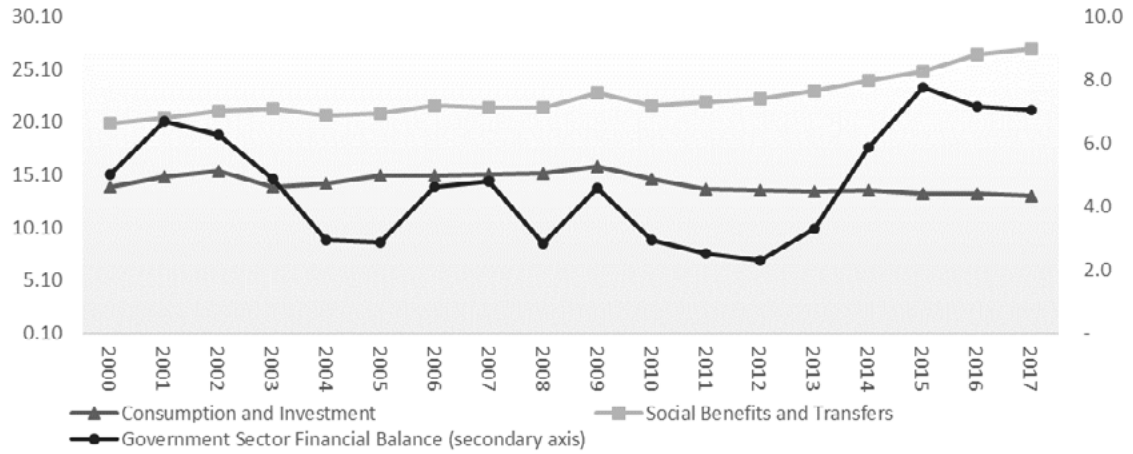
Figure 5. Non-financial companies gross profit X remuneration of household - %GDP



Source: Brazilian Institute of Geography and Statistics (IBGE), Integrated Economic Accounts, own elaboration.

Finally, in Figure 6, we show that the increase in the government sector deficit after 2010 was to compensate for the payment of benefits and social transfers that went from 22% of GDP in 2011 to 27.2% of GDP in 2017. In the same period, the financial outflows (government's Consumption and Investment expenditures) were decreasing (from 15.8% of GDP in 2009 to 13.1% of GDP in 2017). Graph 6 shows that from 2014 onwards, social benefits gained importance and must have contributed to complementing the surplus of the household financial balance (not shown in Graph 6).

Figure 6. Government sector financial outflows - %GDP



Source: Brazilian Institute of Geography and Statistics (IBGE), Integrated Economic Accounts, own elaboration.

To sum up, Table 3 shows the increase in the participation of non-financial companies over the 2000s and 2010s. Considering the period 2000-2008, when the average rate of gross fixed capital formation grew 4.5% py, the contribution of financial companies in the private sector balance was 84.5%. In the period 2009-2017, the growth rate of fixed capital formation is negative. The weight of the balance of non-financial companies in the financial result of the private sector rises to 113.2%, a clear sign of increased financialization. It is also worth noting that between 2010 and 2017, investment in the economy's total capital formation was negatively correlated (-0.43) with financial companies' financial balance.

Table 3: Share (%) of the financial balance of the Private Sector sectors and average investment growth rate (average % pa)

Institutional sectors of the Private Sector	Contribution of each institutional sector to the financial balance of the private sector	
	2000-2008	2009-2017
Non-financial companies	-6.1%	-79.1%
Financial companies	84.5%	113.2%
Households	21.6%	65.9%
	Growth rate of investment	
Growth rate of investiment	4.5%	-0.8%

Source: Brazilian Institute of Geography and Statistics (IBGE), Integrated Economic Accounts, own elaboration.

In short, the increased importance of the financial sector can be explained, at first, to finance investment expenditure of the non-financial sector between 2010 and 2014. However, in the following years (2015-2017), non--financial companies reduced their indebtedness. Financial companies allocated their financial balances in debt securities for the government sector, while the economy's investment rate was being reduced.

Regarding the economic policy of the period, the analysis of the financial balances of the institutional sectors suggests that to improve the private sector's balance (households, financial companies, non-financial companies), the government sector could have increased its financial deficit. In this case, we can raise the question of whether the stimulus from the government sector in the post-2008 international financial crisis was not withdrawn too soon. The control of the government sector deficit was strong from 2011 onwards with the implementation of the "new economic matrix," and the bias of public spending contraction was accentuated after President Dilma Roussef, which lasted until the beginning of the Covid-19 pandemic.

In addition, with regard to the balance of the external sector, the Brazilian economy showed recurrent deficits, except only between 2003-2006, which coincides with the good performance of the aggregate investment. This result shows the importance of the external balance to non-financial companies and the government sector, as positive external balances allow for more policy space to the governmental policy to promote growth. That is to say, only when the external balance is positive, the government sector can seek to reduce its deficit without compromising the liquidity of the private sector.

4. Final remarks

This note analyzed the growth trajectory of the Brazilian economy with a focus on the loss of investment dynamism as of 2010. Our main findings related to the non-financial sector are a) as of 2013, the non-financial sector began to reduce investment spending, following the cut in public investment, but until 2014 expenditure in gross capital formation was sustained with loans from the financial companies; b) the attempt of the government to reduce the public deficit by implementing the "new economic matrix" deepened the financial deficit of non-financial companies and conversely when the government deficit started to increase it contributed to reducing the non-financial sector deficit which became positive from 2015 onwards; c) during a great part of the 2010s non-financial sector´s deficit was reinforced by the decrease in the profit-share of the sector in national income.

Therefore, the economy started to slow down in the 2010s due to the contraction in aggregate investment. The slow down of the economy in the first half of the 2010s leads to a stagnation period in the second half of the 2010s. As the economy decelerated, the control of the public debt became more difficult. The difficulty of controlling fiscal deficits in a stagnant economy, in its turn, fuels the financial sector's defense of austerity policies. Since 2015, economic authorities have been implementing fiscal austerity policies, cutting public spending, and deregulating the labor market, but with little success in restoring growth and employment. In turn, austerity policies are deepening the process of financialization of the Brazilian economy. The financial sector increased its weight in the private sector's financial balance composition, indicating the advance of the financialization process in the downward phase of the Brazilian growth trajectory.

Finally, this note has shown that, in a scenario of economic stagnation, it is essential to rescue the debate on the role of public investment as a countercyclical policy and its character of expanding potential output. The analysis of the financial balances of the institutional sectors indicates that the maintenance of the level of public investment throughout 2010 would have contributed to sustaining the growth of the Brazilian economy and reducing the private sector deficit (mainly non-financial companies).

5. References

Araújo, E., Araujo, E.; Ferrari, F. (2020). A atuação anticíclica das autoridades econômicas brasileiras em duas crises - Subprime (2008/08) e Covid-19 (2020): Teorias e evidências. *Boletim FINDE/UFF*, available at http://finde.uff.br/wp-content/uploads/sites/43/2020/11/Relatorio-3.pdf..

Barbosa-Filho, N. (2018). Revisionismo histórico e ideologia: as diferentes fases da política econômica dos governos do PT. *Brazilian Keynesian Review* - 4 (1),p. 102-115. doi: https://doi.org/10.33834/bkr.v4i1.160

Barbosa-Filho, N.;Souza, J. (2010). A inflexão do Governo Lula: Políti-ca Econômica, crescimento e distribuição de renda. In E. S. (orgs.), *Brasil: entre o Passado e o Futuro*. São Paulo: Fundação Perseu Abramo e Editora Boitempo.

Bresser-Pereira, L., Paula, L. F.; Bruno, M. (2020). Financialization, coalition of interests and interest rate in Brazil. *Revue de la Regulation: Capitalisme, Institutions, Pouvoirs*, v. 27, p. 1-24.

Bruno, M. (2011). Financerização e crescimento econômico: o caso do Brasil. *Revista com Ciência*. Retrieved from https://www.comciencia.br/comciencia/handler.php?section=8&edicao=66&id=837

Carvalho, L.; Rugitsky, F. (2015). Growth and distribution in Brazil the 21st century: revisiting the wage-led versus profit-led debate. *Working Paper* Nº 2015-25 - FEA/USP. Retrieved from http://www.repec.eæ.fea.usp.br/documentos/Carvalho_Rugitsky_25WP.pdf

Epstein, G. (2005). *Financialization and the world economy*. Cheltenham:Edward Elgar.

Feijó, C., Lamônica, M.; Lima, S. (2019). Financialization and Structural Change: the Brazilian case in the 2000s. *Economia e Sociedade*. vol.28 no.1, p 177-200, https://doi.org/10.1590/1982-3533.2019v28n1art09

Jayadev, A.; Epstein, G. (2007). The correlates of rentier returns in the OECD countries. *Working Papers* 123 - Department of Economics, University ofMassachusetts, Amherst, MA. Retrieved from https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1098&context=peri_workingpapers

Marquetti, A., Hoff, C., & Miebach, D. (2016) *Lucratividade e Distribuição: A Origem Econômica da Crise Política Brasileira*; available at https://www.researchgate.net/publication/312191358_Lucratividade_e_Distribuicao_A_Origem_Econo

Martins, G.; Rugitsky, F. (2018). The commodities boom and the profit squeeze: output and profit cycles in Brazil (1996-2016). *Working papers Series* Nº 2018-09 - FEA/USP. Retrieved from https://ideas.repec.org/p/spa/wpaper/2018wpecon09.html

Nassif, A., Feijó, C.; Araújo, E. (2020). Macroeconomic policies in Brazil before and after the 2008 global financial crisis: Brazilian policy-makers still trapped in the New Macroeconomic Consensus guidelines. *Cambridge Journal of Economics*, Volume 44, Issue 4, July, p. 749-779. https://doi.org/10.1093/cje/beaa014

Oreiro, J.L. (2015). *Do Tripé Macroeconômico ao Fracasso da Nova Matriz*. available at https://www.researchgate.net/publication/277234315_Do_Tripe_Macroeconomico_ao_Fracasso_da_Nova_Matriz

Oreiro, J. (2017). A grande recessão brasileira: diagnóstico e uma agenda de política econômica. *Estud. Av*.- v. 31, n. 89, p. 75-88. https://doi.org/10.1590/s0103-40142017.31890009

Oreiro, J. L; Feijo, C; Punzo, L. ; Machado, J. P. H. (2021). Peripherical financialization and premature deindustrialization: a theory and the case of Brazil (2003-2015), *Working Paper* 2103 Post Keynesian Economic Society, available at http://www.postkeynesian.net/downloads/working-papers/PKWP2103.pdf

Palley, T. (2013). *Financialization: The Economics of Finance Capital Domination*. New York: Palgrave Macmillan.

Serrano, F.; Summa, R. (2015). *Demanda agregada e a desaceleração do crescimento econômico brasileiro de 2011 a 2014*. Center for Economic and Policy Research – CEPR, available at https://cepr.net/documents/publications/Brazil-2015-08-PORTUGUESE.pdf.

Singer, A. (2015). Cutucando onças com varas curtas. *Novos Estudos*. Edição 102, v. 34, n.2, https://doi.org/10.25091/S0101-3300201500020004.

Stockhammer, E. (2008). Some Stylized Facts on the Finance-Dominated Accumulation Regime. *Competition and Change*, vol. 12, no. 2, p. 184–202. https://doi.org/10.1179/102452908X289820

AXIS 2
ECONOMIC DEVELOPMENT

INTERNATIONAL PUBLIC GOODS AND DEMOCRACY-ENHACING MULTILATERALISM

Gabriel Porcile[1]

1. Introduction

In a celebrated work, Dani Rodrik (2013) points out that hyperglobalization (HG) and democracy are not compatible with national states. The reason is that HG creates tensions and political conflicts (stemming from its impacts on jobs and welfare) that democratic governments will necessarily have to address. The effort of the governments to cushion these impacts would, at the end of the day, compromise HG.

But, at odds what was proclaimed but the TINA (there is no alternative) cheerleaders, HG is not the only game in town. International trade and investment can flourish in a very different institutional and political environment, as the experience of the Bretton Woods years (albeit imperfectly) shows. Keohane et al (2009) set forth the idea of a democracy-enhancing multilateralism that seeks to preserve the best of the integration to the global economy with the need to protect the welfare state and the policy space for development policies. Section 1 argues that there is no spontaneous harmony in the international system and cooperation is necessary to correct negative externalities. These externalities are explained drawing from the Structuralist tradition in economic theory. Section 3 presents a simple model showing how these negative externalities affect growth and income distribution, while section 4 concludes.

2. Harmony and cooperation

In his classical work, Keohane (1984, pp. 51-52) argues that there is harmony in international relations when one actor, acting unilaterally in the pursuit of its own interests, produce outcomes that benefit (and is benefited from the actions of) other actors that are also acting unilaterally in accordance with their own interests[2]. The implicit assumption in HG is that harmony prevails in trade and finance: each country will be better-off with freer trade and more open capital accounts than with any other form of international governance implying higher barriers or transaction costs[3]. However, when unilateral actions do not spontaneously[4] bring about the most desirable outcomes, cooperation is necessary to coordinate decisions, encourage certain strategies and penalize others (like free riding in the prisoners' dilemma). Openness and Pareto-efficient outcomes in the real world frequently are the result of cooperation, not of harmony. HG accepts that in some cases coordination is necessary—when governments are myopic or susceptible to the pressure of vested interest. But even in this case the only public goods that the international system would require for working efficiently are agreements that prevent domestic interests from standing in the way of free trade and unimpeded capital flows.

1 Economic Affairs Officer at the Economic Commission ofr Latin American and the Caribbean, and Professor of Economics at the Federal University of Paraná.

2 "*When harmony reigns, cooperation is unnecessary*" (Keohane, 1984, p. 51).

3 The only exception is the case of an optimal tariff, aimed at improving the terms of trade of a big country which has market power in the international economy.

4 The word "spontaneous" may be misleading in the context. There are crucial institutional and political assumptions behind perfect markets leading to a Pareto optimum.

The Structuralist school, on the other hand, challenges the underlying assumptions on trade and growth of HG. It sees international trade and investment as a powerful force in favor of development. Still, these positive effects only arise under certain conditions, namely when there are in place policies that reshape incentives away of static comparative advantages (see ECLAC 2020). The central point of structuralism is that, when these conditions are not fulfilled, market forces reproduce technological and income asymmetries—between regions within a certain country, and between countries in the world economy—leading to a center-periphery dynamic. Such dynamic produce *negative economic and political externalities that affect both center and periphery*, setting in motion forces that challenge the globalization process and destabilize democratic regimes (see next section). In explaining why convergence persist and negative externalities emerge, New Structuralists combine classical Structuralisms with Schumpeterian and Keynesian insights in economic theory, as will be discussed below.

2.1. Why there is no spontaneous convergence in technological capabilities

A key tenet of Structuralism is that international specialization and technology co-evolve associated with lock-in and hysteresis phenomena. On the one hand, differences in technological capabilities affect the pattern of specialization—countries which are more technologically advanced are specialized in technology-intensive sectors. On the other hand, specialization affects the rate and direction of technical change (Dosi et al, 2015). Technological opportunities (the potential for innovation and productivity growth) are higher in high-tech activities than in traditional activities. This means that a country specialized in advanced technologies will experience higher rates of innovation and productivity growth[5].

The reason why there is no spontaneous trend towards convergence in technological capabilities between center and periphery is captured in the literature through the concepts of localized technical change (Atkinson and Stiglitz, 1969), tacitness (Nelson and Winter, 1982, 1983), learning by doing (recently revisited by Arrow, 2004) and learning by interacting (Lundvall, 2016, pp. 143-144). All these concepts stress the importance of experience in production and innovation within a certain "technological region" or technological domain as a source of learning. The concept of localized technical change underlines that firms can only adopt or improve a technology when it is related to technologies they are already using. Tacitness refers to the limits of learning from codified sources. A manual or a handbook contribute to learning, but capabilities only become effective when they are incorporated to the routines of firms and the skills of workers. Samuelson (1948) provides an early statement of this property of technical change: "Knowledge is not an input such as the more you use it, the less is left. Effective knowledge is even more important than knowledge, and unfortunately cannot be acquired by reading a book or by editorial exhortation" (italics in the original). Learning by doing describes the fall in average cost of production out of accumulated experience in production. Learning by interacting, in turn, refers to the role that the exchange of information between users and producers play in fostering innovation and capabilities of both types of actors through time. In all cases, in the absence of specific policies for catching up and absorbing foreign technology, increasing returns widen the technology gap between innovators and followers (laggard firms and countries)[6].

The intensity of the various forms of learning depends on the existence of institutions that (explicitly or implicitly) coordinate interactions and enhance cooperation in innovation and diffusion of technology among the different actors involved in technical change. The literature has coined the concept of "National System of Innovation" (see Alcorta and Peres, 1998) to stress the systemic nature of learning and the importance of domestic policies for catching-up. The concept of NSI considers the heterogeneity of the agents involved, the importance of their

5 A pioneer work relating the sectoral composition of production to the dynamism of technical changes is Pavitt (1984). Recent empirical advances using this typology can be found in Bogliacino and Pianta (2016).

6 See Fagerberg and Verspagen (2002).

interactions, and the specificities (historical and institutional) of their learning paths[7]. In the words of Lall (1992, p.169): "(N)ational capabilities are not simply the sum of thousands of individual firm-level capabilities developed in isolation. Because of externalities and interlinkages, there is likely to be synergy between individual FTCs", where FTCs stands for firm-level technological capabilities. The patterns of specialization and technological trajectories become more rigid, interconnected, giving rise to lock-in in the existing trajectory (Arthur 1994). Increasing returns and self-reinforcing mechanism in technical change underline the crucial role of policies that "distorts" the prevailing incentives in allowing countries to escape from lock-in (ECLAC, 2012).

2.2. Why there is no spontaneous convergence in GDP per capita

Technological backwardness does not only affect learning and productivity growth; it also affects demand growth. Differentiated goods from technology-intensive sectors usually command higher rates of demand growth in the international and domestic markets than commodities and homogeneous (less sophisticated) goods[8]. This is formalized in the Structuralist tradition in the form of a higher income elasticity of the demand for exports than the income elasticity of its demand for imports in the periphery[9]. To the extent that the ratio between the income elasticity of the demand for exports and imports is lower than the unity, the periphery will experience a deficit in the trade balance if it grows above the rate of growth of the world economy (Moreno-Brid, 2003). Although for a short period of time current account deficits can be financed by a rising external debt, a growing debt to GDP ratio is not sustainable in the long run. As a result, the periphery will have to reduce its rate of economic growth to what is compatible with current account equilibrium.

The fall of the rate of growth in response to external unbalances may come out of a fall in public and private investment caused by pessimistic expectations about future growth, a reduction in public expenditures when the government seeks to avoid an explosive path for the external debt, or a combination of the previous two mechanisms (Blecker, 2011)[10].

Still, center-periphery divergence is not destiny. While it is true that technological and market forces tend to reproduce the center-periphery divide, there are experiences of convergence in the global economy which show that policies for structural change in the periphery could be effective in changing the patterns of specialization. As mentioned, Korea and China redefined their insertion in the glo89bal system by challenging orthodox prescriptions in economic policy. By doing so they contributed to enhance global aggregate demand. The commodity boom in Latin America is to a significant extent a reflection of structural change in the Chinese economy. However, in a world in which there are no global public goods to correct unbalances in trade or protect workers' rights from international competition, the rise of China heightened tensions in domestic politics and geopolitical rivalry. The question that presents itself is the following: can paths of convergence be recreated in a way that complies with multilateral rules in the international system, strengthens democracy and do not enhance inequality in the advanced world?

---

7 For a discussion of the specificities of learning in a developing economy, see Cimoli and Katz (2003) and Bell (2006).

8 For a discussion of the links between changes in the production structure and growth in the long run, see Peneder (2002), Felipe et al (2012), Aldrighi and Colistete (2013) and Storm and Naastepad (2015). There are exceptions to this empirical regularity, such as good luck in the "commodity lottery" (Díaz-Alejandro, 1983). However, the commodity lottery provides a less stable basis for growth than technological capabilities.

9 The simplest expression of the BOP-constrained rate of growth is Thirlwall's Law, that states the relative rate of growth of the periphery with respect to the center equals the ratio between the income elasticity of exports (ε) and imports (π) of the periphery (y^P/y^C)=ε/π. An assessment of the literature can be found Thirlwall (2011). For an early structuralist formulation, see Rodríguez (1977).

10 See also Blecker and Setterfield (2019).

The response is a cautious "yes" to be elaborated in the next section, drawing from KMM. For the objectives of this paper, the central concern is that the center-periphery dynamic described by the Structuralists approach entails two negative global externalities: a contractionary bias in global aggregate demand and higher economic instability; an increase in political instability due to a downward pressure on wages and workers' welfare; environmental degradation and climate change. The focus of the next section will be on the first two negative externalities, while the topic of sustainability will not be addressed in this paper.

Democracy and the tensions of created by asymmetric global economy: the contractionary bias of the adjustment process

The negative externalities associated with a center-periphery system can be described by a simple two--country model (center, C, and periphery, P) based on McCombie and Thirlwall (1994), Blecker (1998) and Cimoli and Porcile (2010). The model consists of two traditional Keynesian demand functions (equations 1 and 2), the BOP constraint (defined as the condition for equilibrium in trade balance, equation 3) and an adjustment mechanism between the effective and equilibrium rates of growth (equation 4).

$$(1)\, y_P = y\left(a_P, x_P(\hat{q}, y_C)\right)$$
$$(2)\, y_C = y\left(a_C, x_C(-\hat{q}, y_P)\right)$$
$$(3)\, {y_P}^E = \frac{\varepsilon}{\pi} {y_C}^E$$
$$(4)\, \dot{a}_P = \varphi\left({y_P}^E - y_P\right)$$

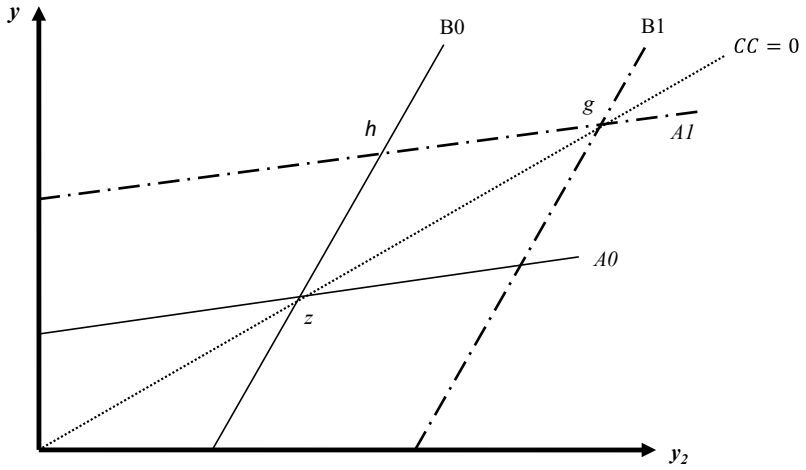
Where $\dot{y}=y/y$ is the effective rate of growth of GDP (subscripts P and C represent periphery and center, respectively), α is the rate of growth of autonomous expenditure and x the rate of growth of net exports. Autonomous expenditure in this context is the one that does not depend on the rate of growth of the other country. Equation (3) is Thirwall's Law, ε is the income elasticity of exports, π the income elasticity of imports and ${y_P}^E$, ${y_P}^C$ the Balance-of-Payments constrained (equilibrium) rates of growth in center and periphery, respectively.

Equation (1) states that the effective growth of the periphery (y_p) depends positively on the growth of autonomous expenditure in the periphery (α_p) and the rate of growth of net exports to the center (x_p). The latter is a positive function of the growth rate of the real exchange rate (defined as $\hat{q} = \hat{P}^C + \hat{E} - \hat{P}^P$, where $P^i, i = C, P$ are price levels and E is the price of the foreign currency in units of the domestic currency) and the rate of growth of the center. Equation (2) is symmetric to equation (1) and gives the effective rate of growth of the center. The growth of autonomous expenditure in the periphery is endogenous in the long run and adjusts according with the motion equation (4) to make the effective rate of growth equal to the BOP-constrained rate of growth (adjustment based on quantity rather than on prices). The parameter φ is the velocity of adjustment to external equilibrium. As in Thirwlall's Law, in the long run the real exchange rate is stable and hence $\hat{q} = 0$. For simplicity, assume that autonomous expenditures in center and periphery are shaped by changes in the rate of growth of fiscal expenditures. Assume also that the periphery and the center have unemployed or underemployed workers that can be employed or transferred from low-productivity to high-productivity activities. In the long run the growth rate of autonomous expenditure is constant ($\dot{a}_P = 0$).

Figure 1 represents different scenarios in adjusting towards external equilibrium in center and periphery. The initial position is point *z* in which both center and periphery grows with external equilibrium (*z* is on the *CC = 0* schedule giving all the combinations of effective rate of growth in center and periphery that complies with the BOP constraint, i.e satisfies ${y_P}^E = (\varepsilon/\pi){y_C}^E$). Assume now that—with a view to improving employment and income distribution—the periphery raises autonomous expenditure and the curve giving the effective rate of growth shifts from

A0 to A1. The new (transitory) position of the economy is *h*, where both center and periphery grow at a higher rate than before. At point h, however, the periphery experiences a trade deficit that raises the debt/GDP ratio. This cannot be sustained in the long run.

Figure 1. The contractionary bias: the fail in aggregate demand in the periphery



Where: A0 – effective rate of growth in the periphery (as a function of growth in the center); B0 – effective rate of growth in the center (as a function of growth in the periphery); A1 – effective rate of growth in the periphery with coordinated fiscal policies; B1 – effective rate of growth in the periphery with coordinated fiscal policies; z – initial equilibrium position; g – final equilibrium position with coordinated fiscal policies; h – transitory rate of growth; CC=0 BOP-constrained rate of growth.

Three alternative paths are possible. First, if there is no coordination of fiscal policies in center and periphery, the periphery will not be able to sustain the rate of growth defined by *h*. It will slow down fiscal expenditures ($\dot{a}_P < 0$) to reduce the growth of aggregate demand to the level consistent with the BOP constraint. A1 shifts back to A0 and growth falls in center and periphery.

Second, if center and periphery coordinate fiscal policies, then the center responds to the expansion of fiscal policy in the periphery increasing its own rate of growth of autonomous expenditure. B0 shifts to B1 and the new equilibrium position will be *g*. This position implies higher growth and external equilibrium in both center and periphery.

Third, the periphery may change its production structure. By changing its pattern of specialization, the periphery changes the slope of the *CC=0* schedule (ε/π) increases), which shifts to the left (not represented in Figure 1). This change implies that the periphery will have external equilibrium in point h, even if the center does not change its fiscal policy. The result of such a shift is to allow both center and periphery to grow at a higher rate with external equilibrium. Enhancing diversification and technological change in the periphery reduces the anti-growth bias implicit in keeping a substantial part of the workforce in the periphery unemployed or underemployed. In this sense, the existence of a large technology gap and marked asymmetries in the patterns of specialization represent a negative externality for the whole system.

These alternative paths have implications for income distribution. Structural change and the coordination of fiscal policy allow the periphery to reduce underemployment and the share of subsistence workers in total employment. This in turn helps to raise real wages in the periphery. Improving income distribution in the periphery also contributes to reduce downward pressures on wages and welfare in the center and hence cushions political tensions in both poles of the system.

2.3. The distance between the equilibrium positions z and g is a measure of the contractionary bias implicit in a system in which there is no coordination of fiscal policies nor structural change in the periphery. It is also proxy for the intensity of the political tensions that may spread in the global system out of a highly unequal income distribution in the periphery

The paper by KMM allows for rethinking democracy and development in a context of multilateralism and openness. To advance in this direction, these authors lay down a set of conditions that international institutions should observe for having democracy-enhancing multilateralism. It will be argued in this section that these conditions should include the provision of global public goods aimed at correcting external unbalances (and hence promoting stable growth of global aggregate demand) and reducing inequality between and within countries (and hence promoting political stability).

According to KMM, democracy-enhancing multilateralism should comply with three conditions. The first is encouraging policies that benefits the majority of the population as opposed to policies that benefits mostly powerful groups that can mobilize substantial resources to make their preferences prevail. In other words, it should help the citizens solve the collective action problem that emerges when the gains of any individual actor are too small to justify her paying the cost of engaging in the policy arena. The second condition is strengthening the protection of civil rights, especially in the case of vulnerable groups and minorities. Constitutional democracy entails that the majority cannot overrule the civil rights of minorities and/or groups that do not hold enough political or economic power to defend their rights. The third condition is strengthening the deliberative capabilities of the society by opening the policy debate to a variety of actors (from both the public and private sectors) and perspectives, making it more transparent and allowing these actors to contribute with structured, informed arguments to the analysis. The quest for an open public debate makes it easier to protect the diffuse interests of the majority, since prevents the most powerful actors from having privileged access to information and policy-makers[11].

KMM explicitly acknowledge that they do not discuss political and economic asymmetries between states. Their focus is on the "vertical" relation between states and citizens, not on the "horizontal" relation between states. However, this horizontal relation (when it is highly asymmetric) may produce negative externalities that challenge the viability of democracy-enhancing multilateralism[12]. HG resembles the gold standard in placing on labor most of the adjustment costs to external shocks, either by rising unemployment, falling real wages, or both. At variance with HG, combining democracy and increasing global economic integration requires stabilizing growth and broadening the policy space at home to compensate losers and foster equality.

3. Concluding Remarks

The Bretton Woods regime provided global public goods that encouraged international trade while keeping a space for domestic policies concerned with building the welfare state and full employment in the center—what was called "embedded liberalism". This helped keep globalization going hand in hand with democracy in these cou-

11 This is not how negotiations are being conducted in the HG framework. The Trans-Pacific Agreement is an example of a trade agreement in which a secretive outlook predominated. It has been observed that "(s)ecrecy has real costs. Because the negotiating process combines a general shield from the public with privileged access for industry advisers, the substance of American free trade agreements does not represent truly national interests. It represents the interests of those members of industry who sit on the office's Industry Trade Advisory Committees, which have regular access to negotiating information", Margot Kaminsky, "Don't Keep the Trans-Pacific Partnership Talks Secret", op-ed, *The New York Times*, April 14 2015, https://www.nytimes.com/2015/04/14/opinion/dont-keep-trade-talks-secret.html.

12 The problem of the quality of democracy—as different from defining democracy in a more restrictive way, namely having elections and electoral competition—is addressed in Przeworski (2009) and Galston (2018).

ntries. Inversely, "deep integration" advanced on the premise that minimizing transaction costs for moving capital and goods across the borders would bring about rapid growth and, as a corollary, political legitimacy. However, HG neither produced faster growth nor political stability. It was associated with a redistribution of economic and political power against labor that weakened the confidence on constitutional democracy.

KMM offered a response to the globalization backlash with the concept of democracy-enhancing multilateralism. Drawing form the Structuralist school of thought on economic development, the conditions set forth by KMM should also include global public goods to address negative externalities stemming from a center-periphery system, namely slow and unstable growth, increasing inequality and environmental degradation. While it is not the objective of this paper to address the policy implications of a structuralist perspective on KMM, some directions arising from the previous discussions can be pointed out.

First, the literature has increasingly called for a more coordinated and extensive use of fiscal policy as an instrument for sustaining growth and changing growth patterns towards a low-carbon path (Stiglitz, 2019). There has been demands for reducing trade unbalances by stimulating public spending and real wages in surplus countries, instead of reducing growth and wages in countries running a deficit (Qazizada, W. and Stockhammer, 2015). The technological revolution offers a broad set of investment opportunities associated with transforming the energy matrix, changing the urban infrastructure in a sustainable direction, and introducing new environmentally friendly technologies in production. An "environmental big push" for development (ECLAC, 2016), a "global new deal" (UNCTAD, 2016, chapter VI) and a "green new deal" (Stiglitz, 2019), are all initiatives that seek to boost public investment the technological innovation in the direction of social inclusion and sustainability.

Secondly, a new covenant at a global level would be necessary to protect labor rights (Rodrik, 2018). There is resistance in each individual country to strengthen social protection, which is seen as compromising international competitiveness as well as the ability of the country to attract foreign investment. This impasse can only be corrected by adopting international standards for labor protection. Note that these standards might reduce the competitiveness of some peripheral economies, namely of those that are more dependent on low wages to export. However, to the extent that such a global standard will represent a basic floor of labor rights for all countries, relative differences in wage costs will persist and continue to shape the comparative advantages of center and periphery.

4. References

Alcorta, L. and Peres, W. (1998) "Innovation Systems and Technological Specialization in Latin America and the Caribbean", *Research Policy* 26, pp.857-881.

Aldrighi, D. And Colistete, R. (2013) "Industrial growth and Structural Change: Brazil in a Long Run Perspective", *Working Paper Series* N. 2013-10, Department of Economics, University of Sao Paulo.

Amable, B. (2016). Institutional complementarities in the dynamic comparative analysis of capitalism. *Journal of Institutional Economics*, 12(1), 79-103. doi:10.1017/S1744137415000211

Arrow, K. (2004) *"Path Dependence and Competitive Equilibrium", in History Matters: Essays on Economic Growth, Technology and Demographic Change*, Stanford University Press, 2004, pp. 23-35.

Arthur, B. (1994) *Increasing Returns and Path-Dependency in Economics*. Ann Arbor: Michigan University Press.

Atkinson, A. and Stiglitz, J. (1969) "A New View of Techno- logical Change.", *Economic Journal* 79 (September): 573–578.

Bell, M. (2006), "Time and Technological Learning in Industrialising Countries: How Long Does it Take? How Fast is it Moving (If At All)?" *International Journal of Technology Management*, vol. 36, No. 1–3, pp. 25–39.

Bértola, L. and Ocampo, J.A. (2012), *The Economic Development of Latin America since Independence*, Oxford University Press, Initiative for Policy Dialogue.

Blecker, R.A. (2011) "Long-run growth in Open economies: Export-Led Cumulative Causation or a Balance-of-Payments Constraint?" in G. Harcourt and P. Kriesler, eds., *Handbook of Post-Keynesian Economics*. Oxford: Oxford University Press, forthcoming.

Blecker, R. (2016) "The Debate Over Thirlwall's Law: Balance-of Payments-Constrained Growth Reconsidered", *European Journal of Economics and Economic Policy: Interventions*, v.13 (3), pp. 275-290, December.

Blecker, R. and Setterfield, M. (2019) *Heterodox Macroeconomics: Models of Demand, Distribution and Growth*, Cheltenham, UK: Edward Elgar, 2019, forthcoming.

Bogliacino, F. & Pianta, M. 2016. "The Pavitt Taxonomy, revisited: patterns of innovation in manufacturing and services", *Economia Politica*, 33: 153-180. https://doi.org/10.1007/s40888-016-0035-1

Bresser-Pereira, L.C. (2008) "Dutch Disease and its Neutralization: a Ricardian Approach", *Brazilian Journal of Political Economy* 28 (1) January, pp. 47-71.

Chang, H-J. (2002) *Kicking Away the Ladder – Development Strategy in Historical Perspective*, Anthem Press, London.

Chang, H.J. (2009) *"Industrial Policy: Can We Go Beyond an Unproductive Confrontation?"*, Plenary Paper for ABCDE (Annual World Bank Conference on Development Economics) Seoul, South Korea 22-24 June.

Cimoli, M. and J. Katz (2003), "Structural Reforms, Technological Gaps and Economic Development: A Latin American Perspective", *Industrial and Corporate Change*, 12 (2), April, 387–411.

Dahl, Robert and Ian Shapiro. 2015. On Democracy. Second Edition. New Haven, CT: Yale University Press.

Dailami, M. 2008. "Financial Openness, Democracy and Redistribution Policy." *World Bank Working Paper* 2372, June 2000.

Das, Mitali and Mohapatra Sanket. 2003. "Income inequality: The Aftermath of Stock Market Liberalization in Emerging Markets". *Journal of Empirical Finance*, 10 (1-2): 217-248. doi: 10.1016/S0927-5398(02)00025-7.

Dao, Mai C., Mitali Das, Zsoka Koczan and Weicheng Lian. 2017. "Why is Labor Receiving a Smaller Share of Global Income? Theory and Empirical Evidence." *IMF Working Paper*, 17/169, July.

Deacon, Robert T. 2009. "Public good provision under dictatorship and democracy.", *Public Choice*, 139 (1–2): 241–262. doi: 10.1007/s11127-008-9391-x.

Diamond, Larry. 2015. "Facing Up to the Democratic Recession." *Journal of Democracy*, 26(1): 141 155.doi: 10.1353/jod.2015.0009

Diaz-Alejandro, Carlos. 1983. "Good-Bye Financial Repression, Hello Financial Crash". *Discussion Paper*, No. 441, Yale University, Economic Growth Center, New Haven, CT. This Version is available at: http://hdl.handle.net/10419/160365.

Diaz-Alejandro, Carlos F. and Gerald K. Helleiner (1982) *Handmaiden in distress : world trade in the 1980s*, Ottawa: North-South Institute.

Doner, Richard and Ben Ross Schneider. 2016. "The Middle-Income Trap: More Politics than Economics." *World Politics*, 68(4), 608-644. doi.org/10.1017/S0043887116000095

Dooley, Michale P, Davild Folkerts-Landau and Peter Garber. 2004 "The Revived Bretton Woods System." *International Journal of Finance and Economics*, 9, 307-313. doi.org/10.1002/ijfe.250

Dosi, G.; Grazzi, M. and Moschella, D. (2015) "Technology and Costs in International Competitiveness: From Countries and Sectors to Firms", *Research Policy*, 44, 1795–1814.

ECLAC (2018) *The Inefficiency of Inequality*, Santiago de Chile: United Nations.

ECLAC (2020) *Building a New Future: Transformative Recovery with Equality and Sustainability*. ECLAC 2020.

Fagerber, J. Srholec, M. and Verspagen, B. (2001) "Innovation and Development", in Hall, B. and Rosenberg, N. (eds.): *Handbook of the Economics of Innovation*, North Holland.

Faberberg, J. and Verspagen, B. (2002) "Technology gap, Innovation-Diffussion and Transformation: An Evolutionary Interpretation", *Research* Policy, 31, 1291-1304.

Fajnzylber, F. (1983), *La industrialización trunca de América Latina*, Mexico City, Nueva Imagen.

Fajnzylber, Fernando (1990) "Industrialization in Latin America: From the "black box" to the empty box", *Cuadernos de la Cepal* No. 60, August 1990.

Felipe, J.; Abdon, A. and Bacate, M. (2012) "Product Complexity and Economic Development" (with Arnelyn Abdon, Marife Bacate, and Utsav Kumar). *Structural Change and Economic Dynamics*, Vol. 23, Issue 1 (March): 36-68

Guzmán, M., Ocampo, J.A. and Stiglitz, J. (2018) "Real Exchange Rate Policies for Economic Development", *World Development*, 110: 51-62.

Keohane, Robert, Stephen Macedo and Andrew Moravcsik, A. 2009 "Democracy-Enhancing Multilateralism." *International Organization*, 63 (1): 1-31. doi: 10.1017/S0020818309090018.

Khan, Mushtaq and Blankenburg, Stephanie (2009) 'The Political Economy of Industrial Policy in Asia and Latin America.' In: Dosi, Giovanni and Cimoli, Marioand Stiglitz, Joseph E., (eds.), *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*. Oxford: Oxford University Press, pp. 336-377.

Lee, K. (2013) *Schumpeterian Analysis of Economic Catch-Up*, Cambridge University Press.

Lundvall, B.A. (2016) "From the Economics of Knowledge to the Learning Economy", in Bengt-Åke Lundvall , *The Learning Economy and the Economics of Hope*, Anthem Press.

Missio, F.J, Jayme Jr., F.G, Britto, G., Oreiro, J.L., 2015. Real exchange rate and economic growth: new empirical evidence, Metroeconomica, *Wiley Blackwell*, vol. 66(4), pages 686-714, November.

Moreno-Brid, J.C. (2003) "Capital flows, interest payments and the balance of payments constrained growth model: A theoretical and empirical analysis", *Metroeconomica*, 54:2 & 3: 346–365.

Nassif, A.; Feijo, C.; Araujo, E.. (2016) Structural change, catching up and falling behind in the BRICS: A comparative analysis based on trade patterns and Thirlwall's law, *PSL Quarterly Review*, vol. 69 n. 278 (December, 2016), 373-421.

Nelson, R. and Winter, S. (1982) *An Evolutionary Theory of Economic Change*. Harvard University Press.

Ocampo, J.A. (2016) "Balance-of-Payments Dominance: Implications for Macroeconomic Policy", in Damill, M., Rapetti, M. and Rozenwurcel, G. (eds), *Macroeconomics and Development: Roberto Frenkel and the Economies of Latin America*, New York: Columbia University Press, chapter 10, pp. 211-228.

O'Donnell, Guillermo. 1998. "*Polyarchies and the (Un)Rule of Law in Latin America*", paper presented at the meeting of the Latin American Studies Association, Chicago, September.

Oreiro, J. L. C.; Silva, K. M. ; Davila, M. . A New Developmentalist model of structural change, economic growth and middle-income trap. *Structural Change and Economic Dynamics*, v. 55, p. 26-38, 2020.

Pavitt, Keith. 1984. "Sectoral patterns of technical change: Towards a taxonomy and a theory", *Research Policy*, Volume 13, Issue 6, December 1984, Pages 343-373 https://doi.org/10.1016/0048-7333(84)90018-0

Peneder, M. (2002) "Tracing Empirical Trails of Schumpeterian Development", *Papers on Economics and Evolution*, Max Planck Institute for Research in Economic Systems.

Przeworski, Adam. 2009a. "Democracy, Equality, and Redistribution." In Richard Bourke and Raymond Geuss (eds.), *Political Judgement: Essays in Honour of John Dunn*. New York, N.Y.: Cambridge University Press, pp. 281-312.

Przeworski, Adam. 2009. "The Mechanics of Regime Instability in Latin America." *Journal of Politics in Latin America*, 1(1): 5-36.

Qazizada, W. and Stockhammer, E. (2015), Government spending multipliers in contraction and expansion, *International Review of Applied Economics*, 29 (2), pp.238-258

Robinson, J. (1966) "The New Mercantilism, An Inaugural Lecture", Cambridge: Cambridge University Press, 1966. In J. Robinson, *Collected Economic Papers*, Volume four, Oxford: Basil Blackwell, 1973, pp.1-13.

Rodríguez, O. (1977) "Sobre la Concepción del Sistema Centro-Periferia", *Revista de la CEPAL*, First Semester.

Rodríguez, O. (2007) *El Estructuralismo Latinoamericano*. México: Siglo XXI.

Rodrik, D. (2008) "The Real Exchange Rate and Economic Growth. Brookings Economic Studies Program, *The Brookings Institution*, vol. 39 (2 (fall)), pp. 365-439.

Rodrik, Dani (2011) *The Globalization Paradox: Democracy and the Future of the World Economy*, New York: W.W. Norton and Company.

Rodrik, D. (2018) "Towards a More Inclusive Globalization: An Anti-Social Dumping Scheme", *Economists for Inclusive Prosperity*, Research Brief, December.

Storm, Servaas. 2018. "Financialization and Economic Development: A Debate on the Social Efficiency of Modern Finance", *Development and Change* 49(2): 302–329. DOI: 10.1111/dech.12385

Storm, S. and Nastepaad, C.W. (2015) "Crisis and recovery in the German economy: The real lessons", *Structural Change and Economic Dynamics*, Volume 32, March, Pages 11-24.

Thirlwall, A.P. (2011) "Balance of Payments Constrained Growth Models : History and Overview", *PSL Review*, December 2011

UNCTAD (2016) *Trade and Development Report 2017 – Beyond Austerity: Towards a Global New Deal* (TDR 2017). United Nations, New York and Geneva, No. E.17.II.D.5.

CENTRE-PERIPHERY MODEL IN THE POST-INDUSTRIAL CONTEXT

Fabricio J. Missio[1]

Wallace M. Pereira[2]

Frederico G. Jayme Jr.[3]

In the mid-1950s in Latin America, mainly through the Economic Commission for Latin America and the Caribbean - ECLAC, authors such as Raul Presbich, Celso Furtado, Anibal Pinto, and Osvaldo Sunkel developed studies to understand the economic problems of Latin American countries.

The 'centre-periphery model' is one of the most important theoretical shortcuts developed, understood as being historically constituted by the way in which technical progress propagates over the global economy. The main idea of this model is that industrialized countries (centre) export manufactured goods, whereas the periphery exports primary goods (periphery). The heterogeneity between the productive structures is one of the explanations for this asymmetry in relation to the gains resulting from international trade, as well as in relation to the level of development across these two groups of countries.

According to this approach, in developed countries, the economic structure is more homogeneous and diversified while in peripheral ones it tends to be heterogeneous and specialized commodities.

In the central countries, technical progress propagates homogeneously over the productive structure. This results from the labor scarcity and trade unions, which allow increases in real wages and stimulates the emergence of saving-labor technologies. Consequently, the generation and dissemination of technological progress occurs throughout the productive structures and drives the long-run growth.

As such, the increases in wages drive innovation and deepening of capital intensity, initially in certain sectors, spreading in direction to remaining economic activities. Thus, labor productivity increases hand-to-hand with capital accumulation, allowing real wage compensation compatible with economic development. Furthermore, the mobility of productive resources tends to equalize the return of activities.

In contrast, the economic growth in peripheral economies starts from relative initial backwardness and, after a period called 'outward development', the modern techniques are only implemented in primary goods export sectors, which start to coexist with the backward sectors. At this phase, the productive structure of the periphery acquires two fundamental traits: i) on the one hand, its specialized since a substantial part of the productive resources are destined to successive applications of the primary goods export sector; ii) on the other, the productive structure is heterogeneous, or partially backward, in the sense that sectors in which productivity reaches high levels – especially the exports sectors – and activities in which productivity is significantly low, coexist (Missio et all., 2015).

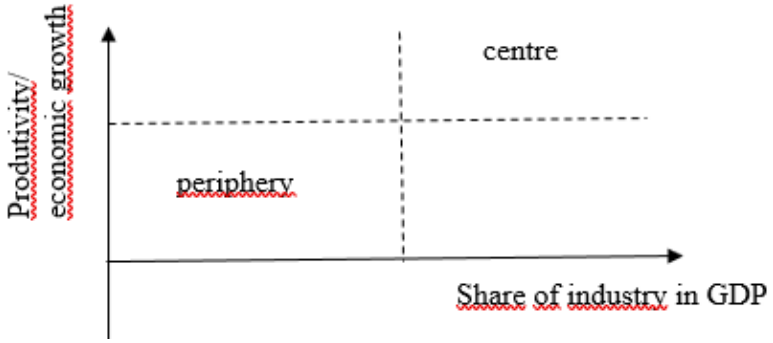
1 Professor at Centro de Desenvolvimento e Planejamento Regional, Federal University of Minas Gerais - CEDEPLAR/UFMG, Belo Horizonte - MG, Brasil. E-mail: fjmissio@cedeplar.ufmg.br

2 Ph.D in Economics at CEDEPLAR, Federal University of Minas Gerais, Brazil. E-mail: wmpereira@cedeplar.ufmg.br

3 Professor at CEDEPLAR, Federal University of Minas Gerais, Brazil. E-mail: gonzaga@cedeplar.ufmg.br

In sum, the productive structure of the peripheral economies are specialized and heterogeneous, while central economies are more diversified (composed by an ample range of economic activities) and homogeneous (according as labor productivity reaches relatively similar levels in all activities). Figure 1 illustrates this argument.

Figure 1. Centre-periphery model



To break such low-growth trap, the peripheral countries should pursue a structural change toward the manufacturing sectors. However, such rationale has been facing two recent stylized facts: i) the ongoing deindustrialization, and ii) the emergence of new dynamic sectors.

In relation to that last point, it is worth mentioning the emergence of the modern services sector. There is currently a series of productive changes in the composition of employment and in intersectoral relations. These transformations happen with greater amplitude and speed than in past decades. The structuralism of ECLAC did not sufficiently incorporate this new context into its discussions.

As it will be argued, the processes that induce structural change are important to understand the new paths that open up for development. It is also essential to comprehend the new stage of the centre-periphery relations that have been recently emerged.

1. The structural change in new times

Nowadays, the world is changing in response to a set of megatrends, which includes advances in technological progress and globalization. At the technological level, a process of creative destruction is underway, driven by facts such as digitalization, robotics, and artificial intelligence. There is a new wave of integration, supported by the flexibility of digital age technologies.

In this scenario, the role of the service sector in economic growth has been an issue in the economic debate. We argue that this sector is an important component for output growth and that an economic growth strategy must take into account the role of modern services and their 'symbiosis' with the industrial sector. The modern services sector has an autonomous role, in the sense that they add value to the economy, while they are correlated with other sectors and, therefore, generate added value together with these other sectors (Giovanini et. al., 2020).

The most explored interpretation in the literature (as shown below) is that services have a complementary role to the industrial world. We argue that this is an incomplete approach because captures only part of structural change ongoing. That's why we need to move this agenda forward (Pereira, 2021).

Several studies have been highlighting that economic growth and productivity gains in the industrial sector since the 1970s are explained by the emergence of modern services, especially those resulting from new communication technologies. In the same vein, the knowledge-intensive business services (KIBS) literature shows that they provide knowledge for the industry and contribute to the generation of innovations in the industrial sector.

Likewise, there is a research agenda that analyzes the interaction between services and the manufacturing activities. Such brunch of literature argues that, especially for the most technologically advanced products, the number of services incorporated in their final value has been increasing. Thus, the current stage of the production process is illustrated by the sale of product-service packages, demonstrating that the demand for services within the productive structure has been growing.

Thus, the new stage of the production system is linked to the countries' capacity to develop modern service activities. These new activities will affect the industrial sector in order to impact the productivity and economic growth rate of the countries. In other words, in the current stage of structural change, the countries' growth path depends on the type and the competitiveness of service that is developed, and on the level of its integration with the industrial sector (Pereira, 2021; Pereira; Missio; Jayme Jr. 2020a; 2020b).

Some countries will have highly competitive and integrated services in the industrial sector, while others will have serious production deficiencies. This clearly brings us to the centre-periphery relationship originally proposed by ECLAC. The next section pays special attention to this issue.

2. The core-periphery model in the new times

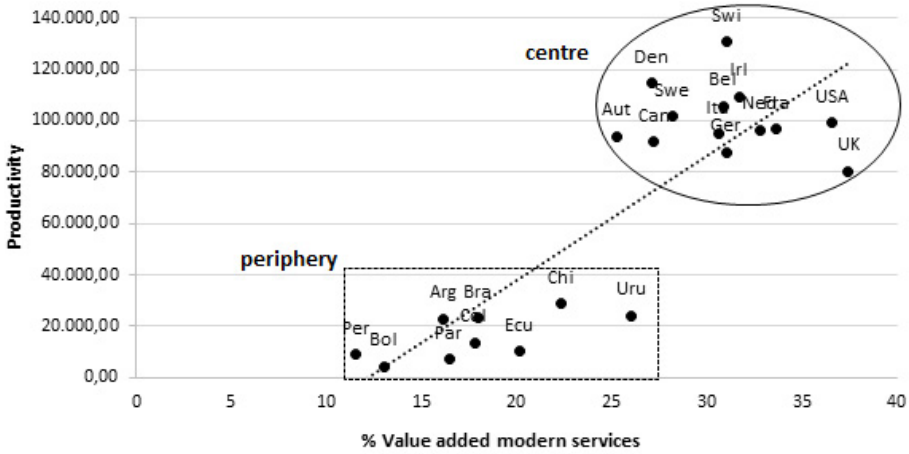
In this note, we intend to show that the structuralist approach regarding the centre and peripheral shortcuts remain present when analyzing the service sector, and it contributes to explain the longevity of the underdevelopment of Latin American countries. The peripheral condition is also perpetuated in the service economy, and there comes with it new limitations to the economic growth of these countries in a context of faster productive transformation.

Figure 1 shows the share of modern services in output. We know that, just like in the phase of industry-led growth, the current productive evolution has the leading role in the production of modern services in developed countries. These countries spread technical progress through service areas and relate them, when necessary, with industrial products, aiming to ensure greater productivity and global productive leadership (Pereira; Missio; Jayme Jr, 2020a).

The data shows that between 1996 and 2017, on average, the countries with the largest share of modern services in total added value are those with the highest economic productivity. Figure 2 shows that the developed countries (upper right circle) have more than 21% of the total added value from the sophisticated services sector.

On the other hand, South American countries (dashed rectangle) are in an opposite situation. Despite some exceptions, such as Uruguay and Chile, which have a share of the modern services sector that is over 20%, the other LA countries have a reduced share compared to the developed countries. As explained, the literature shows that economic productivity has a close relationship with modern services. These are inputs for the manufacturing sector and guarantee the competitiveness of developed countries.

Figure 2. Relationship between added value of services and economic productivity to selected countries: 1996-2017

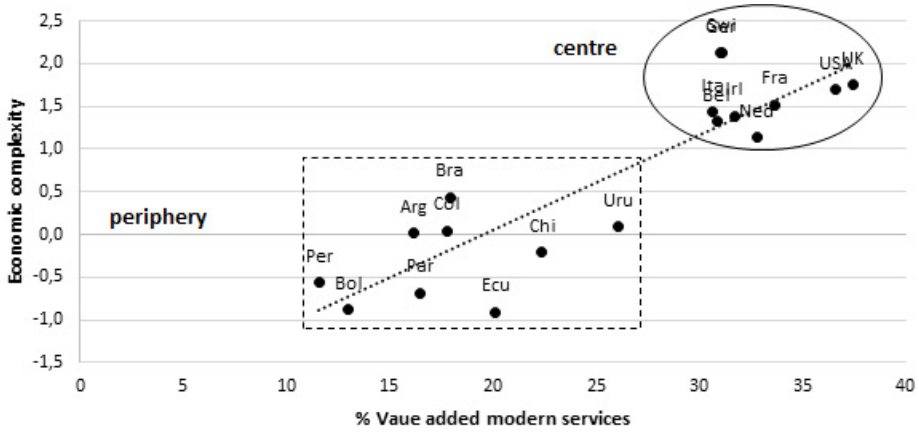


Source: : OCDE / ECLAC. The South American countries in the dashed rectangle are: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay. Pearson correlation: 0,85.

A second way to understand the role of the modern services sector is to relate it to the complexity index. The Research and Development (R&D) activity brings together experts from different scientific areas and is responsible for innovation in several industrial sectors. More complex economies have technologically more advanced industrial sectors and use modern services during their production process. The same is not true in peripheral economies.

Figure 3 suggests a positive correlation between the complexity of the central countries and the greater participation of the modern services sector in the composition of total added value. On the other hand, peripheral countries are not very complex and have a low share of services in total added value.

Figure 3. Relation between added value of services and economic complexity in the selected countries, 1996 - 2017.



Source: OCDE/ECLAC. The South American countries in the dashed circle are: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay. Pearson correlation: 0,89

The productive heterogeneity and technological dependence proposed by the original structuralism contribute to explain this new configuration. Sector discontinuities and passive absorption of external technical progress weaken the constitution of a dynamic and innovative modern services sector. Furthermore, in the peripheral condition, the symbiosis between industry and modern services is fragile. The share of the modern services sector in Latin American countries is lower compared to central countries. It is important to highlight that there does not seem to be a significant relationship between modern services and complexity in peripheral countries. That reinforces the re-

lative position of these countries as a producer of primary goods and manufactured products with low technological content (Pereira; Missio; Jayme Jr, 2020a).

3. Concluding Remarks

The productive changes ongoing over the XXI century require new ways of understanding the determinants of economic growth. The modern service sector plays a relevant role in the economic growth process. This sector contributes to improving productivity, adding value, and generating innovation.

Therefore, for underdeveloped countries, the modern service sector requires special attention. The symbiosis between manufacturing and services is critical to promoting output growth because the interaction between both sectors is capable of generating increased returns to scale in an extended way.

In the other words, it warrants higher long-term growth rates and transformations in the productive structure that are required for Latin American development, despite the persistence of the centre-periphery dichotomy.

4. References

Giovanini, A., Pereira, W. M., & Saath, K. C. D. O. (2020). Intermediate services' impact on capital goods production. *Nova Economia*, 30, 203-230.

Missio, F., Jayme Jr., F. G., & Oreiro, J. L. (2015). The structuralist tradition in economics: methodological e macroeconomics aspects. *Brazilian Journal of Political Economy*, 35 (2), 247-266.

Pereira, W. M.; Missio, F. J.; Jayme Jr, F. G. (2020a). *O papel dos serviços no desenvolvimento econômico e a relação centro-periferia*. In: 48º ENCONTRO NACIONAL DE ECONOMIA. Anais (Brasília). Brasília: Anpec, 2020. Disponível em: https://en.anpec.org.br/index.php#articles. Acesso em: 25 dez. 2020.

Pereira, W. M.; Missio, F. J.; Jayme Jr, F. G. (2020b). Serviços Modernos, Taxa Real de Câmbio e Crescimento Econômico. In: *Anais do XIII Encontro Internacional da Associação Keynesiana Brasileira*. Anais (SP) Online, 2020. Disponível em: https://www.even3.com.br/anais/akb2020/282230-servicos-modernos-taxa-real-de-cambio-e--crescimento-economico/. Acesso em: 25 dez. 2020.

Pereira, W. M. (2021). *Setor de serviços no crescimento econômico e o papel da política cambial: teoria e evidências*. 175 f. Tese (Doutorado) - Curso de Economia, Programa de Pós-Graduação em Economia, Universidade Federal de Minas Gerais, Belo Horizonte, 2021. Disponível em: https://catalogobiblioteca.ufmg.br/pergamum/biblioteca/index.php. Acesso em: 28 set. 2021.

Pereira, W. M.; Missio, F. J.; Jayme Jr. F. G. (2021). Estrutura Produtiva E Crescimento Econômico: O Papel Da Taxa Real De Câmbio Na Simbiose Entre Indústria E Serviços Modernos. In: *Anais do 14º Encontro Internacional da Associação Keynesiana Brasileira: o Brasil em um mundo em transformação*. Disponível em: https://www.even3.com.br/anais/akb2021/375670-estrutura-produtiva-e-crescimento-economico--o-papel-da-taxa-real-de-cambio-na--simbiose-entre-industria-e-servico/. Acesso em: 30/09/2021 01:46.

Rodríguez, O. (2009). *Estruturalismo Latino-Americano*, CEPAL. Civilização Brasileira.

THE ROLE OF MANUFACTURING INDUSTRY AND REAL EXCHANGE RATE IN ECONOMIC DEVELOPMENT: A NEW DEVELOPMENTALIST APROACH

José Luis Oreiro[1]

Among heterodox economists, mainly these one with a Kaldorian background, there is no doubt that manufacturing industry is the engine of economic development, since this sector is the source of increasing returns of scale (both internal and external to the firms), the sector with higher backward and forward linkages in the productive structure, the sector that produced tradeable goods that had a higher income elasticity of demand and hence softens the balance of payments constraint to growth and produce and spread new technologies through other sectors by means of new capital goods (Thirwall, 2002). The special role of manufacturing sector in economic development was one of the central theses of both classical development theory and Latin-American Structuralism (Ros, 2013).

Nowadays, the central role of manufacturing industries to economic growth and the technological catch-up process are highlighted in Szirmai (2012), Thirlwall (2002), and Tregenna (2009), among others, through stylized facts and empirical analysis. They show that economic growth depends on the composition of productive structure and, especially for developing economies, industry.

According to Rodrik (2016), manufacturing tends to experience relatively stronger productivity growth and technological progress over the medium to longer term. Therefore, premature deindustrialization closes off the main way to achieve fast economic convergence in low- and middle-income countries. It was the industrialization process that permitted catch up and convergence with the West by non-Western nations, such as Japan in the late 19th century, and South Korea, Taiwan, and China, among other countries, in the 20th century.

Rodrik (2009, 2016) highlights that the rapid economic growth of developing economies since the 1960s is associated with the largest transfer of productive resources (labor and capital) to the most modern industries. The structural shift toward industrial activities drives economic growth.

Szirmai (2012) presents a series of empirical and theoretical arguments about the role of industry as the "engine of growth" in developing economies. Basically, productivity in manufacturing is higher than in agriculture because the transfer of resources from this sector to the industry provides a "structural change bonus." This "bonus" comes because of the transfer of labor from economic activities with low productivity to high productivity activities (Lewis, 1954). This automatically raises the overall productivity of the economy.

For most mainstream economists, however, there is nothing special in the manufacturing sector. For then, economic growth is the result of capital (both physical and human) accumulation and technological progress. The composition of output is seen irrelevant for long-term growth or the result of factors endowments and the quality of institutions. In this second interpretation the existence of a positive correlation between periods of growth acceleration and increasing manufacturing share in GDP – the so-called industrialization process – is just the result of a

1 Associate Professor at Economics Department of University of Brasília (UnB) and Level IB Researcher at the National Council for Scientific and technological Development (CNPq). E-mail: joreiro@unb.br

high pace of capital accumulation allowed by the combination of high saving rates and "good institutions", which are generally defined as the institutions that induce growth, being so a non-falsified concept in the sense of Popper (1972). In their framework, that there is no need to adopt policies to develop the manufacturing industry, but only to improve the quality of institutions: good institutions will allow growth accelerations which are, in general, associated with industrialization, at least in the first stages of economic development.

One of the basic propositions of the Classical Development Theory is that the combination of unlimited supply of labor due to the existence of a traditional or non-capitalist sector in developing economies with internal and/or external economies of scale can result in a poverty trap due to the paradox of underdevelopment: In developing economies a lower stock of capital per-worker is associated with low returns for capital accumulation, not with high profit rates as in the traditional neoclassical growth models (Ros, 2013, pp.154-159). This means that the main obstacle for growth take-off is not the shortage of savings, but the lack of incentives for capital accumulation by the private sector. Underdeveloped economies are poor because they had low levels of capital per-worker and, at the same time, the profit rate and the incentive to capital accumulation is low because of the low-level of the capital per--worker. If investment can be accelerated by some non-market mechanism than it will produce the savings required for the development process to continue since labor will be transferred from the low productive subsistence sector for the high productivity modern sector; but real wages will stay at a constant level (the subsistence wage plus some constant wage premium). This means that the share of profits in income will rise as the investment is increasing, and since the propensity to save out of profits is higher than propensity to save out of wages; than the saving rate will increase because of the increasing in the investment rate. Economic development always and elsewhere produced the saving rate required for its long-term sustainability.

For classical development theory, a self-sustained process of economic development requires the achievement of a critical mass for capital per-worker, which can only be done by the State, so industrialization, at least in its first stages, had to be necessarily State-Led. Moreover, as claimed by Prebisch (1950) and the economists of ECLAC, due to low-income elasticity of demand for exports of underdeveloped countries, whose exports are mainly composed by primary products, then in the early stages of industrialization there is no option rather than impose some controls over imports, trade tariffs and exchange rate controls to soften the external constraint. These policies will induce a process of import substitution to reduce the income elasticity of imports and "save" the external currency required for import capital and intermediate goods required to industrialization. So, development process will be an Import-Substitution-State-Led Industrialization (ISSI, hereafter).

Latin-American Structuralism had not given to the real exchange rate any important role in the process of economic development. Because of the so-called "elasticity pessimism" - that is due to the fact the composition of exports and imports of underdeveloped economies do not allow the fulfilment of the Marshal-Lerner condition- an exchange rate devaluation will not either increase the trade surplus or induce the substitution of imports for domestic production, since it will produce an increase in the domestic prices of imported capital goods. A system of multiple exchange rates, where a more appreciated exchange rate is defined for capital goods imports and a more depreciated exchange rate for final goods imports combined with high import tariffs will both relief the external constraints and provide the incentives for import substitution. Capital accumulation led by state-owned enterprises will also be necessary for the "big push" required for the economy to escape the poverty trap.

The first Latin-American economist to see a role for the exchange rate in the process of economic development was Diamand (1972). According to him, for countries specialized in exports of primary products, there is a problem of an unbalanced productive structure. In his words:

> The essential feature of the new economic reality of the Primary exporting countries in the process of industrialization is the which we have dubbed an unbalanced productive structure. It is a productive structure. Composed of two sectors of different price levels: the primary--agricultural sector in our case -, which works at international prices, and the industrial sector, which works at a level of costs and prices considerably higher than the international. This peculiar configuration, not even imagined by the generations dedicated to the elaboration of the economic theory that today is taught in universities, gives rise to a new economic model, characterized by the chronic limitation that the external sector exerts on economic growth. Indeed, while the growth of the economy - particularly industrial growth - always requires increasing amounts of foreign exchange, the high level of industrial prices that characterizes the unbalanced productive structure prevents industry from exporting. Thus, unlike in industrial countries, in which the industry self-finances the foreign exchange needs posed by its development, the Argentine industrial sector does not contribute to obtaining the foreign exchange it needs for its growth. Its supply is always in charge of the agricultural sector, limited either by lack of a greater production, or by problems of world demand or by both.
>
> In the initial stage of this type of development a rapid replacement of imports makes the industry contribute to keeping the balance of payments balanced by saving foreign exchange. Subsequently, the replacement process becomes increasingly slow. Finally, it is reached that substitution at most can neutralize the increase in imports brought by technological progress by the incorporation of new products (cars, television, yarnssynthetics, etc.). From this moment on, a process of divergences begins between the growth of the industrial sector consuming foreign exchange, which it does not contribute to the production of them, and the provision of these currencies by the much slower growing agricultural sector. This diversity is responsible for the balance of payments crisis in Argentina and is the main growth limiter in the country. The expansion of domestic production, each time it occurs, increases imports. Once the reserves are exhausted, the country is forced into a devaluation. This occurs even without a prior increase in costs, which requires the restoration of parity. This is a devaluation of another kind, which is imposed by the imbalance that arises in the productive structure itself, as a result of the already marked divergence between the consumption and the supply of foreign exchange. (1972, p.2)

The problem of the unbalanced productive structure emerges from setting the nominal exchange rate at a level compatible with the productivity of the primary sector, that is, in a level that makes the exports of such goods competitive in international markets, but that is too much appreciated for the manufacturing firms to be also competitive in such markets (1972, p.18). As a result of the overvalued exchange rate for manufacturing goods, the domestic manufacturing industries of these countries are uncapable to conquer international markets and thus increasing their share of manufacturing exports. Therefore, domestic manufacturing firms are confined to domestic markets, where the scale of production is not enough to provide then even the productivity to compete with imported goods unless high import tariffs are set to isolate the domestic market from external competition. Thus, tariff protection that should be only used in the phase of infant industry to promote the initial stages of industrialization through import substitution, became permanent due to the political pression of domestic industrial entrepreneurs. A permanent protection destroys the incentives for the domestic firms to increase its productivity over time by introducing labour-saving technologies and hence will increase the technological gap of domestic firms relative to foreign firms, reducing also their non-price competitiveness.

Diamand´s arguments are very similar to the role of exchange rate in the process of economic development according to the Brazilian New-Developmentalist School. As I have already argued (New Developmentalism and Balance of Payments Constrained Growth Models: convergences and divergences | José Luis Oreiro - wordpress.com), a competitive level for real exchange rate is required to compensate the technological backwardness of domestic firms in developing economies. Overvaluation of real exchange rate is a very important cause of premature deindustrialization of these economies, as it is showed by Oreiro et al (2020) for the Brazilian economy. Moreover, Gabriel et al (2020) had shown with a panel data econometric model for a broad sample of 84 countries for the period of 1990 to 2011 that the effect of real undervalued Real Exchange Rate is positive and statistically significant with a lag for all the technological gap levels considered, increasing their effect on the per capita income growth rate when the technological gap measure is higher (for each group of countries). The effect of undervalued RER on the per capita growth rate is conditional on the technological gap level considered: the greater the gap of the sample of countries in relation to the technological frontier, the greater the effect of the undervalued RER on per capita income growth rate.

These findings shows that the common criticism made against the role of real exchange rate in economic development according to which manufacturing growth and per-capita income growth depends only on non-price competitiveness of the manufacturing sector is wrong. The higher is the technological gap the firms of a country face, more important is for then to have an undervalued exchange rate to compensate their technological backwardness relative of the firms of developed countries.

This does not mean, for sure, that the only thing that can be done to foster economic development is to set the exchange rate at the "right" level, which is for new-developmentalist school the so-called industrial equilibrium level, recently redefined by Oreiro (2020) and calculated by a new methodology developed by Oreiro et al (2020). Science and Technology policies, as well as industrial policies, are required to reduce the technological backwardness of domestic firms relative of the firms of developed countries; but it is impossible for these policies to give any relevant result if real exchange rate is overvalued.

Brazil, the major economy of Latin America, had experienced a very long period of overvalued exchange rate since 1994, which is briefly reverted by a balance of payments crisis due to high current account deficit (1999), a sudden stop of capital flows (2002 and 2008) and the end of commodity boom (2015). During the governments of President Luis Inácio Lula da Silva and President Dilma Rouseff a lot of industrial policies are adopted, but all failed to prevent the second wage of premature deindustrialization since 2005. Manufacturing share in real GDP felt from more or less 17 % in 2005 to 11% in 2019. According to the estimates made by Oreiro et all (2020) more or less of 40% of the reduction of the manufacturing share can be directly attributed to exchange rate overvaluation. This means that to restart the industrialization of the Brazilian economy is necessary to keep the real exchange rate at a competitive and stable level in the medium to the long-term. This demands the adoption of a new macroeconomic policy regime in which capital controls will certainly have an important role to manage the exchange rate without jeopardizing the autonomy of monetary policy.

To sum up: having a good macroeconomic policy regime is not the only thing required to restart Brazilian economic development but is a crucial beginning.

References

DIAMAND, M. (1972). "La Estructura Productiva Desequilibrada Argentina y el Tipo de Cambio". *Desarrollo Económico* Vol. 12 N° 45.

GABRIEL L.F., RIBEIRO L.C.S., JAYME JR F.G. AND OREIRO J.L. (2020), "Manufacturing, economic growth, and real exchange rate: empirical evidence in panel date and input-output multipliers", *PSL Quarterly Review*, 73 (292), pp. 51-75]

LEWIS, A. (1954). "Economic Development with unlimited supply of labor". *The Manchester Scholl* 22: 139-91.

OREIRO, J.L. (2020). "New Developmentalism: beyond competitive exchange rate". *Brazilian Journal of Political Economy*, vol. 40, nº 2, pp. 238-242.

OREIRO J.L., MANARIN D'AGOSTINI L.L., GALA P. (2020). " Deindustrialization, economic complexity and exchange rate overvaluation: the case of Brazil (1998-2017)", *PSL Quarterly Review*, 73 (295):313- 341.

POPPER, K. R. (1972) *Conjecturas e refutações*. Brasília: UNB.

PREBISCH, R. (1950). *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.

RODRIK, D. (2009). *Growth after the crisis*. Cambridge, MA.: Harvard Kennedy School.

RODRIK, D. (2016). Premature deindustrialization. *Journal of Economic Growth*. 21(1): 1–33.

ROS, J. (2013). *Rethinking Economic Development, Growth and Institutions*. Oxford Economic Press: Oxford.

SZIRMAI, A. 2012. Industrialization as an engine of growth in developing countries, 1950-2005. *Structural Change and Economic Dynamics*, 23: 406–420.

THIRLWALL, A. (2002). *The Nature of Economic Growth*, Aldershot: Edward Elgar.

TREGENNA, F. (2009). "Characterizing deindustrialization: An analysis of changes in manufacturing employment and output internationally". *Cambridge Journal of Economics*, 33: 433–466.


CNPq
Conselho Nacional de Desenvolvimento
Científico e Tecnológico
UnB
SDM
Research Group