88

CUADERNOS DE ECONOMÍA

ISSN 0121-4772

Facultad de Ciencias Económicas
Escuela de Economía
Sede Bogotá

UNIVERSIDAD NACIONAL DE COLOMBIA

Proceditor Ltda.
Corrección de estilo, traducción, armada electrónica,
finalización de arte, impresión y acabados
Tel. 757 9200, Bogotá D. C.

Gabriela Bautista Rodríguez
Fotografía de la cubierta

Indexación, resúmenes o referencias en

SCOPUS
Thomson Reuters Web of Science
(antiguo ISI)-SciELO Citation Index
ESCI (Emerging Sources Citation Index) - Clarivate Analytics

EBSCO
Publindex - Categoría B - Colciencias
SciELO Social Sciences - Brasil
RePEc - Research Papers in Economics
SSRN - Social Sciences Research Network
EconLit - Journal of Economic Literature
IBSS - International Bibliography of the Social Sciences
PAIS International - CSA Public Affairs Information Service
CLASE - Citas Latinoamericanas en Ciencias Sociales y Humanidades
Latindex - Sistema regional de información en línea
HLAS - Handbook of Latin American Studies
DOAJ - Directory of Open Access Journals
CAPES - Portal Brasilero de Información Científica
CIBERA - Biblioteca Virtual Iberoamericana España / Portugal
DIALNET - Hemeroteca Virtual
Ulrich's Directory
DOTEC - Documentos Técnicos en Economía - Colombia
LatAm-Studies - Estudios Latinoamericanos
Redalyc

Universidad Nacional de Colombia
Carrera 30 No. 45-03, Edificio 310, primer piso
Correo electrónico: revcuaeco_bog@unal.edu.co
Página web: www.ceconomia.unal.edu.co
Teléfono: (571)3165000 ext. 12308, AA. 055051, Bogotá D. C., Colombia

Cuadernos de Economía Vol. 42 No. 88 - 2023

CUADERNOS DE ECONOMÍA

VOLUMEN XLII
NÚMERO 88
NÚMERO ESPECIAL 2023
ISSN 0121-4772

Yeva Nersisyan
Hernando Matallana Laverde
(Guest Editors)

Facultad de Ciencias Económicas
Escuela de Economía
Sede Bogotá

UNIVERSIDAD
NACIONAL
DE COLOMBIA

2023

CONTENIDO

MMT, soberanía monetaria y espacio fiscal en Brasil (1999-2019) 1
Isadora Bonitz Silva Gomes y Norberto Montani Martins

Los Acuerdos Regionales de Pagos: ¿una alternativa a la convertibilidad monetaria? 23
Marcelo Bruchanski y Andrea Molinari

Ahorro desagregado. Algunas implicaciones para el enfoque de la macroeconomía basada en el capital 43
Ignacio Martínez Fernández, Miguel Ángel Alonso Neira y Luis Palma Martos

Dinero mundial, China y Estados Unidos, y mercantilismo global. Una interpretación keynesiano-monetaria 61
Hernando Matallana

Los límites de los enfoques monetarios de la teoría del valor 81
Martín Esteban Seoane Salazar y Herlan André Argandoña Zubieta

Deuda pública en Colombia: un análisis pos-keynesiano e institucional 99
Federico Gutiérrez Naranjo

CONTENTS

PAPERS

MMT, monetary sovereignty and fiscal policy space in Brazil (1999-2019) 1
Isadora Bonitz Silva Gomes and Norberto Montani Martins

Regional payment agreements: An alternative to currency convertibility? 23
Marcelo Bruchanski and Andrea Molinari

Disaggregated savings. Some implications for a capital-based macroeconomic framework 43
Ignacio Martínez Fernández, Miguel Ángel Alonso Neira and Luis Palma Martos

World money, China and the US and global mercantilism. A monetary-Keynesian interpretation 61
Hernando Matallana

The limits of monetary approaches to the theory of value 81
Martín Esteban Seoane Salazar and Herlan André Argandoña Zubieta

Public debt in Colombia: A post-Keynesian and institutionalist analysis 99
Federico Gutiérrez Naranjo

ARTÍCULO

MMT, MONETARY SOVEREIGNTY AND FISCAL POLICY SPACE IN BRAZIL (1999-2019)

Isadora Bonitz Silva Gomes
Norberto Montani Martins

Silva Gomes, I. B., & Montani Martins, N. (2023). MMT, monetary sovereignty and fiscal policy space in Brazil (1999-2019). *Cuadernos de Economía, 42*(88), 1-22.

There are controversies regarding the applicability of Modern Money Theory (MMT) to emerging countries. In this paper, we shed light on this debate by analyzing the monetary sovereignty and fiscal policy regime in Brazil from 1999 to 2019. An empirical assessment shows the government has a considerable 'degree' of monetary sovereignty. However, fiscal rules imposed many restrictions on the State's capacity to spend, subordinating fiscal policy to austerity. As there are no major macroeconomic constraints to Brazilian monetary sovereignty, it is neces-

I. B. Silva Gomes
Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil. Email: isabonitz@gmail.com

N. Montani Martins
Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil. Email: norberto.martins@ie.ufrj.br

Suggested citation: Silva Gomes, I. B., & Montani Martins, N. (2023). MMT, monetary sovereignty and fiscal policy space in Brazil (1999-2019*). Cuadernos de Economía, 42*(88), 1-22. https://doi.org/10.15446/cuad.econ.v42n88.102926

This paper was received on May 30, 2022, revised on November 7, 2022, and finally accepted on January 30, 2023.

sary to change fiscal rules to reorient fiscal policy towards full employment in line with MMT prescriptions.

Keywords: Modern money theory; sovereign money; fiscal policy; functional finance; full employment; Brazil.
JEL: E42, E61, E62, H50, H63.

Silva Gomes, I. B., & Montani Martins, N. (2023). MMT, soberanía monetaria y espacio fiscal en Brasil (1999-2019). *Cuadernos de Economía, 42*(88), 1-22.

Existen controversias con respecto a la aplicabilidad de la teoría monetaria moderna (MMT) a los países emergentes. En este artículo analizamos la soberanía monetaria y el régimen de política fiscal en Brasil desde 1999 hasta 2019. Una evaluación empírica muestra que el gobierno brasileño tiene un "grado" considerable de soberanía monetaria. Sin embargo, las reglas fiscales impusieron restricciones a la capacidad de gasto del Estado, subordinando la política fiscal a la austeridad. Dado que no existen restricciones macroeconómicas para la soberanía monetaria brasileña, es necesario cambiar las reglas fiscales para reorientar la política fiscal hacia el pleno empleo en línea con las prescripciones de la MMT.

Palabras clave: teoría monetaria moderna; dinero soberano; política fiscal; finanzas funcionales; pleno empleo; Brasil.
JEL: E42, E61, E62, H50, H63.

INTRODUCTION

In 2020, the COVID-19 crisis highlighted the need for increased state spending to contain the advance of the virus and alleviate the economic effects of the pandemic. An unprecedented space was opened for the discussion of more heterodox approaches and policies in the international arena. Not even the 2008 crisis shook the dominant theoretical framework to the point of mainstream economists suggesting, as at present, that we are experiencing a 'New Fiscal Consensus'[1] (Blanchard et al., 2021; Sandbu, 2021).

While 'conventional macroeconomic theory is in crisis,' Modern Money Theory (MMT) is one of the alternative approaches that is commonly referred to (Deos et al., 2021; Wray, 2020). MMT authors dedicate efforts to demystifying economic ideas and concepts entrenched in society by the mainstream, offering a new basis for economic policy and the action of the state. Such efforts are not new, but the crisis in the mainstream is opening room for conceiving new forms of thinking about the economy. In particular, MMT highlights the importance of fiscal policy for the well-functioning of the economic system, especially for bringing the economy closer to full employment and meeting social demands.

The application of the MMT framework to design economic policies for developed countries –e.g., the adoption of principles of functional finance– is more established in heterodox literature. Especially when dealing with the United States, which issues the global currency and benefits from this 'exorbitant privilege.' However, when dealing with developing countries, some authors such as Wray (2019) associate the applicability of MMT principles to the adoption of flexible exchange rate regimes, while others such as Vernengo and Caldentey (2020) and Kregel (2021) acknowledge that jurisdictions that issue sovereign currency cannot default on their own currency, though they can default in foreign currency, and with this, fiscal policy would be subject to several restrictions. In turn, Prates (2020) resorts to the idea of *policy space* of emerging economies as a post-Keynesian alternative, being determined by the degree of monetary sovereignty and a country's position in the international currency hierarchy.

In this paper, we develop an empirical analysis of the applicability of MMT to Brazil. Given the country's conjuncture of stagflation and the growing needs of the Brazilian population, it is essential to fuel the economic debate with new ideas and solutions that go beyond austerity policies and interest rate hikes. We consider that it is of paramount importance to understand whether the arrangement proposed by MMT, originally conceived in the American context, is applicable to Brazil and

[1] One can argue this consensus would be challenged by post-COVID-19 austerity and inflationary pressures. Indeed, central banks around the world raised interest rates, but their current levels are still low compared to historical standards, and real interest rates are in negative territory in several countries. Therefore, in the mainstream perspective, the pressure over debt sustainability is not that high. In addition, the understanding that a more progressive tax system and public investments –especially those related to infrastructure and the green transition– are needed still holds. See, for instance, the Biden-Harris Economic Blueprint (The White House, 2022).

what limitations it might face, especially considering its condition as a peripheral country.

Therefore, this paper aims to discuss the formatting of fiscal regimes in countries that issue sovereign money based on an MMT approach and to analyse the applicability of a functional finance regime to the Brazilian case. We analyse the evolution of relevant macroeconomic variables and the institutional framework of fiscal policy in Brazil between 1999 and 2019 to assess whether it can be characterised as a sovereign currency economy and evaluate the policy space of domestic economic policy[2]. The underlying hypothesis to be investigated is whether MMT's economic policy prescriptions are applicable to the Brazilian case.

The methodology involves three complementary efforts. First, we make a brief review of the literature on fiscal policy in sovereign currency countries, considering the perspective of the periphery, taking into account both MMT and recent mainstream contributions. Second, we provide an empirical assessment of macroeconomic indicators associated with the characterisation of Brazilian economic policy autonomy during the period 1999 to 2019. Third, we map how the current fiscal policy framework in Brazil is structured based on primary (legislation and complementary infralegal norms), and secondary (academic literature) sources in order to understand what changes would be necessary if the country were to adopt a MMT approach.

FISCAL REGIMES IN COUNTRIES THAT ISSUE SOVEREIGN MONEY

The economic policy framework in force in Brazil since the beginning of the current century follows the orientation of the 'New Consensus in Macroeconomics' (NCM) (Oreiro & Paula, 2021). This consensus favours a monetarist perspective on inflation and views macroeconomic stability as a key ingredient for long-term economic growth. Monetary policy takes the leading role in macroeconomic stabilisation, being used to avoid deviations of production from its potential level and inflation from its target (Paula & Saraiva, 2015).

Fiscal policy is of secondary importance, as it should focus on creating conditions for stability and providing credibility –fiscal austerity– to economic authorities, serving as a beacon for the expectations of economic agents (Lopreato, 2006). Such a policy should be based on fiscal rules that 'avoid' time-inconsistency of government actions and are guided by the principle of sound finance –or, to more orthodox economists, even by the reduction of public spending and the size of the state. This set-up derives from a theory that postulates that fiscal policy is ineffective in affecting the level of income, with fiscal multipliers smaller than one (Ramey, 2019).

[2] In this paper we follow Prates (2020) interpretation that a country's policy space is determined by its degree of monetary sovereignty and the position of its currency in the international currency hierarchy. To other MMT authors, such as Wray (2019), the foreign exchange regime replaces currency hierarchy.

However, the international financial crisis of 2008-9 challenged the NCM. The ability of monetary policy to influence output in the short run was compromised, as interest rates in central countries approached zero –monetary policy became ineffective. The severity of the recession opened the possibility of countercyclical and discretionary use of fiscal policy in the short run, with the recognition that the presence of hysteresis could render fiscal adjustments self-defeating, compromising long-run economic growth and fiscal sustainability (Delong & Summers, 2012).

These changes did not imply an abandonment of the previous theoretical framework, as the European crisis itself illustrated in 2011-12 (Fiebiger & Lavoie, 2017), but they opened an important path for the development of alternatives. Even fiscal rules became more flexible, however, with the development of new institutions, such as fiscal councils to compensate for the authorities' greater (relative) discretion (Eyraud et al., 2018).

After COVID-19, the challenges to the mainstream view of fiscal policy were even more pronounced. Furman and Summers (2020) and Blanchard (2022) point to the functionality of fiscal policy as a stabilisation mechanism in contexts of low interest rates and severe recessions, even advocating for the use of new metrics –such as the ratio of real debt service to GDP– in order to assess a country's fiscal situation. Fiscal expansion would favour expenditures in public investment and in areas where the 'rate of return' on spending exceeds its costs. Other authors even point out that there is room for adopting fiscal regimes that are even more flexible than the second generation of fiscal rules in central countries (Blanchard et al., 2021; Orszag et al., 2021).

Blanchard et al. (2021) call this a 'New Fiscal Consensus,' integrated by three main propositions: (i) macroeconomic policies are necessary in order to expand aggregate demand and make it compatible with supply, since private sector demand is chronically weak; (ii) fiscal policy is the main instrument since monetary policy with low interest rates is not effective or has already had its capacity exhausted; and (iii) the fiscal space is given by a favourable trajectory of public debt, with low interest rates ensuring its sustainability.

However, the 'novelty' of this new consensus does not extend beyond the borders of developed countries. For emerging countries, the authors draw a different story:

> there are still limits to how high debt can go, and these limits are tighter in EMs. Prospects for growth and interest rates are more uncertain. The scope for fiscal adjustment in the face of higher rates or lower growth is more limited. Consequently, one should be careful in importing wholesale the new fiscal consensus from advanced economies to emerging-market economies. (Blanchard et al., 2021 p. 13)

Summing up, despite the theoretical advances within the mainstream towards a less restrictive approach to fiscal policy, only under very special conditions could this 'New Fiscal Consensus' be applied to emerging countries such as Brazil. For

emerging economies, balanced public budgets and debt sustainability remain the main policy goals, guided by rules that avoid discretionary policies. The effects of fiscal policy on income, employment, as well as the living conditions and dignity of the population in general are left behind.

In this paper, we present an alternative view of fiscal policy based on MMT and Lerner's functional finance paradigm. This alternative is openly critical of the NCM and shifts the objectives of fiscal policy from budget results and coordination of expectations to the reduction of inequalities, economic growth with full employment, and to concrete actions that affect the daily lives of citizens.

This alternative fiscal regime refers directly to the condition of states as issuers of sovereign currency or sovereign money –in the Brazilian case, the Real. This condition reflects how contemporary monetary systems are structured (Deos et al., 2021; Kelton, 2020). It aligns with recent MMT contributions, but seeks to highlight aspects distinct from those conventionally addressed by authors representing this tradition (Wray, 2020).

The condition of monetary sovereignty refers to the ability the state of a given jurisdiction possesses with respect to taxation and spending in a currency that it has issued. A state with monetary sovereignty taxes and spends in the currency it issues, not promising to convert it into anything the state cannot control[3], as well as not going into relevant debt in a currency other than its own (Kelton, 2020, p.15).

According to Wray (2019), four characteristics must be observed. First, the state must have the ability to set the unit of account in which prices and contracts will be denominated. Second, it must be able to impose a collective obligation –for example, taxes– denominated in that unit. Therefore, since individuals are obligated to pay taxes, there is a general demand for the thing (money) that represents the unit of account. Third, the state must be able to issue the currency that represents the created unit of account and that currency is the only accepted form of payment for the taxes. Finally, the state must not undertake to convert the state currency into anything it cannot control, and it must not subject itself to a relevant foreign debt.

These characteristics would reflect the fundamental fact that money, as we know it, and with the social role it plays, is originally a creature of the state, which is configured primarily based on its role as a unit of account and its power to liquidate debts (Graeber, 2011). When the state defines which instrument it will accept as payment for taxes, it is also establishing and creating demand for its currency (Dalto et al., 2016). Furthermore, by recognising this sovereignty, the conventional budget constraint applied to governments does not occur.

[3] In that sense, one can argue that a debt denominated in a currency that is controlled by a jurisdiction held by foreigners differs from external debt denominated in dollars (or a currency the state does not control). Though foreign interest groups can exert some pressure over economic policy, policy autonomy is larger in the former situation due to the state power to tax, issue and manage public debt in a unit of account it controls.

In other words, the government has no financial constraints on spending, it cannot 'break' in its own currency, even though the macroeconomic effects of fiscal policy are relevant: fiscal policy should be used according to the availability of real resources in the economy, considering its effects on the level of capacity utilisation, employment, and inflation. Thus, public finances should be used in a way that is functional to the economy, promoting not only the objectives mentioned above, but also enabling an arrangement that assures citizens their fundamental rights and reduces inequalities (Lerner, 1943).

It is important to mention that, in this alternative framework, a budget result in a given fiscal year –whether a deficit, balanced, or surplus budget– cannot be considered good or bad in and of itself. It should be considered good if it provides balanced conditions for the economy as a whole and delivers the objectives defined above (Kelton, 2020). Moreover, the state does not depend directly on taxes to finance itself, but taxation has several functions: it creates demand for money, destroys money and reduces any excess of purchasing power in the hands of citizens, and is used to redistribute income and encourage or discourage certain behaviours.

Two principles should guide the government, as established by Lerner (1943): (a) it must set a level of spending that makes the aggregate effective demand compatible with full employment without causing inflation; and (b) the government may resort to issuing money, public bonds or even increasing taxation to adjust to agents' portfolio decisions, but it can always 'finance' its expenditures in sovereign currency.

The exchange rate regime and the external position of the domestic currency should be considered, since they are relevant to macroeconomic policy. The external position of a country's currency, or how much its currency is in demand internationally, can imply a restriction on the balance of payments' current account (Dalto et al., 2016, p. 145). Thus, one must be aware of the fact that countries have different degrees of monetary sovereignty: a higher degree is desirable because it means that the country has more autonomy in adopting certain types of policy, mainly regarding interest rates (Kelton, 2020, p. 69).

The short-term basic interest rate of the economy is a policy decision, established institutionally and exogenously by the monetary authority[4], which pursues different ultimate goals, such as inflation targets, full employment and the stability of the financial system (Serrano & Summa, 2013). However, the fact that the monetary authority determines the basic interest rate and indirectly influences the long-term interest rate does not necessarily mean that it can set any level for the interest rate, especially in the case of peripheral countries.

[4] According to the NCM the interest rate is also exogenous, but it would approach the natural rate of interest –the one which matches real savings and investment– in the long run (Serrano & Summa, 2013).

Vernengo and Caldentey (2020) note that the need to obtain foreign currency can restrict the scope for peripheral countries to act. Since they are usually more dependent on their imports, especially for intermediate and capital goods (which are essential for economic growth), they end up with a need to obtain foreign currency to finance imports and therefore with a more restricted policy space. In addition, the higher the external debt of the country, the higher the demand for foreign currency, considering that the debt service will also be higher, as will the perception of risk.

In other words, developing countries that issue sovereign currency cannot default on their own currency, regardless of the exchange rate regime adopted. However, they can default in foreign currency, and in this case, fiscal policy would not be unrestricted[5]: a current account deficit that cannot be financed, either because of a capital outflow or because of a loss of reserves, may force the government to conduct a contractionary fiscal policy in order to reduce imports and the external imbalance (Kregel, 2021; Vernengo & Caldentey, 2020; Vergnhanini & De Conti, 2017).

Regardless of the real constraint and the balance of payments constraint, fiscal policy in this regime assumes the role of protagonist, being actively used to bring the economy to full employment and ensure other socially desirable objectives. In the following section we will assess the degree of Brazilian monetary sovereignty in the period 1999 to 2019 in order to subsequently discuss the feasibility of establishing a fiscal regime with the objectives outlined in this section.

MONETARY SOVEREIGNTY AND POLICY SPACE IN BRAZIL: AN EMPIRICAL ANALYSIS FROM 1999 TO 2019

To what extent can Brazil, a peripheral country, be considered a sovereign currency country? What degrees of freedom does it have in determining its fiscal policy? In this section we will empirically assess the conditions of Brazilian external and internal indebtedness. In the past, the Brazilian economy has experienced major difficulties in foreign currency financing, with emphasis on the foreign debt crisis during the so-called 'lost decade' in the 1980s.

Since the adoption of the real, Brazil has met the basic characteristics of a country with sovereign money: the government sets the unit of account in which prices and contracts are denominated and taxes and issues debt and money according to this unit. However, the condition of foreign currency indebtedness has varied over time, so that the degree of economic policy autonomy continues to depend on external constraint conditions.

[5] Peripheral countries would face some disadvantages regarding their currencies: (i) higher interest rates to compensate the international illiquidity of their currencies; (ii) more volatile interest rates, reflecting the volatility of international liquidity preference; (iii) more volatile foreign-exchange rates; and (iv) smaller fiscal policy space (Vergnhanini & De Conti, 2017, pp. 27-28).

Table 1 shows a set of external indicators of the Brazilian economy. The current account balance, used in the literature as a basic measure of external constraint, showed positive values only between 2003 and 2007, before the international financial crisis, which indicates that Brazil still needs the inflow of foreign capital to obtain a surplus in the balance of payments. However, this does not necessarily mean that the Brazilian economy is continuously indebted in dollars.

In fact, the evolution of the stock of the external public debt in gross terms, a variable that is very sensitive to the exchange rate, does not indicate a greater dependence of the country on foreign currency. Table 1 shows a long-term downward trajectory of the indicator, which goes from 41.2% in 1999 to 17.2% of the GDP in 2019 –with a minimum of 11.8% in 2013. Net external debt, in turn, corresponds to the gross external debt minus the investments in foreign currency. We can see that it also showed a declining trajectory and, in 2007, the net external debt as percentage of GDP becomes negative, indicating that Brazil has reverted its external position, becoming a net creditor in foreign currency –a situation that persists until today. The accumulation of international reserves in that period provided an external cushion for the Brazilian economy.

International reserves are relevant for peripheral countries, as they provide more room to maneuver for domestic policies and alleviate possible external restrictions faced by the country[6]. As Brazil adopts a floating exchange rate regime, this high level of reserves allows the Central Bank of Brazil (BCB) to avoid abrupt volatility in the foreign exchange rate. From the point of view of the Brazilian state, the position of (net) external creditor indicates a lower need to obtain a currency it does not issue, in theory conferring more policy space to Brazilian authorities.

The reduction in the weight of foreign exchange-indexed securities in the total composition of government debt reflects the easing of external restrictions. Figure 1 shows this reduction in the share of exchange-indexed securities in the total public debt, especially between 2004 and 2011. After that, this share remained below 5% for most of the period. Considering the data analysed, we may conclude that, unlike the past, the last decades have been marked by important changes that have resulted in the fact that the Brazilian government does not incur in significant foreign currency debt and that the public debt is not indexed to the behaviour of the exchange rate.

In other words, from the point of view of the external constraint, the high level of international reserves obtained through a deliberate strategy of accumulating dollars gives the Brazilian government some room to maneuver in terms of political autonomy. An important aspect of this autonomy has to do with the definition of

[6] Paincera (2021) offers a different view, arguing that reserve accumulation is a byproduct of Brazil's financial integration and its subordinated nature. According to the author, the increase in reserves led to an increase in the financialisation of the Brazilian economy, and prompted a transfer of resources from Brazil to central countries as well as an increase in public debt due to sterilisation operations conducted by the central bank. Contrastingly from this paper, the author associates this increase in public debt with a smaller fiscal space.

Table 1.
Brazil's Selected External indicators 1999-2019

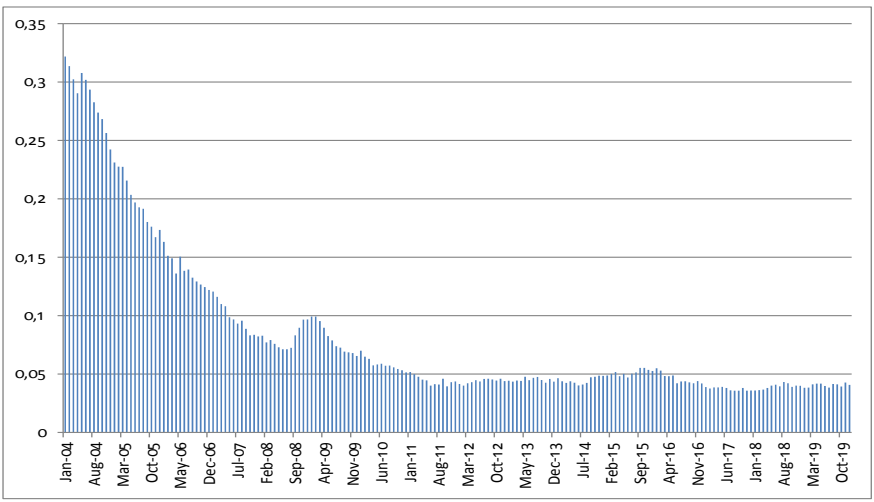
Year	USD billion			% of Gross Domestic Product					
	Current Account (CA)	Financial Account (FA)	Foreign Reserves	CA	FA	Foreign Reserves	Gross External Debt	Net External Debt	Debt Service
1999	-25.8	-25.5	36.3	-4.3	-4.3	6.1	41.2	32.4	10.4
2000	-25.0	-22.0	33.0	-3.8	-3.4	5.0	36.6	29.5	7.6
2001	-23.7	-24.2	35.9	-4.2	-4.3	6.4	37.9	29.4	8.9
2002	-8.1	-8.2	37.8	-1.6	-1.6	7.4	41.8	32.7	9.9
2003	3.6	3.0	49.3	0.6	0.5	8.8	38.8	27.3	9.6
2004	11.1	9.0	52.9	1.7	1.3	7.9	30.3	20.4	7.8
2005	13.8	13.0	53.8	1.6	1.5	6.0	19.2	11.5	7.5
2006	13.1	13.1	85.8	1.2	1.2	7.8	15.9	6.9	5.2
2007	0.4	-2.5	180.3	0.0	-0.2	12.9	14.1	-0.9	3.8
2008	-30.9	-28.8	193.8	-1.8	-1.7	11.4	12.0	-1.7	2.3
2009	-26.4	-26.4	238.5	-1.6	-1.6	14.3	12.2	-3.8	2.7
2010	-79.2	-70.2	288.6	-3.6	-3.2	13.1	12.0	-2.4	2.2
2011	-76.5	-80.7	352.0	-2.9	-3.1	13.5	11.8	-2.3	3.3
2012	-84.4	-83.7	373.1	-3.4	-3.4	15.1	13.3	-3.0	2.6
2013	-80.0	-78.8	358.8	-3.2	-3.2	14.5	12.7	-3.7	3.4
2014	-101.7	-96.9	363.6	-4.1	-3.9	14.8	14.4	-1.9	2.7
2015	-54.8	-56.6	356.5	-3.1	-3.2	19.8	18.6	-3.2	6.9
2016	-24.5	-16.1	365.0	-1.4	-0.9	20.3	18.2	-3.8	6.7
2017	-22.0	-17.1	374.0	-1.1	-0.8	18.1	15.4	-3.8	5.5
2018	-51.5	-52.3	374.7	-2.7	-2.7	19.6	17.2	-3.6	6.7
2019	-65.0	-64.4	356.9	-3.5	-3.4	19.1	17.2	-2.6	5.9

Source: Central Bank of Brazil.

interest rates: the government has the capacity to set the interest rate with relative autonomy, but it cannot set it at any level. As discussed in the previous section,

there is an international hierarchy of currencies. For most peripheral countries, including Brazil, there is a floor for domestic interest rates, which, in simplified form, is given by the sum of the US interest rate, the country risk and the expectation of exchange rate devaluation (Jorge, 2020). In this sense, Brazil has degrees of freedom and room to maneuver, but does not have full autonomy like the US government and the central bank.

Figure 1.
Percentage of Public Debt Indexed to the Foreign Exchange Rate 2004-2019 (%)



Source: National Treasury.

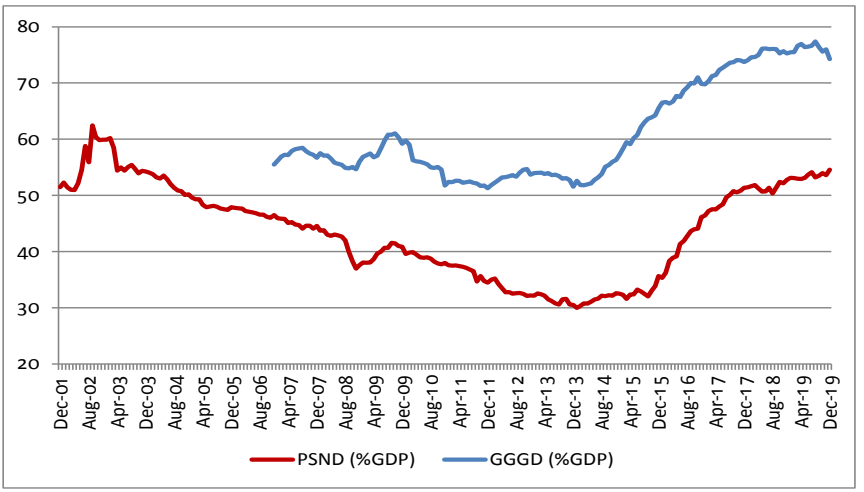
This relative autonomy in the external front is related in parallel to the internal debt dynamics of the Brazilian state. Brazil has never gone through a formal dollarisation process in its contemporary history, but it has had difficulties in placing assets denominated in local currency –which, for example, fostered the need for an 'indexed currency,' or indexed debt, during the period of high inflation. However, the reality of the Brazilian economy today meets the basic conditions of a sovereign currency economy:

> given the Brazilian institutionality and the unique role played by the government debt in wealth allocation by the private sector, the government will always be able to pay for goods, services, and its maturing debt denominated in its own currency, and therefore, there is no risk of default in sovereign debt. The role of Central Bank purchasing Treasury debt in the secondary market provides infinite liquidity for it. This fact, reinforced by the Primary Dealer System, guarantees an elastic demand for primary auctions. (Jorge, 2020, p. 50)

There are institutional aspects that confer degrees of freedom to the National Treasury and ensure that it has more bargaining power in the public debt market than the private sector. The Treasury cannot be held 'hostage' by the market in the sense that the Treasury has the flexibility to adjust its bond issuing strategy according to its Annual Borrowing Plan. The authority is free to adjust what had been previously planned for the year in relation to auction dates, the securities to be traded, their maturities and the total volume of issuances. That is, it observes the economic conjuncture and market conditions and may decide to hold auctions that were not foreseen, or not to hold the foreseen auctions, or even hold them, but not accept any offer, usually with the purpose of avoiding an increase in the cost of public debt (Jorge, 2020, pp. 50-51). This flexibility has evolved *pari passu* with the liquidity reserve –the 'debt cushion' -, which consists of funds deposited in the Treasury's account at the Central Bank of Brazil– the so-called Treasury's Single Account.

Jorge (2020) presents evidence that, in recent years, the Treasury did not suffer any kind of veto on the issue of its securities or undergo any persistent upward pressure on interest rates, managing to successfully hold its auctions. The 'bond vigilantes' argument does not hold up. Not even the downgrades in risk classification that the country experienced, with the loss of its rating as investment grade, were capable of creating pressures or persistent changes in the auction rates or in the quantity of bonds sold. Yet, neither has the increase in the domestic public debt (Figure 2) implied any major change in the Treasury's ability to conduct its debt-financing operations.

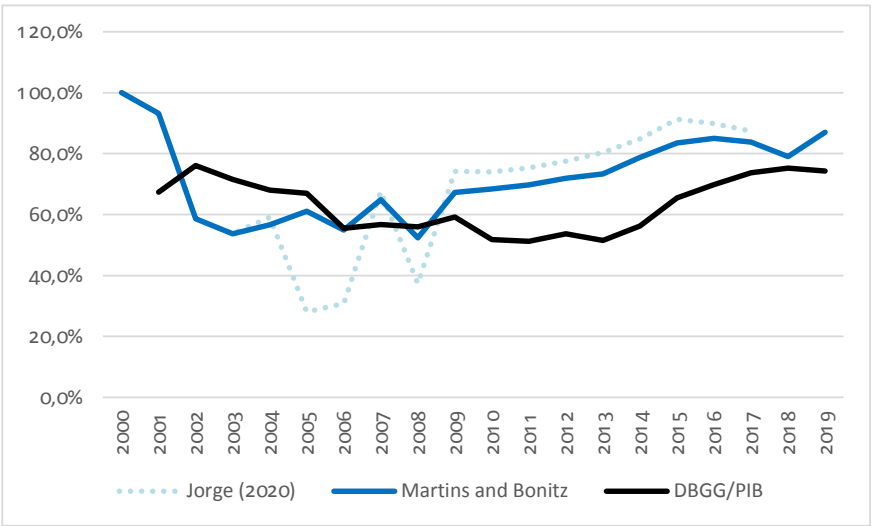
Figure 2.
General Government Gross Debt (GGGD) and Public Sector's Net Debt (PSND) as a share of the GDP 2001-2019 (%)



Source: Central Bank of Brazil.

Figure 3, in turn, employs Jorge's (2020) methodology to evaluate the success of auctions. This indicator analyses the primary auctions of the National Treasury during the 2000s and compares the quantity of public securities sold in relation to the quantity offered by the Treasury. It is a proxy of market 'acceptance' of Treasury auctions and a measure of how 'easy' is to issue new debt by the Treasury. Figure 3 also plots the behaviour of indebtedness, in order to show that the increase in public debt in recent years did not jeopardise the Treasury's capacity to issue public securities.

Figure 3.
General Government Gross Debt over GDP and the Percentage of Public Bonds Sold in Treasury Auctions 2000-2019 (%)



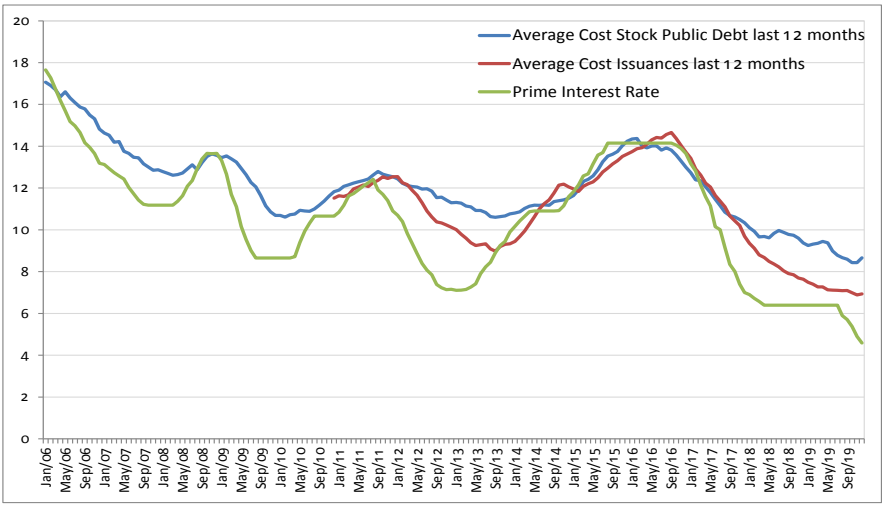
Source: Jorge (2020) and author's elaboration based on data from the National Treasury.

Our data suggests that there was no market rejection of bonds as a result of the increase in public debt, since the quantity of securities sold in relation to the total offered increased even with the increase in the stock of public debt as a proportion of the GDP as of 2014. Moreover, the volume sold during this period was higher than that registered between 2002 and 2013, when the debt/GDP ratio was in decline. Added to this is the fact that the average cost of debt did not increase proportionally to the increase in debt. The Treasury increased the quantity of new issues and the average cost followed the trajectory of the prime interest rate regardless of debt growth (Figure 4).

Another relevant issue is the profile of Brazilian domestic debt. It is generally accepted that public debt is rather concentrated in short-term and floating-rate

bonds in Brazil. Many economists argue that this is an undesirable feature (Brito et al., 2019), reflecting negative characteristics of the Brazilian government bond market and the existence of 'bond vigilantes,' which generate upward pressures on interest rates and prevent an increase in the maturity of public debt. Jorge (2020) sustains the debt profile is not as relevant as it appears to be in the economic debate, because the government will always be able to intervene in the public bonds market, especially to ensure its stability. Even with a debt with a long-term profile and pre-fixed rates, in times of adversity and greater uncertainty, investors tend to exchange such assets for short-term bonds with floating rates. In addition, the cost of public debt is more under the control of the government than of the market, since the Central Bank directly determines the basic interest rate and the Treasury may reject offers from agents if the interest rates that they demand are too high.

Figure 4.
Average Cost of the Stock of Public Debt and Issuances in the Last 12 months and Prime Interest Rate 2006-2019 (% a.a.)



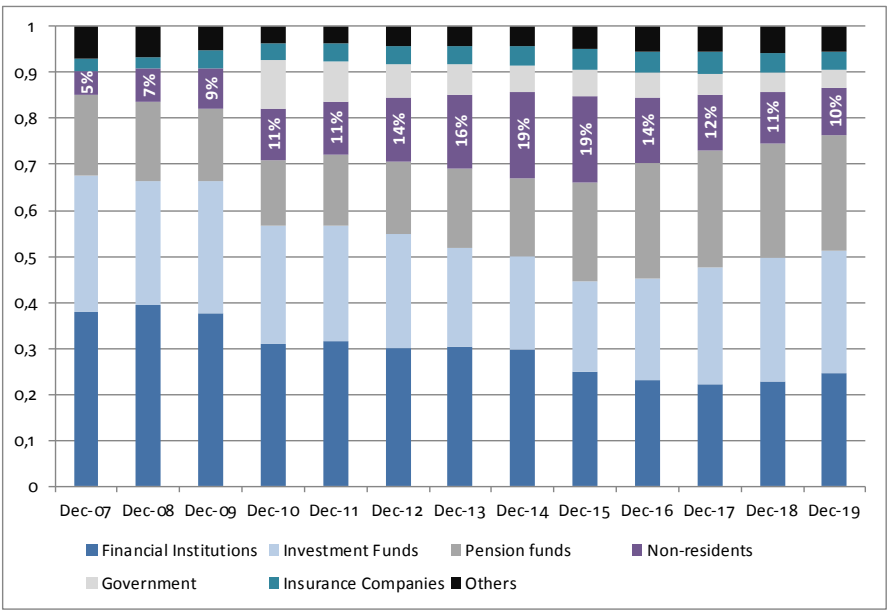
Source: Central Bank of Brazil and National Treasury.

Another important feature is that the Brazilian public debt is mostly in the hands of domestic investors, notably financial institutions and institutional investors such as investment funds. In the past, financial liberalisation and the absence of capital controls allowed a large number of non-residents to enter the Brazilian markets, which could in fact increase the volatility of the foreign exchange rate and create certain vulnerability in the public bond market, should the Treasury be overly dependent upon these investors. However, as shown in Figure 5, the share of for-

eign investors that hold Brazilian public debt is relatively small and has been falling over the last few years –particularly after the country lost its international investment grade rating. The Treasury's capacity to place domestic public debt, therefore, does not depend directly on foreign 'bond vigilantes.'

The data analysed in this section suggest that the Brazilian government has a certain degree of autonomy in determining its economic policy. The evolution of this autonomy was very favourable during the period analysed. Although there is a structural question linked to external restriction, the Brazilian government has managed to evolve considerably over the last two decades in the sense of reducing its exposure in terms of debt in foreign currency. This occurred by means of a reduction in the foreign debt (both gross and net) and the process of deindexing the public debt with regard to the foreign exchange rate. In addition, the Brazilian State has a very reasonable capacity to borrow in BRL, without facing major restrictions, with a high success rate in primary auctions. The increase in Brazilian public debt in recent years does not seem to be correlated with an increase in the cost of the debt, contrary to the idea that an increase in debt could generate some perception of insolvency.

Figure 5.
Type of Holders of the Domestic Public Debt 2007-2019 (%)



Source: National Treasury.

Therefore, from an empirical point of view, Brazil seems to have the policy space needed to build a fiscal policy framework aimed at achieving full employment and reducing inequality. However, one must consider the institutional aspects that constrain fiscal policy in Brazil. Are these the real barriers to the adoption of policies aimed at growth and equity?

FISCAL POLICY FRAMEWORK IN BRAZIL

The potential economic barriers erected by the external restriction and by eventual difficulties in rolling over and issuing domestic debt, as well as greater limitations in determining interest rates, are not empirically verified in the Brazilian case. Over the past few years, the Brazilian authorities seem to have enjoyed relative autonomy in defining economic policy, but were at all times constrained by the defined institutional framework regarding monetary policy, fiscal policy and the relationship between the Central Bank of Brazil (BCB) and the National Treasury.

The starting point is the institutional mediations that influence the Brazilian government's spending, borrowing, and tax collection operations. The BCB acts as the financial agent of the Treasury, which manages its transactions through the Treasury's Single Account, which concentrates all operations and receives all the financial transactions of the government. The BCB is the only authority with the prerogative to issue currency in the country –the Treasury does not have this power–, and it is forbidden to grant, directly or indirectly, loans to the Treasury.

For MMT authors, in practice, taxes and public debt do not finance government spending (Rezende, 2009). The BCB uses open market operations to prevent monetary pressures arising from public spending on the interest rate to deviate from its target and compromise the operational functioning of the inflation targeting regime. In this sense, the sale of government bonds has an umbilical relationship with monetary policy:

> In fact, it is a 'monetary policy' operation rather than a 'financing' operation. In the absence of daily open market operations, the overnight interest rate would fall to zero. By contrast, the conventional view suggests that when the government is running budget deficits, it is borrowing from the nongovernmental sector, thereby pushing up the overnight nominal interest rate. It should be clear that the Brazilian government is not financially constrained operationally –neither revenue constrained nor reserve constrained. (Rezende, 2009, p. 90)

From this perspective, it would make no sense to discuss sustainability and fiscal responsibility in the terms of the NCM. The Brazilian government, as the issuer of a sovereign currency (and not convertible into dollars), would be incapable

of becoming insolvent in BRL[7] and would always be able to issue obligations against itself denominated in BRL. There may be unintended macroeconomic consequences of the Treasury actions, such as an increase in inflation if productive capacity is put under pressure or a worsening of income distribution, but default is not a technical possibility.

In light of this interpretation, the limitations on fiscal policy would be mostly self-imposed, resulting from an alignment of Brazilian fiscal regulations with an economic conception centred on austerity (Rezende, 2009, pp. 94-95). In reality, with the strong adversities that marked the 'lost decade' of 1980, a process of imposing limits to the state's actions and subjugation of the fiscal policy to the dictates of sound finances began. As Lopreato (2013, p. 153) points out, the centrality of cutting the public deficit became a 'meta-synthesis of economic policy.'

In the Brazilian case, fiscal adjustment was seen as essential for successful price stabilisation, and was deliberately included in various stabilisation strategies and plans –and in particular in the Real Plan. The construction of this new institutional framework, guided by austerity, redesigned the pattern of state intervention in the economy. The need for permanent reforms that would change the fiscal regime in a lasting way was advocated in order to sustain low inflation. The agreement with the IMF in 1998 was responsible for increasing 'fiscal austerity in the face of the obligation to restore confidence in the solvency of public debt' (Lopreato, 2013, p. 184).

In the context of financial liberalisation and globalisation –and therefore increased speculative capital movements–, the Brazilian government became very concerned about the result of public budgets as a way to gain investors' 'confidence' and not influencing their expectations in a negative way. Moreover, the particularity of the post-stabilisation fiscal regime became budgetary rigidity. It became more difficult to meet all budget demands, considering the correlation of social and political forces, in a context of spending limits, obligation to generate primary surpluses, and low economic growth. The adoption of strict fiscal rules was the counterpart of such objectives outlined for fiscal policy.

Lledó et al. (2017, p. 8) define a fiscal rule as 'a long-lasting constraint on fiscal policy through numerical limits on budgetary aggregates.' These rules can have different objectives, such as sustaining public debt, stabilising the economy, or reducing the size of the state (IMF, 2009). In each jurisdiction, the rules have their own history. In Brazil, they were created at different times, reflecting the conjunctural needs of fiscal policy –or rather, of adjustment programmes. Our framework is composed of rules whose objectives are not necessarily interconnected, and which, in specific scenarios, may even conflict.

The 1988 Constitution already provided for the so-called Golden Rule, which prohibited the issuance of public debt that exceeded the amount of the government's

[7] A 'default' in domestic debt would be possible only due to an arbitrary act such as the one practiced in the Collor Plan in the 1990s (Belluzzo & Almeida, 1990; Marques & Werlang, 1989).

capital expenditures. The rule implies that the government cannot go into debt in order to finance current expenses[8]. In practice, the rule has never been a limiting factor for the federal government's actions, with more recent rules having the role of constraining Brazilian fiscal policy more boldly.

The Fiscal Responsibility Law (LRF) introduced in 2000 a primary surplus rule, which was seen, at the time, as the main anchor of the government's fiscal policy, aiming at stabilising and reducing the debt/GDP ratio. The surplus target should be part of the draft Budget Guidelines Law, in the Annex of Fiscal Goals, responsible for establishing targets related to revenues, expenses, nominal and primary results, and the amount of public debt. This ex-ante fiscal constraint changed the entire federal budget process after its adoption.

This 'new' fiscal regime, however, was not able to promote a fiscal situation considered 'healthy and safe' due to the macroeconomic instability of the first years of the 21st century and the high interest rates. The surplus rule has an eminently procyclical character: it allows for an increase in public spending at times of greater economic growth and, therefore, higher revenues, but forces the government to reduce spending at adverse times due to falling revenues (Vilella & Vaz, 2021).

Thus, the more active role of fiscal policy and the state depended significantly on the economic conjuncture. After years of faster economic growth, Brazil welcomed greater 'fiscal space,' with a reduction in public debt and the generation of surpluses. The 2008 international financial crisis brought greater tolerance to government intervention, but as soon as the worst moment of the crisis was over, with the deterioration of fiscal results, the clamour for a more austere policy was reestablished. In practice, the maintenance of the institutionality described above did not give fiscal policymakers the necessary leeway to adopt more progressive policies, in addition to weighing significantly in favour of tax incentives compared to increased spending.

In 2016, the Spending Ceiling instituted a brand-new fiscal regime, which established a draconian rule for government spending. The limit on the amount of primary spending each year is equal to the previous year's limit adjusted for inflation. It prohibited any real increase in the federal government's primary expenditures in a ten-year horizon[9], regardless of the level of revenues collected by the government. In case of non-compliance with the ceiling, some triggers were provided, such as the prohibition of hiring personnel or creating mandatory expenditures (Brochado et al., 2019).

Although proposed as a rule to 'anchor agents' expectations,' the ceiling, in reality, implies a reduction in the size of the Brazilian state. As population growth is positive, the rule results in a real reduction in per capita primary spending over time

[8] The idea was that a generation only can incur debt to finance investments that would benefit future generations, as the burden of the debt would be set upon them (Gimene & Modenesi, 2021).

[9] After 10 years, the rule may be reviewed by the Congress.

(Gimene & Modenesi, 2021). Moreover, as the rule covers most primary expenditures and the level of mandatory expenditures is very high, there is a tendency to reduce discretionary spending, including investments associated with the provision of public goods and services to the population (Vilella & Vaz, 2021).

The Brazilian experience shows that the almost exclusive focus on fiscal adjustment, austerity and reducing the size of the state has ignored fiscal and financial mechanisms capable of providing the Brazilian state with the capacity to promote full employment, investments and reduce inequalities (Lopreato, 2013). All these restrictions, however, are self-imposed, since, as we saw above, the Brazilian government has monetary sovereignty and relative economic policy autonomy. The 'fiscal responsibility' associated with these rules, in reality, leaves in the background the need to guarantee the social rights established in the 1988 Constitution. Even if the Brazilian experience reveals that it is possible to operate within the current institutional limits, if there are conjunctural conditions that allow the authorities to do so, the structural framework still significantly restricts the possibilities of action of the Brazilian state.

FINAL REMARKS

The objective of this paper was to analyse the relevant macroeconomic and institutional characteristics of the Brazilian economy in the period from 1999 to 2019 that would permit to characterise the country's monetary sovereignty, its relative degree of economic policy autonomy, and the institutional impediments to the implementation of an alternative fiscal regime geared toward promoting economic growth and development, and meeting social rights and demands as prescribed by MMT.

In the empirical assessment, it was shown that the country was successful in reducing its exposure to foreign debt, both through the reduction of gross and net foreign debt, and through the deindexation of the public debt with respect to the foreign exchange rate. Although structural questions related to the external restriction still remain, this movement has conferred a larger policy space to Brazilian authorities. Furthermore, it was shown that the Brazilian government did not face any restrictions to borrowing in domestic currency, without difficulties in issuing debt or in controlling its costs.

The institutional aspects of Brazilian fiscal policy, however, impose constraints on government action, subordinating it to a vision concerned with the government's budget results and not with guaranteeing the rights and demands of society. This framework represents a major obstacle to a reorientation of Brazilian fiscal policy in favour of guaranteeing rights and reducing inequality, as well as full employment. It is possible to align Brazilian economic policy with an alternative fiscal regime, but to do so it is necessary to review the main objectives to be pursued and the framework of the country's fiscal rules.

Given the current economic scenario, instead of restricting the state's spending capacity, it is necessary to expand it in order to return to a path of economic growth oriented to long-term development, focusing on social deficits and the reduction of inequalities. A new fiscal framework is needed and MMT and functional finance could be seen as a viable alternative to accomplish such goals.

REFERENCES

1. Belluzzo, L. G. M., & Almeida, J. S G. (1990). Crise e reforma monetária no Brasil. *Revista São Paulo em Perspectiva*, *4*(1), 63-75.
2. Blanchard, O. (2022). *Fiscal policy under low interest rates*. MIT Press.
3. Blanchard, O., Felman, J., & Subramanian, A. (2021). *Does the new fiscal consensus in advanced economies travel to emerging markets?* (Policy Brief 21-7). Peterson Institute for International Economics.
4. Blanchard, O., Leandro, A., & Zettelmeyer, J. (2021). Redesigning EU fiscal rules: From rules to standards. *Economic Policy*, 36, 195-236. https://doi.org/10.1093/epolic/eiab003
5. Brito, E. C., Araújo, E. C., & Araújo, E. L. (2019). Inter-relações entre a dívida pública e política monetária no Brasil: uma análise histórica. *Economia e Sociedade*, *28*(1), 153-175. https://doi.org/10.1590/1982-3533.2019v28n1art08
6. Brochado, A., Barbosa, F. F. R., Leister, M. D., Marcos, R. P., Mota, T. O., Sbardelotto, T., & Araújo, V. L. A. (2019). *Regras fiscais: uma proposta de arcabouço sistêmico para o caso brasileiro* (Texto para Discussão 31). Tesouro Nacional.
7. Dalto, F., Gerioni, E., Ozzimolo, J. A., Decacche, D., & Conceição, D. N. (2016). *Teoria monetária moderna: a chave para uma economia a serviço das pessoas*. Nova Civilização.
8. Delong, B., & Summers, L. (2012*). Fiscal policy in a depressed economy* (Papers on Economic Activity, Spring). The Brookings Institution.
9. Deos, S., Mattos, O. B., Ultremare, F., & Mendonça, A. R. R. (2021). Modern money theory: ascensão no cenário internacional e debate no Brasil. *Brazilian Journal of Political Economy*, *41*(2), 314-332. https://doi.org/10.1590/0101-31572021-3141
10. Eyraud, L., Debrun, X., Hodge, A., Lledó, V., & Pattillo, C. (2018). *Second-generation fiscal rules: Balancing simplicity, flexibility, and enforceability* (Staff Discussion Notes 18/04). The International Monetary Fund.
11. Fiebiger, B., & Lavoie, M. (2017). The IMF and the new fiscalism: Was there a U-turn? *European Journal of Economics and Economic Policies: Intervention*, *14*(3), 314-32. https://doi.org/10.4337/ejeep.2017.03.04.
12. Furman, J., & Summers, L. (2020). *A reconsideration of fiscal policy in the era of low interest rates*. Mimeo.

13. Gimene, M., & Modenesi, A. M. (2021). *Alternativas de aperfeiçoamento das regras fiscais brasileiras*. Mimeo.
14. Graeber, D. (2011). *Debt: The first 5000 years*. Melville House.
15. IMF. (2009). *Fiscal rules – anchoring expectations for sustainable public finances*. The International Monetary Fund.
16. Jorge, C. T. (2020). *A critical analysis of Brazilian public debt in the 2000s from an MMT perspective* [Unpublished doctoral dissertation, Universidade Federal do Rio de Janeiro].
17. Kelton, S. (2020). *The deficit myth: Modern monetary theory and the birth of the people's economy*. Public Affairs.
18. Kregel, J. (2021). External debt matters: What are the limits to monetary sovereignty? *The Japanese Political Economy*, *46*(4), 287-299. https://doi.org/10.1080/2329194X.2020.1860678
19. Lerner, A. P. (1943). Functional finance and the federal debt. *Social Research*, *10*(1), 38-51.
20. Lledó, V., Yoon, S., Fang, X., Mbaye, S., & Kim, Y. (2017). *Fiscal rules at a glance*. The International Monetary Fund.
21. Lopreato, F. L. C. (2013). *Caminhos da política fiscal no Brasil*. Editora Unesp.
22. Lopreato, F. L. C. (2006). *O papel da política fiscal: um exame da visão convencional* (Texto para discussão 119). Instituto de Economia da Unicamp.
23. Marques, M. S. B., & Werlang, S. R. C. (1989). Moratória interna, dívida pública e juros reais. *Pesquisa e Planejamento Econômico*, *19*(1), 19-44.
24. Oreiro, J. L., & Paula, L. F. (2021). *Macroeconomia da estagnação Brasileira*. Alta Books.
25. Orszag, P. R., Rubin, R. E., & Stiglitz, J. E. (2021). *Fiscal resiliency in a deeply uncertain world: The role of semiautonomous discretion* (Policy Brief 21-2). The Peterson Institute for International Economics.
26. Paincera, J. P. (2021). *Financialisation in emerging economies: Changes in central banking*. Routledge.
27. Paula, L. F., & Saraiva, P. J. (2015). Novo consenso macroeconômico e regime de metas de inflação: algumas implicações para o Brasil. *Revista Paranaense de Desenvolvimento*, *36*(128), 19-32.
28. Prates, D. M. (2020). Beyond modern money theory: A post-Keynesian approach to the currency hierarchy, monetary sovereignty, and policy space. *Review of Keynesian Economics*, *8*(4), 494-511. https://doi.org/10.4337/roke.2020.04.03
29. Ramey, V. A. (2019). Ten years after the financial crisis: What have we learned from the renaissance in fiscal research? *Journal of Economic Perspectives*, *33*(2), 89-114. https://doi.org/10.1257/jep.33.2.89

30. Rezende, F. C. (2009). The nature of government finance in Brazil. *International Journal of Political Economy*, *38*(1), 81-104. https://doi.org/10.2753/IJP0891-1916380104
31. Sandbu, M. (2021, April 11) A new Washington consensus is born. *Financial Times*. https://www.ft.com/content/3d8d2270-1533-4c88-a6e3-cf14456b353b
32. Serrano, F., & Summa, R. (2013). Uma sugestão para simplificar a teoria da taxa de juros exógena. *Ensaios FEE*, *34*(2), 383-406.
33. The White House. (2022). *The Biden-Harris economic blueprint*. The White House.
34. Vergnhanini, R., & De Conti, B. (2017). Modern monetary theory: A criticism from the periphery. *Brazilian Keynesian Review*, *3*(2), 16-31. https://doi.org/10.33834/bkr.v3i2.115
35. Vernengo, M., & Caldentey, E. P. (2020). Modern money theory (MMT) in the tropics: Functional finance in developing countries. *Challenge*, *63*(6), 1-17. https://doi.org/10.1080/05775132.2020.1747729
36. Vilella, C., & Vaz, C. (2021). *Regras fiscais no Brasil: prática e teoria* (Texto para Discussão 039-2021). Instituto de Economia da Universidade Federal do Rio de Janeiro.
37. Wray, L. R. (2019). Alternative paths to modern money theory. *Real-World Economics Review*, *89*, 5-22.
38. Wray, L. R. (2020). *The "Kansas City" approach to modern money theory* (Working Paper 961). The Levy Economics Institute of Bard College.

ARTÍCULO

REGIONAL PAYMENT AGREEMENTS: AN ALTERNATIVE TO CURRENCY CONVERTIBILITY?

Marcelo Bruchanski
Andrea Molinari

Bruchanski, M., & Molinari, A. (2023). Regional payment agreements: An alternative to currency convertibility? *Cuadernos de Economía*, *42*(88), 23-41.

Regional Payment Agreements (RPAs) replicate, on a regional scale, John M. Keynes's proposal at the Bretton Woods Conference, based on the recording and subsequent clearing of transactions. The analysis of the three "founding" RPAs from the Golden Age (Finland-USSR, European Payments Union and the LAFTA-LAIA Agreement on Reciprocal Payments and Credits) suggests that, in

M. Bruchanski
CIS-IDES/CONICET, Buenos Aires, Argentina. Email: marcelo.bruchanski@docentes.unpaz.edu.ar

A. Molinari
CONICET-UNSAM, Buenos Aires, Argentina. Email: amolinari@unsam.edu.ar

Suggested citation: Bruchanski, M., & Molinari, A. (2023). Regional payment agreements: An alternative to currency convertibility*? Cuadernos de Economía*, *42*(88), 23-41. https://doi.org/10.15446/cuad.econ.v42n88.102898

This paper was received on May 27, 2022, revised on September 27, 2022, and finally accepted on January 30, 2023.

general, these agreements fulfiled their objectives: saving foreign currency and promoting trade. Hence, RPAs would present an alternative to currency convertibility for current account transactions.

Keywords: International monetary arrangements and institutions; International institutional arrangements; Keynes; Keynesian; Post-Keynesian; Modern monetary theory; International economic order and integration.
JEL: F33, F55, E12, F02.

Bruchanski, M., & Molinari, A. (2023). Los Acuerdos Regionales de Pagos: ¿una alternativa a la convertibilidad monetaria? *Cuadernos de Economía*, *42*(88), 23-41.

Los acuerdos regionales de pagos (ARP) replican a escala regional la propuesta de John M. Keynes ante la Conferencia de Bretton Woods, sobre la base del registro y posterior compensación de las transacciones. El análisis de los tres ARP "fundacionales" de la Edad de Oro (Finlandia-URSS, Unión Europea de Pagos y el Convenio de Pagos y Créditos Recíprocos de ALALC-ALADI) sugiere que, en términos generales, estos acuerdos cumplieron con los objetivos propuestos: el ahorro de divisas y la promoción del comercio, por lo cual se infiere que los ARP presentarían una alternativa a la convertibilidad monetaria para las transacciones corrientes.

Palabras clave: instituciones y acuerdos monetarios internacionales; acuerdos institucionales internacionales; Keynes; keynesianos; post-keynesianos; teoría monetaria moderna; orden económico internacional e integración.
JEL: F33, F55, E12, F02.

INTRODUCTION

The widespread adoption of currencies convertible to the US dollar was one of the major trends in the late twentieth century. Towards the end of the 1950s, Western Europe began using convertible currencies for current transactions, and peripheral countries also moved in this direction, albeit more slowly. Furthermore, after the dissolution of the Union of Soviet Socialist Republics (USSR), even former socialist countries integrated into international payments through currency convertibility (Braga de Macedo et al., 1996).

One of the best-known theoretical alternatives to currency convertibility for current transactions was the International Clearing Union (ICU), designed by John M. Keynes, submitted by Great Britain to the Bretton Woods Conference in 1944. Although the US plan prevailed and the ICU was not implemented, the main ideas emerging from Keynes' proposal could be contrasted at a regional level through Regional Payment Agreements (RPAs).

From a historical perspective, RPAs predate the ICU, since their use grew in the 1930s thanks to the key role played by Germany. At the end of the Second World War, within a context of hard currency shortage, RPAs increased exponentially, both among capitalist countries and between capitalist and socialist nations. Conversely, the International Monetary Fund (IMF), led the currency convertibility paradigm, advising countries to remove any kind of discrimination from current payments, such as RPAs (de Vries, 1969).

After the collapse of the Bretton Woods Agreements (in 1971), financial deregulation caused many balance-of-payments and foreign exchange crises, mostly manifested during the 1990s. This resulted in extensive literature concerning financial account regulations and macroprudential policies. However, current account convertibility has not received the same academic attention. The present international context, where countries such as China or Russia use their own payment systems and domestic currencies for international trade, represents a major challenge to the currency convertibility trend. Peripheral, and particularly Latin American, countries should evaluate these changes carefully. In addition, different macroeconomic theories, such as the "Dominant Currency Paradigm" (Gopinath & Itskhoki, 2021) or the "Currency Hierarchy" (de Paula et al., 2017), study the reasons why the predominance of the US dollar in international transactions can be problematic. This paper assumes that RPAs are an alternative to currency convertibility, and that these agreements have historically served to promote trade within a context of hard currency shortage.

Apart from this introduction, the paper includes six sections. The first one describes the objectives and the operation of the main precedent of RPAs: the Keynes Plan, while the subsequent section characterises the main attributes of RPAs. Sections three to five summarise the background, historical context and main objectives and operation of the three cases that we consider to be the "founding" RPAs: Finland-USSR, the European Payments Union (EPU) and the Reciprocal Payments

and Credits Agreement (CPCR, in Spanish) of the Latin American Free Trade Association (LAFTA) and the Latin American Integration Association (LAIA). The choice of these RPAs was based on three criteria: (i) historical context, since all of them were signed during the so-called "Golden Age" of capitalism (a period between the second post-war and the fall of the Bretton Woods Agreements); (ii) diversity of the countries considered, since the first agreement links a socialist economic system with a capitalist one, the second one includes mainly central capitalist countries, and the third one involves peripheral capitalist nations; and (iii) economic and geopolitical importance of participating countries.[1] Finally, the sixth and final section concludes by comparing the agreements assessed.

THE KEYNES PLAN

RPAs are considered an extension of the British proposal prepared by John M. Keynes for the 1944 Bretton Woods Conference (Aragão, 1984; Fritz et al., 2014; Kaderbeck, 2019; Kregel, 2017; UNCTAD, 2011; Varela Parache, 1966). The so-called "Keynes Plan" proposed the establishment of an International Clearing Union (ICU) to register, clear and settle all international payments.

After the war, Keynes refused to return to a freely convertible gold standard, primarily due to the fact that such a system would lead to a contraction in global aggregate demand (Keynes, 1980). Under a *laissez faire* framework, the burden of adjusting external imbalances would fall only on deficit countries and capital flows would cause financial instability, preventing the implementation of sovereign economic policies to expand aggregate demand.

The ICU proposed by Keynes was based on three components: the adoption of the "banking principle", the expansive adjustment of chronic external imbalances, and the control of speculative financial flows. Since the banking principle uses the clearing house as an alternative payment system, it dispenses with money as a means of payment and restricts bank operations to bookkeeping customer accounts. In other words, banks are limited to offsetting assets with liabilities and credits with debits. Thus, a bank loan would be the exchange of a current debit for a future credit (Keynes, 1980; Kregel, 2017).

At an international level, the ICU would use a common unit of account (called "Bancor"), with a fixed parity to gold (which could eventually be changed). The central banks of member countries would keep an account in the ICU to settle their bilateral balances at a fixed parity defined in terms of the Bancor. Countries running a surplus with regards to the rest of the world would have a creditor position

[1] Other relevant RPAs are, for example: the Central American Clearing House, the Asian Clearing Union, the SUCRE (Unified System for Regional Compensation) among ALBA countries, the SML (Local Currency Payments System) between MERCOSUR countries, or the REPSS (Regional Payments and Settlement System) of the Common Market for Eastern and Southern Africa.

in the ICU, whereas those running a deficit would have a debit balance (Keynes, 1980).

In other words, based on the banking principle, the ICU enables trade between countries without using an international currency (and currency convertibility). External surpluses would result in credits extended to the ICU. However, given that the Bancor was only conceived as a unit of account, it could not be bought or sold. Moreover, an exchange market or the hoarding of international reserves by central banks for transactional or precautionary motives would not be necessary (Kregel, 2017).

In addition, as those credits extended within the system would be automatic,[2] in order to avoid chronic imbalances, it was necessary to tackle the excessive accumulation of credits and debits, without placing the burden of such adjustment only on deficit countries. That is the reason why each country would receive an annual quota based on the volume of its international trade. Keynes proposed charging an interest rate for both creditors and debtors.[3] If a creditor country exceeded half of its quota, it would have to apply several measures (such as appreciating its exchange rate with respect to the Bancor or reducing its import tariffs) to restore the balance (Aragão, 1984; Keynes, 1980). This adjustment scheme, in line with Keynes' (1936) ideas regarding effective demand, encouraged deficit countries to expand their exports to surplus countries, instead of restricting their imports.

Last, but not least, the Keynes Plan would ease (both incoming and outgoing) capital controls (Keynes, 1980), although this would not end international investments with "legitimate purposes". For that reason, Keynes suggested distinguishing long-term credits from capital flight and regulating short-term speculative financial flows.

Regardless of the Keynes Plan, the design of the post-war international monetary system ended up following the aspirations of the new hegemonic country, the United States, represented in the Bretton Woods Conference by Harry D. White, whose plan succeeded in establishing the US dollar as the international currency. It created a stabilisation fund to assist participating countries with liquidity problems (the IMF), fixed the exchange rates to the dollar and the dollar to gold, and (in coincidence with the Keynes Plan) regulated capital flows (Eichengreen, 2008; Serrano, 2003). Since the brand-new IMF sought to promote a multilateral payment system based on currency convertibility for current transactions, it recommended member countries to minimize or abolish any exchange restrictions or discriminatory payment agreements (de Vries, 1969).

[2] This means that deficit countries do not have to request a credit, since they are only left with a debit balance against the ICU.

[3] In addition, when the debtor's balance exceeds 25% of the quota, credits would cease to be automatic and, in case it exceeds 50%, the ICU could request the delivery of gold or hard currency as collateral and the devaluation of the currency.

A BRIEF DESCRIPTION OF REGIONAL PAYMENT AGREEMENTS

RPAs,[4] also known as regional clearing systems or payment unions, are institutional mechanisms designed to facilitate the clearing and settlement of payments among member countries. RPAs replicate, regionally and to a certain extent, several of the characteristics of the Keynes Plan: the central banks of participating countries (or any other institutions specially assigned to this purpose) operate as a clearing house, which manages regional trade payments recording them in a unit of account, and extends automatic credits to deficit countries (Aragão, 1984; Fritz et al., 2014; Kaderbeck, 2019; Kregel, 2017).

The main difference between the Keynes Plan and the RPAs is that the latter are regional (or limited to a few countries). The former aims at establishing a single multilateral general agreement (or for as many countries as possible), whereas in an RPA a country with a regional surplus might not necessarily have the same position in global terms (Aragão, 1984; Keynes, 1980).

RPAs operate at two offsetting levels. At a national level, each country's central bank is in charge of two tasks: paying in domestic currency to local companies exporting to another member country, and collecting domestic currency from those companies that have imported from other members of the agreement. As a counterpart, on a regional scale, each central bank records credits and debits in relation to the other central banks. Hence, some of them would run surpluses and others deficits with respect to the remaining RPA members. During the "accounting period" (set by each RPA), each central bank records the transactions made through the system. The "settlement time" begins at the end of such period, when deficit countries pay and surplus countries receive net balances (unless the RPA defines another type of arrangement).[5]

There are two interdependent reasons why a country may decide to establish and participate in an RPA. First, to promote intra-regional trade with the other member countries, given that importing intra-regionally is relatively more convenient than doing so from the rest of the world. This discrimination resembles a free trade area (FTA). Second, to save hard currency, as member central banks have lower daily liquidity requirements of foreign exchange for transactional and precautionary motives. Both objectives are interdependent, since a country with a hard currency shortage will foster intra-regional trade, while the more trade is diverted into the region at the expense of the rest of the world, the higher hard currency savings will be.

[4] RPAs are identified here as "regional" regardless of whether they cover one or more regions, in contrast to global agreements.

[5] This is another difference with the Keynes Plan, where the lack of a "settlement time" forced countries to find the way to resolve imbalances through the operation of the system itself. In other words, payments in hard currencies or gold would be more the exception than the rule.

RPAs promote intra-regional trade by reducing transaction costs for payments made under the agreement. This is because companies in member countries do not need to access the foreign exchange market or send money abroad to trade with their peers in another member country. In fact, they can pay in home currency and incur in financial costs that are comparable to those of a domestic transaction.

Regarding hard currency savings, given that the balances settled in a RPA are determined by the difference between debits and credits recorded during the accounting period, countries would end up requiring less foreign exchange than if each transaction were paid individually. Moreover, automatic lending in a RPA allows central banks to settle payments only at the end of the accounting period. Thus, the volume of daily foreign exchange liquidity needed for transaction motives decreases. In other words, hard currency savings result from settling the exact net balances and only at the end of the accounting period (Chang, 2000; Fritz et al., 2014). In addition, central banks might not require foreign exchange at the settlement time, increasing hard currency savings even more (Fritz et al., 2014). This would be the case when central banks settle balances at the end of the accounting period (even partially) in domestic currencies (or in a unit of account specially created for this purpose), or if imbalances are outweighed by expanding the exports of deficit countries.

As will be seen below, the empirical cases analysed in this paper suggest that there are many differences among RPAs, both in terms of their operation and their objectives.

REGIONAL PAYMENT AGREEMENT BETWEEN FINLAND AND THE USSR (1949-1990)

Cold War geopolitics and Finnish neutrality

This RPA is rooted in Finland's war reparations to the USSR between 1946 and 1952, which in turn helped to develop the installed capacity of the former's metallurgical and naval industries. Given the full closure of Western Europe markets, once the reparation payments were completed, Finland was eager to find new markets to place its production (Oblath & Pete, 1985).

The neutral foreign policy adopted by Finland during the Cold War allowed the country to link economically to both the Western and socialist worlds: while holding a RPA with the USSR and other socialist countries, it also joined the IMF (in 1948) and the Organisation for Economic Co-operation and Development (OECD, in 1969), and signed trade agreements (General Agreement on Tariffs and Trade (GATT), in 1950, and with the European Economic Community, in 1974) (Laurila, 1995; Oblath & Pete, 1985).

Thus, Finland found an amicable environment in the multilateral organisations and treaties signed among capitalist countries (such as the IMF, the GATT or the

European Free Trade Association), which strongly fought against protectionism, trade discrimination and current account inconvertibility. In addition, the IMF did not request that Finland eliminate its RPA with the USSR (unlike the conditionalities imposed on other countries) and "tolerated" its dual position in its trade ties (Matala, 2020).

Furthermore, this RPA would allow the USSR to oversee Finnish trade and keep this country under the Soviet area of influence. In return, Finland rejected aid from the Marshall Plan and did not take part in the EPU. However, during the 1950s and 1960s, the degrees of freedom gained by the Nordic country with respect to the USSR suggest that its continuity in the RPA was clearly its own decision. Despite the economic size difference between the two countries, Finland was able to negotiate and assert its position (Matala, 2020).

Finland signed its first bilateral RPA with the USSR in 1949 (for the period 1951-1955) as a complement to a trade agreement that established quotas for the volume and structure of bilateral trade. This agreement, albeit with different amendments, was renegotiated every five years (synchronously with Soviet planning cycles) until its termination in 1990. During the period 1945-1990, the USSR share of Finnish trade averaged 16%, reaching 19% in the 1980s, whereas Finland accounted for 10% of the USSR trade with Western countries.

Regarding the RPA operation, payments between the two countries were made through accounts denominated in rubles held with the Bank of Finland and the USSR Foreign Trade Bank (VEB). When Finland received a payment, the funds were deposited in a special account with the VEB and became part of Finnish international reserves (although these funds could only be used to make payments to import goods and services from the USSR).[6] On the companies' side, the process resembled the payment of imports using convertible currencies. The RPA stipulated that all bilateral trade-related payments had to be made with clearing rubles, which were inconvertible to any other currency. In other words, Finnish foreign exchange regulations prohibited the use of hard currency to pay for imports from the USSR.

Initially, payments through the RPA were feasible only when there were funds available for such purpose in the specially created bank accounts. Later on, the system began to operate with overdrafts and a credit limit, thus allowing payments regardless of the availability of funds. In fact, the established credit limits were frequently exceeded, showing that they were conservative. All in all, the fact that the creditor country did not receive interest payments from the debtor reflected that the RPA did not aim at restricting bilateral trade.

The use of this RPA was mandatory, both for the trade of goods and services between the two countries and for any related expenses. Since the framework within which payments could be channeled was relatively flexible, it was also pos-

[6] The account with the Bank of Finland fulfiled the same role, but from the USSR perspective.

sible to make some non-commercial payments. Finally, the goods and services traded were valued at international market prices and/or were subject to negotiations between importers and exporters.

The challenge of sustaining the external balance and expanding aggregate demand without using hard currency

From the outset, given that this RPA was envisaged to maintain the balance-of-payments equilibrium in order to avoid, as far as possible, the clearance with hard currency, it was necessary for both countries to have similar export quotas on an annual basis. However, given that many prices could not be fixed *ex-ante* (as they were subject to negotiations between companies or to international market fluctuations), it was not possible to ensure that trade balances would remain in equilibrium. In fact, between 1961 and 1965, the USSR had to pay only 5% of its current account deficit with Finland in hard currency to cover the import content of Finnish exports under the RPA. This ratio fell to 3.9% (and 1.6% of Soviet sales) during 1961-1990 (Holopainen, 1983; Laurila, 1995).

The RPA had various instruments to resolve trade imbalances that exceeded the credit limits originally set. First, countries had to negotiate to balance trade between them, to prevent the credit country from suspending its exports or requesting hard currency for the surplus balance. However, overall, credit limits in this RPA were frequently exceeded and bilateral asymmetries were addressed by offsetting the trade balance without restricting business (that is, increasing exports from the deficit country). This allowed both countries to minimise their hard currency payments (Holopainen, 1983).

Although the hard currency shortage motivated the beginning of this RPA at the end of the War, this situation cannot account for its relatively long duration. In 1957 Finland signed the Helsinki Club Agreement with the OECD, which promoted its gradual shift to multilateralism and current account convertibility (on a par with other Western European countries), while in 1967 Finland opposed the Soviet proposal to terminate the RPA and keep trading with convertible currencies. The RPA had fostered the aggregate demand expansion in key sectors whose competitiveness required economies of scale, research and development efforts, and financing (such as the shipbuilding, capital goods, or construction industries). In addition, the five-year agreements ensured a stable demand for long-term investments. In the 1960s, since some Finnish exporting companies received their payments in advance, financing through this RPA was one of the main reasons to avoid shifting USSR trading to convertible currencies. Finally, the RPA was also useful as an argument to account for Finnish trade discrimination practices within the GATT (Matala, 2020).

The large imbalances in this RPA started after the two international oil crises (in 1973 and 1979), which increased Finland's trade deficit with respect to the USSR. It was possible to briefly offset said imbalance by increasing Finnish

exports, mainly incorporating light industries (such as food and clothing), through an expansion of aggregate demand (similar to the Keynes Plan). There were no impediments for Finland to expand its exports, and the USSR had both the capability and the need to absorb them (Matala, 2020).

This situation was reversed when Finland began to run a surplus, with the falling oil prices in the early 1980s. For this reason, a special account was created in 1982 to include part of the Finnish credit balance, with funds that, unlike ordinary overdrafts, did earn interests. Furthermore, in 1986 Finland called for the start of negotiations due to the substantial expansion of the USSR's debt balance. At the Soviet request, the Bank of Finland created a credit facility to expand its imports from the USSR, although this attempt failed to restore the bilateral trade balance (Laurila, 1995; Oblath & Pete, 1985).

The end of the Agreement was decided by the USSR following its disintegration in the early 1990s, although Finnish diplomacy made several attempts to continue it, even after the clearing agreements among the Council for Mutual Economic Assistance countries were terminated.

THE EUROPEAN PAYMENTS UNION (1950-1958)

From bilateralism to multilateralism through the EPU

The post-war period showed that it was necessary to import capital goods and inputs as well as recovering intra-European trade to promote the reconstruction of countries. However, within a context of US dollar and gold shortage, European inconvertible currencies, and deficit balances of payments with respect to the US, it was necessary for governments to restrict imports through licenses and direct management of foreign purchases.

The institutions created at the Bretton Woods Conference lacked the necessary funding and were not ready for a post-war context of currency inconvertibility (Eichengreen, 2008; Kregel, 2017; Triffin, 1961). Intra-European trade had decreased even more than the trade with the rest of the world,[7] prompting the establishment of a payment mechanism that was able to restore trade regardless of the dollar shortage. The first of these agreements was signed in 1943 by the (exiled) Benelux governments, a model that was then implemented for the over 200 bilateral RPAs signed in the following four years.

In 1947, the Benelux, France, and Italy (and later West Germany) signed the First Multilateral Monetary Compensation Agreement, with the objective of easing bilateralism limits through the multilateralisation of RPAs. Thus, a European country would be able to offset its bilateral debit balances using the credit balances with European third parties. Nevertheless, the scope of this agreement was

[7] In 1947, European exports to the rest of the world accounted for 78% of the pre-war level, *vis-à-vis* 56% of intra-European exports (Varela Parache, 1966).

limited, especially due to Belgium's strong creditor position and the few participating countries.

At that time, the IMF limited its involvement in the establishment of the European RPA and did not appoint representatives for the first multilateral agreement.[8] Therefore, the Bank for International Settlements (BIS) acted as a clearing agent and maintained this role when the EPU was established. The erratic position of the IMF regarding payment problems in Europe began to shift by the mid-1950s. While some of its authorities (both from the Executive Board and the staff) believed that a multilateral RPA in Europe was consistent with the organisation's objectives, others feared that the creation of new means of payment would postpone the currency convertibility of European current accounts (de Vries, 1969).

In 1948, the 16 member countries of the Organisation for European Economic Cooperation (OEEC) joined the system under the Intra-European Payments Agreement (IEPA). This RPA also allowed for a first-level multilateral clearing, but this could cause problems due to the chronic deficits of some countries. In addition, the IEPA operated with the Marshall Plan's hedge for creditor positions that could not be outweighed. Although in 1949 the IEPA was reviewed to adopt a more multilateral approach[9], the shift to the EPU began shortly after its signature.

The EPU became operational in September 1950. Integrated by the 17 OEEC member countries,[10] it was monitored by a committee of that organisation. As in the case of the IEPA, the BIS was the clearing and settlement agent. The EPU expressly stated its objective of helping member countries to shift from bilateralism to current account currency convertibility. Originally, this RPA would last for two years and would then continue operating among those countries that agreed to its renewal (as long as they accounted for, at least, half of the total initial quotas), and from 1952 onwards it would be renewed annually.

Each central bank recorded its transactions with the other EPU members, having to notify the BIS about the balances of the accounts opened by other RPA members, and the EPU oversaw the multilateral clearing of such operations. In a bilateral RPA, a country is encouraged to import goods and services from those countries with which it has a surplus trade balance (and to avoid buying from those countries with which it is running a deficit). Instead, the EPU eliminated the need of intra-European trade to "buy from whoever buys from us" (Triffin, 1961). The balance of each country at the end of the established accounting period (that is, monthly) was a debit or a credit with respect to the whole EPU. It was mandatory

[8] Although in the first draft of the RPA the IMF was originally listed as the clearing agent, since it did not appoint any representative for the 1947 meeting (in Paris), the BIS ended up taking its place (de Vries, 1969).

[9] This mainly implied incorporating the possibility that a debt could be paid with the credit provided by a third country.

[10] Austria, Belgium, Denmark, France, The Federal Republic of Germany, Greece, Ireland, Iceland, Italy, Luxembourg, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, and Turkey.

to use this RPA, and operations included the whole balance of payments and were not limited to the trade of goods and services. Given that the EPU employed a unit of account with a fixed exchange rate with respect to gold, operations could be carried out even when a currency was inconvertible.

The Marshall Plan and the management of intra-European imbalances

The EPU was introduced as an intermediate stage between a RPA with no hard currency settlement (such as the Finland-USSR Agreement) and monetary convertibility to gold and US dollars. Each country was allocated a quota,[11] as proposed by the Keynes Plan. Depending upon the utilisation rate of such quota, a part of the surpluses and deficits was settled with gold or US dollars (or possibly another agreed-upon convertible currency) at the end of the accounting period, while the remainder became a credit extended from creditors to debtors through the RPA.

The arranged payment scheme set a mechanism that partially replicated the Keynes Plan for the ICU, since it punished imbalances. Debtors had to pay a progressively larger part in gold as their deficits increased, whereas creditors received only half of their surpluses in gold and only when their credit balance exceeded 20%.[12] The objective was to prevent EPU members from solving dollar shortage problems through surpluses with other European countries. The payment scheme was asymmetric between debtors and creditors, as the former received more financing than that extended by the latter. Therefore, this RPA was not entirely a zero-sum game, and the operating funds that financed such mismatch (which reached USD 350 million) were provided by the United States through the Marshall Plan (Triffin, 1961; Varela Parache, 1966).

The contribution of the Marshall Plan was not limited to closing the gap between payments and receipts within the EPU. It also helped to establish "initial credit balances", which benefited members with a substantial deficit. Thus, those imbalances at the beginning of the RPA would not hinder its operation. By contrast, countries with structural surpluses conceded their "initial debit balances" in exchange for a conditional aid in US dollars. It is important to note that if a country had a credit balance *vis-à-vis* the EPU, it did not mean that it had a solid external position in global terms.

By mid-1951, the United States replaced all initial (debit or credit) balances with "special resources" in US dollars so that the EPU could allocate them to debtor countries, and then it began to gradually reduce its financial assistance, which ended in 1954. Consequently, around 1952 the EPU had to modify its payment and

[11] Corresponding to 15% of its trade in goods and services in 1949.

[12] The EPU did not specify what would happen when a credit balance exceeded 100% of the quota, as a way to avoid excessive accumulation of credit balances (Triffin, 1961).

credit scheme to increase payments in hard currency to the EPU and cope with its commitments at the expense of the credit for deficit countries, and later (in 1954 and 1956) changed its payment scheme in the same direction.

Overall, since 1952 the imbalances among the EPU countries had narrowed and only Germany continued to run chronic surpluses, while the remainder of the countries tended to reverse their position with respect to the RPA. Despite the tightening of the EPU payment rules, trade liberalisation continued due to the accumulation of US dollar and gold reserves for the whole region.[13] Between 1949 and 1955, intra-European trade doubled (*vis-à-vis* a 37% growth in gross domestic product). By the end of 1956, all quantitative restrictions had been removed from 89% of intra-European imports, and the OEEC launched a consultation process to reduce tariffs among participating countries.

The EPU sought to create a transition towards current account convertibility through the amortisation of accumulated credits and the strong increase in gold and US dollar payments. Meanwhile, the exchange market was liberalised, and central banks only intervened to maintain a floating exchange rate band. This further complicated the automatic credit operation within the EPU[14] and fostered a system of non-automatic credits through the creation of the European Fund. By 1958, most of the countries participating in the EPU had established currency convertibility, terminating the RPA and allowing the European Monetary Agreement (EMA), created three years earlier, to fully function. The EMA did not extend automatic credits, and its member countries authorised their commercial banks to freely carry out foreign exchange transactions.

RECIPROCAL PAYMENTS AND CREDITS AGREEMENT

Latin American structuralism and the need to establish a RPA

Debates on complementing regional integration with schemes that facilitate payments among Latin American (LA) countries date back to 1948, when, at the request of the Economic Commission for Latin America and the Caribbean (ECLAC), the IMF concluded that a regional multilateral clearing system would be cumbersome and barely positive for the region. On the contrary, freer convertibility of Latin American domestic currencies would only require minor adjustments (Economic Commission for Latin America and the Caribbean [ECLAC], 1949; Siegel, 1964).

Towards the end of the 1950s, with the LAFTA under construction, the ECLAC resumed the idea of creating a payment and credit system in the proposed Free

[13] From USD 8.4 billion (in 1949) to USD 17.2 billion (in 1956).

[14] A country could borrow from the EPU and, at the same time, accumulate foreign currency outside the system.

Trade Area (FTA). Its purpose was to manage a payment clearing mechanism among member countries, multilateralising bilateral payments, and to provide a credit system to balance trade among forthcoming FTA members. However, when the Montevideo Treaty created the LAFTA in 1960, it did not provide any solutions to the potential payment problems, mainly due to the opposition by the IMF and the United States to the establishment of a RPA in LA (Siegel, 1964).

In the context of the establishment of a FTA, the governments of seven South American countries[15] called a meeting of central banks to analyse the payment problem and asked the ECLAC and the IMF for available solutions. These countries considered that the proper functioning of the FTA would require that all trade-related payments be made on a uniform basis and within the same area. Moreover, special credit facilities related to intra-zone trade would help to dispel the concerns and mistrust inevitably created with any trade liberalisation programme, thus contributing to ensure the reciprocity of trade concessions and their advantages. Therefore, signing a RPA was considered essential for the proper functioning of the FTA (ECLAC, 1959; Siegel, 1964).

The main criticisms of the IMF and the United States to the ECLAC proposal can be summarised along three lines. First, a RPA would go against the IMF's aims to broaden convertible currencies. The second criticism pointed to the fact that credits would be received (or granted) based on the debtor (or creditor) country's position in the region, without considering the global position of its balance of payments. Finally, like any FTA, this agreement would generate trade diversion, "artificially" modifying trade patterns (Siegel, 1964).

On the contrary, according to Prebisch (1960), it was necessary to create a payment system that could meet the FTA requirements, considering the need to foster trade among member countries as much as possible. Given that Latin American progress towards import substitution required the development of increasingly complex industries, countries would need larger markets than the national ones. In other words, the idea was to create an additional intra-zone trade flow to boost economic development, but this would not necessarily imply decreasing trade with the rest of the world.

The CPCR and regional integration of Latin America

The Mexico Agreement (September 1965) created the Multilateral Compensation System for Reciprocal Payments and Credits (SCMPCR, in Spanish), which came into force in May 1966. In 1969, this Agreement was complemented with the Santo Domingo Accord, which provided reciprocal financial support to help countries dealing with temporary liquidity deficiencies. The result obtained reflected not only ECLAC's position (in favour of automatic and semi-automatic credits),

[15] Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, and Uruguay.

but also the IMF's perspective, since many Latin American countries had signed Stabilisation Programmes with this institution.

Thus, instead of establishing a clearing house such as the EPU, the central banks created a multilateral clearing system, based on reciprocal credit lines negotiated bilaterally. These credits were devised to finance those transactions channeled through the system during the accounting period. The accounting period initially lasted for two months, but it was then gradually extended to a four-month duration (since May 1972). Nevertheless, amounts could still be settled every two months for less developed creditor countries (Ossa, 1975).

The SCMPCR established ordinary bilateral credit lines between central banks, denominated in US dollars and with a cap. The clearing house calculated the bilateral balances, which were then offset multilaterally. Those central banks with a deficit had to pay the Central Reserve Bank of Peru (through the correspondent bank, the Federal Reserve Bank of New York) in US dollars. Although, in the beginning, the credit was bilateral, in 1968 a system of partial multilateralisation was introduced, whereby a country that exceeded its credit line with a partner could resort to the unused part of the bilateral credit that a third central bank had extended, as long as the three countries agreed (Aragão, 1984).

Although payments through the system were, at first, voluntary, the central banks often made them compulsory with their own regulations. The agreement included trade of goods, services and related expenses (Aguirre et al., 2016; Pérez Caldentey et al., 2013). If ordinary credit was exceeded, it had to be paid immediately, although it was also possible to use non-automatic financing. The latter was considered an extraordinary credit and was established as a proportion of the former. In addition, in 1969 the Santo Domingo Accord created a support mechanism for temporary imbalances, to hedge debit balances within the RPA that could not be settled (Aragão, 1984; Latin American Integration Association [ALADI], 2009; Ossa, 1975).

Furthermore, every central bank guaranteed to the others the irrevocable acceptance of the debts of the importing country, hence eliminating commercial risk. In other words, the exporting company did not need to get an export credit insurance and the importer could have access to the exporter's credit on better terms. Therefore, central banks assumed a private risk to promote regional trade (Pérez Caldentey et al., 2013).

With the Montevideo Agreement (signed in 1980), LAFTA was replaced by LAIA and the agencies in charge of ensuring the operation of the Mexico and Santo Domingo Agreements ceased to function. In 1981, the Santo Domingo Accord was modified, incorporating two new support mechanisms for countries with liquidity deficiencies. A year later, the Mexico Agreement was amended, creating the CPCR, now within LAIA's framework, which continues to be in force (ALADI, 2009).

Initially (from 1966 to 1981), this RPA managed to incorporate new members and improve relations among partners, with 64 (out of 66 possible) bilateral credit lines accomplished. From channeling 10% of intra-regional trade in 1966, it reached 76.5% in 1981, within a growing trade context. In 1982, the CPCR suffered its first setback following the Latin American external debt crisis, when Argentina and Mexico were excluded from the operation and the mechanisms provided in the Santo Domingo Accord proved insufficient. Although the proportion of operations channeled through the CPCR increased, intra-regional trade dropped by 37% between 1981 and 1986.

By 1987, a new stage had begun with an exponential increase in Latin American trade, but since 1990 the proportion of transactions channeled through the CPCR began to fall abruptly (from 90.9% in 1989 to 1.5% in 2003). Within a context of financial deregulation and strong capital inflows into the region, prepayments[16] increased from 10% (in the 1980s) to over 90% (in the mid-1990s). In short, the end of capital controls, the spread of currency convertibility in the 1990s, and the decision of central banks to limit credit lines (all measures promoted by a surge of neoliberal governments), led the CPCR to become irrelevant, although, in formal terms, it remains in force. Although after 2003 its use increased slightly (reaching 9.8% in 2007) and then decreased again, such increase was entirely accounted for by the Venezuelan decision to use the system (Aguirre et al., 2016; ALADI, 2017).

CONCLUSIONS

The study of the three RPAs analysed in this article suggests that they may provide a regional alternative to current account currency convertibility. Like the Keynes Plan, RPAs are based on the recording and subsequent clearing of transactions. This implies the provision of automatic credit, at least during the accounting period. In the cases reviewed, the IMF opposed or maintained a trivial position regarding their implementation: in the Finland-USSR RPA it tolerated the neutrality of the Nordic country, in the EPU it avoided getting involved, and in Latin America it strongly discouraged its creation and development.

The end or the decline of the three RPAs studied was due to a decision made by some or all of their member countries (and only when it was feasible to move towards currency convertibility), but it was never accounted for by intrinsic problems in their operation. The RPA between Finland and the USSR ended because of the disintegration of the latter and despite Finland's intention to continue it. By contrast, while the EPU could have continued operating, it was its success that paved the way for the gradual restoration of convertibility in Western Europe (Triffin, 1961). Finally, the CPCR stopped being massively used due to the strong capital inflow (as part of neoliberal financial deregulation and the Brady Plan in the early 1990s), which eased the hard currency shortage.

[16]That is, the voluntary settlement of credits before the expiration date.

Overall, RPAs succeeded in compensating external imbalances by expanding aggregate demand, in the way that Keynes had envisaged the ICU to work. In the 1970s, when the price of oil rose, Finland managed to increase its exports to the USSR. For their part, most of the countries participating in the EPU managed to reverse their external position *vis-à-vis* the region in the early years of the Agreement. In Latin America, the greatest difficulties arose in the 1980s following the debt crisis, and the response of the countries was to increase the transactions channeled through the CPCR. Thus, the impact of the crisis would have certainly been much worse without this RPA.

Regardless of the technical features of each RPA (namely the duration of the accounting period, the extension of extraordinary credit, or the mechanisms designed to reverse regional imbalances), geopolitics played a key role in their operation. Thus, the Cold War influenced the first two RPAs: the Marshall Plan was key for offsetting the European balance of payments and for preventing the liquidity provided by the United States from leaking into the dollar area, whereas in the 1970s the USSR avoided leaving oil out of the RPA, thereby improving the Finnish aggregate demand.

Based on the above, it is possible to conclude that, as an alternative to current account currency convertibility, RPAs are a feasible tool for easing external constraints, both in countries that suffer from frequent devaluation pressures and in those which, having accumulated international reserves for a precautionary motive, pay a high opportunity cost for their hoarding. In addition, RPAs could be used as an instrument that contributes to the development of more sophisticated regional value chains through intra-regional trade, which is likely to increase export diversification and the added value of local production. Both issues (easing of external constraints and regional integration) are especially important for peripheral countries (in general) and for Latin America (in particular).

This article paves the way for the future research agenda in three directions: incorporating other RPAs into the analysis, assessing RPAs as a complement to regional trade agreements and as a tool for greater regulation of international payment systems by peripheral states, and lastly, by investigating why the CPCR did not regain some momentum after the setback of neoliberal governments in the 2000s.

REFERENCES

1. Aguirre, I., Narváez, D., & Sancho, S. (2016). *Convenio de pagos y créditos recíprocos de ALADI y la integración regional.* Banco Central de Ecuador.
2. Asociación Latinoamericana de Integración (ALADI, 2009). *Convenio de pagos y créditos recíprocos. Reflexiones sobre su funcionamiento y algunos temas que podrían ser objeto de discusión para su dinamización.* ALADI.

3. ALADI. (2017). *Evaluación del funcionamiento del sistema de pagos de la ALADI en el año 2016.* ALADI.
4. Aragão, J. M. (1984). Los sistemas de pagos latinoamericanos. *Integración Latinoamericana, 94*, 3-28.
5. Braga de Macedo, J., Eichengreen, B., & Reis, J. (1996). Currency convertibility in historical perspective—the gold standard and beyond. In J. Braga de Macedo, B. Eichengreen & J. Reis (Eds.), *Currency convertibility the gold standard and beyond* (pp. 3-10). Routledge.
6. Comisión Económica para América Latina y el Caribe (CEPAL, 1949). *Compensación multilateral de pagos internacionales en América Latina.* CEPAL - United Nations.
7. CEPAL. (1959). *Pagos y créditos en la zona de libre comercio proyectada por países de América Latina, posibles sistemas.* CEPAL.
8. Chang, R. (2000). *Regional monetary arrangements for development countries* (Working Paper). G-24.
9. De Paula, L., Fritz, B., & Prates, D. M. (2017). Keynes at the periphery: Currency hierarchy and challenges for economic policy in emerging economies. *Journal of Post Keynesian Economics, 40*(2), 183-202.
10. De Vries, M. (1969). The Fund and the EPU. In M. de Vries & K. Horsefield (Eds.), *The International Monetary Fund 1945-1965* (pp. 317-331). IMF.
11. Eichengreen, B. (2008). *Globalizing capital. A history of the international monetary system* (2nd ed.). Princeton University Press.
12. Fritz, B., Biancarelli, A., & Mühlich, L. (2014). Sistemas regionales de pago. Una perspectiva comparativa sobre Europa y el mundo en vías de desarrollo. *El Trimestre Económico, 81* (324), 875-908.
13. Gopinath, G., & Itskhoki, O. (2021). *Dominant currency paradigm: A review* (Working Papers, 29556). NBER.
14. Holopainen, K. (1983). The system of payment between Finland and the Soviet Union. In K. Mottola, O. Bykov & I. Korolev (Eds.), *Finish-Soviet economic relations* (pp. 173-180). Macmillan Press.
15. Kaderbeck, E. R. (2019). Toward a more universal currency: The impact of the clearing mechanism on developing economies. *Applied Economic Theses*, (5-2019).
16. Keynes, J. M. (1936). *Teoría general de la ocupación, el interés y el dinero.* Fondo de Cultura Económica.
17. Keynes, J. M. (1980). *The collected writings of John Maynard Keynes. Volume 25. Activities 1940-1944: Shaping the post-war world: The clearing union.* Cambridge University Press.
18. Kregel, J. (2017). The clearing union principle as the basis for regional financial arrangements in developing countries. In UNCTAD (Ed.), *Debt*

vulnerabilities in developing countries: A new debt trap? (vol. II, pp. 57-91). UNCTAD.

19. Laurila, J. (1995). *Finnish-Soviet clearing trade and payment system: History and lessons.* Bank of Finland Studies.
20. Matala, S. (2020). Negotiating bilateralism: The Finnish-Soviet clearing trade and payment system, 1952-1990. *Scandinavian Economic History Review, 70*(1), 87-107.
21. Oblath, G., & Pete, P. (1985). Trade with the Soviet Union: The Finnish case. *Acta Oeconomica, 35*(1/2), 165-194.
22. Ossa, F. (1975). *Acuerdos de pagos internacionales: consideraciones generales y experiencias latinoamericanas.* Instituto de Economía Universidad Católica de Chile.
23. Pérez Caldentey, E., Titelman, D., & Cipoletta Tomassian, G. (2013). *Sistema de pagos transnacionales vigentes en América Latina.* CEPAL.
24. Prebisch, R. (1960). *Declaraciones del señor Raul Prebisch, director principal de la CEPAL al inaugurarse en Montevideo, el 12 de enero de 1960, la reunión de representantes de bancos centrales que estudiará el sistema de pagos y créditos para la Zona de Libre Comercio*. Naciones Unidas.
25. Serrano, F. (2003). From 'static' gold to the floating dollar. *Contributions to political economy*, *22*(1), 87-102.
26. Siegel, B. (1964). Sistema de pagos para la Asociación Latinoamericana de Libre Comercio. In M. Wionczek (Ed.), *Integración de América Latina* (pp. 246-263). Fondo de Cultura Económica.
27. Triffin, R. (1961). *El caos monetario.* Fondo de Cultura Económica.
28. UNCTAD. (2011). *Regional monetary cooperation and growth-enhancing policies: The new challenges for Latin America and the Caribbean.* United Nations.
29. Varela Parache, M. (1966). La Unión Europea de Pagos como mecanismo de "clearing" multilateral. *Revista de Economía Política*, *42*, 112-225.

ARTÍCULO

DISAGGREGATED SAVINGS. SOME IMPLICATIONS FOR A CAPITAL-BASED MACROECONOMIC FRAMEWORK

Ignacio Martínez Fernández
Miguel Ángel Alonso Neira
Luis Palma Martos

Martínez Fernández, I., Alonso Neira, M. Á., & Palma Martos, L. (2023). Disaggregated savings. Some implications for a capital-based macroeconomic framework. *Cuadernos de Economía, 42*(88), 43-60.

As Bagus and Howden (2010) highlighted, one of the paths to achieve a more fruitful understanding of the business cycle involves examining saving as a heterogeneous analytical category. The aim of this paper is to continue this line of

I. Martínez Fernández
University of Seville, Department of Economy and Economic History, Seville, Spain. Email: imfernandez@us.es

M. Á. Alonso Neira
King Juan Carlos University, Department of Applied Economics I, Madrid, Spain. Email: miguelangel.alonso@urjc.es

L. Palma Martos
University of Seville, Department of Economy and Economic History, Seville, Spain. Email: lpalma@us.es

Suggested citation: Martínez Fernández, I., Alonso Neira, M. Á., & Palma Martos, L. (2023). Disaggregated savings. Some implications for a capital-based macroeconomic framework. *Cuadernos de Economía, 42*(88), 43-60. https://doi.org/10.15446/cuad.econ.v42n88.102922

This paper was received on May 30, 2022, revised on January 27, 2023, and finally accepted on January 30, 2023.

inquiry using the capital-based framework developed by Garrison (2001). This paper contributes to the literature by studying the impact of heterogenous savings on economic growth and business cycles in a capital-based macroeconomics framework. With this aim the implications of disaggregated saving is analysed by means of the differential market signals that are generated by cash-build savings (Pătruți, 2017) and loanable funds accessible through the credit markets.

Keywords: Business cycles; cash-built savings; term structure of savings; money demand.
JEL: E21, E23, E32, E41, E53.

Martínez Fernández, I., Alonso Neira, M. Á., & Palma Martos, L. (2023). Ahorro desagregado. Algunas implicaciones para el enfoque de la macroeconomía basada en el capital. *Cuadernos de Economía, 42*(88), 43-60.

Como destacan Bagus y Howden (2010), uno de los caminos para lograr una comprensión más fructífera del ciclo económico pasa por estudiar el ahorro como una categoría analítica heterogénea. El objetivo de este artículo es continuar esta línea de investigación utilizando el marco basado en el capital desarrollado por Garrison (2001). Este artículo contribuye a la literatura al estudiar el impacto del ahorro heterogéneo en el crecimiento y los ciclos económicos en un marco macroeconómico basado en el capital. Con este objetivo, se analizan las implicaciones del ahorro desagregado mediante las señales de mercado diferenciales que generan los ahorros en efectivo y los fondos prestables a través de los mercados de crédito.

Palabras clave: ciclo económico; ahorro en efectivo; estructura temporal del ahorro; demanda de dinero.
JEL: E21, E23, E32, E41, E53.

INTRODUCTION

The debate over the homogeneity or heterogeneity of savings is closely linked to the debate on the nature of capital, which first began with Böhm-Bawerk and Clark (Cohen, 2008) and was later developed by Knight and Hayek (Cohen, 2003). Following these contentions, the consideration of capital has followed one of two opposing views: the first defined capital as a homogenous and self-reproducing monetary fund and the second as a structure or pattern of combinations of heterogeneous and consumable goods.

Years later, Joan Robinson (1953) started the so-called "Cambridge Controversy on Capital Theory" (Cohen & Harcourt, 2003) with the publication of a provocative paper attacking one of the core assumptions of mainstream, as well as Austrian, economic theory of capital and interest: the inverse relationship between savings and interest rates. Besides the implications for the general equilibrium approach and neoclassical growth theory, this proposition represented a direct attack on the foundations of the Austrian school of economics' conception of secular sustainable growth. After at least two decades of bitter debate, the controversy came to an end with an "implicit" surrender of the neoclassical economists and the isolation of the Austrians.

This paper follows the lead of Bagus and Howden (2010) regarding the implementation of a disaggregated monetary savings framework by the Austrian School of Economics. The main ideas behind growth constraints caused by savings' embodiments were established in Hayek (1937)[1], stressing the complexity of capital good caused by the complementarity relationships between the supply of saved capital goods and the investment demand for capital goods. A similar problem arises when savings are treated as homogeneous within the credit markets, as in the macroeconomic identity S=I.

This paper contributes to the existing literature in two main aspects. First, defining and including the subset of cash-built savings based on the desired availability. Secondly, with respect to the focus presented regarding how an increase in aggregated savings can generate different growth paths, this paper is a first step toward enriching the study of the Austrian Business Cycle Theory through the capital-based macroeconomic framework

However, instead of basing the analysis on the time structure of savings, this paper focuses on the market signals of the pure/genuine savings and cash-built savings. To present the results and their implications a 100% reserve banking system able to mismatch savings maturities is assumed to showcase the initial equilibrium and sustainable growth in capital-based macroeconomics,

[1] In terms of real savings, meanwhile the link between real savings and saved capital goods was defined in Hayek (1931).

SAVINGS AND ITS EMBODIMENTS. DEFINITIONS AND SOME PARTICULAR CASES

The literature on the conceptual framework of savings can be divided into two radically opposed views, despite the taxonomy proposed by classical schools of economic thought: a) authors identifying saving as a precondition for investment, and b) those defining saving as a residual of consumption decisions.

The first of these two positions is partially shared by both Neoclassical-synthesis and Austrian economists, given that both begin by stating that saving is a necessary pre-condition for investment (and thus the capitalisation of the economy). Solow (1956, p. 66) illustrates the formal definition of saving proposed by the Neoclassical-synthesis school and its connection to investment: "Part of each instant's output is consumed and the rest is saved and invested. The fraction of output saved is a constant s, so that the rate of saving is $s\ Y(t)$..."; However, Modigliani's (1944, p. 49) definition stresses the roles of time and the individual decision to save:

> In his endeavor to reach the highest level of satisfaction he is confronted with two sets of decisions: (a) he must decide what part of his income he will spend on consumption and what part he will save, (b) he must determine how to dispose of his assets.

In the tradition of the Austrian School of Economics, authors such as Rothbard (1962) or Huerta de Soto (1998) illustrate the connection between savings, capital structure and time by means of a Robinson Crusoe example[2]:

> He must restrict his consumption […] and transfer his labour for that period from producing immediately satisfying consumers' goods into the production of capital goods, which will prove their usefulness only in the future. The restriction of consumption is called saving, and the transfer of labour and land to the formation of capital goods is called investment. (Rothbard, 1962, p. 42)

The second of these positions is typically defended by the Keynesian authors. According to John Maynard Keynes, "[…] saving means a surplus of income on consumption expenditure" (Keynes, 1936, p. 46). This definition considers saving as a sub-product of consumption planning, i.e., for a given income level, agents consume what they want and, by definition, savings would be overrun. This implies that there is no explicit motive for saving because there is no individual process to determine the level of expenditure on saving. This position is based on two different points. Firstly, Keynes elevates the role of consumption, or rather expenditure, to the foremost position in economic analysis and, secondly, his analysis assumes a static perspective rather than a more realistic dynamic one.

[2] In Huerta de Soto (1998, pp. 273-275) the element of *decision* or *planning* is stressed linking the choice of saving instead of consuming,

As the working definition of saving used in this paper: "People do not just save (S); they save-up-for-something (SUFS). Their abstaining from present consumption serves a purpose; saving implies the intent to consume later" (Garrison, 2001, p. 40). This definition highlights the two most important features of the concept: the existence of a clear goal and the existence of a determined time duration in saving.

To explain the process by which the available stock of savings in each society varies. Huerta de Soto provides an illustrative explanation on how to verify an increase in savings (Huerta de Soto, 1998, pp. 313-315):

- An increase in the rate of reinvestment of firms' profits,
- A decrease in consumption by the owners of the original means of production,
- The allocation of a part of income (by both the owners of the original means of production and capitalists) to production-oriented loans.

Following Garrison's definition of saving and its connection with investment, the decision of saving can be conceived as an individual's means to achieve their goals. Defining the goals pursued by the individual in terms of their future access to a given quantity of consumer goods, it is possible to analyse the various conceptions of this type of saving (See Table 1).

Table 1.
Types of saving, by individual's goals and economic phenomena

	Maintain future consumption at present levels	**Increase future consumption in comparison to present levels**
Stability of the monetary unit's purchasing power	· Saving cash. · Saving by purchasing assets that are perceived as low-risk	· Saving by purchasing assets whose expected returns allow for increases in future consumption.
Inflation/Deflation	· Saving by purchasing assets whose expected return compensates any change in the monetary unit's purchasing power	· Saving by purchasing assets whose expected return increases future consumption despite changes in a monetary unit's purchasing power.

Source: Prepared by the authors.

Cash-Built savings

The recent debate between Professors Bagus and Păruă has refocused attention on the role of cash-built savings, or money demand, in the Austrian school of economics framework. Comparing Keynesian and Austrian[3] theory on the connection between cash-built savings[4] and money demand might help understand the particularities of cash-built savings.

Liquidity preference in the Keynesian theory

In the General Theory (Keynes 1936 pp. 125-133), Keynes outlines his considerations with regard to the fundamental psychological motives that determined an economy's money demand. The first of these is the transaction-motive (income-motive for families and business-motive for firms), the second is the precautionary-motive and the third is the speculative-motive. The transaction-motive is given by the amount of time that separates an agent's receipt of income and its disbursements. The precautionary-motive arises from an agents' need to settle possible contingencies. The speculation-motive depends on the changes in expectations regarding the value of assets.

Following Keynes, the analysis of money demand should begin with the function

$$M = M_1 + M_2 = L_1\left(Y\right) + L_2\left(r\right), \tag{1}$$

where M_1 contains all money, demand derived from the transaction- and precautionary-motives. The functional form of this first type of money demand, $L_1\left(Y\right) = Y / V$, depends on the economy's total output (Y) and total volume of transactions (V). M_2 is the money demand which is related to the speculative-motive and is given by the function $L_2\left(r\right) = f\left(r^e\right)$, where r^e is the expected interest rate.

The Austrian perspective on money demand

Murray Rothbard's view of money demand adds a new axis to the traditional analysis of money motives, extending it to include dynamic aspects. Thus, he segments the analysis into that of pre-income demand (or exchange demand) and post-income demand (or reservation demand) versus that of total money demand and its stock.

Pre-income demand (Rothbard, 1962, pp. 367-452) is the made up of the suppliers' demand to exchange their goods and services for cash and is characterised as

[3] This section focuses on the differential behaviour and market signals of cash-built savings/money demand, which are studied in empiric terms in Friedman (1959) or as just another asset in Friedman (1989).

[4] Professor Păruă repeatedly uses the term hoarding but instead it will be referred to as cash-built savings. Hoarding, as a particular case, will be presented later in this section.

being, on the aggregate, decreasing in the purchasing power of a given monetary unit. Post-income demand (Rothbard, 1962, pp. 755-874) is the result of the discretionary use of income and is assumed to be decreasing in the monetary unit's purchasing power. Following this characterisation, variations in the available stock of money (which provoke changes in its purchasing power) cause opposite variations in its demand, as with any other good.

Cash-built savings can be a subset of savings that has a specific goal: using the accumulated purchasing power without limiting, or losing, the capacity to use these means of payment in the period between receiving income and consumption[5]. Accepting the early Keynesian categorisation and dividing money demand into precautionary, transaction and speculation motives, it is possible to integrate various subtleties into this analysis:

- *Precautionary saving.* Relates money demand to the precautionary motive with the subjective cost category, which is given by the existence of uncertainty.
- *Transaction motive.* It depends on the amount of time that must pass in between an individual's actions of collecting income and spending it, as well as the total volume of said transactions.
- *Speculative motive.* This motive is tied to the subjective categories of profits and losses and is explained by the agent's expectations on asset price fluctuations.

In other terms[6], the money demand or cash savings function can be expressed as

$$M^d = f\left(\sigma, \pi^e, r^e,\right) \tag{2}$$

where aggregate money demand is defined to be a function of uncertainty (σ), expected inflation (π^e)and the expected rate of return on investments and assets (r^e). While the first two are directly related to money demand (an increase in either implies an increase in demand), the third is inversely related.

Before concluding this subsection, it is necessary to briefly address the role of uncertainty in this model. Although its positive relation to money demand has been established, it is possible to make the mistake of using uncertainty as a sort of "catch-all" tool to further the model's analysis. To respond to this, uncertainty is composed of four specific components:

[5] This position can be understood following Bagus (2016, p. 369): "Strictly speaking, cash building is also an investment. It is an investment in the most liquid good"; and consubstantial with the qualification of savings presented early on Table 1.

[6] Initially, the expression would be $M^d = f\left(\sigma, t, \pi^e, g_A^e, i, i^e\right)$, but to simplify the analysis it is considered that the time between collections and payments is fixed (t) and that the expected rate of return on investments (r^e) is made up of the possible gains or losses in portfolios (g_A^e) and present and expected interest rates.

- Permanent uncertainty. Since the future is not predetermined, all human action is subject to a certain degree of uncertainty.
- Economic uncertainty. This concept should be understood as the uncertainty associated with an agent's sources of income, the volume of said income and its temporal distribution.
- Regime uncertainty[7]. This subset expresses the uncertainty that surrounds the political and administrative organisation of a territory.
- Legislative uncertainty[8]. Simply stated, this type exists because of the lack of legal certainty.

Hoarding and forced savings

Hoarding, as defined in the General Theory, is a type of restriction on consumption and accumulation of monetary units used to describe the extreme case of Keynesian liquidity preference theory (Keynes, 1936, pp. 110-111).

The fact that a rise in saving, understood in terms of Keynesian hoarding, leads to under-consumption is intimately tied to the theory of the circular flow of income and the analysis of the economy from a static point of view. Considering the macroeconomic identities[9]:

$$\begin{aligned} Y_t &= C_t + I_t \\ S_t &= I_t \\ Y_t &= C_t + S_t \end{aligned} \tag{3}$$

implies that any restriction on consumption, while not fully compensated by investment[10], would reduce both output and income. This leads to the "Keynesian paradox of thrift": an increase in saving has the effect of reducing the aggregate level of available income. Without a detailed critique of the concept[11], the inclusion of time into the analysis radically changes its outcome.

Considering the restrictions in terms of intertemporal consumption[12] and introducing the proposed definition of saving, the desire to accumulate present-day purchasing power is fundamentally connected to being able to exercise this power in

[7] Could also be understood as external political cycle uncertainty because it stems from possible shifts in economic policy when there is a change in the governing administration.

[8] Just as in note 7, could be understood as internal political cycle uncertainty.

[9] The simple case of a closed economy lacking a government.

[10] It possible that under extreme liquidity preferences agents to prefer holding on to their income and wealth in monetary units rather than "freezing" them in loans or less liquid assets.

[11] To maintain a certain uniformity in the sources, see Huerta de Soto (1998, pp. 342-344) or Garrison (2001, pp. 160-164).

[12] Inclusion of an intertemporal utility function framework in Modigliani and Brumberg (1954) showed the inconsistency of the classic hoarding analysis.

the future. Accepting the mechanics of the system of equations stated above (3), future available income implies higher future output. Therefore, by framing this process within a dynamic maximisation of income and output scope, the implications of the Keynesian under-consumption framework can be avoided.

Forced saving

As opposed to voluntary or true saving, forced saving would be an imposed reduction in an individual's desired consumption. The involuntary reduction in consumption can have many causes (Huerta de Soto 1998, pp. 409-413), which can be summarised in two broad categories: those induced by distortions in the productive process, and those induced by inflationary processes. Although both appear during expansionary credit processes, their nature differs, as does the process through which they develop.

In the first case, the process of credit expansion distorts a firm's productive structures and pushes it toward the production of future goods. However, consumers' time-preferences do not change, and the situation devolves into a tug-of-war over available resources between those industries closest to consumers and those furthest away. Therefore, the gap in time between the consumers' time-preferences and a firm's productive structure constrains individual consumption by limiting their choice of goods.

The second case is caused by the Cantillon effect that is associated with processes of credit expansion. The first agents to receive the newly created money face a price system which has yet to feel the effects of the expansion and, by purchasing goods and services with this new money, their increased demand begins to push prices upwards. As the newly created means of payments move away from the credit expansion's origin, in both space and time, its purchasing power begins to decrease. The result is that the last consumers to receive the credit expansion's "benefits" will witness a fall in their real income, which in turn forces them to reduce their consumption.

THE DIFFERENTIAL MARKET SIGNALS OF SAVINGS. RETHINKING THE LOANABLE FUNDS MARKET

Having defined saving, it's time to analyse the market signals generated by variations in an economy's rate of saving. When agents modify their time preference rate, they are changing the relative price of present and future goods. This modification, which manifests itself in various ways[13], sends a signal to produc-

[13]As showed in the working definition earlier.

ers indicating that the existing productive structure does not satisfy current consumer preferences.

The manifestation of this lack of coordination between supply and demand is caused by the consumer giving greater value to future goods in detriment of present ones. Resolving this situation requires entrepreneurs to properly assess the quantity and quality of goods demanded by society.

However, this signal may not be complete, so for now it will be considered a partial signal. This raises the following questions: How can firms know what is causing the excess supply? Is it caused by the present supply of goods not satisfying consumer preferences? Or could it be a sign of a future increase in demand?

If the cause is the first of these two possibilities, a sufficient solution would be to redirect the firm's productive structure towards fulfiling consumer needs. However, if increased future demand is the cause, then the firm must become more capital-intensive, as this will allow it to fully supply consumers.

In accord with Garrison (2001, pp. 36-40), the supply of loanable funds, whether it be by the owners of the original means of production or by entrepreneurs, provides clarity to the framework within which firms choose their actions. Therefore, any variation in the amount of loanable funds works as a reinforced signal since these monetary savings are "that part of total income not spent on consumer goods but put to work instead earning interest (or dividends)" (Garrison, 2001, p. 36).

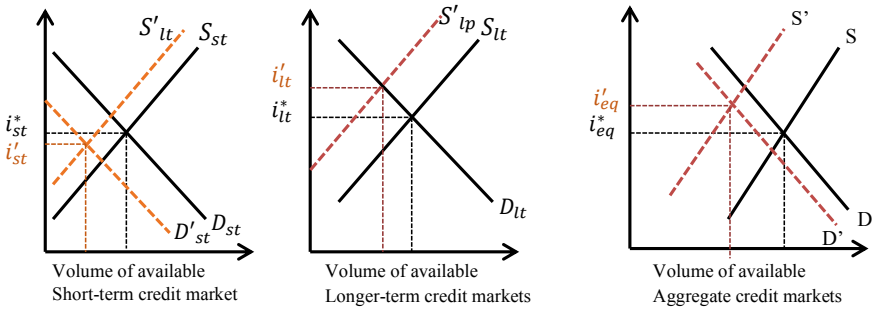
This concept allows the distinction between the two possible causes of excess supply in the example presented earlier. Should there be a variation in the amount of savings accompanied by a simultaneous variation in the amount of loanable funds in the same direction, the signal would be complete. Considering this reinforced signal, firms would begin to redirect their efforts towards more productive projects with longer maturities. On the contrary, if the variation in savings were not followed by a variation in loanable funds, a partial signal is given to the market and firms would not modify their productive processes. This analysis should also consider the production of goods and services while simultaneously including a dynamic conception of the saving process. An increase in savings does not only lead to a fall in output caused by the so-called *derived-demand effect*, but, if there is an equal increase in loanable funds supply, it is also followed by a *time-discount effect* improving the expected yield of new investments.

Once established the division between cash-built savings and loanable funds, the dynamics within the credit market need to be studied. First, the credit market needs to be compartmentalised according to its time-structure, dividing it between short- and longer-term markets[14]. This division also allows to analyse the different effects of cash-built savings and other monetary savings embodiments.

[14]Alternative or additional segmentations could follow differences in risk preference or preferred asset types.

In static terms, an increase in money demand implies a contraction of the supply of loanable funds and a decrease in their demand in the short-term market. As the availability of an agent's liquidity begins to rise, their demand for short-term credit will tend to fall[15]. On the contrary, the long-term credit market will suffer the opposite effect: as the desired investment's term rises, there will be fewer incentives to finance it with cash balances. This explains why the reduced supply of loanable funds is not accompanied by an equal decrease in demand. In general, the share of long-term credit in aggregate credit will grow[16]. Figure 1 shows the aforementioned effect.

Figure 1.
The effect of an increase of money demand on disaggregated credit markets



Source: Prepared by the authors.

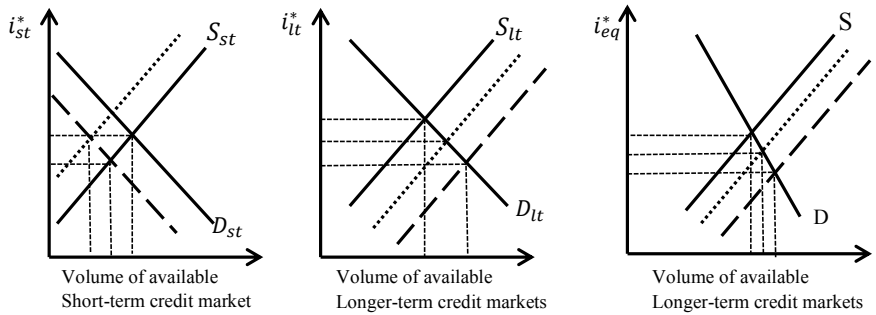
To study the dynamics of a disaggregated credit market under a 100% reserve banking system, let us analyse the case of an increase in *pari pasu* savings and an increase in liquidity preference, showing some complexities that may arise. A decrease in the average interest rates still can be expected, but the short-term credit market would experience a greater decrease than the longer-term market. This imbalance between market segments drives the banking system to exchange the credit supply from short-term to longer-term credit markets to aximize the expected value of their balances.

This arbitrage by banks (Bagus & Howden, 2010) will push to close the gap between maturity segments, lowering interest rates for longer-term loans while raising them for short-term loan markets.

[15]The concept of applied money demand is closely tied to short-term transactions, especially in the case of transaction-motive and speculative-motive money demand.

[16]An economy with a high degree of capitalisation will present a high proportion of long-term credit transactions.

Figure 2.
Mismatching in a segmented credit market scope



Source: Prepared by the authors.

REASSESSING GARRISON'S ANALYSIS

This study began under the assumption that savings, in analytical terms, were composed of cash-built savings and loanable funds. Given the definitions presented so far, considering savings to be the part of the available income that agents explicitly decide not to use for present consumption, the connections and differences between both categories can be drafted.

Loanable funds are the fraction of savings which agents willingly decide not to use during a certain period, so that in the future they may have a greater quantity (or greater quality) of goods. Cash-built saving shares the goal of satisfying future demand, but in this case the term is not defined with the same level of precision[17] or the agent is unwilling to relinquish his right to use these funds[18]. Although Garrison recognises the existence of cash balances that are not directly transformed into loanable funds (Garrison, 2001, p. 37), he limits his analysis to the study of liquidity preferences and static money demand.

Implications for the model in its initial equilibrium

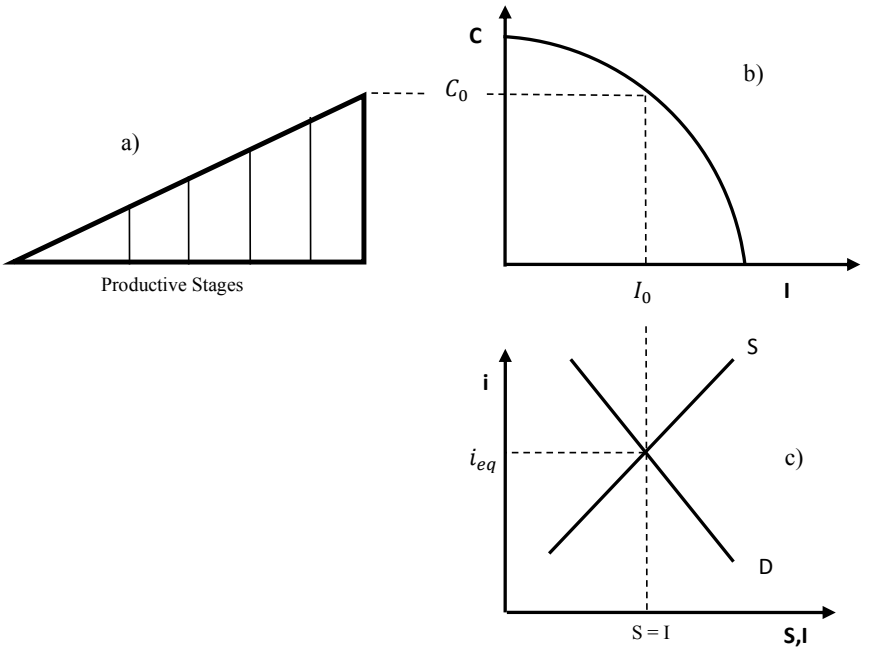
Figure 3 shows the graphical foundation of Garrison's analysis and presents an initial situation in which, given agents' time-preference, there is a productive structure (a) that is capable of satisfying present and future demand (represented as a possibility production frontier b)) and the market for loanable funds is in equilibrium at the natural interest rate (c).

Despite referring to the loanable funds market and the interest rate in general terms, this analysis highlights the differential effect created by introducing money demand

[17]This could describe precautionary- or speculative-motive savings.

[18]As would be the case for transaction-motive saving.

Figure 3.
Capital structure macroeconomics



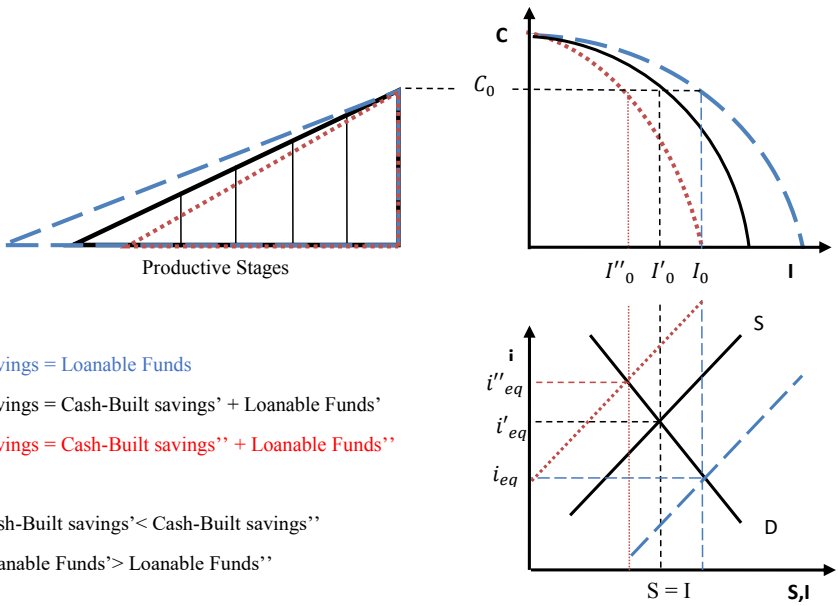
Source: Garrison (2001), p. 88.

as a nexus between short- and longer-term credit. In the circular flow of income framework, aggregate loanable funds and savings would always be equal, following the dashed line shown in figure 4. This abstract equivalence is usually implied in neoclassical models that assume a perfect correlation between the economy's savings rate[19].

The solid lines in figure 4 show a much more descriptive case where savings are made up of money demand and loanable funds, following the hypothesis laid out in this paper. It shows how the production-possibility frontier pivots around consumption because both supply and demand for present goods remain unchanged. This leads to the economy having fewer investment possibilities, hence the contraction in figure 4. This effect is also reflected in the market for loanable funds: if agents are unwilling to lose access to a given portion of a fixed stock of savings, an increase in the demand for loanable funds will cause the economy's natural interest rate to rise. The higher interest rate, which represents agents' new time preferences, will lead to a capital structure with fewer stages.

[19]This equivalence was challenged by Ando and Modigliani (1963).

Figure 4.
Initial equilibrium with cash-built savings' differential nature



Source: Prepared by the authors.

Implications for sustainable growth

In the capital-based macroeconomics framework there are three possible sources of sustainable growth: i) advances in technology; ii) increases in available resources; and iii) changes in intertemporal preferences. Given the aim of this paper, the focus will be on the scenario of changing intertemporal preferences to show the impact of cash-built savings on the growth pattern.

A change in social time preferences that translates into consumers becoming thriftier will drive an increase in savings and a decrease in the demand for final goods. This change in consumer behaviour will push down the prices of final goods, triggering three microeconomic effects (Huerta de Soto, 1998, pp. 317-332):

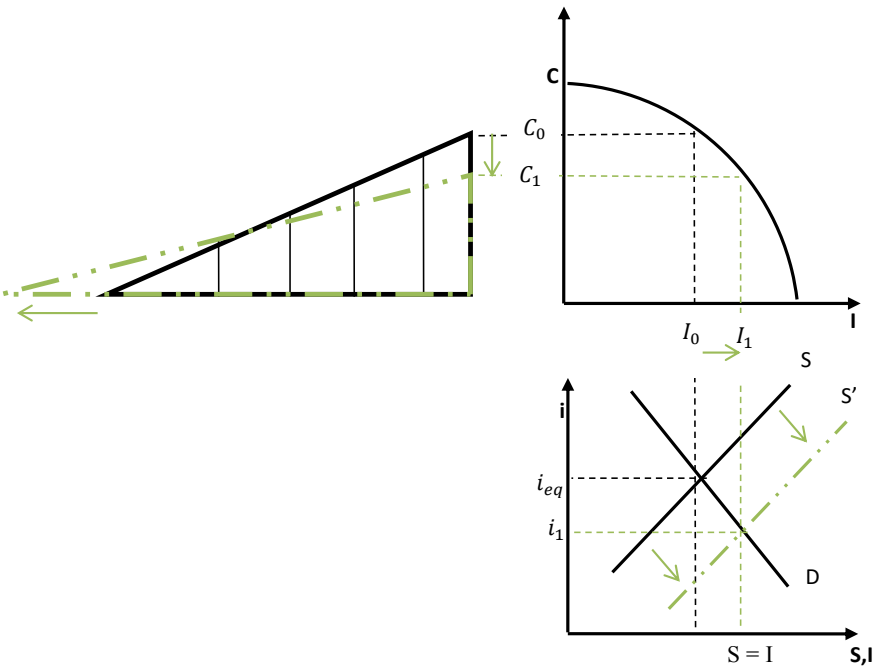
- *1st. The disparity in profits between the different production stages.* Firms closer to final consumers will begin to observe the effects of falling sales, reducing their profitability relative to firms located higher up on the supply chain.
- *2nd. The decrease in the interest rate on the market price of capital goods.* The increase in savings, *caeteris paribus,* drives a reduction in the market interest rate. Given that capital goods are priced in terms of the discounted

value of their cash flows, a decrease in interest rates increases the present market value of capital goods.

- *3rd. The Ricardo effect.* The decrease in the prices of final goods causes a rise in real wages, which makes less labour-intensive productive processes relatively cheaper.

The combination of these three effects will lead to a new and more capital-intensive productive structure such as the one shown in figure 5.

Figure 5.
Sustainable economic growth. Changes in time preference



Source: Prepared by the authors.

As in the initial equilibrium presented earlier, savings in the form of cash balances noticeably reduces the impact of an increase in savings in loanable funds markets, which translates into a smaller reduction in the interest rates. The outcome is a lower yield for investments in capital goods. This consequence was identified by Pătruți (2016) as a decrease in the potential growth rate.

Assuming that this change in time preference is caused by one of the factors with a positive impact on money demand (uncertainty or expected inflation). This can change the composition of savings by increasing cash-build savings instead of

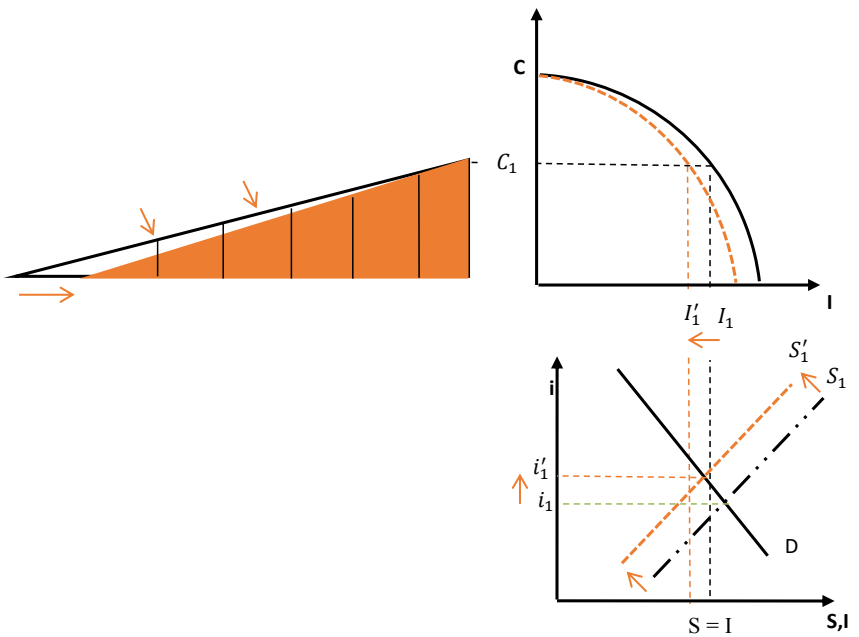
other savings embodiments. Two important forces operate against the conclusion that an increase in savings will lead to a more lengthened and sustainable productive structure:

I. An incomplete signal market produced by a smaller reduction in interest rates following the decrease in demand for consumer goods. The allocation of new savings in cash balances makes it more difficult for entrepreneurs to identify whether the reduction in consumption implies greater future demand or the need to redirect their present production lines to other consumer goods. As a result, the production structure should start to contract.

II. The mismatching in the time structure of credit markets makes the new production structure more fragile. As shown in the analysis of a segmented credit market, an increase in cash-built savings reduces short-term interest rates, lowering the profitability of bank loans in that market. In a 100% reserve banking system, banks will take short-term savings and inject them into longer-term loans, which are relatively more profitable. The result of this practice is a mismatch in the time structure of production.

The effects of this phenomena on the productive structure of the economy are shown in figure 6.

Figure 6.
Sustainable economic growth. The impact of cash-built savings



Source: Prepared by the authors.

CONCLUSIONS

Disaggregating the signals that entrepreneurs receive through the variations of demand and changes in interest rates into partial and reinforced signals offers the chance to explain why investment becomes so intensely biased during credit expansions. At the same time, combining this division with the analysis of savings as a set composed of cash-build savings and loanable funds it is possible to add a new dimension to the analysis of credit contraction processes.

Through a deeper study of the definitions economists use on a daily basis when designing or drafting economic policies, it might be possible to achieve a better understanding of the deviations between means, goals, and economic policy instead of claiming against *unexpected consequences*. The denaturalisation of savings witnessed in the evolution of modern economics is one of those consequences; and maybe one of the reasons for the continuous challenges developed economies suffer in the design of their monetary policy and financial regulations

Although the study of these two subsets is still only a first approximation, it might enable future studies into the institutional aspects and the effects of intervention of the market process' dynamics.

REFERENCES

1. Ando, A., & Modigliani, F. (1963). The "life cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review*, *53*(1), 55-84.
2. Bagus, P., & Howden. D. (2010). The term structure of savings, the yield curve, and maturity mismatching. *Quarterly Journal of Austrian Economics 13*(3), 64-85.
3. Bagus, P. (2016). A comparison of direct investment of savings and cash building of savings: A response to Alexandru Pătruți. *Quarterly Journal of Austrian Economics*, *19*(4), 359-375.
4. Cohen, J. A., & Harcourt, G. C. (2003). Whatever happened to the Cambridge capital theory controversies? *Journal of Economic Perspectives, 17*(1), 199-214.
5. Cohen, J. A. (2003). The hayek/knight capital controversy: The irrelevance of roundaboutness, or purging processes in time? *History of Political Economy, 35*(3), 469-490.
6. Cohen, A. J. (2008). The mythology of capital or of static equilibrium? The Böhm-Bawerk/Clark controversy. *Journal of the History of Economic Thought*, *30*(2), 151-171.
7. Friedman, M. (1959). The demand for money: Some theoretical and empirical results. *Journal of Political Economy*, *67*(4), 327-351.

8. Friedman, M. (1989). *Quantity theory of money* (pp. 1-40). Palgrave Macmillan.
9. Garrison, R. W. (2001). *Time and money. The macroeconomics of capital structure.* Routledge.
10. Hayek, F. A. (1931/1967). *Prices and production.* Augustus M. Kelly, Publishers.
11. Hayek, F. A. (1937). Investment that raises the demand for capital. *The Review of Economic Statistics*, 174-177.
12. Huerta de Soto, J. (1998/2006). *Money, bank credit, and economic cycles.* Ludwig von Mises Institute.
13. Keynes, J. M. (1936/2016). *General theory of employment, interest and money*. Atlantic Publishers & Dist.
14. Modigliani, F. (1944). Liquidity preference and the theory of interest and money. *Econometrica, Journal of the Econometric Society*, 45-88.
15. Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. *Franco Modigliani*, *1*, 388-436.
16. Pătruți, A. (2016). An analysis on the relationship between hoarding, investment, and economic growth. *Quarterly Journal of Austrian Economics*, *19*(3), 248-266.
17. Pătruți, A. (2017). A Comparison of Investment and Cash Building of Savings: A Rejoinder. *Quarterly Journal of Austrian Economics*, *19*(4), 248-266.
18. Robinson, J. (1953). The production function and the theory of capital. *The Review of Economic Studies*, *21*(2), 81-106.
19. Rothbard, M. N. (1962/2001). *Man, economy, and state: A treatise on economic principles*. Van Nostrand.
20. Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, *70*(1), 65-94.

ARTÍCULO

WORLD MONEY, CHINA AND THE US AND GLOBAL MERCANTILISM. A MONETARY-KEYNESIAN INTERPRETATION

Hernando Matallana

Matallana, H. (2023). World money, China and the USA and global mercantilism. A Monetary-Keynesian interpretation. *Cuadernos de Economía*, *42*(88), 61-80.

China and the USA are caught up in an exacting and complex competition for world hegemony. Both countries seek to instrumentalise the world market to their advantage and deploy their global power strategies at monetary, financial and economic levels, the USA as a means to maintain its global hegemony China to challenge this order and establish its own dominance. The current function of the national currency of the largest international net debtor as the dominant world money entails a systemic market-logical contradiction. Rising tensions between

H. Matallana
Free University Berlin. Escuela de Economía. Universidad Nacional de Colombia. Sede Bogotá, Colombia. Email: hdomatlav@gmail.com

Suggested citation: Matallana, H. (2023). World money, China and the USA and global mercantilism – A Monetary-Keynesian interpretation. *Cuadernos de Economía, 42*(88), 61-80. https://doi.org/10.15446/cuad.econ.v42n88.104706

This paper was received on September 8, 2022, revised on February 10, 2023, and finally accepted on February 10, 2023.

the USA and its allies and China will not be reduced by the renminbi becoming a world money.

Keywords: China; mercantilism; USA; world market; world money.
JEL: E12, E50, F30, F40.

Matallana, H. (2023). Dinero mundial, China y Estados Unidos, y mercantilismo global. Una interpretación keynesiano-monetaria. *Cuadernos de Economía*, *42*(88), 61-80.

China y los Estados Unidos de América están atrapados en una compleja y dura competencia por el predominio mundial. Ambos países instrumentalizan el mercado mundial y despliegan sus estrategias de poder en los niveles monetario, financiero y económico, Estados Unidos como medio para mantener su declinante hegemonía mundial, y China como medio para desafiarla y establecer la suya. La función actual de la moneda nacional del mayor deudor neto internacional como dinero mundial dominante, el dólar estadounidense, encierra una contradicción sistémica. Las crecientes tensiones entre Estados Unidos y sus aliados, por una parte, y China, por otra, no se reducirán por el hecho de que el *renminbi* se establezca como dinero mundial.

Palabras clave: China; Estados Unidos; mercantilismo; dinero mundial; mercado mundial.
JEL: E12, E50, F30, F40.

"Hide your strength, bide your time." (Deng Xiaoping)
"China, China, China!" (Donald Trump)

INTRODUCTION

China and the USA are caught up in an exacting and complex competition for world hegemony. Both countries seek to instrumentalise the world market to their advantage and deploy their global power strategies at monetary, financial and economic levels, the USA as a means to uphold its declining global hegemony and China to challenge this order and establish its own dominance

Tensions between the world's two largest economies over key international issues such as monetary dominance, international finance and trade, technology, information, and claims over terrestrial and maritime jurisdiction and space will continue to escalate as China builds up its global financial, economic and military military capability.

World money and the world market as the means and stage of competition for global hegemony already reveal the mercantilist nature of great power politics. As mainstream economics lacks a genuine theory of the world market, and the money-capital relation (*Geldkapitalverhältnis*) as the power relationship in capitalism is alien to mainstream economics, a thorough understanding of the market logic of the ongoing struggle for world hegemony requires an alternative approach that can only be provided by a heterodox theory of the monetary production economy.

This article proposes an interpretation of US-Chinese global competition in the light of Monetary Keynesianism, a lesser known Berliner strand of heterodox monetary economics, which of the key theoretical elements are intermingled in the text.[1] Section II examines China's international monetary condition and its mercantilist strategy towards global hegemony; section III analyzes the global monetary power of the USA and the defense of it declining hegemony; and section IV concludes with final remarks. References are listed in section V.

CHINA

China has undergone an unprecedentedly rapid transformation from a stagnant centrally-planned agricultural economy into a powerful industrialized monetary production economy under the rule of the Communist Party -which has asserted a control over society reminiscent of the *Ancien Régime.*

Measured in terms of GDP, its economy is already at least as large as those of the USA and the EU, albeit its per capita income is one-sixth that of the USA and one-fourth that of the EU. Its share of global trade is larger than that of any industrial-

[1] A basic model is not presented here due to space limitations. The key references are the publications by Hajo Riese and Karl Betz.

ized country and it has sustained foreign trade surpluses with every world region except North East Asia (Japan and South Korea), and oil producers such as Russia and the Gulf states. Its technological advances in manufacturing already pose a challenge to the EU, the UK, Japan and South Korea; industrial complexity, domestic transportation and communication systems modernize and expand at a rapid pace; its share in key industrial chains are main components of world economy and its military capability already surpasses that of the EU and the UK. Furthermore, China is the largest word creditor (when Hong Kong is included), ahead of Japan and Germany and the USA's second largest, behind only Japan.

And yet China's renminbi is not a world money as are the US dollar, the euro and the yen. It operates principally as a national currency with no key global role. Most of its credits and claims against debtor countries are denominated in foreign currencies, mainly the US dollar. Given China's weight in the world market, this is an extraordinary situation not only in itself, but also historically, with far-reaching implications for China and the world economy.

It is clear that the internationalisation of China's renminbi has gained momentum in the past decade, mainly through the financing of foreign trade and infrastructure projects in underdeveloped countries. Increasing demand for renminbi-denominated financial assets from international trading firms and banks, as well as demand for international reserves from central banks and the governments of some underdeveloped countries have enhanced its international role. Demand also comes from international agents seeking to avoid financial settlement systems and conditioning of international financial transactions set up and supervised by Western powers.

However, rising international demand for the renminbi is not primarily the result of decisions taken by private agents based in the financial and foreign exchange markets of Western hard currency countries, of its increasing use by international trading corporations, nor of its use as an international medium of deferred payments (i.e. as reserve currency) by governments and central banks of developed countries whose national currencies are already used as the settlement medium of international debt contracts.

In a world market where money rules, the fact that the renminbi is not an international medium of deferred payments determines China's status as an underdeveloped country, by far the largest by any measure, despite the fact it has become a world economic power and is the USA's and the world´s largest net creditor. As long as this status quo lasts, China will not become a globally monetary peer capable of competing with the USA, and will remain an underdeveloped country, that is, an extended low-wage workbench of developed countries, conditioned by global USA dollar hegemony.

Thus, if China is to challenge the global hegemony of the USA on equal terms, it must establish the renminbi as an international medium of deferred payments and impose its status as a world money. As China is already an international net cred-

itor and will remain so for the foreseeable future, it still has to harden its national currency further as a means of forging its international liquidity preference, while maintaining its undervaluation.

The money-capital relationship implies private property, which in turn entails financial freedom-to-choose in the world market. Hence, only by hardening the renminbi and adapting its financial and exchange regulations and practices to the interests of international private wealth owners, banks and firms -most of which are based in developed countries- will China ensure agents and institutions become willing over time to accept and even demand the renminbi as a medium of deferred payments and hold it as a store of value in their portfolios and use it in international finance and trade. The final stage of China´s strategy to impose the renminbi as a world money involves ensuring it is accepted as a key reserve currency by the Federal Reserve, the European Central Bank and the Bank of Japan, i.e. by the central banks of already established hard reserve currencies.[2]

Protectionist monetary, financial and exchange policies followed by the People's Bank of China, opaque fiscal policy and unreliable governmental financial market policy, plus tight control of foreign portfolio investments and international capital movements have hindered the succesful forging of the international liquidity preference of the renminbi and weakened its non-pecuniary liquidity premiums, thus discouraging acceptance and demand from international financial agents. However, it has been the tough monetary and financial protectionism of the central banks and governments of developed countries that has so far created most of the barriers to the renminbi achieving international convertibility on equal terms with the US dollar, euro and yen. [3]

Central banks and governments in the USA, the EU, UK and Japan are well aware -though they do not admit it publicly- that were they to accept the renminbi as a reserve currency it would attain the status of an international medium of deferred payments, thus unwittingly contributing to its acceptance as a world money and a surge of its liquidity preference among international financial agents. This, combined with the hardening of the renminbi by the People's Bank of China and the Chinese government, would further raise its non-pecuniary liquidity premiums. This in turn would lead to self-reinforcing increased demand for the renminbi-denominated financial assets created by China's financial institutions, further expan-

[2] This is what happened with the US dollar in the interwar period and the Japanese yen in the 1970s. In the case of the deutschmark, the 1953 London Debt Agreement on pre- and post-war German debt was key to its early acceptance as an international medium of deferred payments following World War II, because of West Germany's foreign trade surpluses and international net creditor position, but also the need to foster economic stability in Western Europe amid growing tensions between the Western Allies and the USSR.

[3] Long-standing mistrust and growing geopolitical tensions between China and developed Western nations have played a part, due mainly to stark ideological differences over private property as a social relationship, the state and political regimes, conflicting monetary, financial, exchange and trading policies and practices, outstanding territorial and maritime claims and potential military threat.

sion of domestic financial markets and rising use of the renminbi by foreign banks and corporations for international debt settlement and trade finance.

The ensuing rise of the worldwide share of the renminbi-denominated financial assets in portfolios of international agents would foster its rise as a dominant world money. Conversely, the share of US dollar-, euro- and yen-denominated nominal assets in international financial portfolios would diminish, leading to a relative (and eventually absolute) reduction in the scale of their own monetary national spaces globally.

Given China's current position as a net creditor, the rising international monetary and financial role of the renminbi as a global currency implies that the People's Bank of China would have an increased autonomy to establish its exchange rate against key world currencies, destabilise the current privileged position of these currencies in foreign exchange markets and set in motion a deep restructuring of the international monetary and financial system, leading as a result to a global power shift from the USA to to East Asia.

Higher non-pecuniary liquidity premiums of the renminbi would allow the People's Bank of China to set a lower discount rate, while maintaining its stability-oriented restrictive monetary and exchange policy and keeping the renminbi undervalued. Low interest rates and the undervaluation of the renminbi would simultaneously foster domestic consumption, investment and external foreign trade surpluses, stabilise and boost realised profits of Chinese firms and provide room for stability-oriented fiscal policy and sustainable public debt management.

This would in turn further promote public investment in infrastructure, based on credit and self-financed capital accumulation, technological development and technical change, rising labour productivity and economic growth, industrial transformation and rising complexity, increased real wages and employment and a reduction in urban and rural poverty. Externally, it would lead to expanded lending to business by already internationally powerful state-owned banks, the increased competitiveness and global reach of Chinese foreign trade, rising accumulation of investments in foreign assets, a continued build-up of its net international creditor position and a powerful military build-up.

Particularly during its early stages, China's strategic protection of its domestic financial assets market through tight controls of international capital movements and a decoupled monetary policy, critical to the successful transformation of its centrally-planned economy into a monetary production economy. The implementation of these policies promoted internal monetary and financial stability, played a key part in the undervaluation of the renminbi and allowed China to launch and maintain its mercantilist strategy for national economic development and global dominance.

The continuation of some of these measures may still be necessary, possibly in a less restrictive form, as a means of increasing China's labour productivity and per capita output, which still lag far behind those of the USA, EU and Japan. For the

time being, the implementation of monetary, financial and exchange policies similar to those pursued in the developed countries, which ultimately serve the interests of international private, mainly Western, investors and central banks and the governments of Western powers and Japan, clashes with China´s need to ringfence the autonomy of its monetary policy, the stability of its financial markets, the undervaluation of the renminbi and the shoring-up of its international net creditor position.

Over time, sustained strengthening of the renminbi and the relative expansion of China's national monetary space may overcome the resistance of central banks and governments of developed hard currency countries, lead them to accept it as an international medium of deferred payments and consequently motivate reluctant international private investors to demand renminbi-denominated assets issued by China's banking and financial system. China would become a developed country in its own right, though this remains uncertain under current global monetary and financial power relations, due mainly to fierce resistance by the central banks and governments of Western powers and Japan, and the continuing dominance of the US dollar as the principal world money.

For the time being, however, China's rise to world monetary hegemony has been shifted to the uncertain medium-term future. This is has been partly due to government's unpredictable drastic changing course of its money, credit, financial and exchange policy; which has varied from first strategically slowly opening its financial and exchange markets to Western investors and making it less opaque vis-à-vis Western governments, central banks and private international agents, in the 1980s and 1990s, to reversing the open policy in the last decade. And partly to the resistance of central banks and governments of developed countries to accept the renminbi as a reserve country; and consequently, by the reluctance of international private agents to demand renminbi both as international medium of deferred payments and alternative store of value.

In the meantime, however, China has found a temporary workaround, without renouncing its global mercantilist power strategy. Most probably, it will continue to build a regional monetary and financial hegemony tailored to its national economic and military interests, comprising its neighbour countries in East Asia and the Indo-Pacific, while expanding foreign finance and trade to the Middle East, the Persian Gulf and North Africa, alongside foreign investment in developed countries and the acquisition of mining rights and oil reserves in underdeveloped countries, including Russia. Underdeveloped countries in Central Asia and sub-Saharan Africa will continue to supply the mineral raw materials, agricultural products, low value-added manufactures and cheap labour power China requires both for its national economic development and the expansion of its regional and global dominance.[4]

[4] In the last two decades, a more than half of the share of East Asian's countries foreign trade has become intra-trade, and its intra- and inter-country input-output matrix of financial services, high

Russia already fits into China's new centre-periphery system as a satellite exporter of food, oil, coal and gas and low- and medium-tech manufactures, enjoying a special status due to its technology, industrial capacity and nuclear military power. Over time it will become increasingly dependent on China given the structural weakness of the rouble and its financial and economic backwardness, but also as a consequence of its economic and political breakaway from Western capitalism and financial, trade and political sanctions by NATO countries imposed in response to the war in Ukraine.

India follows its own path as a large Third World country, but even so, its economy is one-fifth the size of China's when measured in terms of its GDP. Furthermore, though its foreign debt is relatively low in terms of GDP when compared with other countries, this will increase if the Bank of India and the government prove unable to reverse the continuing overvaluation of the Indian rupee. Most probably, China's growing power in East Asia and the Indo Pacific will increasingly drag India into its sphere of financial and economic influence. Japan, South Korea, Australia and New Zealand will be confronted in the near future, if not already, with the dilemma of maintaining their defence alliance with the USA or attempting to pursue a security-neutral path.

Clearly, none of this stands in the way of mercantilist China continuing to expand its financial and high-tech trade relations with the USA, Europe, the UK and Japan as well as with South Korea, Canada, Australia, New Zealand and India, increasing its infrastructure loans and its imports of raw materials and agricultural products from underdeveloped countries in Central and South East Asia, Latin America, Africa and the Middle East and growing its oil imports from oil-producing Gulf countries.

Yet, China´s successful mercantilism threatens to be derailed, in part by China itself, due to the recent reemergence of mutual mistrust between China and the Western powers. This has been occasioned by China´s global monetary, financial, exchange and trading policies and practices that conflict with the global rules of the game established by the developed countries in recent decades. Over the last decade, Xi Jiping´s national 'striving for achievement' strategy, burying the policies of Deng Xiaoping, has led to growing geopolitical tensions due to China´s aggressive expansionism and counter-strategy of disengagement pursued by the USA and possible military confrontation between the two countries.[5] Western

tech industrial manufacturing and agricultural production has also become highly dense. Hence, countries of East Asian region, including China, Japan, India, South Korea, Hong Kong and Indonesia, have strongly increased their capability to self-produce monetary, financial, production and trade conditions largely allowing for integrated self-sustainability of their regional economy, thereby reducing their monetary and economic dependence on Western counterparts.

[5] The roots of this mistrust lie in long-standing ideological differences about the private property relationship and the economic system; the state and the political regime; the colonial legacy of China´s "century of humiliation" by Western powers from the mid-19th to the mid-20th centuries and China's historical and strategical territorial and maritime claims over Taiwan, the South China and East China Seas and the Diaoyu/Senkaku Islands.

countries, and in particular the USA, will wield their global monetary, financial, economic, trade and military power to contain China and force it to comply with the international rules of the game whenever they can.

THE USA

The USA was able to impose its monetary and financial hegemony worldwide during the final stages of WWII and in its aftermath, largely due to its unique position as the world's largest net creditor in its own currency. This particular circumstance allowed the US government and the Federal Reserve to set the US dollar exchange rate within the Bretton Woods system, thus reinforcing its international liquidity preference. In turn, high US dollar non-pecuniary premiums enabled the Federal Reserve to keep its discount rate low, ensuring modest financial costs both for production and demand, which in turn led to the rapid expansion of domestic output and unemployment, both domestically, while rapid increasing labour productivity allowed for rising real wages.

This world monetary and financial supremacy placed the USA in Triffin's dilemma. Maintaining its net creditor position as well as its absolute advantage in foreign trade required the Federal Reserve to keep its national world money scarce by pursuing restrictive monetary policy, supported by non-deficit spending by the government. Yet, in a world market characterised by the existence of multiple sovereign nations and national currencies, most of which were not internationally accepted mediums of deferred payments, the development and smooth operation of its world hegemony required the USA to forgo keeping its currency scarce, allowing the US dollar to overvalue and leading to sustained foreign trade deficits.

At the height of US world dominance, loose Federal Reserve monetary policy was characterised by a low money market interest rate, largely supported by high non-pecuniary premiums of the US dollar. Expansive deficit fiscal policy was largely driven by aggressive government spending, foreign aid and military policy as a means to boost activity domestically and sustain near-full employment while, in the external sphere, containing the USSR during the Cold War. Expansive monetary and fiscal policy led to the overvaluation of the US dollar while its foreign trade balance turned negative, thus allowing indebted countries to access the currency, meet financial obligations to US lenders, avoid recurrent debt default and escape prolonged financial and economic crisis.

This is what actually happened in the case of a rather small number of industrialised and industrialising countries, though the effects were particularly significant for West Germany and Japan in the 1950s and 1960s as they became successful mercantilist countries and their currencies gained the status of international mediums of deferred payments, thus permitting the surge of their international liquidity preference.

In the following decades, they became the largest net creditors of the USA, their central banks gained relative exchange rate policy autonomy and their non-pecuni-

ary premiums increased while those of the US were destabilized. As a result, since the early 1980s, the Federal Reserve has generally used its discount rate to counter inflation and attain domestic price stability and has limited its exchange market interventions to hinder US exchange rates overshooting, while the US government has pursued a stop-go deficit fiscal policy coupled with rising public debt. From this point on it has become increasingly difficult for the USA to impose its world hegemony by wielding its global monetary, financial and economic power, despite its military might.

The main consequence of the USA losing its net creditor position and becoming a net debtor was the eroding power of the Federal Reserve vis-à-vis the national central banks of its net creditor countries, entailing the loss of its unchallenged ability to set the US dollar exchange rate by using its discount rate against competing countries. This led to a reordering of pecuniary and non-pecuniary liquidity premiums of the three key world currencies and consequently to destabilisation of US international monetary hegemony of the USA.

The dysfunctional dynamics of the multipolar international monetary system that emerged after the collapse of the Bretton Woods system was characterised by international currency competition, unstable non-pecuniary liquidity premiums of key currencies and mounting international financial imbalances among major economies. Notwithstanding international monetary and exchange cooperation efforts by major central banks involving coordinated interest rate hikes and cuts, financial market instability and overshooting exchange rates threatened the stability of the world market.[6]

Initially, in the early 2000s, the euro looked like an international reserve currency that would achieve high international liquidity premiums and could potentially weaken the global monetary hegemony of the US dollar. However, the flawed design of its monetary constitution in relation to the lack of a common fiscal policy and public debt market of the union, the disparatity of economic and fiscal policy and continuing tensions between northern and southern Western European countries, all of which contributed to financial crises in peripheral countries and provoked a political crisis within the European Union during the Great Recession (later also during the Covid pandemic crisis), sharply weakened the euro's liquidity premiums as an international medium of deferred payments and store of value. Conversely, both the international liquidity premiums and the global dominance of the US dollar strengthened.

In the meantime, the USA has become the world largest debtor to Japan, West Germany (and, after unification, Germany) and the EU, the Asian Tigers and China, while remaining a net creditor only to indebted, mainly underdeveloped countries, whose weak currencies lack a liquidity preference as international mediums

[6] The liberalisation of domestic and financial markets in the wake of the neoliberal reforms of the 1980s up to the 2008 international financial crisis only served to reinforce the inherent instability of the multipolar world monetary system.

of deferred payments. However, despite the fact the USA has become increasingly indebted internationally on the back of rising foreign trade deficits, the US dollar remains the key means of global power available to the Federal Reserve, the US government and US banks and corporations, while international financial and trade contracts have continued to be settled worldwide primarily in the US dollar.

This is mainly due to its high non-pecuniary liquidity premiums, enabled by its still undisputed international dominance as the world money, to the depth, liquidity and integration of the US banking system and financial markets, the global lending and investment reach of its international banks and corporations, the size of its national economy, the breadth of its resource-rich continental territory, its huge technological edge and the high productivity of its workforce, in addition to its unchallenged military might.

The fact that the US dollar has relative higher non-pecuniary liquidity premiums than other key currencies allows US banks and financial corporations to set interest rates on its domestic financial assets hold by foreign lenders that are lower than those of financial assets denominated in other currencies hold by US international investors and corporations. This enables the USA still to maintain a positive foreign income account despite its being an international net debtor. However, the internationally dominant position of the US dollar as the world money of the world's largest debtor entails a market-logical contradiction, since, being indebted in its own currency, the USA can always depreciate its debts by devaluing its currency, thus occasioning in the longer term a net worth loss to its foreign debtors and particularly to international wealth owners, which it is that it has done over the last four decades or so.

This privileged position of the US dollar will be maintained as long as the USA remains a world power unchallenged by a rising, successful, net creditor mercantilist country capable of imposing its currency as the world money, as occurred with the US dollar against the pound sterling in the interwar period. This is the current threat that China's rise to the status of global power currently poses to the USA as it strives to impose the renminbi as a world money, something that the USA and its Western allies and Japan are willing to go the lengths to prevent happening. At the core of the strategic competition between the USA and China for monetary hegemony are the status of the US dollar as the dominant world money and the undervaluation of mercantilist China's underdeveloped renminbi.

The long-standing overvaluation of the USA dollar has also had far-reaching implications for the USA economy.

Since the realisation of profits depends on a positive foreign trade balance, relinquishing its absolute advantage in foreign trade meant that the entrepreneurial profitability (i.e. profits after paying interest) of US firms henceforth depended principally on the final consumption of wealth owners, the investment of firms, government deficit spending, a capital income surplus from the US foreign portfolio and direct investment - although these profits were diminished by sustained for-

eign trade deficits. However, as the net debtor position of the USA has grown ever larger, its positive foreign current account has steadily reduced or become negative, especially in recent years, thus leaving the final consumption of wealth owners, the business investments and the government's deficit spending as the principal sources of profit for US firms, which have become increasingly financialised.

Moreover, sustained government deficit spending has become the main way in which both the foreign trade deficit and the domestic private balance are financed and, hence, of market-state profits (i.e. profits as defined in Keynes's Treatise on Money), and will continue to be so in coming years, since the foreign current account will remain negative. Thus, US public debt will continue to rise, the interest on government debt as a share of federal spending will remain steady and possibly rise in the near future[7], their joint increase benefitting Treasury bill-holders by stabilizing the net worth of portfolios and enlarging unearned interest income. This will further exacerbate unequal functional and personal income distribution, in favour of private wealth owners and to the detriment of low- and medium-wage workers and marginalised groups. It is certain that this public debt-private financial gain will continue as long as domestic and international investors are willing to grant the US federal debt a high enough non-pecuniary liquidity premium.

Furthermore, although the steady overvaluation of the USA dollar has allowed for an increase in consumption-led well-being because of the availability of low-wage cost manufactures imported from China, it has come at the cost of its countrywide de-industrialization, particularly in the Rust Belt states, the relative loss of the country's overall edge in terms of labour productivity and the loss of technological know-how and infrastructure investment. The emergence of high-tech industries and services has partially offset the effect of deindustrialisation in the larger cities, but the overall trend continues, at least in formerly prosperous Rust Belt states.

The reduced power of the Federal Reserve to steer the US dollar exchange rate as a result of the net debtor position of the USA and the growing ability of the People's Bank of China to set the renminbi exchange rate because of its net creditor position blocks any attempt by the USA to reverse overvaluation of the US dollar by instrumentalising the Federal Reserve's discount rate. A higher discount rate leads to revaluation of the US dollar, increasing both foreign trade deficits and US external debt with China, as was the case before and during the first year of the Ukraine war. A lower discount rate does not drive down the US dollar exchange rate against the renminbi, even when set at zero, as happened during the Great Recession, since China's central bank pegs its currency to the US dollar.

Neither the US government nor the Federal Reserve have a market-conform means of hindering China's ability to set the undervaluation of the renminbi by sterilisation, accumulate international reserves, change its central bank discount rate and credit policy, control private capital movements and forcibly instrumentalise the

[7] Its actual path depends on the time dynamics of interest rates, growth rate and primary fiscal balance.

portfolio decisions of its own citizens. Except for the two last measures, this was also the case of the USA vis-à-vis West Germany and Japan in the early stages of rise of these two countries as mercantilist powers in the 1950s and 1960s under the Bretton Woods system and of the Asian Tigers in the 1980s after its collapse.

Still, the USA could try to undervalue its currency and regain its lost absolute advantage in foreign trade by various means, including by lowering money wages domestically. However, assuming it is politically feasible to achieve this without widespread social unrest - an unrealistic expectation- this would be countered in the short- to medium-term by China, which would either devalue the renminbi, limit money wage increases below labour productivity gains or stop them altogether, or by combining both of these options, a possibility which cannot be ruled out given China's authoritarian one party regime.

The USA could counter China's countermeasures by implementing measures aimed at reducing production costs and increasing its international competitiveness by means of the deterioration of labour conditions, which has already occurred anyway during the last half-century, as labour unions were forcibly weakened and dismantled by neoliberal policies, in a process that particularly affected blue collar workers, minorities and unskilled immigrants. The magnitude of the overvaluation of the US dollar relative to the renminbi seems to have reached a point where even a sharp reduction in domestic money wages and further deteriorations in labour conditions in an attempt to achieve domestic price deflation and foster international competitiveness may not be sufficient for the process to be reversed, at least not without triggering a domestic and possibly a global debt deflation crisis.

It may be the case that the accumulating gap between sustained overall labour productivity growth and stagnation and a decline in real wages due to the suppression of productivity-oriented monetary wage increases, particularly of low paid jobs, has become large enough for it alone to have sufficiently improved US competitiveness in the world market. This by itself would have halted and, at least partially, perhaps reversed growing US dollar overvaluation and allowed the US economy to regain its absolute advantage in foreign trade. However, this has not happened, largely as a result over the last sixty years or so of growing market power, rising mark-up pricing margins and profit rates imposed by monopolistic US corporations, as well as increasing financialisation, with all their compounding misallocation effects on the level and structure of industrial production and the prices of US agriculture, manufacturing and services and their negative effects on the environment.

Greedy profit-oriented policies followed by US monopolistic corporations have led not only to a steady internal decline of wages in US functional income distribution, but have also wiped out possible gains in terms of absolute advantages in foreign trade that the US economy might have obtained if free competition had driven its international competitiveness. It should perhaps be noted in passing that in a seldom quoted passage of The Wealth of Nations, liberal Adam Smith commented

critically on high rates of interest and their negative effect on absolute advantage in foreign trade and on wage earners.

The US government could also selectively use tariffs on Chinese products as a means of curbing US foreign trade deficits and protecting its domestic manufacturing industry, a policy initiated by the Trump administration and continued and expanded by president Biden. Once again, however, this will not stop China from countering, not only by imposing tariffs on US products, but also by adjusting the exchange rate of the renminbi. Hence, while a tariff war between the USA and China would reduce the US foreign trade deficit and affect the volume and structure of its trade, its overall effect will be temporary, only lasting until China fine-tunes its undervaluation of the renminbi. Open price-dumping wars are still possible as well.

Tough measures by the US government, such as banning exports of high-tech products to China are motivated by trade and security factors. In particular, these measures involve the recent worldwide ban on critical semiconductor exports to China, combined with the prohibition on the importation and use of Chinese high-tech. These measures will contribute to maintaining the technological and military edge of the USA while negatively impacting Chinese industry, technological advances and military capability in the short- to medium-term. The extent to which they will affect China's route to global power over this period remains unclear though, as this depends principally on its ability to maintain its mercantilist strategy.

A further means available to halt or reverse the overvaluation of the US dollar is the ability of the US economy to rapidly increase the labour productivity of its workforce at a faster rate than China, while holding money wage increases proportionally below those of labour productivity, as a means to reduce labour unit costs and increase international competitiveness. Increasing the rate of increase in US labour productivity requires huge funding for investment in research and development and technological innovation by the government, private banks and corporations, including the powerful US military-industrial complex. The US government will go to great lengths to fund and subsidise any efforts that lead to increasing the country's technological advantage over China, including large-scale investments in infrastructure, computation and communications.

Furthermore, the US government can and has supported the international competitiveness of the US economy by fostering the re-allocation of US firms from China back to the US mainland by subsidizing domestic production and imposing taxes on US firms that produce overseas and keep profits offshore. Industrial decoupling and de-globalisation promoted by the USA and Europe in the aftermath of the global supply chain crises triggered by the Covid pandemic, in order to reduce industrial and economic dependency on China, is part of the US global strategy to contain China's advance in the world market.

There is no doubt that the USA wields significant technological leverage over China, but the key variable in the competitive relationship is not so much the level

but the relative rate of increased labour productivity. China has not only been catching up in this sphere, but the rate of increase in the physical productivity of its workforce has been higher (or at least not lower) than that of the USA in recent decades and it cannot be ruled out that this will continue to be the case in the near future, as it also funds investment in technology through its powerful state-owned banks and is developing its own military-industrial complex.

Even though income, industrial, trade and exchange rate policies have consistently failed to reverse the overvaluation of the US dollar and undermine China's mercantilist strategy, the US government and Federal Reserve will nonetheless continue to pursue these policies, as they are fully commonsensical in a world economy in which the market logic of money-capital forces individual nation states to follow mercantilist strategies as a means of global competition, even for a hegemonic power like the USA.[8]

In the meantime, the Biden administration has stepped up the USA's powerful dollar diplomacy in India, South East Asia, the Middle East, the Persian Gulf, Latin America, Africa and Eastern Europe, particularly since the beginning of the war in Ukraine, both as means to regain its lost ground in these peripheral regions and to counter China's advance. As China lacks a true international medium of deferred payments of its own, it has thereby been obliged to increase its efforts both to maintain the undervaluation of the renminbi as its key means of accessing the US dollars it needs through foreign trade and to continue promoting the acceptance and demand of renminbi-denominated international reserves by underdeveloped countries and, when possible, by Western industrialised countries, Japan and South Korea.

The US government's recourse to the global function of the US dollar as the ultimate world money -albeit this time not primarily as a means to impose its global monetary hegemony as during the Cold War, but to defend the currency and prevent China becoming a true peer competitor- and China´s resolve to establish the still underdeveloped renminbi as a world money and impose a global monetary hegemony of its own, determine, and will continue to determine, the competition of the two states for global power in forthcoming decades.

The monetary nature of this harsh competition lays bare once again the global asymmetry that characterises and determines the power-mediated world market relationship between the small and exclusive group of hard currency developed countries and the larger number of weak currency underdeveloped countries in the international division of labour system. As the saying goes, world money rules the world.

---

[8] Mutatis mutandis, this was also the core of the mercantilist policy that Amsterdam and the UK masterfully applied against Italian cities at the beginning of the 17th Century, the UK used against Amsterdam during the 17th and 18th Centuries, Germany and the USA against UK from the late 19th Century up to World War I, and the USA against the UK until the end of World War II, West Germany and Japan since the 1950s and 1960s and the Asian Tigers starting in the 1980s.

FINAL REMARKS

It was the possibility of the resurgence of global monetary and financial instability that Keynes sought to avoid by coming up with his bancor plan in the latter stages of World War II while protecting British imperial interests, and the White plan also sought to avoid while promoting the USA monetary and financial primacy interests. However, realpolitik prevailed over arguments of enlightened academics and liberal intellectuals, and the Bretton Woods system became a global instrument of US hegemony.

The United States set aside any plans for an international monetary system that would prevent the imposition of the Pax Americana. By so handling, however, it opened up the possibility of conditions that could lead to its being challenged later, in an uncertain future, by another country, which at the time, however, seemed impossible. The current function of the national currency of the largest international net debtor as dominant world money, namely the US dollar, entails a systemic market-logical contradiction, which determines current competition in the world market for global monetary, financial, economic and military supremacy between China and the USA.

The USA is the largest international net debtor in its own overvalued currency, while China is the world's largest holder of financial claims denominated in the foreign money of its main debtor rather than in its own undervalued national currency. The role of the US dollar as world money, in addition to the country's status as the only hegemonic debtor in its own currency, puts it in a unique position vis-à-vis its foreign net creditors, principally Japan and China, but also the EU and the UK.

The USA could unwind its foreign debt by letting the US dollar devalue against the national currencies of its creditors, or by denying the latter's rights to payment of principal and interest, thereby defaulting on its financial obligations and triggering a global monetary, financial and economic crisis. The first of these alternatives has been the path followed by the USA to deal with its position as international net debtor since even before the collapse of Bretton Woods system, mainly targeting West Germany and Japan. As for the second alternative, while the matter has not so far been raised on the world stage, China has on several occasions openly expressed its concern and demanded assurances from the USA that it will not default on its financial obligations.

In all likelihood, the USA will resist accepting the renminbi as an international medium of deferred payments to the utmost. Accepting this state of affairs would imply not only allowing the monetary and exchange rate policy of the Federal Reserve to be conditioned by the People's Bank of China, but also recognizing the crisis of its monetary hegemony. As for a possible US strategy aimed at beating China's mercantilism, this has already been initiated by the protectionist and export-promoting measures implemented by the Trump administration and maintained and expanded by President Biden. Reversing the overvaluation of US dollar

and achieving the overvaluation of renminbi -something that appears to be beyond reach in the short- and mid-term- would require the USA to become a fully mercantilist power, and would entail abandoning free trade and redefining the rules governing world trade.[9]

In the meantime, due largely to high mark-up profit margins of powerful US corporations, the financialisation of profits and long-entrenched neoliberal anti-labour and anti-welfare policies, combined with the overvaluation of the US dollar, both the distribution of wealth and functional and personal income distribution will continue to worsen, labour conditions will further deteriorate for medium- and low-paid jobs, blue-collar real wages (though not only) will continue to stagnate and fall, middle-class debt will increase, social and drug crises and urban and rural impoverishment will worsen, as they have over the last half century and racism, xenophobia and white supremacism will continue to rise.

The USA is still the world's hegemonic power, and although this will continue in the near future, it is not clear whether this state of affairs will persist.[10] In the coming decades, the USA will have deal with challenges to its global monetary, financial and economic hegemony. In the 1970s, medium-sized world powers, notably West Germany and Japan, destabilized US dollar pecuniary premiums and weakened the power of Federal Reserve to set its monetary and exchange rate policies unilaterally. However, they never posed a real threat to the US monetary hegemony and ultimately aligned with the dominant Western liberal ideology.[11]

This time, however, US hegemony is challenged by the rise to global power of a self-conscious, mercantilist, nationalistic, ideologically dissenting, politically pragmatic, realpolitik-driven China, which will most likely be supported by Russia. Europe and possibly Japan, South Korea and Australia will continue to ally with the USA for the time being, while monetarily and economically dependent underdeveloped countries will align with one side or the other or assume positions of non-alignment, as they did during the Cold War and have again recently since the outbreak of the war in Ukraine.

The liberal conception of the world market that Western governments are always ready to trumpet whenever it suits their own hegemonic interests, and celebrated

[9] This would not be a historical novelty, as the USA pursued a mercantilist approach was pursued in the past, at the end of Civil War, against the UK, Germany and France, with the significant difference that this time the US dollar is the hegemonic world money and the USA is still the most powerful country in the world.

[10] The ongoing tightening of current monetary policy by the Federal Reserve, as a means to curb energy and food price inflation triggered by Russia's war in Ukraine, the potential build-up of price inflation in real assets markets and the continued possibility of the entrenchment of a spill over to money wages and prices, has contributed to the temporary strengthening of the US dollar exchange rate against the euro, yen and renminbi. However, the time duration and financial reach of current US dollar strengthening is uncertain, and not exclusively because of the unknown outcome of the war.

[11] While it is true that the USSR was a challenge to US supremacy during the Cold War, this was mainly due to its status as a nuclear power and not in monetary, financial or economic terms.

by mainstream economists as the level neutral playing field through which global economic development can best be achieved simultaneously by all countries, but also denounced by the liberal Friedrich List in the mid-19th century as a way of legitimizing their protectionism, does not fit with the Chinese Communist Party's view (supported by a dubious dialectical-materialist theory) of global capitalism as a hierarchical power system.

Like every other successful mercantilist country over the past six centuries, including the USA between the end of the Civil War and the late 1950s, China will continue in the coming decades to instrumentalise the world market and expand its international net creditor position through the strategic maintenance of its absolute advantage in foreign trade. In the mid- to long-term, as China strives to impose the renminbi as a world money while maintaining its undervaluation, the US, its Western allies and Japan will continue to be pushed into a more and more defensive position.

China increasingly needs the renminbi to become a dominant world money –as a means to impose its hegemonic agenda globally on its own terms, force other countries into financial dependence on its national currency and reshape the world economy to serve its particular national interests, unhindered by the capability of the USA (i.e. the Federal Reserve and the US federal government) to deploy 'dollar diplomacy' through its global monetary, financial and economic network.

As for the implications of renminbi becoming an international medium of deferred payments despite stiff resistance, such a major shift would further destabilize the dynamics of the global monetary system, possibly triggering an international monetary crisis. This is at least what occurred during the interwar period of the 20th century as the UK was forced by the rising primacy of the USA to give up the hegemony of the pound sterling and accept the US dollar as the new hegemonic world money at the end of World War II.

In the meantime, externally, the restrictive protectionist financial markets policy followed by the Chinese government and the People's Bank of China, in tandem with the nationalism of the Communist Party, will continue to hamper international acceptance of the renminbi as a medium of deferred payments and consequently demand for it at the global level. In the meantime, China's powerful state-owned banks and companies will continue to expand overseas investments in developed countries and to finance infrastructure projects in the underdeveloped world. Yet, despite China being a powerful country, it will remain underdeveloped as long as the renminbi lacks the status of an international medium of deferred payments, thus remaining trapped beneath the monetary dominance of developed currencies, especially the US dollar.

Internally, the Chinese Communist Party will be confronted by growing tensions arising from its continuing policy of political and cultural surveillance of its ageing population, constant bureaucratic supervision and control of both public and

private economic activity, financial speculation in property and resource misallocation, and rising inequality of wealth and income distribution. Above all, however, it will increasingly have to deal with the irresolvable contradiction it has set in motion by pursuing its national (and nationalist) interest in developing China as a monetary production economy while holding to a conception of society and state that precludes private property as a social relationship and bourgeois freedoms.

Money and central planning as the two alternative foundations of the economic coherence of complex societies imply distinct systemic functional conditions. Consequently, China cannot have both. It will thus be compelled to choose either to go back to the planned economy (a failed attempt at achieving socialism) by isolating itself from the world market, or to integrate with world economy by accepting the market logic of the money-capital relation without any clear assurance that it will become a developed country.

In any case, tensions between the USA and its allies and China will continue to grow and will not ease if the renminbi becomes a world money. To be sure, neither China´s stark nationalism nor entrenched US primacy will help smooth tensions between these two global powers as the world moves to a new and unstable multipolar international monetary system.

Since the USA, the EU and Japan will continue to resist China's hegemonic challenge by all available means, the emerging multipolar international monetary system will be marked by uncertainty concerning interest and exchange rates and non-pecuniary liquidity premiums in international financial markets, with critical worldwide consequences for economic stability. Ongoing internal wars, worsening foreign indebtedness and development crises in underdeveloped countries are all manifestations of this contradiction, to which must be added the growing worldwide crises of human rights and climate change, which have no foreseeable solution.

To be sure, the inner particularization of the world market into different intertwined national monetary spaces due to the existence of multiple national currencies entails an inner market-logical contradiction involving international monetary competition through mercantilism as the key strategy towards national global dominance, the division of the world economy into developed and underdeveloped countries, and continuous monetary and financial instability and systemic crisis. Historically, this dynamic has more often than not led to wars between the great powers.

ACKNOWLEDGEMENTS

I thank Alvaro Martín Moreno and Gonzalo Combita, both of the School of Economics at the Universidad Nacional de Colombia, for their critical comments on this article. All errors are my own responsibility.

REFERENCES

1. Bagehot, W. (1991). *Lombard Street.* Orion Editions.
2. Betz, K. (1993). *Ein monetär-keynesianisches makroökonomisches Gleichgewicht.* Metropolis Verlag.
3. Betz, K. (2001). *Jenseits der Konjunktur Politik. Überlegungen zur langfristigen Wirtschaftspolitik in einer Geldwirtschaft.* Metropolis Verlag.
4. Betz, K., & Lüken-Klaßen, M. (1989). Weltmarkt und Abhängigkeit. In H. Riese & H. P. Spahn, *Internationale Geldwirtschaft*. Transfer Verlag. (A Spanish translation has been published in *Cuadernos de Economía*, 1994).
5. Herr, H. (1988). *World Money, the Monetary System and the Instability of Economic Development since the 1970s and 1980s.* Discussion Papers FS I 88 – 4.
6. Herr, H., & Voy, K. (1989). *Währungskonkurrenz und Deregulierung der Weltwirtschaft.* Metropolis Verlag.
7. Herr, H., & Hübner, K. (2005) *Währung und Unsicherheit in der globalen Ökonomie. Eine geldwirtschaftliche Theorie der Globalisierung.* Forschung aus der Hans-Böckler-Stiftung, 62.
8. Kalecki, M. (1954). *Theory of economic dynamics.* Routledge.
9. Keynes, J. M. (1973). *The general theory of employment, interest and money. The collected writings of John Maynard Keynes* (volume VII). The Macmillan Press.
10. Keynes, J. M. (1979). *A treatise on money. The collected writings of John Maynard Keynes* (volumes V and VI). The Macmillan Press.
11. Kindleberger, C. P. (1986). *The World Depression 1929-1939.* University of California Press.
12. Lüken-Klaßen, M. (1993). *Währungskonkurrenz und protektion.* Metropolis Verlag.
13. Matallana, H. (2011). Mercantilismo, acumulación de capital y desarrollo económico en la economía monetaria de producción (nacional). *Cuadernos de Economía*, *30*(55), 1-29.
14. Matallana, H. (2010). *China o el triunfo del mercantilismo en la era de la globalización.* (Documentos CEDE 2010-5). Universidad de los Andes.
15. Minsky, H. (1986). *Stabilizing an unstable economy.* Yale University Press.
16. Riese, H. (1986). *Theorie der Inflation.* *Tübingen: J.C.B. Mohr (Paul Siebeck).
17. Riese, H. (1990). *Geld im Sozialismus*. Transfer Verlag.
18. Riese, H. (2001). *Grundlegungen eines monetären Keynesianismus.* Metropolis Verlag.
19. Robinson, J. (1966). *The new mercantilism: An inaugural lecture.* Cambridge University Press.
20. Steil, B. (2013). *The Battle of Bretton Woods.* Princeton University Press.
21. Triffin, R. (1960). *Gold and the dollar crisis.* Yale University Press.

ARTÍCULO

THE LIMITS OF MONETARY APPROACHES TO THE THEORY OF VALUE

Martín Esteban Seoane Salazar
Herlan André Argandoña Zubieta

Seoane Salazar, M. E., & Argandoña Zubieta, H. A. (2022). The limits of monetary approaches to the theory of value. ***Cuadernos de Economía, 42*****(88), 81-98.**

The theory of value aims to explain the way prices function as a coordination mechanism of market societies. A coherent approach to the theory of value must be monetary and, in addition, it must analyze the dynamics of the economy in a disaggregated manner, considering the interdependent relations between the different individual economic activities. Here, we review the main monetary models of theories of value, both neoclassical and classical-Marxian. We analyze their scope and limits and conclude by highlighting a dilemma they face between their results' generality and specificity.

Keywords: Theory of value; monetary approach; economic dynamics.
JEL: B52, C62, D46, D50.

M. E. Seoane Salazar
Universidad Autónoma Metropolitana, México. Email: mseoanesalazar@gmail.com

A. Argandoña Zubieta
Universidad Autónoma Metropolitana, México. Email: haaz.eco@gmail.com.

Suggested citation: Seoane Salazar, M. E., & Argandoña Zubieta, A. H. (2022). The limits of monetary approaches to the theory of value. *Cuadernos de Economía, 42*(88), 81-98. https://doi.org/10.15446/cuad.econ.v42n88.102923

This paper was received on May 30, 2022, revised on November 7, 2022, and finally accepted on January 30, 2023.

Seoane Salazar, M. E., & Argandoña Zubieta, H. A. (2022). Los límites de los enfoques monetarios de la teoría del valor. *Cuadernos de Economía, 42*(88**), **81-98.**

Las teorías del valor tienen por objetivo explicar el funcionamiento de los precios como mecanismo de coordinación de las sociedades de mercado. Un enfoque coherente de la teoría del valor debe ser monetario y, además, debe analizar la dinámica de la economía de manera desagregada, considerando las relaciones de interdependencia entre las distintas actividades económicas individuales. En este artículo se revisan los principales modelos monetarios de las teorías del valor, tanto neoclásicos como clásico-marxistas. Se analizan sus alcances y límites, y se concluye destacando una disyuntiva que enfrentan entre la generalidad y la especificidad de sus resultados.

Palabras clave: teoría del valor; enfoque monetario; dinámica económica.
JEL: B52, C62, D46, D50.

INTRODUCTION

The theory of value seeks to explain the way prices function as a coordination mechanism of market societies. Schumpeter (1954) was the first to consider that this theory could have both a real and a monetary approach. The real approach excludes money in order to consider only real economic magnitudes in its analysis and is the dominant approach that has been more widely applied. The monetary approach, on the other hand, is less well known and has not been applied to the same extent. It can be classified into two categories: one that considers only monetary variables, and another that considers both real and monetary variables. Henceforth we will call the former the *strictly* monetary approach and the latter the *monetary* approach.

The validity of the real approach's method for achieving the goals of the theory of value has been widely criticized, so it is surprising that it still has such preeminence in economics. This could be explained, in part, by the lack of knowledge of the monetary and strictly monetary approaches to theories of value, since these have been developed more recently, and the lack of analysis of their scope and limits in comparison with their real counterpart. This paper aims to fill this gap by reviewing these models and analyzing their scope and limits as an alternative to real analysis.

The paper is organized as follows: the next section defines the main objective of theories of value in general terms (valid for any theoretical framework) and in detail (to clarify all its logical implications concerning money) and outlines the limits of the real approach and the strictly monetary approach as theories of value. The third section examines the limits of the monetary models developed within the neoclassical framework and, in the fourth section, those developed within the classical-Marxian tradition. Finally, the fifth section presents the conclusions.

PURPOSE OF THE THEORY OF VALUE AND LIMITS OF THE REAL AND STRICTLY MONETARY APPROACHES

The general economic problem that any social system faces consists of how to determine what, how, how much, when, and where people will produce and consume at any given moment. In market societies, these issues are decided by all economic agents in a decentralized manner without any *a priori* coordination. The economy is organized in markets so individuals can specialize and exchange the product of their economic activities, and the adjustment of prices is expected to prevent these activities from being systematically incompatible (Klimovsky, 2000).

This kind of social system raises several questions. For example, under what conditions can the price mechanism coordinate all economic activities? Are markets self-regulating or do they always tend towards crises? How do different kinds of

incomes evolve? And ultimately, will this economic system be able to solve the various problems that humanity currently faces (such as environmental problems, economic inequality, etc.)?

Theory of value aims to answer these questions from a general (and therefore abstract) standpoint, first analyzing the logical conditions under which prices can function as a coordination mechanism of market societies, and then analyzing the logical implications that this functioning may have concerning other aspects of interest such as those just mentioned (environmental problems, economic inequality, etc.).

Now, assuming a veil of ignorance of the current state of theories of value in all their approaches, let us consider the minimum theoretical aspects that a theory of value should have to satisfactorily explain the price system working in market societies.

First, an explanation must start from a disaggregated description of the economy in terms of individuals and commodities. This is because aggregate analysis of the economy eliminates the coordination problem that the price mechanism must solve, and the theory of value must explain[1].

Secondly, the interdependent relations that exist between consumption and production activities must be made explicit, since, if these relations are not specified, it will never be possible to know whether prices can or cannot be an effective mechanism for coordinating these activities.

Third, the minimum institutional framework that allows individuals to act in market societies must be specified. Within this institutional framework, a fundamental element is money and the monetary system since a barter system is not compatible with decentralized exchanges.

Next, the mechanisms by which the market economy works (how supply, demand, prices, and exchanges are determined and adjusted) must be specified in detail. It is important to emphasize that, in market societies, economic activities such as exchanges, production, and consumption take place continuously, regardless of whether the economy is in equilibrium or not.

And finally, it is necessary to show the conditions under which price adjustment can, or cannot, regulate disequilibrium. In other words, the theory must identify the conditions under which the adjustment process occurring in the model is sta-

[1] In this sense, we do not believe that the theories created to explain how the value of commodities is determined (whether in real, monetary, abstract labor, or 'quantum' terms) using a macroeconomic approach, as proposed by Moseley (2016) and Cencini (2023) among others, can be considered value theories. A macroeconomic approach cannot show how and why such values result from individual decisions, and, if the values are in equilibrium, how do they solve the coordination problem of market societies, or if they are in disequilibrium, how their adjustment can prevent these decisions from being systematically incompatible. Macroeconomic approaches can only presuppose the aspects that the theory of value tries to explain.

ble or non-explosive, in the sense that any imbalance that appears decreases or, at least, does not increase over time.

Note that once these requirements are met, the other problems posed by this type of social organization, such as wealth distribution, environmental problems, etc., can then be analyzed. It is naïve to try to give a scientific answer to these normative and practical aspects without first having a logically coherent theory of value. Hence the importance of theories of value for the science of market societies.

Limits of the real approach to the theory of value

The canonical models of the real approach to the theory of value are the neoclassical general equilibrium model (Arrow & Debreu, 1954) and the classical-Marxian production prices model (Sraffa, 1966), as well as the neoclassical disequilibrium model of Walrasian *tâtonnement* (Arrow et al., 1959) and the classical-Marxian disequilibrium *tâtonnement* models of gravitation[2] (Boggio, 1985).

Assuming that the main results of these models are known to the reader[3], it can be said that they only fulfill the first and second requirements mentioned above, but not the third, fourth, or fifth, because 1) the exclusion of money implies that the decentralized functioning of markets be left aside (Ostroy & Starr, 1974), so the prices explained by this approach do not result from market economies; 2) the positive price of money cannot be explained by the theory of value (Benetti, 1990), so the results obtained by this approach cannot be attributed *a posteriori* to a monetary economy; 3) except in very particular cases, money is not neutral (Lagos & Wright, 2005), so the results obtained by this approach will not generally be equivalent to those resulting from monetary economies either; and 4) the *tâtonnement* process depends on a centralized mechanism that is also incompatible with the market society. For all these reasons, it can be concluded that the real approach to the theory of value is logically incapable of explaining its object of study.

Limits of the strictly monetary approach to the theory of value

The strictly monetary approach is formed by a small group of heterodox monetary theories that all construct a theory of value without reference to the real sector, namely, the theories proposed by Benetti and Cartelier (1980), Aglietta and Orléan (1982, 2002), and Cartelier (2018).

[2] *Tâtonnement* is an adjustment process in which exchanges, consumption, and production activities are prohibited during disequilibrium. It is widely known that this artifice is used in the real approach to neoclassical stability theory, but it is less well known that it is also used in most non-monetary classical-Marxian models of gravitation. That is why Caminati (1990, p.26) states that those models should also be considered as "a virtual process, i.e., a sort of classical *tâtonnement*".

[3] Considering the preeminence of these models in economic theory as opposed to the monetary models that are presented more extensively in this paper.

The starting point for the strictly monetary approach was Benetti and Cartelier's 1980 study. In this study, they take on the problem posed by the theory of value directly and try to find a solution in exclusively monetary terms. This, because they consider commodities to be of no analytical interest due to the fact that 1) they are the result and not a condition of market relations (they criticize the nomenclature hypothesis which presupposes the existence of a commodity space independent of the functioning of the market); and 2) capitalist production activities are inaccessible to economists because they are carried out in the "secret laboratories" of capitalists, so this knowledge could not be obtained even if it were of interest to economists.

For this reason, this approach conceives market societies as a system of individual monetary accounts, interrelated by the monetary payments that occur between them, and which are expressed analytically through the following matrix (Table 1).

Table 1.
Monetary payment matrix

	Account 1	**Account 2**	**…**	**Account *H***	**Expenditure**
Account 1	0	m_{12}	…	m_{1H}	$\sum_j m_{1j}$
Account 2	m_{21}	0	…	m_{2H}	$\sum_j m_{2j}$
⋮	⋮	⋮	⋱	⋮	⋮
Account *H*	m_{H1}	m_{H2}	…	0	$\sum_j m_{Hj}$
Income	$\sum_i m_{i1}$	$\sum_i m_{i2}$	…	$\sum_i m_{iH}$	*M*

Where $m_{ij} \geq 0$ (with $i, j = 1,..,H$) is the amount of money that account i pays to account j, as a counterpart of the purchase of a commodity on a given date. If money is fiat, money enters the matrix in the form of credit offered to individuals by the monetary authority and leaves it when individuals repay this debt. On the other hand, if money is anchored to the quantity of a standard commodity, then the monetary institution sets a legal price for this commodity, and money enters the payment matrix when individuals sell their stocks of this commodity to the mone-

tary institution and leaves when they buy these stocks (Aglietta & Cartelier, 2002). Thus, the monetary authority can control this quantity by manipulating the monetary interest rate, in the first case, or the legal price of the standard commodity, in the second case.

In a credit market economy, individuals borrow money to finance their expenses before obtaining income from the sale of their products. To calculate the amount of a requested loan, individuals rely on their income expectations. One of the characteristics of disequilibrium is that not all individual expectations are fulfilled. Therefore, during disequilibrium, there are always individuals who have negative or positive balances of money, with the sum of these balances always equal to zero (since aggregate income is equal to aggregate expenditure, represented in the payments matrix by the letter *M*).

These balances need to be regulated so that debtors meet their obligations by transferring wealth to creditors (Cartelier, 2009). However, if the punishment of deficit holders is not severe enough, it will discourage surplus holders from keeping their wealth in monetary form, which may unleash inflationary pressure. On the other hand, if the punishment is too severe, it may cause a contraction of aggregate demand, affecting the whole economy (Aglietta & Orléan, 1982, 2002).

Thus, the dilemma that any monetary authority faces is the question of how to formulate balance settlement rules that satisfy these two aspects of the same problem: on the one hand, to avoid a recession crisis by allowing debtors to settle their debt and remain in the system and, on the other hand, to avoid an inflation crisis by giving individuals with a positive balance a return on their balances that satisfies their expectations. The 'viability theory' (Cartelier, 2018) analyzes this dilemma in dynamic terms.

This explanation, while brief, is sufficient to demonstrate that the strictly monetary approach completely satisfies only the first and third requirements mentioned above (namely, disaggregated description and consideration of the institutional aspects of the economy—particularly money—), and the monetary aspect of the second, fourth, and fifth requirements of the theory of value (consideration of the monetary relations of interdependence through the payments matrix, specification of the dynamics in monetary terms and its analysis through the theory of viability). It does not, however, satisfy the real dimension of these last three requirements, since the relations of interdependence that exist between the individual activities of consumption and production are not considered, nor are the dynamics specified in real terms, and the conditions of their convergence to equilibrium are not analyzed.

This is a problem because although the objects of *final* consumption may be the result of a specific market performance, such objects can only be produced by satisfying the terms of certain technical relations with other objects which are independent of market relations at a given moment in time. The theory of value must explain how the price mechanism can or cannot satisfy the terms of these interde-

pendent relations over time. These terms must be satisfied in order for the productive activities to continue to function. If production activities were to decrease or even cease, this would jeopardize the very existence of society, regardless of the circumstantial objects of final consumption produced in the economy.

In other words, every social system has a set of technically viable productive methods that establish relations between economic objects, the terms of which must be satisfied in order for the objects to be produced. These relations are characterized as real, non-monetary and independent of the social system, and are a fundamental aspect of the relations of interdependence that exist in any social organization and, therefore, are a central part of the coordination problem posed by the functioning of the price system. However, by using a strictly monetary analytical framework which leaves these relations to one side, this approach cannot provide an answer to the problem of coordination, as was later recognized by Benetti and Cartelier (2013). A strictly monetary analytical framework, then, cannot be a coherent approach to the theory of value either.

This section has shown that a coherent approach to the theory of value must be framed in a microeconomic model of disequilibrium, in which the monetary and non-monetary relations of economic interdependence between individuals and their activities are made explicit. This model must also show the conditions under which the price system can (or cannot) coordinate economic activities and their interdependent relations.

THE NEOCLASSICAL MONETARY APPROACH TO THE THEORY OF VALUE

In the neoclassical framework, Patinkin (1959) was the first economist to, correctly and completely, set out the requirements of a research program studying a monetary approach to the theory of value. According to Patinkin, the research must "explain the determination of equilibrium prices in the market", and to do this, researchers must "be interested in presenting first a static analysis of our problem (the nature of the equilibrium position), then a dynamic analysis (the nature of the market forces which bring the economy to equilibrium from an initial position of disequilibrium)" (p. 34).

For this, Patinkin formulates a model of pure exchange (no production), pure cash (no credit), and temporary equilibrium (at each date there are only markets for the goods to be consumed at that date). At the beginning of each period t there is a Walrasian *tâtonnement* in which an auctioneer adjusts prices, following the law of supply and demand, until a temporary equilibrium is reached. Then, individuals trade in a random sequence until all possible exchanges are exhausted in t and consume the goods in such a way that, at the beginning of the period $t + 1$, they only have the money they have carried over from the previous period and the endowment of goods they will receive in $t + 1$.

Patinkin assumes that the utility function of individuals depends on the goods they can obtain in the period and the real stock of money they wish to transfer to the next date. The reason that justifies such a transfer is that individuals do not know what the sequence of exchanges in each period will be, and it is possible that to obtain the goods they want, they will have to buy these before selling their own goods. For this, they will need to have an amount of money available at the beginning of each period that will allow them to finance those purchases.

Patinkin fails to solve his research question because, on one hand, he does not offer any proof of the existence of monetary equilibrium and, on the other, he analyzes equilibrium stability only in the case of a two-commodity economy, which implies that his stability proof lacks generality (Arrow & Hahn, 1971). Moreover, as mentioned above, the Walrasian *tâtonnement* is incompatible with market economies.

The research program put forward by Patinkin was taken up in its full form by Arrow and Hahn (1971) who used an intertemporal equilibrium analytical framework. That is, they assume that, from the initial date, there are open markets for all goods that will be available in the present and future. At each date, exchanges of (property rights to) goods are admitted, at prices determined by a Walrasian auctioneer, who modifies them following the supply and demand law and forbids consumption activities while general equilibrium is not reached. Once equilibrium is reached, if the process is stable, all markets are closed, and the rest of the time individuals dedicate themselves to fulfilling the commitments assumed during the adjustment process.

The first important problem with this model is that there is no reason to hold fiat money in equilibrium, since when this state is reached there are no more exchanges in the economy, so no individual would accept the holding of fiat money in equilibrium. To avoid this problem, Arrow and Hahn (1971) assume that money has a direct utility for individuals that justifies its holding in equilibrium. The authors recognize that this artifice implies a "bad monetary theory" (p. 339)[4].

Under this analytical framework, Arrow and Hahn show that the existence of a monetary equilibrium depends on the same conditions as a non-monetary equilibrium and that a sufficient condition for its stability is that individuals never run out of money at the beginning of each period[5].

The Arrow-Hahn model has many other problems which have been pointed out by Fisher (1983) and Benetti (1996), among others. The main problem highlighted

[4] Since Hicks (1967), a ('good') monetary theory is one that must justify a positive demand for money based on explicit micro-foundations, understanding money precisely as an object that has no direct utility other than money in its three functions (unit of account, medium of exchange and store of value).

[5] This does not mean that the equilibrium is unstable when individuals run out of money at the beginning of some periods, but that the authors could only show that such a condition is sufficient (though unnecessary) to achieve stability.

here is that their model remains incompatible with market society because 1) it maintains the fiction of the auctioneer and a centralized process to explain the price adjustment, 2) it maintains the need for a centralized mechanism to control (forbid or allow) consumption activities while the adjustment process takes place and 3) it stipulates that exchanges and markets disappear during equilibrium, a strange property for market societies. For all these reasons, it can be said that this model is also contradictory to a monetary approach to the theory of value.

After Arrow and Hahn, the only author who has continued to experiment with Patinkin's program in the neoclassical framework is Franklin Fisher. First, Fisher extended Arrow and Hahn's model into production (Fisher, 1974), and a few years later he proposed an entirely new model of a monetary economy under imperfect competition and in an intertemporal disequilibrium framework (Fisher, 1983). In this model, trade, consumption, production, and credit are admitted during the adjustment process, and Fisher also identified the conditions sufficient for convergence to equilibrium.

In Fisher's new model, credit is expressed through bonds that are exchanged in its markets like any other commodity. Bonds can be public (when the issuer is the government) or private. An individual becomes interested in issuing these bonds when they consider that the amount of money they can obtain through them is more convenient than any other form of financing. The government issues or withdraws bonds to control the amount of money in the economy. On the other hand, bonds are demanded not because they generate some intrinsic utility, but because they provide an expected future return.

Given that not all individuals may be able to fulfill the commitments made during disequilibrium, there must be a regulation obliging the defaulting individuals to pay a fine to the injured agent. Fisher recognizes this problem and assumes that such a fine must fulfill the following properties: 1) that the injured agent will not be better off receiving the fine than they would be if they had received that provided by the contract and 2) that the defaulting agent would not prefer to repurchase the contract rather than pay the fine. In addition, he highlights the moral sanction that fraudsters receive in terms of loss of confidence and allocates a necessary last resort for those who cannot pay their fine: prison.

Fisher analyzes the stability conditions of the equilibrium of this economy through the second Lyapunov method. One of the most important conditions he identifies is the "absence of favorable surprises". This condition refers to the fact that, as long as individuals do not make an optimist adjustment to their expectations of the future, the disequilibrium process will follow a path on which their expected utility and profit levels will worsen until equilibrium is reached, so the sum of these levels is used by Fisher to construct a Lyapunov function to prove both stability and the existence of general equilibrium.

To illustrate the implications of this result, let us consider the case of positive excess demand in one of the markets. Individuals realize that there are potential

buyers who cannot buy the commodity being sold in this market, so they anticipate that its price will increase, and will try to take advantage of this situation by increasing their current demands, either for consumption or arbitrage, thus increasing the excess demand and raising its price. This pressure will continue until the relative price ceases to provoke an optimistic revision in the expectations of most of the individuals participating in the market. This means that the arbitrage opportunities perceived by these individuals will disappear and they will no longer want to buy the commodity, thereby reducing the excess demand until equilibrium is reached.

And in the case of an excess supply imbalance, individuals realize that there are suppliers who want and cannot sell these goods, and anticipate that their price will decrease, and will try to take advantage of this situation by postponing their purchases (if they have a positive excess demand) or rushing their sales (if they have a negative excess demand), thereby increasing the excess supply and the downward pressure on the price. This pressure will continue until the price decrease ceases to cause an optimistic revision in the expectations of most of the individuals participating in this market, so that they no longer perceive arbitrage opportunities and, as a result, the excess supply will begin to diminish.

Thus, when individuals cease to perceive arbitrage opportunities generated by any disequilibrium, their expected level of welfare worsens because the goods they could not buy will increase in price and those they could not sell will decrease in price, so that in the "absence of favorable surprises" the aggregate level of welfare will decrease until it reaches the level corresponding to the equilibrium state. And using this aggregate level as a Lyapunov function, Fisher shows that "…under very general circumstances, economies with rational, arbitraging agents will converge to equilibrium given an assumption of No Favorable Surprise" (Fisher, 1983, p. 91).

This result is the most important so far achieved by the monetary approach of the neoclassical theory of value, due to the general character of the specified economy. However, the model presents two important problems that remain to be solved.

The first problem is that nothing is known about speeds of adjustment. This is important because a stable equilibrium with a very slow adjustment process justifies some sort of government intervention. Secondly, the proof for the existence and stability of the equilibrium is so general that nothing is known about the characteristics of the equilibrium. Thus, even if the equilibrium is stable and the adjustment process rapid, some sort of government intervention is justified if the equilibrium is quantity-constrained, for instance, with underemployment, as Keynes points out.

Therefore, with this model, we find ourselves at almost at the same level of ignorance that the theories of value were intended to overcome. Moreover, if nothing is known about economic equilibrium in terms of its competitive structure or the presence or absence of quantity constraints, less will be known about the other

aspects that derive from the theory of value and which are of much more practical interest, such as, for example, the role of the market in economic inequality or the environmental crisis, etc.

THE CLASSICAL AND MARXIAN MONETARY APPROACH TO THE THEORY OF VALUE

The monetary models of the classical-Marxian theory of value have a much more recent history. They began to appear in the 1980s with the emergence of models that tried to formalize classical-Marxian gravitation theory. Broadly speaking, this theory of value postulates that when market prices do not guarantee a uniform rate of profit, they cannot remain fixed, since differences in profit rates will encourage capitalists to transfer their capital from the less profitable sectors to the more profitable ones, thus altering the productive structure of the economy and market prices. This process of adjustment will stop only when the prices that guarantee uniform profit rates (the equilibrium prices of the classical-Marxian approach to the theory of value) are reached.

Although there are differences between Smith, Ricardo, and Marx on this issue, the literature usually encompasses the different formalizations made in this field as gravitation models (Caminati, 1990). Most of them are non-monetary and *tâtonnement* models. To the best of our knowledge, only three types of gravitation models stand out as being monetary and non-*tâtonnement*, namely: those of Nikaido (1983; 1985)[6], Duménil and Lévy (1983; 1990a; 1990b) and Benetti et al. (2014; 2015).

These three models share the following assumptions: the economy is monetary and bi-sectoral; wages are given and paid *ex-ante* in physical terms; each branch produces a single commodity with a single method of production, using both goods as productive inputs in fixed proportions and under constant returns to scale. We will now examine the particularities of these three models.

Nikaido analyzes Marx's gravitation theory through two disequilibrium models, the only difference between them is that in one, he assumes simple reproduction, and in the other, expanded reproduction. Despite this difference, both models share the same hypotheses: the accumulation rate of each capitalist is exogenously given (it is zero in the first model and a constant proportion of their income in the second). Nevertheless, the amount of money that capitalists invest in each branch depends on the differentials of their profit rate, where: if the rate of profit is higher in branch 1 than in branch 2, at the next date the amount of money invested in branch 1 will increase at the expense of branch 2 concerning the previous period, etc. The monetary institution is a pure cash system, meaning that the amount of

[6] Kubin (1989; 1990) develops a variation of the Nikaido models that will not be explicitly analyzed here because they share the same scope and limits as the Nikaido models.

money spent by capitalists in each period is equal to their income at the previous date. Prices are determined by two alternative rules: the rule of temporary equilibrium (supply equals demand on each date) and the following temporary disequilibrium rule: commodity prices are those which match the value of capital with the monetary amount of investment.

The two Nikaido models show that, if the capital composition of branch 1 is lower than that of branch 2, the adjustment processes of both models converge to equilibrium, that is, market prices 'gravitate' to production prices. Otherwise, the process diverges in the sense that market prices move indefinitely away from production prices.

Nikaido's two models have several problems: 1) the hypotheses are quite specific, which shows the narrow limits of his results: his models are bi-sectoral, with only one method of production, no fixed capital, no rent, etc. and it is not evident that generalizing such hypotheses would yield the same results; 2) the absence of a theorized behavior for capitalists that would explain how their consumption and investment decisions are determined; 3) the mechanism of capital mobility lacks micro-foundations (if branch 1 yielded a higher rate of profit than branch 2, and if all capitalists have this information, why do capitalists not invest all their capital in branch 1? Why is there a non-zero investment in branch 2?); 4) both rules for determining prices are incompatible with market societies because they are centralized: the equations system to calculate prices in both rules can only be solved by considering the interdependence relations among the whole economy, and 5) the pure cash monetary system is one of the two extreme cases in which any actual economic monetary system is found[7]. Therefore, Nikaido's monetary hypothesis is very particular, and there is no evidence to suggest that generalizing it would give the same results.

In Duménil and Lévy's model, they propose an alternative formalization of the Marxist gravitation theory which, in addition to the basic characteristics already mentioned, they set the accumulation rate at zero. However, capitalists allocate their capital in each branch according to the differentials in sectoral profit rates; branch 1 produces a durable good (fixed capital), so now the economy is a joint-production system. The prices of each commodity are set by the capitalists in each branch using the following rule of price adjustment: the price varies in proportion to the difference between the actual and the desired stock of each commodity held by the capitalists in their warehouses; the economy works through a credit monetary system (there is a banking system which captures the savings of consumers and lends to producers at a zero interest rate and according to the differentials of the sectoral profit rates).

The authors show that, under certain conditions which concern the reaction coefficients of prices and quantities, the dynamics of their model converge to production

[7] The other extreme case is the pure credit monetary system.

prices. However, in addition to the assumptions criticized above made by Nikaido in his model which this model reproduces, the Duménil and Lévy model has the following two *additional* problems:

First, the theoretical indeterminacy of their rule of price adjustment. This rule depends on two parameters: 1) the desired stock of goods and 2) the coefficient that relates price variation to the difference between the actual and desired stock of goods. The problem with these two parameters is that both are, on the one hand, arbitrary (in the sense of being theoretically unjustified) and, on the other hand, fundamental to the stability results, which makes their model uninteresting.

And, secondly, the Duménil and Lévy model does not consider the regulation of monetary balances that may appear during disequilibrium, due to the existence of credits in the economy. This situation puts the whole monetary system in conflict, meaning that institutional rules must be specified to allow the settlement of these monetary balances to reestablish *ex post* the budget constraint of individuals. However, Duménil and Lévy are silent on the matter.

Benetti et al. (2014; 2015) do specify a monetary balance settlement rule in their models. In addition to the basic features already mentioned, these models assume that: 1) capitalists accumulate all their income and reinvest it in their branches (Benetti et al. criticize the mechanism of capital mobility between branches to explain the adjustment of quantities and reject it for lacking micro-foundations); 2) prices are formed by a perfectly competitive market mechanism called the 'Cantillon rule' (under which the prices of each commodity are determined by dividing the quantities of money and commodity brought to the market to be exchanged); 3) the monetary framework is a pure credit system issued by a bank (credit is issued at the producer's request, and the producers commit to reimburse the bank immediately after the exchange); 4) the monetary balances appearing in disequilibrium are settled by the following rule: the capitalist with a positive monetary balance gives his balance to the capitalist in the red in exchange for a basket of commodities whose monetary value is equal to the monetary balance (evaluating the goods at their market prices) and whose physical composition is chosen by the agent with a positive monetary balance.

The authors of this model show that the balance settlement rule can be unfeasible in certain cases, which they call "pathological". But, when these cases are excluded[8], the dynamics to which the economy gives rise are non-explosive, in the sense that the adjustment process converges to equilibrium or to a cycle of order two, in which market prices 'gravitate' around equilibrium prices.

However, in addition to the assumptions criticized above from the Nikaido and Duménil and Lévy models that the Benetti et al. model reproduces, it has the following two *additional* problems:

[8] They exclude these cases on the assumption that productive interdependence between industries is not as significant as productive dependence within an industry.

First, the balance settlement rule that they assign, as well as being unrealistic and naïve, is very restrictive in two different senses: 1) its feasibility can only be guaranteed when the property described in footnote 8 is met, meaning that this condition is quite strong for a market society (because, due to the social division of labor, one would expect that in these societies inter-industrial dependence would be significantly higher than intra-industrial dependence), and 2) the balance settlement rule can only be used when the model is set in a bisector economy, since in an economy with n sectors, with $n > 2$, there may be compatibility problems between the accumulation plans of capitalists with positive monetary balances and the availability of commodities produced by capitalists with monetary deficits.

A second problem is that the Cantillon rule is a very particular market mechanism that is not used in any actual market (as other market mechanisms such as the double auction or the first price sealed-bid auction are used); and there is no evidence to suggest that the same stability results could be obtained using these alternative market mechanisms, or individual pricing rules under imperfect competition.

Thus, this section can be concluded by stating that none of the classical-Marxian monetary models of the theory of value reviewed here are completely satisfactory, due to the *specificness* of their hypotheses that make their results very limited in scope.

CONCLUSIONS

A coherent theory of value must be monetary and must analyze in a disaggregated manner the dynamics of the economy, considering the monetary and real interdependence relations that exist between all individual economic activities. For this reason, the real and the strictly monetary approaches cannot be considered coherent approaches to the theory of value. The former cannot explain decentralized price and exchange formation based on an economy without money, and the latter cannot explain how prices solve the coordination problem posed by extra-monetary interdependence relations (such as technical-productive relations between commodities that must be fulfilled to guarantee their production).

In this paper, we reviewed the main models proposed within the framework of a monetary approach to the theory of value. We have shown that the models of Patinkin, Arrow et al., and Nikaido require centralized instances that make them incompatible with market societies, and so should be rejected. In contrast, the models of Fisher, Duménil and Lévy, and Benetti et al. explain how prices work consistently within market societies. However, these models are not free of problems. In the case of Fisher's model, its main problem is that its conditions are so general that nothing can be said about the adjustment process and the resulting equilibrium state other than its existence and stability properties. On the other hand, in the case of the Duménil and Lévy and the Benetti et al. models, these are

based on such specific hypotheses that their results have a very limited scope, circumscribed to the fulfillment of such hypotheses.

For this reason, it can be said that the theory of value currently faces a dilemma between the degree of generality of its results and the specificity of its content. It seems that the more general the hypotheses used in the models (which allows their results to have a much wider scope), the less informative they are, in the sense that not much can be said about the characteristics or properties other than the stability of the economies (for example: whether or not they have quantity constraints, whether they are optimal or not, whether they are perfectly competitive or not, etc.). And vice versa, the more specific the results are, the less generalizability they have, in the sense that they depend on very particular hypotheses such as a two-sector economy, with linear technology, specific rules for price determination, exogenous accumulation rates, etc.

In a future research agenda, we see the need to analyze the relations between the generality of the results obtained by Fisher's model with the particularity of the results obtained from models such as those of Duménil and Lévy and Benetti et al. (or eventually others), either by formulating particular models in the neoclassical framework that can be compared with Fisher's general model or by generalizing the classical-Marxian monetary and disequilibrium models such as those of Duménil and Lévy and Benetti et al., so that the general stability conditions that these models have shown under their particular hypotheses can be established in different conditions. Regardless of whether a neoclassical or classical-Marxian theoretical framework is applied, the monetary approach to the theory of value must follow this research path if it is to achieve preeminence as the theoretical core of the science of market societies.

REFERENCES

1. Aglietta, M., & Cartelier, J. (2002). Orden monetario de las economías de mercado. *Cuadernos de Economía*, *XXI*(36), 41-75.
2. Aglietta, M., & Orléan, A. (1982). *La violence de la monnaie*. Presses Universitaires de France.
3. Aglietta, M., & Orléan, A. (2002). *La monnaie entre violence et confiance*. Odile Jacob.
4. Arrow, K., & Debreu, G. (1954). Existence of an equilibrium for a competitive economy. *Econometrica*, *22*(3), 265-290.
5. Arrow, K., & Hahn, F. (1971). *General competitive analysis*. Holden-Day.
6. Arrow, K., Block, H. D., & Hurwicz, L. (1959). On the stability of the competitive equilibrium, II. *Econometrica*, *27*(1), 82-109.
7. Benetti, C. (1990). *Moneda y teoría del valor*. Fondo de Cultura Económica; Universidad Autónoma Metropolitana.

8. Benetti, C. (1996). La teoría del desequilibrio: una crítica y una propuesta. In E. Ortiz, *Teoría de los precios: avances en el debate contemporáneo* (pp. 263-290). Universidad Autónoma Metropolitana.
9. Benetti, C., & Cartelier, J. (1980). *Marchands, salariat et capitalistes*. Maspero.
10. Benetti, C., & Cartelier, J. (2013). After thirty years…. In F. Ülgen, *New contributions to monetary analysis* (pp. 68-90). Routledge.
11. Benetti, C., Bidard, C., Klimovsky, E., & Rebeyrol, A. (2014). Disequilibrium, reproduction, and money: A classical approach. *Metroeconomica*, *65*(3), 524-540.
12. Benetti, C., Bidard, C., Klimovsky, E., & Rebeyrol, A. (2015). Temporary disequilibrium and money in a classical approach. *Cahiers d'Économie Politique*, *2*(69), 159-184.
13. Boggio, L. (1985). On the stability of production prices. *Metroeconomica, XXXVII*(3), 241-267.
14. Caminati, M. (1990). Gravitation: An introduction. *Political Economy*, *6*(1-2), 11-44.
15. Cartelier, J. (2009). 'Fiat money' or 'minimal set of rules?' What concept of money for a market economy? *EconomiX*. University of Paris-Ouest.
16. Cartelier, J. (2018). *Money, markets and capital: The case for a monetary analysis.* Routledge.
17. Cencini, A. (2023). *Bernard Schmitt's quantum macroeconomic analysis*. Routledge.
18. Duménil, G., & Lévy, D. (1983). *La Concurrence capitaliste: un processus dynamique*. OFCE y CEPREMAP.
19. Duménil, G., & Lévy, D. (1990a). The rationality of adjustment behavior in a model of monopolistic competition. In R. Quandt & D. Triska, *Optimal decisions in markets and planned economies*. Westview Press.
20. Duménil, G., & Lévy, D. (1990b). Stability in capitalism: Are long-term positions the problem? With an addendum. *Political Economy*, *6*(1-2), 229-278.
21. Fisher, F. (1974). The Hahn Process with firms but no production. *Econometrica*, *42*, 471-486.
22. Fisher, F. (1983). *Disequilibrium foundations of equilibrium economics*. Cambridge University Press.
23. Hicks, J. R. (1967). *Ensayos críticos sobre teoría monetaria*. Ariel.
24. Klimovsky, E. (2000). Modelos básicos de las teorías de los precios. *Cuadernos de Economía*, *XIX*(32), 77-103.
25. Kubin, I. (1989). Stability in classical competition: an alternative to Nikaido's approach. *Journal of Economics-Zeitshrift für Nationalökonomie*, *50*(3), 223-235.

26. Kubin, I. (1990). Market prices and natural prices: A model with a value effectual demand. *Political Economy*, *6*(1-2), 175-192.
27. Lagos, R., & Wright, R. (2005). A unified framework for monetary theory and policy analysis. *Journal of Political Economy,* (113), 463-484
28. Moseley, F. (2016). *Money and totality. a macro-monetary interpretation of marx's logic in capital and the end of the 'transformation problem'*. Brill.
29. Nikaido, H. (1983). Marx on competition. *Journal of Economics-Zeitshrift für Nationalökonomie*, *43*(4), 337-362.
30. Nikaido, H. (1985). Dynamics of growth and capital mobility in Marx's scheme of reproduction. *Journal of Economics-Zeitshrift für Nationalökonomie*, *45*(3), 197-218.
31. Ostroy, J., & Starr, R. M. (1974). Money and the decentralization of exchange. *Econometrica*, *42*(6), 1093-1113.
32. Patinkin, D. (1959). *Money, interest, and prices: An integration of monetary and value theory*. The MIT Press.
33. Schumpeter, J. (1954). *History of economic analysis*. Taylor y Francis.
34. Sraffa, P. (1966). *Producción de mercancías por medio de mercancías*. Oikos.

ARTÍCULO

PUBLIC DEBT IN COLOMBIA: A POST-KEYNESIAN AND INSTITUTIONALIST ANALYSIS

Federico Gutiérrez Naranjo

Gutiérrez Naranjo, F. (2023). Public debt in Colombia: A post-Keynesian and institutionalist analysis. *Cuadernos de Economía, 42*(88), 99-127.

This article studies the institutional framework and the empirical evolution of Colombian public debt for the period 2001-2020 within a post-Keynesian approach. The objective is to render clear the potential that debt emission has as a macroeconomic policy instrument, and consequently to propose various policy routes for Colombian government. These policy routes suggest a different path than the one indicated by the orthodox economic tradition that has ruled the policy practiced in Colombia. In particular, taking into account the institutional and external limitations of fiscal policy, the revival of the 'Development Bank' inside

F. Gutiérrez Naranjo
Sorbonne University and Roma Tre University, Roma, Italy; University of EAFIT, Medellín, Colombia. Email: federicogutierreznaranjo@gmail.com

Suggested citation: Gutiérrez Naranjo, F. (2023). Public debt in Colombia: A post-Keynesian and institutionalist analysis. *Cuadernos de Economía, 42*(88), 99-127. https://doi.org/10.15446/cuad.econ.v42n88.102874

This paper was received on May 27, 2022, revised on November 6, 2022, and finally accepted on January 30, 2023.

the Central Bank of Colombia, and insist in and the need of cooperation and coordination of macroeconomic policies with the countries of the region are insisted.

Keywords: Public debt; fiscal policy; monetary policy; colombia; post-Keynesian theory.
JEL: E02, E12, E4, E5, E6, F4.

Gutiérrez Naranjo, F. (2023). Deuda pública en Colombia: un análisis poskeynesiano e institucional. *Cuadernos de Economía, 42*(88), 99-127.

Este artículo estudia el marco institucional y la evolución empírica de la deuda pública colombiana para el periodo 2001-2020 desde la teoría poskeynesiana. El objetivo es hacer visible el potencial que tiene la emisión de deuda pública como política macroeconómica y consecuentemente proponer algunas rutas de política económica. Estas rutas sugieren un camino diferente al trazado por la economía ortodoxa que ha dominado en Colombia. En particular, teniendo en cuenta las limitaciones institucionales y externas que afronta el gasto público en Colombia, se considera volver a instituir el 'Banco de Desarrollo' como parte del Banco de la República de Colombia, e insistir en la necesidad de la cooperación y coordinación de políticas macroeconómicas con los países de la región.

Palabras clave: deuda pública; política fiscal; política monetaria; Colombia; teoría poskeynesiana.
JEL: E02, E12, E4, E5, E6, F4.

INTRODUCTION

Public debt emission is a powerful macroeconomic policy instrument that can be used by the government in order to fulfil its legal obligations through public expenditure in education, health, infrastructure, etcetera; in order to help the economy to achieve a desirable use of its productive resources; and to provide the financial and monetary system with state-backed financial assets when needed. All this without necessarily undermining the macroeconomic stability of the fiscal, monetary or financial systems.

In order to set an adequate institutional arrangement that allows a country to fully use public debt emission as a policy instrument, and then to actually use this instrument in a desirable and responsible way, it is necessary to understand how it works, what can it be used for and which are its limits. This article intends to answer these questions for the case of Colombia by presenting an analysis of the institutional framework and the empirical evolution of the Colombian public debt for the period 2001-2020 with a post-Keynesian (PK) approach.

Two reasons motivate this study. The first reason is because the PK approach offers a realistic and sufficiently coherent theoretical framework on how public debt works in modern capitalist societies. This understanding is necessary in order to draw realistic paths of actions under the actual institutional, economic and political reality. The second reason is because in Colombia there is an astounding lack of PK studies regarding public debt, and the academic literature, the institutional framework and the policy practice concerning this topic have been dominated by the orthodox approach which has contributed to a narrow understanding of the real functioning, possibilities and restrictions of public debt emission.

The final objective is to contribute to the understanding of public debt as a policy instrument, and to propose various policy routes that would allow the Colombian government to gain all the potentials of public debt emission. These policy routes suggest a different path than the one indicated by the orthodox economic tradition that has ruled policy practice in Colombia. Instead of a passive attitude regarding the fiscal policy and a 'sound finance' orientation, the government should, if needed, use government expenditures financed by debt emission to fulfil its legal obligations, help the economy to achieve a desirable use of its productive resources, and provide the financial and monetary system with financial assets, while maintaining the macroeconomic stability of the fiscal, monetary or financial systems. Finally, taking into account that the current institutional framework and the external conditions impose constraints on these types of policies, this text supports the idea of undertaking institutional reforms that help to overcome them. In particular, it considers the revival of the 'Development Bank' inside the Central Bank of Colombia.

The text is divided into four sections: (1) describes how public debt operates in Colombia; (2) analyses the role Colombian public debt has had as a policy instrument from two different angles; (3) analyses the policy space of Colombian pub-

lic debt, that is, its sustainability; and (4) brings the previous elements of analysis together, and elaborates on an alternative policy route.

HOW DOES PUBLIC DEBT EMISSION WORK IN COLOMBIA?

This chapter is divided in two: first, it describes the general institutional framework regarding public debt for the Central Bank (CB) and the Central Government (CG); and then describes the general institutional framework of the monetary and exchange system.

Central Bank and Central Government: A post-chartalist relationship

The Ministry of Finance and Public Credit makes decisions regarding the public expenditure and the annual deficit to be financed, which then have to be approved by the Congress (Decree 1068/2015). In order to carry the fiscal, monetary, financial and external macroeconomic policies it has a special coordination with the Central Bank (CB).

The CB is an autonomous institution and hence is not part of any of the three branches of public power. The CB functions are: (a) regulating the monetary emission of the Colombian currency; (b) administrating the international reserves; (c) controlling the exchange regime; (d) being the lender of last resort of the internal financial system; (e) and serving as the fiscal agent of the government for public debt (Hernández, 2020). The main objective of the CB is to maintain the purchasing power of Colombian currency –Colombian peso (COP)–, that is, control inflation.

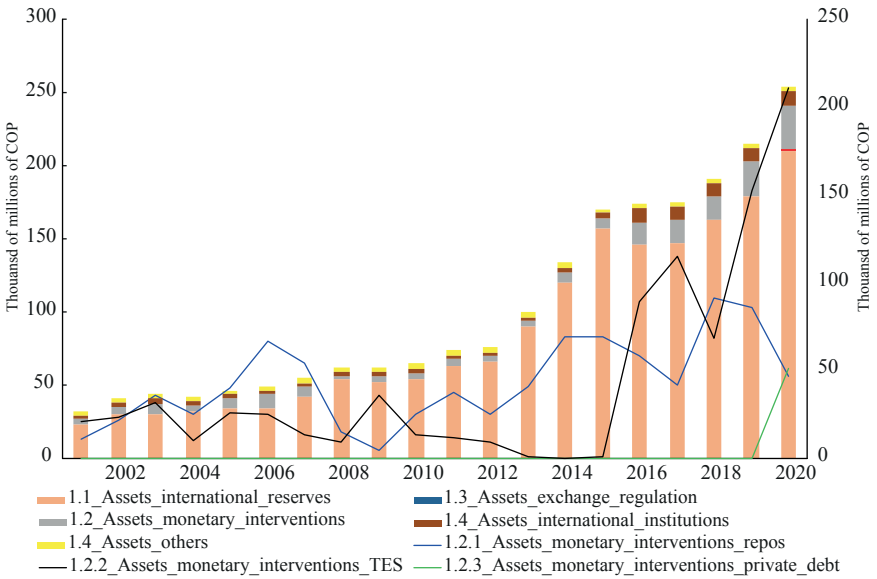
Regarding public debt, the CB is the fiscal agent of the government in internal and external credit operations and for the emission of public debt TES (local bonds/treasuries), and can directly finance the government only if there is a unanimous decision of the Board of Directors of the CB. In practical terms Colombia has a "post chartalist" scheme for the internal public debt, in which the CB does not directly finance the bond issuance of the government and can only acquire bonds in the secondary market. Bond issuance occurs in a primary market where the *market creators* ("dealers") acquire the bonds emitted by the government, and then in the secondary market the bonds are freely negotiated[1].

As Figure 1 and Figure 2 suggest, the Colombian CB has not engaged in an active role for financing the government directly, and only slightly indirectly. Figure 1

[1] For a detailed explanation of the "post-chartalist" scheme see Lavoie (2013; 2014). For the role of 'market creators' see Cesaratto (2016). For the case of Colombia, the 'market creators' are regulated by way of Resolution 5112/2018.

shows the assets of the CB: the left axis presents the total assets, in which it is clear that the majority of them are international reserves (clear orange), and that the monetary interventions (clear grey) are low; the right axis underscores the monetary interventions, in which the TES possession has increased in three moments: the 2009 financial crisis, the 2016 international commodities prices crisis, and the 2020 Covid crisis.

Figure 1.
Left axis: Assets of the Central Bank of Colombia (taken from annual balance sheet). Right axis: emphasis on the monetary interventions assets



Source: By the author, data from the Central Bank of Colombia (2022).

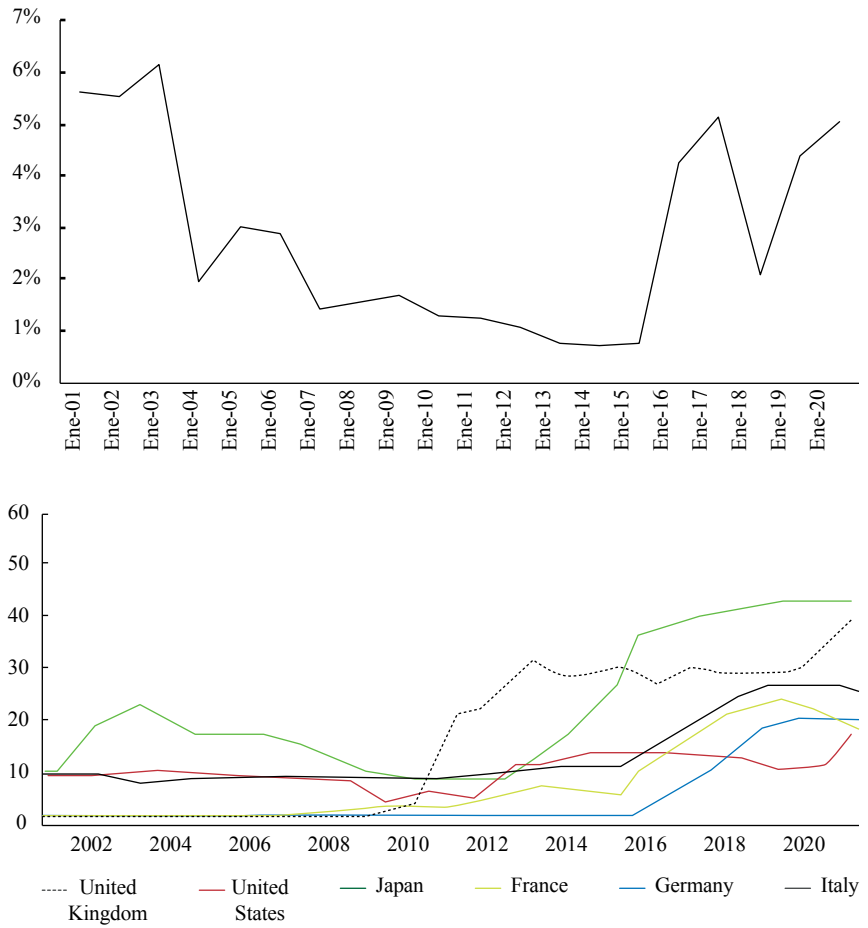
Figure 2 shows the amount of TES controlled by the Colombian CB and compares it with several developed countries. For the case of Colombia, the CB does not hold more than 6% of the total TES, while for the case of USA., France, Germany, and Italy it is approximately 20%, and in case of the United Kingdom and Japan it is around 35%. It is important to notice that the change in the pattern experienced after the 2008 crisis[2] did not occur for the case of Colombia.

To complete this subsection, it is important to clarify that it has referred mainly to the internal government bonds (TES) specifically of long term –at least a year or more. This accounts for around 60% of Colombia's public debt. The other 40% comes from external public debt of which almost all of that is denominated in for-

[2] The changes in the public bond holdings by CBs in developed countries is explained in Gabor (2021).

eign currency, and follows a different logic: the debt in foreign currency appears in the liabilities of the government balance sheet, and the sum of foreign currencies in the assets, without changes in the CB balance sheet. From the perspective of the local economy, the foreign currency already existed before it was borrowed –that is, as in a loanable-funds logic.

Figure 2.
Top graph : % of government bonds held by Colombia CB. Bottom graph: % of government bonds held by other countries



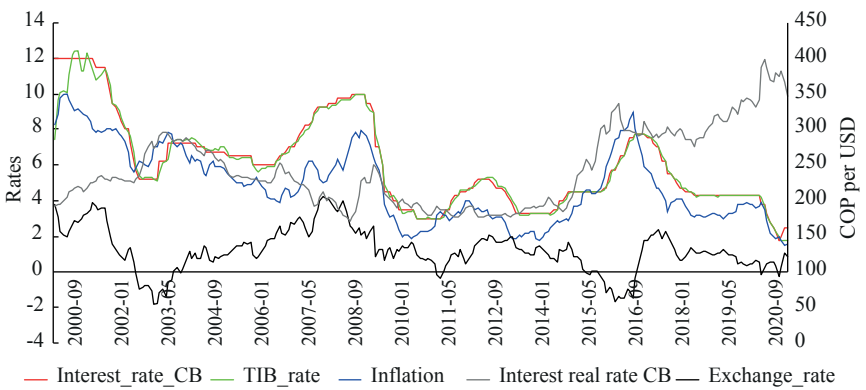
Source: By the author, information by Central Bank (2022) and Gabor (2021).

CB and the monetary and exchange regimes

To control inflation, the CB influences the short-term interest rates –what for Colombia are the TIB and the overnight interest rate. For this, it follows a particular kind of corridor system[3]. It sets up the "penalty rate" (the rate it lends to commercial banks to satisfy the payment system) and the "reserve rate" (the rate of return of the deposits at the CB) in +1/–1 based on the target interest rate. Then it calculates the quantity of additional reserves the system is going to need each day and consequently sets a fixed supply of reserves (credits to commercial banks) available each day (Osorio & Sarmiento, 2018).

On the left axis Figure 3 presents the CB policy interest rate, the short-term interest rate of the market (TIB), the inflation rate and the real policy rate (the CB interest rate minus inflation); and on the right axis the exchange rate. Three movements can be observed: (*a*) first, how the CB has managed to attract the short-term interest rate of the market (TIB) to the policy target interest rate. (*b*) Second, how the real policy interest rate (the CB interest rate minus inflations) partially follows the inflation rate (which has a decreasing tendency), with the exception of the years 2002 and 2016 in which the movement is clearly the opposite. This behaviour is coherent with the one promoted by the orthodox view by means of Taylor's rule, and has been corroborated by the studies of Villa et al. (2014), and by Pabón and Bedoya (2016). And (*c*) third, the exchange rate, represented in the secondary axis, has a similar movement to the inflation rate. In this sense, there seems to be a movement that goes from the exchange rate to inflation, from inflation to the CB target interest rate, and from the CB interest rate to the short-term rate of the market.

Figure 3.
Left axis: CB interest rate, real CB interest rate, TIB rate, and inflation rate. Right axis: exchange rate



Source: By the author, data from the Central Bank (2022) and Ministry of Finance (2022).

[3] For a detailed explanation on the "corridor system" see Fullwiler et al. (2020) or Lavoie (2014).

To complete this subsection, it is important to briefly mention that Colombia has a floating exchange rate regime and free movement of capital. The floating exchange regime has been used as a policy variable that absorbs external shocks, facilitates inflation targeting and operates as a natural counter-cyclical variable –e.g., when there is a decrease in exports, then the local currency devaluates and the capacity to import is reduced. Regarding capital controls, the free movement of capitals that started in the 90's has increased in the 2000's–e.g., in the first decade of the 21st century there has been a reduction of capital controls specifically with respect to bonds held by foreign actors, and "after October 2008, there have been no restrictions on portfolio inflows" (Ocampo et al., 2020, p. 8).

PUBLIC DEBT EMISSION AS A MACROECONOMIC POLICY INSTRUMENT IN COLOMBIA

Public debt is a macroeconomic policy instrument that can play different roles and serve different policy objectives. This section analyses Colombian public debt from two[4] angles: first, based on the fiscal balance and the expenditures/incomes logic; and second, based on the relation with the balance of payment and the possible interpretation of the fundamental macroeconomic identity.

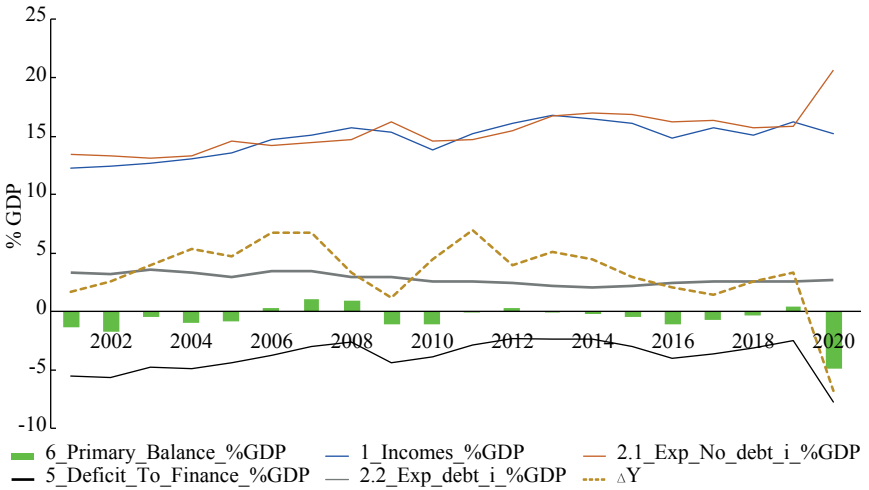
Public debt emission and the Central Government fiscal balance

Figure 4 shows the CG incomes, expenditures, primary balance, final deficit, and interest debt payment for the period 2001-2020.

As explained below, to a great degree the fiscal balance of Colombia does not depend on the CG: its fiscal expenditures have legal and political rigidities, its incomes depend on the economic cycle and the international commodities prices, and finally the public finances are subject to fiscal rules. The external side of the economy exerts high pressures on growth, government incomes and a current account balance that reduces the policy space of the government, and pushes it to engage into pro-cyclical policies instead of counter-cyclical policies (Ocampo, 2021). To understand this tendency to pro-cyclical policies it is necessary to delve

4 A third function that has not been studied much is the role public debt emission can have in providing liquidity to the financial market. One example is the short-term TES bond (less than one year) that is emitted to guarantee the liquidity of the CG and to help the CB regulate the liquidity of reserves: "the treasury notes –short-term TES, finance temporary operations of the treasury and are considered instruments to regulate liquidity, and mechanisms of the monetary policy that complements the work of the Central Bank" (Ministry of Finance and Public Credit of Colombia, 2018, p. 19) [Author's own translation]. The 'temporary loans of value of public bonds' programme created in 2019 is another example. This is a financial mechanism that allows the 'market creators' to ask the Ministry of Finance public for debt titles in order to cover specific shortages of TES, or to improve their market positions (Ministry of Finance and Public Credit of Colombia, 2019).

Figure 4.
CG fiscal balance as % of GDP

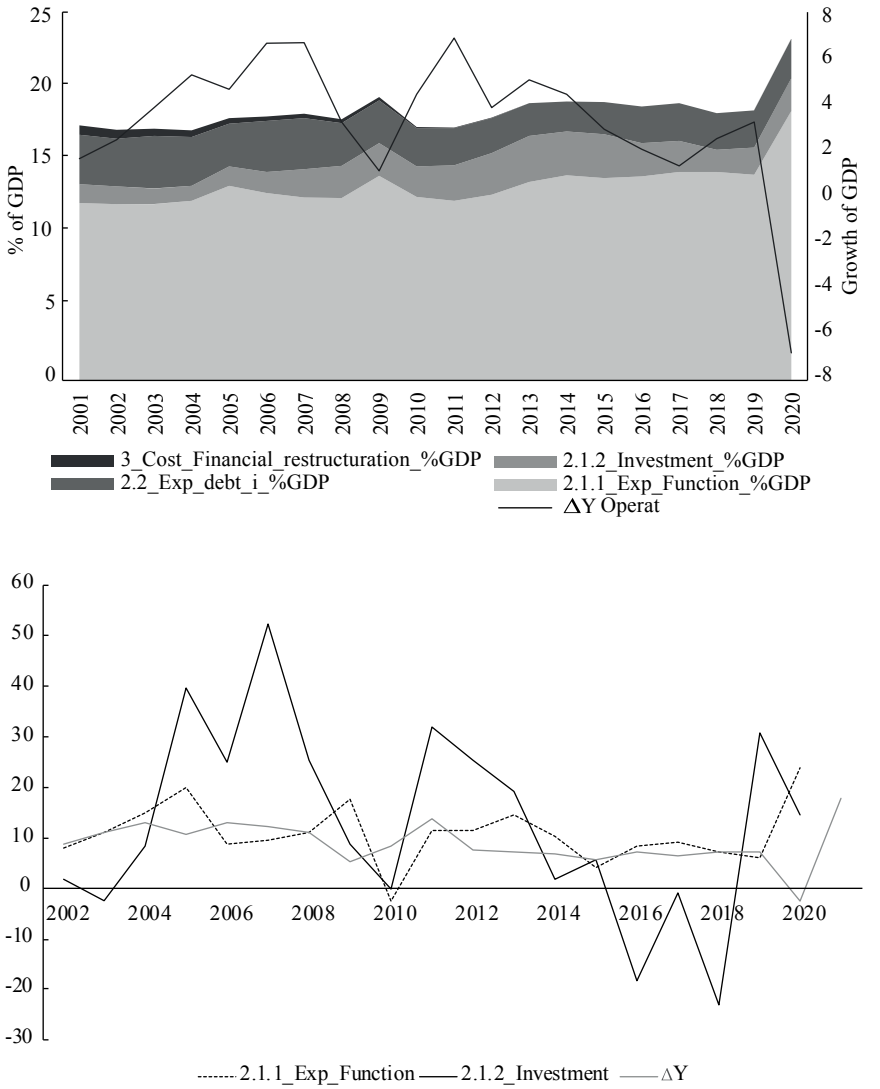


Source: By the author, data from the Ministry of Finance (2022).

deeper into the study of (*a*) the expenditure structure, the (*b*) incomes structure, and the (*c*) fiscal rule.

(*a*) Colombian expenditures can be divided in three types: operating, investment and payment of debt interest –see left part of Figure 5. Most of operating expenditures such as pensions, transfers to the local government, etcetera, are fixed by law or by political constraints. These rigidities make them counter-cycle but not with the deliberate intention of generating aggregated demand during periods of recessions. On the contrary, investment expenditures tend to be the flexible part of expenditures, and they are used as the variable that accommodates the fiscal constraints. As a result, they generally have a pro-cycle behaviour, impeding investment from having an active role in promoting aggregate demand during periods of recession (Becerra & Ramos, 2020). This can be seen on the right part of Figure 5 that contrasts the nominal changes of operating and investment expenditures with the nominal growth rate of the economy. While operating expenditures have small changes in the opposite direction than growth (counter-cyclical), investment expenditures have big oscillations without a clear pattern of counter/pro-cyclicality. Finally, it is important to mention that Colombian government expenditures are low compared to other Latin American countries, with a steady tendency contrary to its neighbouring countries that have an increasing expenditure tendency (CEPALSTAT, 2022).

Figure 5.
Top graph: Type of expenditures of the Central Government as % of GDP and growth rate. Bottom graph: nominal changes in operating expenditure, investment expenditure and growth



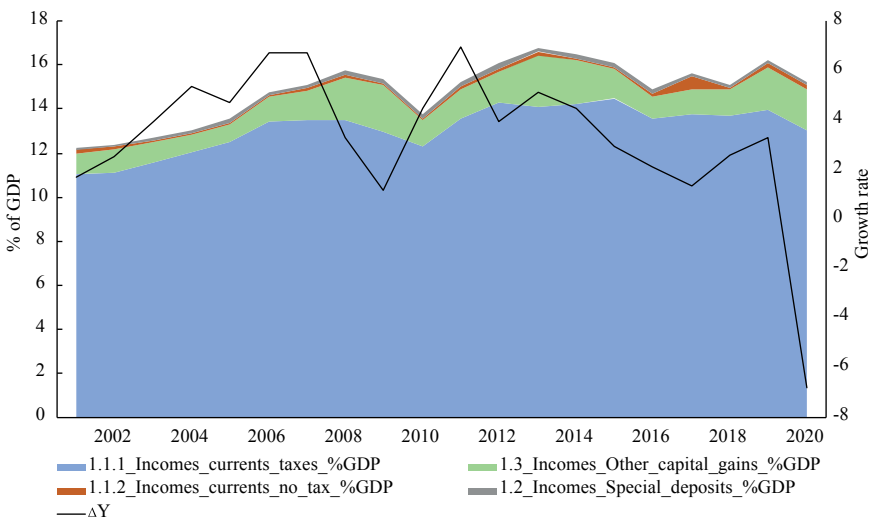
Source: By the author, data from Ministry of Finance (2022).

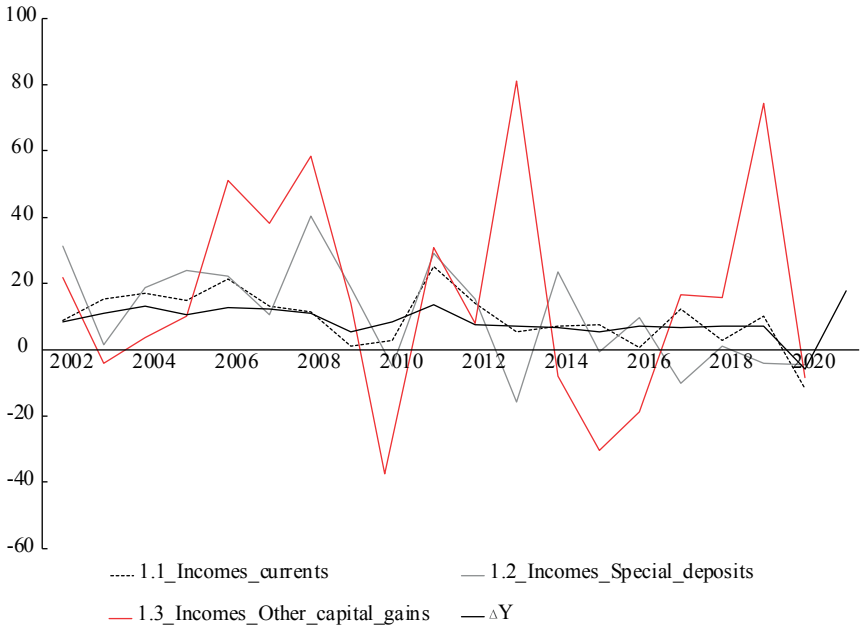
(*b*) Incomes can be classified in three types: current incomes (that include tax revenues), capital gains and other special deposits –left part of Figure 6. Incomes follow a similar path with the growth of the economy, in particular that of current incomes –see

right part of Figure 6, that compares the nominal changes in the type of incomes with the growth rate. Government incomes have a high dependence on the international price of commodities in two ways: first, Colombian growth is driven by the exports of oil and coal (see, for example, Figures 7, 8 and 9), thus tax revenues that depend on growth also depend on commodity prices; and second, *Ecopetrol,* a Colombian oil company and one of the biggest in Latin America, is a public company.

(*c)* Apart from the analysis of expenditures and incomes, the Colombian government faces a fiscal rule (Law 1473/2011) that has to be considered. The fiscal rule establishes the long-run of public debt/GDP ratio to converge to 30% of the GDP. For this convergence to happen the 'net structural primary balance' should decrease from the year 2012 until it reaches a positive sign in 2025 (Ministry of Finance and Public Credit of Colombia, 2015). The 'net structural primary balance' is the primary balance derived from the structural incomes and structural expenditures, which do not include the cyclical phenomenon of the economy. In particular, the structural income discounts the incomes that are product of taxes and oil cycles. The tax cycles are calculated based on the difference between the observed GDP and the potential GDP, while the oil cycles are calculated based on the difference between the real oil prices and the long-run tendency of prices. The structural expenditure is equal to the normal expenditure when there are no specific programmes of counter-cyclical expenditure (Ministry of Finance and Public Credit, 2014). In this way the fiscal regulation tries to clean the fiscal balance of the international prices of commodities fluctuations and other deviations of the long-run growth path, and hence to establish a "structural" long-run primary balance that tends to be positive.

Figure 6.
Left: incomes of the central government as %GDP. Right: nominal changes of central government incomes





Source: By the author, data from Ministry of Finance (2022).

The structural deficit has been decreasing every year and has reached the expected goals (due to the Covid-19 pandemic, the fiscal regulation was suspended in the year 2020). The structural income has been higher than the normal income, which is expected because the real growth has been lower than the potential growth and because between 2012 and 2017 the oil prices had a decreasing tendency. The counter-cyclical expenditure has been zero in all periods, except for the year 2019. This double movement of structural incomes higher than the observed one and no counter-cyclical expenditures are expected: the economy by itself does not tend to full employment and the government has not engaged in active aggregate demand policies to boost the economy.

In conclusion, public expenditure in Colombia is low compared to other Latin American and European countries. The deficit is constrained by fiscal regulation, by the international prices of commodities fluctuations that govern the incomes, and by the fiscal expenditures that have legal and political rigidities (the investment expenditures end up being a pro-cycle variable when they should be counter-cycle). The result of this is that the government assumes a passive fiscal attitude, without engaging in active counter-cyclical policies, and public debt emission is not a source of income available for the government in order to promote higher levels of aggregate demand –particularly during a recession.

Public debt emission and external constraint: The fundamental macroeconomic identity operation

Fundamental macroeconomic identity affirms that the sum of the savings of the private sector, the public sector and the external sector have to be in balance. As an accountable identity this is always true ex-post, but analytically it is necessary to understand the economic mechanisms that enter into operation. In a closed economy, the neoclassical approach sustains that the government deficits have to be financed by the savings of the private sector. The PK theory correctly points out that the mechanism is the opposite: it is the fiscal deficit that allows the private sector to have positive savings by means of an increase in total output (Ciccone, 2020; Lavoie, 2014).

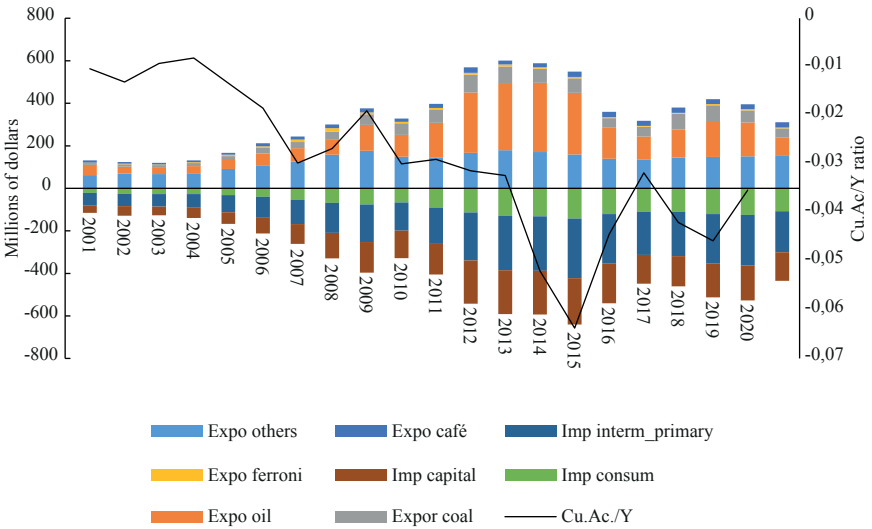
When considering the external sector, the analysis of public deficit in this identity is more complicated and can have at least two different channels: (*a*) if there is a reduction in exports, it will pressure the external balance deficit with a decrease in government revenues, without an equal decreasing of its expenditure, leading to an increase in the government deficit; or (*b*) if the government increases public expenditure and emphasises aggregate demand, the productive structure will naturally increase the imports that will pressure the current account deficit. These two channels are more prompted in Latin America countries because of their import-productive structure and their export composition of low technological content (primary products and raw materials, or labour-intensive manufacturing) that are subject to low-income international elasticities, low added value and highly exposed to international fluctuations (Prebisch, 2012 [1949]; Thirlwall, 2011).

For the case of Colombia, its productive structure is highly dependent on imports of capital goods and intermediary goods –see Figure 7. Exports are dominated by oil and coal, whose price and demand depends on international factors, and not on the neoclassical presupposition that a depreciation of the currency will increase the demand of export products. The right axis of Figure 7 shows the ratio of the current account with the GDP, that presents a negative and constant decreasing behaviour over time.

On the left axis Figure 8 presents the deficit of the CG and the current account deficit as percentages of GDP, and the growth rate of the economy. The right axis shows the evolution of the total debt/GDP ratio and the external debt in the USA. The U.S. dollars/GDP ratio –the external ratio is important to compare the external debt movement with the general debt movement. To complement this information, on the left axis Figure 9. shows the financial account of the balance of payment and the liabilities of debt contracted by the general government internally and externally, which is part of the financial account, and on the right axis the international price of oil.

To understand the movements of the variables in Figure 8 and Figure 9. It is useful to divide and contextualise them in time. The periods in green (2001-2007; 2010-2013; and 2018-2019) are the 'normal' times in which most of the macroeconomic

Figure 7.
Left axis: Exports and imports composition. Right axis: Current Account/GDP ratio



Source: By the author, Data from the Central Bank of Colombia (2022).

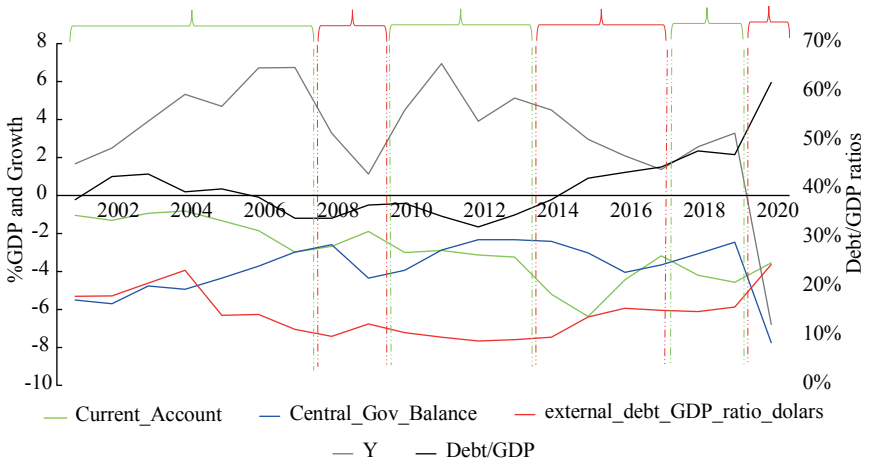
indicators are having a positive tendency. The periods in red represent economic crises (2008 -2009; 2014-2017; and 2020).

Taking all this into consideration it is possible to put forward various hypotheses on the relationship between public deficit, public debt and the savings of the private and external sector.

In 'normal' times there is an increase in the international price of oil, economic growth is positive and the government is able to reduce the public deficit. This will naturally decrease the debt/GDP ratio. The current account deficit worsens, with a natural increase in the financial account, but without an increase in the external debt in U.S dollar/GDP in dollars' ratio. Actually, this last ratio follows the normal debt/GDP ratio in a similar way. Finally, if you take a look at the financial account of the balance of payment (which is increasing, as already said), the public debt is decreasing while there is an increase of portfolio investment, direct investment and in the accumulation of reserves (these last three elements are not shown on the graph to avoid overcrowding the visual space).

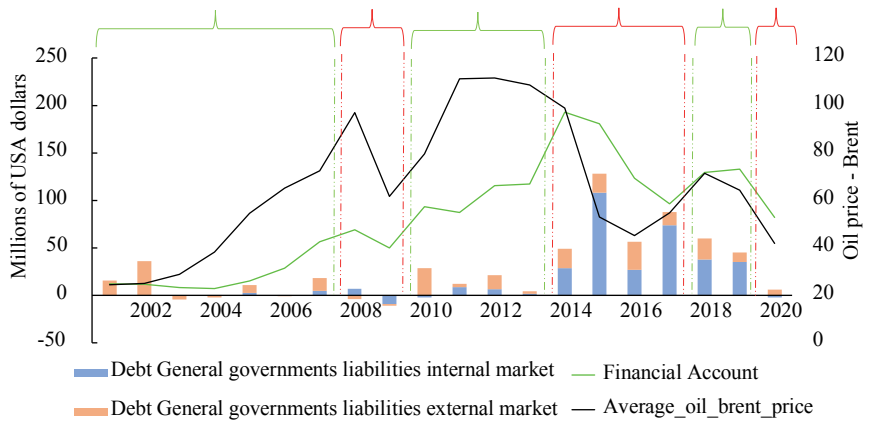
All this suggests that during 'normal' times: (a) in Colombia the growth is driven mainly by the international prices of oil, its main export commodity, and not by an increase in fiscal expenditure through fiscal deficits; (b) CG balance reduces its deficit when there is an increase in the international prices of commodities and in the economic growth; (c) because of the productive structure, economic growth necessarily increases imports and hence pressures the deficit in the current account that is

Figure 8.
Public deficit (CG), external deficit (current account) and other variables



Source: By the author, information from the Central Bank (2022) and the Ministry of Finance (2022).

Figure 9.
Financial account (with internal and external debt of general government), and oil price



Source: By the author, information by Central Bank of Colombia (2022) and Macrotrends (2022).

backed up with an increase of the financial account; (d) both the debt/GDP and the external debt/GDP ratios are improving despite the increase in the current account deficit, suggesting that the external deficit is not directly financing the government

deficit, nor that the public debt in foreign currency is financing the external deficit –this is corroborated by the fact that the increase in the financial account is not led by external public debt, which actually decreases. This is also related to the fact that during these periods the COP is stronger and hence the exchange value helps to reduce the external debt as a percentage of the total debt in COP.

Crises have also a similar behaviour among themselves, but opposite to 'normal' times. There is a decrease in the international prices of oil, a decrease in growth and an increase in the fiscal deficit. This leads to an increase in the debt/GDP ratio, followed by a similar tendency of the external debt in U.S. dollars/GDP in U.S. dollars that, however, is much smoother. Paradoxically, there is always a reduction in the current account deficit due to less pressure on imports, and a decrease in the financial account led by a decrease in portfolio investment, direct investment and in the accumulation of international reserves -however this last one has never been negative. Of particular importance is the increase of external public debt within the financial account during the crisis of 2014-2016, which is explained by the fact that in 2014 the JP Morgan GBI-EM index improved the qualification of Colombian bonds. This led to a massive amount of passive institutional investor funds inundating the local bond market (Romero et al., 2020).

The opposite movement between the current account deficit and the government deficit seems to go from the external side to the public side, and not the other way around as suggested by neoclassical theory. In particular, this occurs because the decrease in the international oil prices contracts the external side of the economy and diminishes the portfolio and direct investment of international financial capital, while having negative effects on government incomes –this phenomenon is reinforced by the high dependence of the productive structure on imports. This is corroborated by the study on the Central Bank set forth by Tejada, Ángel and Castro (2021), in which they concluded that the twin deficit of Colombia did not follow the neoclassical or neo-Keynesian logic of public deficit causing external deficit, but on the contrary, the external deficits are those that put pressure on the public deficit. This double movement of the fiscal end external deficits has also been well described and studied by Ocampo (2021).

THE POLICY SPACE OF COLOMBIAN PUBLIC DEBT

The neoclassical approach understands the sustainability of public debt as the tendency of the debt/GDP ratio to converge to a small ratio, and the main policy recommendation is the application of contractionary policies in order to achieve positive primary balances. However, PK theory has correctly pointed out the flaws of this approach[5]. What is important is to compare the annual flows of debt pay-

[5] For a critical perspective of the neoclassical sustainability approach see, for example, Ciccone (2013; 2020).

ment with the annual GDP and the capacity of the government to serve the debt. In this sense, what is important is to observe the interest in the debt/GDP ratio, the tendency of the state incomes as part of the GDP, and the capacity of the state to pay debt issued in external currency. To address these issues, this section analyses: first, various ratios of debt sustainability; second, the foreign currency debt; third, the interest rate of debt; and fourth, the relationship between the growth rate and public expenditure.

Debt/GDP, interest on debt/GDP, and interest on debt/gov. incomes ratios

The debt/GDP ratio becomes critical when it exerts a structural pressure on the interest debt payment/GDP ratio, specially of that of the external debt. However, it is possible to have a situation where the debt/GDP ratio is increasing and the interest payment of debt/GDP ratio is decreasing, and thus debt is becoming more sustainable. It is also important to include the movement of government incomes as percentage of GDP: if they increase, it has more space to pay the interest on debt and thus its debt is more sustainable. This is the case for Colombia: while the debt/GDP ratio has an overall increasing tendency, both the interest on debt/GDP and interest on debt/Gov. incomes ratios have an overall decreasing tendency –see Figure 10. The evolution of these indicators shows that the debt in Colombia has become more sustainable even if the debt/GDP ratio has increased.

It is worth mentioning that compared to other similar Latin American countries, Colombia's public debt/GDP ratio is in an intermedium position: Argentina and Brazil have a debt/GDP ratio over 60%, Ecuador and Peru under 40%, while Colombia has oscillated between 40 and 50% in the last decades (CEPALSTAT, 2022). Latin American countries are somehow low if compared to developed countries. In the 2018 Japan had this ratio at 234%, U.S.A at 137%, United Kingdom at 116%, and Germany at 69% (OECD, 2022).

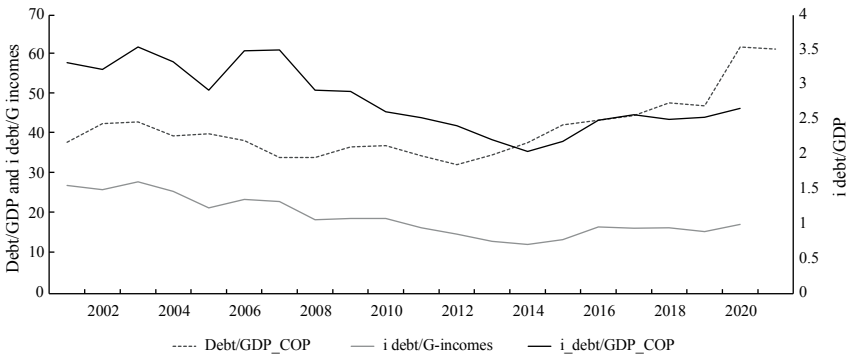
External debt, currency hierarchy and monetary sovereignty

According to MMT, if a country has monetary sovereignty[6] then it can "always finance its activities while keeping the interest rate on the public debt under control and maintaining the stability of the payment of systems" (Tymoigne, 2020, p. 1), and can always pay the public debt denominated in its own currency assuring its sustainability[7]. For the case of countries that have public debt denominated in foreign currency, MMT authors suggest that a flexible exchange rate will tend to maintain monetary sovereignty even with external debt because the country can always devaluate the local currency at a level as to be able to pay the external

[6] A country has monetary sovereignty if it sets the laws of the monetary system, sets the domestic unit of account and expense, collects taxes and issues debt in that unit of account, "creating" and having control of the domestic money (Tymoigne, 2020).

[7] This position is correctly critiqued in the practical field by Lavoie (2013) and Epstein (2019).

Figure 10.
Left axis: debt/GDP ratio, and interest on debt/Gov. incomes ratio. Right axis: interest on debt/GDP ratio



Source: By the author, data from Ministry of Finance (2022).

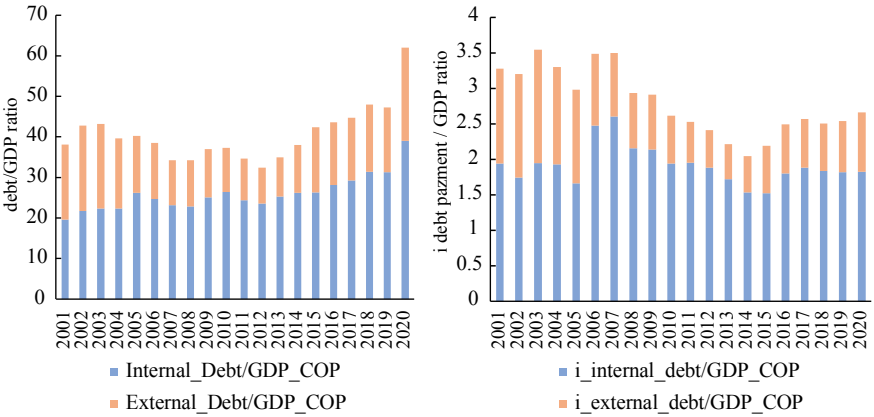
debt (Tymoigne, 2020). However, as Vernengo and Caldenty (2020) have correctly indicated, the devaluation policy in order to gain monetary sovereignty is not sustainable for the simple fact that it will lead the local economy to a complete crisis through an increase in inflation and in the value of the external debt held both by both the private and the public sector. This is reinforced by the fact that these countries' currencies are low in the international currency hierarchy, limiting the exchangeability for strong currencies and imposing additional limits to the monetary sovereignty (Prates, 2020).

PK authors have characterised the current international monetary system as essentially asymmetric. From this asymmetry, emerges a currency hierarchy, that is, an institutional arrangement organised around a national currency that becomes the key currency to perform the three functions of money at the international level – means of payment, unit of account and store of value (Paula et al., 2017). In this perspective, currencies are hierarchically positioned according to their degree of liquidity: the key currency (fiduciary U.S. dollar) has the highest liquidity premium, followed by the euro and currencies issued by other core (developed) countries. At the opposite end, currencies issued by developing and emerging economies present the lowest liquidity premium (Prates, 2020). In turn, "currency hierarchy, amplified by financial globalisation, imposes major constraints on the adoption of Keynesian policies for these economies" (Paula et al., 2017, p. 2). The conclusion is that, granted the authority of money emission, the question of sustainability moves away from the simple concept of monetary sovereignty to the issue of the external balance and currency hierarchy.

The left side of Figure 11 presents the debt/GDP ratio, while the right side presents the interest payment/GDP ratio, both with the internal and external debt. In both ratios the public debt denominated in foreign currency has an overall decreas-

ing tendency (with the exceptions of years 2015, 2016 and 2020). This, despite Colombia having constant deficits in its current account (see Figure 8).

Figure 11.
Left part: Debt/GDP ratio – internal and external. Right part: i on debt/GDP ratio –internal and external



Source: By the author, data from Ministry of Finance (2022).

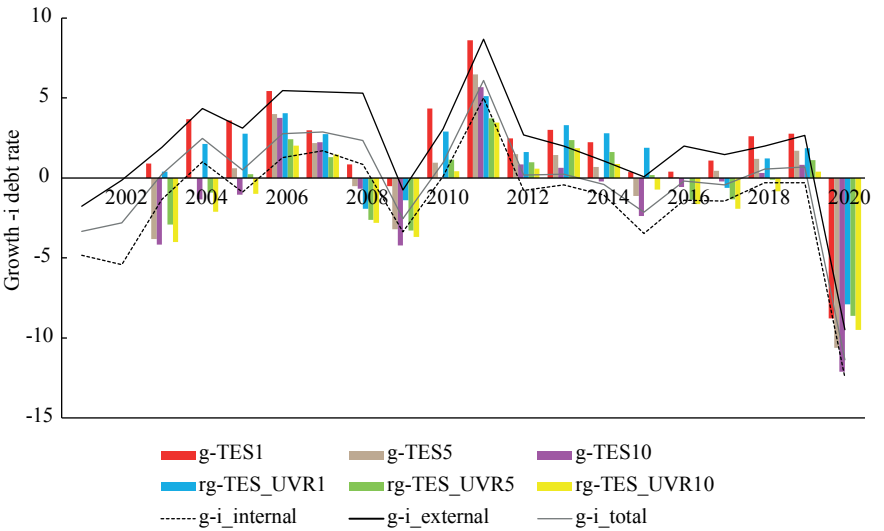
One can say that Colombia has achieved monetary sovereignty by reducing the foreign debt, accumulating international reserves over time and expanding and strengthening its internal public debt market. However, at the same time, its current account/GDP ratio has constantly worsened, together with a COP depreciation tendency and no structural international changes in the hierarchy currencies, maintaining the COP at the bottom of the international currency hierarchy. This undermines its monetary sovereignty and renders it more dependent on international financial movements. In the following section a further analysis of the effects of this in the interest rate policy of the CB is addressed.

Interest rate and debt sustainability

Public debt is sustainable if the growth rate of the economy is higher than the interest rate of public debt, and both these variables are influenced by government policy decisions[8]. This section analyses whether for Colombia the growth rate has been higher than the interest rate on debt, and whether the government has had some degree of control over the former.

[8] This is derived from the accountable identity of debt and is accepted by the neoclassical approach. However, this approach sustains that the government has no influence on the interest rate on debt, and that historically the interest rate of debt has been higher than the growth rate. On the contrary, Fullwiler (2020) shows that the interest on debt is theoretically a policy variable, and that for the case of the USA has been historically below the growth rate of the economy.

Figure 12.
Growth minus interest rate on debt



Source: By the author, data from the Central Bank (2022) and the Ministry of Finance (2022).

Figure 12 shows the difference between: the nominal growth rate and the consolidated interest rate of total public debt, internal public debt, and external public debt; the nominal growth rate and the interest rate of public bonds TES in COP for 1, 5 and 10 years; and the real growth rate and the interest rate of public bonds TES in UVR for 1, 5 and 10 years[9]. All variables follow, naturally, a similar path with oscillations that do not show any constant increasing or decreasing tendency over time. Throughout the years 2004-2008, 2010-2013 and 2018-2019 the interest rate on debt was, in general, below the growth rate of the economy –under this parameter, 15 years out of 20 the debt was sustainable. These are basically the same periods that were labeled as 'normal' in Figure 8 and Figure 9. If we consider that the interest rate on debt should have the discount of the tax rate, as correctly pointed out by Lavoie (2014), then this result improves because it will give extra space to the difference between growth rate and interest rate on debt.

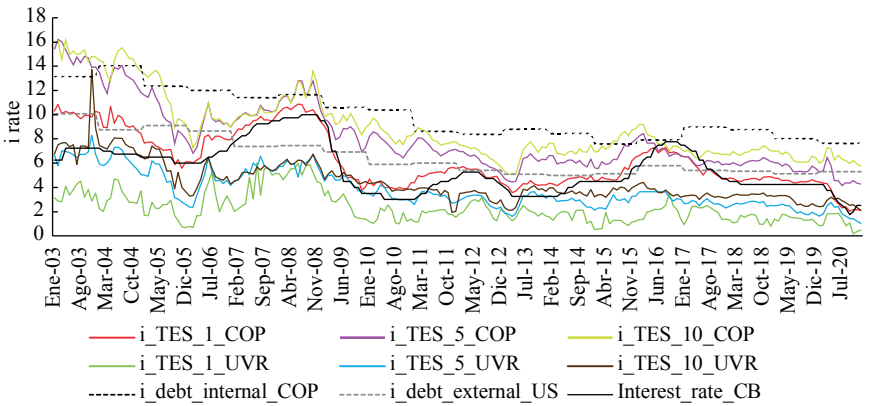
The first question is whether the Colombian government has any control over the interest rate of the debt. The influence of the Government on the interest rate of debt occurs through two economic mechanisms: the first one is by control of the short-term interest rate of the market that the CB has, and that influences all the other interest rates of the market, including the long-terms; the second one is by

[9] Note that in the TES in UVR, which are denominated in local currency but attached to a real value indicator, the difference is with the real growth rate of the economy and not with the nominal growth rate.

the fact that the CB can always buy the internal debt of the government, directly or indirectly, and so it could influence the market interest rates of bonds. Figure 13. shows the evolution of the interest rate of the target policy rate of the CB (that as shown in Figure 3 controls effectively the short-term interest rate of the market), the consolidated internal debt, the consolidated external debt, the TES in COP for 1, 5 and 10 years, and the TES in UVR for 1, 5 and 10 years. All variables seem to follow a similar path. In particular: (*a*) the interest rate of the Central Bank and the interest rate of the TES in COP of 1 year have practically the same movement; (*b*) the TES in COP of 5 and 10 years have a similar movement to the TES in COP of 1 year, but with a difference of 2-4 points in the interest rate; and (*c*) The TES in UVR also follows the movement of the TES in COP but with a lower interest rate, which is expected because they are attached to a real value –the difference can be seen as an inflation measure. All this suggests that the CB interest rate influences the debt rate[10].

Figure 13.

Interest rates of public debt and interest rate of CB



Source: By the author, data from Central Bank (2022) and Ministry of Finance (2022).

The second question is whether the government has real freedom on the target interest rate. As explained by Rey (2015), in the actual situations of free movement of capital and high financialisation of the economy, for peripheral economies the traditional macroeconomic trilemma becomes a dilemma: the CB has factual limits on setting the interest rate because the inflows and outflows of international financial capitals would destabilise the economy. In fact, the interest rate of the CB has to be equal to the international interest rate (which is governed by the interest rate of the FED) plus the liquidity and risk premium of Colombia. If

[10] Akram & Uddin (2021) explain theoretically the relation between interest rate and debt rate, and then analyze emprirically the case of Mexico bonds.

this does not occur, the country will experience massive out-flows of financial capital, both local and foreign, that will generate a crisis on the financial account of the balance of payment, limiting the imports and hence all the productive structure of the country. This has to be connected with the fact that for Colombia the interest rate of the CB follows inflation. These two objectives of the interest rate of the CB –targeting inflation and providing a high level or financial return in such a way as to attract financial investment– move along: inflations have strong connections with devaluation of the currency that results from low levels of exports, which at the same time requires higher levels of foreign incomes from the financial account (Ocampo, 2021).

In conclusion, the policy interest rate of the CB has an important influence on the interest rate on debt, however, as the policy interest rate of the CB has to obey the inflationary demands, the current account pressures and the international financial capitals, then the idea of considering the interest rate as a free policy variable for the CB for Colombia is reduced. If this is true, then the CB is not completely free to set the interest rate below the growth rate of the economy in order to render debt sustainable.

Government expenditure in Colombia: An unsustainable path

For PK, government expenditure increases aggregate demand and growth without necessarily crowding out private investment. If debt is sustainable when the growth rate is higher than the interest on debt, then the government expenditure through public deficit can have the paradoxical –for the neoclassical approach– effect of rendering debt sustainable.

PK's have put the accent first on the role of the government to assure full employment, and then on arguing that this effort is sustainable over time. This view can be summarised in the concept of *functional finance* inspired by Lerner (1943). Lerner took the Keynesian idea of aggregate demand with the state finance theory, to argue that public expenditure policies should be measured only by the effectiveness in achieving full employment without undermining macroeconomic stability. Different PK views on this topic, such as Godley and Lavoie (2007), Ciccone (2013) or Garbellini (2016) arrive at the same conclusion: there is a level of public expenditure such as to achieve both full employment and sustainability of public debt –or, putting the emphasis on sustainability, public debt is sustainable if expenditures pursue a full employment policy.

For the case of Colombia this has not been the path, even if its public multiplier is higher compared to others in the region, and during recession has even higher values (González, 2020; Restrepo, 2020; Ángel et al., 2020). As already described, public expenditure in Colombia is low and is constrained by fiscal regulation, by the international prices of commodities fluctuations and by legal and political rigidities. The consequence is that the government does not engage in active counter-cyclical policies, and that public debt is not a source of income available for the

government in order to promote higher levels of aggregate demand (Rodríguez, 2021; Ocampo, 2021).

The way fiscal expenditures work in Colombia does not help the sustainability of public debt through the increase in growth. On the contrary, fiscal expenditure is subordinated to legal and external causes that push it in the opposite direction: low and counter-cyclical expenditures.

PUTTING THINGS TOGETHER: AN ALTERNATIVE POLICY ROUTE

It is now possible to consider altogether the relationship between the Colombian institutional framework, its economic productive structure, its external dependency, government fiscal behaviour and the sustainability of the public debt. During commodity booms there is an increase in growth, decrease in public deficits, increase of international financial capital inflows (in form of portfolio and direct investment), appreciation of the local currency, low inflation and a decrease in the interest rate, with the result of a more sustainable path of public debt. The opposite happens when there is a fall in the international prices of commodities: there is a decrease in growth, increase in public deficits, decrease of international financial capital inflows, depreciation of the local currency, inflation pressure and an increase in the interest rates, with the result of a less sustainable path of public debt. All this occurs without the intervention of the central government which has a passive attitude regarding its fiscal expenditures, and with not much intervention from the CB except for accommodating the monetary interest rate in accordance to the inflation target and the demands of international financial capital.

The Colombian public debt has become more sustainable in the last 20 years. The debt/GDP ratio is relatively small compared to other Latin American and "developed" countries, and both the interest on debt/GDP and the interest on debt/Gov. incomes ratios have an overall decreasing tendency. This is the result of: (*a*) relatively small public deficits and a constant GDP growth; (*b*) a slight increase in the government incomes as % of GDP; (*c*) an overall decreasing tendency of the interest rate on debt, both internal and external; and (*d*) a decrease in the external debt, a controlled exchange rate and an increase in international reserves which, at the same time, have improved the monetary sovereignty of Colombia.

However, Colombia still has many social challenges to meet and an economy that has been functioning below its potential capacity. The natural recommendation from a PK perspective is that the government should increase its fiscal expenditures in order to fulfil the legal and political mandates of the state, while pushing the economy to a full employment situation. A way to achieve this is through public debt emission without undermining fiscal or monetary stability. This policy recommendation–which is nothing different than the application of the functional finance principle as taken by PK's– makes sense when the way public finances

work inside the capitalist system is understood, that is, inside a monetary mode of production.

Nevertheless, the application of this general recommendation in the case of Colombia faces, at least, two constraints. The first constraint is institutional and ideological: the fiscal reglamentation of the government, the high limitations of the CB to finance the government directly and its low participation in the secondary bond market, the rigid inflation target of the CB, complemented with the widespread idea that public deficits are *per se* negative, impose legal and political limits to a more active fiscal policy through public debt emission. The second constraint is external: the international prices of commodities have a decisive influence on government incomes, currency devaluation, the value of the external debt, inflation, capital inflows and finally on the policy interest rate of the CB. Therefore, even if the government manages to overcome its institutional and ideological limits, due to the highly import-dependent productive structure, engaging in an active counter-cyclical fiscal policy will actually deteriorate the current account, devaluation and inflation, affecting precisely the variables that are already weak.

The natural question that arises is how can the government increase fiscal expenditures considering the institutional and external constraints? That is, how can the principle of functional finance be applied to the specific case of a small open peripheral country, with an orthodox institutional framework and with high external dependence? The answer can only come from a complex management of the economy in which different policies –tax reforms, fiscal expenditures, debt management, capital controls, industrial policy, etc.– are carefully implemented. Among these, a possible powerful route could be the revival of the Colombian 'Development Bank' (Banco de Desarrollo).

Briefly, a Development Bank (DB) is a financial institution that has as a mission to finance medium and long-term investments that help the development process of a country. The finances of a DB are different and go from direct first level finances through the CB, to a self-financing activity at a second level in the finance system (Griffith-Jones et al., 2018, p. 20).

Colombia has a long history of DB's with sectorial functions, several of them financed by the CB directly. This changed in the 90's with the liberalisation process that included the privatisation of most of the DB's, and more importantly, with the independence of the CB from the CG that resulted in the elimination of the development function of the CB (Ocampo & Arias, 2018).

Considering the revival of a DB within the CB that finances productive projects aiming at reducing the external dependency, and financed directly by the CB through government bonds, is a realistic and balanced economic policy that is in line with the functional finance principle while overcoming the above-mentioned constraints. In particular, the DB within the CB can:

- (*a*) Finance productive projects that tend to reduce external vulnerability, that is, to enlarge and diversify the export basket, and to reduce imports by increasing the local production of capital and intermediary-goods that are imported. This will have a triple effect: it will increase aggregate demand and help to engage in full-employment policies with a counter-cyclical focus; the increase in aggregate demand will have the first impact on the productive investment and not on household consumption –even if then the aggregate demand boosts end in household consumption–; and finally in the medium-long term can help reduce the external dependency of Colombia's productive structure. At this point it might be important to remember that the public multiplier in Colombia is higher if compared to others in the region, and that during recession it is even higher.
- (*b*) Be financed by special public debt emission backed up directly by the CB. Here, it has to be considered that the CB profits go to the CG and, since 2020, these revenues are counted as incomes in the general fiscal balance. This means that even if the amount of debt increases, the flows of debt payment are as if –*á la* MMT– they passed from the right hand to the left hand. This has several advantages. The CB can still conserve the orthodox monetary functions and independence. This one will not suffer changes, and could have a special coordination with the yearly amount of finance of the CG. The finance will not go to cover functioning fiscal deficits, but investment expenditures in a counter-cyclical way.

It is important to insist that this proposal should not be taken as the only possible route, but as one of the different policy paths that the state has. The discussion on economics should be a complex one in which different policy instruments such as tax reforms, debt management, industrial policies, and capital controls complement each other as a way to achieve better social conditions.

Finally, the PK and structuralist academic literature has somehow analysed the problematic macroeconomic situation of the peripheral countries (as undertaken in this article), but little has been written on how can these countries actually implement heterodox policies such us capital controls, higher corporate and income taxes, higher public expenditure through public debt, or different interest rate targeting from that of the orthodox view, when subject to the international financial movements and to the political-economy dependence of internal and international private economic interest. A way that these countries could implement these types of policies under such conditions is through regional coordination on taxes and capital controls, and cooperation in the financialisation of public debt and investment projects through a regional development bank. This cooperation should be different from a monetary union such as the one in the Euro Zone, in order to avoid the limitation on the monetary sovereignty it exerts on the member countries, but should go further than the traditional Trade agreements. The details and technical economic mechanisms of said institutional infrastructure of coordination and cooperation in the mentioned topics still lacks academic research. These types of

investigations are today more relevant in the current situation of post pandemic, high inflation pressures, high capital outflows, increasing interest rate of the strong currencies, international slowdown of the economy, and a wave of progressive governments in Latin America at least in the short-run.

REFERENCES

1. Akram, T., & Uddin, S. A.-H. (2021). *The empirics of long-term Mexican Government bond yields* (Working Papers, 984). Levy Economics Institution. https://www.levyinstitute.org/publications/the-empirics-of-long-term-mexican-government-bond-yields
2. Ángel, S. R., Castro, H. R., & Tejeiro, J. O. (2020). *Multiplicadores de los impuestos y del gasto público en Colombia: aproximaciones SVAR y proyecciones locales* (Borradores de Economía, 1114). Banco de la República de Colombia. https://repositorio.banrep.gov.co/handle/20.500.12134/9837
3. Becerra, L. A., & Ramos, J. E. (2020). El gasto público en Colombia: comparaciones internacionales, evolución y estructura. *Revista de Economía Institucional, 22*(42), 211-239. https://doi.org/10.18601/01245996.v22n42.09
4. Central Bank of Colombia (2022). *Statistics*. https://www.banrep.gov.co/es/estadisticas
5. CEPAL (2022). CEPALSTAT. Retrived from: https://statistics.cepal.org/portal/cepalstat/index.html?lang=es
6. Cesaratto, S. (2016). The state spends first: Logic, facts, fictions, open questions. *Journal of Post Keynesian Economics, 39*(1), 44-71. https://doi.org/10.1080/01603477.2016.1147333
7. Ciccone, R. (2013). Public debt and aggregate demand: Some unconventional analysis. In S. Levrero, A. Palumbo, & A. Stirati (Eds.), *Sraffa and the Reconstruction of Economic Theory* (vol. 2). Palgrave MacMillan.
8. Ciccone, R. (2020). On the social irrationality of the limits of public debt. In P. d. Muro, S. Fratini, & A. Naccarato (Eds.), *Economics, Policy and Law* (pp. 62-88). Universitá degli Studi Roma Tre Dipartimento di Economia.
9. Congress of Colombia (2011) Law 1473/2011. https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=43236#:~:text=La%20presente%20ley%20tiene%20por,%C3%81mbito%20de%20aplicaci%C3%B3n.
10. Epstein, G. (2019). *The institutional, empirical and policy limits of "Moder Money Theory*" (Working Paper Series, 481). Political Economy Research Institute of University of Massachusetts Amherest. https://peri.umass.edu/publication/item/1159-the-institutional-empirical-and-policy-limits-of-modern-money-theory

11. Fullwiler, S. (2020). When the interest rate in the national debt is a policy variable (and "printing money" does not apply). *Public Budgeting & Finance, 40*(3), 72-94. https://doi.org/10.1111/pbaf.12249
12. Fullwiler, S., Felipe, J., Estrada, G., Jaber, M. H., Magadia, M. A., & Patagan, R. (2020). *How 'monetization' reallyworks - examples from nations policy responses to COVID-19* (Working Paper Series, 627). ADB Economics. http://dx.doi.org/10.22617/WPS200368-2
13. Gabor, D. (2021). *Revolution without revolutionaries: Interrogating the return of monetary financing. Transformative Responses to the Crisis*. https://transformative-responses.org/wp-content/uploads/2021/01/TR_Report_Gabor_FINAL.pdf
14. Garbellini, N. (2016). Small fiscal multipliers do not justify austerity: A macroeconomic accounting analysis of. *Journal of Economic Issues, 50*(4), 1027-1044. https://doi.org/10.1080/00213624.2016.1249748
15. Godley, W., & Lavoie, M. (2007). Fiscal policy in a stock-flow consistent (SFC) Model. *Journal of Post Keynesian Economics, 30*(1), 79-100. https://www.jstor.org/stable/27746787
16. González, J. Z. (2020). Acumulación de deuda pública y política fiscal en América Latina. (F. d. México, Ed.). *Investigación Económica, 79*(314), 3-37. http://dx.doi.org/10.22201/fe.01851667p.2020.314.76704
17. Government of Colombia (2015). Decree 1068/2015. https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=72893
18. Government of Colombia (2018). Resolution 5112/2018 https://www.banrep.gov.co/sites/default/files/reglamentacion/archivos/Resolucion_5112_%202018.pdf
19. Griffith-Jones, S., Ocampo, J. A., Rezende, F., Schclarek, A., & Brei, M. (2018). The future of National Development Banks. In S. Griffith-Jones, & J. A. Ocampo (Eds.), *The future of National Development Banks.* Oxford University Pres.
20. Hernández, G. (2020). *Marco legal del Banco de la República.* Banco de la República de Colombia.
21. Lavoie, M. (2013). The monetary and fiscal nexus of neo-chartalism: A friendly critique. *Journal of Economic Issues, 47*(1), 1-32. https://doi.org/10.2753/JEI0021-3624470101
22. Lavoie, M. (2014). *Post-Keynesian economics: New fundations.* Edward Elgar.
23. Lerner, A. (1943). Functional finance and the federal debt. *Social Research, 10*(1), 38-51. https://www.jstor.org/stable/40981939
24. MACROTRENDS. (2022). *Brent crude oil price*. https://www.macrotrends.net/2480/brent-crude-oil-prices-10-year-daily-chart
25. Ministry of Finance and Public Credit of Colombia. (2015). *Informe de cumplimiento de la regla fiscal en 2014*.

26. Ministry of Finance and Public Credit of Colombia. (2018). *Estrategia de gestión de la deuda de mediano plazo 2018-2022.* https://www.minhacienda.gov.co/webcenter/ShowProperty?nodeId=/ConexionContent/WCC_CLUSTER-111569
27. Ministry of Finance and Public Credit of Colombia. (2019). *Programa de préstamo temporal de títulos a los creadores de mercado con títulos de tesorería TES.* https://www.minhacienda.gov.co/webcenter/ShowProperty?nodeId=%2FConexionContent%2FWCC_CLUSTER-120913%2F%2FidcPrimaryFile&revision=latestreleased
28. Ministry of Finance and Public Credit of Colombia (2013; 2014; 2015; 2016; 2017; 2018; 2019; 2020). *Informe de cumplimiento de la regla fiscal.*
29. Ministry of Finance and Public Credit of Colombia (2022). *Statistics*. https://www.minhacienda.gov.co/webcenter/portal/Estadisticas
30. Ocampo, J. A. (2021). La dominancia de la balanza de pagos y sus implicaciones para la política económica. In J. A. Ocampo, & J. Malagón (Eds.), *Macroeconomía bajo la balanza de pagos* (pp. 1-19). Banco de la República de Colombia.
31. Ocampo, J. A., & Arias, P. (2018). Colombia's system of national development. In S. Grieffith-Jones, & J. A. Ocampo (Eds.), *The future of national development banks.* Oxford University Press.
32. Ocampo, J. A., Orbegozo, G., & Villamizar, M. (2020). *Post-graduation from the original sin problem: The effects of market participation on sovereign debt markets in Colombia. 1113*. https://repositorio.banrep.gov.co/handle/20.500.12134/9835
33. OECD. (2022). *General government debt*. https://data.oecd.org/gga/general-government-debt.htm
34. Osorio, D., & Sarmiento, M. (2018). *El mecanismo de operación de la polítca monetaria del Banco de la República: subasta vs. ventanilla* (Reportes del Emisor). Banco de la República de Colombia.
35. Pabón, Ó., & Bedoya, J. G. (2016). Regla de Taylor en Colombia: ¿variante a través del tiempo? *Ensayos de Economía, 26*(49), 113-136. https://doi.org/10.15446/ede.v26n49.63819
36. Paula, L. F., Fritz, B., & Prates, D. (2017). Keynes at the Periphery: Currency hierarchy and challanges for economic policy in emerging economies. *Journal of Post Keynesian Economics, 40*(2), 183-202. https://doi.org/0.1080/01603477.2016.1252267
37. Prates, D. (2020). Beyond modern monetary theory: A Post-Keynesian approach to the currency hierarchy, monetary sovereignty, and policy space. *Review of Keynesian Economics, 8*(4), 494-511. https://doi.org/10.4337/roke.2020.04.03

38. Prebisch, R. (2012 [1949]). El desarrollo económico de la América Latina y algunos de sus principales problemas. *CEPAL*. https://repositorio.cepal.org/handle/11362/40010
39. Restrepo, J. (2020). *How big are fiscal multipliers in Latin America?* (Working Papers, 17). IMF. https://www.imf.org/en/Publications/WP/Issues/2020/01/31/How-Big-are-Fiscal-Multipliers-in-Latin-America-48959
40. Rey, H. (2015). *Dilemma not trilemma: The global financial cycle and monetary policy independence* (Working Papers Series, 21162). NBER. https://www.nber.org/papers/w21162
41. Rodríguez, C. (2021). Financiarización de la política fiscal y su impacto sobre la deuda pública de Colombia entre 1996-2015. *Cuadernos de Economía, 40*(82), 253-282. https://doi.org/10.15446/cuad.econ.v40n82.80197
42. Romero, J. V., Herrera, H. V., Cardozo, P., & Murcia, A. (2020). *Effects of foreign participation in the Colombian local public debt market on domestic financial conditions* (*Cuadernos de Economía*, 1115). Banco de la República. https://www.banrep.gov.co/en/effects-foreign-participation-colombian-local-public-debt-market-domestic-financial-conditions
43. Tejada, D. G., Ángel, S. R., & Castro, H. R. (2021). *Déficit Gemelos en Colombia: ¿Existen?¿Qué casua qué?¿Cuál es el grado de impacto?* (Borradores de Economía, 1186). Banco de la República. https://repositorio.banrep.gov.co/handle/20.500.12134/10250
44. Thirlwall, A. (2011). Balance of payments constrained growth models: History and overview. *PSL Quarterly Review, 64*(259), 307-351. http://ssrn.com/abstract=2049740
45. Tymoigne, E. (2020). Monetary sovereignty: Nature, Implementation, and implications. *Public Financial Publications*, 1-23. https://doi.org/10.1111/pbaf.12265
46. Vernengo, M., & Caldentey, E. P. (2020). Modern money theory in the tropics: Functional finance in developing countries. *Challenge, 63*(6), 332-348. https://doi.org/10.1080/05775132.2020.1747729
47. Villa, E., Misas, M., & Giraldo, A. (2014). Inflation targeting and an optimal Taylor rule for an open economy: Evidence for Colombia 1990-2011. *Latin American Journal of Economics, 51*(1), 41-83. https://www.jstor.org/stable/23729155

ACERCA DE CUADERNOS DE ECONOMÍA

La revista *Cuadernos de Economía* es publicada semestralmente por la Escuela de Economía de la Facultad de Ciencias Económicas (Universidad Nacional de Colombia). Es una de las más antiguas del país en el área económica. Su primera edición se realizó durante el primer semestre de 1979.

Nuestra publicación está disponible en índices y bases de datos nacionales e internacionales, tales como SCOPUS, Redalyc, SciELO Brasil, EBSCO, ESCI (Clarivate Analytics) / Thomson Reuters Web of Science (antiguo ISI)- SciELO Citation Index, Dialnet, Latindex -Sistema regional de información en línea, CIBERA (Biblioteca Virtual Iberoamericana España / Portugal, Ulrich's Directory, ProQuest, DOAJ (Directory of Open Access Journals), CLASE -Citas Latinoamericanas en Ciencias Sociales y Humanidades, IBSS -International Bibliography of the Social Sciences, e-revistas, HLAS -Handbook of Latin American Studies, RePEc -Research Papers in Economics, CAPES -Portal Brasilero de Información Científica, SSRN (Social Sciences Research Network), Econlit -Journal of Economic Literature (JEL), DoTEc -Colombia, Publindex, LatAm-Studies y Econpapers.

La revista tiene como objetivo divulgar, en el ámbito académico nacional e internacional, los avances intelectuales en teorías, metodologías y aplicaciones económicas, así como los resultados de investigaciones y trabajos especializados.

Su público está integrado por académicos (investigadores, docentes y estudiantes universitarios), miembros de instituciones gubernamentales y de entidades privadas, que se ocupen del estudio de la teoría económica, la política económica, el desarrollo socioeconómico y otros temas de interés para la disciplina.

El Editor y el Consejo Editorial de Cuadernos de Economía son las instancias que deciden sobre la publicación de las contribuciones. Es importante aclarar que el envío de material no exige su publicación y que el contenido de los artículos es responsabilidad de los autores y no compromete, de ninguna manera, a la revista o a la institución.

El autor interesado en someter a evaluación una contribución, debe hacerla llegar a la revista, conforme a las especificaciones contempladas en las *pautas para autores*. Esta información se encuentra disponible al final de cada número y en el sitio web: http://fce.unal.edu.co/cuadernos/pautas.html

Los evaluadores son seleccionados de acuerdo con sus conocimientos en los temas cubiertos por cada artículo. La evaluación toma en cuenta aspectos como la originalidad del contenido, el rigor conceptual, los aspectos metodológicos, la claridad y la coherencia, tanto en la argumentación como en la exposición, y la pertinencia de las conclusiones.

La versión en *pdf* de los artículos puede ser consultada y descargada en el sitio http://fce.unal.edu.co/cuadernos/numeros-anteriores.html. Para la adquisición en formato físico de números anteriores, el interesado puede comunicarse con la dirección de la revista: Facultad de Ciencias Económicas, Edificio 310, primer piso, Universidad Nacional de Colombia; al correo electrónico revcuaeco_bog@unal.edu.co o al teléfono 3165000 extensión 12308.

PAUTAS PARA AUTORES

La revista *Cuadernos de Economía* toma en consideración contribuciones académicas inéditas, artículos de investigación, revisiones bibliográficas, debates y reseñas analíticas, con redacciones en español, inglés, francés o portugués, que no hayan sido propuestos en otras revistas académicas. Los textos deben ser un aporte al avance del conocimiento en las áreas económica, política, social, administrativa y/o demográfica.

La recepción de artículos se realiza durante todo el año y no tiene ningún costo para los autores. El proceso de postulación se hace por medio del sistema de gestión editorial OJS en el siguiente enlace: http://bit.ly/ZsvX1j.

La revista podrá desestimar la publicación de un manuscrito si, por decisión interna, se determina que no cumple con ciertos estándares académicos o editoriales. Los manuscritos que pasen la revisión inicial serán enviados a evaluadores seleccionados de acuerdo con sus conocimientos en las temáticas abordadas en cada artículo. Con el fin de garantizar la imparcialidad de la evaluación emitida, nuestra publicación emplea el sistema de arbitraje doble ciego, es decir, que tanto los evaluadores como los autores permanecen anónimos.

La evaluación toma en cuenta aspectos como la originalidad del contenido, el rigor conceptual, los aspectos metodológicos, la claridad y la coherencia (tanto en la argumentación como en la exposición), y la pertinencia de las conclusiones. Los resultados del arbitraje pueden ser: aprobado sin modificaciones, publicación sujeta a incorporación de cambios y observaciones, reescritura del documento y rechazo del material. La tasa de rechazo de materiales sometidos a evaluación durante 2020 fue del 76 %.

Culminado el proceso de arbitraje, las evaluaciones se enviarán a los autores, quienes contarán con un periodo máximo de 30 días para realizar los respectivos ajustes si hay exigencia de ellos. Posteriormente los artículos que superen el proceso editorial entrarán en lista de espera para ser publicados en números posteriores de la revista.

NORMAS EDITORIALES

1. Someter un artículo a *Cuadernos de Economía* supone el compromiso, por parte de los autores, de no someterlo simultáneamente a otras publicaciones, ya sea en forma parcial o completa.
2. En caso de que una versión preliminar del manuscrito sometido al proceso editorial haya sido presentada como documento de trabajo (*working paper*), se debe incluir la referencia completa.
3. Los trabajos se enviarán en LaTeX o archivo de texto (Word para Windows o Ritch Text Format) y deben cumplir con los siguientes requerimientos: una extensión entre 4.000 y 10.000 palabras incluyendo notas y referencias bibliográficas (teniendo en cuenta que los artículos en economía tienen en promedio una extensión de 4.000 a 6.000 palabras); espacio sencillo; letra Garamond tamaño 13;

papel tamaño carta y márgenes de 3 cm. Para los documentos sometidos a la sección de reseñas la extensión máxima se reduce a 4.000 palabras.

4. El título del artículo debe ser explicativo y recoger la esencia del trabajo.
5. Los datos sobre el autor se indicarán en nota al pie de página con asterisco: nombre del autor, profesión u oficio, nivel de estudios, empleo actual, lugar de trabajo y, obligatoriamente, su correo electrónico (preferiblemente institucional).
6. Debe incluirse un resumen en español y otro en inglés con una extensión de 100 palabras cada uno. Deben ser claros y proporcionar la información suficiente para que los lectores puedan identificar el tema del artículo, metodología y principales resultados.
7. Es necesario especificar cuatro o cinco palabras clave en español y en inglés, y cuatro o cinco códigos de clasificación de la nomenclatura JEL, la cual puede ser consultada en la siguiente dirección web: https://www.aeaweb.org/jel/guide/jel.php
8. Se requiere que los cuadros, gráficas o mapas sean legibles, con las convenciones definidas, que se cite su fuente de información en la parte inferior y que se envíen los archivos en los programas empleados para su elaboración (hoja de cálculo para cuadros, tablas y gráficos, e imagen para figuras o mapas). Se debe indicar la página en la que deben ser insertados o si se incluyen como anexos. Si se utiliza material protegido por copyright, los autores se hacen responsables de obtener la autorización escrita de quienes poseen los derechos.
9. Los encabezados de cada sección se escribirán en negritas, alineados a la izquierda y en mayúscula sostenida. Los títulos de segundo nivel se escribirán en negritas, alineados a la izquierda, y combinando mayúsculas y minúsculas. Los títulos de tercer nivel irán en itálica, alineados a la izquierda, y combinando mayúsculas y minúsculas.
10. Las ecuaciones deben estar numeradas de manera consecutiva y entre paréntesis: (1), (2)... Esta numeración debe estar alineada a la derecha de la página.
11. Los símbolos matemáticos deben ser muy claros y legibles. Los subíndices y superíndices deben estar correctamente ubicados.
12. Si el documento propuesto incluye citas textuales es necesario seguir las siguientes indicaciones según normativa APA: si posee cinco líneas o menos irá precedida de dos puntos y entre comillas; si poseen más de cinco líneas o más de 40 palabras se ubicará en un párrafo aparte, a 4 centímetros del borde izquierdo de la hoja, con letra Garamond tamaño 12 y alineado a la derecha.
13. Las notas de pie de página serán, exclusivamente, de carácter aclaratorio o explicativo, no deben incluir referencias bibliográficas.
14. Para emplear una sigla o una abreviatura se indicará su equivalencia completa y a continuación, entre paréntesis, el término que será utilizado en el resto del documento.
15. Las referencias al interior del texto deben conservar el estilo autor-fecha, por ejemplo: López, 1998. Cuando la referencia se hace textualmente, el número de la

página de donde se tomó debe ir después de la fecha, separado por coma (López, 1998, p. 52), o si incluye varias páginas (López, 1998, pp. 52-53); en caso de tres o más autores se menciona el primero seguido de "*et al*." (López *et al.*, 1998).

16. La redacción, las menciones en el texto, ya sean textuales o paráfrasis y las referencias bibliográficas deben seguir estrictamente el estilo APA. La bibliografía debe listar solamente las fuentes citadas en el trabajo en la sección de "Referencias".

17. El autor cede los derechos de publicación a la Escuela de Economía de la Facultad de Ciencias Económicas de la Universidad Nacional de Colombia. Cuadernos de Economía se reserva el derecho de publicación impresa, electrónica y de cualquier otra clase, en todos los idiomas.

18. Se recomienda a los autores escribir con el mayor rigor, verificando la ortografía, empleando párrafos cortos y homogéneos, y utilizando adecuadamente los signos de puntuación. La revista puede realizar los cambios editoriales que considere pertinentes para dar al artículo la mayor claridad posible.

19. Excepcionalmente, es posible proponer la reproducción de textos difundidos en otros medios o que requieran traducción, siempre y cuando no impliquen costos adicionales para la publicación.

20. Algunos ejemplos y aclaraciones sobre el uso de normas APA pueden encontrarse en http://www.apastyle.org/learn/faqs/index.aspx y http://flash1r.apa.org/apastyle/basicshtml5/index.html?_ga=2.198992360.670361098.1544630386-2074163288.1530031378

CONCERNING CUADERNOS DE ECONOMÍA

"Cuadernos de Economía" is published every six months by the Universidad Nacional de Colombia's School of Economics (Economics' Faculty). It is one of the oldest economic journals in Colombia; its first edition appeared during the first semester of 1979.

This is a refereed journal, indexed in SCOPUS, Redalyc, SciELO Brasil, EBSCO, ESCI (Clarivate Analytics) / Thomson Reuters Web of Science (antiguo ISI)- SciELO Citation Index, Dialnet, Latindex -Sistema regional de información en línea, CIBERA (Biblioteca Virtual Iberoamericana España / Portugal, Ulrich's Directory, ProQuest, DOAJ (Directory of Open Access Journals), CLASE -Citas Latinoamericanas en Ciencias Sociales y Humanidades, IBSS -International Bibliography of the Social Sciences, e-revistas, HLAS -Handbook of Latin American Studies, RePEc -Research Papers in Economics, CAPES -Portal Brasilero de Información Científica, SSRN (Social Sciences Research Network), Econlit -Journal of Economic Literature (JEL), DoTEc -Colombia, Publindex, LatAm-Studies y Econpapers.

The journal's objective is to broadcast (within a national and international academic setting) intellectual advances regarding economic theory, methodology and applications, as well as the results of research and specialized work.

We aim at contributing to the academic debate among national and regional scholars allowing a wide spectrum of competing theoretical approaches. Its public consists of academics (researchers, teachers and university students), members of government institutions and private entities interested in studying economic theory, economic policy, socioeconomic development and other topics of interest for the discipline. Cuadernos de Economía can reject a manuscript if, after an initial internal revision, it is stated that the manuscript does not fulfill certain academic or editorial standards. Those manuscripts passing this first revision, will go through double blind refereeing.

Our publication uses double-blind refereeing (i.e. both the evaluators and the authors remain anonymous). The foregoing guarantees the impartiality of the concept being put forward. The referees are selected according to their knowledge of the topics being covered by each article. Evaluation takes into account such aspects as: the originality of the content, conceptual rigor, methodological aspects, clarity and coherence in both the argument and how it is expressed and the pertinence of the conclusions. The content of an article is the author's responsibility and does not commit the journal or the institution in any way.

Any author interested in submitting a contribution to be evaluated must ensure that it reaches the journal conforming to the specifications laid down in the *author guidelines*. This information can be found at the end of each issue and on the journal's web site: http://www.ceconomia.unal.edu.co. A PDF version of the journal's articles can be consulted and downloaded from web site http://fce.unal.edu.co/cuadernos/numeros-anteriores.html If one is interested in acquiring back numbers in physical format then one can get in touch with the journal directly at the following address: Facultad de Ciencias Económicas, Edificio 310, Universidad Nacional de Colombia; at the following e-mail address: revcuaeco_bog@unal.edu.co, or on telephone 3165000, extension 12308.

AUTHOR GUIDELINES

Cuadernos de Economía takes into consideration for possible publication unedited academic contributions, research articles, reports and case studies, essays, bibliographic reviews, criticism and analytical reports of books written in Spanish, English, French or Portuguese which have not been previously published (except as a working paper) and which are not under consideration for publication elsewhere. If such material has been presented as a working paper, then the complete reference must be included. The texts must make a contribution towards advancing knowledge in economic, political, social, administrative and demographic areas.

Candidates must apply through the OJS editorial management system and include the documents listed following the link http://bit.ly/ZsvX1j.

In case it is decided that an article is publishable, then the peer evaluations will be sent to the authors so that they can make the respective adjustments (if so requested) within a maximum period of 30 days.

Cuadernos de Economía's editorial committee is the final body deciding on whether contributions should be published. It should be stressed that simply sending material does not oblige the journal to publish it. The journal's publication-team is committed to keeping authors informed during the different stages of the publishing process.

Articles will be received throughout the whole year.

EDITORIAL NORMS

1. Work must be sent in a Latex or text file (Word for Windows (.doc) or Rich Text Format (.RTF)) and must comply with the following requirements: material shall have between 4,000 and 10,000 words including notes and bibliographic references (be aware that documents in Economics have between 4.000 and 6.000 words); the text shall be written in single space, Garamond font size 13, on letter-sized pages having 3 cm margins.
2. Data concerning the authors must be indicated in footnotes by an asterisk: author's names, profession or job, level of studies, actual post held, place of work and (obligatorily) their e-mails and their address.
3. An analytical abstract in written in Spanish and English must be included, containing a maximum of 100 words. The summary must be clear and provide sufficient information for the readers to be able to easily identify the article's subject.
4. Four or five key words must be given in Spanish and English and four or five classification codes using JEL nomenclature which can be consulted at the following web site: https://www.aeaweb.org/jel/guide/jel.php
5. The article's title must be explanatory and illustrate the essence of the work.

6. Tables, graphs, plots and/or maps must be legible, having very clearly defined conventions; source information must be cited in the lower part of them and the files must be sent in the software used for drawing them (spreadsheet for tables, plots and graphs, and image for figures or maps). The page on which they must be inserted or whether they should be included as appendices must be clearly indicated. If material which is protected by copyright is to be used, then the authors are solely responsible for obtaining written authorization from those who hold the rights.

7. The headings for each section must be written in bold, aligned to the left and in sustained capitals. Second level titles must be written in bold, aligned to the left and combine capital and small case letters. Third level titles must be written in italics, aligned to the left and combine capital and small case letters.

8. Equations must be numbered in a consecutive manner and be placed within square brackets ([1],[2],[3] ...). Such numbering must be aligned with the right-hand side of the page.

9. Mathematical symbols must be clear and legible. Subscript and superscript must be correctly used.

10. If the proposed document should include textual citation, then the following indications should be followed: if the quotation has five lines or less then it must be preceded by a colon and be placed within inverted commas; if the quotation runs for more than five lines then it must be placed in a separate paragraph, 1 centimeters from the left-hand edge of the page, in Garamond font size 12 and aligned to the right.

11. Footnotes will be exclusively explanatory or explicative; they must not include bibliographic references.

12. If an abbreviation or acronym is to be used then it must indicate its complete equivalent and the term (placed within brackets) which will be used from that point on in the rest of the document.

13. Bibliographic references must retain the author-date style, inserted within the text (López, 1998). When a reference is given textually then the number of the page from which it was taken must be given after the date, separated by a comma (López, 1998, p. 52), if it includes several pages (López, 1998, pp. 52-53) and in the case of several authors (López *et al.*, 1998).

14. The bibliography must only list the sources cited in the work; the section is thus entitled Bibliographic References. Examples of the norms for citing other work as used by the journal are the rules of APA Style: http://flash1r.apa.org/apastyle/basics/index.htm.

15. All authors cede their publication rights to the Universidad Nacional de Colombia's School of Economics (Economics' Faculty). *Cuadernos de Economía* reserves printed and electronic publication rights and any other type of rights, in all languages.

16. The journal reserves the right to make any editorial changes which it considers pertinent for providing an article with the greatest clarity possible. It is thus recommended that authors write with the greatest rigor, verifying their spelling, use short, homogeneous paragraphs and use punctuation marks correctly.

17. Exceptionally, it may be proposed that texts be reproduced which have been broadcast in other media or which require translation, always assuming that this does not imply any additional publication costs.

ÀPROPOS DE LA REVUE CUADERNOS DE ECONOMÍA

La revue *Cuadernos de Economía* est semestriellement publiée par l'École d'Économie de la Faculté de Sciences Économiques (Université Nationale de Colombie). C'est l'une des plus anciennes du pays dans le domaine économique. Sa première édition a été réalisée pendant le premier semestre de 1979.

La revue a l'objectif de divulguer, dans l'enceinte académique nationale et internationale, les avances intellectuelles dans des théories, des méthodologies et des applications économiques, ainsi que les résultats de recherches et de travaux spécialisés.

Son public est composé par les académiciens (chercheurs, enseignants et étudiants universitaires), les membres d'institutions gouvernementales et d'entités privées qui s'occupent de l'étude de la théorie économique, de la politique économique, du développement socioéconomique et d'autres sujets d'intérêt pour la discipline.

Notre publication emploie le système de paires évaluateurs en appliquant les normes d'un *arbitrage aveugle*, c'est-à-dire, que tant les évaluateurs comme les auteurs restent anonymes. Le précédent, afin de garantir l'impartialité du concept émis.

Les évaluateurs sont choisis conformément à leurs connaissances dans les sujets couverts par chaque article. L'évaluation prend en compte des aspects comme : l'originalité du contenu, la rigueur conceptuelle, les aspects méthodologiques, la clarté et la cohérence, tant dans l'argumentation comme dans l'exposé, et la pertinence des conclusions.

Le contenu des articles est responsabilité des auteurs et il ne compromet, d'aucune manière,

à la revue ou à institution. L'auteur intéressé à soumettre à évaluation une contribution, doit la faire arriver à la revue, conforme aux spécifications contemplées dans les paramètres pour les auteurs. Cette information est disponible à la fin de chaque numéro et dans le site web http://fce.unal.edu.co/cuadernos/numeros-anteriores.html

La version en pdf des articles peut être consultée et être déchargée dans le site web: http://www.ceconomia.unal.edu.co. Pour l'acquisition dans un format physique de numéros précédents, l'intéressé peut s'adresser à la revue : Facultad de Ciencias Económicas, Edificio 310, Universidad Nacional de Colombia ; ou à la boîte mail : revcuaeco_bog@unal.edu.co ou au téléphone 3165000 extension 12308.

PARAMETRES POUR LES AUTEURS

La revue *Cuadernos de Economía* prend en considération, pour sa publication, de contributions académiques inédites, d'articles d'investigation, de rapports et études de cas, d'essais, de révisions bibliographiques, de critiques et des descriptions analytiques de livres, en Espagnol, en Anglais, en Français ou en portugais, qui n´aient pas été proposés dans d´autres revues académiques. Au cas où ils se sont présentés comme documents de travail, il faut inclure la référence complète. Les textes doivent contribuer à l´avancée de la connaissance dans les domaines économique, politique, social, administratif et démographique.

Le processus de postulation se fait par le système de gestion éditoriale OJS et les documents doivent être joints dans le link suivant http://bit.ly/ZsvX1j.

Dans le cas des articles à publier, les évaluations seront envoyées aux auteurs pour qu´ils puissent réaliser les ajustements respectifs, s'il y a exigence de d'eux, dans un délai maximum de 30 jours.

L´Editor et le Conseil d'Edition de *Cuadernos de Economía* sont les instances qui prend la décision de publier les contributions.

Il est important de clarifier que l'envoie de matériel n'oblige pas à effectuer son publication. L'équipe de travail de la revue se engage à maintenir informé au (aux) auteur (s) pendant les différentes étapes du processus éditorial.

La réception des articles se fait tout au long de l´année.

NORMES ÉDITORIALES

1. Les travaux seront envoyés en fichiers Latex ou de texte (*Word pour Windows ou Ritch Text Formart*) et doivent remplir les demandes suivantes : une dimension de 10.000 mots en incluant des notes et des références bibliographiques ; l'interligne simple ; lettre Garamond taille 13 ; papier lettre et marges de 3 cm.
2. Les données sur l'auteur seront indiquées en note de bas de page avec un astérisque : nom de l'auteur, son occupation ou office, le niveau d'études, l'emploi actuel, le lieu de travail et, obligatoirement, son courrier électronique.
3. On doit inclure un résumé en Espagnol et en Anglais de 100 mots au maximum. Celui-ci doit être clair et fournir l'information suffisante pour que les lecteurs puissent identifier le sujet de l'article.
4. Trois ou quatre mots clés en Espagnol et en Anglais, et trois ou quatre codes de classification de la nomenclature JEL, laquelle peut être consultée dans le site web: https://www.aeaweb.org/jel/guide/jel.php
5. Le titre de l'article doit être explicite et recouvrir l'essentiel du travail.
6. On requiert que les tableaux, les graphiques ou les cartes soient lisibles, avec les conventions très définies, qu'on cite sa source dans la partie inférieure et que soient

envoyés dans les programmes employés pour leur élaboration (feuille de calcul pour les tableaux et les graphiques, et d'image pour les figures ou les cartes). On doit indiquer la page dans laquelle ils doivent être insérés ou s'ils sont inclus comme annexes. Si on utilise du matériel protégé par copyright, les auteurs seront les responsables d'obtenir l'autorisation écrite de ceux qui possèdent les droits.

7. Les entêtes de chaque section seront écrits dans des caractères gras, alignés à gauche et en lettres capitales. Les titres de second niveau seront écrits dans des caractères gras, alignés à gauche, et en combinant de lettres capitales et minuscules. Les titres de troisième niveau iront dans itálica, alignés à gauche, et en combinant de lettres capitales et minuscules.

8. Les équations doivent être numérotées de manière consécutive et dans des crochets ([1],[2],[3] ...). Cette numération doit être alignée à droite.

9. Les symboles mathématiques doivent être très clairs et lisibles. Les indices doivent être correctement placés.

10. Si le document proposé inclut de cites textuelles, il est nécessaire de suivre les indications suivantes : s'il possède cinq lignes ou moins il sera précédée de deux points et ira entre des guillemets ; s'ils possèdent plus de cinq lignes se placera dans un paragraphe à part, à 1 centimètres du bord gauche de la feuille, avec lettre Garamond taille 13 et aligné à la droite.

11. Les notes de bas de page seront, exclusivement, de caractère explicatif, elles ne doivent pas inclure des références bibliographiques.

12. Pour employer un sigle ou une abréviation on indiquera son équivalence complète et ensuite, entre parenthèses, le terme qui sera utilisé dans le reste du document.

13. Les références bibliographiques doivent conserver le style auteur-date, insérées dans le texte (López, 1998). Quand la référence est faite de façon textuelle, le numéro de la page d'où est tiré l'extrait doit être mentionné après la date, séparé par une virgule (López, 1998, 52), si elle comprend plusieurs pages (López, 1998, 52-53), et dans le cas où il y aurait plusieurs auteurs (López *et al.*, 1998).

14. La bibliographie ne doit mentionner que les sources citées dans le texte, pour cette raison la section s´intitule Références bibliographiques. Les normes de citation employées par la revue sont celles de l'American Psychological Association (APA) : http://flash1r.apa.org/apastyle/basics/index.htm.

15. L'auteur cède les droits de publication à la Escuela de Economía de la Facultad de Ciencias Económicas de la Universidad Nacional de Colombia. Cuadernos de Economía se réserve le droit de publication en papier, électronique et de tout autre classe, dans toutes les langues.

16. La revue peut effectuer les changements éditoriaux qu'elle considère pertinents pour donner à l'article la plus grande clarté possible. Par conséquent, on recommande aux auteurs d'écrire avec la plus grande rigidité, vérifiant l'orthographie, employant de paragraphes courts et homogènes, et utilisant, adéquatement, les signes de ponctuation.

17. Exceptionnellement, il est possible de proposer la reproduction de textes diffusés dans d'autres moyens ou qui requièrent d'une traduction, pourvu qu'ils n'impliquent pas de coûts additionnels pour la publication.

88
DESARRO. SOC., *segundo cuatrimestre* 2021
ISSN 0120-3584, E-ISSN 1900-7760

Revista Desarrollo y Sociedad

Nota editorial
Jorge H. Maldonado 7

Artículos

Femicide in Latin America: An economic approach
Carolina Álvarez Garavito y Hugo Nicolás Acosta González 11

Analysis of Principal Nonlinear Components for the Construction of a Socioeconomic Stratification Index in Ecuador
Katherine Morales, Miguel Flores y Yasmín Salazar Méndez 43

Índice de Desarrollo Local para Ecuador con datos del 2010
Adriana Vélez-Tamay, Viviana Carriel y Yonimiler Castillo-Ortega 83

Estructura productiva laboral y pobreza en México: análisis municipal en tres regiones
Owen Eli Ceballos Mina y Abelardo De Anda Casas 129

Factores detrás del aumento de precios en el sector agrícola a inicios del siglo XXI: rentas, salarios, petróleo y productividad
Hernán Alejandro Roitbarg 169

Tratados de libre comercio y duración de las exportaciones: evidencia a nivel de firma para Colombia
Margalida Murillo y Cindy Paola Leal 201

La brecha de remuneraciones entre segmentos del mercado de trabajo en la Argentina
Jorge A. Paz 239

CEDE
Centro de Estudios sobre Desarrollo Económico

Universidad de los Andes
Facultad de Economía

Los resúmenes de los artículos pueden consultarse por medio de la página: *https://revistas.uniandes.edu.co/journal/dys*. Para compras comunicarse con la Librería Uniandes al teléfono: 339 49 49 extensión 2181. Para información sobre las guías para enviar artículos, comunicarse con el Comité Editorial al correo *revistadesarrolloysociedad@uniandes.edu.co*
Para suscripciones ingresar al link:
http://economia.uniandes.edu.co/suscripciones_dys

APUNTES DEL CENES

UNIVERSIDAD PEDAGÓGICA Y TECNOLÓGICA DE COLOMBIA
ESCUELA DE ECONOMÍA

ISNN 0120-3053
E-ISSN 2256-5779

VOL 40 N° 72
JUL - DIC 2021

https://dx.doi.org/10.19053/issn.0120-3053

Contenido

Editorial

Magnitud e implicaciones de la pobreza en Colombia
Luis E. Vallejo Zamudio

Artículos

El comportamiento económico desde la perspectiva biológica y sicológica
Cindy Cifuentes Gómez, Siervo Tulio Delgado, Jorge I González

Impacto de la amenaza financiera en el cambio de comportamiento del inversor: el efecto moderador del apoyo social durante la Covid19 en Pakistan
Hussain Mehdi, Muhammad Shaukat Malik, Huma Ali, Zeeshan Rasool

La afiliación a la seguridad social de los trabajadores y sus efectos en las finanzas de las empresas en México
Carlos Mauricio Tosca Vidal, Germán Martínez Prats, Candelaria Guzmán Fernández

Tipo de cambio, nivel de precios y divergencias: un análisis regional para la República Argentina
Ernesto Gabriel Pizarro Levi

Los trabajadores informales en Colombia
John Ariza, Alexander Retajac

La evaluación multicriterio en la ubicación de las ventas ambulantes en Tibasosa, Boyacá, Colombia
Andrés Fernando Pava Vargas, Luis Felipe Fajardo Pineda

La autonomía económica de las mujeres latinoamericanas
Edith Johana Medina Hernández, Maria José Fernández Gómez

La probabilidad de contagio y deceso por COVID-19 en pacientes indígenas y no indígenas durante la pandemia en México
Jorge Horbat Corredor

Desarrollo sostenible del cultivo agroindustrial de la palma de aceite en Norte de Santander - Colombia
Dennys Jazmín Manzano López, Eder Alexander Botello Sánchez, Mario de Jesús Zambrano Miranda

La revista se encuentra en los siguientes índices:
Scielo - Redalyc - Bibilat - Publindex Categoría B - ESCI (WoS)
Agregadores: EBSCO - Dialnet - REDIB - CLASE - ProQuest
Directorios: DOAJ - Latindex - EconLit - Latinrev -DOTEC—RepEc -ERIH Plus - Econpapers - EconBib -

Contacto:
Luis E. Vallejo Zamudio (***Editor***)
Ricardo Tejedor Estupiñán
(***Asistente Editorial***)
apuntes.cenes@uptc.edu.co

E-ISSN 2248-6968 ISSN 0121-5051

INNOVAR

REVISTA DE CIENCIAS ADMINISTRATIVAS Y SOCIALES

VOLUMEN 31 2021

Categoría B en el Índice Bibliográfico Nacional de Colciencias

Número **80** Abril - Junio

N.º **79** Enero - Marzo

N.º **78** Octubre - Diciembre

N.º **77** Julio - Septiembre

EDITORIAL

Víctor Mauricio Castañeda Rodríguez

CONTABILIDAD Y FINANZAS

Management accounting and control system in the u-model internationalization process. A case study
Ana Filipa M. Roque, Mário Raposo, Maria do Céu Alves

Cálculo de la rentabilidad financiero-fiscal de una operación de capital diferido a prima periódica. Un enfoque estocástico
María José Pérez , Antonio Alegre Escolano

MARKETING

Planteamiento estratégico para la financiación inclusiva del turismo por parte de los organismos financieros internacionales
Isabel Carrillo Hidalgo, Juan Ignacio Pulido

Segmentación por motivaciones y valoración del turismo interior en el destino Manta, Manabí, Ecuador
Nelson García Reinoso

GESTIÓN Y ORGANIZACIONES

Propuesta de modelo para la autogestión del conocimiento para la productividad de las empresas de menor tamaño en la era del conocimiento
Héctor Gonzalo Rojas Pescio , Verónica Alejandra Roa Petrasic

Análisis de los efectos de la inversión en innovación sobre el progreso técnico del sector industrial de plásticos en Bogotá
Andrés Giovanni Guarín Salinas, Javier Hernando García-Estévez

La comunicación corporativa de la Responsabilidad Social Empresarial (RSE): El caso de las empresas de la provincia Sabana Centro de Cundinamarca
Jeffer Darío Buitrago Betancourt

La separación entre sostenibilidad organizacional y desarrollo sostenible: una reflexión sobre herramientas emergentes para disminuir la brecha Sebastián
Dueñas-Ocampo, Jesús Perdomo-Ortiz, Lida Esperanza Villa Castaño

Relaciones con la organización y el trabajo en los millennials colombianos
Oscar Gallo, Diego René Gonzales-Miranda, Juan Pablo Román-Calderón, Gustavo Adolfo García

APORTES A LA INVESTIGACIÓN Y A LA DOCENCIA

Pensando la Contaduría Pública en su ejercicio profesional:
William Rojas Rojas, Andrés Mauricio Sánchez Grijalba

Cómo medir la apropiación social de la ciencia y la tecnología: La definición de indicadores como problema
Jorge Manuel Escobar Ortiz

SUSCRIPCIONES Y CANJE INTERNACIONAL:
Por favor comuníquese con la **Coordinación de INNOVAR**

CORREO ELECTRÓNICO: revinnova_bog@unal.edu.co
TELÉFONO: (57) (1) 3165000, ext. 12367 | **APARTADO AÉREO:** 055051

WWW.INNOVAR.UNAL.EDU.CO

Problemas del
DESARROLLO
Revista Latinoamericana
de Economía
ISSN:0301-7036

Volumen 52, número 206, julio-septiembre 2021

Innovación y desigualdad salarial en las empresas manufactureras argentinas
María Celeste Gómez

La política de concesiones a los grupos mineros de México
Isidro Téllez Ramírez y Aleida Azamar Alonso

El impacto de la inversión pública sobre la privada en las entidades federativas de México
Francisco Salvador Gutiérrez Cruz y Juan Carlos Moreno Brid

Exploring the U-shape geographical bias in manufactured exports of MERCOSUR countries
Fernando Delbianco, Andrés Fioriti and Germán González

Transición energética, innovación y usos directos de energía geotérmica en México: un análisis de modelado temático
Diana Rivera Delgado, Fernando J. Díaz López y Graciela Carrillo González

The effects of telecommunications infrastructure on Latin America's economic growth
Fadi Fawaz, Ani Popiashvili and Anis Mnif

Convergencia dinámica de los intercambios comerciales entre China y México, 1993-2019
Xuedong Liu y Gerardo Covarrubias

Cadenas Cortas de Comercialización y seguridad alimentaria: el caso de El Mercado el 100
Laura Martínez Salvador, Loarry Gabriel Hernández y David Alvarado Ramírez

Publicación trimestral del Instituto de Investigaciones Económicas, UNAM
Suscripciones y ventas: revprode@unam.mx
Teléfono: (52) 55 56 23 01 05
https://www.probdes.iiec.unam.mx

Cuadernos de Economía, 42(88)
se terminó de editar, imprimir y encuadernar
en Proceditor, en diciembre del 2022,
con un tiraje de 100 ejemplares,
sobre papel bond blanco bahía de 70 g.
Bogotá, D. C., Colombia.

88

CUADERNOS DE ECONOMÍA

ISSN 0121-4772

PAPERS

Isadora Bonitz Silva Gomes and Norberto Montani Martins
MMT, monetary sovereignty and fiscal policy space in Brazil (1999-2019) 1

Marcelo Bruchanski and Andrea Molinari
Regional payment agreements: An alternative to currency convertibility? 23

Ignacio Martínez Fernández, Miguel Ángel Alonso Neira and Luis Palma Martos
Disaggregated savings. Some implications for a capital-based macroeconomic framework 43

Hernando Matallana
World money, China and the US and global mercantilism. A monetary-Keynesian interpretation 61

Martín Esteban Seoane Salazar and Herlan André Argandoña Zubieta
The limits of monetary approaches to the theory of value 81

Federico Gutiérrez Naranjo
Public debt in Colombia: A post-Keynesian and institutionalist analysis 99

ISSN 0121-4772
9 770121 477005 88