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A Brazilian Keynesian Review é um periódico científico criado e mantido pela Associação Keynesiana Brasileira (AKB).

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EXPEDIENTE

A Brazilian Keynesian Review (BKR) é um periódico científico criado e mantido pela Associação Keynesiana Brasileira (AKB) e tem como objetivo publicar e divulgar estudos inéditos, teóricos e aplicados, sobre Economia Keynesiana e áreas afins. Os artigos devem ser submetidos à apreciação da revista por iniciativa de seus autores ou a convite do Editor. As deliberações editoriais serão pautadas exclusivamente por critérios de excelência acadêmica, tendo por base pareceres emitidos por especialistas, isto é, os artigos submetidos seguem avaliação cega pelos pares e, uma vez aprovados, serão publicados segundo sua ordem de aprovação.

A BKR adota uma orientação editorial pluralista, abrindo-se às diferentes orientações de pesquisa, desde que as contribuições apresentem interface com a Economia Keynesiana, tais como as abordagens Institucionalista, Estruturalista ou Evolucionária. A BKR tem periodicidade semestral e acesso irrestrito, sendo online. Os trabalhos são publicados em português ou em inglês. A revista está estruturada em três partes. A primeira contém artigos acadêmicos na forma tradicional. A segunda parte contempla artigos mais curtos que tratam da conjuntura econômica brasileira ou mundial. Por fim, a BKR também passa a incorporar uma seção especial com resenhas de livros recentemente publicados e outras publicações de interesse da Associação Keynesiana Brasileira, desde que aprovados pelo Comitê Editorial da Revista.

O Corpo Editorial da revista é composto por um editor, dois coeditores e um Comitê Editorial. O Comitê Editorial é presidido pelo Editor (Anderson Cavalcante) e composto pelos Coeditores e por outros sete membros, a saber, Fábio Henrique Terra; Fabrício José Missio (coeditor); Gary Dymski; Gilberto Tadeu Lima; Giuliano Contento de Oliveira; Igor Rocha; Lauro Mattei, Luiz Fernando Rodrigues de Paula (coeditor) e Marco Flávio da Cunha Resende.

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EDITORIAL

A editoria da Brazilian Keynesian Review (BKR) tem a satisfação de comunicar que o Número 2 do seu Volume 4 se encontra disponível na página eletrônica da revista. A BKR é uma iniciativa da Associação Keynesiana Brasileira (AKB) e tem como objetivo publicar e divulgar estudos inéditos, teóricos e aplicados, sobre Economia Keynesiana e áreas afins. A revista adota uma orientação editorial pluralista, abrindo-se às diferentes orientações de pesquisa, desde que as contribuições apresentem interface com a Economia Keynesiana, tais como as abordagens Institucionalista, Estruturalista ou Evolucionária. A BKR tem periodicidade semestral e acesso irrestrito, sendo online. Os trabalhos são publicados em português ou em inglês. A revista está estruturada em duas partes. A primeira contém artigos acadêmicos na forma tradicional e a segunda contempla pequenos artigos que tratam da conjuntura econômica brasileira ou mundial.

A seção de artigos acadêmicos tradicionais deste número é composta por seis trabalhos. No primeiro, intitulado ***Um modelo de firma pós-keynesiana,*** os autores Gabriela Aidar e Fábio Terra buscam conceber um modelo teórico da firma pós-keynesiana. Considerando que nessa literatura há uma série de elementos esparsos que configuram os debates sobre a firma, os autores apresentam inicialmente uma síntese desses elementos, a partir da qual agregam elementos caros à literatura microeconômica pós-keynesiana. Para tanto, utilizam-se da perspectiva da Visão Baseada em Recursos (RBV) como o espelho de uma firma já formada para orientar a procura dos elementos teóricos do modelo a ser proposto. Os autores argumentam que a RBV considera a firma como uma instituição cujos recursos, de diversas naturezas, se relacionam de forma bastante orgânica para conformar o que a firma é em específico. Neste sentido, a RBV considera o papel do empresário, da incerteza, a maneira como os consumidores, a própria firma e os concorrentes interagem dinamicamente.

Baseados sobretudo na obra de Penrose (2006), essa concepção vai entender a firma como um conjunto de recursos heterogêneos de natureza tangível e intangível (não mensuráveis), divididas em cinco categorias, a saber: i) produtivos, ii) financeiros, iii) humanos, iv) organizacionais e v) os que passam por algum processo de aprendizagem. Segundo os autores, a junção entre as duas naturezas, algo que depende das habilidades e competências do empresário, forma a competência essencial da firma, sendo que tais competências norteiam a firma em um ambiente de incerteza. Nesse ambiente a firma escolhe suas estratégias mais eficientes no intuito de criar vantagens competitivas sustentáveis, como a diversificação. Em seguida, o artigo apresenta a caracterização dos elementos que formam o conceito da firma pós-keynesiana. Ao revisitar a obra de Keynes e de autores pós-keynesianos, os autores discutem a relação entre incerteza, expectativa e o papel do empresário nas economias monetárias para, em seguida, estabelecer uma discussão sobre a constituição e os objetivos da firma. Por fim, é proposta uma relação entre o ambiente em que a firma se encontra inserida com os tipos de mercado, analisando os aspectos relacionados ao comportamento

(competitividade) e a decisão (de preço e produção) da firma, as limitações inerentes a cada decisão, e as mudanças tecnológicas. Assim, baseado na concepção do modelo RBV, a firma pós-keynesiana é vista a partir dos elementos que a definem e que a constituem (composição, características, objetivos e limitações). Conclui-se que a firma pós-keynesiana pode ser compreendida como um arranjo de ativos produtivos, financeiros e humanos materializados pela vontade do empresário em formar um portfólio, em um ambiente de incerteza, que lhe possa conferir lucros e, assim, ampliar sua riqueza.

Na sequência, o artigo ***Metas de inflação e consistência expectacional em um modelo com regra de juros não linear***, os autores Carlos Eduardo Iwai Drumond, Cleiton Silva de Jesus e João Pereima desenvolvem um modelo macroeconômico de inspiração pós-keynesiana que leva em conta a não-linearidade na regra de juros. Segundo a abordagem, a Autoridade Monetária (AM) considera a interação entre a taxa de inflação e o nível de utilização da capacidade instalada na determinação da taxa de juros, de modo que a sensibilidade da regra de juros ao hiato da inflação com relação à uma meta varia de acordo com o ciclo econômico. Em outras palavras, quanto mais próxima (afastada) do nível de utilização pleno da capacidade instalada a economia estiver, mais (menos) sensível será a AM aos desvios da inflação com relação à meta. Logo, é possível dar peso tanto à inflação quanto ao produto sem perder de vista o papel de âncora expectacional da meta de inflação. Uma das inovações do modelo é o fato de que ele é construído sem impor de maneira *ad hoc* a convergência da inflação para a meta e sem instituir um limite para o comportamento expectacional. Ademais, argumenta-se que a dependência do parâmetro da inflação (na regra de juros) do nível de atividade econômica é uma clara distinção em relação aos modelos existentes na literatura pós-keynesiana.

Para cumprir com os objetivos propostos, após uma revisão inicial sobre principais componentes dos modelos pós-keynesianos que levam em conta o regime de metas de inflação e os avanços dentro dessa abordagem, propõe-se um modelo pós-keynesiano *standard* como ponto de partida. O modelo considera uma economia fechada com existência de capacidade instalada ociosa na economia. Apresentam-se as equações que determinam o *equilíbrio no mercado de bens (curva IS) e a curva* de Phillips, construída a partir do conflito distributivo entre trabalhadores e capitalistas. O modelo então permite a discussão da regra de juros. Para tanto, considerando a existência de uma relação negativa entre taxa de desemprego a taxa de utilização da capacidade, os autores propõem uma regra como função da inflação e da taxa de utilização da capacidade instalada. Inicialmente, utiliza-se uma regra de juros linear típica, que leve em conta tanto a inflação como a taxa de utilização da capacidade instalada. Contudo, conforme demonstrado pelos autores, este tipo de regra, quando incorporadas em um modelo pós-keynesiano, gera inconsistências expectacionais que precisam ser contornadas. Para resolver este problema, propõem-se, então, uma regra de política monetária alternativa que, de um lado, torne viável um regime monetário de duplo mandato

e, por outro lado, contorne o problema da inconsistência da política monetária apresentado anteriormente. O modelo implica, portanto, que a economia converge para um estado estacionário estável no qual a meta de inflação é alcançada de modo a não existir inconsistência intertemporal da política monetária. Também há coerência expectacional, sendo que a inflação efetiva converge para a inflação esperada que, por sua vez, converge para a meta definida pela AM.

No artigo seguinte, ***Leading sectors and structural dynamics: an input-output analysis contrasting the BRICs growth paths***, Guilherme Riccioppo Magacho, Nelson Marconi e Igor Rocha analisam as diferentes trajetórias de crescimento nas últimas décadas dos países do BRIC (Brasil, Rússia, Índia e China). Analisam, ainda, o potencial de cada setor avaliado em promover o crescimento econômico. O ponto de partida dos autores é a constatação de que todos os países do bloco experimentaram um período de crescimento significativo durante a década de 2000, ainda que suas trajetórias de crescimento não tenham sido similares. Enquanto no Brasil e na Rússia esta trajetória esteve baseada na produção e exportação de bens primários, na China e na Índia o padrão de desenvolvimento industrial permaneceu alicerçado nas exportações e nos serviços de manufatura, respectivamente.

Essas distintas trajetórias resultaram em uma vasta gama de interpretações sobre setores que atuam como motores relevantes do crescimento. Nesse contexto, os autores analisam os efeitos dinâmicos de um processo de crescimento impulsionado pelas exportações de commodities, como as adotadas pelo Brasil e pela Rússia, e pelas exportações de serviços, como as da Índia nos últimos anos. Além disso, comparam os possíveis elos de produção que podem ser criados a partir do estímulo desses setores, nos quais existem vantagens comparativas na produção, com aqueles que poderiam ser gerados ao fornecer incentivos para o setor de manufatura e/ou de serviços. Por fim, também avaliam se este processo pode ser bem sucedido do ponto de vista da diversificação da produção e, consequentemente, se pode contribuir para o crescimento econômico.

Os principais resultados mostram que o setor manufatureiro é onde os multiplicadores são os mais altos. Ou seja, corrobora-se a hipótese de que ter um setor manufatureiro dinâmico é essencial para promover o crescimento econômico. Além disso, os resultados mostram que os encadeamentos para frente, no setor de serviços, são maiores do que os encadeamentos para trás e que os serviços modernos apresentam encadeamentos para frente maiores que aqueles observados nos tradicionais. Dessa forma, corrobora-se a hipótese de que a produção de serviços depende da produção em outros setores e de que uma estratégia de crescimento orientada para este setor deve estar vinculada à produção industrial e às exportações. Os resultados mostram também que os multiplicadores associados à produção chinesa são mais altos para todos os setores analisados, indicando um maior grau de integração da produção nesse país. Por outro lado, a análise das ligações para trás mostra que em todos os países do BRIC, os produtos químicos, de transporte, metal e alimentos e bebidas têm um potencial significativo (seus

índices estimados são maiores que um) para estimular o crescimento econômico. Já a análise das ligações para frente mostra que os setores de minerais não-metálicos, commodities minerais, serviços públicos, químicos e de petróleo têm a maior capacidade de fornecer insumos para os demais setores. Dessa forma conclui-se que uma estratégia que busque impulsionar o crescimento econômico deve levar em conta as vantagens de uma estrutura de produção orientada para a expansão da manufatura e deve utilizar as commodities para promover os outros setores da economia.

Em *The GIIPS crisis in the context of the European Monetary Union: a political economy approach,* quarto artigo deste volume, Nicholas Blikstad e Giuliano de Oliveira discutem a crise do GIIPS (Grécia, Itália, Irlanda, Portugal e Espanha) à luz do projeto de integração Europeia. Os autores argumentam que a crise resultou de dois processos simultâneos: por um lado, adveio dos crescentes desequilíbrios internos que ocorreram ao longo do período de expansão econômica; e por outro lado, resultou da rigidez imposta pelo arranjo institucional da União Monetária Europeia.

Na seção inicial, os autores discutem o processo de integração Europeia e a constituição da zona do Euro. Ressaltam, em tal análise, a influência da abordagem econômica ortodoxa convencional, para a qual as motivações associadas à integração regional estão relacionadas a ganhos de eficiência econômica para, em seguida, analisar os problemas impostos pela institucionalidade da moeda comum em dois períodos: de expansão econômica (2000-2007) e da crise da Zona do Euro (2007-2013). Durante o primeiro período, discute-se a evolução dos desequilíbrios regionais na zona do euro (centro e periferia) e as características do processo de ajuste após a eclosão da crise financeira global em 2008. São destacadas as dificuldades para se recuperar o crescimento na região, tanto pela dinâmica regional quanto pelas restrições ao uso de políticas econômicas anticíclicas autônomas devido às restrições impostas pela institucionalidade do euro. Finalmente, analisa-se a visão das autoridades da Zona do Euro sobre os determinantes da crise e recomendações para sua superação.

Como conclusão, a partir das evidências apresentadas no artigo, os autores indicam que a crise econômica na Zona do Euro resultou de crescentes desequilíbrios internos que ocorreram na região durante o período de expansão econômica, particularmente entre os países membros centrais, com ênfase na Alemanha, e nos países periféricos da região, o GIIPS. Inegavelmente, tal crise foi potencializada pela forma como a Zona do Euro foi estabelecida, sob as restrições impostas pela institucionalidade da moeda comum às políticas econômicas internas. Ademais, considerando que a crise no GIIPS tem sido profunda e resistente e que, até o momento, não há sinais claros de recuperação, os autores concluem que a recuperação econômica consistente dessas economias requer um estímulo agregado de demanda, condição que, por sua vez, requer a implementação de políticas econômicas anticíclicas.

Na sequência, Carmem Feijó, Julia de Medeiros Braga e Mariana Finello Corrêa avaliam como as proposições desenvolvimentistas nos ajudam a entender melhor as dinâmicas do crescimento no Brasil entre 1999 e 2013. Em *Developmentalism and the determinants of investment: an econometric exercise for Brazil in the 2000s,* a(o)s autora(e)s discutem, com base nas diferentes agendas de política econômica propostas pelo debate desenvolvimentista no Brasil (os grupos novo-desenvolvimentista e social-desenvolvimentista), quais são as variáveis mais relevantes para explicar o comportamento do investimento agregado. Nesse caso, enfatiza-se na análise econométrica à importância da taxa real de câmbio real e do investimento público na explicação das decisões de investimento, de acordo com cada abordagem.

No debate desenvolvimentista, apesar do marco teórico compartilhado (que inclui Keynes e o estruturalismo Latino-americano), cada grupo tem defendido que o investimento responde mais fortemente a uma variável específica. Então, a fim de esclarecer esse debate apresenta-se inicialmente uma análise sobre a evolução do produto e da taxa de investimento durante os anos 2000s. Conforme é possível observar, as taxas de crescimento do PIB foram relativamente instáveis durante o período e, segundo a(o)s autora(e)s, a política macroeconômica não favoreceu a acumulação de capital no Brasil, já que as taxas de juros internas foram mantidas em níveis elevados e persistentes (embora tenham diminuído em alguns anos) o que pode ser somado a volatilidade da taxa real de câmbio real e a sua tendência de valorização, que comprometeram o grau de confiança das expectativas sobre investimento.

Em seguida, apresentam-se diferentes especificações para o modelo, juntamente com testes e técnicas econométricas. Os resultados mostram que, para todas as especificações testadas, o grau de utilização da capacidade explica positivamente o investimento em capital fixo, ao passo que a participação nos lucros foi significativa, mas de menor importância. Por outro lado, considerando os objetivos do trabalho, o modelo que incluiu o argumento novo-desenvolvimentista (e que, portanto, levou em consideração a taxa de câmbio real em nível e na forma quadrática para testar seu efeito sobre o investimento), mostrou que o impacto de uma desvalorização da taxa de câmbio real é negativo e muito maior sobre o investimento (capturado pela variável em nível) do que um efeito positivo (capturado pela variável na forma quadrática). Portanto, os autores concluem que o efeito custo de uma desvalorização real sobre o investimento em capital fixo excede em muito o efeito competitivo. Por fim, o modelo que busca captar o argumento social-desenvolvimentista e que, portanto, leva em consideração o investimento público, revela que a importância dessa variável é aumentada quando exclui-se o componente de tendência. Sendo assim, os autores concluem que o investimento público em infraestrutura faz convergir as expectativas do setor privado e induz ao investimento em bens de capital.

No artigo seguinte, intitulado *Liquidity trap: the Brazilian version*, Fernando Ferrari Filho e Marcelo Milan oferecem uma discussão acerca das altas taxas de

juros no Brasil. Ao longo dos últimos anos, inúmeras foram as interpretações para a taxa de juros brasileira ser uma das mais altas do mundo: histórico de hiperinflação, baixas taxas de poupança, crédito subsidiado, déficits governamentais, entre outras. Os autores, no entanto, sugerem uma nova interpretação: o nível da taxa de juros no Brasil é alta pela pressão exercida pelo segmento rentista (instituições financeiras, industrialistas financeirizados e famílias ricas) sobre a política monetária e fiscal em um contexto no qual a inflação não é sensível a alterações de política monetária. Uma vez considerada tal hipótese, o objetivo do artigo é mostrar que o país convive com sua própria versão da armadilha da liquidez, onde o Banco Central promove políticas monetária e fiscal que satisfazem as expectativas de altas taxas de juros dos rentistas.

Para embasar tal hipótese, os autores retomam Keynes sobre a importância da política monetária e seus objetivos, incluindo também uma análise crítica sobre as interpretações da armadilha da liquidez derivadas da Síntese Neoclássica. Segundo os autores, Keynes via a política monetária como meio para alcançar certos objetivos (estabilidade de preços, estabilidade financeira, manutenção das expectativas, controle da liquidez e estabilidade da taxa de câmbio), sendo fundamental que a autoridade monetária reconheça os canais de transmissão da taxa de juros e seus efeitos sobre demanda efetiva, crescimento e distribuição de renda. A política monetária, portanto, é um instrumento poderoso no arcabouço de Keynes, podendo afetar investimento e crescimento. Contudo, ao alterar as estratégias de portfolio dos agentes econômicos, a autoridade monetária pode levar a economia à uma armadilha da liquidez, onde impera uma instável demanda especulativa por moeda, tornando a própria política monetária inócua.

A Síntese Neoclássica tornou a armadilha da liquidez um caso especial derivado da Teoria Geral, uma forma de relacionar Keynes a políticas fiscais necessárias para retirar a economia de uma recessão. Entretanto, Ferrari Filho e Milan argumentam que a teoria de Keynes não pode ser interpretada como uma situação onde o desemprego é um fenômeno temporário devido à armadilha da liquidez. Esta se define, especificamente, como uma situação na qual os agentes, sob expectativas incertas, entesouram moeda porque os preços dos ativos caem sensivelmente devido a uma deflação e, por isso, a política monetária convencional se torna inócua. Sob essa definição, cara à Keynes, taxas de juros baixas não guardam uma relação inequívoca com a armadilha da liquidez.

A partir dessa percepção, o regime monetário de metas de inflação (RMI) no Brasil é analisado na tentativa de compreender a versão brasileira da armadilha da liquidez. As bases do RMI são reavaliadas, demonstrando o mecanismo que impera na política monetária do país: a meta definida para a taxa de juros básica SELIC, que remunera os empréstimos bancários *overnight* (e cujas garantias são os títulos do tesouro), é definida a partir de relatórios dos próprios agentes financeiros. Esse mecanismo garante o ajuste dos títulos às expectativas de inflação do próprio mercado, mantendo as taxas de juros presas em níveis altos e, consequentemente, não mantendo relação alguma com preferência por liquidez e entesouramento por

conta da incerteza sobre redução futura do valor de ativos de capital. Os autores ainda vão além, ao não atribuir completamente à razão das altas taxas de juros nacionais ao regime de metas de inflação. Para eles, o fator imperativo no caso brasileiro é o próprio comportamento do rentista sob um ambiente de crescente financeirização. No caso do Brasil, a soma desse comportamento rentista à sua institucionalização via RMI criou uma armadilha expectacional que assume risco elevados de default em títulos públicos, determinação de taxas de juros, baixa credibilidade da política monetária e expectativas de inflação, colocando o país em uma armadilha de liquidez com altas taxas de juros.

Na segunda parte da revista, mais particularmente na seção que reúne contribuições sobre conjuntura econômica mundial e brasileira, o artigo intitulado ***Mr. Bolsonaro e os Chineses: uma sugestão de interpretação***, de autoria de Gilberto Libânio, discute os potenciais impactos do governo Bolsonaro sobre a relação Brasil-China. Já na introdução o autor chama a atenção para o fato de que um dos elementos mais importantes na trajetória da China desde o início deste século tem sido a expansão de seus investimentos no exterior, guiada por uma ampla estratégia de internacionalização intitulada *China Going Global*. No período mais recente, a China ingressou em nova etapa de seu processo de desenvolvimento, descrito na literatura como "Novo Normal". Esta fase se caracteriza por maior ênfase no aumento do consumo doméstico, em detrimento de investimentos e exportações, e também por taxas de crescimento mais moderadas, em torno de 6% ao ano.

O autor desenvolve o texto apresentando o histórico recente da relação entre os dois países, particularmente no que se refere a comércio internacional e a investimento direto externo da China no Brasil. O Brasil foi afetado pela forte expansão chinesa nos anos 2000, com intensa demanda por *commodities* agrícolas e minerais, o que levou a um crescimento sistemático das exportações brasileiras. Isso é parte da explicação para o bom desempenho da economia nacional observado ao longo da última década. Por outro lado, ressalta o autor, a relação com a China apresenta impactos negativos a longo prazo associados à primarização da pauta de exportações. Ademais, os investimentos diretos chineses no Brasil têm desempenhado papel destacado nos últimos anos. Nesse caso, destaca-se que os interesses chineses estão associados principalmente ao fornecimento de matérias primas agrícolas e minerais, tendo em vista as questões de segurança alimentar e energética do país mais populoso do mundo. Em seguida, especula-se sobre os possíveis efeitos de um afastamento do Brasil em relação à China, caso se confirmem os discursos de membros do novo governo brasileiro acerca de um realinhamento político com os EUA e um consequente afastamento do país asiático.

A principal conclusão do artigo é que a China tem papel crucial nas relações econômicas do Brasil com o exterior. Nesse sentido, um esfriamento das relações do Brasil com a China parece politicamente pouco plausível, dados os impactos negativos sobre setores politicamente importantes ao novo governo, como a bancada do agronegócio, que é extremamente dependente do mercado chinês. Não

há, portanto, justificativa para qualquer tipo de ruptura nessa relação, sob pena de o Brasil sofrer efeitos adversos em sua balança comercial e na recepção de investimentos externos. Ademais, os potenciais benefícios de uma aproximação com os Estados Unidos não parecem compensar tais custos.

Tenham todos uma agradável leitura!

Anderson Tadeu Marques Cavalcante, editor

Fabrício José Missio, coeditor

Luiz Fernando Rodrigues de Paula, coeditor

EDITORIAL

The Brazilian Keynesian Review (BKR) is pleased to announce that its new issue (number 2 of its volume 4) is available on the journal's website. BKR is an initiative of the Brazilian Keynesian Association (AKB) which aims at publishing and disseminating theoretical and applied studies on Keynesian Economics and related areas. The journal adopts a pluralistic editorial orientation, covering different research themes, as long as the contributions present an interface with Keynesian Economics, such as Institutionalist, Structuralist or Evolutionary approaches. The BKR has a semiannual periodicity and unrestricted online access. Papers are published in Portuguese or English. The magazine is structured in two parts. The first contains traditional academic articles. The second part includes short articles that deal with the Brazilian or world economic situation.

The academic section in this issue is composed by six papers. In ***A model for the post-Keynesian firm***, authors Gabriela Aidar and Fábio Terra conceive a theoretical model of the post-Keynesian firm. Initially, the authors present a synthesis of theoretical elements that compose the debates around the notion of the firm, from which they add other important elements featured in the post-Keynesian microeconomic literature. They use the Resource-Based View (RBV) as the basic approach to the firm, arguing that RBV considers the firm as an institution whose resources, of various natures, are related in a very organic way. In this sense, the RBV considers the role of the entrepreneur, of uncertainty, and the way in which consumers, the firm and the competitors interact dynamically.

Based on Penrose's (2006) work, this conception assumes the firm as a set of tangible and intangible (not measurable) heterogeneous resources, which can be divided into five categories: i) productive, ii) financial, iii) human, iv) organizational, and v) undergoing some learning process. According to the authors, the connection between the two resources' natures, something that depends on the abilities and competences of the entrepreneur, forms the essential competence of the firm, guiding it in an uncertainty environment. In such environment, the firm chooses its most efficient strategies in order to create sustainable competitive advantages, such as diversification. The authors, then, present the characterization of the elements that form the concept of the post-Keynesian firm. In revisiting the work of Keynes and post-Keynesian authors, the relationship between uncertainty, expectation, and the role of the entrepreneur in monetary economies is discussed, moving on to the firm's constitution and objectives. Finally, a relationship is proposed between the environment in which the firm is included with different market types, analyzing aspects related to the behavior (competitiveness), the decision-making (price and production) of the firm, the limitations inherent in each decision, and technological changes. Thus, based on the model proposed, the firm is investigated from the elements that define it and constitute it (composition, characteristics, objectives and limitations). The conclusion is that the post-Keynesian firm can be understood as an arrangement of productive, financial and

human assets materialized by the will of the entrepreneur to form a portfolio in an environment of uncertainty, whereby it can profit and thus increase its wealth.

In the following paper, ***Inflation goals and expectation consistency in a model with a non-linear interest rule***, the authors Carlos Eduardo Iwai Drumond, Cleiton Silva de Jesus and João Pereima develop a macroeconomic model of post-Keynesian inspiration that takes into account non-linearity in the interest rule. According to their approach, the Monetary Authority considers the interaction between the rate of inflation and the level of installed capacity utilization when determining the interest rate, so that the sensitivity of the interest rule to the inflation gap relatively to a given target varies according to the economic cycle. In other words, the closer (farthest) to the level of full installed capacity utilization the economy is, the more (less) sensitive the Monetary Authority will be to the deviations of inflation from the target. Therefore, it is possible to weigh both inflation and output without losing sight of the anchor role of the inflation target. One of the innovations of the model is that it is constructed without *ad-hoc* assumptions imposing the convergence of inflation to the target and without instituting a limit to expectations' behavior. In addition, it is argued that the dependence of the inflation parameter (in the interest rule) on the level of economic activity is a novelty in the post-Keynesian literature.

To fulfill the proposed objectives, after an initial review of key components of post-Keynesian models that account for inflation targeting regimes, a model is proposed as a starting point for discussion. The model considers a closed economy with the existence of idle installed capacity in the economy. The equations that determine the equilibrium in the goods market (IS curve) and the Phillips curve are then presented, building on the distributive conflict between workers and capitalists. The model then allows discussion of the interest rule. Therefore, considering the existence of a negative relationship between the unemployment rate and the capacity utilization rate, the authors propose a rule as a function of inflation and the rate of utilization of installed capacity. Initially, a typical linear interest rule is used, which takes into account both inflation and the rate of installed capacity utilization. However, as demonstrated by the authors, this type of rule, when incorporated in a post-Keynesian model, generates expectations inconsistencies. In order to solve this problem, an alternative monetary policy rule is proposed which, on the one hand, renders a dual-mandate monetary regime viable and, on the other hand, addresses the problem of the inconsistency of the monetary policy presented earlier. The model implies, therefore, that the economy converges to a stable stationary state in which the inflation target is reached so that there is no intertemporal inconsistency of the monetary policy. There is also expectancy coherence, with effective inflation converging to the expected inflation, which, in turn, converges towards the target defined by the Monetary Authority.

In the following article, ***Leading sectors and structural dynamics: an input-output analysis contrasting the BRICs growth paths***, Guilherme Riccioppo Magacho, Nelson Marconi e Igor Rocha analyse diverse growth trajectories of BRIC

countries (Brazil, Russia, India, and China) in the last decades. They also analyze diverse sectoral potential in promoting economic growth in each country. The authors' starting point is the finding that, although with unsimilar growth trajectories, all countries of the BRIC bloc experienced a period of significant growth during the 2000s. While in Brazil and Russia this trajectory was based on the production and export of primary goods, in China and India the pattern of industrial development remained centered on exports and manufacturing services, respectively.

These distinct trajectories have resulted in a wide range of interpretations about sectors that serve as relevant engines of growth. In this context, the authors analyze the dynamic effects of a growth process driven by commodity exports, such as those adopted by Brazil and Russia, and by exports of services, such as India in recent years. In addition, they compare the possible production links that can be created from stimulating those sectors with comparative advantages in production relatively to other manufacturing and/or service sectors. Finally, the authors also assess whether this process can be successful from the point of view of the diversification of production and, consequently, whether and how it can contribute to economic growth.

The main results show that the manufacturing sector is where the multipliers are the highest. That is, it is corroborated the hypothesis that having a dynamic manufacturing sector is essential to promote economic growth. In addition, the results show that forward linkages in the service sector are larger than backward ones, and that modern services have larger forward linkages than those observed in traditional sectors. In this way, it is confimed the hypothesis that the production of services depends on the production in other sectors and that a growth strategy oriented to sectoral development must be linked to industrial production and exports. The results also show that the multipliers associated with Chinese production are comparatively higher for all sectors analyzed, indicating a greater degree of integration of production in that country. On the other hand, backward linkage analysis shows that in all BRIC countries, chemicals, transportation, metal, and food and beverages sectors have all significant potential (their estimated rates are greater than one) to stimulate economic growth. Moreover, the analysis of forward linkagess shows that the sectors of non-metallic minerals, mineral commodities, public services, chemicals and petroleum have the greatest capacity to provide inputs to other sectors. Thus, it is concluded that a strategy that seeks to boost economic growth must take into account the advantages of a production structure oriented to the expansion of manufacturing, while incentives to commodities production should be used to promote other sectors of the economy.

In the fourth article of this volume, *The GIIPS crisis in the context of the European Monetary Union: the political economy approach*, Nicholas Blikstad and Giuliano de Oliveira discuss the GIIPS crisis (Greece, Italy, Ireland, Portugal and Spain) in light of the European integration project. The authors argue that the crisis

resulted from two simultaneous processes: on the one hand, it followed from the growing internal imbalances that occurred during the period of economic expansion; and, on the other hand, it resulted from the rigidity imposed by the institutional arrangement of the European Monetary Union.

In the opening section, the authors discuss the process of European integration and the constitution of the Eurozone. The influence of the conventional orthodox economic approach is highlighted in the analysis, from which the motivations associated with regional integration stem solely from economic efficiency gains. Then, the authors analyze the problems imposed by such approach and the common currency institutions it promoted in two periods, namely: the economic expansion (2000-2007) and the Eurozone crisis (2007-2013). During the first period, it is highlighted the evolution of regional imbalances in the euro area (center and periphery) and the characteristics of the adjustment process after the outbreak of the global financial crisis in 2008. The difficulties in recovering growth in the region are stressed in the second period, both by the own dynamics of the region and also by the restrictions on the use of autonomous countercyclical economic policies due to the restrictions imposed by the institutions of the euro. Finally, it is examined the Euro area authorities' views on the determinants of the crisis and their recommendations for overcoming it.

As a conclusion, based on the evidence presented in the article, the authors indicate that the economic crisis in the Eurozone resulted from growing internal imbalances that occurred in the region during the period of economic expansion, particularly among central member countries, with emphasis on Germany, and in the peripheral countries of the region, GIIPS. Undoubtedly, such a crisis has been potentiated by the way the Eurozone was established, including both the constraints imposed by the institutionality of the common currency and the economic policies imposed. Moreover, considering that the GIIPS crisis has been deep and resilient and that, to date, there are no clear signs of recovery, the authors conclude that the consistent economic recovery of these economies requires an aggregate demand stimulus, a condition that, in turn, requires the implementation of countercyclical economic policies.

In the sequence, this issue of BKR features Carmem Feijó, Julia de Medeiros Braga and Mariana Finello Corrêa evaluating how developmental propositions help us to better understand the dynamics of growth in Brazil. In ***Developmentalism and the determinants of investment: an econometric exercise for Brazil in the 2000s,*** the authors discuss, based on the different economic policy agendas proposed by the developmentalist debate in Brazil (new-developmentalist and social-developmentalist approaches), which are the most relevant variables to explain behavior of aggregate investment. In the study, the emphasis is placed on an econometric analysis of the importance of real real exchange rate and public investment in explaining investment decisions.

In the developmentalism debate, despite the shared theoretical frameworks (which includes Keynes and Latin American structuralism), each group has argued that investment responds more strongly to a given specific variable. In order to clarify this debate, the authors first present an analysis of the evolution of the product and of the investment rates during the 2000s. As can be seen, GDP growth rates were relatively unstable during the period and, according to the authors, macroeconomic policy did not favor capital accumulation in Brazil, since domestic interest rates were maintained at persistently high levels (although they have declined in a few years). Moreover, the high interest rates were accompanied by volatility of the real real exchange rate and an appreciation trend, which have compromised the confidence level of investment expectations.

Different specifications are presented for the model, together with tests and econometric techniques. The results show that, for all the specifications tested, the degree of capacity utilization explains positively the investment in fixed capital while its share in profits was significant, but of minor importance. On the other hand, considering the objectives of the paper, the model that included the new-developmentalist argument (and therefore took into account the real exchange rate in level and in quadratic form to test for effects on investment) showed that the impact of a devaluation of the real exchange rate is negative and much greater on investment (captured by the variable in level) than its positive effect (captured by the variable in the quadratic form). Therefore, the authors conclude that the effect of a real devaluation over investment in fixed capital far exceeds the competitive effect of the devaluation. Finally, the model that seeks to capture the social-developmentalist argument and, therefore, takes into account public investment as the main variable, reveals that the importance of the latter is increased when the trend component is excluded from the model. Thus, the authors conclude that public investment in infrastructure converges expectations of the private sector and induces investment in capital goods.

In the last article of the journal's academic section, ***Liquidity trap: the Brazilian version***, Fernando Ferrari Filho and Marcelo Milan offer a discussion about high interest rates in Brazil. Over the last few years, there have been countless interpretations for the reasons Brazilian interest rate are one of the highest in the world: the country history of hyperinflation, low rates of savings, subsidized credit, government deficits, among others. The authors, however, suggest a new interpretation: the level of the interest rate in Brazil is high because of the pressure exerted by the rentier segment (financial institutions, financialized industrialists and wealthy families) on monetary and fiscal policy in a context where inflation is not sensitive to changes in monetary policy. Once this hypothesis is considered, the objective of the article is to show that Brazil deals with its own version of the liquidity trap, whereby the Central Bank of Brazil promotes monetary and fiscal policies in order to meet rentiers' expectations.

To support this hypothesis, the authors stress the importance of monetary policy and its objectives in light of the works by Keynes, including a critical analysis

of the liquidity trap interpretations derived from the Neoclassical Synthesis. According to the authors, Keynes envisioned monetary policy as a mean to achieve certain objectives (price stability, financial stability, maintenance of expectations, liquidity control and exchange rate stability), while assuming fundamental for the monetary authority to recognize the transmission channels of interest rate and its effects on effective demand, growth, and income distribution. Monetary policy, therefore, is considered a powerful instrument in Keynes' s framework, affecting investment and growth. However, by altering the portfolio strategies of economic agents, the monetary authority can take the economy into a liquidity trap, where an unstable speculative demand for money reigns, which renders monetary policy itself innefective.

The Neoclassical Synthesis made the liquidity trap a special case derived from the General Theory, a way of relating Keynes to the fiscal policies necessary to withdraw the economy from a recession. However, Ferrari Filho and Milan argue that Keynes's theory can not be interpreted simply as a situation where unemployment is a temporary phenomenon due to a liquidity trap. The latter is specifically defined as a situation in which agents hoard, under uncertain expectations, as asset prices fall sharply due to deflation and, therefore, conventional monetary policy becomes innocuous. If this definition is accredited, it can be said that low interest rates do not have an unequivocal relationship to the liquidity trap.

Based on this perception, the monetary regime of inflation targets (ITR) in Brazil is analyzed in an attempt to understand the country's version of the liquidity trap. In order to do so, the foundations of the ITR are re-evaluated, demonstrating the mechanism that prevails in the Brazilian monetary policy: the target set for the basic interest rate (SELIC), which remunerates overnight bank loans (and whose guarantees are treasury bills), is influenced by the financial agents themselves. This mechanism guarantees the adjustment of bonds' returns to the inflation expectations of the market itself, keeping interest rates locked at high levels and, consequently, not maintaining any relation with liquidity and hoarding preferences due to the uncertainty about the future of capital assets values. The authors go even further by not fully assigning the reason for the high national interest rates to the inflation targeting regime only. For them, the imperative factor in the Brazilian case is the rentier's own behaviour, influenced by the worldwide context of increasing financialization. In the case of Brazil, the sum of this rentier behavior to its institutionalization via ITR, in fact, has created an expectational trap that assumes high risk of default in public bonds, determination of interest rates, low credibility of monetary policy and inflation expectations, putting the country in a liquidity trap at high interest rates.

In the second part of the journal, more particularly in the section that brings together contributions on the world and on Brazilian economic conjuncture, the article entitled ***Mr. Bolsonaro and the Chinese: a suggested interpretation***, authored by Gilberto Libânio, discusses the potential impacts of the Bolsonaro government

on Brazil-China relationship. The author points out that one of the most important elements in China's trajectory since the beginning of this century has been the expansion of its foreign investments, guided by a broad internationalization strategy entitled *China Going Global*. In the most recent period, China entered a new stage of its development process, described in the literature as the *New Normal*. This later phase is characterized by greater emphasis on increasing domestic consumption to the detriment of investments and exports, and also by more moderate growth rates, which revolved around 6% per year.

The author develops the text by presenting the recent history of the relationship between the two countries, particularly with regard to international trade and China's direct foreign investment in Brazil. The latter was affected by the Chinese expansion in the 2000s, with intense demand for agricultural commodities and minerals, which led to a systematic growth in Brazilian exports. This is part of the explanation for the good performance of the country's economy observed over the last decade. On the other hand, according to the author, the relationship with China has also long-term negative impacts associated with the prioritization of the export agenda. More recently, Chinese direct investments in Brazil have played a prominent role. In this case, it is noted that Chinese interests are mainly associated with the supply of agricultural and mineral raw materials, in view of the food and energy security issues of the world's most populous country. Then, there is speculation about the possible effects of a disengagement from bilateral relations if the speeches about a political realignment with the US, from members of the new Brazilian government, are confirmed.

The main conclusion of the author is that China plays a crucial role in Brazil's economic relations with the outside world. In this sense, a cooling of Brazil's relations with China seems politically unlikely, given the negative impacts on politically important sectors of the new government, such as the agribusiness sector, which is extremely dependent on the Chinese market. There is, therefore, no justification for any kind of rupture in this relationship, otherwise Brazil will suffer adverse effects on its trade balance and on receiving foreign investments. In addition, the potential benefits of a rapprochement with the United States do not seem to outweigh these costs.

We hope you all have a pleasant read.

Anderson Tadeu Marques Cavalcante, editor

Fabrício José Missio, coeditor

Luiz Fernando Rodrigues de Paula, coeditor

SUMÁRIO/SUMMARY

CONJUNTURA ECONÔMICA/CURRENT ECONOMIC ISSUES

Um Modelo de Firma Pós-Keynesiana

A model for the post-Keynesian firm

Gabriela Lima Aidar[*]
Fábio Henrique Bittes Terra[†]

Resumo

O objetivo deste artigo é conceber teoricamente um modelo da firma na perspectiva pós-keynesiana. O que se percebe na literatura pós-keynesiana é que há muitos elementos, porém esparsos, que configuram debates sobre a firma; logo, não há uma forma consolidada de firma, que reúna em um modelo teórico sintético estes elementos que se dispersam na literatura. Porém, se não há um retrato da firma pós-keynesiana, o que poderia servir de espelho para sua constituição? Para tanto, este artigo recorre ao que é uma firma já consolidada na teoria econômica e não incongruente com a teoria pós-keynesiana, a firma da Visão Baseada em Recursos. A partir de um conceito de firma já formado, esta teoria oferece orientação para os elementos a serem notadas para ser formar esta firma pós-keynesiana.

Palavras-chave: Teoria da Firma; Visão Baseada em Recursos; Teoria pós-Keynesiana.

Abstract

This paper aims at theoretically modelling the Post Keynesian firm. What we notice in the Post Keynesian literature is that there are several elements concerning the firm theory, however they are sparse; thereby, there is not a consolidated and summarized form of firm, in which all these relevant elements are combined to synthesize the Post Keynesian firm. But, if the Post Keynesian theory has not got a portrait of the its firm, what could mirror its constitution? To do so, this paper recalls to a firm that is already consolidated in the economic theory and that is not divergent to the Post Keynesians, the one furnished by the Resource Based View. Departing from an already available firm theory, the Resource Based View approach of the firm guides what must be looked at in order to design the synthesis of the Post Keynesian firm.

Keywords: Theory of the Firm; Resource Based View; Post-Keynesian Theory.

JEL Classification: E12; D00; D21.

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1. Introdução

A firma é discutida sob diversos aspectos na teoria econômica, e o mesmo pode ser dito desta discussão na teoria pós-keynesiana. Mas, resta ainda nesta literatura uma lacuna: o que seria, da união desses diversos aspectos, a firma pós-keynesiana? Neste âmbito, ainda são dispersos os trabalhos, quando comparados ao grau de avanço da microeconômica heterodoxa, sendo que, por dispersão, se quer dizer que há na literatura pós-keynesiana pesquisas sobre elementos atinentes à teoria da firma. Todavia, não houve preocupação em sintentizar os referidos elementos em um esboço que sumariasse o que é a firma pós-keynesiana. Um caminho para se notar isso é recorrer à obra mais atual sobre os fundamentos da teoria pós-keynesiana, qual seja, Lavoie (2014), que traz uma ampla revisão dos elementos caros ao debate da firma pós-keynesiana, mas que, ao final, continua sem apresentar qualquer agregação em si dos fatores relevantes a que se permita denominar firma (Lavoie, 2014, pp. 123-181).

Há exceções a esta dispersão, com dois autores que buscaram oferecer uma noção mais fechada de firma, Eichner (1976, 1979, 1983) e Galbraith (1988). Estes autores contribuem em três frentes: (i) a grande firma do sistema capitalista moderno é a megacorporação, atuante em vários mercados, concêntricos ou conglomerados; (ii) o principal objetivo da firma é uma mescla de crescimento com obtenção de poder, mais do que econômico, político e social, sendo que o crescimento é o caminho necessário para o alcance de poder; por fim, (iii) as firmas, para crescer, marcam preços que não são *market clearing*, mas que são baseados no custo, sobre o qual uma margem é marcada a bem de se alcançar uma meta de lucro que as permita financiar seus planos de expansão tanto internamente quanto externamente.

Uma discussão mais ampla e moderna, porém, característica da dispersão que se nota na teoria pós-keynesiana da firma, é apresentada em Lavoie (2014). O autor, em parte inspirado pelos citados trabalhos de Eichner e Gailbraith, lista os quatro elementos componentes da teoria da firma, são eles, (i) os objetivos da firma, (ii) o formato das curvas de custo e o excesso de capacidade planejado, (iii) a determinação dos preços, e (iv) a relação entre a determinação de preço mais comumente debatida na teoria pós-keynesiana e as contribuições sraffianas sobre preços de produção. A opção de Lavoie (2014) é, no entanto, apresentar as frentes de discussão de todos estes pontos sem os condensar, afinal, em uma firma pós-keynesiana. Além disso, o autor extravasa o que se poderia considerar pós-keynesiano *stricto sensu*, com diversas referências que não se filiam a esta escola, como Hall and Hitch (1939), Sylos Labini (1971) e Penrose (2006), mas que servem

como fonte à teoria da firma pós-keynesiana – sem que, contudo, seus próprios modelos de firma sejam apresentados.

Ao mesmo tempo, algo que chama a atenção em Lavoie é que no compêndio sobre a teoria da firma (2014, pp. 123-181), nenhuma citação a Keynes é feita, de forma que se parece sugerir que o autor nada teria a acrescentar nesta discussão. Como se verá, não se entende neste artigo ser este o caso, inclusive porque na *Teoria Geral do Emprego, do Juro e da Moeda*, Keynes (1964) destaca que a dinâmica econômica é determinada pelo investimento empresarial que, por sua vez, necessariamente materializa-se em uma firma. Desta forma, a firma é algo caro à perspectiva de Keynes, como o longo esforço de resgate teórico de Lavoie (2014) deixa claro.

Os aspectos gerais que Lavoie (2014) aponta serem característicos das firmas pós-keynesiana envolvem elas atuarem em mercados de competição imperfeita, em que as grandes empresas *megacorps* possuem e buscam mais poder de mercado. A competição das empresas, aponta o autor, não é via preço, mas centra-se em custos, acesso a recursos financeiros e gastos discricionários de propaganda, pesquisa de mercado, pesquisa e desenvolvimento, gastos em melhoria de produtividade, criação de novos produtos, entre outros. A precificação, por sua vez, é em geral baseada em custos. Estes, por sua vez, têm suas curvas de custos variável e fixo decrescentes inicialmente e constantes após alcançado um determinado nível de capacidade instalada ocupada implicando um custo unitário total em formato L.

Outros dois aspectos trazidos pelo autor são as fronteiras financeira e de expansão que das firmas. A primeira diz respeito à taxa de lucro requerida para um crescimento sustentável da firma, em que ela consiga financiamento externo balanceado com autofinanciamento para custear sua expansão. Por sua vez, neste processo de expansão, a firma precisa buscar eficiência, administrando a compatibilidade de seu tamanho atual com seu crescimento, de suas atividades descentralizadas e em diversificação com a gerência de seus custos, com a ocupação de sua capacidade instalada com a expansão dela, mantendo-se um espaço de produção planejadamente ocioso, para atender variações de demanda ou, como apontava Sylos Labini (1971) enfrentar potenciais entrantes sem pressionar os custos. A preocupação com os custos decorre, por sua vez, de ele ser tanto um dos mecanismos centrais de concorrência, quanto de ele ser a base para a precificação.

Porém, como tantos elementos relevantes, determinação de preços, estrutura de custos, objetivos de médio e longo prazo, sintetizam organicamente uma firma? O esforço do *estado das artes* pós-keynesiano feito por Lavoie (2014) não oferece esta resposta, pelo menos não sintética e organicamente definindo a

firma, mesmo tendo-se em sua obra os fundamentos da fronteira do pensamento pós-keynesiano. Assim sendo, o objetivo deste artigo é construir um modelo teórico da firma pós-keynesiana. A contribuição que se oferece é a oferta de um modelo que sintetize a firma pós-keynesiana, que traga consigo uma noção sumarizada dela, agregando nela os elementos caros à literatura microeconômica pós-keynesiana. Ademais, também se destacará o que dentre os escritos do próprio Keynes poderia se oferecer a este debate – por sinal, a basear-se na ausência de referência a ele em Lavoie (2014), o resgate do que Keynes pode contribuir à teoria da firma pós-keynesiana é uma contribuição subsidiária deste artigo à literatura relevante. Ressalta-se, porém, que este artigo, longe de querer esgotar o debate sobre a firma keynesiana, pretende o resumir sem ser apenas uma revisão da literatura, mas oferecendo algo resultante: uma noção de firma na perspectiva pós-keynesiana.

Na estratégia de composição deste artigo, uma questão prática surge: como estruturar um modelo de firma em uma teoria que não modelou sinteticamente sua firma? Pois bem, para enfrentar esta limitação, a estratégia a ser seguida será utilizar-se da perspectiva *Visão Baseada em Recursos* (de agora em diante RBV, do inglês *Resource Based View*) como o espelho de uma firma já formada para orientar a procura dos elementos teóricos da firma na escola pós-keynesiana. Mas, por que a RBV?

A escolha se justifica por entender-se que a RBV considera a firma uma instituição cujos recursos, de diversas naturezas, se relacionam de forma bastante orgânica para conformar o que é uma firma em específico. Neste sentido, a RBV releva o papel do empresário, da incerteza, a maneira como os consumidores, a própria firma e os concorrentes interagem dinamicamente (temas caros à obra de Keynes), além de salientar a estrutura da firma de uma forma bastante orgânica, algo que se pretende realizar no modelo de firma que se propõe neste artigo. Logo, seguindo-se Eichner, pode se assumir neste trabalho a RBV enquanto oferecendo "as hipóteses comportamentais necessárias para um modelo microeconômico mais completo" (1985, p. 16). Neste sentido, a RBV, tal qual o que se deseja nesta contribuição, já realizou o esforço de sintetizar os vários elementos relevantes para se especificar uma firma – os chamados recursos na RBV – e, diga-se de passagem, de uma forma muito além de uma mera função de produção, como a firma neoclássica. Portanto, consegue-se ter uma interface que pode ser benéfica para a coleta e o desenvolvimento dos elementos teóricos para se modelar uma firma pós-keynesiana. Outro fator claramente importante salientar de partida é que não há

qualquer elemento na RBV que seja incongruente com a perspectiva pós-keynesiana.

Ainda no campo das especificações necessárias ao desenvolvimento do artigo, importa ressaltar que há duas perspectivas na RBV, a que destaca o desempenho da firma e a que se atina ao comportamento dela (Kretzer e Menezes, 2006). A segunda das perspectivas, cujo desenvolvimento seminal é atribuído a Penrose (2006), relaciona-se mais ao objetivo deste artigo, por duas questões, ambas de natureza de afinidade teórica entre a RBV e os pós-keynesianos. Por um lado, há um destaque especial ao papel do empresário no corpo orgânico que forma a firma para esta linha ´comportamental´ da RBV. Para Keynes (1964), o empresário é a peça central na dinâmica econômica, pois ele é o tomador da decisão de investimento sendo, assim, responsável pela dinâmica de geração de emprego e renda. Este papel relevante do empresário aproxima elementos caros a ambas as teorias, a partir dos quais a firma pós-keynesiana pode ser estruturada. Por outro lado, Penrose (2006) elenca como fundamentais outros aspectos que também são caros à perspectiva pós-keynesiana, como incerteza, desequilíbrio e interação dinâmica, tanto entre o curto e o longo prazos, quanto entre o ambiente da firma e seu interior. Estes fatores estão todos presentes em Keynes (1964) e constituem peça-chave para a explicação do comportamento empresarial, muito embora Keynes observe o próprio empresário e não a firma, meio pelo qual as decisões empresariais se concretizam. Esta consonância entre elementos relevantes concernentes ao comportamento da firma e termos fundamentais à teoria pós-keynesiana explica a opção pela corrente do RBV preocupada com o comportamento da firma, avançada por Penrose (2006).

A estrutura do artigo será dividida em 3 seções, além desta introdução e da conclusão. A seção 2 reúne os principais elementos da RBV no intuito de chegar a uma concepção *a priori* de firma, estabelecendo um norte para que sejam identificadas suas características, seus objetivos e os meios pelos quais eles são buscados. Na seção 3, pesquisam-se elementos que sejam capazes de formar um conceito de firma pós-keynesiana. O ponto de partida é a obra de Keynes, passando-se depois para os autores pós-keynesianos. Por fim, a seção 4 compreenderá, então, a junção dos elementos que foram apresentados na seção 3, tendo como espelho a estrutura de firma da seção 2, permitindo delinear a firma pós-keynesiana.

2. Em busca de um modelo já construído de firma: a contribuição da RBV

2.1. A firma da RBV: os recursos e o papel do empresário

Para Penrose (2006), desempenhos diferentes entre as firmas decorrem do fato de elas serem heterogêneas e deterem distintos recursos ou combinação deles. Logo, duas firmas de mesmo porte estrutural, com o mesmo produto e com recursos semelhantes podem possuir rentabilidades díspares. Segundo Penrose (2006), os recursos, ou ativos, da firma podem ser de dois tipos, tangíveis ou intangíveis. Os tangíveis são visíveis e mensuráveis no processo produtivo e podem ser de duas naturezas: produtivos e financeiros. Os produtivos são aqueles que possuem durabilidade e cuja eficiência pode ser observada no processo produtivo, por exemplo, a vida útil de uma máquina. Já os recursos financeiros são compostos não só pelo capital da firma, mas também pela capacidade dela de ter acesso ao capital externo – financiamentos, entre outros serviços financeiros. Por sua vez, os ativos intangíveis são aqueles não mensuráveis, ou seja, são recursos qualitativos. Eles podem ser desmembrados em: i) os recursos humanos – que são as capacitações e conhecimento do capital humano empregado; ii) a estrutura organizacional – que abrange não só a forma do processo produtivo, mas também o posicionamento do empresário tomador de decisões; e iii) todas as atividades que envolvam um processo de aprendizagem – como o processo de pesquisa e desenvolvimento (P&D) em busca de inovação.

Os ativos, juntos, representam a cesta de recursos de uma firma. A montagem e a manutenção de uma cesta de recursos são as responsáveis pela firma estruturar suas operações a bem de seu objetivo último, qual seja, a rentabilidade. Chandler (1967) afirma que a busca pela rentabilidade, por sua vez, é resultado de uma consciência das oportunidades e necessidades para empregar mais dos recursos existentes ou expandi-los. Em termos dinâmicos, Burlamarqui e Proença (2003) explicam o processo de formação destes recursos da firma, ressaltando que,

> um recurso é um atributo da firma que não pode ser alterado no curto prazo [...], mas devem ser sempre percebidos em seu caráter de *estoque*, em contraponto às atividades da firma, pelas quais ocorre o *fluxo* de receitas, investimentos e despesas. A diferença entre "estoque" e "fluxo" [...] implica que as decisões sendo tomadas no "fluxo" de atividades estarão construindo os "estoques" de recursos futuros da empresa (2003, p. 87-90, grifos do autor).

Para Penrose (2006), o recurso humano tem papel fundamental na composição da cesta de recursos que forma uma firma. Ele pode ser tanto funcionários qualificados bem como aqueles possuem habilidades particulares ao processo produtivo. Este ativo pode ser específico e, portanto, ele é heterogêneo

entre as firmas. Neste particular, no quadro dos recursos humanos, o empresário detém capacitações e habilidades específicas que o possibilitam exercer função de liderança, sendo ele o tomador de decisões na firma, o responsável por gerenciá-la e por promover maior eficiência organizacional.

Cabe ao empresário, ao longo da composição da cesta de recursos de uma firma, atentar-se para a possibilidade de geração de um novo ativo pela combinação dos já pertencentes à cesta, viabilizando diversidade de recursos. Assim explica-se a necessidade de geração de novos recursos pela ação perspicaz do empresário: a busca de vantagem competitiva para a firma, que se apresente como uma competência essencial para a rentabilidade dela. As competências essenciais surgem da relação entre os recursos, produtivos, financeiros e humanos. Para ser bem-sucedida, esta combinação precisa fazer com que a firma seja capaz de desenvolver capacidades internas que tornem o seu processo produtivo mais eficiente e com que ela obtenha rentabilidade maior do que seus concorrentes. Assim, "as competências essenciais [...] envolvem os mais diversos níveis de trabalhadores com algum grau de qualificação, cujas funções residem em harmonizar fluxos de tecnologia e, também, de organização do trabalho" (Prahalad e Hamel, 1997, p.240).

Contudo, existem limitações à atuação do empresário e da firma. Elas decorrem de informações distintas que os empresários recebem, da ação empresarial e da incerteza do ambiente – que Penrose (2006) entende ser a dificuldade que os empresários e a firma têm de prever o comportamento das demais firmas e do próprio mercado. Tal dificuldade estará sempre presente, já que o empresário não possui conhecimento completo do mercado. Tais limitações relacionam-se (i) à cesta disponível de recursos, (ii) à valoração desses recursos no mercado de fatores estratégicos, (iii) à presença de ativos específicos, e (iv) às capacitações e perspicácia do empresário na formação de estratégias para obtenção de vantagens competitivas sustentáveis[1].

No que toca às vantagens competitivas sustentáveis, a RBV assume a renda ricardiana na explicação da busca por elas – isto é, a capacidade de a firma obter rentabilidade anormal ao longo do tempo. Mahoney e Padian (1997) chamam tais rendas de empresariais e apontam que elas dependem de fatores de mercado e de características dos recursos próprios, comercializáveis ou não, decorrentes da

[1] Barney (1986) argumenta que valor dos recursos desejados para a estratégia de uma firma é incerto e para que se tenha sua parametrização, surge um mercado de recursos importantes para a formação de uma estratégia, isto é, um mercado de fatores estratégicos.

tomada de risco e da perspicácia empresarial em um ambiente complexo e incerto. Em particular, elementos pertinentes às rendas empresariais, como as barreiras à imitação, a busca de patentes e os *spillovers,* são relevantes. As barreiras à imitação são, de acordo com Peteraf (1993), capazes de restringir o processo de imitação entre as firmas. A busca por patentes, assim como de segredos, são determinantes da sustentabilidade de uma vantagem competitiva. Os *spillovers,* ou transbordamento de conhecimentos, de acordo com Cohen e Levinthal (1989), são elementos do processo de inovação que aparecem no surgimento de uma nova tecnologia ou serviço.

Para ser sustentável, a vantagem competitiva precisar envolver um conjunto de aspectos: a *durabilidade*, a *não-replicabilidade* (ou *não-imitabilidade*), a *não-transparência* e a *não-transferibilidade* (Grant, 1991). Chandler (1967), por sua vez, destaca a *coordenação interna* e Barney (1986) ainda cita a *não-substitutabilidade* de recursos. Especificamente, a *durabilidade* é a capacidade de um recurso colocar a firma em posição vantajosa em determinado período de tempo sem que seja copiada. A *não-replicabilidade* associa-se "à capacidade que a firma possui em tornar o menos rápido possível a capacidade de imitação por parte de seu rival" (Grant, 1991, p.125). Neste ponto, a *não-transparência* correlaciona-se, pois diz respeito à capacidade da firma impedir que outras firmas acessem os elementos centrais de sua estratégia. Ainda que a firma fosse capaz de realizar uma imitação, poderia prevalecer da não-*transferibilidade* de recursos, isto é, mesmo que eles possam ser comercializados, existem barreiras que impedem algumas firmas de obtê-los, como a imobilidade geográfica, a informação imperfeita, os recursos específicos à firma e a imobilidade de capacitações. A *coordenação interna* é a capacidade de a firma, por meio do empresário, conciliar seus aspectos organizacionais, produtivos e financeiros, objetivando a maior eficiência produtiva. Por fim, a *não-substitutibilidade* dos recursos é a dificuldade com que eles podem ser substituídos com recursos de características e finalidades semelhantes.[2] Saliente-se que Durand (1999) argumenta que quanto mais eficiente for a coordenação interna da firma, melhor o uso dos seus recursos, e menor a imitabilidade e a transferibilidade deles, tornando mais sustentável a vantagem competitiva. Outro caminho para construção de vantagens competitivas sustentáveis bastante desenvolvido por Penrose (2006) é a diversificação, analisada a seguir.

[2] Peteraf (1993) considera esse elemento uma limitação *ex post* à competição, que ocorre quando a firma estabelece recursos dificilmente substituíveis.

2.2. Diversificação: uma estratégia na busca por vantagem competitiva sustentável

A diversificação é, inicialmente, resultado da percepção do empresário dos riscos de perda de rentabilidade no mercado em que se encontra. Ela é uma possível maneira de resolução das imperfeições inerentes à atuação da firma, pois quando ela diversifica suas atividades produtivas, segundo Penrose (2006), ela inicia uma produção nova, com o objetivo de alterar ou ampliar seu processo produtivo, serviços e/ou distribuição correntes. Esse processo pode ocorrer sem necessariamente alterar a atual linha de produção, usando o aparato tecnológico disponível, sem maiores custos adicionais; claro, ele também pode acontecer alterando a operação da firma para uma área diferente do que ela realiza, o que pode exigir maiores gastos e esforços relacionados à capacitações e habilidades internas.

No caso em que a firma opta por sair da sua linha de produção, Penrose (2006) lembra que determinados fatores, como as pesquisas industriais e a base tecnológica da firma, são importantes para a diversificação. As pesquisas industriais têm o intuito de não só acompanhar, mas também de prever possíveis mudanças tecnológicas de produtos, processos e técnicas de comercialização. Assim, elas partem da percepção e da busca do empresário por novos mercados lucrativos. Neste sentido, a antecipação de novos produtos em relação aos concorrentes, por exemplo, é capaz de dar vantagens competitivas por patentes, barreiras à imitação ou, simplesmente pelo pioneirismo, à firma que a faz. Não é por menos que a competência com base no desenvolvimento de tecnologias, em complemento ao posicionamento de mercado, "é a condição mais forte e mais duradoura que uma firma pode desenvolver" (Penrose, 2006, p. 189).

Para além, segundo Penrose, "as oportunidades para gerar novos produtos [ou seja, de diversificar] decorrem de mudanças nos serviços produtivos e nos conhecimentos disponíveis na firma [...] bem como de mudanças nas condições externas de oferta e de mercado que são percebidas pela firma" (1959 [2006], p. 179). A geração de oportunidades tem papel crucial quando os processos produtivos das firmas são bastante especializados, bem como no caso em que elas possuem produtos com alta imitabilidade tanto quanto enfrentam dificuldade na renovação tecnológica e no ganho de vantagens por novas tecnologias. Além disso, é preciso que as oportunidades estejam ligadas ao poder de mercado da firma e que elas tenham alguma relação com as práticas mais eficientes e com as capacitações internas dela, pois só assim ela será capaz de trilhar novas áreas por meio da diversificação.

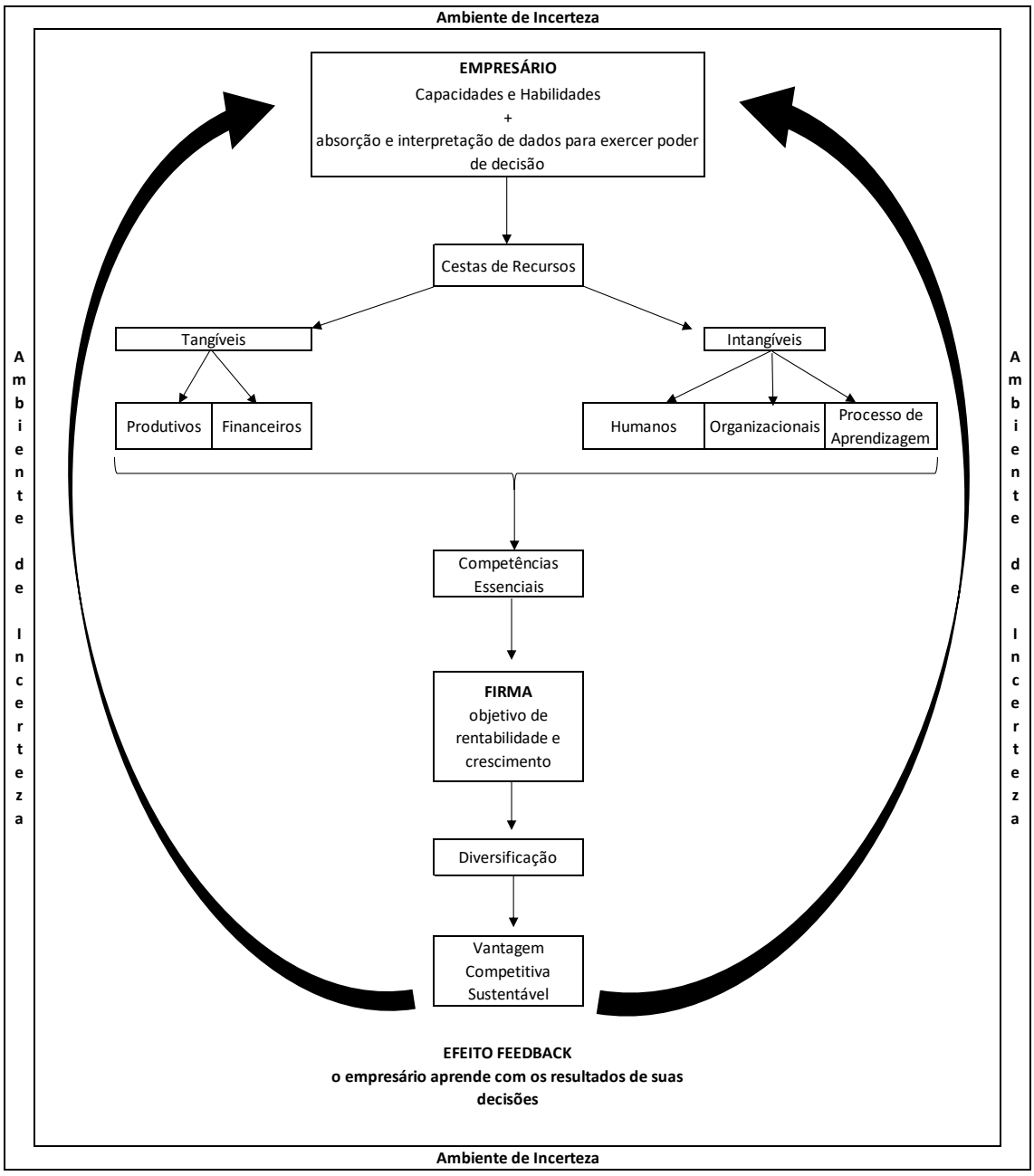
Contudo, o processo de diversificação tem suas próprias limitações, ditadas pela composição dos recursos da firma, tais como a percepção e atuação do empresário, a presença de ativos específicos e, inclusive, o excesso de recursos gerados pelo processo de diversificação. Com relação ao empresário, Penrose (2006) aponta que a busca pela oportunidade parte da decisão dele e da sua capacidade de fazer uma escolha que seja mais condizente com a estrutura física, organizacional, administrativa e financeira da firma. Suas decisões devem ser tomadas de acordo com as capacitações internas da firma, que a possibilitarão maior capacidade de absorção de informações do mercado. O mesmo vale para a especificidade dos ativos, que pode ser positiva, proporcionando uma vantagem competitiva, ou negativa, ao limitar o processo produtivo pelo alto custo de oportunidade envolvido. Não obstante, Wernerfelt e Montgomery (1988) argumentam que o processo de diversificação pode levar ao surgimento de um excesso de recursos. Isso, por um lado, pode fazer com que a firma tire benefícios de atuar em mercados próximos aos quais opera ou para os quais se diversificou, quando há neles menores barreiras à entrada. Por outro lado, isso também pode resultar em rentabilidades menores, pois a longa duração do processo faz com que uma quantidade maior de concorrentes absorva informações que vão sendo disponibilizadas, de forma que a firma geradora do *spillover* perca vantagem competitiva ao longo do tempo.

No entanto, Penrose (2006) sugere que além de condições internas à firma, outras condições externas a ela são consideradas estratégicas na diversificação. Além disso, a presença de incerteza e de riscos também é restritiva à estratégia de diversificar para se buscar maior rentabilidade. Tal incerteza está relacionada às expectativas do empresário, enquanto que os riscos são os resultados possíveis de uma dada escolha. Isso faz com que, "os riscos e a incerteza representam o limite fundamental à expansão" (Penrose, 2006, p. 107). A autora lembra também que a obtenção de um número maior de informações é uma das maneiras de reduzir a incerteza objetiva. Então, para que a diversificação represente uma estratégia fundamental para garantir uma coordenação interna mais eficiente e supere as limitações inerentes à firma, ela deverá ser uma combinação favorável entre as oportunidades de mercado e a percepção do empresário.

A Figura 1 sumariza a firma para a RBV. Ela é um conjunto de recursos heterogêneos (cesta) de naturezas tangível (que são mensuráveis) e intangível (não mensuráveis), dividindo-se em cinco categorias, i) produtivos, ii) financeiros, iii) humanos, iv) organizacionais e v) os que passam por algum processo de aprendizagem. A junção entre as duas naturezas de recursos, algo que depende das habilidades e competências do empresário, forma a competência essencial da firma.

Envolvida por um ambiente de incerteza, tais competências norteiam a firma na escolha de suas estratégias mais eficientes em busca da criação de vantagens competitivas sustentáveis – para tanto, a diversificação é uma estratégia relevante para superar as limitações da firma. Ademais, qualquer alteração nas percepções do empresário, nas capacidades e habilidades e na disponibilidade de recursos, terá como resultado diferentes competências essenciais e novas estratégias de rentabilidade em busca de vantagens competitivas sustentáveis.

Figura 1. A firma para a RBV



Fonte: Elaboração própria.

3. A Firma Pós-Keynesiana: a reunião pelos elementos relevantes

3.1 A incerteza, a expectativa, e o papel do empresário nas economias monetárias

Uma firma pós-keynesiana precisa ser descrita no contexto em que Keynes define o sistema capitalista, as economias monetárias de produção. Nela, os fatores de produção são contratados pelos empresários e o "o processo de produção não poderá iniciar, a menos que a receita de moeda prevista de uma venda seja pelo menos igual aos custos monetários que poderiam ser evitados por não se começar o processo produtivo" (Keynes, 1979, p. 78). Nessas economias, o empresário usa a sua riqueza monetária para obter fatores de produção e insumos que, levados ao processo produtivo, visam permitir que mais moeda seja acumulada com a venda da produção. Então, a economia monetária da produção "é uma economia em que a moeda desempenha um papel próprio que afeta motivos e decisões [...] de modo que o curso dos acontecimentos não pode ser previsto, a longo prazo ou a curto, sem o conhecimento do comportamento da moeda entre o primeiro estado e o último" (Keynes, 1964, p. 408-9).

Porém, confrontado por um futuro incerto e incalculável, outro elemento essencial das economias monetárias, o empresário pode preferir a liquidez da moeda à incerteza de lucro e ao fazer a escolha pela retenção de moeda, gera-se a instabilidade, a criação de desemprego e a estagnação no crescimento do produto, da renda e da riqueza. A incerteza em Keynes é fundamental, isto é, "ao menos alguma informação sobre eventos futuros não pode ser conhecida no momento da decisão, porque essa informação não existe e não pode ser retirada de qualquer banco de dados existente" (Dequech, 1999, p. 415-16).

Nesse particular, a incerteza fundamental tem duas naturezas: a epistemológica, que se relaciona ao processo de conhecimento do indivíduo, e a ontológica, pertinente ao ambiente. No primeiro âmbito, conhecer-se algo resulta de uma combinação de conhecimentos diretos obtidos por meio de informações disponíveis e compreendidas pelo indivíduo, e conhecimentos indiretos, raciocinados a partir do conhecimento direto. Nestas condições, argumenta Dequech (2004), até mesmo o indivíduo com uma grande quantidade de informações não é capaz de saber com certeza todas as informações relevantes à tomada de decisão. Já o caráter ontológico da incerteza decorre de o ambiente estar em constante mutação, pois sempre que algum indivíduo age, altera-se o curto e o longo prazos de uma forma imprevisível – a interação dinâmica que Penrose (2006) trouxe ao RBV. Davidson (1996) entende a incerteza ontológica como oriunda do caráter não-ergódico da realidade. Assim, os eventos não podem ser conhecidos

por procedimentos estatísticos, o que faz com que o indivíduo não consiga obter, *a priori*, todas as informações sobre o futuro. Desta forma, "os tomadores de decisão reconhecem que a realidade externa na qual eles operam [é] [...] não só incerta, mas também *transmutável* ou *criativa*. [...] no sentido de que o futuro pode ser permanentemente alterado em natureza e substância por ações individuais de grupo e/ou governamentais" (Davidson, 1996, p. 482, grifos do autor).

A relação entre a incerteza do indivíduo e ambiental salienta a relevância da expectativa do empresário para a tomada de decisão, pois ela é a resposta dele à incerteza fundamental *vis-à-vis* à necessidade de ele tomar decisão para aumentar a acumulação de capital. Nesse particular, as expectativas podem ser de curto e de longo prazos. As primeiras determinam o volume de produto a ser ofertado e seu respectivo preço, enquanto que as expectativas de longo prazo relacionam-se imediatamente com o investimento, isto é, com a aquisição de ativos de capital que o empresário espera lhe ofereça uma série de retornos futuros suficientes para lhe garantir lucro. Por isso, segundo Keynes (1964), quando há uma piora nas expectativas verifica-se o ciclo redutor do emprego, da renda e da riqueza.

Aliás, Keynes (1964) destaca que as expectativas dependem não só do prognóstico com que são feitas, mas também do estado de confiança do empresário naquilo que ele concluiu. Se ele crê em suas expectativas, ele opta pelo investimento em detrimento da retenção de moeda, exercendo seu *animal spirit,* pois confronta o desconhecido para efetivar sua vontade de acumular. Ao assim agir, o empresário compra bens de capital que dão vazão a processos produtivos empregadores de recursos antes ociosos. Neste processo, ele cria estoque de capital, conferindo maior riqueza à sociedade.

3.2 A caminho da firma pós-keynesiana: a constituição e o objetivo da firma

É pela decisão de investir em ativos produtivos que o empresário constitui a firma. Esses ativos possuem a característica de serem "de longa duração, [permitindo] que sobrevivam por muitos períodos de produção" (Feijó, 1993b, p. 91). Logo, a firma pós-keynesiana é o local por excelência do processo produtivo e é resultante das decisões de investimento do empresário. Ela é, então, a materialização do objetivo dele, qual seja, a busca de subsequentes lucros. Consoante Keynes (1964), a decisão de investimento é um processo que, por um lado, leva em consideração tanto evidências mais ou menos conhecidas pelo empresário, quanto expectativas sobre o futuro. Por outro lado, a constituição da firma também dependerá da confiança que o empresário depositar nas expectativas que formulou. Ainda de acordo com o autor, o empresário em uma economia monetária deve ponderar o custo de oportunidade que a taxa de juros representa

ao seu investimento produtivo, a depender da relação incerteza *versus* rentabilidade que o estado de confiança dele apontar em suas expectativas.

Entretanto, de que forma as expectativas são expressas no processo de tomada de decisão, ou seja, como é possível percebê-las? A eficiência marginal do capital exerce essa função, como um dos determinantes fundamentais do investimento. Quando um investimento é realizado, o empresário passa a ter a possibilidade de obter rendas futuras por meio da venda de seus produtos, enquanto seu investimento tiver vida útil. Os empresários detêm, ao realizarem seus planos de investimento, uma expectativa do preço de demanda – retorno total líquido – da venda do que produzirão; estas receitas esperadas serão confrontadas com o preço de oferta do ativo de capital – custo do investimento – que viabilizará a referida produção. Essa relação entre a renda esperada do investimento e o preço de oferta do ativo de capital é a eficiência marginal do capital. Sendo a eficiência marginal do capital, em parte, a expressão das expectativas que cercam a decisão do empresário, o investimento será feito apenas se a taxa de retorno esperada pelo menos equivaler os juros oferecidos por ativos financeiros.

As expectativas de retorno no longo prazo, ou seja, durante a vida útil do bem de capital adquirido pelo investidor são, segundo Feijó "fundamentalmente independentes, em sua formação, de expectativas de curto prazo" (1993b, p. 92). Elas não podem ser conferidas por meio de resultados obtidos no curto prazo e, assim, os empresários sustentam suas decisões de efetivar o investimento exclusivamente baseados em seu estado de confiança nas expectativas de longo prazo. O que os resultados de curto prazo oferecem às expectativas de longo prazo de um empresário são dados que ele usa para formar sua opinião e seu estado de confiança sobre o que um novo investimento futuro poderá lhe trazer. As expectativas de curto prazo, por sua vez, podem ser entendidas como os ajustes nos preços e na produção durante a vida útil de um bem de capital. Logo, esta expectativa é posterior à decisão de longo prazo e ela pode ser, e via de regra o é, refeita várias vezes ao longo da duração de um ativo de capital. Neste sentido, se os resultados de curto prazo indicam que a demanda efetiva está sendo equivalente à oferta produzida, novas expectativas positivas de longo prazo podem ser formadas, levando os empresários a realizarem investimentos *ex post*.

Neste particular, é possível distinguir em Keynes (1964) dois tipos de investimento, o *ex ante* e o *ex post.* O primeiro é o investimento que antecede o processo produtivo, ou seja, é aquele planejado para que a produção se inicie. Já investimento *ex post* dará continuidade à produção, possibilitando à firma permanecer em seu processo de crescimento e acumulação. Para Eichner (1985) e

Lavoie (2014), a decisão de investimento *ex post* envolve a firma ser capaz de gerar financiamento interno e/ou externo. O *funding* interno geralmente é obtido por meio da precificação da empresa, que deve prever uma margem de lucro sobre os custos unitários de produção. Estes custos são em geral levam em conta os custos diretos de produção e os fixos, relacionados à gerência da produção e à administração da empresa. O nível de produção, por sua vez, é estabelecido a partir do planejamento para subutilização da capacidade produtiva (Harcourt e Kenyon, 1992).

A margem de lucro é determinada a partir da "demanda (curva da eficiência marginal do capital) e da oferta de fundos adicionais de investimento por parte da firma ou grupo de firmas que têm, dentro da indústria, o poder de estabelecer o preço — poder este exercido, na maioria dos casos, pelo líder de preços na indústria" (Eichner, 1985, p. 10). Dado seu poder de mercado, a firma marca sua margem de retorno requerida e, assim, define seus preços para obter um fluxo de recursos que a permita investir mais, buscando rentabilidade crescente para enfrentar as limitações financeiras e técnicas ao seu contínuo crescimento. A realização da margem estabelecida oferta à empresa lucro que, retido, configura a principal fonte de recurso para a firma se expandir (Lavoie, 2014). A expansão da empresa, resultante de todo este processo, é o meio de ela obter continuamente mais condições de enfrentar suas limitações, como a concorrência, a incerteza, e as restrições ao financiamento externo[3]. Assim, enquanto o objetivo do empresário é o lucro contínuo, para que isso se sustente a longo prazo, parte do lucro realizado é reinvestido na firma, expandindo-a.

3.3 Tipos de mercado, competitividade, decisões de preço e produção e limitações da firma

Para Eichner (1985) existem dois tipos de mercado a serem considerados: o competitivo e o oligopólio. O competitivo é uma estrutura em que há um número grande de firmas, com produtos semelhantes e, por isso, substitutos entre si, além de ser um mercado de mais fácil entrada em relação ao oligopólio. Isso sugere uma maior volatilidade, com preços e produção sofrendo alterações no curto prazo, à medida que o comportamento da demanda se altera em relação ao que é esperado pelos empresários. Por fim, seu poder de decisão sobre os preços e produção é reduzido, ainda que exista.

[3] As fontes de financiamento externo podem ser os empréstimos bancários e outras formas de dívida, como debêntures e dívidas privadas, como sugere Eichner (1985), ou o lançamento de ações, como destaca Feijó (1993b).

No oligopólio, segundo Lavoie (2014) estrutura de mercado vastamente majoritária nas economias monetárias, tanto o preço quanto a produção e os custos são variáveis caracterizadas por constância ao longo do tempo e sobre ambos a firma tem elevado poder de decisão. Em linha, Feijó (1993b) aponta que a tendência nesse mercado é a firma, em particular a líder, se encontrar em uma fase avançada ou madura, no qual firmas marginais já foram eliminadas ou simplesmente exercem o papel de seguidoras. Porém, nesse cenário a competição entre as poucas grandes firmas é maior, na luta por uma maior parcela do mercado.

No tocante especificamente ao comportamento da firma, para que ela consiga sobreviver ao longo do tempo, é fundamental que sua organicidade consiga produzir uma característica importante da firma pós-keynesiana, a competitividade. Quando a firma adquire competitividade, ela tem maior capacidade de ditar a margem sobre seus custos e tem maior *market-share*, elementos fundamentais para que ela consiga ultrapassar as barreiras financeiras e técnicas a sua expansão de longo prazo. Se sua estratégia gerência é hábil o suficiente para viabilizar competitividade ao longo de todas as expansões que a firma fizer, ela incorre em melhores chances para ampliar sua competitividade, entrando em um círculo virtuoso competitividade-lucros-expansão.

Neste sentido, Feijó (1993b) argumenta que na decisão de preços, a realização do objetivo da firma dependerá da forma pela qual ela consegue manipulá-los a bem de estabelecer o *mark-up* sobre os custos de produção. Neste contexto, Eichner aponta que as firmas que não possuem essa prática cobram "os preços estabelecidos pelas empresas [...] líderes" (1985, p. 4). Todavia, há limites no poder de marcação de preços, principalmente em oligopólios com maior competição, pois preços maiores podem gerar o efeito contrário ao desejado – a diminuição do fluxo da receita por conta da sensibilidade preço da demanda, cuja razão em geral, aponta Lavoie (2014), decorre da relação de fidelização que as empresas buscam construir com seus clientes, o que é, por sinal, um dos fatores que explicam a constância de preços que se mencionou acima. Vale ressaltar, como o faz Feijó (1993b), que a decisão de preço, ainda que de curto prazo, traz consigo uma importante questão de longo prazo, pois "incorpora uma decisão sobre a taxa a qual a firma irá crescer no longo prazo" (Feijó, 1993b, p. 89). Pode-se perceber, portanto, que existe uma ligação entre as decisões de preço e investimento, já que a primeira é um dos caminhos pelo qual a firma será capaz de obter o financiamento para seus investimentos *ex post*.

Por sua vez, a decisão de produção é a quantidade que a firma escolhe ofertar e, como Keynes (1964) denota, baseia-se nas expectativas de curto prazo do

empresário, tanto as relacionadas aos custos, quanto ao resultado já obtido das vendas da produção. Ela é, então, pautada pelas expectativas sobre o comportamento do mercado e são elas que determinam o volume de emprego efetivamente ofertado pelas empresas. Keynes (1964) aponta que essa decisão, via de regra, baseia-se em um raciocínio convencional de que os resultados futuros serão repetições das vendas correntes. Ver-se-á tal situação, em especial em mercados maduros e consolidados, nos quais existem maior estabilidade e constância dos resultados obtidos, sugerindo uma previsão menos incerta da trajetória do mercado, como observou Eichner (1985). Empresas que já possuem maior poder de mercado, que detiveram processo de crescimento e ganharam competitividade, conseguem administrar melhor eventuais variações de demanda, usando, para tanto, administração de sua capacidade produtiva, sobretudo no espaço em que as curvas de custo são horizontais.

Nesse particular, uma característica que Feijó (1993b) traz à discussão sobre a decisão de produção é que ela depende da percepção que os empresários têm sobre os preços futuros, afinal, é isso que o eles esperam receber pelo esforço produtivo, lembrando que o preço é corrente e não determina o que será o preço de amanhã diante de decisões de produção ou investimento presentes. Entretanto, ainda sim, ela é capaz de influenciar estas referidas decisões, principalmente o investimento *ex post*, já que o preço é determinado objetivando obter margem de lucro suficiente para gerar financiamento interno e gerar colateral suficiente para enfrentar eventuais restrições de crédito. Assim sendo, Feijó (1993b) afirma que a decisão de produção também é estabelecida pela relação entre os preços corrente e futuro. Note-se que a decisão de produção envolve o princípio da temporalidade das economias monetárias da produção. Mesmo que ela seja uma decisão caracteristicamente de curto prazo, suas repercussões se dão ao longo do tempo e não podem ser revertidas. Além disso, essa decisão depende do comportamento dos preços correntes e o que os empresários esperam dos preços futuros. Apesar de Keynes (1964) dar maior importância para a decisão de produção, os pós-keynesianos, como Eichner (1985) e Lavoie (2014), dão maior foco à decisão de preços, principalmente por ser ela uma das determinantes financeiras do investimento *ex-post*, fator essencial à obtenção de lucros e, paralelamente, ao crescimento de longo prazo da firma.

Assim sendo, existem limites inerentes a cada decisão, que podem dificultar que ela corresponda à expectativa do empresário. Porém, à medida que a firma amadurece, ela é capaz de reduzir esse tipo de limitação, estando sujeita à sua própria capacidade de crescer à longo prazo, aquilo que Lavoie (2014) chama de

fronteira de expansão. Dessa maneira, Feijó (1993a; 1993b) argumenta que há limites para a competitividade da firma, decorrentes da sua capacidade de manipular seus preços, sugerindo a diversificação como uma possível solução. Ela é capaz de enfrentar a incerteza, ampliando seu leque de investimentos e, além disso, a firma embarca em um novo mercado que a permite não só ter mais espaço para proporcionar maiores margens de lucro via preços e produção, como também, apoiada pelo desenvolvimento de novas tecnologias e um planejamento estruturado. Nesse particular, Santos e Crocco (2000) entendem que a consciência da existência desse limite é o ponto de partida para a importância das mudanças tecnológicas para os pós-keynesianos.

3.4 Mudanças tecnológicas, cesta de recursos e suas repercussões sobre a firma

Se a tecnologia é importante, quais as consequências dela no processo produtivo? Galbraith (1988) enumera seis, e, diga-se de passagem, tema negligenciado no citado compêndio de Lavoie (2014). A primeira diz respeito ao lapso de tempo entre a decisão de produzir e o produto final. O emprego de tecnologia acompanha a necessidade de evolução do processo produtivo da firma, que passa a ser conduzido com uma maior segmentação das etapas. O uso contínuo da tecnologia leva à segunda consequência, o aumento do capital investido no processo produtivo. Neste ponto, o investimento em tecnologia pode tanto potencializar a competitividade da firma, caso o empresário consiga ter uma visão mais acurada do que o futuro trará à competição, quanto prejudicá-la, com o emprego de uma máquina que se torne defasada antes do período de uso esperado. Isso sinaliza a terceira consequência, "com o crescimento da tecnologia, o emprego de tempo e dinheiro tende a ser feito de maneira mais inflexível com relação ao desempenho de determinada tarefa" (Galbraith, 1988, p. 23). Em outras palavras, o uso da tecnologia a longo prazo envolve, além da necessidade de maior volume de investimento, conhecimentos diferentes e específicos, fazendo com que a firma se mantenha em linha com uma trajetória tecnológica, realizando mudanças a partir do seu conhecimento em alguma tecnologia desenvolvida previamente.

A quarta consequência alude ao conhecimento específico necessário para que a tecnologia seja utilizada eficientemente. Logo, a especialização da mão de obra é requerida, fazendo com que o processo de inovação seja condicionado pelas capacitações inerentes e adquiridas pela firma. A quinta consequência é a necessidade de a firma se organizar, como contrapartida da especialização. É esta organização "que faz com que o trabalho de especialistas chegue a um resultado coerente" (Galbraith, 1988, p. 24). Por fim, a sexta consequência une todas as demais para sugerir que diante de um "aumento do tempo e capital que devem ser

investidos, na inflexibilidade desse investimento, das necessidades da grande organização e dos problemas da atitude do mercado sob condições de tecnologia avançada, vem a necessidade do planejamento" (Galbraith, 1988, p. 24).

Dessa forma, a implantação de tecnologia no processo produtivo, apesar de seus entraves como a inerente incerteza sobre seu sucesso e/ou a necessidade de um conjunto de capacitações pré-existentes, é essencial para a sustentação da competitividade e do crescimento de uma firma. Isso é especialmente importante quando a manipulação de preços e da produção se tornam insuficiente para manter a obtenção de lucro a longo prazo, caso comum na dinâmica das economias monetárias.

4. A Firma Pós-Keynesiana: um modelo sintético

Os pós-keynesianos, por um lado, preocupam-se com a determinação de preços com vistas à obtenção de margens de lucro para o investimento, como é caso de Eichner (1985) e Lavoie (2014). Por outro lado, autores como Gabrailth (1988), abordam as decisões de produção, a estruturação do processo produtivo e as repercussões da tecnologia nas estruturas produtivas. Feijó (1993b) aglomera as três decisões (investimento, preços e produção) aos elementos presentes nas obras de Keynes, como é o caso da incerteza e do papel da moeda. Contudo, o que se percebe é que no caso da teoria pós-keynesiana, o conceito e, sobretudo um modelo da firma são ainda dispersos. Cabe, agora, apresentar os elementos que, sinteticamente, trazem a mente o que seriam as componentes que, organicamente, definem a noção de firma pós-keynesiana. Para isso, ter-se-á em mente a firma da RBV e, assim, pode-se apresentar a firma pós-keynesiana via sete elementos que a definem e que se distribuem nos principais elementos que a constituem – sua composição, características, objetivos e limitações.

i) *A firma é um conjunto de recursos (ativos), vários deles específicos a ela.* Na firma pós-keynesiana essa característica não é apresentada como um atributo por nenhum autor, mas é necessária, pois a firma sempre será um arranjo de ativos, financeiros, produtivos e humanos, que comporá o que é a firma a partir da decisão de aquisição de ativos do empresário. Não obstante, é a diferença dos ativos detidos entre uma firma e outra que a confere competitividade no processo concorrencial em que se encontra e que faz as firmas serem dinâmicas e heterogêneas.

ii) *O porte da firma como resultado de seu objetivo de expansão*. A firma pós-keynesiana típica é uma grande empresa, diversificada, que é deste porte para enfrentar as vicissitudes de atuar em um oligopólio. O porte da firma é resultado

de seu estado evolutivo, momento em que ela está com grande inserção e poder de mercado, de maneira que o empresário tem a capacidade de ter maior controle sobre suas decisões, fundamental para que seu objetivo, lucro, seja também possível ao longo do tempo.

iii) *A busca por rentabilidade.* As rentabilidades crescentes são objetivo intermediário de uma firma pós-keynesiana, meio para que seu fim, crescimento contínuo e sobrevivência, ocorra. Esse objetivo justifica-se pela materialização, por meio da firma, da vontade do empresário em obter mais riqueza na forma de moeda, ou seja, lucros monetários crescentes.

iv) *Competitividade.* A competitividade está associada ao processo decisório e à capacidade do empresário em bem organizar seus recursos e tirar deles a melhor eficiência possível, capaz de enfrentar as limitações técnicas do processo de expansão, a criação de novos mercados, o enfrentamento da concorrência. É a característica que define a habilidade da empresa em se movimentar, na busca por seu maior porte, financiado pela rentabilidade crescente. Competitividade significa maior chance de obtenção de poder de mercado, de forma que a competitividade define a captura de parcelas crescentes da demanda.

v) *O papel essencial do empresário.* Todos os fatores acima listados dependem crucialmente do papel do empresário, que é um elemento central antes mesmo que a firma exista, pois ele é o detentor de riqueza e poderá ou não optar pelo investimento em um processo produtivo, que constitui a firma. Além disso, ele possui habilidades e capacidades que o distinguem e o destacam em relação aos demais ativos que compõem uma firma, atribuindo a ele a função de criador e tomador de decisões. Então, não basta apreender a firma a partir do momento em que ela está estruturada, mas, é essencial denotar a motivação para sua criação, isto é, o intento do empresário em lucrar, posto que está em uma economia monetária de produção. Assim, o empresário é o ator formador e mantenedor da firma, é ele quem realiza o investimento inicial e os demais investimentos *ex post*, é o recurso mais inexorável da firma.

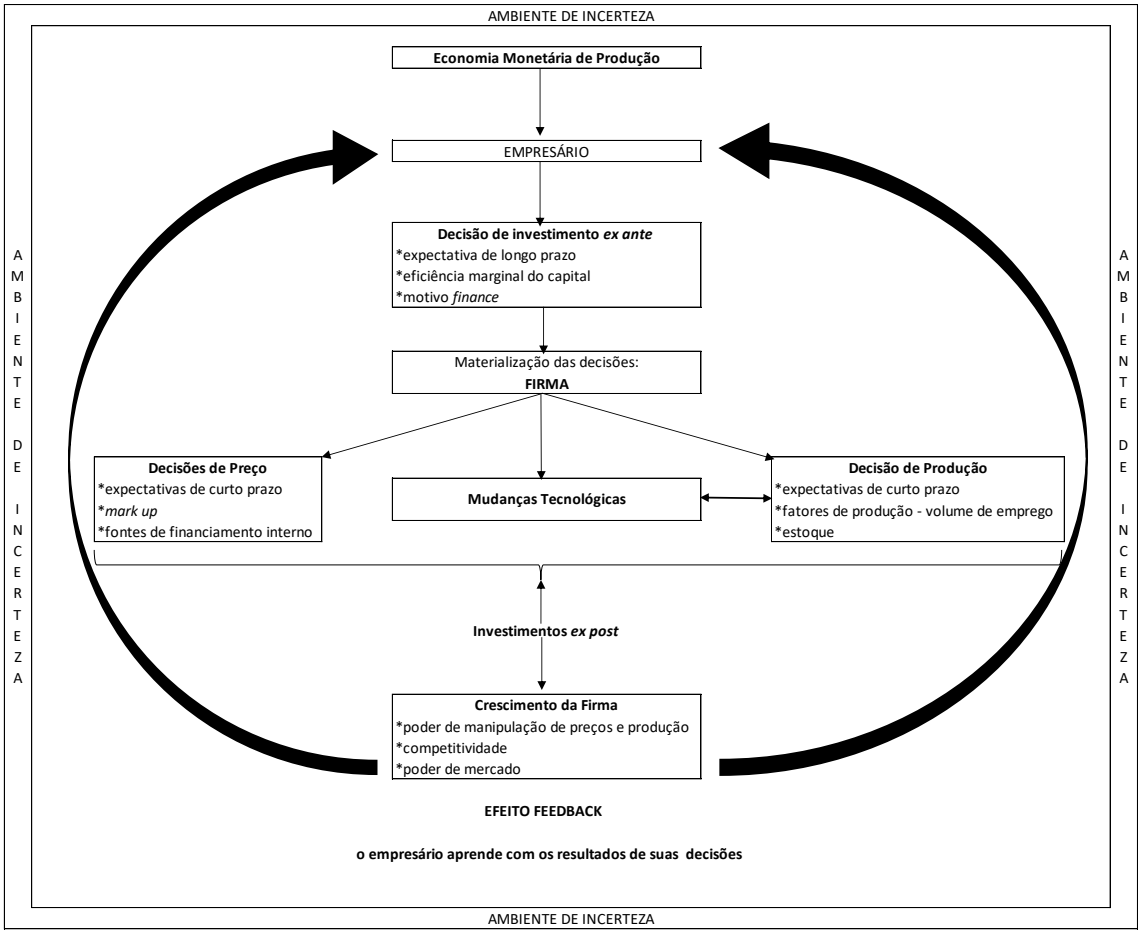
vi) *Incerteza fundamental.* As expectativas de curto e longo prazos são a forma pela qual o empresário lida com a incerteza fundamental. Suas expectativas de longo prazo prospectam seus investimentos, seja o inicial e os *ex-post*. Para tanto, o empresário conta com os recursos disponíveis e com os que poderão ser adquiridos e/ou criados em favor do processo produtivo, o que exige que ele esteja presente no gerenciamento do processo produtivo. Ademais, intensifica a incerteza, e o papel do empresário defronte ela, o tempo ser unidirecional. No curto prazo, as decisões podem ser revistas, mas isso implica a firma incorrer em custos. Porém, as

decisões de longo não podem ser refeitas, elas são cruciais. Assim, a grande preocupação dos empresários neste processo dá-se pela irreversibilidade do tempo e as consequências que uma decisão pode gerar no futuro. Isso é agravado pelo ambiente incerto, que está em constante mutação e muda as informações disponíveis ao empresário a todo tempo. Porém, a todo tempo o empresário está agindo para que a materialização de seu objetivo de lucro se materialize na firma. Enfim, o empresário e, por consequência, a firma, não é capaz de reunir todas as informações necessárias para o conhecimento pleno. Essa situação é agravada por conta de cada movimento de um concorrente em gerar modificações no mercado, que são impossíveis de serem completamente previstas ou absorvidas pelos empresários.

(vii) *A tecnologia é estruturante da firma.* O desenvolvimento de inovações em produto e processos produtivos indica a preocupação da firma em tomar a tecnologia como parte estruturante de si, deixando de ser um fator exógeno. Além disso, Galbraith (1988) lembra que o empresário deve estar atento a essas mudanças, acompanhando-as por um planejamento, para que o objetivo de obter rentabilidade que financie seu crescimento se realize. Aliás, a característica de a firma seguir uma trajetória tecnologia ressalta o caráter dinâmico e evolutivo dela.

Portanto, como a Figura 2 sintetiza, a firma pós-keynesiana é a vontade do empresário em acumular capital, materializada por meio do investimento *ex ante* em um processo produtivo que é constituído com ativos produtivos, financeiros e humanos, em uma economia monetária de produção caracteristicamente incerta e dinâmica. Nela, as expectativas de curto e longo prazos sobre o comportamento da demanda efetiva são inter-relacionadas e afetam diretamente o processo decisório. Com a firma com maior competitividade terá maior poder de mercado e será capaz de um maior controle nos preços e na produção, facilitando suas condições internas em superar as restrições financeiras e técnicas para sua expansão ao longo do tempo, meio de os lucros desejados pelo empresário continuarem a ser obtidos. Porém, as condições internas encontram limites internos e externos, como as oscilações da demanda, erro expectacional, a concorrência, os quais podem ser superados pelo uso da tecnologia em favor da diversificação, de processo e de produto, da firma.

Figura 2. A firma pós-keynesiana



Fonte: Elaboração própria.

5. Conclusão

Diante da revisão da literatura realizada e tendo a RBV como um espelho do que vem a ser um modelo de firma já consolidado, a síntese da firma pós-keynesiana foi compreendida como um arranjo de ativos produtivos, financeiros e humanos materializados pela vontade do empresário em formar um portfólio que lhe possa conferir lucros e, assim, ampliar sua riqueza. O processo produtivo só será iniciado se o empresário tiver expectativa de retorno acima dos custos envolvidos na produção. Logo, o objetivo da firma, materialização da vontade do empresário, é ofertar lucro ao(s) seu(s) detentor(es) ao longo do tempo e, para isso, seu objetivo final é crescer.

O empresário, logo, tem papel central, pois é ele quem usa de seu *animal spirit* e cria a firma, diante de um modelo dinâmico em que as expectativas de curto e longo prazos são inter-relacionadas. Contudo, o empresário é confrontado pela incerteza, de forma inexorável, ao tomar a decisão de investimento *ex ante*,

baseado em suas expectativas de longo prazo. Ele inerentemente desconhece o resultado que advirá de sua composição de ativos, embora no curto prazo, por meio das decisões de preço e produção, busque ajustar suas decisões para que os proventos sejam lucrativos.

As decisões de preço e produção dependem da competitividade da firma. As decisões a serem tomadas pelo empresário também dependem diretamente do poder de mercado detido pela firma, o que reforça o elemento competitividade. Há uma relação endógena entre poder de mercado e competitividade: quanto maior um, maior o outro. Dessa forma, para a pós-keynesiana da firma, o que determina reações e resultados distintos em mercados diversos é a competitividade da firma *vis-à-vis* às demais firmas da indústria. Porém, para a manutenção da competitividade, a firma depende de um elemento que vai além, que é a capacidade de a competitividade superar as barreiras financeira e técnica a sua expansão de longo prazo. Quando a possibilidade de obtenção de lucros e de crescimento é esgotada, a maneira para ampliar a lucratividade da firma é o uso da tecnologia para inserir novos produtos no mercado ou, até mesmo, adentrar em outros – isso é a diversificação da firma. Nesta síntese, têm-se os sete elementos orgânicos da firma, quais sejam, o um conjunto de recursos (ativos), vários deles específicos a ela; o seu porte resultar de seu objetivo de expansão; a busca por rentabilidade é o caminho para seu crescimento; a competitividade é que garante que a busca de rentabilidade se realize; o papel essencial do empresário em fazer com que a firma aconteça e exista; e a tecnologia é estruturante da firma.

Há muito ainda a ser desenvolvido acerca da firma pós-keynesiana e este trabalho pretende ser visto com uma tentativa nesta direção. A reunião de elementos que configuram uma firma e o adensamento deles em um sentido lógico que permitisse perceber o que ela é, a que serve, como se comporta, quais limitações enfrenta e como faz para superá-las sustentavelmente, oferece à perspectiva pós-keynesiana material para próximos passos. É importante para a teoria pós-keynesiana buscar 'microfundamentar-se', afinal, o estudo do agregado, isto é a macroeconomia (que tem Keynes como um de seus fundadores) não decorre de outra coisa que não as decisões microeconômicas, que em muito se materializam na firma.

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Metas de inflação e consistência expectacional em um modelo com regra de juros não linear*

Inflation targets and expectational consistency in a model with a non-linear interest rule

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Resumo

O principal objetivo deste artigo é construir um modelo macroeconômico de inspiração pós-keynesiana que leve em conta uma não-linearidade na regra de juros. Assume-se que a autoridade monetária considera, na determinação da taxa de juros, a interação entre a taxa de inflação e o nível de utilização da capacidade instalada, de modo que a sensibilidade da regra de juros ao hiato da inflação com relação à uma meta varia de acordo com o ciclo econômico. O arcabouço de política macroeconômica proposto no trabalho permite que a autoridade monetária possa dar peso tanto à inflação quanto ao produto sem perder de vista o papel de ancora expectacional da meta de inflação.

Palavras-chave: dinâmica pós-keynesiana; regra de juros não-linear; consistência expectacional.

Abstract

The aim of this paper is to develop a post-Keynesian macroeconomic model that takes into account a non-linearity in the interest rate rule. We assume that the monetary authority considers, in the practice of monetary policy, an interaction between inflation rates and the rate of capacity utilization, so that the sensitivity of the interest rate rule to the gap of inflation in relation to target varies according to the economic cycle. The macroeconomic policy framework proposed here allows the monetary authority to be sensitive to the inflation and to the output without, losing sight of the anchoring role of the inflation target.

Keywords: post-Keynesian dynamics; non-linear interest-rate-rule; expectational consistency.

JEL Classification: E00; E52; E58.

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1. Introdução

Desde 1990 o regime de metas para a inflação (IT) passou a ser a norma de política monetária em vários bancos centrais ao redor do mundo. Atualmente cerca 35 países adotam este regime monetário (Schmidt-Hebbel e Carrasco, 2016), e vários são os estudos empíricos que avaliaram o desempenho macroeconômico dos países que têm seguido este arcabouço de política econômica (Ball e Sheridan, 2003; Gonçalves e Salles, 2008; Mendonça e Souza, 2012).

Mesmo a literatura macroeconômica convencional tendo avançado nas últimas duas décadas na construção de modelos teóricos que consideram explicitamente o regime IT (por exemplo, Clarida, Gali e Gertler, 1999), a literatura pós-keynesiana começou a considerar o arcabouço IT em modelos formais apenas recentemente, com os trabalhos seminais de Setterfield (2006) e Lima e Setterfield (2008). De fato, na sua forma original, o regime de metas de inflação deriva de um conjunto de hipóteses aparentemente antagônicas à tradição pós-keynesiana, especialmente no que diz respeito à ênfase dada à inflação baixa em detrimento de preocupações relacionadas com o nível do produto. Segundo Setterfield (2006), essa aparente incompatibilidade entre o regime IT e as preocupações keynesianas típicas poderia ser superada desde que: i) se considere devidamente o produto como parte primordial dos objetivos da política monetária; ii) o componente de conflito distributivo da inflação não seja negligenciado e; iii) se considere o papel da demanda agregada na determinação do produto real.

De fato, o debate sobre as causas da inflação não acontece sem controvérsias, especialmente quando se compara a literatura convencional com a abordagem pós-keynesiana. Como ressalta Montes (2009), dentro da tradição pós-keynesiana, uma série de fatores são apontados como explicações possíveis para o movimento dos preços, de modo que se possa classificar a inflação de várias formas, tais como: i) inflação oriunda de pressões salariais, ii) inflação oriunda na variação das margens de lucro e do grau de monopólio, iii) variação dos preços oriunda de *pass-through* cambial, iv) inflação relacionada com diminuições nos retornos de escala, v) inflação oriunda exclusivamente dos movimentos na demanda, vi) inflação oriunda de mudanças na estrutura tributária e, finalmente, vii) inflação oriunda de choques de oferta.

A classificação feita anteriormente, obviamente, não encerra o debate sobre as causas da inflação e servem apenas como ponto de partida. Várias outras dimensões do processo inflacionário podem vir a tona, incluindo as expectativas dos agentes e o arcobouço institucional no qual esses agentes se inserem. Longe de

encerrar o debate, contudo, é bastante usual, para fins de simplicidade analítica, classificar o processo inflacionário como advindos basicamente de duas grandes fontes, os custos e a demanda. Por outro lado, pode-se considerar, especialmente a partir das contribuições de Rowthorn (1977), que essas duas dimensões do processo inflacionário são, em última instância, relacionadas com o conflito distributivo, geralmente descrito como a disputa entre capitalistas e trabalhadores por frações da renda nacional. Embora o conflito distributivo seja mais evidente no caso da barganha por maiores salários, em vista de mudanças na conjuntura econômica, várias outras formas de conflito distributivo são bastante usuais, como, por exemplo, a tentativa de aumento das margens de lucro por parte das firmas ou mesmo o aumento dos impostos por parte do governo. Note-se que, embora essas mudanças nos preços sejam geradas por um componente de custos (mudança nos salários por exemplo), esses movimentos nos preços podem decorrer de reações endógenas à mudanças na demanda agregada/taxa de utilização da capacidade instalada. É basicamente esta abordagem a seguida neste trabalho, considera-se aqui o conflito distributivo, refletido na barganha salarial, como principal fonte de mudanças nos níveis de preços. Uma vez que os trabalhadores estão sujeitos à mudanças no cenário econômico que lhes permitem ter mais ou menos poder de barganha, a demanda agregada/taxa de utilização da capacidade instalada acaba por influênciar o movimento dos preços. A partir dos trabalhos de Setterfield (2006) e Lima e Setterfield (2008), alguns outros trabalhos passaram a incorporar, com diferentes estratégias de modelagem, a possibilidade de um regime de metas de inflação sob um framework fundamentalmente pós-keynesiano. Um traço comum desta literatura, tanto para economias fechadas quanto abertas, está na hipótese de linearidade da regra de política monetária, como pode ser verificado nos modelos dinâmicos desenvolvidos por Porcile, Souza e Viana (2011), Santos (2011), Drumond e Porcile (2012) e Drumond e Jesus (2016).

Quando se considera uma regra de política monetária linear, supõe-se implicitamente que seus coeficientes são constantes. Se este for o caso, a preocupação da autoridade monetária com a inflação, por exemplo, é sempre a mesma, independentemente se a economia estiver em expansão ou em contração. Refletindo acerca desta questão, Blinder (1997, p. 6) reconheceu que os macroeconomistas acadêmicos tendem a usar "funções de perda quadráticas por razões de conveniência matemática", (o que culmina em uma regra de política monetária linear) "sem pensar muito nas suas implicações substantivas". Além disso, estudos empíricos com dados de diferentes países têm sugerido que não são raros os casos em que os Bancos Centrais têm preferências assimétricas (Martin e Milas, 2004; Dolado et al., 2005; Surico, 2007; Cukierman e Muscatelli, 2008).

Nessa perspectiva, não parece absurdo supor que os parâmetros de uma regra de política monetária variem ao longo do tempo de modo que dependam, por exemplo, de que fase do ciclo econômico a economia esteja.

Adicionalmente, uma outra questão substantiva surge quando o regime de metas de inflação é desenhado sob um framework pós-keynesiano. O foco concomitante na inflação e no produto só poderia ser plenamente consistente na presença de alguma política complementar à política monetária, como é o caso da política de rendas no modelo desenvolvido por Lima e Setterfield (2008). Ocorre que, como tentaremos demonstrar adiante, na ausência da hipótese de produto natural de longo prazo, assim como na ausência de políticas complementares à política monetária, uma regra de juros de duplo mandato típica não pode garantir a convergência da inflação efetiva para a meta de inflação.

Levando em conta as observações acima, o principal objetivo deste artigo é construir um modelo macroeconômico de inspiração pós-keynesiana que leve em conta uma não-linearidade na regra de juros. Consideraremos aqui que quanto mais próxima (afastada) do pleno nível de utilização da capacidade instalada a economia estiver, a autoridade monetária será mais (menos) sensível aos desvios da inflação com relação à meta. Esta dependência do parâmetro da inflação (na regra de juros) do nível de atividade econômica é uma clara distinção entre o modelo desenvolvido aqui e àqueles disponíveis na literatura pós-keynesiana até o presente momento.

Em termos de política macroeconômica, a principal contribuição do trabalho é apresentar uma regra de política monetária que, condicionada por limitações institucionais, especialmente no que diz respeito às políticas de renda, permita a autoridade monetária dar peso tanto à inflação quanto ao produto sem perder de vista o papel de ancora expectacional da meta de inflação. Não menos importante é o fato do modelo ser construído sem que se imponha de maneira *ad hoc* a convergência da inflação para a meta, ou se imponha alguma forma limite de comportamento expectacional, como é o caso da hipótese de expectativas racionais.

O presente artigo está organizado em mais três seções além desta introdução. Na segunda seção apresentamos uma breve revisão da literatura, na terceira seção propomos um modelo pós-keynesiano *standard* como ponto de partida da nossa análise e, finalmente, na quarta seção analisamos o modelo no contexto da regra de juros não linear. A conclusão encerra o trabalho.

2. Revisão da literatura e motivação

Os principais ingredientes dos modelos pós-keynesianos que levam em conta o regime IT são os seguintes: i) o papel da demanda agregada é central na determinação da renda e do equilíbrio macroeconômico; ii) o mercado de bens opera abaixo do pleno emprego (existe capacidade instalada ociosa na economia); iii) a curva de Phillips é derivada a partir de um processo de barganha salarial; iv) a autoridade monetária manipula a taxa de juros para alcançar determinado(s) objetivo(s) macroeconômicos (a oferta de moeda é endógena); v) não existe taxa natural de juros; vi) as expectativas de inflação importam na determinação do nível observado de inflação. Além disso, considerações sobre políticas de rendas[1], economia aberta e política fiscal também têm sido incorporadas em macro modelos pós-keynesianos sem muita dificuldade.

Sobre a curva Phillips, assim como em Setterfield (2006), diferentemente do que ocorre nas abordagens macro-monetárias convencionais, não é necessário assumir nenhum formato particular para ela, sobretudo, no que diz respeito ao longo prazo. Apesar disto, neste trabalho, considera-se que pressões inflacionárias advindas de mudanças no poder de barganha dos trabalhadores (que é endóngeno à mudanças na taxa de utilização da capacidade instalada) podem ocorrer fora do pleno emprego. A possibilidade de pressões inflacionárias antes que a economia se encontre no pleno emprego difere da visão difundida pela linha de pensamento conhecida como *Modern Monetary Theory* (MMT). Uma ampla discussão sobre a MMT pode ser encontrada em Wray (1998) e Wray (2014).

Nos modelos construídos por Setterfield (2006), Lima e Setterfield (2008) e Santos (2011), a compatibilização entre o regime IT e a macroeconomia pós-keynesiana é possível porque existe um papel importante para as políticas de rendas, o que torna viável as autoridades políticas se preocuparem tanto com o nível de atividade quanto com a inflação e, ao mesmo tempo, garantirem a estabilidade do sistema econômico. De acordo com Setterfield (2006, p. 665) uma das peculiaridades de seu modelo pós-keynesiano estendido está no fato de que este modelo estrutural "involves policy making that explicitly recognizes the importance of aggregate demand conditions for real economic activity and the "conflicting claims" basis of the inflation process".

[1] Setterfield (2007, p. 129) define políticas de rendas como sendo "formal and/or informal institutions that frame and mediate aggregate wage and price setting behaviour in such a way as to reduce conflict over income shares and better reconcile conflicting income claims". É neste sentido que a ideia de políticas de renda é entendida neste artigo.

De fato, um dos principais resultados do modelo de Lima e Setterfield (2008) é que quanto mais ortodoxa for a combinação de políticas, mais adversas são as consequências para a estabilidade macroeconômica e a viabilidade do regime IT em um modelo pós-keynesiana. Já o modelo desenvolvido por Santos (2011), que é uma extensão do modelo de Lima e Setterfield (2008), sugere que, para que o equilíbrio dinâmico em uma economia pós-keynesiano seja estável, "the incomes policy should at least react to the inflation gap, while the monetary policy should at least react to the output gap" (Santos 2011, p. 316). Como pontua Carvalho (2015, p. 127) embora muitos seguidores de Keynes – incluindo alguns keynesianos da síntese neoclássica como Tobin (1985) – reconheçam que políticas de renda podem ser uma política de estabilização complementar, não é claro se Keynes proporia políticas de renda de maneira permanente. Na prática, a maioria das experiências com políticas de renda observadas no pós-guerra foi baseada no controle ou acompanhamento dos salários. No entanto, sabe-se que uma barreira para a implementação permanente das políticas de rendas nas economias capitalistas modernas é o arcabouço institucional da barganha salarial verificado em cada país. Diferenças no processo de moderação salarial e de barganha sindical podem inviabilizar do ponto de vista político a implementação de políticas de rendas para mediar o conflito distributivo e combater a inflação. Quanto maior for o país (e sua força de trabalho) e mais fragmentada for a sociedade (e os sindicatos), mais inviável se tornam as políticas de rendas.

Nesse sentido, uma alternativa ao uso das políticas de rendas como uma ferramenta de combate à inflação em um ambiente pós-keynesiano é considerar uma regra de juros linear ou IROP (*Interest Rate* Operating *Procedure) que leve em conta tanto a inflação como o produto/emprego. É nesta perspectiva que são construídos os modelos de* Porcile, Souza e Viana (2011), Drumond e Porcile (2012) e Drumond e Jesus (2016). Nestes trabalhos, implicitamente, assume-se que, embora o processo inflacionário seja oriundo dos custos (variações dos salários), a taxa de juros, ao influênciar a taxa de utilização da capacidade instalada, tenha condições de interferir na dinâmica dos preços. Sobre a capacidade dos juros impactarem a taxa de utilização da capacidade instalada e, consequentemente, a barganha salarial, segue-se nestre trabalho basicamente a mesma hipótese. Posto isto, os resultados do modelo devem ser interpretados circunscritos à esse cenário onde os juros influenciam o investimento e a taxa de utilização da capacidade instalada, como em Setterfield (2009) e Rochon e Setterfield (2006).

Nestes trabalhos, ao considerarem um conjunto de hipóteses fundamentalmente pós-keynesianas para pequenas economias abertas, é possível

mostrar que a depender do arranjo de política macroeconômica considerado, o equilíbrio dinâmico derivado pelo modelo é estável, mesmo sem considerar qualquer tipo de políticas de renda. Por outro, como demonstraremos adiante, uma regra de juros linear deste tipo, apesar de gerar um equilíbrio dinâmico estável, gera uma importante inconsistência expectacional, ao não garantir a convergência da inflação efetiva para a meta.

Na seção seguinte procuramos descrever um modelo padrão que servirá de base para os exercícios subsequentes propostos no trabalho.

3. Um modelo pós-keynesiano standard

3.1. O equilíbrio no mercado de bens e a curva IS

Nesta seção procura-se construir um modelo standard de origem pós-keynesiana considerando a existência de capacidade instalada ociosa na economia. Considere a seguinte demanda agregada para uma economia fechada

$$Y = C + F + I \qquad (1)$$

Na qual Y é o produto/demanda agregada, C é o consumo agregado, F é o gasto do governo e I é o investimento agregado. O consumo agregado é escrito como uma função linear da renda, de modo que $C = cY$, com $0 < c < 1$. Por simplicidade e em vista dos objetivos deste trabalho, diferenças entre a propensão marginal a consumir de capitalistas e trabalhadores são desconsideradas.

Normalizando a demanda agregada em termos do estoque de capital obtém-se

$$uv = cuv + f + g \qquad (2)$$

Sendo $u = \frac{Y}{\bar{Y}}$ a taxa de utilização capacidade instalada, $\bar{Y}$ o produto de pleno emprego, v o inverso da relação capital produto, tomada como constante, c a propensão marginal a consumir, f o gasto do governo como proporção do estoque de capital e g o investimento como proporção do estoque de capital.

O investimento como proporção do estoque de capital, por seu turno, pode ser escrito como uma função positiva do nível de utilização da capacidade instalada e negativa da taxa real de juros

$$\frac{I}{K} = g = g_0 + \delta_1 u - \delta_2 r \qquad (3)$$

Sendo g_0 um parâmetro positivo que busca apreender o "espirito animal" dos empresários, r a taxa de juros real e δ_1 e δ_2 parâmetros positivos. A correta especificação de uma função investimento é motivo de controvérsia na literatura pós-keynesiana/kaleckiana, sendo que diferentes fechamentos no modelo podem ser obtidos a partir de distintas funções de investimento, como se pode ver em Setterfield (2017) e Hein, Lavoie e van Treeck (2011). Neste artigo, desconsideramos a eventual influência que uma taxa de utilização da capacidade instalada considerada normal pelos capitalistas poderia exercer na decisão de investir. Já o uso da taxa de juros na função investimento procura, de maneira análoga à feita por Setterfield (2009) e Rochon e Setterfield (2006), incorporar indiretamente o impacto dos juros sobre a taxa de lucro líquida auferida pelos capitalistas.

Tomando o equilíbrio no mercado de bens e substituindo a equação (2) na equação (3) é possível obter a seguinte curva IS normalizada em relação ao estoque de capital:

$$u = \frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1} \qquad (4)$$

Valendo a condição keynesiana de equilíbrio $v(1-c) > \delta_1$, a curva IS é negativamente inclinada no plano taxa de utilização da capacidade instalada versus taxa de juros reais: uma variação positiva (negativa) da taxa de juros reais, tudo o mais constante, diminui (aumenta) o nível de utilização da capacidade instalada.

3.2. Inflação, conflito distributivo e curva de Phillips

Considerando um ambiente de concorrência imperfeita, no qual as firmas possuem poder de monopólio, a curva de Phillips dessa economia é construída a partir do conflito distributivo entre trabalhadores e capitalistas, em consonância com a tradição iniciada em Rowthorn (1977). Nesta economia em concorrência imperfeita a variação do nível de preços é igual à soma da variação dos salários nominais, da variação do mark-up das firmas e da produtividade do trabalho. Considerando, por simplicidade, o mark-up e a produtividade do trabalho como constantes, a inflação passa a ser explicada completamente pela variação nos salários nominais, que é descrito como uma função do hiato entre a participação dos salários na renda desejada pelos trabalhadores e a efetiva participação dos salários na renda definida pelo poder de mercado das firmas. Adicionalmente, os trabalhadores também levam em conta a inflação esperada no intuito de preservar os rendimentos reais. A partir dessas hipóteses, obtém-se a seguinte curva de Phillips:

$$\pi = \pi^e + \emptyset(w^d - w^f) \quad (5)$$

Em que π é a inflação efetiva, π^e a inflação esperada e w^d e w^f, respectivamente, a participação dos salários na renda desejada pelos trabalhadores e a participação dos salários na renda determinada pelos capitalistas, sendo $\emptyset$ um parâmetro estritamente positivo. O poder de barganha dos trabalhadores é modelado como uma função da taxa de utilização da capacidade instalada, de modo que $w^d = \alpha u$, sendo α um parâmetro positivo. Isso sugere que na medida em que a economia se encontra mais próxima do pleno uso da sua capacidade produtiva os trabalhadores têm mais poder de barganha e pressionam por maiores salários. Reescrevendo a equação (5):

$$\pi = \pi^e + \emptyset(\alpha u - w^f) \quad (6)$$

Note que o equilíbrio no processo de barganha salarial - igualdade entre a participação na renda desejada pelos trabalhadores e a efetiva participação dos salários na renda - implica que existe consistência expectacional, com a inflação efetiva sendo igual à inflação esperada pelos trabalhadores. Essa hipótese, contudo, não impõe nenhum modelo expectacional pré-determinado é plenamente compatível com comportamentos heurísticos dos agentes na tentativa de antecipar a inflação.

4. Duplo mandato para a política monetária e consistência expectacional

Tendo em vista a existência de uma relação negativa entre taxa de desemprego a taxa de utilização da capacidade, propõe-se uma regra de juros como função da inflação e da taxa de utilização da capacidade instalada. Em um primeiro momento, procura-se construir uma regra de juros linear típica, que leve em conta tanto a inflação como a taxa de utilização da capacidade instalada. Como se verá adiante, este tipo de regra, se incorporadas em um modelo pós-keynesiano, gera inconsistências expectacionais que precisam ser contornadas.

4.1. Consistência expectacional e regra de juros

Considere uma regra de juros dinâmica na qual a variação da taxa real de juros no tempo, $\dot{r} = \frac{dr}{dt}$, seja função linear do hiato entre a inflação observada e meta de inflação, bem como da diferença entre a taxa de utilização da capacidade instalada e o seu nível desejado pelas autoridades políticas.

$$\dot{r} = \gamma(\pi - \pi^T) + \beta(u - u^T) \quad (7)$$

Sendo γ e β parâmetros positivos, na medida em que a inflação efetiva for superior/inferior à meta de inflação π^T a taxa de juros real estará subindo/caindo. Por outro lado, a variação dos juros reais também responde ao hiato da taxa de utilização da capacidade instalada em relação a uma meta u^T pré-estabelecida pelas autoridades políticas. Essa regra de juros pode ser modificada considerando regimes de política monetária exclusivamente focados na inflação (se $\beta = 0$) ou exclusivamente preocupados com o produto/desemprego (se $\gamma = 0$).

Uma vez definida a regra de juros, é preciso considerar o processo de convergência expectacional. Neste trabalho toma-se como referência uma dinâmica expectacional idêntica à apresentada por Tobin e Buiter (1976) e Turnovsky (1995), na qual os erros de previsão são continuamente revisados pelos agentes em um processo de aprendizado. Esse processo de aprendizado pode operar mesmo na presença de choques exógenos, uma vez que é baseado no desvio entre a inflação efetiva e a inflação esperada. No modelo aqui desenvolvido, por questões de simplicidade analítica, a existência deste tipo de choques não é explorada.

$$\dot{\pi^e} = k(\pi - \pi^e) \quad (8)$$

A equação (8) descreve a dinâmica expectacional da inflação como uma resposta ao desvio da inflação efetiva da inflação esperada pelos agentes econômicos, sendo k>0 um parâmetro que mede a memória inflacionária. Uma das vantagens em usar essa equação é que não é preciso impor de maneira ex ante algum processo de ancoragem expectacional como, por exemplo, impor que a inflação necessariamente converge para alguma meta pré-estabelecida.

As equações (7) e (8) formam um modelo dinâmico bidimensional linear que pode ser analisado quando se combina a curva de Phillips, a curva IS, a regra de juros e a dinâmica expectacional. Após alguma manipulação algébrica, as dinâmicas da taxa de juros e da inflação esperada podem ser escritas da seguinte forma

$$\dot{r} = \gamma\left[\pi^e + \emptyset\left(\alpha\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - w^f\right) - \pi^T\right] + \beta\left[\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - u^T\right] \quad (9)$$

$$\dot{\pi^e} = k\emptyset\left(\alpha\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - w^f\right) \quad (10)$$

A partir de então, é possível avaliar as propriedades dinâmicas do modelo tomando a matriz jacobiana do sistema formado pelas equações (9) e (10).

$$J = \begin{bmatrix} \frac{\partial \dot{r}}{\partial r} & \frac{\partial \dot{r}}{\partial \pi^e} \\ \frac{\partial \dot{\pi^e}}{\partial r} & \frac{\partial \dot{\pi^e}}{\partial \pi^e} \end{bmatrix} \quad (11)$$

É fácil notar que os elementos da matriz (11) são os seguintes:

$$\frac{\partial \dot{r}}{\partial r} = \frac{-\delta_2(\emptyset\gamma\alpha + \beta)}{v(1-c) - \delta_1} < 0 \quad (12)$$

$$\frac{\partial \dot{r}}{\partial \pi^e} = \gamma > 0 \quad (13)$$

$$\frac{\partial \dot{\pi^e}}{\partial r} = \frac{-k\emptyset\alpha\delta_2}{v(1-c) - \delta_1} < 0 \quad (14)$$

$$\frac{\partial \dot{\pi^e}}{\partial \pi^e} = 0 \quad (15)$$

Com o traço de J negativo e o determinante de J positivo, pode-se concluir que o sistema dinâmico formado pelas equações (9) e (10) converge para um estado estacionário que é um ponto de equilíbrio estável.

$$Det(J) = \frac{k\emptyset\alpha\delta_2\gamma}{v(1-c) - \delta_1} > 0 \quad (16)$$

$$Tr(J) = \frac{-\delta_2(\emptyset\gamma\alpha + \beta)}{v(1-c) - \delta_1} < 0 \quad (17)$$

No estado estacionário a inflação esperada converge para a inflação efetiva, já que quando $\dot{\pi^e} = 0$ então $\pi = \pi^e$. Isto implica, necessariamente, que a participação do salário na renda desejada pelos trabalhadores converge para a efetiva participação do salário na renda. Por outro lado, o modelo gera uma inconsistência da política monetária, já que, nada garante que a inflação esperada e a inflação efetiva convirjam para a meta de inflação determinada pela autoridade monetária.

Tome-se a equação (9) no estado estacionário com $\pi = \pi^e$

$$0 = \gamma\left[\pi + \emptyset\left(\alpha\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - w^f\right) - \pi^T\right] + \beta\left[\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - u^T\right] \quad (18)$$

Da equação (10), $\left(\alpha\left(\frac{g_0+f-\delta_2 r}{v(1-c)-\delta_1}\right) - w^f\right) = 0$ no estado estacionário. Logo, a equação (18) pode ser reescrita da seguinte forma

$$\gamma[\pi - \pi^T] = \beta\left[u^T - \left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right)\right] \qquad (19)$$

A partir da equação (19), pode-se perceber que, para dados valores de γ e β, apenas no caso em que o governo consiga alcançar a meta para utilização da capacidade instalada é que a inflação convergirá para a meta de inflação (e vice-versa). Não há, contudo, nenhum mecanismo endógeno ao modelo que garanta a igualdade de longo prazo entre u e u^T ou entre π e π^T, de modo que alcançar concomitantemente as duas metas é algo completamente fortuito. Para o caso de economias abertas, resultados similares são encontrados nos modelos de Drumond e Porcile (2012) e Drumond e Jesus (2016).

Essa inconsistência entre a meta de inflação e a inflação efetiva, representa, certamente, um problema para a operacionalização da política monetária ao longo do tempo. Dada essa inconsistência pode-se pensar em duas alternativas opostas em termos de política monetária, um regime monetário exclusivamente focado na inflação (configurando $\beta = 0$) e no outro extremo, um regime monetário exclusivamente focado na taxa de utilização da capacidade instalada (configurando $\gamma = 0$).

De fato, no caso do regime monetário exclusivamente focado na inflação, o sistema é estável e a economia converge para um estado estacionário onde não só a inflação é igual à inflação esperada, como também é igual à meta de inflação. O determinante da matriz jacobiana continua sendo o mesmo apresentado na equação (16) enquanto o traço torna-se igual à $\frac{-\delta_2(\emptyset\gamma\alpha)}{v(1-c)-\delta_1} < 0$. No caso do regime monetário exclusivamente focado na taxa de utilização da capacidade instalada ($\gamma = 0$) o modelo gera uma indeterminação dinâmica que não pode ser tomada como estabilidade, já que o determinante da matriz J torna-se nulo. Jesus e Correia (2016) desenvolvem um modelo macroeconômico com política fiscal ativa e chegam nesta mesma conclusão quando supõem que o movimento da taxa de juros em uma economia fechada depende exclusivamente do hiato do produto.

5. Regra de juros não-linear

O principal objetivo deste trabalho é propor uma regra de política monetária alternativa que, de um lado, torne viável um regime monetário de duplo mandato e, por outro lado, contorne o problema da inconsistência da política monetária apresentado anteriormente. No lugar de propor uma meta explícita para a taxa de

utilização da capacidade instalada, procura-se neste trabalho propor uma regra de juros em que a sensibilidade da autoridade monetária aos desvios da inflação seja endógena e responda às mudanças na taxa de utilização da capacidade. Por um lado, quanto mais próxima de um estiver a taxa de utilização da capacidade instalada, mais sensível estará a autoridade monetária aos desvios da inflação com relação à meta. Por outro lado, quanto mais próximo de zero a autoridade monetária estará menos sensível. Essa regra de juros não linear é descrita pelo conjunto de equações abaixo:

$$\dot{r} = \gamma(\pi - \pi^T) \quad (20)$$

$$\gamma = \beta u \quad (21)$$

$$\dot{r} = (\beta u)(\pi - \pi^T), \quad \beta > 0 \quad (22)$$

Na regra de juros da equação (22) não há uma meta explícita para a taxa de utilização da capacidade instalada, no entanto, a reação da política monetária ao hiato da inflação é não-linear de modo que, implicitamente, o produto de pleno emprego $\bar{Y}$ é tomado como alvo. Dito de outra maneira, a reação da política monetária ao hiato da inflação com relação a meta só será máxima somente quando o hiato do produto $(lnY - ln\bar{Y})$ for nulo.

Resolvendo o modelo com essa nova regra de juros, obtém-se o seguinte sistema dinâmico bidimensional:

$$\dot{r} = \left(\beta\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right)\right)\left[\pi^e + \emptyset\left(\alpha\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - w^f\right) - \pi^T\right] \quad (23)$$

$$\dot{\pi^e} = k\emptyset\left(\alpha\left(\frac{g_0 + f - \delta_2 r}{v(1-c) - \delta_1}\right) - w^f\right) \quad (24)$$

O par de equações (23) e (24) formam um sistema dinâmico não-linear cuja estabilidade deve ser avaliada tomando as derivadas parciais das equações nos seus respectivos pontos estacionários:

$$J = \begin{bmatrix} \left(\frac{\partial \dot{r}}{\partial r}\right)_{(r^*, \pi^{e*})} & \left(\frac{\partial \dot{r}}{\partial \pi^e}\right)_{(r^*, \pi^{e*})} \\ \left(\frac{\partial \dot{\pi^e}}{\partial r}\right)_{(r^*, \pi^{e*})} & \left(\frac{\partial \dot{\pi^e}}{\partial \pi^e}\right)_{(r^*, \pi^{e*})} \end{bmatrix} \quad (25)$$

Avaliando as derivadas parciais nos pontos estacionários:

$$\left(\frac{\partial \dot{r}}{\partial r}\right)_{(r^*,\pi^{e*})} = -\left[\frac{\beta\delta_2}{(1-c)-\delta_1}\right]\left(\pi^e + \emptyset\left(\alpha\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1} - w^f\right) - \pi^T\right) + \beta\left(\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1}\right)\left(\frac{-\emptyset\alpha\delta_2}{v(1-c)-\delta_1}\right) \quad (26)$$

Com $\left(\pi^e + \emptyset\left(\alpha\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1} - w^f\right) - \pi^T\right) = 0$, obtêm-se:

$$\left(\frac{\partial \dot{r}}{\partial r}\right)_{(r^*,\pi^{e*})} = -\beta\left(\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1}\right)\left(\frac{\emptyset\alpha\delta_2}{v(1-c)-\delta_1}\right) \quad (27)$$

$$\left(\frac{\partial \dot{r}}{\partial \pi^e}\right)_{(r^*,\pi^{e*})} = \beta\left(\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1}\right) \quad (28)$$

$$\left(\frac{\partial \dot{\pi}^e}{\partial r}\right)_{(r^*,\pi^{e*})} = \frac{-k\emptyset\alpha\delta_2}{v(1-c)-\delta_1} \quad (29)$$

$$\left(\frac{\partial \dot{\pi}^e}{\partial \pi^e}\right)_{(r^*,\pi^{e*})} = 0 \quad (30)$$

Note-se que $\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1} = u^*$, onde u^* é a taxa de utilização da capacidade instalada da economia no estado estacionário. Como a taxa de utilização da capacidade instalada é sempre um número positivo, tem-se que a derivada em (27) negativa e a derivada em (28) é positiva.

O traço da matriz jacobiana desta versão do modelo é igual à equação (27) e tem sinal negativo, enquanto o determinante da referida matriz é positivo, como descrito abaixo:

$$Det(J) = \beta\left(\frac{g_0+f-\delta_2 r^*}{v(1-c)-\delta_1}\right)\frac{k\emptyset\alpha\delta_2}{v(1-c)-\delta_1} > 0 \quad (31)$$

O resultado do modelo implica que a economia converge para um estado estacionário estável no qual a meta de inflação é alcançada de modo a não existir inconsistência intertemporal da política monetária. Também há coerência expectacional, sendo que a inflação efetiva converge para a inflação esperada que, por sua vez, converge para a meta definida pela autoridade monetária.

A proposição de uma regra monetária não-linear sugere a possibilidade de se incorporar uma preocupação com a taxa de utilização da capacidade instalada no processo de execução da política monetária sem, contudo, a necessidade de se incorporar políticas de rendas no modelo. Este resultado não invalida os esforços de formulação alternativa de política monetária que combinam meta de inflação e

políticas de renda, como tem sido feito nos trabalhos de Setterfield (2006), Lima e Setterfield (2008) e Santos (2011). No entanto, acreditamos que o modelo aqui desenvolvido acrescenta à literatura pós-keynesiana uma opção alternativa de política monetária em modelos macrodinâmicos para economias fechadas, especialmente porque a regra de política monetária considerada neste artigo não é de difícil implementação nas economias capitalistas modernas.

6. Conclusão

A partir dos trabalhos de Setterfield (2006) e Lima e Setterfield (2008), uma série de trabalhos passou a considerar a possibilidade de compatibilizar o regime de metas de inflação com as hipóteses pós-keynesianas sobre o funcionamento das modernas economias. Uma das soluções nesta tentativa de compatibilização é a utilização das políticas de renda em complemento à política monetária.

Argumentamos nesse trabalho que, na ausência da viabilidade institucional de se utilizar de políticas de renda, uma forma alternativa de política deveria ser analisada. Uma opção, em particular, é a utilização de uma política monetária com regra de juros de duplo mandato, que considere tanto o hiato do produto quanto o hiato da inflação com relação à uma meta. Analisamos as características do modelo no contexto dessa regra de juros de duplo mandato linear e mostramos que essa regra, embora gere convergência para um estado estacionário estável, implica em uma inconsistência expectacional no longo prazo. Como demonstramos, na ausência da hipótese de produto natural de longo prazo, assim como na ausência de políticas complementares à política monetária, uma regra de juros de duplo mandato típica não pode garantir a convergência da inflação efetiva para a meta.

Uma vez feitas essas considerações, propusemos uma regra de juros não linear na qual a sensibilidade da política monetária ao hiato da inflação é sensível à taxa de utilização da capacidade instalada. Nesta nova formulação, quanto mais próxima (afastada) do pleno nível de utilização da capacidade instalada a economia estiver a autoridade monetária será mais (menos) sensível aos desvios da inflação com relação à meta. Mostramos que uma regra de política monetária deste tipo além de não ser de difícil implementação no mundo real, ela atende as condições de estabilidade de um modelo macrodinâmicos pós-keynesiano, de modo que a inflação converge para a meta de inflação no longo prazo mesmo quando a autoridade monetária se preocupa com a suavização do ciclo econômico.

Em termos de política macroeconômica, a principal contribuição deste trabalho é apresentar uma regra de política monetária que, condicionada por

limitações institucionais, especialmente no que diz respeito às políticas de renda, permita a autoridade monetária dar peso tanto à inflação quanto ao produto/desemprego sem perder de vista o papel de ancora expectacional da meta de inflação. Novas pesquisas podem ser realizadas considerando outras não-linearidades na regra de política monetária, ou até mesmo na curva de Phillips. Evidentemente, uma extensão natural deste trabalho consiste em verificar se as propriedades dinâmicas do modelo continuam válidas no caso de uma economia aberta ou quando se considera o papel ativo da política fiscal com uma restrição orçamentária do setor público.

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Leading sectors and structural dynamics: an Input-Output analysis contrasting the BRICs growth paths

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Abstract

With the aim of analyzing the different growth paths of the BRIC countries in recent decades and their long-term consequences, this study assessed the potential of different economic sectors (primary, manufacturing and services) to promote economic growth. Input-output tables were used to calculate each sector's output multipliers, Rasmussen-Hirschman backward and forward linkage indexes, and pure normalized backward and forward linkage indexes with the aim of assessing which sectoral orientation has a higher potential to stimulate the economy as a whole. The results show that manufacturing is the sector where the multipliers are the highest, while they are the lowest in agriculture and mineral commodities. The findings corroborate the hypothesis that having a dynamic manufacturing sector is essential to promote economic growth. Moreover, the results show that forward linkages are larger than backward linkages for services and that modern services present slightly larger forward linkages than those observed for traditional services.

Keywords: Economic growth, BRICs, Input-output analysis, Sectoral specialization, Growth of Developing Countries, Patterns of Development.

JEL Classification: O14, O21

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1. Introduction

In the early 2000s, the term BRICs (Brazil, Russia, India and China) emerged to denote a group of four large countries that could attain rapid economic growth due to their potential market and production. Suddenly, the markets focused on the possible earnings in those countries and on their economic indicators [1]. In fact, they presented satisfactory growth rates for exports and income, and they became attractive to investors. Most – with the exception of China – used their comparative advantages, increasing world demand and rising prices for raw materials and primary goods (including the demand from China); they increased their exports of primary goods (and services, in India) and believed that doing so would increase domestic production and growth, by virtue of the effects on demand and the linkages generated by the greater production of those goods. In the Brazilian case, for example, commodities played a key role in the economy's dynamism, which was highly associated with Asian demand, notably that of China (Prates, 2006; Rocha, 2011).

This scenario reflected intense economic growth in those countries in the 2000s, especially before the 2008/09 financial crises and, given the importance of this growth to policy-making, favored a vast range of interpretations that sought to determine the factors and instruments that triggered this process. Economic growth, led by exports of primary products, especially commodities, and the role of services in economic development assumed prominent positions in interpretations of the growth experienced during that period. Some economists suggested that expansion based on the production and export of commodities does not have a negative effect on the economy. In addition to being capable of generating income in export sectors, primary sectors have indirect effects on other productive chains. Primary sectors also have the capacity to generate income beyond consumption that could resupply domestic production and related services (Schultz, 1964; Lipton, 1968; Chayanov, 1966; Davis, 1995; Mikesell, 1997). This line of thought has constantly sought to refute the necessity of industrial and foreign trade policies. It notes that state interventionism in favor of industrial sectors would promote an "artificial" industrialization not compatible with international patterns based in a competitive free market.

Another line of thinking has emphasized the role of services in economic growth, which is summarized in the OECD Growth in Service report (OECD, 2005). In this study, a vast range of arguments involve policies to enhance the

[1] South Africa joined the group later.

potential of services to foster employment, productivity and innovation, especially in the economic transition from middle to high income *per capita.* These arguments assert that services are elastic in relation to income, and hence the share of services in demand grow as income increases (Engel's law). Servitization, which is defined as the expansion of more sophisticated and high-value-added service activities related to manufacturing, such as marketing, design, software and logistics (Evangelista et al., 2014; McKinsey & Company, 2012; Lodefalk, 2013; Nordås and Kim, 2013), is one such possible effect. Outsourcing non-core activities originally produced in manufacturing industries is also an explanation for the increase in services in countries' GDPs (Evangelista et al., 2014; McKinsey & Company, 2012). In this case, the increase in services is due only to the substitution of sectors before being classified as manufacturing. Therefore, it is important to distinguish this outsourcing process from the servitization discussed above. While the outsourcing process is associated with low productivity activities, the service sectors stimulated by servitization have higher technological content, and they are more sophisticated, demanding qualified workers and promoting more value-added *per capita*. In this sense, it is crucial to evaluate whether different types of services are produced and if this difference directly impacts other sectors' activity.[2]

However, several studies have attempted to demonstrate the limitations in promoting countries' productive and foreign trade structures assuming that primary or service sectors are the leading sectors. Both classic Kaldorian interpretations (Kaldor, 1966, 1981; Cornwall, 1977, Thirlwall and Hussein, 1982; McCombie and Thirlwall, 1994a, 1994b; Verdoorn, 1949; Thirlwall, 2004; Dasgupta and Singh, 2005, 2007; Dixon and Thirlwall, 1975; Moreno-Brid, 2003) and those based on the structuralist approach of Latin American thought (Prebisch 2000; Singer, 1950; Furtado, 2000; Tavares, 1998) have emphasized the limitations in promoting economic development based on a productive and trade structure of low-value-added products.

The main argument of those who do not support economic growth strategies based on primary product exports or services is that manufacturing is the main engine of economic development.[3] Authors such as Rosenstein-Rodan (1943),

[2] The definitions of modern and traditional services are based on their technological content, productivity and value added. Modern services are those related to financial intermediation; information and communication; and professional, scientific and technical activities. Traditional services are those related to wholesale and retail trade, transportation and storage, accommodation and food service, real estate, public administration, education, and social services. Although there is no clear definition of these activities, in this paper, we follow that developed by Eichengreen and Gupta (2012) and Ghani et al. (2011), with some minor changes to adjust to the data available.

[3] Rodrik (2007), Szirmai (2012) and Fagerberg and Verspagen (1999) support the same arguments.

Prebisch (2000), Lewis (1969), Rostow (1960) and Furtado (2000) were some of the first intellectuals to emphasize the importance of manufacturing to economic development. According to them, development is essentially a process of structural change. Broadly speaking, sustained economic growth is associated with the capacity to diversify the structure of domestic production, i.e., generate new activities to expand the possibilities of production, linkages and higher-value-added goods by providing incentives for manufacturing. According to Kaldor (1989), economic growth is brought about by shifting from productive sectors with decreasing returns to those with increasing returns. This shift creates dynamic economies of scale. Kaldor presented seminal evidences that the manufacturing sector has the greatest capacity to do so, and therefore, its expansion plays a key role in promoting sustainable growth in the long term and the consequent modernization and diversification of the production structure.

Along the same lines, Chenery et al. (1986) argued that economic development is triggered by productive transformations induced by increasing demand for product diversity and technological progress. Such transformations would also lead to more productive use of inputs and increased productivity. The industrialization process feeds itself and diversifies the production structure. Such changes in demand resulting from growth entail a dynamic element that transforms the production structure. They lead to a shift in the composition of production and thus in supply, requiring new investments, which ultimately lead to technological improvements and further stimulate demand. In a more advanced stage of development, demand would be driven not only by manufactured goods but also by modern services reflecting a new shift in the productive structure.

Based on a distinct approach, Sachs and Warner (2001) also argued against economic growth based on primary product exports. The authors emphasized what they called the "natural resource curse", in which resource-abundant countries tended to experience lower income growth than resource-poor countries. Positive wealth effects from the natural resource sector drive up non-traded prices, which squeezes profits in traded activities, such as manufacturing, that use those non-traded products as inputs. The decline in manufacturing then has ramifications that cause the growth process to grind to a halt (Sachs and Warner, 2001, p.833). This argument was discussed by many authors, such as Brunnschweiler (2008) and Bulte et al. (2005), and the main findings are that that natural resources are not necessarily a curse but are not always a blessing. Daniele (2011), for example, showed that it is not that the abundance of natural resources constrains countries'

development but rather that the dependence on these resources (measured as the share of total exports) tends to be associated with lower development.

Along the same lines, another school of thought, derived from structuralism and referred to as developmentalism, is particularly supported by theorists who observe the negative effects of currency appreciation in the manufacturing sector caused by exports of commodities, a process known as the "Dutch Disease" (Palma, 2005; Bresser-Pereira, 2008). In this dynamic, the existence of comparative advantages in natural resources significantly boosts exports of low-value-added products, such as commodities, resulting in a major inflow of dollars into the domestic economy and in the appreciation of the domestic currency in real terms. In a scenario of rising commodity prices, the implications would be even more serious for domestic industry because the competitiveness of higher-value-added products would be reduced, possibly triggering a process of "deindustrialization" of the economy. In this case, the productive structure moves toward primary and *non-tradable* services, which are usually traditional services, as argued by Corden and Nearly (1982).

Hirschman (1958) was one of the first authors to analyse the inter-sectoral externalities that results from a stimulus to a given sector. The author argued that a development strategy should focus on ensuring investments in sectors that can generate backward and forward linkages, i.e., stimulating the production of inputs used in the production process, generating economies of scale within the sector, or outputs that can be used as inputs in other sectors, also leading to productivity gains and cost savings for sectors in the later stages of the production chain. The analysis of the linkages allows evaluating the capacity of growth strategies based on primary exports, manufacturing or services in stimulating production in other sectors and, thereafter, their success.[4]

Thus, with the aim of evaluating the dynamic effects of a growth process driven by commodity exports, such as that adopted by Brazil and Russia, and by services exports, such as those of India in recent years, this paper compares possible production linkages that can be created by stimulating these sectors, in which those countries enjoy comparative advantages in production, with those that could be generated by providing incentives for manufacturing or services. This paper also assesses whether this process can be successful from the point of view of production diversification and, consequently, contribute to fostering economic

[4] We will also analyze both linkages for traditional services with low-value-added, which the early theorists discussed, and for modern services, which are related to the process of income growth and servitization that is currently occurring in the production chains.

growth. This is the case for China. The BRIC countries have had three different levers for growth in recent years, and we will compare the results for both. For this purpose, this paper will adopt analyses based on input-output tables to empirically determine the capacity of primary sectors and their exports and also of services to leverage growth in those economies *vis-à-vis* manufacturing. Based on the theoretical discussion above, the idea is to assess whether exports of primary goods and services can generate production linkages as argued by economists who support the adoption of this development model.

The paper is divided into five sections, including this introduction and concluding remarks. The following section provides a brief analysis of the main features of the post-1990s BRICs' economic performance. Next, the input-output methodology that is used in this analysis is presented. Then, production multipliers, Hirschman-Rasmussen backward and forward linkage indexes, and pure normalized backward and forward linkage indexes comprising primary and service sectors and the manufacturing industry are calculated, and the results for the BRIC countries are compared. Finally, the conclusion will discuss, based on the results for the estimated indexes, the potential to stimulate growth from distinct orientations in trade and production composition.

2. The BRICs' Economic Performance

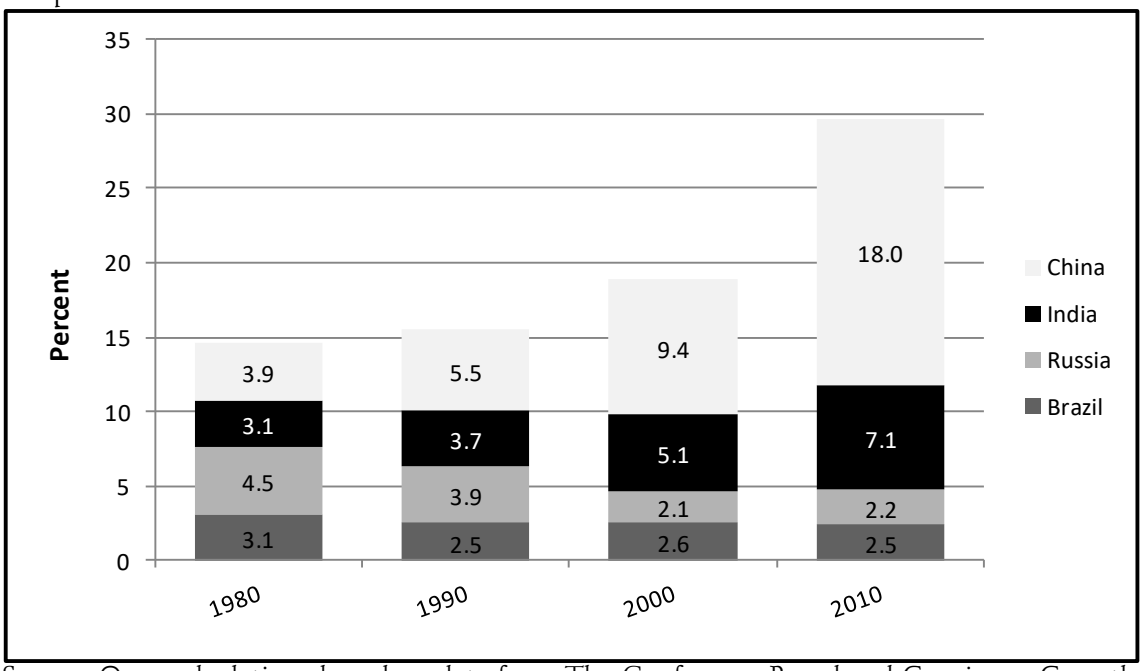
The initial classification of the BRIC countries coined by Jim O'Neill of Goldman Sachs in a 2001 article covered only Brazil, Russia, India and China. Based on this acronym, a vast range of research sought to provide explanations for these countries' dynamism through various economic and demographic indicators that suggested that these countries would have the greatest potential for growth in the first half of the 21st century. These indicators include but are not limited to the BRICs' increasing share in the world Gross Domestic Product (GDP) and world exports. Although geographically separated, politically and economically different and with distinct patterns of economic development, these countries began to see themselves as a group largely because of foreign investor and media perceptions. Over the last 10 years, the BRICs have consolidated and even further expanded their strong position in the world economy.

Graph 1 shows that the BRICs have significantly increased their share of the world GDP (in Purchasing Power Parity / PPP), which is evidence of the group's dynamism. However, it is clear that the rise in the share of the BRICs of the global GDP is mostly related to the Chinese and Indian GDP growth. Moreover, as a

general trend, the graph illustrates that while China and India experienced a substantial increase in their share of the world GDP in the 2000s, Brazil and Russia did not show a similar trend; rather, their shares of the world GDP have decreased.

Due to the evolution of the Chinese and Indian economies, the BRICs share of the world economy has increased from 16% of the world GDP in 1990 to approximately 30% in 2010. This increase means that the BRICs' economic size expanded by 91% relative to the rest of the world in those two decades. In terms of combined GDP, the BRIC countries together are larger than the United States and the European Union.

Graph 1: Share of Global GDP in PPP



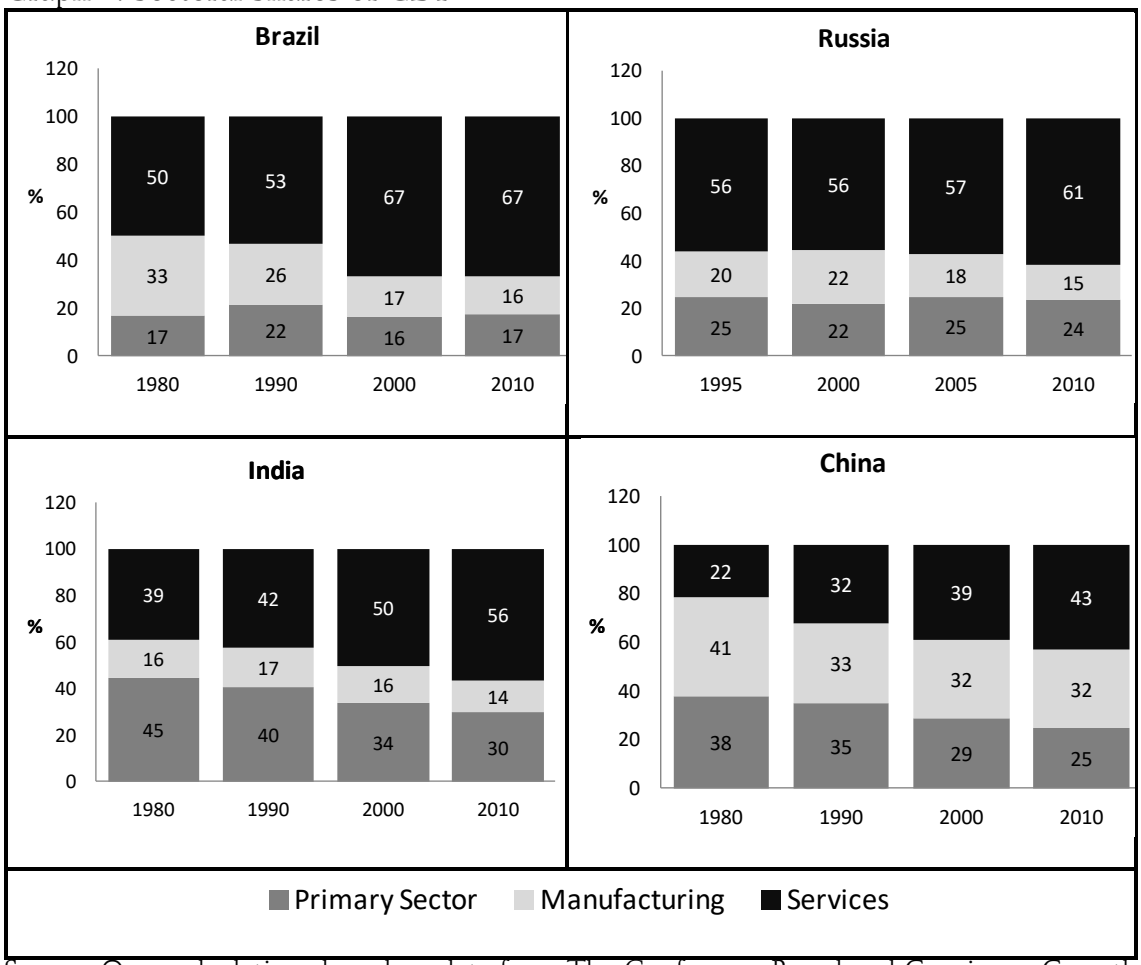
Source: Own calculations based on data from The Conference Board and Groningen Growth and Development Centre (Timmer et al., 2015). Note: Data for 1980 and 1990 include Soviet Union countries. Data for Russia are available from 1995 onward.

The structural changes observed in the BRIC countries in terms of production were significant because their sectoral shares of the GDP have changed considerably over recent decades. In China and India, the most dynamic economies in the BRIC group, the declining share of the primary sector in their respective GDPs has been a common trend over the years. In both cases, from the 1990s onward, the increase in services' share was not followed by a representative loss in manufacturing, and this framework is compatible with the developmental premise that industrialization is a central condition for economic development. The expansion of services took place with a decrease in the primary sector instead. In China, manufacturing represented the largest portion among all the BRIC countries (approximately 32% in the last decade), while in India this sector exhibited low

but stable participation (approximately 15%). Conversely, in Brazil and Russia, the share of the primary sector of the GDP[5] remained relatively stable, while the expansion of services in the productive structure occurred to the detriment of manufacturing.

Regarding services, all the countries showed a very significant increase, revealing that this sector constituted the largest share of the GDP. However, in China and India, the increase in the share of services was not followed by a decrease in manufacturing, while Brazil and Russia have been losing the capacity to boost their economies through manufacturing, whose share of GDP declined, because their growth process was based on the expansion of the primary and service sectors.

Graph 2. Sectoral Shares of GDP

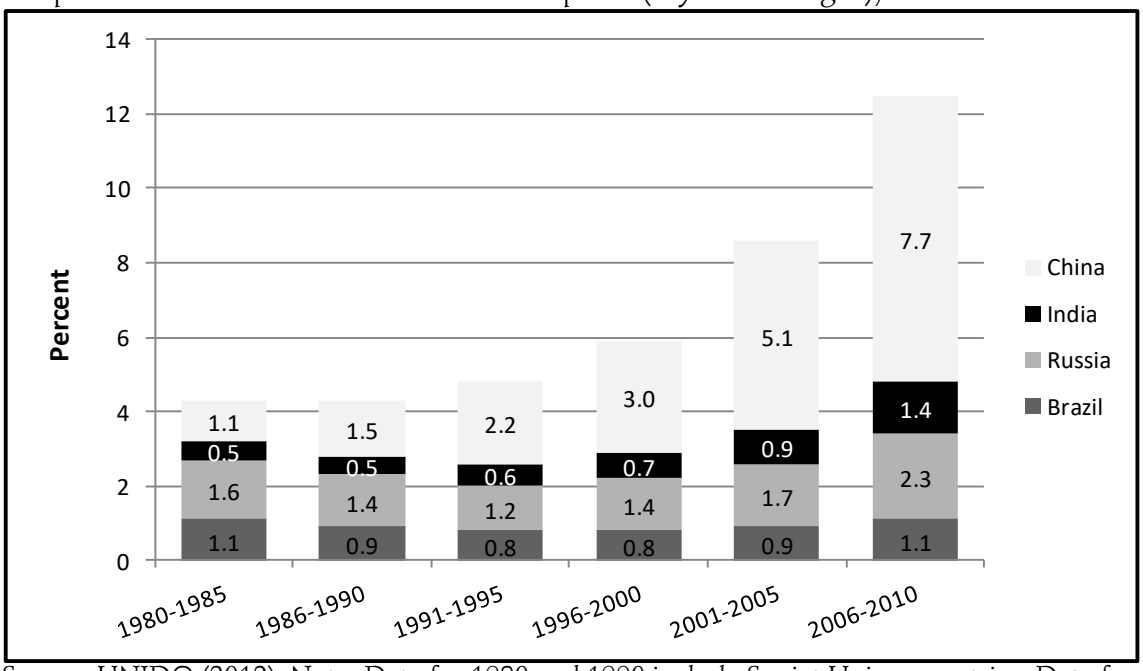


Source: Own calculations based on data from The Conference Board and Groningen Growth and Development Centre (Timmer et al., 2015). Note: The Primary Sector includes agriculture and mining; services include construction, utilities and other services (this aggregation does not follow the traditional definition for services). Percentage shares are at current prices.

[5] Data for Russia are available from 1995 onward.

The link between industrial structure and global trade is another important aspect of the differences and similarities among the growth processes of the BRIC countries. In this way, exports have significantly contributed to the economic growth and structural transformation of the BRICs. Although during the first half of the 1980s, the BRIC countries accounted for less than 4.5% of world exports, by the second half of the 2000s, their combined share reached an average of 12.5% per annum. The primary contribution to this increase in terms of value has come from China, although Russia and India also contribute. After the so-called lost decade for the Latin American countries during the 1980s, Brazil recovered its previous share of exports in the global trade.

Graph 3. The BRICs' Shares of World Exports (5-year averages), 1980-2010



Source: UNIDO (2012). Note: Data for 1980 and 1990 include Soviet Union countries. Data for Russia are available from 1995 onward.

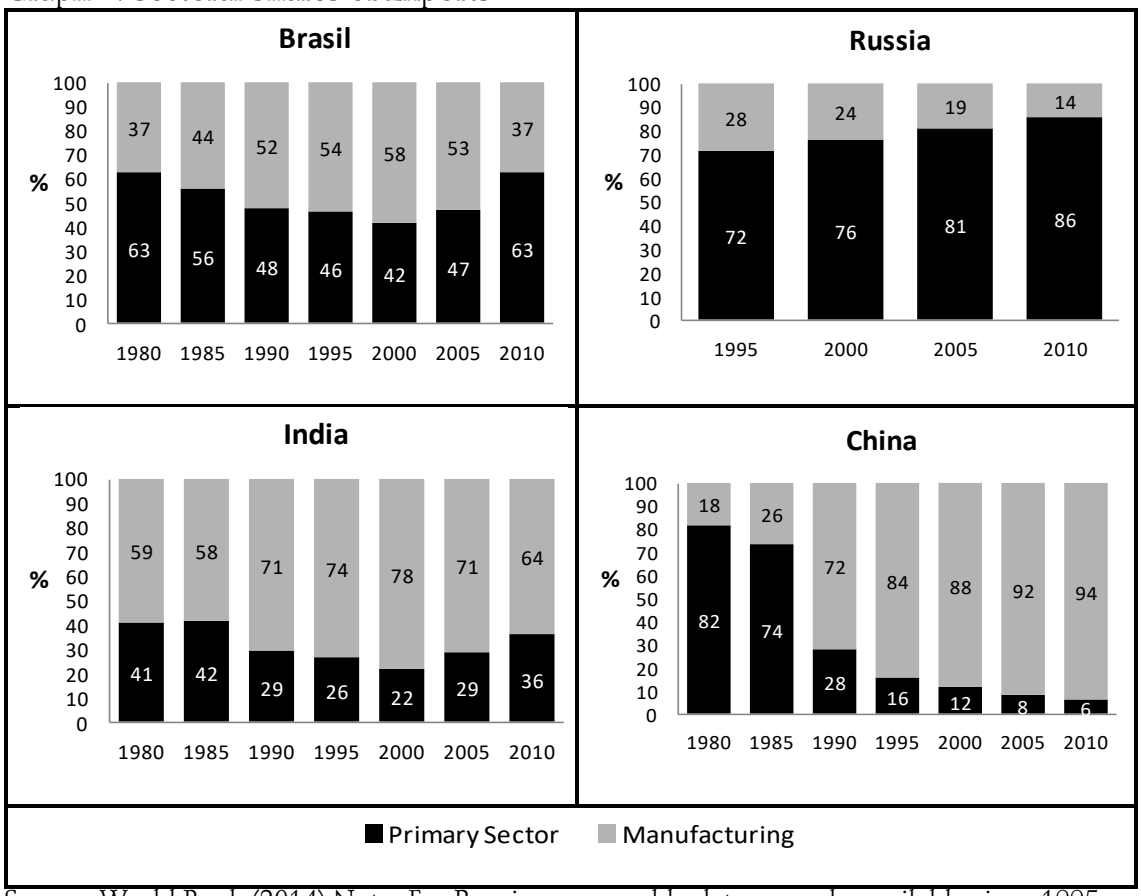
Trade from a sectoral perspective has also presented distinct characteristics in the BRICs. Graph 4 compares the BRICs' shares of manufactured and primary goods of total merchandise exports. The demand for primary products has been increasing over recent decades, specifically among the BRICS, mainly due to the strong growth of the Chinese and Indian manufacturing industries. During the 2000s, Brazilian exports were accompanied by a boom in commodity prices that increased the country's exports approximately 262 percent, almost twice the global average of 135 percent. This new economic reality resulted in an increase of exports' share of the country's gross domestic product (GDP) from 10% in 2000,

peaking at 16.4% in 2004 and dropping to 10.9% in 2010[6] as a consequence of the global financial crisis. In spite of the crisis, Brazilian commodities played a key role in the economy's dynamism with the primary sector's share of exports peaking at 63% in 2010 (Prates, 2006 and Rocha, 2011). A similar trend was exhibited by Russian exports, which are centrally based in the primary sector, specifically oil and gas. From 1995 to 2010, the share of primary exports in Russia increased almost 20%, while the share of manufacturing exports decreased 50%.

This dynamic also contributed to the currency appreciation and had an undesired negative effect on manufacturing export industries because it culminated in a loosening of competitiveness on the global trade market (a common phenomenon known as the Dutch Disease). Unlike the Russian and Brazilian trend, the share of manufacturing exports in India remained very high; however, it is decreasing. Moreover, the most remarkable data are shown by China, which enormously increased its share of manufacturing exports. China expanded the participation of manufacturing in its exports and has remained a very competitive country in the global market by managing an undervalued currency. If trade composition matters for growth, as many authors argue (Blecker and Razmi, 2010; Hausmann et al., 2007; Hausmann et al., 2014; Hirschman, 1958; Kaldor, 1989), this is another argument to explain the differences among the performances of the BRIC countries.

[6] Considering the series at constant prices (1980), exports' share of the GDP continued to increase even after 2004 and reached a peak in 2007, the year that preceded the global crisis.

Graph 4. Sectoral Shares of Exports



Source: World Bank (2014) Note: For Russia, comparable data are only available since 1995.

Data from the last ten years allow the inclusion of service exports in the analysis. Table 1 confirms that China is focused on manufactured exports, while modern services play an important but decreasing role in exports in India. These results show the relevance of discussion of the linkages of not only the primary and manufacturing sectors but also the service sector. The shares of primary exports in Brazil and Russia have increased and, as noted above, are the largest in these countries.

Table 1. Goods and services as share of total exports (period average, in %)

	Brazil		China		India		Russia	
	2005-7	2010-2	2005-7	2010-2	2005-7	2010-2	2005-7	2010-2
Primary goods	42.1	54.7	6.5	5.7	20.6	23.7	66.2	69.0
Manufactured goods	43.6	29.6	82.7	85.1	42.8	41.4	15.7	13.0
Modern services*	6.0	8.4	2.8	3.2	26.2	23.3	3.1	3.6
Traditional services**	6.0	5.2	7.8	5.9	9.8	10.0	7.7	7.0
Miscellaneous goods	2.3	2.1	0.2	0.1	0.7	1.7	7.4	7.5

Source: World Bank (2014). (*) includes ICT, insurance and financial sectors; (**) includes transport, travel and other services.

Thus, it is clear that the BRICs' economic performances, exports and production structures vary significantly. Given that performance, both in terms of productive structure and global trade, many questions emerged about the capacity of the primary and service sectors to promote economic growth. In this way, this study sought to determine whether a primary or services-based growth process can actually support development in the long term by analyzing the linkage effects that the primary and service sectors can generate compared with those that sectors linked to manufactured products can create. The following section presents the theoretical and methodological background of the analysis.

3. Theoretical foundations of the input-output model

With the aim of analyzing the capacity of commodity production to boost the BRIC economies *vis-à-vis* manufactured goods, input-output analyses were used in this study. The decision to use the input-output methodology was based on the fact these models' ability to incorporate relationships among various industries of the BRIC countries. Using this methodology, it is possible to empirically investigate the economic role of a productive sector without restricting the analysis to its "direct effects" on the economy in terms of generating production, employment, value added, tax revenue, exports, and other effects but rather also measuring its "indirect effects", i.e., those that a sector can have on other sectors through channels established by input/output transactions between different economic sectors.

To calculate these indexes, input-output tables from 2000 to 2009 were used (at the level of 34 sectors), based on the World Input-Output Database (WIOD). Next, to reduce the number of sectors in which comparisons needed to be made among manufactured products, commodities and services, the tables were aggregated into 18 sectors of tradable goods distributed in these two groups based on the proximity of their production structures. The correspondence between the sectors of the initial matrix (34 sectors) and the resulting matrix (18 sectors) is shown in Appendix 1.

3.1 Theoretical foundations

Based on the pioneer analysis developed by Leontief (1951), the theoretical approach adopted in this study is based on the input-output model, in which the economy's total production (X) is the result of the sum of the production intended for intermediate consumption by different sectors (Z) and demand, which represents to what extent sector j used goods produced by sector i in its total

production. That is, the input-output model shows the percentage of inputs sold to industry j by sector i in relation to the total production of sector j.

$$a_{ij} = \frac{Z_{ij}}{X_j} \qquad (1)$$

where z_{ij} expresses the inter-sectoral sales of sector i to sector j and x_j expresses the total production of sector j. Relationship (2) can thus be demonstrated:

$$X = AX + Y \qquad (2)$$

where A is the matrix of domestic technical coefficients and Y is the vector of final demand. By solving this equation, the total output required to meet the final demand can be determined, i.e., (3):

$$X = (I - A)^{-1} Y \qquad (3)$$

where $(I - A)^{-1} = L$ is the inverse of Leontief's matrix.

Using Leontief's model, various analyses can be carried out to assess the impact of demand variation on production, employment and value added, among other variables. Based on the ratio between the value of the variable assumed[7] as K and the total production of the corresponding sector, the direct coefficient (k) is calculated for each variable

$$k_j = \frac{K_j}{X_j} \qquad (4)$$

Once k is calculated, along with Leontief's inverse matrix (L), one can calculate, by sector, the amount directly and indirectly generated from variable K for each monetary unit produced for final demand. This is the generator notion, which relates production for final demand with a given variable of the economy. Thus, the generator of a variable K for each sector can be calculated by summing each column of matrix GK obtained in (5).

$$GK = \sum_{i=1}^{n} \hat{k}_i \cdot L_{ij} \qquad (5)$$

[7] K may be any variable, such as employment, P&D expenses, value added or taxes.

With the quotient between the generator and respective direct coefficient, one can obtain the multiplier of the variable assumed as K, which associates the direct effect of a variable with its total (direct and indirect) effect on the economy, as represented in equation (6).

$$MK_j = GK_j / k_i \qquad (6)$$

Multipliers for employment and production can thus be obtained[8]. Additionally, the input-output methodology allows for other indicators of economic importance to be calculated. Following the seminal works of Hirschman (1958) and Rasmussen (1956), one can define the interrelationships between the sectors and the power of each sector in the economy to establish linkages. The so-called Hirschman-Rasmussen backward linkage (BL) indexes determine how much a sector demands from other sectors, and the rates of forward linkages (FL) determine how much this sector is demanded by other sectors. To calculate the Hirschman-Rasmussen backward linkage index, one defines l_{ij} as the elements of matrix L, L^* as the average of all the elements of L and L_{*j} as the sum of a column of L. The equation may be represented as

$$BL_j = \left(L_{*j}/n\right) \Big/ L^* \qquad (7)$$

As for the Hirschman-Rasmussen forward linkage index, it is calculated from the matrix of coefficients in row (F) obtained from the intermediate consumption matrix (Z), as represented in (8).

$$F = \hat{x}^{-1} \cdot Z \qquad (8)$$

As in Leontief's inverse matrix, the matrix of Ghost is deduced with g_{ij}

$$G = (I - F)^{-1} \qquad (9)$$

Considering G^* as the average of all the elements of G and G_{i*} as the sum of the elements in each row, the Hirschman-Rasmussen forward linkage index is obtained[9]

[8] In this paper, type I multipliers were used, which only take into account multiplicative effects restricted to demand for intermediate inputs, that is, without making household demand endogenous to the model. If household demand were endogenized in the system, the induced effect would be taken into consideration and we would have the type II multiplier (Guilhoto, 2009).

[9] For more details, see Miller and Blair (2009).

$$FL_i = \left(G_{i*}/n\right)/G^* \qquad (10)$$

Depending on the result of the indexes, sectors can be classified into four groups, namely, (i) independent from (or not very related to) other sectors, if both linkage indexes are less than 1; (ii) dependent on (or strongly related to) other sectors, if both linkage indexes are greater than 1, denoting sectors that are seen as playing a key role in the economy; (iii) dependent on inter-sectoral supply, if only the backward linkage index is greater than 1; and (iv) dependent on inter-sectoral demand, if only the forward linkage index is greater than 1. However, as first observed by Cella (1984) and Clements (1990), these indexes do not take into account the production levels of each analyzed sector.

As an attempt to correct and refine the solutions presented by these authors, Guilhoto *et al.* (1994) introduced a first version of what would be referred to as pure linkage indexes, later known as the GHS methodology. In Guilhoto, Sonis and Hewings (2005), some decompositions of Leontief's inverse matrix are made that consist of integrating the main techniques used in analyses of input-output structures with the aim of decomposing and distinguishing the impact of a sector of the economy on its various components. The consolidated GHS methodology is based on a block matrix of technical coefficients (A)

$$A = \begin{bmatrix} A_{jj} & A_{jr} \\ A_{rj} & A_{rr} \end{bmatrix} \qquad (11)$$

where A is composed of square and rectangular matrices. $\mathbf{A_{jj}}$ and $\mathbf{A_{rr}}$represent square matrices of direct technical coefficients of sector j and of the rest of the economy (the economy as an entire less sector j), respectively, while $\mathbf{A_{jr}}$ and $\mathbf{A_{rj}}$represent rectangular matrices of direct inputs purchased by sector j from the rest of the economy and direct inputs purchased by the rest of the economy from sector j.

Based on this matrix A, expressed in (11), a triple multiplicative decomposition of Leontief's inverse matrix can be made as follows

$$L = (I - A)^{-1} = \begin{bmatrix} L_{jj} & L_{jr} \\ L_{rj} & L_{rr} \end{bmatrix} = \begin{bmatrix} \Delta_{jj} & 0 \\ 0 & \Delta_{rr} \end{bmatrix} \begin{bmatrix} \Delta_j & 0 \\ 0 & \Delta_r \end{bmatrix} \begin{bmatrix} I & A_{jr}\Delta_r \\ A_{rj}\Delta_j & I \end{bmatrix} \qquad (12)$$

where

$$\Delta_j = (I - A_{jj})^{-1} \qquad (13)$$

$$\Delta_r = (I - A_{rr})^{-1} \tag{14}$$

$$\Delta_{jj} = (I - \Delta_j A_{jr} \Delta_r A_{rj})^{-1} \tag{15}$$

$$\Delta_{rr} = (I - \Delta_r A_{rj} \Delta_j A_{jr})^{-1} \tag{16}$$

From Leontief's model expressed in (3) and equation (12), the following results

$$\begin{pmatrix} X_j \\ X_r \end{pmatrix} = \begin{pmatrix} \Delta_{jj} & 0 \\ 0 & \Delta_{rr} \end{pmatrix} \begin{pmatrix} \Delta_j Y_j + \Delta_j A_{jr} \Delta_r Y_r \\ \Delta_r A_{rj} \Delta_j Y_j + \Delta_r Y_r \end{pmatrix} \tag{17}$$

Through this process, pure backward linkage (PBL) and forward linkage (PFL) indexes can be deduced in their new definition, namely

$$PBL = \Delta_r A_{rj} \Delta_j Y_j \tag{18}$$

$$PFL = \Delta_j A_{jr} \Delta_r Y_r \tag{19}$$

In equation (18), the index shows the impact of the value of the total output of sector j on the rest of the economy, net of demand for inputs that sector j produces for itself and returns of the rest of the economy for sector j and vice versa. In turn, the PFL in equation (19) indicates the impact of the value of the total production of the rest of the economy on sector j. For calculating the pure index for all linkages (PTL) in each sector in the economy, it is necessary to add the PBL and the PFL, expressed in current values:

$$PTL = PBL + PFL \tag{20}$$

However, because these indexes do not take into account the size of the sectors, which is important for identifying key sectors of the economy, a "normalization" procedure should be applied to their indexes based on the approach of normalized pure linkage indexes. For this purpose, the pure indexes of each sector are divided by the average of pure indexes for the economy as a whole. Thus, the normalized pure backward linkage index (PBLN), the normalized pure forward linkage index (PFLN) and the total index (PTLN) can be represented by

$$PBLN_i = PBL_i \Big/ \left(\sum_{i=1}^{n} PBL_i \Big/ n \right) \tag{21}$$

$$PFLN_i = PFL_i \Big/ \left(\sum_{i=1}^{n} PFL_i \Big/ n \right) \tag{22}$$

$$PTLN_i = PTL_i \Big/ \left(\sum_{i=1}^{n} PTL_i \Big/ n \right) \qquad (23)$$

4. Results

This section presents the results obtained using the proposed methodology based on the input-output analysis in the following order: output multipliers, Rasmussen-Hirschman backward and forward linkage indexes (BL and FL), and pure normalized backward and forward linkage indexes (PBLN and PFLN).

The output multiplier indicates how much is produced for each monetary unit spent on final consumption. In other words, these multipliers incorporate direct and indirect effects to measure the impacts of a demand shock on total output. For the purposes of this analysis, type I multipliers are used, which only consider linked effects restricted to demand for intermediate inputs, that is, without making household demand endogenous to the model.

The multipliers differ significantly among countries in terms of both absolute and relative magnitudes. The Chinese multipliers are higher for every sector; the only exception is the Brazilian petroleum industry. This fact means that Chinese industry is more interrelated than other BRICs' industries and, consequently, that an increase in final demand in China has a greater impact on the domestic economy than an increase in final demand in all the other analyzed economies. Furthermore, Table 2 shows that all the manufacturing sectors in China present multipliers higher than 2.0, and outside manufacturing, only construction and business services present such high multipliers. Owing to these high multipliers, Chinese manufacturing is a dynamic sector able to boost economic growth by increasing total demand more than twice as much as any increase in final demand.

Table 2 also shows the relative importance of a given sector for each country. One of the most important sectors for all the analyzed countries is transport equipment. This sector has high multipliers in all the BRICs, which indicates that it is characterized by a high potential to stimulate demand in other sectors. An increase in transport equipment final demand stimulates demand for metal, electrical and chemical products directly but also for mineral commodities and petroleum indirectly because these products are used in the production of parts and components. It is important to consider, however, that the Chinese multiplier for transport equipment is higher than those in the other BRICs.

Primary commodities (agricultural and mineral) present the lowest multipliers comparing the tradable goods in all four economies. This finding means that although these sectors may contribute to economic growth, they are not able to boost demand in other sectors, and thus an increase in final demand for commodities does not significantly increase the total output. It is important to emphasize that in all the BRICs, the multipliers in manufacturing are larger than in the primary and service (both modern and traditional) sectors, with the exception of utilities and construction[10].

Table 2. Output Multipliers: 2000-2011

	Brazil		**China**		**India**		**Russia**	
	Mult	Rank	Mult	Rank	Mult	Rank	Mult	Rank
Agricultural commodities	1.62	13	1.84	18	1.34	15	1.72	13
Mineral commodities	1.79	10	2.03	14	1.36	14	1.63	15
Food and beverage	2.24	1	2.45	9	2.22	1	2.12	1
Textiles and footwear	1.94	6	2.80	2	2.15	3	1.80	11
Miscellaneous	1.86	9	2.57	6	1.81	10	1.99	7
Petroleum and fuels	2.17	2	2.14	12	1.64	12	1.96	8
Chemical products	2.00	4	2.63	5	2.15	4	2.05	3
Non-Metallic Minerals	1.89	7	2.53	8	1.94	8	2.02	5
Metal products (incl. Machinery)	1.96	5	2.67	4	2.13	5	2.08	2
Electric and optical	1.88	8	2.56	7	2.08	6	2.04	4
Transport equipment	2.13	3	2.84	1	2.21	2	1.92	9
Utilities	1.67	12	2.35	10	2.00	7	2.01	6
Construction	1.72	11	2.72	3	1.92	9	1.87	10
Sales	1.41	19	1.85	17	1.20	18	1.52	18
Traditional services	1.52	15	1.94	16	1.69	11	1.65	14
Financial services	1.50	17	1.64	19	1.33	16	1.49	19
Business services	1.56	14	2.18	11	1.43	13	1.61	17
Public administration	1.49	18	1.98	15	1.00	19	1.76	12
Health and education	1.51	16	2.09	13	1.30	17	1.61	16

Source: Elaborated by the authors based on World Input-Output Database (Timmer et al., 2015b).

The analysis of industrial multipliers can be complemented by the Hirschman-Rasmussen forward and backward linkage indexes. As highlighted by Guilhoto (2009), the Hirschman-Rasmussen linkage index analyzes the relationship between each sector and the remaining sectors of the economy. The backward linkage index is used to assess the degree of linkage in sector *j* in relation to the degree of linkage in the economy as a whole. Based on the results, one can infer to what extent the output of a particular sector stimulates the production of its inputs.

[10] Following the previous definition, finance and business are considered modern services.

The forward linkage index, in turn, makes it possible to analyze the importance of that sector as an input supplier. Through these indicators, the behavior of the economy's internal structure can be studied, and one can identify its key sectors that depend on inter-industrial supply or inter-industrial demand, or the sectors that are relatively independent from the others.

The most important sectors in terms of stimulating the production of inputs vary among countries. For Brazil, they are food/beverage, petroleum and transport equipment; for China, transport equipment, textiles/footwear and construction; for India, transport equipment, food/beverage, textiles/footwear and chemical products; and for Russia, food/beverage, metal products and electric/optical. These sectors are those with greater potential to boost economic growth given an increase in final demand. The food/beverage industry plays an important role in precipitating economic growth for Brazil, India and Russia because these countries have relevant agricultural production. However, as shown in Table 3, transport and metal products present high backward linkages for all four countries, which indicates that these sectors are characterized by a high potential to precipitate economic growth because they demand more inputs than other sectors in the economy. Again, the largest backward linkage indexes were found in manufacturing sectors, while the lowest among tradable goods were found in primary commodities. Traditional and modern services also exhibit relatively low backward linkages and hence have a limited capacity to boost the production of other sectors. This finding reinforces the argument that the service sectors, even those with greater technological content, cannot be considered a lever for other sectors' output growth.

Regarding forward linkage indexes, we see that utilities, petroleum, chemical products and mineral commodities are the most relevant sectors. There is a combination of the manufacturing and primary sectors in this situation because products in the primary sector are, in general, inputs for other sectors in the production chain. The petroleum sector stands out as having the greatest capacity to supply inputs to the remaining sectors for all the analyzed economies. Although it falls in the commodity category, petroleum is characterized by a high production rate for each monetary unit spent on final consumption. This is so because this sector is a supplier of inputs for manufacturing the main industrialized products of the chemical products and synthetic materials sector and of the apparel sector instead of being exported as a raw material. The forward linkages for modern services strengthen their role as suppliers for other sectors.

By analyzing together the backward and forward linkages, it is possible to identify the key sectors in the BRICs, which are those sectors with both indicators higher than one. The only sectors that can be considered key using this criterion are metal and chemical products. They showed a high potential to boost other sectors of the economy in addition to being major input suppliers. Notably, there is no manufacturing sector in the group that is relatively independent from the others (with backward and forward linkages lower than one), indicating that there is a significant degree of dependence among several industrial sectors of the economy. This result indicates that manufacturing sectors are usually more inter-related with other sectors than primary goods and services. Finally, among sectors that are strongly dependent on inter-industrial supply (with backward linkages higher than one but forward linkages lower than one), special mention should be made of those of food/beverage, textiles/footwear and transport equipment. These results help show the importance of these sectors and their capacity to pull the other ones up. Forward linkages are larger than backward linkages for services, and traditional services exhibit lower forward linkages than modern services (with the exception of business services in India and financial services in Russia, remarkably). These findings show that their production depend on other sectors' growth, reinforcing the argument that they – mainly modern services – are complementary to the output of other sectors.

Table 3. Hirschman-Rasmussen linkage indexes: 2000-2011

	Backward linkages (BL)				**Forward linkages (FL)**			
	BRA	CHN	IND	RUS	BRA	CHN	IND	RUS
Agricultural commodities	0.91	0.80	0.78	0.94	1.09	0.98	0.86	0.93
Mineral commodities	1.00	0.88	0.79	0.89	1.38	1.53	1.48	0.92
Food and beverage	1.26	1.06	1.28	1.15	0.83	0.86	0.72	0.75
Textiles and footwear	1.09	1.21	1.24	0.98	0.86	0.87	0.78	0.86
Miscellaneous	1.04	1.11	1.04	1.09	1.07	1.20	0.93	1.11
Petroleum and fuels	1.22	0.93	0.95	1.07	1.21	1.38	1.31	1.36
Chemical products	1.12	1.14	1.24	1.12	1.21	1.29	1.16	1.18
Non-Metallic Minerals	1.06	1.10	1.12	1.10	1.25	1.02	1.25	1.26
Metal products (incl. Machinery)	1.10	1.16	1.23	1.13	1.05	1.14	1.18	1.12
Electric and optical	1.06	1.11	1.20	1.11	0.90	0.81	0.86	1.13
Transport equipment	1.19	1.23	1.28	1.05	0.78	0.90	0.88	0.95
Utilities	0.94	1.02	1.15	1.09	1.28	1.48	1.50	1.43
Construction	0.96	1.18	1.11	1.02	0.68	0.44	0.72	0.63
Sales	0.79	0.81	0.69	0.83	1.06	0.95	1.10	0.99
Traditional services	0.85	0.84	0.97	0.90	0.90	0.92	0.93	0.96
Financial services	0.84	0.71	0.77	0.81	1.05	1.19	1.32	0.81
Business services	0.87	0.95	0.83	0.88	1.09	1.02	0.82	1.15
Public administration	0.84	0.86	0.58	0.96	0.58	0.41	0.56	0.81
Health and education	0.85	0.91	0.75	0.88	0.74	0.61	0.66	0.65

Source: Elaborated by the authors based on World Input-Output Database (Timmer et al., 2015b).

However, it should be stressed that the Hirschman-Rasmussen index does not consider the size of sectors in the economy, an aspect that helps identify key sectors. For this reason, Table 4 shows these indexes normalized by the sector size. The first assesses the importance of the sectors as exhibiting demand for the other sectors' inputs, and the second the sector's capacity to supply inputs to the domestic industry. The difference between normalized and non-normalized pure linkage indices is especially significant for large sectors. In these sectors, the size is more relevant to explain the results than the capacity to increase, by each unit produced, the demand and supply of other sectors.

In this way, food/beverage, traditional services and construction occupy the three first positions of the backward indexes. The food/beverage sector stands out as having the highest index because of the importance of demand for its inputs from other industrial complexes but also due to its size compared with the other sectors. Additionally, certain sectors in each country should be highlighted: transport equipment in Brazil, electric/optical in China, textiles/footwear in India and metal products in Russia. All are classified as manufacturing. These sectors have a high pure impact, demanded inputs from the other economic sectors over the period 2000-2011, and present relatively more importance than others in these economies.

Considering the forward linkages, as would be expected, the index was higher for products with a lower degree of processing employed in the production of other goods. The transport equipment and electric/optical sectors, whose degree of processing is higher and whose chain is closer to final goods, present very low pure normalized forward linkages. Agricultural commodities (except in Russia), some services, and metal and chemical products present high pure normalized forward linkages because they are important suppliers for the economy as a whole. Moreover, it must be noted that mineral commodities are important as suppliers for domestic industry in China and Russia. Although Brazil produces these minerals, this production is mainly intended for exports. Consequently, mineral commodities are not processed domestically and thus are not drivers of the development of the metal-machinery industry.

Table 4. Pure normalized backward and forward linkage indexes: 2000-2011

	Backward (PBLN)				Forward (PFLN)			
	BRA	CHN	IND	RUS	BRA	CHN	IND	RUS
Agricultural commodities	0.57	0.64	0.92	0.77	1.56	1.46	1.97	0.94
Mineral commodities	0.31	0.07	0.09	1.55	0.93	1.06	0.64	1.05
Food and beverage	2.68	1.18	2.57	1.86	0.66	0.72	0.26	0.28
Textiles and footwear	0.52	1.18	1.59	0.14	0.16	0.48	0.20	0.07
Miscellaneous	0.53	0.28	0.78	0.43	0.75	0.99	0.62	0.63
Petroleum and fuels	0.67	0.05	0.33	0.48	1.00	0.69	1.65	1.64
Chemical products	0.74	0.47	0.84	0.43	1.56	2.17	1.24	0.75
Non-Metallic Minerals	0.05	0.13	0.09	0.07	0.44	1.06	0.67	0.57
Metal products (incl. Machinery)	0.94	1.13	1.17	1.29	1.08	2.89	2.03	1.59
Electric and optical	0.57	2.17	0.84	0.27	0.32	0.92	0.30	0.39
Transport equipment	1.37	0.94	1.14	0.53	0.21	0.47	0.41	0.40
Utilities	0.23	0.09	0.18	0.29	1.08	1.05	1.22	2.09
Construction	1.62	5.65	4.06	2.70	0.36	0.11	0.70	0.26
Sales	0.77	0.65	0.38	2.05	2.28	1.14	2.61	3.31
Traditional services	2.10	1.26	2.78	2.12	2.40	1.98	2.42	2.45
Financial services	0.48	0.10	0.12	0.48	1.45	0.69	1.47	0.36
Business services	0.66	0.43	0.36	0.40	1.69	0.72	0.33	1.29
Public administration	2.05	0.96	0.00	1.49	0.11	0.01	0.00	0.67
Health and education	2.13	1.59	0.75	1.66	0.95	0.38	0.28	0.26

Source: Elaborated by the authors based on World Input-Output Database (Timmer et al., 2015b).

5. Concluding remarks

The complex relationship between the production structure and economic growth has been the subject of heated debate among economists. In the 2000s, the BRICs experienced a period of growth that, along with the potential markets of those large countries, affected many markets and policy makers. The growth path of Brazil and Russia were based on the production and export of primary goods, while in China and India, the pattern of industrial development remained grounded in manufacturing exports and services, respectively. These distinct economic growth paths resulted in a vast range of interpretations about sectors that act as the relevant engines of growth. On the one hand, some economists support the idea that expansion based on the production and export of commodities or services did not have a negative effect. According to them, in addition to being capable of generating income in export sectors, the primary and service sectors also have indirect effects on other productive chains and capacity to generate additional income to consumption that feeds back into domestic production. Alternatively, the main argument of those who do not support economic growth based on primary product exports is that manufacturing is the main engine of economic development. According to this view, development is essentially a process of

structural change. Broadly speaking, sustained economic growth is associated with the capacity to diversify the structure of domestic production, i.e., generate new activities to expand possibilities of production, linkages and higher-value-added goods by providing incentives for manufacturing.

With the aim of analyzing the performances of the BRIC countries in recent decades, highlighting the differences among their production structures and trade compositions, this study assessed the potential of each sector to promote economic growth. Sectoral output multipliers, Rasmussen-Hirschman backward and forward linkage indexes, and pure normalized backward and forward linkage indexes were calculated to assess each sector's potential to promote other sectors. If the stimulus generated by a sector has a large impact on the others, we can conclude that a certain orientation has a higher potential to stimulate the economy as a whole. The aim of this approach is to evaluate whether a primary-, service- or manufacturing-oriented growth path presents better results for growth.

The main findings were that manufacturing is the sector where the multipliers are the highest, while they are the lowest in agriculture and mineral commodities, which corroborates the hypothesis that having a dynamic manufacturing sector is essential to promote economic growth. The results also showed that Chinese multipliers are higher for all the analyzed sectors, indicating a higher degree of integration in China than in the other BRICs. Furthermore, the analysis of the backward linkages shows that in all the BRIC countries, chemical, transport, metal and food and beverage products have a significant potential (their estimated indexes are larger than one) to precipitate economic growth, and the analysis of the forward linkages shows that the non-metallic minerals, mineral commodities, utilities, chemical and petroleum sectors have the greatest capacity to supply inputs to the remaining sectors. Therefore, a strategy that seeks to boost economic growth must take into account the advantages of a production structure oriented toward expanding manufacturing and based on the utilization of commodities to promote other sectors in the economy. According to the adopted criteria, a primary goods-oriented strategy is unable to promote economic growth because it has a lower impact on aggregate output than a strategy focused on manufacturing production. The service sectors do not show relevant potential to precipitate economic growth because the indexes calculated for those sectors are smaller than for manufacturing, utilities and, in some cases, primary goods. Because forward linkages are larger than backward linkages for services, and modern services present slightly larger forward linkages than those observed for traditional services, the hypothesis that the output of services depends on the production in

other sectors is reinforced, and the relation between modern services and other sectors constitutes a relevant issue for future research.

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The GIIPS crisis in the context of the European Monetary Union: a political economy approach

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Abstract

The GIIPS crisis (Greece, Italy, Ireland, Portugal, and Spain) has been deep and resistant. To date there have not been clear signs of consistent recovery from these economies, with the only exception being Ireland, that has experimented with a longer lasting economic recovery process in recent times. The aim of this paper is to discuss the GIIPS crisis in light of the European integration project. It is argued that this crisis has resulted from two simultaneous processes: on the one hand, it has resulted from the growing internal imbalances that occurred over the economic expansion period; on the other hand, it has resulted from the rigidities imposed by the institutional arrangement of the European Monetary Union. It has been concluded that the consistent economic recovery of these economies requires an aggregate demand stimulus for them, a condition that in turn requires the implementation of countercyclical economic policies.

Keywords: GIIPS crisis; European Monetary Union; New Consensus Macroeconomics.

JEL Classification: F00; F02; F41; F42; F45.

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1. Introduction

The European crisis began under the instability effects triggered by the global financial crisis that arose in 2008. The growing trade and investment relations of the European Union, both from the interregional and intraregional point of view, combined to broaden the transmission channels of the crisis that originated in the American subprime market.

Particularly for the economies of the Eurozone, the effects of the crisis were enhanced by the institutionality of a common currency, which hinders the region's countries in carrying out countercyclical economic policies. From the point of view of government debt, the most vulnerable economies have been more adversely affected, namely Greece, Italy, Ireland, Portugal, and Spain, the so-called GIIPS[1] countries.

In this sense the paper aims to analyse the GIIPS crisis in the context of the European Monetary Union project, from a political economy approach, highlighting the economic theory that served and legitimised the constitution of the Eurozone. It is affirmed that the restrictions imposed by the Eurozone institutions, in the context of the high capital mobility prevalent in the region, resulted in structural problems in these economies, those being: 1) the generation and growth of internal imbalances inside the group, during the period of economic expansion (2000-2007), between the center and the periphery of the region; 2) the deepening of the effects of the financial global crisis triggered in 2008, the epicenter of the crisis being the so-called GIIPS nations from 2010 onwards; and 3) the deepening of the crisis, due to recommendations made by the European authorities.

Therefore, it is maintained that the Eurozone crisis, although resulting from the operating logic of contemporary liberalised and deregulated markets, was deepened by the institutionality that resulted from the constitution of the common currency bloc.

The paper is organised in to three sections, besides the introduction and the conclusion. At first, we discuss the European integration process and the constitution of the Eurozone in 1999. Secondly, we analyse the expansion period and the GIIPS crisis.

[1] The acronym "PIGS" was originally used by the international press to designate the Southern Europe countries, i.e., Portugal, Italy, Greece, and Spain. The pejorative acronym "PIGS" has been used to indicate that after the crisis in Europe, the low dynamism of this group of countries was due to irresponsible public policies. Thus, after the outbreak of the crisis in Europe, Ireland was incorporated into this group of countries, in order to contemplate all those with significant imbalances in public accounts.

2. The European integration project and the structural problems in the Eurozone

This section discusses the main aspects of the European integration project, which culminated in the creation of the euro area, highlighting the period before the GIIPS crisis.

2.1. The European integration and the Euro

According to the conventional orthodox approach, motivations associated with regional integration are related to economic efficiency gains arising from the disposal of commercial and financial barriers in a particular region. It is understood that regional integration can result in several benefits, such as: 1) the generation and expansion of scale economies; 2) better allocation of resources; 3) increased productivity, inciting competition; and 4) an increase in the rate of economic growth. Economic disparities among the member countries are not the obstacle in this approach, for market mechanisms are sufficient to eliminate them. The liberalisation of markets, in turn, implies the targeting of these resources for investments in undeveloped countries, with the subsequent modernisation of productive structures, increasing productivity, and reducing the differential per capita income between countries of a given bloc (Amado and Mollo, 2004; Robson, 1998).

The several stages of the European integration project, with the formation of the European Coal and Steel Community (ECSC) in 1951, the Treaty of Rome in 1957, and its amendment, in 1986, with the Single European Act (SEA), contributed to the creation of a customs union in the late 1960s, and to the formation of a common market in the early 1990s, aiming to obtain the indicated economic gains.

However, between the immediate post-World War II period and the end of the 1960s, the motivations for seeking economic efficiency were subjected to the maintenance of peace, reconstruction of the economies, and political integration in the continent, prioritising the expansionist and autonomous economic policies and the narrowing of the relations between France and Germany. Certainly, war memories and the precarious situation of the continent at the beginning of 1950s were determinant in this process. With the high rate of the world economy growth during the 1950s and 1960s, particularly in Europe, associated with the international order of the Bretton Woods system, the European integration process had progressed without significantly compromising the autonomy and national objectives of its countries. It was possible, therefore, to develop the integration

process while maintaining the autonomy of the economic policy, which was aimed at maintaining jobs and income, under the predominance of the Keynesian consensus (Arestis et al., 1999; Judt, 2005).

In the 1970s, greater distance from the horrors of war, economic instability, and stagflation, along with the increased international competition between the USA, Japan, and Europe, all contributed to an ideological inflection within the continent, in the sense that liberalising policies started to prevail, to the detriment of economic policies aimed towards internal goals. From the late 1970s and early 1980s, unlike the previous period, the main objective of the European regional integration project has become the pursuit of economic efficiency at any cost, in line with the conventional orthodox approach of regional integration. According to Helleiner (1994), the change to market-oriented policies was, in addition to the economic instability in the 1970s, a result of the rise of pro-market intellectuals: the emergence of a coalition of interests of private financial institutions, corporations, and official agencies to promote such ideals.

In addition, the Bretton Woods crisis and the consequent conformation of a new international monetary and financial (dis)order, marked by floating exchange rates and high capital mobility, raised difficulties for the compatibility between regional integration and the autonomy of member countries' economic policies, due to the need of coordinating national economic policies between these countries.

That became clear with the unsuccessful attempt to establish a monetary union in the early 1970s, through the Werner Report (1970). According to this report, the evolution of the economic integration and the greater interconnection among the national economies of the European Economic Community (EEC), within a context of changes in the international monetary system, generated a situation in which economic imbalances of a country affected other members quicker and more directly. The establishment of a monetary union thus implied the need for greater coordination between economic policies, and the transfer of responsibilities from the national level to the community level (Arestis et al., 1999; Eichengreen, 2007).

Aiming to deal with the exchange rate instability problem, in 1972 the "European currency snake" was created[2], but given the economic instability and

[2]Exchange anchor collective system, according to which the European Economic Community's countries, in addition to Norway and Sweden, agreed to limit variations in their bilateral exchange rates originally at 4.5% (2.25% up and 2.25% down), considering the other signatory countries of

the lack of consensus regarding the conduction of market-oriented economic policies, especially regarding monetary policy, it failed in organising the coordination of these policies in order to maintain exchange rate stability (Bakker, 1996). There was a new attempt in 1979 with the European Monetary System (EMS), in order to fix and restrict the fluctuation between currencies of the European Community, in addition to reducing inflation rates, achieving success with these two goals throughout the 1980s (Eichengreen, 2000). During this period, the use of capital control was allowed so the coordination of economic policies could achieve the objective of maintaining exchange rate stability and contributing to the integration of markets in goods and services.

For the ideological inflection in the continent and to support the need for the coordination of the bloc's economic policies, the rise of the German leadership throughout the 1970s was crucial, imposing changes toward the adoption of market-oriented economic policy and implementing it solely and exclusively to keep the price index low and stable over time. For Bibow (2013), in Germany, in the early 1980s, Keynesianism was officially banned, with fiscal austerity and orthodox economic theories becoming unchallenged dogmas.

The reorientation of French economic policy in 1983, aligning to Germany in the coordination of market-oriented economic policies, after the failure of the Mitterrand's expansionist policy (1981-83), was extremely important to consolidate and disseminate the consensus regarding the use of economic policies in the continent, contributing to the success of the EMS and to the advancement of the monetary integration process. In this movement, the implementation of expansionist and unilateral economic policies would no longer be possible, considering that one could have less autonomy outside the EMS. At the same time that Germany managed to bring back its most important ally to the integration process, the French experience was an example for other countries in the region (Bakker, 1996; Eichengreen, 2000; 2007; Judt, 2005).

Having France as an ally, Germany started defending liberalisation and financial deregulation, contributing to a change in the propositions from the European Commission. The latter, indeed, after the troubled decade of 1970, started defending the liberal-conservative project, based on the liberalisation and deregulation of markets, especially in the goods and services markets as well as in the financial markets. For the European Commission, more coordination of the economic policies would enable the evolution in this process, seeking the benefits

the agreement. The "snake", however, was unable to make the exchange rate stability at the regional level feasible, given the prevailing turbulence (Eichengreen, 2000, p. 202-18).

of financial integration, with greater allocative efficiency of resources (Bakker, 1996; Eichengreen, 2007).

According to the European Commission, the EMS, the creation of an environment of economic convergence and monetary stability, along with the establishment of the common market, would be the foundation for the consolidation of the monetary union process. To that end, it was necessary to build an institutional apparatus to suppress the possibility of internal nominal exchange rate variations in the bloc, as well as creating a single financial market. In 1988, at the European Summit, the establishment of a committee to study and propose concrete stages that would lead to economic and monetary union in the region was decided. The Delors Report was created in 1989, and had great influence on the Maastricht Treaty of 1993. The latter, in turn, determined the format of the European economic and monetary union process, resulting in the creation of the Eurozone in 1999 – the group of countries that started using the common currency, the Euro (Arestis et al., 1999; Delors Committee, 1989). The conventional orthodox economic theory has, undoubtedly, had great influence on this integration process, particularly regarding the monetary union, understood as a crucial factor for the success of the project.

In this context, the theory of Optimum Currency Areas (OCA) was introduced in the 1970s. According to this theory, the lower degree of autonomy of the countries regarding economic policy was a cost for joining a monetary union (Corden, 1972; Ishiyama, 1975). This became clear with the failure of economic policy coordination throughout that decade. Very important for the inflection of this position was the guidance of the orthodox economic theory over the 1970s and 1980s, under the aegis of the rational expectations theory, being supply-side oriented, and to the importance of credibility and the adoption of rules for the economic policy (Bernanke and Mishkin, 1997; Kydland and Prescott, 1977).

This movement in macroeconomic theory resulted in so-called New Consensus Macroeconomics (NCM), which advocates the adoption of an economic policy in which the single goal of monetary policy is price stability, through an independent monetary policy, considering fiscal policy subordinated to the first[3]. Influenced by NCM, the New OCA (in the late 80s and 90s) started conceiving the loss of autonomy of economic policies by adopting a common currency as a benefit (De Grauwe, 2010; Robson, 1998; Tavlas, 1993). The benefits pointed out both by the OCA and the New OCA are based on potential gains in

[3]See Arestis (2007).

economic efficiency from the monetary union, in addition to the greater scope of the use of the national currency, the elimination of speculative capital flows, and the economy in foreign-exchange reserves.

Another important benefit of the monetary union pointed out by New OCA is regarding the endogeneity criterion. In this perspective, we should not consider only the *ex-ante* situation, but also the conditions that may be conquered *ex-post*, with changes in the expectations of agents throughout the process of monetary union establishment (Alesina, Barro and Tenreyro, 2002; De Grauwe and Mongelli, 2005; Frankel and Rose, 1997). This means to state that, through this theoretical premise, the establishment of a monetary union would endogenously create conditions for the convergence of variables necessary for its success.

The endogeneity criterion and the view that in an integrated region the international capital flows would migrate from the most developed countries to the least developed ones were powerful rhetorical instruments to establish a monetary union formed by heterogeneous countries, such as the case of the Eurozone. The influence of this theoretical conception on the establishment of the single currency was evident in the European Commission (1990), regarding the costs and benefits of joining a monetary union, as well as in Issing et al. (2004) and Scheller (2006), in relation to the ideal way of conducting the monetary policy by the European Central Bank (ECB).

2.2. The problems imposed by the institutionality of the common European currency

As analysed by the Werner Report (1970), three conditions would be required for the establishment of a monetary union, namely: 1) total and irreversible conversion of currencies (monetary sphere); 2) full liberalisation of capital movements and financial market integration (financial sphere); and 3) elimination of nominal exchange rate movements, irreversibly (exchange rate sphere). The first had already been achieved and the second would be completed in the early 1990s, with the Single European Act (Delors Committee, 1989).

The third condition would be achieved through a gradual transition to the common currency. Throughout this transition period, according to the European authorities, both a convergence of nominal variables (prices, budget deficit, public debt, and interest rates) among countries, and a greater commitment to coordinate economic policies would be required as a way to making the monetary union feasible.

Once the single currency had been adopted, the bloc's monetary policy would be conducted by the European Central Bank (ECB), the supranational institution independent of member countries, strongly influenced by the structure of the Bundesbank and the NCM, with the single goal of ensuring a low and stable inflation rate. That is, a single monetary policy for the bloc. The fiscal policies of each of the Eurozone countries would be maintained under the responsibility of national authorities, but subject to restrictive rules of the Stability and Growth Pact (SGP) and to the supranational monetary policy.

It is noteworthy that the institutional restrictions resulting from this way of establishing the Eurozone, especially regarding the limits imposed for the implementation of autonomous and countercyclical economic policies, in addition to the logic of liberalised and deregulated financial markets, were determinant for the creation of the conditions, the severity, and the extension of the Eurozone crisis, especially in GIIPS. Such restrictions has allowed the evolution of internal imbalances within the bloc, between the center and periphery, concerning private debt, external position, and internal demand.

Therefore, there was a significant reduction in the degree of autonomy of national economic policies within the monetary union. According to Oliveira, Deos and Wolf (2012) , the form that this process assumed radically restricted the ability of countercyclical economic policies on the part of the member countries, due to the lack of a fiscal institutionality to do so. In addition, euro institutionality has created difficulties for National States of the bloc to handle financial crises because of the lack of monetary sovereignty, due to the inability of the State to issue its own currency. That is, the State is unable to issue the currency capable of liquidating its debts. Hence, according to Toporowski (2013, p. 572), "The Eurozone has a central bank without a government, governments without central banks, and banks without an effective lender of last resort".

In fact, when restricting its actions according to the conventional orthodox theory, as well as legitimising them based on it, Germany has forged a bloc in which joint interests of the countries were not considered; such countries would be guided by a common policy, which would fatally cause problems in times of crisis, especially for the European peripheral countries and/or those with more vulnerability within public finances (Aglietta, 2013).

According to the official doctrine inherent in the formation of the Eurozone, once the nominal convergence is performed, the financial integration would create an efficient economic area, contributing to increase investments and to the diversify the productive structure of the least developed countries, followed by

increased productivity. All these transformations, together, would enable the real convergence of the periphery of the region in relation to the developed countries. This would raise competitiveness and would provide accelerated growth in less developed economies (Aglietta, 2013).

A point to be highlighted is that this nominal convergence has enabled a fragile real convergence, highly susceptible to instability and crises. In practice, what we observed was a huge inflow of capital only during the expansion period (2000-2007), from the center to the periphery, predominantly directed to the non-exporters sector, such as services and construction, especially in the case of Spain and Ireland. This strongly stimulated consumption, resulting in increased private debt. When the crisis occurred, an intense reversal of the incipient process of income convergence verified during the favourable period was observed (Aglietta, 2012, 2013; Oliveira, Deos and Wolf, 2014).

Regarding the issue of the endogeneity criterion of the New OCA, reality showed a dynamic towards the opposite direction. Indeed, in the first decade of the existence of the Eurozone, contrary to what was predicted by European authorities, an increase of the heterogeneity of the production structures of the bloc countries was observed, in addition to a sectoral specialisation. As stated by Priewe (2012), divergences and not convergences have been endogenously processed. This is mainly because: 1) unit costs of work and different inflation rates, creating imbalances in wage costs between the countries, which had relevant effects in terms of competitiveness and productivity differentials of member countries (Arestis and Sawyer, 2011; Bibow, 2012; Flassbeck and Lapavitsas, 2013; Bresser-Pereira and Rossi, 2015); 2) polarisation of productive structures, with increased industrial development and diversification in center countries and regression and specialisation in GIIPS (Dullien, 2010; Miranda, 2014); and 3) the adoption of a single monetary policy for the Eurozone, considering the existence of inflation rate differentials. This resulted in different real interest rates, affecting central and peripheral economies in a restrictive and expansionary way, respectively, regarding the components of internal demand (Toporowski, 2013). These factors made the process of real convergence of bloc economies vulnerable to setbacks, and allowed the evolution of internal imbalances in the region.

3. Expansion and crisis in the Eurozone

This section aims to analyse the dynamics of the economic expansion (2000-2007) and the Eurozone crisis (2007-2013) periods, considering the elements discussed in the previous section. Initially we discuss the evolution of imbalances in the Eurozone between the central and peripheral region during the expansion period, and the characteristics of the adjustment process after the outbreak of the global financial crisis in 2008. In addition, the section highlights the difficulties for recovering growth in the region, both because of the regional dynamics and the restrictions on the use of autonomous countercyclical economic policies due to the restrictions imposed by the euro institutionality. Finally, we analyse the vision of Eurozone authorities on the determinants of the crisis and recommendations for its overcoming.

3.1. The differentiated dynamics between GIIPS and Germany

When analysing the existence of financialised capitalism, Hein (2012) envisions three possibilities for the dynamics of the Eurozone economies over expansion periods, namely: 1) debt-led consumption boom, in which the growth of aggregate demand occurs by increasing the debt toward consumption and a relative stagnation of investment, which would be the case of Ireland, Greece, and Spain; 2) export-led mercantilism, in which the advance of exports are essential to the performance of the economy, reflecting the dynamics of the German economy; and 3) domestic demand-led, in which the dynamism of the economy is led by domestic demand, but without the strong evolution of the debt of households towards finance consumption, as in the case of Portugal and Italy. For the author, the different behaviour of growth strategies between GIIPS and Germany, with the first focusing on consumption and the latter based on exports, contrary to what the Lisbon Strategy advocated, is essential to the evolution of imbalances regarding economic growth, private debt, and the external position of economies.

The economic expansion period in the Eurozone, until mid-2007, was marked both by a strong international liquidity and by low interest rates in GIIPS, due to the convergence process between long-term interest rates verified between the economies of the region (Oliveira, Deos and Wolf, 2012).

Table 1 shows the GDP components of GIIPS and Germany, highlighting the different performances of the countries over the expansion period. We may verify a strong dynamism of the GDPs of Spain, Ireland, and Greece, largely conditioned by internal demand. Therefore, it was a dynamic of growth of 'debt-led consumption boom' type, considering the taxonomy proposed by Hein (2012),

with growth being pulled by the expansion of household, government, and investment (gross capital formation) expenditures[4], which were enhanced by the increase in private debt.

While the GDP growth of Spain, Greece, and Ireland was much higher than the Eurozone average between 2000 and 2007, Germany's was below the average of the bloc, with low dynamism of GDP internal determinants and highlighting the expansion of exports, with the external sector being predominantly responsible for German GDP growth. This had strong implications for the evolution of internal imbalances of the bloc. Regarding Portugal and Italy, the low dynamism of their GDP is highlighted, but with the dynamics of internal demand a little higher than in Germany.

With the global financial crisis triggered in 2008 and the crisis of sovereign public debt of GIIPS in 2009, there was a pronounced decline of international liquidity, a reversal of capital flows (which, before, flowed from the center to GIIPS), and the end of the perception that the risks of sovereign public debts of different economies of the Eurozone were similar. This had strong negative impacts on the economic growth, as we can observe in Graph 1 and Table 2.

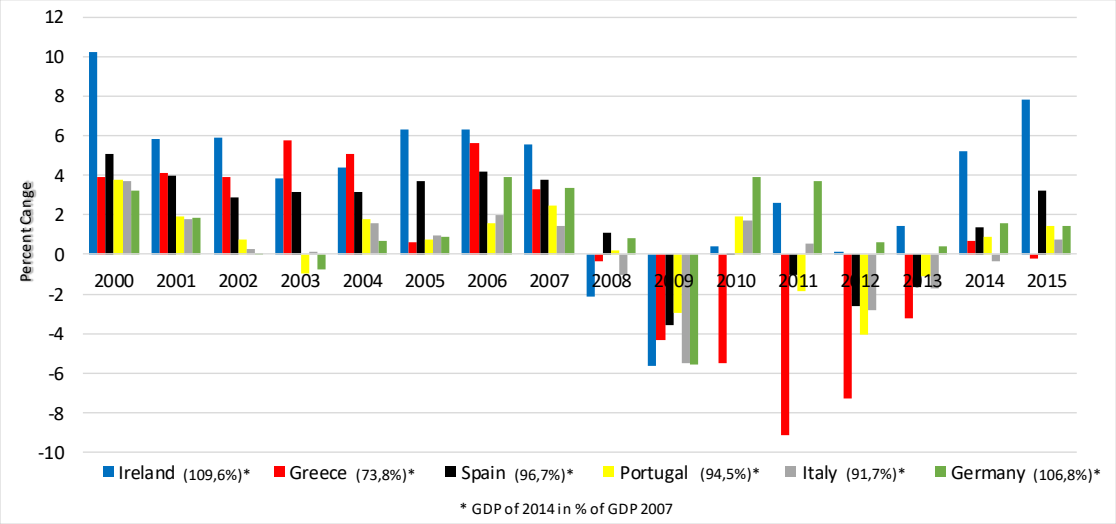
Table 1. Real growth rate of GDP components (in percentage), selected countries of the Eurozone (2000-2007)

GDP Components	Germany	Spain	Portugal	Italy	Greece	Ireland	Eurozone
Internal demand	3	35	7	9	36	46	13
Households' consumption	4	27	11	7	32	41	11
Government's consumption	4	42	15	9	36	45	14
Gross Capital Formation	2	49	−7	16	47	62	17
Export of goods and services	64	31	38	24	32	49	40
Import of goods and services	40	57	25	28	44	48	37
GDP	10	28	9	8	32	40	14

Source: Eurostat (2017). Elaborated by the authors.

[4] In the case of Ireland and Spain, in spite of growth rates of fixed gross capital formation, these investments are mainly concentrated on the service sector, more specifically on the construction sector, and not on productive investment. The very evolution of the construction sector was essential, with the importance of the appreciation of real estate prices and the wealth effect to stimulate consumption and the economy.

Graph 1. GDP annual percentage variation: GIIPS and Germany (2000-2015)



Source: IMF (2017). Elaborated by the authors. Note: for the year 2015, IMF projection.

For Spain, Greece, and Ireland, with economic growth marked by the deepening of the private debt over the expansion period – and also for Portugal and Italy –, there was a strong GDP retraction in 2009. Thereafter, the GDP variation of these economies continued showing negative variations or started growing very little, with the exception of Ireland in the most recent period, from 2013 onwards, due to the dynamism of tradable sectors[5]. In Greece, surely the most extreme case of the GIIPS crisis, the 2016 GDP was still far below the 2007 GDP level. Among the other economies of GIIPS, in 2016, only Ireland had a GDP higher than that verified in 2007. As shown in Table 2, only Germany and Ireland showed a positive variation of GDP between 2007 and 2016. Excluding Ireland, the GIIPS had a significant contraction in the gross capital formation.

The point to be highlighted is the economic performance differential between GIIPS and Germany during the period of expansion, and the difficulties for the recovery of GDP growth – except for Ireland –from the outbreak of the crisis. An essential factor to enable this dynamic in the expansion period, one of the results of the structural problems discussed in the previous section, was the significant increase in the debt of the private sector in GIIPS to stimulate internal demand. Surely this movement was accompanied by a gradual weakening process of the financial structure of these economies, making it explicit regarding the

[5] About Ireland's economic recovery in the recent period and the importance of the tradable sector in this process, see Fitzgerald (2014).

reversal of optimistic expectations, and it can be considered a typically Minskyan phenomenon[6].

Table 2. Average growth rate of GDP components (in percentage), of selected countries of the Eurozone (2007-2016)

GDP Components	Germany	Ireland	Greece	Spain	Italy	Portugal	Eurozone
Households´ consumption	10	1	-22	-5	-5	-2	5
Government´s consumption	20	-1	-25	7	-2	-6	11
Gross capital formation	-1	59	-70	-28	-29	-33	-10
Exports of goods and services	28	82	-1	25	6	34	29
Imports of goods and services	31	63	-33	-12	-3	12	24
GDP	9	34	-26	-1	-7	-4	5

Source: Eurostat (2017). Elaborated by the authors.

Graph 2 presents the consolidated debt of the private sector in relation to GDP, for the cases of the GIIPS countries and Germany, between 2001 and 2015. We may observe that between 2001 and 2007 this indicator increased 82 percentage points (p.p.) in Spain, 42 p.p. in Greece, and 58,7 p.p. in Ireland. This indicator continued increasing, although in a rather inferior pace than the rate verified in the immediately preceding period, between 2008 and 2009 in Portugal, Spain, and Italy, on the one hand, and between 2008 and 2012 in Greece and Ireland, on the other. In Germany, there has been a clear trend of decline of private debt in relation to GDP between the beginning and the end of the period considered, highlighting the importance of the external sector for the country and the low relevance of internal demand.

In GIIPS, the evolution of debt of households, as a percentage of net disposable income, between 2002 and 2012, makes clear the difficulty of recovering economic growth as pulled by household consumption. Graph 3 shows that since 2007 the efforts to decline household debt have not achieved good results, highlighting the cost in economic terms of giving up internal demand as a driver of GDP, following the deflationary recommendations of European authorities. The rise in unemployment and the subsequent wage compression combine to hinder a consistent process of reducing the debts of households in relation to the available net wage.

This situation shows the typical problem of the "fallacy of composition", as shown by Keynes (1936). That is, the increase of the liquidity preference level

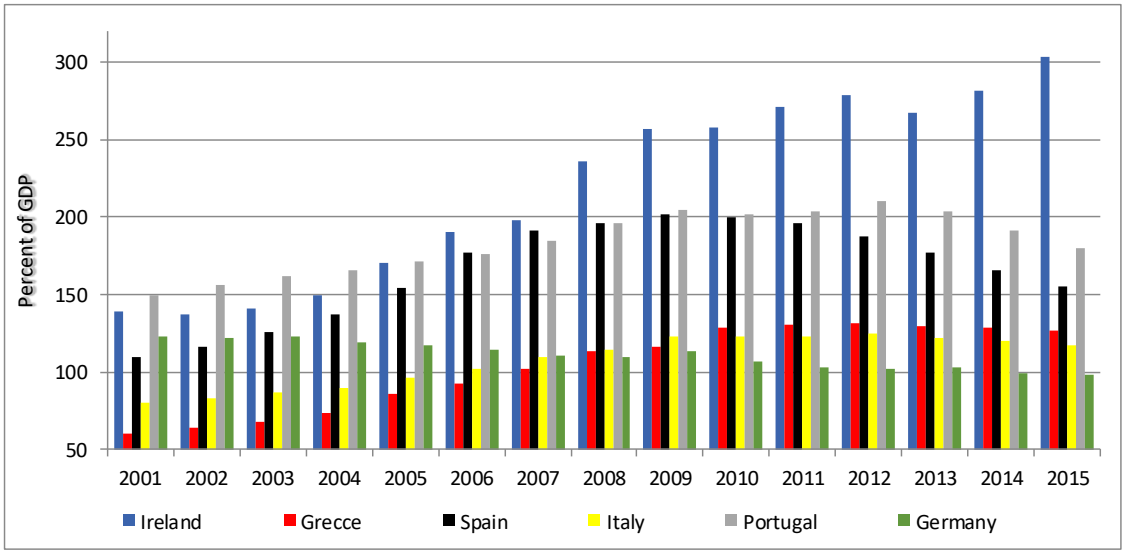
[6] About the financial instability hypothesis of Hyman Minsky, see Minsky (1982; 1986).

became detrimental along with the credit conditions and increased the debt to GDP ratio, due to the worsening financing conditions, and consequently, the decrease in spending decisions and GDP. The widespread search for deleveraging by the economic actors has contributed in worsening the problem of household and corporate indebtedness, with adverse effects on the regional economies, especially in GIIPS, as showed by Athanassiou (2012). Therefore, with the exception of Greece, which had already shown problems in their public accounts, in the other economies of GIIPS the sovereign debt crisis resulted preponderantly from a private debt crisis that occurred before the global crisis deflagration. The deleveraging movement incurred unsustainable economic effects, by making necessary countercyclical economic policies and lender of last resort policies, in a strongly unfavourable context in terms of financing conditions, causing the sovereign debt crisis in these countries. According to De Grauwe (2010, p.2)

> A consensus seems to be building up in Europe identifying the failure of the Stability and Growth Pact (SGP) to keep a lid on national budget deficits and debts as the root cause of the government debt crises in the eurozone. I want to argue that, with the exception of Greece, the reason why countries got into a sovereign debt crisis has little to do with the poor performance of the SGP. The root cause of the debt problems in the eurozone is to be found in the unsustainable debt accumulation of the private sectors in many eurozone countries.

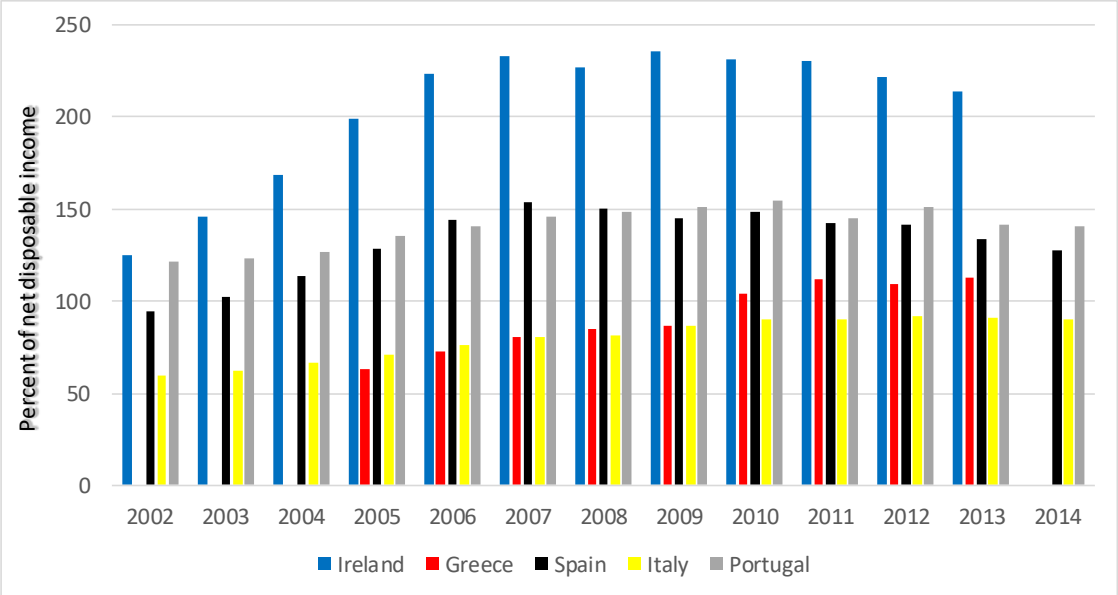
Over the expansion period, the fast pace of the GDP growth of GIIPS, enhanced by the significant increase in private debt; the low dynamism of internal demand of the German economy and its growth strategy largely based on increased exports; the regressive specialisation of the productive structure of GIIPS; and the initial deficit position in the current account of the balance of payments of those countries at the time of the Eurozone establishment, in 1999, resulted in a dynamic of external vulnerability intensification of GIIPS, as shown in Graph 4. Although the structural problems have been hidden over the economic expansion period, due to the behaviour of international capital flows, with the reversal of these flows the fragilities of the euro's architecture became explicit (Belluzzo, 2013; Guttmann and Plihon, 2010).

Graph 2. Private sector debt* consolidated in relation to GDP: GIIPS and Germany (2001-2015)



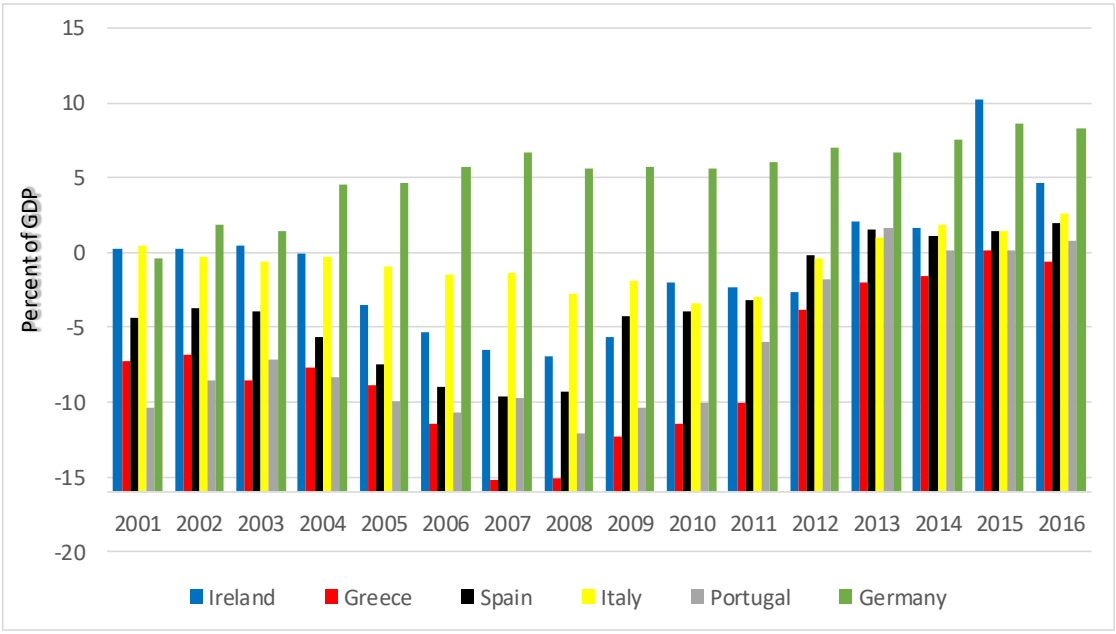
Source: Eurostat (2017). Elaborated by the authors. Note: * Households, non-profit companies serving the households, and non-financial corporations.

Graph 3. Debt of households, as a percentage of net disposable income, GIIPS (2002-2014)



Source: OECD (2016). Elaborated by the authors.

Graph 4. Net profit on a current account (% of GDP): GIIPS and Germany (2001-2016)



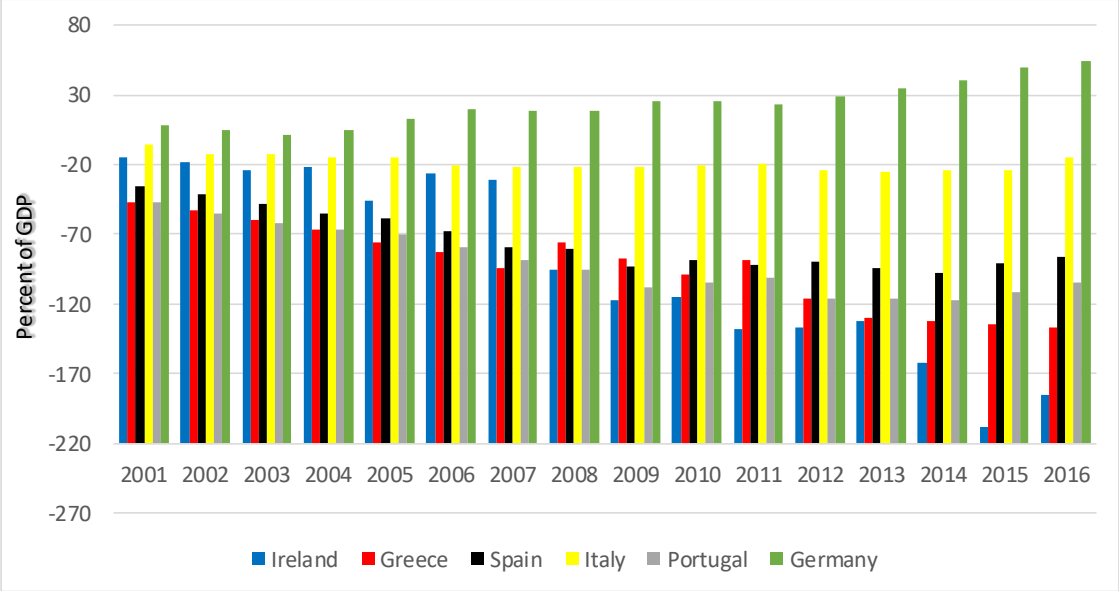
Source: Eurostat (2017). Elaborated by the authors.

Regarding the position of the current account of the balance of payments, Graph 4 allows the verification of two behaviour patterns. On the one hand, Germany, with the accumulation of surpluses throughout the expansion period, maintaining this position after the crisis. On the other hand, the GIIPS countries that had growth dynamics pulled by internal demand, stimulating imports, showed a strong deterioration in the position in the current account over the expansion period. After the 2008 crisis, before the significant deflationary adjustment, there was a trend of improving the position in the current account of GIIPS, but remaining negative until 2013 for most of them. It should be pointed out, however, that by following the recommendations of the European authorities, this improvement in the case of GIIPS has occurred through recessive adjustment, a condition that contributed to the stagnation of internal determinants of the economic growth and to the unfeasibility of the implementation of countercyclical policies.

Hence, there is no evidence for recovering autonomous expenditures or those of private consumption in GIIPS. European authorities believe that this deflationary process may create conditions for the development of the exports of these countries, stimulating the economies, using Germany's case as an example to be followed. However, this strategy makes the recovery of the economic growth of these economies unfeasible and ends up, therefore, increasing unemployment and deepening the social crisis even more.

Graph 5 presents the investment net external position of GIIPS and Germany. There is a clear trend of a relevant increase in the net external liability of Spain, Greece, and Portugal, between 2001 and 2016. These economies have received a lot more foreign investment than they have made, in the form of foreign direct investment, bank loans, and portfolio investments. Such inflows were also required to equalise the external accounts of these economies, before their high deficits in the current account, as previously mentioned. In the case of Ireland, there was a significant increase in net external liability in 2008, with the deterioration of net international position since then. The banking crisis and the worsening of financing conditions induced a significant reduction in the portfolio investments held by Irish people abroad, which, along with the GDP contraction, explains the strong increase in the country's net external liability between 2007 and 2008. In Italy, the indicator had a certain worsening over the period considered, but nothing comparable with the rest of GIIPS, in level terms. In the case of Germany, on the other hand, there has been an improvement in the net external position of investment throughout the period, enhancing the existing asymmetry in relation to GIIPS.

Graph 5. Net external position of investment (% of GDP): GIIPS and Germany (2001-2016)



Source: Eurostat (2017). Elaborated by the authors.

The difficulty in recovering the economic growth of GIIPS can be ratified by the net financial position of the sectors of the economies, as we may observe in Table 3. The net financial position of a given sector is the difference between financial assets and financial liabilities of this same sector. The net position of the four sectors of the economy, namely, household (H), government (G), rest of the

world (RW), and non-financial corporations (NFC), highlight an issue little discussed by orthodox economic theory and Eurozone authorities. This decomposition shows that, in the aggregate, the counterpart of the increase in the net asset of a given sector corresponds to the increase in the net liability, or to the decrease in net asset of other sector(s). With the reversal of capital flows, from 2007 and, mainly, 2008, a significant worsening of net financial position of households in GIIPS was verified, although they still remained with a surplus. In Germany, on the other hand, households presented improvement in their net financial position. In addition, the worsening of the net position of the government, although still occurring in GIIPS, goes against the determinations of the European authorities regarding the fiscal austerity. With the crisis, the rest of the world became the main counterpart in the decrease in the net financial position of households and the deterioration of the position of governments, in the case of GIIPS. Thus, the net financial position by sector presented in Table 3 shows the asymmetrically adjustment between sectors, in a comparison between GIIPS and Germany. In Germany, as shows the Table 3, the net financial position of the public sector increased less relative to GIIPS, with the counterpart of the private adjustment having strongly involved the rest of the world, different to GIIPS.

Table 3. Net financial position per sector, GIIPS and Germany (2000 – 2015, in US$ billions)

Sector	2000	2007	2010	2015	2000	2007	2010	2015
	SPAIN				GREECE			
H	697	950	789	1.280	194	218	110	137
G	-284	-188	-427	-879	-138	-189	-209	-260
RW	265	854	933	981	62	249	230	239
NFC	-693	-1.623	-1.446	-1.359	-105	-211	-125	-152
	PORTUGAL				ITALY			
H	129	172	176	211	2.546	3.130	2.749	3.200
G	-54	-97	-128	-196	-1.259	-1.430	-1.622	-2.177
RW	73	163	201	213	83	450	405	517
NFC	-141	-243	-241	-233	-1.254	-2.083	-1.869	-1.993
	IRELAND				GERMANY			
H	121	104	114	203	2.075	2.859	3.012	3.865
G	-14	0	-80	-152	-764	-1.044	-1.267	-1.296
RW	20	62	191	531	-57	57	-313	-1.182
NFC	-119	-187	-216	-530	-1.047	-1.678	-1.569	-1.696

Source: Eurostat (2017). Elaborated by the authors. Net financial position = Financial assets - financial liabilities.

Therefore, the adjustment dynamic of GIIPS shows the fallacy of the composition, to the extent that the search for debt reduction on the part of all sectors, including the government, combines to make deflationary adjustment inevitable. Moreover, by failing to act as a regional hegemonic center, Germany hinders the recovery of more fragile economies in the Eurozone (Oliveira, Deos and Wolf, 2012). According to Oliveira and Wolf (2017, p.160): "*In order to avoid the deflationary adjustment, an intense cooperation system among superavit and deficit countries of the region, led by a hegemonic center [Germany] that is able to assume the functions of purchaser and lender of last resort, would be required.*"

3.2. Overcoming the crisis

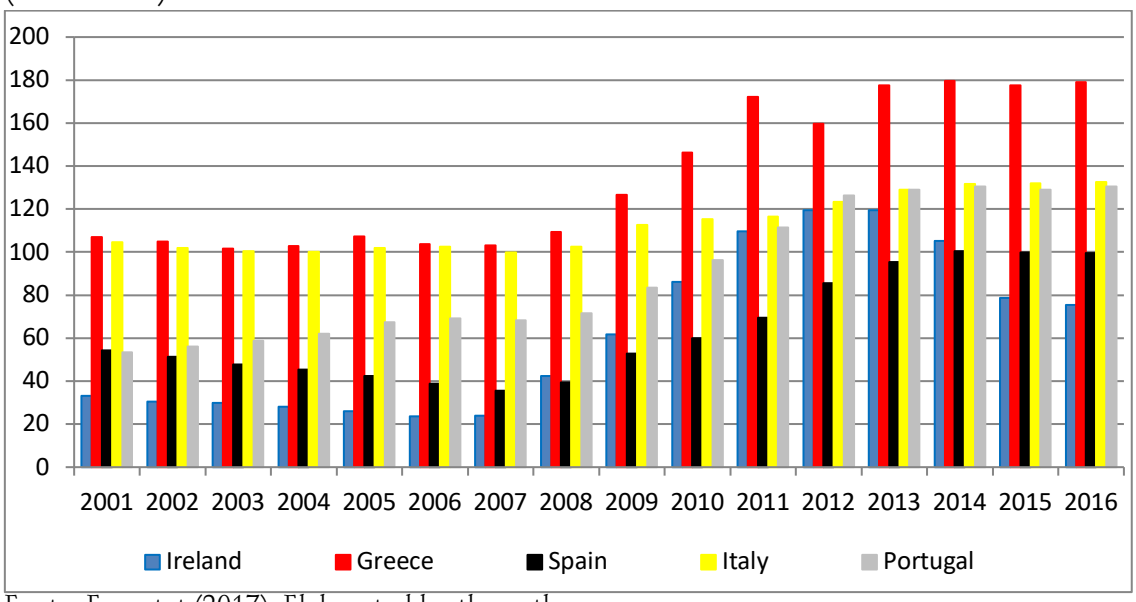
We can say that the form of operation of European authorities during the Eurozone crisis is closely related to their vision regarding the determinants of this process. Based on theoretical orthodoxical assumptions, European authorities, under German leadership, pointed to the "fiscal irresponsibility" of GIIPS and the lack of competitiveness as the fundamental causes of the crisis, defending the adoption of austerity and the deepening of structural reforms (that is, flexibility in labour markets and health systems, pensions, social security, and education) as necessary actions to recovery and economic growth (Belluzzo, 2013). This becomes evident from Schäuble (2011), Finance Minister of Germany at the time, as well as in the various documents of the European Commission and the European Council.

In addition, according to Aglietta (2013), this diagnosis of the causes of the crisis, on the part of European authorities, allowed Germany to exempt itself from responsibility regarding its fundamental contribution to the imbalances created in the Eurozone, especially concerning the external accounts of the countries of the region.

Thus, Germany does not play the expected role of the hegemonic country of the bloc during crises, i.e., to act as an anticyclical economy to the other member countries (Oliveira and Wolf, 2017). Instead, the dynamics of its economy and the proposals of European authorities have not contributed to the growth and recovery in GIIPS (and in the Eurozone as a whole), but, indeed, inducing the dual effect of the decline of public expenditures and private demand, with the imposition of deflationary adjustment for countries in crisis (Belluzzo, 2013). The bailouts granted by Troika to GIIPS have involved strict conditionalities in terms of austerity policies and "structural reforms", emphasising this deflationary dynamic and hindering the economic recovery process.

As we can observe in Graph 6, the thesis that the crisis of all the GIIPS countries resulted from "fiscal irresponsibility" is not supported. In the economic expansion period, between 2000-2007, the performance of Spain and Ireland is highlighted, since the countries showed a decrease in the general government gross debt in relation to GDP. It was from the global financial crisis triggered in 2008, with the decline of economic growth (a decrease in public revenues) and countercyclical policies and aid policies to the financial system (an increase in public expenditures), that a significant deterioration of the government finances of those countries was verified, even if with different intensities (Oliveira, Deos and Wolf, 2012). Hence, the strong fiscal deterioration observed after the crisis should be understood as a consequence, not the cause of the crisis. By 2016, only Ireland had been successful in a consistent reduction of the general government gross debt, highlighting the difficulties of this process for the other countries.

Graph 6. General government gross debt (Maastricht criterion), % of GDP - GIIPS (2001-2016)



Fonte: Eurostat (2017). Elaborated by the authors.

4. Conclusion and final remarks

The evidence presented suggests that the economic crisis in the Eurozone resulted from growing internal imbalances that occurred in the region over the economic expansion period, particularly between the central member countries, with emphasis on Germany, and the peripheral countries of the region, namely GIIPS. Undeniably, it was potentialized by the way the Eurozone was established, under the restrictions imposed by the institutionality of the common currency on internal economic policies. As was analysed in this paper, the characteristics of the

integration process and the influence of orthodox economic theories were very important for this conformation.

The conviction on the part of European authorities that the formation of the monetary union – according to the models proposed by the conventional orthodox theory – would be sufficient to provide the virtuous cycle proposed by the Lisbon Strategy generated internal imbalances to the region that were neglected during the favourable period. As soon as the reversal of the general state of expectations occurred, these imbalances became explicit.

Since then, the idea of accomplishing a monetary union based on orthodoxical theoretical assumptions focusing on liberalisation and financial deregulation, the single monetary policy, restrictions on national fiscal policies, the possibility of including heterogeneous countries in a bloc with the same currency, and the conceptions of real convergence of economies that are closer to wishful thinking than scientific arguments (such as the endogeneity criterion of New OCA) have come to be questioned in several academic and political circles, inside and outside of Europe.

However, European authorities, led by Germany, as well as much of the economic orthodoxy, insist on pointing out the causes of the crisis in the Eurozone, with its epicenter in GIIPS, as the result of "fiscal irresponsibility" and the lack of competitiveness on the part of these countries. When putting itself as an example of success to be followed, and not as one of those responsible for the crisis in the bloc, Germany creates a double setback for overcoming the crisis. On the one hand, it requires countries in crisis to follow its example, seeking increased external competitiveness, in search of external markets, but via deflationary adjustment, with stagnation of GDP internal determinants. On the other hand, by not admitting its active participation to the conformation of the crisis, the country does not see the need to cooperate, along with GIIPS, in order to overcome internal imbalances that were created. It is worth mentioning that the favourable economic performance of German exports over the expansion period was significantly influenced by the structure created by the Eurozone, with a strong increase in its exports to the countries of the region, with an emphasis on GIIPS. When requiring these countries to follow its example, it is necessary to find other external markets to absorb its exports, which reinforces the deflationary adjustment, because besides the context of low global growth and recession on the continent Mediterranean countries have each other and Germany itself as the greatest trading partners.

Overcoming the crisis, in fact, imposes the need for a source of stimulus to the aggregate demand of GIIPS. With the impossibility of the performance of an autonomous expansionary fiscal policy and with the reticence of international financial markets to finance these economies, the prospects for the consistent recovery of economic growth are still very unencouraging, especially due to the impossibility of implementing countercyclical economic policies, as well as on account of the economic policies recommended by European authorities under German leadership. Therefore, the aggregate demand recovery of GIIPS requires that Germany assumes the function of lender and consumer of last resort in the region, in line with the arguments of Oliveira and Wolf (2017).

Last but not least, more work on this theme is necessary in considering alternative adjustment forms of recovering the aggregate demand of Eurozone countries and to explore these arguments in further detail, highlighting the GIIPS private debt crisis resulting from imbalances verified in GIIPS over the period of business cycle expansion.

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Developmentalism and the determinants of investment: an econometric exercise for Brazil in the 2000s*

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Abstract

The aim of this paper is twofold. At first, we briefly review the current debate in Brazil between the new-developmentalists and the social-developmentalists. Both groups assume that the investment is the main component of aggregate demand to explain growth. However, the key variable to determine demand for investment is different for each group. For the new-developmentalists, the key variable is the real exchange rate. For the second group, public investment and domestic mass consumption are the most relevant variables. Given this debate, our next step is to test econometric models that capture the determinants of investment in Brazil in the 2000s. We start with the investment function presented by Bhaduri and Marglin (1990) and add other variables according to the developmentalist debate. We found robust results that confirm the validity of Bhaduri and Marglin´s hypothesis as well as the ones proposed by the new-developmentalists and the social-developmentalists.

Keywords: new-developmentalism; social-developmentalism; investment; Brazil.
JEL Classification: E22; O11

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1. Introduction

The recovery of the Brazilian economy in the mid-2000s, following the good performance of the current accounts during 2003-2007 as well as the rapid positive response after the international financial crisis in 2009 gave boost to the academic interest on the debate on developmentalism in Brazil.[1] The recent domestic economic crisis has been reinforcing this interest as conventional economic policies are inept to deliver a sustainable way out to the current crisis. Biancarelli (2012) points out that the debate unfolds on two levels. On the theoretical level, a critical review has been conducted of some issues of the old developmentalism propositions.[2] On the empirical level, the debate is focused on alternative economic policies to the neoliberal project of development.[3] Academic works by Bresser-Pereira (2006), Sicsú et al. (2005) and Bielschowsky (2014), among others, have gained prominence in this academic discussion. Following the intensification of the debate, Mollo and Amado (2015), for example, subdivided the new developmentalist positions into three groups: the new developmentalists (see for example Bresser-Pereira, 2006), the post-Keynesian developmentalists (see for example Sicsú et al., 2005) and the social developmentalists (see for example Bielschowsky, 2014).[4]

In this paper, we are interested in discussing the determinants of the investment in fixed capital in the 2000s in Brazil, according to the developmentalist debate. In this sense we will evaluate how developmentalists propositions help us to better understand the investment dynamics in Brazil between 1999 to 2013.[5] We will propose an econometric model to test the significance of the main variables that the new-developmentalist and the social-developmentalist group emphasize as the most relevant to explain the behavior of aggregate investment. Special emphasis is given to the importance of the real exchange rate and to public investment in explaining investment decisions. Thus, the main contribution of this paper is, based on the different agendas of economic policy proposed by the

[1] For a discussion about the concept of developmentalism, see Fonseca (2014).

[2] For a summary of the 'old developmentalist' approach, see Bresser-Pereira and Gala (2012, Table 1: Original developmental theory compared with structuralist macroeconomy of development, p. 31)

[3] See also Nassif and Feijo (2013) for a discussion about the new conventions of developmentalism.

[4] Social developmentalism presents other terminologies in the literature. See Calixtre et al. (2014, p.16)

[5] We should remark that it is not our intention to propose an exhaustive debate about the developmentalist authors. We consider that, broadly speaking, both social and new developmentalists are post-Keynesian and heterodox institutionalists. For recent bibliography on the developmentalim see, for instance, Arestis and Baltar (2017), Carvalho and Rugitsky (2015), and Ribeiro et al. (2017). We thank the anonymous referee for suggesting these references.

developmentalism debate in Brazil, to discuss the determinants of investment behavior in the 2000s.

Following this brief introduction, this paper is divided into four further sections. Section two analyzes the current developmentalist debate in Brazil. Section three briefly presents the evolution of the investment rate during the 2000s. Section four presents an econometric estimation of the investment in Brazil for the period 1999-2013 and the last section concludes the paper.

2. The determinants of investment in the developmentalist debate in Brazil[6]

The developmentalists share in common the theoretical references of the macroeconomics of Keynes and the Latin American structuralism.[7] In particular, the developmentalists agree with the active role of aggregate demand in explaining economic growth, and among the components of aggregate demand investment in fixed assets is considered the driving force of this process. However, for each group within developmentalism, investment responds more strongly to a specific variable, i.e., each group elects a key variable to explain investment behavior. We will explore the differences between the new-developmentalists and the social-developmentalists in order to specify our econometric model to explain the behavior of the investment in Brazil in the 2000s.

2.1 New-developmentalism

For the new-developmentalists, a country that has completed its industrialization process and reached a certain level of average income will have its long-term growth determined by the growth in aggregate demand, especially by the expansion of the autonomous components. According to this group, the main component of aggregate demand for a small open economy dependent on foreign savings is the demand for exports (Bresser-Pereira et al., 2015).

Based on Kalecki (1983, chapter 9), the new-developmentalists assume that the capital stock of an economy is determined by past investment decisions. These decisions, following Keynes's tradition (1936, chapters 12 and 17) in turn, depend primarily on two factors: profit opportunities as perceived through the gain of positive yields and the opportunity cost to invest in fixed assets.

[6] For a more detailed analysis about the recent developmentalist debate in Brazil see Corrêa and Feijó (2017).

[7] For bibliographical reference on Keynes and Latin American structuralism, see Bárcena and Prado (2016, p. 19, footnote 2)

Given the importance of the foreign sector, the new-developmentalists distinguish two types of investment: one aimed at the domestic market and the other looking at the prospects of the external market. In the former, the key variable is domestic consumption and it depends on the growth rate of total wages. In the latter, the key variable is the growth of world demand and the income elasticity of exports of a country. Adherents to this theory conclude that for a small open economy dependent on foreign savings the potential growth rate is determined by the growth rate of exports. This is so because it is assumed that small open economies have a high external constraint to growth, which is only relaxed through the expansion of exports in the long-term (Bresser-Pereira et al., 2015).

Finally, the new-developmentalist assumes that there is a structural relationship between investment in fixed capital, technical progress and economic growth. The investment will respond to positive expectations in profit, which depend on expectations in the growth of demand and the opportunity cost of capital. Under optimistic expectations of growth in aggregate demand, investment will stimulate capital accumulation through the introduction of machinery and equipment at the technological frontier. Therefore, the incorporation of technical progress occurs through the introduction of new machinery to the stock of capital which increases productivity, which, in turn, reduces the unit cost of goods produced. That is to say, capital accumulation increases both the price and the non-price competitiveness. Increased competitiveness promotes an increase in exports, which feeds back to the virtuous circle of growth, stimulating new investment and so on. The increased competitive capacity of the country would be maintained by this virtuous circle, where wage increases should follow the increase in productivity.

In short, for new-developmentalism, the investment rate depends directly on the aggregate demand, specifically investment opportunities facing the export sectors of tradable goods. The investment decisions of these sectors would be sensitive to changes in the real exchange rate, because depreciations in the exchange rate make investment decisions in these sectors more attractive. Therefore, for this group, the key variable to explain investment behavior is the real exchange rate, because of its positive effect to expand foreign markets for firms in the technological frontier, and the key economic policy is an active exchange rate policy.

2.2 Social developmentalism

Bielschowsky´s analysis (2014) presents the dynamics of investment according to the social-developmentalists. In his works, the author presents what the three main sources of expansion for the Brazilian economy would be that would guide the country to sustainable growth. He also offers two mechanisms that would increase the effects of these sources. The sources of expansion he presents are: the expansion of the market for mass consumption of goods and services; the availability of exploitable natural resources, and the expansion of economic and social infrastructure. The mechanisms that would enhance these sources are: the connection among firms and sectors through productive chains and the incorporation of technological innovation through investment.

In Bielschowsky (2014, p.124), the author details how to develop a growth model based on consumption and the production of mass consumption goods. The model assumes that the expansion of the market for mass consumption would occur with a change in the productive structure to meet the growing demand. The intensification of mass production would allow an increase in returns to scale and the introduction of technical progress, which, in turn, would allow real wage increases without pushing up inflation.

Castro (1990, p.373) presents the virtuous circle in which an increase in real wages would lead to an increase in investment, stimulated by the expansion of the internal market. According to him, there would be an 'intense exchange of stimuli' between wages and investment: therefore, the expansion in investment would entail the incorporation of new techniques and the introduction of new products. This would result in increased labor productivity and further space for wage increases in real terms.

Social-developmentalism also highlights the role of the public sector in boosting investment as implied by the third source of expansion.[8] Investment in infrastructure would not only be responsible for the expansion on the part of the investment, but also act as a kind of “spearhead”. That is to say, the initial public investment in infrastructure would lead to new private investment that would follow given the new conditions created by both better investment opportunities and positive expectations.

In short, for social-developmentalism, the operation of the domestic market is the main driver of expansion in the Brazilian economy, assuming that this expansion stimulates the production of mass consumer goods. In this strategy,

[8] See Bielschowsky and Mussi (2006), for example. See also next footnote.

income distribution policies, the real valuation of the minimum wage and banking inclusion would all have a very positive effect on strengthening the economic dynamism. Investment in social infrastructure, that is to say, public health, sanitation, and so on, should also be combined with this strategy of boosting domestic market of mass consumer goods. [9] Thus, an income distribution policy would not only give access for the inclusion of the poor populations in the consumption of private goods, but also give access to assets for collective consumption.

3. Investment in Brazil in the 2000s: an overview

Our analysis starts in 1999, when the current macroeconomic policy regime, based on inflation targeting, primary fiscal surplus and flexible exchange rate was implemented. GDP grew 2.4% on average per year during the period 1999-2016, followed by a 2.3% average growth of domestic absorption. Exports and imports grew respectively 5.3% and 3.3% on average during the same period (Figure 1). Table 1 presents the growth rates for the main components of aggregate demand. Considering 1999-2016, gross capital formation presented the lowest rate of growth on average (1.6% per year), compared with the other variables in the same period.

Growth rates varied significantly throughout the 1999-2016 period. At the beginning of the 2000s (1999-2002), the main driver of growth came from the foreign sector, where exports grew on average 8.5% per year. Gross capital formation growth rate was negative and domestic absorption grew 1.1% on average.

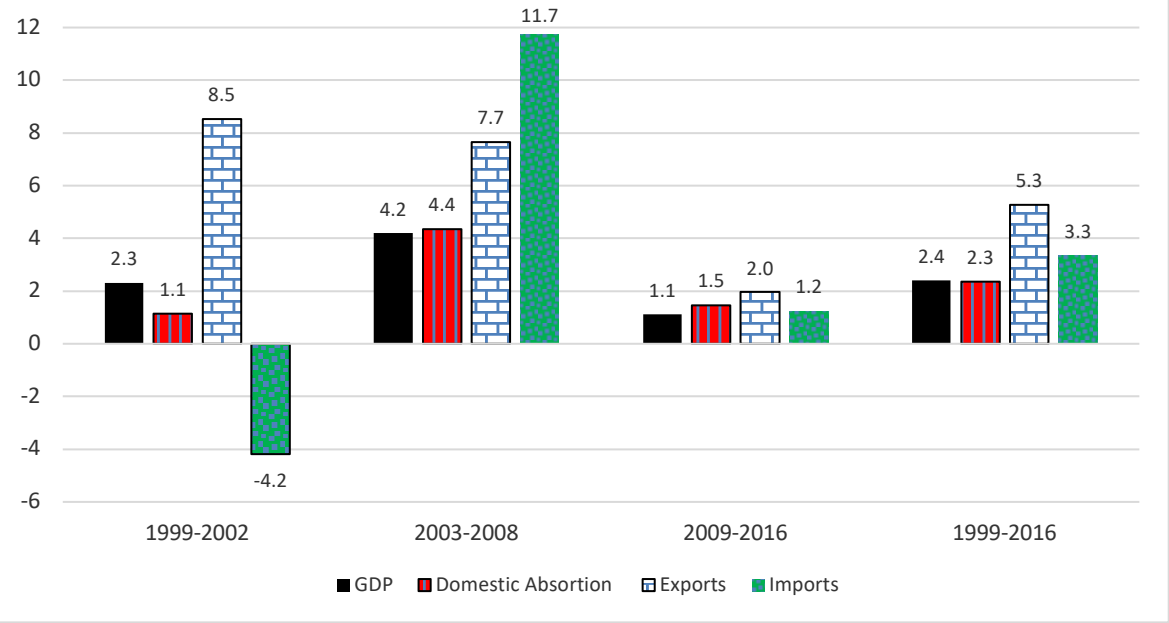
The expansion of world trade in the following years allowed for an acceleration in the rates of growth of domestic absorption, which expanded on

[9]The perception of the importance of investment in social infrastructure as important source to boost economic growth constitutes one of the most innovative proposals of this group. The term social infrastructure (Biancarelli and Rossi, 2013, p.150) or public consumption (Kerstenetzky, 2016, p.37) includes investments in education, health, public transport, sanitation, and other activities that affect the living conditions of the population. For Biancarelli and Rossi (2013, p.150-151) the investment in social infrastructure not only increases aggregate investment, but also reduces the social deficit and generates indirect impacts which positively affects productivity in the long-term. The main indirect impacts are increased labor productivity through the improvement in the living conditions of workers by increasing the quality of education and health. A better qualified work force would, in turn, increase non-price competitiveness gains. Furthermore, Kerstenetzky (2012, p.46-47; 2016) points out that the expansion in spending on public consumption would generate direct economic impacts through the increase in public employment in the social services segment. This would impact directly on aggregate consumption and, also act as a mechanism for consumption smoothing the economic cycle.

average 4.4% per year, and gross capital formation presented the highest rate of growth: 6.1% on average per year during the period 2003-2008. During this period of external bonanza[10], domestic demand was largely met with increased imports, which grew 11.7% on average.

This period of higher dynamism was short lived, though, because of the international financial crisis in 2008 that dramatically changed the foreign economic context. Brazilian authorities managed to implement countercyclical policies in the aftermath of the international financial crisis, and the economy recovered well in 2010, growing over 7 % that year. However, since 2011, Brazilian economic growth rate has been following a stop-and-go pattern, and gross capital formation has started to decelerate. In 2014 the economy stagnated and dived into a severe recession in the following years, registering an accumulated decrease of 7.2% in 2015 and 2016.

Figure 1. Average growth rates of GDP, domestic absorption, exports and imports: selected periods- 1999-2016



Source: IBGE (2019)

[10] It should be remarked that the relation between international liquidity and investment is also important to explain the evolution of capital accumulation in physical capital in the period of 'bonanaza'. For an empirical investigation on this relevance in developing countries see Torres and Resende (2015).

Table 1. Growth rate of GDP and main components of aggregate demand (selected periods, 1999-2016)

	GDP	Private Consumption	Public Consumption	Gross Capital Formation	Exports	Imports
1999-2002	2.3	1.6	2.0	-1.2	8.5	-4.2
2003-2008	4.2	4.3	2.9	6.1	7.7	11.7
2009-2016	1.1	2.0	1.5	-0.3	2.0	1.2
1999-2016	2.4	2.7	2.1	1.6	5.3	3.3

Source: IBGE (2019)

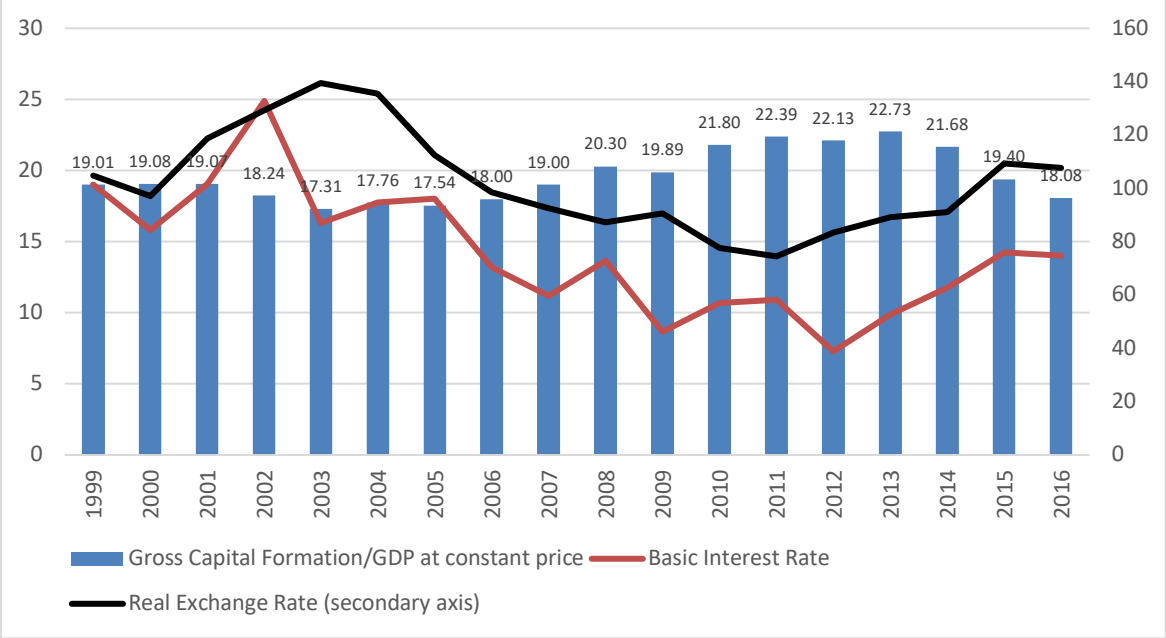
Figure 2 shows the evolution of the gross capital formation, the basic interest rate and the real exchange rate since 1999. During the first period, 1999-2002, the investment rate was 18.8% on average and the economic growth rate was 2.3% per year. In this period, the highest level of the basic interest rate was recorded, and the real exchange rate registered the overshooting observed during the second half of 2002 due to speculations on the result of the presidential election that happened that year.

In the next period of higher GDP growth, the investment rate showed a consistent growth trend from 2005 onwards, and the basic interest rate started to decrease. The expansion of world trade, the boom in the price of commodities exported by Brazil, and the boom of capital inflows, on the other hand, contributed to a continuous appreciation of the real exchange rate. The greater impact of the recovery in the investment rate is felt in the next period (2009-2016), since, though being a period of decelerating GDP growth rates, it captures the lagged response of the investment in fixed assets that had started in the previous period. Finally, it should be remarked that during the second mandate of President Lula da Silva (2007-2010) growth became an explicit concern of economic policy, as seen with the launching of a governmental plan to stimulate investment: the *PAC - Política de Aceleração do Crescimento* (Policy for Growth Acceleration). In the first mandate of President Rousseff (2011-2014), another attempt to promote growth was made with the launching of the *Plano Brasil Maior* (in April 2013. In addition to those, a policy of fiscal stimulus to private firms, mainly in the industrial sector, was implemented aiming at increasing the profit rate of firms. This policy did not produce the expected result as the positive outlook of increased demand was not strong enough to induce investment decisions.[11] One of the main reasons why such a policy might not have worked is because the main pillars of the macroeconomic

[11] It should be remarked that the domestic political crisis in 2015 strongly influenced negatively economic decisions.

regime - inflation targeting and primary fiscal surplus - were left untouched, constraining aggregate demand growth.

Figure 2. Investment rate, basic nominal interest rate (31/12) and real exchange rate (1999-2016)



Source: IBGE (2019) and Banco Central do Brasil (2019).

In sum, GDP growth rates were relatively unstable during the period of our study and the macroeconomic policy did not favor capital accumulation in Brazil. Actually, domestic interest rates were kept at persistent high levels (although decreasing in some years), and the real exchange rate was volatile and showed a trend to appreciate. High interest rates, on the one hand, signaled too high of a floor for productive investment to compete with other financial applications. On the other hand, the high vulnerability of Brazilian economy to external shocks impacted the real exchange rate, which tended to appreciate, discouraging exports, and increasing labor unit costs. In such an environment, the degree of confidence in expectations that would support long-term commitment of resources is jeopardized.

4. The determinants of investment: an econometric model for Brazil in the 2000s

4.1 The theoretical specification

The aim of this section is to present the specification of an econometric model to describe the determinants of the investment in physical capital in Brazil in the 2000s, taking into account the two developmentalist strategies discussed in Section 2. To achieve this goal, we will start with the theoretical framework following the contribution of Bhaduri and Marglin (1990).

In Bhaduri and Marglin (1990, p.380), investment can be explained by the degree of capacity utilization (*u*) and the profit-share (*h*). These two variables allow the clear separation between the 'demand side' and 'supply side' impacts of income distribution on investment. An income distribution from profit to wages (an increase in real wages), would lead to an increase in household consumption, which would increase the demand and affect capacity utilization positively, through acceleration effect would impact on investment ('demand side impact'). On the other hand, an income distribution from wages to profits (decrease of real wage), would impact on the investment through reduction off firm's costs ('supply side impact').

For the new-developmentalists, it is expected that the share of profits (*h*) should be more important to explain investment decisions. For the social-developmentalists, it is expected that the rate of capacity utilization (*u*) would be more important.[12] Formally, following Bhaduri and Marglin (1990, p.380), we can write the investment function (I):

$$\boldsymbol{I = f(h, u)} \qquad (1)$$

It is worth noting that this specification extended the analytical possibilities of the model regarding older versions of the neo-Kaleckian model for the determinants of investment. In Bhaduri and Marglin´s specification either a *stagnationist* or an *exhilarationist* result may occur. In the older versions, periods of economic stagnation would be the result of a fall in the wage share, which would lead to a contraction in the aggregate consumption negatively affecting capital

[12] It is worth mentioning that the profit share is also a relevant argument for the social developmentalists, as they recognize the importance of income distribution in the investment function. However, they assume that an increase in the profit share will contribute with a negative signal in the investment function.

accumulation and economic growth. [13] In Bhaduri and Marglin´s specification, stagnation is no longer the only result because their model allowed for the possibility of the investment to react positively to a fall in the wage share (an increase in the profit share in income).

Our model for Brazilian economy will initially consider the specification of the investment function as proposed in Equation (1) and will add other variables following the recent developmentalist debate.

For the new-developmentalist, the real exchange rate is the strategic variable to explain the investment decision because a competitive exchange rate would allow firms that are non-commodity producers to compete in the foreign market,[14] since they are in the frontier of the technological process of production. [15]

Oreiro et al. (2015, p.241) present an econometric model based on Bhaduri and Marglin (1990), adding the real exchange rate (*e*) in their specification. The authors argue that the exchange rate has two different impacts on investment. On the one hand, the exchange rate can be seen as having a positive impact on capital accumulation, because when it is kept at a competitive level, it gives domestic non-commodity producer firms access to foreign markets. A competitive real exchange rate implies that the profitability of export firms would be sustained, increasing their capacity to accumulate funds, and thus to invest. On the other hand, the exchange rate impacts the investment decision as a cost because a depreciation will increase the cost of imported equipment and inputs.

The authors assume that the best way to capture these two influences on the investment function is to consider the real exchange rate in level and also in a quadratic form. This implies to assume that the relationship between the growth rate of capital accumulation and the real exchange rate is non-linear. According to the authors: "It is more reasonable to think that for very low levels of real exchange rate, the competitiveness and profitability of tradable sectors are also very low, discouraging investment in new machines and equipment, as a result the growth rate of capital stock is also low. For very high levels of real exchange rate, however,

[13] It should be remarked that an initial criticism to Bhaduri and Marglin´s seminal work was based on the use of the realized profit rate as an argument in the investment function. For a discussion on this topic, see Rowthorn (1981); Dutt (1984); Taylor (1985), among others. See also Hein (2014, Chapter 6), Bertella (2007) and Blecker (2002) for more information on the differences between neo-Kaleckian and post-Kaleckian investment function.

[14] This reasoning, that implies that a competitive exchange rate would also increase the profit share of non-commodity producers' firms, shows the importance of the profit share in the investment function due to its link to the exchange rate.

[15] See Dos Santos et al. (2016), Feijo et al. (2016) and Luporini and Alves (2010), who also use the real exchange rate in their investment functions.

the cost of investment will be very high due to high prices of imported machines and equipment. As a result, the growth rate of capital stock will again be low. In this case, for intermediate levels of real exchange rate competitiveness, profitability and the cost of investment will be at reasonable levels in order to induce a high rate of capital accumulation" (Oreiro et al., 2015, p.242).

Therefore, incorporating both effects of the real exchange rate in our model we can write

$$\boldsymbol{I = f(h, u, e, e^2)} \qquad (2)$$

For the social- developmentalists, the investment in economic and social infrastructure constitutes an important component in determining the investment function. The assumption is that the investment in infrastructure drives private investments. Considering that investment in infrastructure is held by the public sector, this variable will be included in our specification as (i_p). So, we can write[16]

$$\boldsymbol{I = f(h, u, e, e^2, i_p)} \qquad (3)$$

Finally, we complete our specification considering the role of the real interest rate in the investment function. The post-Keynesian developmentalists (Sicsú et al., 2005) this is a key variable to explain the investment rate. Following Kalecki's (1937) principle of increasing risk, the level of the interest rate put a limit to the indebtedness of the firm[17]. In this sense, the interest rate is interpreted as a financial cost to firms, which would have a negative impact on investment.

The investment function to be estimated is as follows, where (r) is the real interest rate:

$$\boldsymbol{I = f(h, u,\ e, e^2, i_p, r)} \qquad (1)$$

4.2 Methodology

Our estimates use monthly data from July 1999 to December 2013, totalizing 174 observations. The dependent variable (investment) is represented by the apparent consumption of capital goods, following Dos Santos et al. (2016,

[16]See Dos Santos et al. (2016), Luporini and Alves (2010) and Dos Santos and Pires (2007; 2009) who also use this variable in their estimations.

[17] "Furthermore, applying Kalecki's (1937) 'principle of increasing risk', changes in the rate of interest have an impact on retained profits and thus on the willingness and the ability of firms to invest in capital stock." (Hein, 2014, p.370).

p.206). Appendix 1 presents the list of the variables and their corresponding sources, as well as some remarks about the construction of the statistics used.

To estimate the model, we started with the unit root tests (Table A.2 in the Appendix) that showed that part of the series has a unit root in level. We define the following variables in log: apparent consumption of capital goods the real effective exchange rate in level (e) and in the quadratic form (e^2) and public investments (i_p). All of them are I (1). The degree of capacity utilization (u), the profit share (h) and real interest rate (r) are I (0)[18].

Given the results of the unit root tests, we followed two modelling strategies. In the first, the series were included in the model as growth rates. In the second, the series were maintained in level and a regression was estimated from the cointegration dynamic least squares estimator, the so-called DOLS (Stock and Watson, 1993). This cointegration regression model allows us to use the set of variables in I (1) and I (0).

The cointegration vector between the m sets I (1) ($y_{1,t}$, $y_{2,t}$, ...) can be normalized in order to allow that the variable $y_{1,t}$, that is, the apparent consumption of capital goods, to be expressed as a function of other variables I (1), gathered in vector $Y^* = (y_{2,t}, y_{3,t}, \ldots y_{m,t},)$, of size *m-1* and of the variables I (0), gathered in vector X:

$$\boldsymbol{y_1} = \mathbf{X\beta} + \mathbf{Y} * \boldsymbol{\eta} + \boldsymbol{\nu} \qquad (5)$$

To avoid an endogeneity bias problem, Stock and Watson (1993) suggest adding leads and lags of the first difference of the Y^* vector in the cointegration regression removing the effect of the short-term dynamics of that ν error has on the estimates

$$\boldsymbol{y_1} = \mathbf{X\beta} + \mathbf{Y} * \boldsymbol{\eta} + \sum_{j=-p}^{p} \Delta \boldsymbol{Y}^*_{-j} \boldsymbol{\gamma_j} + \boldsymbol{\nu} \qquad (6)$$

The DOLS estimator is consistent, efficient and asymptotically normally distributed.

4.3. Results

The results are compiled in Table 2. First, we ran the specification of the investment function by Bhaduri and Marglin (1990, p. 380), where the investment

[18] The series I, i_p, h and u were seasonally adjusted by the method Census X-12 (EViews 8).

is a function of the profit share (h) and the capacity utilization (u), as in Equation (7).

$$\boldsymbol{LogI} = \boldsymbol{c} + \boldsymbol{\alpha u} + \boldsymbol{\beta h} \qquad (7)$$

For this first regression we used the series in growth rate to avoid the unit root problem and added a moving average - MA (1) - to exclude possible autocorrelation problems (Table A.2 and A.3 in the Appendix). Since the regression presented heteroskedastic errors (Table A.4 in the Appendix), it was run again with the covariance matrix of the residues estimated via the White estimator to solve this problem.

Table 2. Model 1 results (Method: least squares, Dependent variable: log I)

Variable	Coefficient	Std. Error	t-Statistics	Prob
h	0,21	0,039	5,436581	0,00
u	3,64	0,26	1,415443	0,00
c	-285,22	2512718	-1,135098	0,00
MA (1)	-0,64	0,06	-1,017841	0,00

R-squared	0,66
Adjusted R-squared	0,66
F-statistic	1123204
Prob(F-statistic)	0,00
Durbin-Watson stat	2,0655002

Source: Authors' own elaboration.

Our estimation of Equation (7) shows that all coefficients were significant. The sensibility of the apparent consumption of capital goods to variations in the increase in the degree of capacity utilization (u) was greater than the profit share (h).[19] Changes in u impact 16.9 times more investments in fixed capital than variations in h. This result does not change if we take the logarithm of all the variables in the model, since all variables are in rate of change, therefore coefficients are actually elasticities.

To implement the other econometric models, we used the proxy for the investment rate in level (definition in the Appendix). Therefore, we started running the cointegration test Phillips-Ouliaris for the series in level. The test indicates the rejection of the hypothesis that the series are not cointegrated (Tables A.5 and A.6

[19] For a discussion about the demand regime in Brazil in the 2000s see, for instance, Araújo and Gala (2012).

in the Appendix), validating the choice of estimating our investment function using cointegration.

The next step was to add more variables to Equation (7): the log of the real effective exchange rate (in level and in the quadratic form - *log e* and *log* e^2), the real interest rate (r), and the log of public investment ($log\ i_p$).[20] We also added the trend term. Thus, the new regression with variables in level reads as follows:

$$\boldsymbol{Log\ I} = \boldsymbol{c} + \boldsymbol{\alpha u} + \boldsymbol{\beta h} - \boldsymbol{\gamma log e} + \boldsymbol{\delta log e^2} - \boldsymbol{\eta r} + \boldsymbol{\theta log Ip} + \boldsymbol{\varepsilon\ trend} \qquad (8)$$

We ran Equation (8) in three different ways (results in Table 3). In all models (2, 3 and 4), the following variables were regressed: the degree of capacity utilization (u), the profit-share (h), the real exchange rate – in level (e) and in the quadratic form (e^2) and the real interest rate (r). The public investment (i_p) was not included in model 2, but a trend variable was. In model 3 we ran Equation (8), and in model 4 we excluded the trend variable to test its effect on the public investment.

To assure there is no endogeneity bias, we use a Block Exogeneity test (Wald). A VAR(4) was chosen so that residues were not autocorrelated. The results are showed in the table 3, indicating the non-rejection of the elimination of investment at all equations, showing that all the variables can be considered as exogenous to the investment equation.

Table 3. VAR Granger Causality/Block Exogeneity Wald Tests

Sample: 1999M07 2013M12			
Variable excluded: LOGFBKF	Chi-sq	df	Prob.
Dependent variable: LOGUS$	2,19	4	0,70
Dependent variable: LOGUS$_2	2,25	4	0,69
Dependent variable: H_SA	1,85	4	0,76
Dependent variable: Z_SA	2,18	4	0,70
Dependent variable: R	3,84	4	0,43

Source: Authors' own elaboration.

[20] The public investment series doesn't include state-owned enterprises (or partial state owned like Petrobras). A full description of the data can be found in Dos Santos et all (2012).

Table 4. Cointegration results

MODEL	c	*u*	*h*	LOGe	LOGe²	*r*	LOGi_P	Trend
Model 2	**9,61** *[3,39]* *(0,00)*	**3,56** *[4,41]* *(0,00)*	**1,39** *[3,20]* *(0,00)*	**-3,42** *[-3,03]* *(0,00)*	**0,33** *[2,72]* *(0,01)*	**-1,07** *[-2,85]* *(0,01)*		**0,00** *[4,83]* *(0,00)*
Model 3	**9,82** *[3,21]* *(0,00)*	**3,31** *[4,32]* *(0,00)*	**0,86** *[2,05]* *(0,04)*	**-3,57** *[-3,09]* *(0,00)*	**0,35** *[2,89]* *(0,00)*	**-1,26** *[-3,5]* *(0,00)*	**0,13** *[1,95]* *(0,05)*	**0,00** *[0,65]* *(0,52)*
Model 4	**9,45** *[3,15]* *(0,00)*	**3,30** *[4,32]* *(0,00)*	**0,92** *[2,22]* *(0,03)*	**-3,45** *[-3,03]* *(0,00)*	**0,34** *[2,83]* *(0,01)*	**-1,34** *[-4,14]* *(0,00)*	**0,16** *[5,16]* *(0,00)*	

STATISTICS

Model	R-squared	Adjusted R-squared	S.E. of regression	Mean depend var	S.D. depend var	Sum squared resid	Long-run var
Model 2	0.95	0,95	0,06	4,31	0,27	0,56	0,001
Model 3	0,94	0,94	0,066	4,30	0,27	0,7	0,01
Model 4	0,94	0,94	0,066	4,30	0,27	0,71	0.01

Source: Authors' own elaboration. Note: t statistics in brackets; *p*-value in parentheses.

A first observation is that all coefficients in the three models were significant, considering a 5% significance level. Another important result is that, in the three specifications, the degree of capacity utilization is more important than profit share to positively explain aggregate investment.[21] If we consider that the measure of the degree of capacity utilization embodies some anticipation about the behavior of aggregate demand, we can say that this result suggests that the expectation of an increase in aggregate demand is the most important variable to explain a firm´s decision to invest in capital expansion. It should be mentioned that during the period of our analysis (1999-2013), the domestic market expanded significantly due to improvements in income distribution and credit expansion to households.[22]

[21] Since the degree of capacity utilization and profit share are relative values, the correct interpretation (in Model 2, for instance) of the coefficients is the following: investments would increase 3.57% for each rise of one percentage point of the degree of capacity utilization, if all other variables were constant. In the same way, investments increase 1.39% for each rise of one percentage point of the degree of profit share, if all other variables were constant. Notice that if we estimate the models with these variables in logarithm the magnitude of the difference remains approximately the same (for model 2, for instance, the elasticity of the degree of capacity utilization would be 2.94%, while for profit share would be 0.55%, so the difference between them would be approximately 2,0).

[22] The results corroborate Ferrari Filho and Fonseca (2013), that argues that although the adoption of export-led or profit-led standards, as proposed by new-developmentalists, are technically "viable", could compromise the incipient results, in recent years, of income distribution. Therefore, a virtuous long-term trajectory will depend on the articulation between the triggered variable

Considering the real exchange rate, the coefficient of the level of the real exchange rate (e), which captures the cost effect of the currency in real terms on investment, is the most relevant variable to negatively explain aggregate investment. Indeed, considering for instance model 2, the elasticity of the real exchange rate in level is -3.42, and in the quadratic form is 0.33. This result is consistent with the current configuration of the Brazilian capital goods sector, given its dependence on imports of machinery and equipment.[23,24] It should be noted also that the coefficients of the real exchange rate in both specifications (e and e^2) change relatively little when comparing the results of the three models.

As expected, the real interest rate has a negative impact on the apparent consumption of capital goods. This result can be interpreted in several ways: for instance, it suggests that firms are dependent on loans to invest, and/or that decisions to invest are sensitive to the opportunity costs of investment. It's important to note that the coefficient estimated (-1.069%, in model 2 for instance) is a reaction to a change in a one point of the real interest rate and not 1%, since there is no logarithm transformation in the real rate of interest series. Considering a mean of 3% in 2013, a reaction of a fall of 1% of the real interest rate would be a rise of only 0.032% in investment (in model 2).

In model 3, with public investment represented by i_p and the trend variable, it was observed that the trend was not significant. This result led us to run model 4, in which the trend component was excluded, and the regression was run only with the intercept. Model 4 reveals another interesting result of our estimate that confirms the importance of public investment in explaining aggregate investment. Model 4 also shows that the significance of the coefficients of public investment (i_p), the profit share (h) and the real interest rate (r) were increased in relation to model 3. Finally, we should mention that even considering that the proxy used to capture the impact of public investment was not the best one, because the i_p series also includes public expenditure in new machinery and equipment (see Dos Santos

(wages) and other components of aggregate demand, especially investment. Authors suggests a set of economic policy to allow this articulation to success.

[23] Gala and Araújo (2012) consider that Brazilian economy growth pattern is profit-led, mainly because of the external sector. Therefore, they argue that a currency devaluation has expansionary effects. There is no direct estimation, however, of the impact of the exchange rate on an investment function, but only on the net exportation.

[24] According to the National Confederation of Industry, the penetration coefficient of machinery and equipment increased from 25.2% in the 4th quarter of 1996 to 36.4% in the 2nd quarter 2015.

et al., 2012), we should observe that the larger part of public investment is in civil construction.[25]

5. Concluding Remarks

In this paper, inspired by the developmentalist debate in Brazil, we run different versions of the investment function originally presented by Bhaduri and Marglin (1990), adding key variables to capture the arguments presented by the new-developmentalist and the social-developmentalists.

In all econometric versions tested, we found that the degree of capacity utilization greatly explained investment in fixed capital positively. The profit share was significant, but of less importance. Assuming that the degree of capacity utilization embodies some anticipation about the behavior of aggregate demand, this result suggests that the expectation of an increase in aggregate demand are the most important variable to explain a firm´s decision to invest in capital expansion.

Considering the new-developmentalist argument, we included the real exchange rate in level and in the quadratic form to test their effect on investment. We observed that the impact of a devaluation of the real exchange rate would have a much greater negative impact on investment (captured by the variable in level) than a positive effect (captured by the variable in the quadratic form). Therefore, we concluded that the cost effect of a real devaluation on investment in fixed capital far exceeds the competitive effect on it. Thus, the overall effect of a devaluation on investment in capital goods is negative. This might be seen as a curious finding that the effect of the appreciation of the domestic currency against the dollar is to stimulate private investment by lowering the cost of imported inputs rather than to depress it because Brazilian products are then more expensive to foreigners

Therefore, our econometric exercise confirms that the real exchange rate is one of the most important variables to explain investment, as argue by the new-developmentalists, but we also found that the negative effect of the real exchange rate is more important than the positive effect to explain investment. Actually, the negative impact of the real exchange rate is much higher than the real interest rate.

Considering the social-developmentalist argument, we included public investment in two models. In the econometric specification including the public investment we observed that the importance of this variable is increased when we

[25] For example, the average share of gross fixed capital formation in civil construction between 1970 and 2005 was 79.31% of the total gross fixed capital formation by the public administration.

exclude the trend component, which loses significance. This result allows us to suggest that public investment in infrastructure makes private expectations converge and induces investment in capital goods.

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APPENDIX

Chart 1. Description of the variables and their sources

Variable	Proxy	Description	Original name or series number	Source
Investment	Capital goods apparent consumption (CA_{bc})	Chain index (2002 mean as 100)[26]	Capital goods apparent consumption- Chain index (2002 mean =100)	IPEADATA
Profit share	Share of gross operating excedent to GDP (*h*)	Series produced by the authors (see below)		
Rate of capacity utilization	Capacity utilization in general industry (u)		Installed capacity utilization in the industry	CNI
Real exchange rate	Effective Real Exchange rate (*e*) (Dollar)	Index number: June 1994=100-	Series number 11753	Brazilian Central Bank (Bacen)
Real interest rate	Real Selic rate (*r*)	Series produced by the authors (see below). Interest rate: Swap-DI: serie no. 7827 Inflation by consumer inflation (IPCA) expectation accumulated over 12 months.		Brazilian Central Bank (Bacen)
Public investment	Gross fixed capital formation by public administration (i_p)	Dos Santos *et al* (2016) for the gross fixed capital formation by public administration.		Original data from Dos Santos *et al* (2011)

The proxy of the share of profits to income was obtained by the ratio of the gross operating surplus to GDP from the National Accounts. To increase the frequency of this variable, which is only available for each year, we employed parts of the methodology developed in Bastos (2012)[27], in which the author transforms

[26] For the methodology of the index: http://www.IpeaData.gov.br/doc/cc17_nt02_indicadores.pdf

[27] Bastos (2012) methodology is divided in two parts: estimation of the high frequency series based on PME (Monthly Employment Survey) and harmonization of this high frequency series with the of National Accounts aggregates. Our procedure considered only the compatibility of the PME series and the annual series of National Accounts in the following way: we ensured that the average annual share of profits estimated from PME is identical to the share of profits found in the National Accounts:

the annual data of the National Accounts to quarterly data using the Monthly Employment Survey (PME). The author points out that the same methodology can be employed to transform the annual data into month data. The monthly GDP calculated by the Brazilian Central Bank, is used as the denominator. The data for 2012 and 2013 were estimated following Hallak Neto (2013).

The real interest is ex-ante, calculated taking into account the expectation of inflation,

r_ (ex-ante) = [(1 + s_DI / 100) / (1 + θ_ep / 100)] 1 * 100

where

s_DI = swap-DI 360; average of the period; (Bacen-7827)

θ_ep = inflation expectation twelve months ahead using the average of the medians (Bacen - market expectation)[28]

$$\pi_{i,a} = \left(\pi_{i,a}^{pme} * w_a^{scn}\right) \Big/ \overline{\pi_a^{pme}}$$

Where:

$\pi_{i,a}$ = share of profits to GDP in the month *i* and in the year *a*; $\pi_{i,a}^{pme}$ = share of profits to GDP resulting by step one in the month *i* and in the year *a*; π_a^{scn} = share of profits to GDP by National Accounts in year *a*; $\overline{\pi_a^{pme}}$ = average share of profits to GDP resulting by step one in the year *a*.

[28] Because of the lack of data for July 1999 until November 2001, a proxy for these two years was constructed using IPCA 12 months ahead instead of its expectation.

Table A1. Unit root tests

VARIABLES	ADF – SCI	ADF - ACI	ADF –HQCI	PP –NW Bandwidth	KPSS - NW Bandwidth
Level					
l	It has unit root	It has unit root	It has unit root	It has unit root	It has unit root (1%)
u	no unit root (1%)	no unit root (1%)	no unit root (1%)	No unit root (1%)	No unit root
h	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root
lp	It has unit root	It has unit root	It has unit root	It has unit root	It has unit root (1%)
e	It has unit root	It has unit root	It has unit root	It has unit root	It has unit root (1%)
e²	It has unit root	It has unit root	It has unit root	It has unit root	It has unit root (1%)
r	No unit root (1%)	No unit root (5%)	No unit root (5%)	No unit root (5%)	No unit root
FIRST DIFFERENCE					
l	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root
lp	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root
e	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root
e²	No unit root (1%)	No unit root (1%)	No unit root (1%)	No unit root (1%)	It has unit root (1%)

REGRESSION TESTS: MODEL 1

Table A2. Results of residues test

Bera-Jarque	**Prob.**		
4,1	0,13		
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0,57	Prob. F(1,169)	0,45
Obs*R-squared	0,53	Prob. Chi-Square(1)	0,47
F-statistic	0,62	Prob. F(2,168)	0,54
Obs*R-squared	1,21	Prob. Chi-Square(2)	0,54
F-statistic	1,81	Prob. F(3,167)	0,148
Obs*R-squared	5,42	Prob. Chi-Square(3)	0,14
F-statistic	2,30	Prob. F(4,166)	0,06
Obs*R-squared	9,10	Prob. Chi-Square(4)	0,059
F-statistic	2,03	Prob. F(5,165)	0,077
Obs*R-squared	10,04	Prob. Chi-Square(5)	0,07
F-statistic	1,68	Prob. F(6,164)	0,13
Obs*R-squared	10,04	Prob. Chi-Square(6)	0,12
F-statistic	1,43	Prob. F(7,163)	0,19
Obs*R-squared	10,04	Prob. Chi-Square(7)	0,19
F-statistic	1,25	Prob. F(8,162)	0,27
Obs*R-squared	10,09	Prob. Chi-Square(8)	0,26
F-statistic	1,41	Prob. F(9,161)	0,19
Obs*R-squared	12,67	Prob. Chi-Square(9)	0,18
F-statistic	1,34	Prob. F(10,160)	0,21
Obs*R-squared	13,41	Prob. Chi-Square(10)	0,20
F-statistic	1,50	Prob. F(11,159)	0,14
Obs*R-squared	16,31	Prob. Chi-Square(11)	0,13
F-statistic	1,65	Prob. F(12,158)	0,08
Obs*R-squared	19,36	Prob. Chi-Square(12)	0,08
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0,20	Prob. F(2,171)	0,82
Obs*R-squared	0,40	Prob. Chi-Square(2)	0,82
Scaled explained SS	0,52	Prob. Chi-Square(2)	0,77

TESTS OF THE COINTEGRATION MODEL

Table A3. Cointegration test - Phillips-Ouliaris – Model 2

Specification: LogI Loge Loge² c @TREND h u r		
Cointegrating equation deterministics: c @TREND h u r		
Null hypothesis: Series are not cointegrated		
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)		
No d.f. adjustment for variances		
	Value	Prob.*
Phillips-Ouliaris tau-statistic	-8,170327	0,00
Phillips-Ouliaris z-statistic	-102,1291	0,00
*MacKinnon (1996) p-values.		

Table A4. Cointegration test - Phillips-Ouliaris – Model 3

Specification: Log CAbc Log e Log e² Log Ip c u h r Trend		
Cointegrating equation deterministics: c @TREND u h r		
Null hypothesis: Series are not cointegrated		
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)		
No d.f. adjustment for variances		
	Value	Prob.*
Phillips-Ouliaris tau-statistic	-8,14	0,00
Phillips-Ouliaris z-statistic	-100,89	0,00

Table A5. Cointegration test - Phillips-Ouliaris – Model 4

Specification: Log I Log e Log e² Log Ip c u h r		
Cointegrating equation deterministics: c u h r		
Null hypothesis: Series are not cointegrated		
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)		
No d.f. adjustment for variances		
	Value	Prob.*
Phillips-Ouliaris tau-statistic	-8,181420	0,00
Phillips-Ouliaris z-statistic	-101,1671	0,00
*MacKinnon (1996) p-values.		

Liquidity Trap: the Brazilian version[1]

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Marcelo Milan[3]

Abstract

The goal of this paper is to provide an interpretation about the sky-high real interest rates in Brazil. We use Keynes' argument regarding liquidity trap to identify the forces trapping interest rates, but in Brazil they are trapped at very high levels instead of at the zero-lower bound discussed in Keynes's *General Theory*. Rentiers, in Brazil, influence the Brazilian Central Bank to obtain very liquid assets in the form of Financial Treasury Bills (LFTs) while keeping high interest earnings. In this case expansionary fiscal policies will have a limited impact on output, given the resulting high debt levels and debt service, but will imply significant income transfers to the rentiers. This means that aggregate demand and income will be less sensitive to fiscal stimuli, but the distribution of income will be biased toward the rentiers.

Keywords: Liquidity Trap; Interest Rates; Public Debt; Rentier; Brazilian Economy.

JEL Classification: E12; E43; E52; E58.

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1. Introduction

Since the creation of the ORTN (Adjustable Obligation of the National Treasury[1]) in 1964, high real interest rates have been the main characteristic of the Brazilian monetary and financial markets. Considering, only the period from the adoption of the Inflation Targeting Regime (ITR), in 1999, until 2016 – by the way, this is the period when increasing the policy interest rate, that is, the Special System for Settlement and Custody of Government Bonds (Selic), was seen as the main tool for keeping inflation under control –, the average annual interest rate was 14,2%, in nominal terms, and 6,9%, in real terms.[2]

Economists from different theoretical approaches argue that the Brazilian interest rates are so high, mainly comparing with other emerging countries, due to one or more of the following reasons: history of hyperinflation in the past, low saving rates, subsidized credit to industry and agriculture, large government deficits and public debt, jurisdictional uncertainty and financial conventions.[3] For us, however, the main reason why the interest rates are so high in Brazil is related to the pressure from the rentier segment (financial institutions, financialized industrialists, and wealthy households) to frame monetary and fiscal policies, including debt management, in a way to sustain very high interest earnings in a context where inflation is not very sensitive to monetary policy. In other words, the idea is that there is a convention, characterized by a coalition of interests between the financial market and the rentiers, about the payment of interest rates to roll over the public debt.

Considering our hypothesis about the high interest rates in Brazil, the objective of this article is to show that, contrary to the Keynes' view of a liquidity trap (Keynes, 2007), which refers to the phenomenon when an increased money supply fails to lower interest rates, because they are already close to the zero lower bond, the Brazilian Central Bank (BCB) implements a restrictive monetary policy to satisfy the rentier's expectations related to their financial gains, given the indexation of the government securities (Financial Treasury Bills or LFTs). In this case, real interest rates are trapped at relatively high levels instead of near-zero rates. That is why we call it "Brazilian version", since this two-pronged strategy, framing both monetary policy, to sustain high interests based on rentier's inflationary expectations, and fiscal policy to finance deficits with TIPS indexed to

[1] ORTN is a type of TIPS (Treasury Inflation-Protected Security).

[2] Authors' calculations based on statistical information from Ipeadata (2018).

[3] See, for instance, Arida et al. (2005), Barbosa (2006), Holland (2006), Modenesi et al. (2013), Paula and Bruno (2017) and Seabra and Dequech (2013).

the very interest rates which are indexed to the banking and capital market's inflationary expectations,[4] seems to be singular. In this article we attempt to understand the first thread of rentiers' influence, highlighting the monetary policy channel. A complementary study about the framing of debt management is underway.

In order to achieve the above goal, besides the Introduction, the article is divided into three more sections. The next one presents the Keynes arguments related to the monetary policy and liquidity trap, as well as it shows the interpretation of Keynes' liquidity trap made by the Neoclassical Synthesis (NS). The third section provides an explanation based on our main hypothesis, that is, the Brazilian liquidity trap based on the idea that rentiers frame monetary policy in a way to sustain very high interest earnings. Finally, section concludes the article.

2. Monetary policy and liquidity trap: from Keynes to NS

2.1. The Keynesian view

As we know, in *The General Theory of Employment, Interest and Money* (hereafter GT), Keynes argues that "[t]he outstanding faults of the economic society […] are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes" (Keynes, 2007, p.372). To mitigate or solve these faults, Keynes proposes the use of an arsenal of economic policies, mainly fiscal, or the "socialization of investment", monetary, and social. Focusing our attention on monetary policy alone in this study, Keynes argues that, on the one hand, it should be managed "to maintain the level of investment at a high enough rate to ensure the optimum level of employment" (Keynes, 1982, p.137), and, on the other hand, should be operated to cause "the euthanasia of the rentier." (Keynes, 2007, p.376).

[4] The inflationary expectations are based on Focus Report produced, weekly, by the BCB. This Report analyses the projections of some private banks and capital markets, including investment agencies and consultant companies, related to inflation rate, interest rate, exchange rate and GDP growth, among others, for the Brazilian economy. In general, it is possible to observe that there is a positive relationship between the 12 months ahead expected of inflation by the Focus and the increase of Selic, determined by the monthly meeting of the Monetary Policy Committee (COPOM); that is, the interest rate is preceded by the inflation expectations. Thus, the financial market is able to anticipate the changes in the Selic rate, or to influence it. For additional details related to Focus Report, see: Focus - Relatório de Mercado (BCB, 2018a). Moreover, this relation was shown by Zabot et al. (2013), from a mainstream perspective, and by Mendonça (2018), from a heterodox view.

Why monetary policy is an important instrument to achieve this strategy? Because, in a Keynesian perspective, monetary policy has five goals: (i) As Keynes (1982) argues, one of these is price stability. Inflation affects expectations as long as it devalues wealth, shortens the long haul, and unleashes liquidity preference, likely to lead the economy to an insufficient effective demand;[5] (ii) Another goal is "to bring to the forefront a form of monetary and financial policy, which is focused on financial stability[6]" (Arestis and Sawyer, 2013, p.163). In this sense, financial stability should turn the financial system into an instrument to financing productive investments, households' spending plans, and foreign trade, instead of providing "short-term gains for shareholders and huge profits for themselves" (Arestis, 2015, p.24); (iii) Since it is by means of expectations and liquidity preference that monetary policy transmits its effects, a good state of expectations is required for the success of central bank's measures. This makes the third goal of monetary policy to be the maintenance of stable expectations. If misguided prospects about the future predominate, they result in volatile speculative and precautionary money demand, turning monetary policy ineffective; (iv) The fourth goal is the supervision and control of the economic system's liquidity. This means that monetary policy needs to avoid a generalized shortage of liquidity, as well as it should prohibit banks from creating money and liquid assets in excess. Moreover, when controlling liquidity, central banks also act as lenders of last resort, preventing bankruptcy of financial institutions and its financial contagion risks; and (v) The last goal of monetary policy is to stabilize the "value [of money] in terms of an international standard" (Keynes, 1982, p.128), that is, the exchange rate stability. Exchange rate movements have a vast influence not only on expectations, but also on the firm's financial and operational stances.

In order to reach these goals, according to Keynes (1971), the central bank has to manage the monetary policy wisely, because the interest rate has transmission channels – such as portfolios, credit agreements, value of wealth, expectations and exchange rate[7] – that affect effective demand and, consequently, economic growth and employment, and therefore also income and wealth distribution. More specifically, considering that "[t]he rate of interest is not the 'price' which brings into equilibrium the demand for resources to invest with the

[5] It is important to mention that, according to Davidson (1994), the main causes of inflation, in a Post-Keynesian perspective, are: (1) Profit or monopolist price-making; (2) Wage increases; (3) Decreasing returns to scale; (4) External factors; (5) Supply-shocks; (6) Tax elevations; and (7) Demand-shocks.

[6] Financial stability is understood as the absence of asset price bubbles, illiquidity, and insolvency.

[7] As argued in Arestis et al. (2016).

readiness to abstain from present consumption. It is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash" (Keynes, 2007, p.167), the central bank has to operate the monetary policy effectively to expand effective demand and affect the liquidity preference or 'propensity to hoard' of economic agents.[8]

Why economic agents prefer liquidity trap or display 'propensity to hoard'? In the GT, Keynes argues that, in a context of fundamental/radical uncertainty, in which is not possible to predict the future, economic agents prefer to hold on money and, consequently, their decisions on expenditures, consumption and, especially, investment, are postponed. Thus, cash is an alternative and useful form of wealth in times of uncertainty.

Given the above-mentioned transmission channels of monetary policy, a question arises: what are the main transmission channels and how do they affect directly the effective demand and the level of employment and the income and wealth distribution? As argued in Arestis et al. (2016), the main transmission channels identified in the literature include portfolio changes, credit agreements, changes in the value of wealth, and expectations. They are affected by interest rates, and by their turn have effects on the economic system:

i. The portfolio channel is affected by the interest rate due to its impact on the opportunity cost of investment. According to Keynes' (2007, chapter 17) asset pricing theory, this channel acts by virtue of how agents and banks allocate their portfolios, based on the assets' expected return, cost of carrying it all, and liquidity. Thereby, as soon as the central bank interest rate starts moving, the yield-curve shifts as a result of the general reaction

[8] According to Keynes, the liquidity trap or 'propensity to hoard' can be extreme in a context of high uncertainty. As Keynes (2007, p.201) argues, "the relation between M_2 [the amount of money to satisfy the speculative-motive] and r [interest rate] [shows] that *uncertainty* as to future course of the rate of interest is the sole intelligible explanation of the type of liquidity-preference L_2 which leads to the holding of cash M_2." For Davidson (1994, p.117), this situation, in which "the demand curve for speculative money balances becomes infinitely elastic (horizontal) at some low but positive interest rate" was labeled incorrectly as the liquidity trap. In other words, the liquidity trap would be the situation in which the interest rate is close to zero and changes in the money supply are not able to affect the liquidity trap, making monetary policy ineffective. That is one of the reasons why the "Brazilian version" of the phenomenon is so interesting. In Brazil there is no uncertainty about interest rates, since they are regularly set based on inflationary expectations of financial market participants. This means that these participants do not need to hoard cash. They instead stockpile highly liquid bonds, FLTs, whose yield depends on the short-term interest rates kept at high levels by the Central Bank, and which are by design protected against inflation losses. This means that another source of uncertainty, the changes in the price levels, is hedged by the way the monetary and fiscal policies are framed.

to the changed circumstances, felt throughout the financial system. As a consequence of how the portfolio channel impacts investment spending, the use of interest rates as the main monetary policy tool should be parsimonious; it represents an opportunity cost to investment, so that it competes with the alternative that affects employment and wealth creation.

ii. The interest rate also has impacts on the credit channel, but actually affecting also the capital market. In the capital market, the interest rate translates itself into effective costs of investing. As Keynes (1971) argued, if agents want to buy debt issued by firms for funding their investments, but they do not have sufficient reserves to do so, 'borrowing to lend' is the option. So, interest rate shifts modify the spread between the interest rate charged on the borrowing and the yields given by 'lending' the borrowed money in the form of securities, changing the volume of funds supplied in the capital market. The other credit channel impact occurs in the credit market properly: (a) Households borrow to spend and, as Keynes (2007, p.196) affirmed, this demand for money "will partly depend on the cheapness and the reliability of methods of obtaining cash, when it is required, by some form of temporary borrowing." Then, higher credit costs reduce this sort of borrowing, pressing effective demand down; and (b) Likewise, firms borrow funds to finance working capital, and the augmented interest rate modifies their cash flows and, as a result, profits, which might culminate in a price adjustment on the part of firms.

iii. The wealth channel, as Keynes (2007, p.94) recognized, is "perhaps the most important influence, operating through changes in the interest rate, on the readiness to spend out of a given income." The transmission relies on the impact that interest rate shifts have on the market price of financial assets and depends on the degree that households use this changed price to finance their consumption. The more consumption is financed by this kind of income variation, the larger is the effect of this transmission channel.

iv. The interest rate is fundamental to affect the expectations of the economic agents. In short, an 'appropriate' interest rate is able to stimulate the economic agents' animal spirits and mitigate their "love of money as a possession" (Keynes, 1972, p.329). In other words, it can become a 'convention' and influence the state of confidence of economic agents. About it, Keynes (2007, p.197-198) pointed out that

> [i]t is, however, important to distinguish between the changes in the rate of interest which are due to changes in the supply of money available to satisfy the

> speculative-motive, without there having been any change in the liquidity function, and those which are primarily due to changes in expectation affecting the liquidity function itself; Open-market Operations may, indeed, influence the rate of interest through both channels; since they may not only change the volume of money, but may also give rise to changed expectations concerning the future policy of the central bank or of the government.

If expectations are as stable as it is required for conducting effective monetary policy, the difference of judgments that agents have about the future interest rates would set their liquidity preference at different levels, motivating them, for example, to negotiate debt or credit contracts. While agents negotiate liabilities, there is room for monetary policy to sell and buy the government securities with which it engages in open market operations. Nevertheless, a diversity of individual expectations only happens if the central bank is able to maintain a stable state of expectations in the economy as a whole.[9] Otherwise, if the central bank fails at this attempt, conventions in the financial system would be disorganized, driving expectations towards a strong liquidity preference. As such, open market operations would have no way to succeed, and monetary policy would not achieve its goals.

Summing up, in the Keynesian perspective monetary policy is a powerful instrument to stimulate investment and, as a result, expand economic growth and the level of employment. However, if economic agents decide to change their portfolio strategies, culminating in an increased liquidity trap and unstable speculative demand for money, the central banks are not able to implement monetary policy.

2.2. The NS interpretation of the Keynesian monetary approach

The view expressed above is not universally accepted. Keynes' views were adapted and transformed to make it amenable to the existing neoclassical paradigm. This is due to some ambiguous passages in his magnum opus. On chapter 14 of the GT, Keynes, analyzing the classical theory of the rate of interest, states that

> [i]f the classical school merely inferred […] that, given the demand curve for capital and the influence of changes in the rate of interest on the readiness to save out of given incomes, the level of income and the rate of interest must be uniquely correlated, there would be *nothing to quarrel with*. Moreover, this proposition would lead naturally to another proposition which embodies an important truth; namely, that, if the rate of interest is given as well as the demand curve for capital

[9] That is why, in addition to being a transmission channel, expectations are a goal and a condition for a successful or effective monetary policy. Bearing all this in mind, we may argue that the expectations channel is a kind of 'channel before other channels' since it is the diversity of opinions about the future interest rates that would make it possible for monetary policy to alter interest rates so that the other channels can indeed transmit their effects on effective demand.

> and the influence of the rate of interest on the readiness to save out of given levels of income, the level of income must be the factor which brings the amount saved to equality with the amount invested. (Keynes, 2007, p.178-179, italics added)

Perhaps the above quotation inspired Hicks (1937) to elaborate his IS-LM model and interpret the Keynesian disequilibrium as summarized by the existence of a liquidity trap. In his seminal article, Hicks formalizes three models – the "classical" model, "Keynes' special" model, and the "Keynesian" model – to show that, all of them, have behavioral equations that define the same IS-LM model: the LM curve represents the equilibrium in the money market, while the IS curve defines the equilibrium in the output market.[10]

In Hicks (1937) analysis, "Keynes' special" model differs from the "Classical" model in two points: the savings function and the demand for money function. Thus, Hicks emphasizes that one of the main differences between the referred models is associated with the demand for money: in the "Keynes' special" model the demand for money is explained by the liquidity trap function, while in the "Classical" model it is explained by the Cambridge version of the Quantity Theory of Money (QTM). However, Hicks claims that this difference is irrelevant, because, when comparing "Keynes' special" model with the "Keynesian" model, the introduction of the rate of interest in the Keynes' demand for money is not contradictory to the QTM. As a result, according to him, the demand for money, as showed in the GT, "is something appreciably more orthodox." (Hicks, 1937, p.152) This is associated with what Hicks understands to be Keynes' return to the orthodox monetary theory. In Hicks' own words, "[w]ith this revision, Mr. Keynes takes a big step back to Marshallian orthodoxy, and his theory becomes hard to distinguish from the revised and qualified Marshallian theories, which, as we have seen, are not new." (Hicks, 1937, p.53)

Why, according to Hicks, the Keynesian monetary theory became similar to the QTM, and therefore was not new at all? One reason is that, when the demand for speculative money is infinitely elastic with respect to the rate of interest, that is, in a context of liquidity trap, the demand for money in Keynesian and classical models would depend only on the income level. Consequently, Hicks argues that Keynesian involuntary unemployment persists due to the fact that monetary policy cannot lower the interest rate sufficiently to restore the economy to its full

[10] As it is well known, the IS-LM model, or Hicks (1937) and Hansen (1953) model, shows the combination of interest rate and output that equilibrates, simultaneously, investment and saving (IS curve) or the goods market, and liquidity trap and money supply (LM curve) or the financial assets and money market.

employment income level. Therefore, he concludes that "the General Theory of employment is the Economics of Depression." (Hicks, 1937, p.155)

Given that, the NS or the hydraulic Keynesians "made the liquidity trap the hallmark of their […] Keynesian theory when they proclaimed that fiscal policy was necessary to pull an economy out of a recession" (Davidson, 1994, p.117), and, as a result of that, the "liquidity trap […] dominates in the immediate aftermath of a great depression or a financial crisis." (Minsky, 2008, p.36). Indeed, going in the direction of Minsky's argument, at the end of 2008 and beginning of 2009, when interest rates around the world fell, approximately, to zero, several economists brought back the traditional Hicks-Hansen, now Hick-Hansen-Krugman story about the liquidity trap.[11]

We can therefore conclude that: (i) low interest rates do not define a liquidity trap and "Keynes had never claimed there was a liquidity trap" (Davidson, 1994, p.117); (ii) for Keynes and Post-Keynesians a liquidity trap is a situation in which people hoard cash because asset prices strongly fell, due to deflation, and their expectations are uncertain. Given that, the conventional monetary policy cannot affect the speculative-motive for money; and (iii) Keynes' theory cannot be interpreted as the situation in which unemployment is a temporary phenomenon due to the existence of the liquidity trap. In this circumstance, the Hicks-Hansen model shows, wrongly, that Keynes solution for unemployment is focused **only** on fiscal policy.

3. Monetary policy ineffectiveness and rentier's interests in Brazil

There is a liquidity trap, in the Post-Keynesian meaning of the term, in Brazil, even though it might be a different type of trap? In order to answer this question, it is necessary to understand how monetary policy works (or does not work) in Brazil.

3.1 Brief considerations about the ITR in Brazil

Monetary authorities have adopted the ITR in Brazil since 1999, along with a target for primary fiscal budget surpluses as share of GDP, and a *de jure* but not *de facto* floating exchange rate regime (the so-called tripod). Focusing our attention

[11] Krugman et al. (1998) developed an analysis of the Japanese economy based on Hicks's liquidity trap.

on monetary policy alone, but keeping in mind that the fiscal policy, mainly the debt management part, is crucial for understanding the rentiers' strategy in Brazil of trapping interest rates at high levels, the BCB seems to have been broadly following the theoretical framework that underpins the ITR. According to Arestis et al. (2011), the main theoretical features of the BCB macroeconomic model, closely based on the New Consensus Macroeconomics (NCM) view, can be summarized as follows:

i. Price stability is the monetary policy's primary long-term objective. In addition, the price stability goal may be accompanied by output stabilization so long as price stability is not at risk;

ii. Fiscal policy is no longer viewed as a powerful macroeconomic instrument for stabilizing the economy. Hence, the economic authorities should adopt a fiscal target in terms of a primary budget surplus. This means that the Treasury has also been influenced by the orthodox view that it is necessary to sustain high primary budget surpluses in order to stabilize the debt-to-GDP ratio;

iii. The level of economic activity fluctuates around a supply-side long-run equilibrium. This means that the level of effective demand does not play an independent role on the long-run level of economic activity;

iv. Finally, considering that the Brazilian economy is open, with a history of external imbalances and payment crises, the exchange rate is of crucial importance, because it transmits external shocks to the interest and inflation rates. Given that, in the BCB macroeconomic framework, it is assumed that the ITR may lead to a more stable currency, since it signals a clear commitment to price stability under a *de jure* floating exchange rate system.

The policy interest rate target is set by COPOM for the Selic, the market interest rate for overnight interbank loans, collateralized by treasury securities, part of which are indexed to these very interest rates. The interest rate target is fixed for the period between the COPOM regular meetings and taking into account a survey of inflationary expectations among financial institutions. Thus, based on the economic outlook scenario expected by the financial market, the BCB elaborates the minutes of the meetings of the COPOM that, in general, shows that inflation expectations collected by the Focus Report influence the changes of Selic. This entire arrangement is what explains, in our view, the interest rates trapped in high levels in Brazil, and a preference for liquid long-term government treasuries indexed to these short-term interest rates. Liquidity preference here is not about hoarding

cash due to uncertainty about higher future interest rates causing capital assets to lose value, but about holding TIPS whose yields depends on the inflationary expectations of the holders themselves. And those expectations back the formation of the policy interest rate that compensate bondholders.

After the adoption of the ITR, however, inflation remained at relatively high levels compared to the world economy average, which was 4,1% for the same period. Table 1 shows that, over this period, the upper limits of tolerance were missed for the years 2001, 2002, 2003 and 2015 by a substantial margin, especially in 2002 and 2015, while in 2004 the inflation target was only met after it was raised by mid-2003. Also, the inflation rates were above the point targets in nine years (1999, 2004-2005, 2008, and 2010-2015).

Table 1. Inflation Targets and Inflation Rates (IPCA), Selic and Growth Rates, % (1999 to 2016)

Year	Point Targets	Tolerance Intervals	Effective Headline Inflation Rates (IPCA)	Annual Nominal Interest Rate (Selic)[1]	Annual Real Interest Rate[2]	Annual Real Output Growth Rate
1999	8	6 to 10	8,94	19,0	9,2	0,3
2000	6	4 to 8	5,97	15,75	9,2	4,3
2001	4	2 to 6	7,67	19,0	8,5	1,3
2002	3,5	1,5 to 6,5	12,53	25,0	11,1	3,1
2003	4	1,5 to 6,5	9,3	16,5	6,6	1,3
2004[3]	5,5	3,5 to 8	7,6	17,75	9,4	5,7
2005	4,5	2,5 to 7,5	5,69	18,0	11,6	3,1
2006	4,5	2,5 to 7,5	3,14	13,25	9,8	4,0
2007	4,5	2,5 to 6,5	4,46	11,25	6,5	6,0
2008	4,5	2,5 to 6,5	5,9	13,75	7,4	5,0
2009	4,5	2,5 to 6,5	4,31	8,75	4,3	- 0,2
2010	4,5	2,5 to 6,5	5,91	10,75	4,6	7,6
2011	4,5	2,5 to 6,5	6,5	11,0	4,2	3,9
2012	4,5	2,5 to 6,5	5,84	7,25	1,3	1,8
2013	4,5	2,5 to 6,5	5,91	10,0	3,9	2,7
2014	4,5	2,5 to 6,5	6,41	11,75	5,0	0,1
2015	4,5	2,5 to 6,5	10,67	14,25	3,2	- 3,8
2016	4,5	2,5 to 6,5	6,29	13,75	7,0	- 3,6

Source: Author's elaboration based on BCB (2018b). Note: (1) End of period; (2) Annual Interest Rate (Selic)/IPCA; and (3) The original inflation target for 2004 was 3,75% (with a tolerance interval of 2,5%). Subsequently, the BCB changed the inflation target to 5,5% and kept the ± 2,5% of tolerance interval

It is important to emphasize that the monetary policy has been less effective in achieving inflationary stability (as Table 1 shows) due to two specific reasons: (i) the existence of failures in the transmission mechanisms of monetary policy; and (ii) the fact that, contrary to the ITR that assumes that inflation is mainly a phenomenon of excess demand, the Brazilian inflation is not, necessarily, related to the demand-pull process.[12] Thus, considering that inflation is not mainly caused by demand factors, interest rates will have a limited effect on price dynamics.

Despite the modest results in terms of an effective reduction in inflation, monetary policy has been characteristically tight, placing Brazil in the top positions in the ranking of countries with the highest interest rates in the world, and causing serious constraint on economic growth, through the price of credit (loan rates) and entrepreneurs' poor expectations, as discussed in the previous section.

In this sense, in the period 1999-2016, GDP has followed a stop-and-go pattern, and its average growth rate hovered around 2,7% per year, significantly below the average growth rate of other emerging countries that have adopted an ITR (Arestis et al. 2011) and also of other countries not adopting it. However, by analyzing the relationship between the interest rate and inflation, we can realize that this relationship is, at most, weak.

In addition to the depressive effects on economic activity, the ITR has led to several serious imbalances, both in the domestic realm and in the external sector, as we discuss in the following section. More important, since the impacts of high interest rates on output may be significant, but the impacts on inflation are less pronounced, this creates a substantial change in the distribution of income.

However, for holders of government securities, since interest rates are indexed to inflation by the very design of the ITR, and a significant fraction of securities held are indexed to interest rates (LFTs), it provides a protection against inflation at the same time that it provides a stable and sizable source of earnings in the form of interest transfers from taxpayers to bondholders (Weisbrot, Johnston, Carrillo and Mello, 2017). Those transfers contributed to sustain nominal deficits, which are financed by new rounds of issuance of LFTs, which monetary policy insures against inflation by design in the ITR. So, high interest rates will not affect

[12] With respect to inflation being normally misdiagnosed in Brazil, some economists use to argue that there are other determinants of inflation, such as: the decision-making process of the leading price setters, exchange rate shocks, cost-push and distributive conflict. See, for instance, Arestis et al. (2011), Barbosa-Filho (2008), Modenesi and Araújo (2013) and Summa and Serrano (2018).

inflation, but this is not relevant for rentiers, since they are protected against inflation by very high real interest earnings.

3.2. ITR, interest rates, and rentiers behavior

What are other possible explanations for the real interest rates in Brazil being trapped in high levels, besides the rentiers' two-pronged strategy? Dutt (1990) argues, from a theoretical perspective, that higher nominal interest rates in less developed countries (LDC) will reduce inflation – by hiking real interest rates concomitantly – only when capacity utilization is full. However, a different question concerns the level of interest rates necessary to bring inflation down under full capacity. Why would Brazil be required to have nominal interest rates well above most of the other countries in the sample in order to be able to achieve lower and more stable inflation rates? Again, according to the Dutt's idea (1990), Brazil must have an enormously large amount of idle capacity, since high interest rates are abnormally high. For the same reason, since average growth rates have been modest, then some idle capacity is likely to be taking place in Brazil, but not to the point of compensating for the sky-high interest rates. Therefore, there are high interest rates, relatively high inflation rates, and some unused capacity due to other factors that do not fit this interpretation.

Considering the Keynes' (1982) idea that, in a context of uncertainty about the future, one of the objectives of the monetary policy is to "stabilize" the economic agent's expectations, the interest rate becomes the main tool of monetary policy and acts on economic agents' liquidity-preference, which, on the one hand, depends on the their expectations and, on the other, explains the reason for speculative demand for money and so defines the market interest rate. Thus, the liquidity preference of bond holders requires high interest rates to pay a liquidity premium when the future is uncertain. This means that interest rate depends on the expectations of the financial markets, despite the fact that the monetary authorities controls the monetary policy. This is exactly our argument related to the "Brazilian version" of the liquidity trap. Going in this direction, Erber (2008, p.623-624) argues that the tight Brazilian monetary policy is the result of

> a coalition of interests [that] was formed, structured by the public debt and the high interests earned on such debt. This coalition operates under a tacit agreement that the Brazilian State has to pay high interests and so must do other debtors. In other words, there is a convention firmly grounded on powerful interests, historically consolidated, about the payment of interest rates.

A more plausible explanation, in our view, is the two-pronged rentier strategy of framing monetary and fiscal (debt management) policies. This interpretation is not new and has been espoused, with some specific differences,

by other authors. According to Bresser-Pereira and Silva (2008), the interest rate is very high in Brazil due to an interest/exchange rate trap. Arestis et al. (2011) claim that "[t]he Selic rate is high because, since the end of the 1980s, the BCB has been 'captured' by rentiers who profit from high interest rates, by the financial sector which makes a living out of commissions/bonuses coming from rentiers" (2011, p.185).[13] Thus, it is important to emphasize that the ITR **is not necessarily** the only culprit for the high interest rates in Brazil, since the phenomenon is at least almost four decades old according to them. The ITR could be seen as the newest achievement in terms of fostering the rentiers' interests (no pun intended), which in our view also includes the financial sector, to maintain their high interest earnings. By the same token, Vernengo (2005), analyzing the very first years of the ITR in Brazil, argues that the distributive conflict is important for the inflationary dynamics, not demand, and that indeed the monetary policy regime favors the financial sector interests within the rentier segment. Oreiro et al. (2012) argues that the Brazilian interest rate is so high because the bank spreads are so high.

Given that, some questions arise: How rentiers have been able to shape monetary and fiscal policies in Brazil in a way unseen in other countries and for such a long time? Why are they extraordinarily powerful in setting such successful interest-income transfer program? Samuels (2001) shows that, for example, banks, that are only a part of the financial system, have been among the most important contributors to finance political campaigns in Brazil. Nevertheless, under supposedly operationally autonomous central banks, this link between financial interests, politics, and monetary policy would be more opaque. We reject this type of explanation, since there is no need to keep bribing politicians if the rentiers have control over central banks and politicians no longer have such power (which is questionable in Brazil). It may be argued that rentiers' interests have been shaping the conduct of monetary policy since the military-corporate dictatorship from the 1960s to the 1980s. And bankers also bribe politicians in other countries that have lower interest rates than Brazil. And there is still the fiscal policy part of the strategy. So, the explanation seems to be elsewhere.

[13] Smithin (1996, p.5) equally claims that "[t]he result [of negative real rates of interest] was ultimately a political revolution around the years 1979 to 1982, the most important feature of which was the 'capture' of central banks by rentier interests, and their conversion thereafter to exclusively 'hard money', high interest, and anti-inflation policies. This was the 'Revenge of the Rentiers' [...]". This means that the overall setting is pretty much the same in most of the Western World, but the way that rentiers control and influence monetary (and fiscal) policy differs among countries, as it is argued below. Their grip on the BCB and the Brazilian Treasury seems to be unique.

The relationship between autonomous central banks, monetary policy, and fiscal policy, mainly government debt management, is better understood by the financialization literature. Bruno et al. (2011) show that the public debt, and the corresponding interest payments, is a major source of financialized capital accumulation in Brazil. It is possible to argue, based on this reasoning, that nonfinancial firms are also earning interest payments and are not opposed to high interest rates, being part of the rentier segment (which could explain the difficult of certain channels of monetary policy to work properly in Brazil). But are they able to set the monetary policy agenda as firmly as the financial institutions? We do not think so. Yet, the financialization literature is important to understand the fiscal policy part of the strategy, not discussed here for lack of space. But this literature does not discuss the channels between monetary and fiscal policies via specific types of securities, like the LFTs, which in our opinion is critical for understanding the "Brazilian version" of the liquidity trap.

Therefore, in our view, the influence of rentiers over monetary policy in Brazil, a very likely explanation for the stubbornly trapped high interest rates, has more to do with an institutional setting in which central banks are structurally constrained to keep nominal and real interest rates high, but in Brazil this framework has favored the rentier class on an unseen scale, with the result that monetary policy is not very effective in reducing and stabilizing inflation rates to the international average levels, but very effective in transferring income from taxpayers to rentiers. And our argument is that this institutional setting has to do with the inflationary expectations and the design of the ITR in Brazil. The BCB sets the short-term interest rate based on a survey of expected inflation mostly by financial institutions. Many issues seem to affect those expectations. For instance, despite the fact that the central government has never defaulted on its domestic debt, financial institutions, which hold a very large chunk of the government bonds indexed to short-term interest rates, seems to assume that the risk of default is permanently high, and therefore the interest rates must be kept at high levels in order to finance government deficits, which are to a large extent explained by past commitments to bondholders with transfers in the form of heavy interest payments (Weisbrot et al., 2017). This is an example of expectational trap.

The rentiers also seem to assume that monetary policy has not been credible, and expected inflation is rigid on the upper levels, even when actual inflation slightly falls. The solution is therefore to jack interest rates up even more. Inflation does not fall fast enough? Jack up one more time. If interest rates do not drop, therefore, it is because inflationary expectations are rigid due to the lack of

genuine commitment with lower inflation rates. That is, a possible interpretation of rentiers power over monetary policy is that inflation rates do not fall in Brazil because expected inflation by financial firms, whose services have a small participation in the headline CPI, are rigid, and they are rigid because interest rates are kept unduly low, even though they are among the highest ones in the world. Interest rates in this case, according to rentiers in general and financial firms in particular, would only reflect the lack of credibility of monetary policy, and they are the only ones capable of defining what is credible and what is not. Credibility is hence defined as what financial firms think it is, even when it is explicit that credible policies seem to be only the ones that favor financial interests. If financial firms do not accept a policy, therefore, it is not credible by (their) definition (Grabel, 2003).

Thus, a consequence of rentiers' possible worldview, and that it is not espoused by this paper as argued before, is that expected inflation fully determines actual inflation rates, and the former do not fall because real interest rates are not high enough. But since interest rates also measure the rate at which capitalized monetary and financial wealth grows, it is our argument that rigid expected inflation rates have a major consequence in the form of transfer of funds, via indexed government securities, from the taxpayers to the rentiers whose expectations anchor the policy decisions by the BCB. So, it is highly convenient to have expectations disconnected from actual rates of inflation. It would certainly be outrageous for orthodox economists, mainly the ones working for the rentiers, if a rule of wage-setting was established such that nominal wages were automatically adjusted based on the workers and trade unions own inflationary expectations, surveyed by their own BCB-like institutions. But that is exactly what rentiers have accomplished themselves in Brazil. Thus, the expectations of rentiers seem to have transformed the ITR into an expectational trap, a powerful mechanism to sustain high interest rates (and earnings) in Brazil even though it has not had significant impacts on actual inflation rates, since they are not sensitive to credit-financed demand. As a consequence, indexed interest rates set according to bondholders' expectations of inflation pays off via interest-rate-indexed government bonds.

Exhibit 1 proposes a tentative theoretical classification for the different combinations of nominal interest and actual inflation rates as a way to interpret different types of monetary policy. The abnormal power of rentiers in Brazil in setting the monetary policy in specific type of liquidity trap makes it hard to classify the country using only this scheme, however, since interest rates in Brazil are very trapped at high levels, but the inflation rates are not low for international

standards (although they are not higher than the ones prevailing in many developing countries). A possible answer lies in the fact that rentiers' maintain part of their wealth in the form of TIPS, and so are hedged against inflation. In this case the level of interest rates determines their level of interest earnings. The trap-like situation is further supported by a recent episode in Brazil, when public banks were enticed to boost competition and reduce market interest rates, along with policy rates reductions by the BCB. It led to all types of financial "revolts" in the Brazilian press, including the financialized industrialists. This episode deserves a deeper treatment that is beyond the scope of this paper, since it raises the question of why and how the attempt at monetary policy change failed, and the potential role that rentiers' interests played in it besides the public opinion channel, since the BCB operates a policy framed by their interests (so, perhaps it cannot be easily twisted as thought by the political leaders).

Exhibit 1. A typology of monetary policy regimes (L = Low, H = high)

Typology	Low inflation rate	High inflation rate
High interest rate	Rentiers' party/Ineffective monetary poly	Rentiers' potentially subdued/"Effective" monetary policy
Low interest rate	Rentiers potentially subdued/"Effective" monetary policy	Rentiers' hell/ Ineffective monetary policy

Source: Author's own elaboration.

Yet, the Brazilian anomaly of an expectational trap that traps interest rates at high levels and still provides liquid assets to rentiers seems more close to a case of rentiers' party, with excessive real interest rates based not on low inflation, since the level of inflation does not affect most of their earnings anyway, but instead on exorbitant nominal interest rates, whereas other countries seem to have managed to subdue rentiers' interests, for some reasons that must be addressed by additional research, mainly regarding fiscal policies, with nominal interest rates closer to the inflation rates and therefore closer to Smithin's Rule of zero real interest rate (Smithin, 1996). Russia, on the other hand, would be an example of rentiers' hell, with, until recently, relatively low nominal interest rates and very high inflation rates.

Therefore, it is hard to defend ITR in Brazil as effective monetary policy under the guidance discussed in section 2. Considering the international standpoint, real interest rates have been excessive on several grounds, despite a fall during the center-left government, but not enough to bring it down to the

international average. This requires a specific definition of this phenomenon. Conservative scholars and economists, rentiers, and international financial institutions, when dealing with budget deficits, frequently label the government as irresponsible and the corresponding 'excessive' spending levels as profligate and wasteful (Cardoso and Helwege, 1991; Altman and Haass, 2010). If this is the case, the same seems to be applicable to monetary policy in Brazil, mainly regarding, but not exclusively, the ITR. Using the same criterion, the BCB should be labeled irresponsible for maintaining very high nominal and real interest rates, with no trivial burdens on the nominal budget deficits (Weisbrot et al., 2017) that are financed with bonds indexed to interest rates indexed to inflationary expectations of bondholders. In this case, the fiscal "irresponsibility" is more likely a side effect of an 'irresponsible' monetary policy. This policy is wasteful regarding GDP growth and decent employment policies when compared to other countries, although it is still profligate regarding the rentiers' interests well served by this very monetary framework of unnecessary transfers from taxpayers.

4. Conclusion

The article suggests that the ITR in Brazil does not seem to be an effective monetary policy if we follow Keynes' views. The ITR in Brazil has not managed to achieve low and stable inflation rates, despite having one of the highest average nominal and real interest rates. Why? Because inflation rate in Brazil is not related to an excess of credit-funded demand (credit channel), but cost-push inflation and other different determinants, such as, external transmissions, distributive conflicts, and supply shocks.

Given that, a demand management policy of keeping one of the highest real interest rates in the world is ineffective and simply represents an income transfers policy via a misguided debt management policy. That is, we argue that the single most important instrument for keeping excessive real interest rates in Brazil is the expectations trap that frame the monetary policy, in which the BCB overemphasizes the inflationary expectations of rentiers for defining interest rates, given them a power over monetary policy not likely to be seen in other countries. In other words, it seems that in Brazil there is a reversed liquidity trap, with interest rates trapped at high levels because rentiers are 'trapped' in liquid bonds whose payoff is linked to high interest rates set according to their own expectations. So, paraphrasing Kalecki, they earn what they expect to earn.

Although the goal of this article is not to provide policy prescriptions, and keeping in mind that more meaningful research is always needed when practical matters are involved, if Brazil aims at achieving price and financial stability, low unemployment, and higher and sustainable growth rates by means of productive investment, that is, all the features highlighted by Keynes and the Post-Keynesian literature over the year as being the desirable goals of monetary policy, the ITR does not seem to have been the answer. An alternative along the lines of a rule of parking the interest rates (Rochon and Setterfield, 2008) is therefore necessary, for the sake of reducing inflation, boosting real GDP and employment growth, and minimizing income and wealth concentration.

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Mr. Bolsonaro e os Chineses: uma sugestão de interpretação*

Mr. Bolsonaro and the Chinese: a suggested interpretation

Gilberto Libânio†

Resumo

Este artigo tem como objetivo discutir os potenciais impactos do governo Bolsonaro sobre a relação Brasil-China. Inicialmente, apresenta-se o histórico recente da relação entre os dois países, particularmente no que se refere a comércio internacional e a investimento direto externo da China no Brasil. Em seguida, procura-se especular sobre os possíveis efeitos de um maior distanciamento do Brasil em relação à China, caso se confirmem as reiteradas falas de membros do novo governo, inclusive do novo presidente, acerca de um realinhamento político com os EUA e um consequente afastamento do país asiático. A principal conclusão do artigo é que a China tem papel crucial nas relações econômicas do Brasil com o exterior e que não há justificativa para qualquer tipo de ruptura nessa relação, sob pena de o Brasil sofrer efeitos adversos em sua balança comercial e na recepção de investimentos externos.

Palavras-Chave: China; exportações; investimento direto externo.

Classificação JEL: F14; F21

Abstract

This paper aims to discuss the potential impacts of Jair Bolsonaro's government on Brazil-China relations. Firstly, it presents the recent history of relations between the two countries, particularly in regard to international trade and to Chinese FDI (foreign direct investment) in Brazil. Secondly, the paper speculates on the potential effects of a detachment of Brazil from China, in case the recurrent discourse of members of the new government, including the new president, is put into practice, regarding a political realignment with the USA and a consequent distancing of the Asian giant. The main conclusion of the article is that China plays a crucial role in Brazil's foreign economic relations and that there's no justification for any kind of disruption in this relationship, due to the risk of negative effects on Brazli's trade balance and reception of foreign investments.

Keywords: China; Exports; Foreign Direct Investment.

JEL Classification: F14; F21

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1. Introdução: o Novo Normal da China e o Brasil sob Bolsonaro

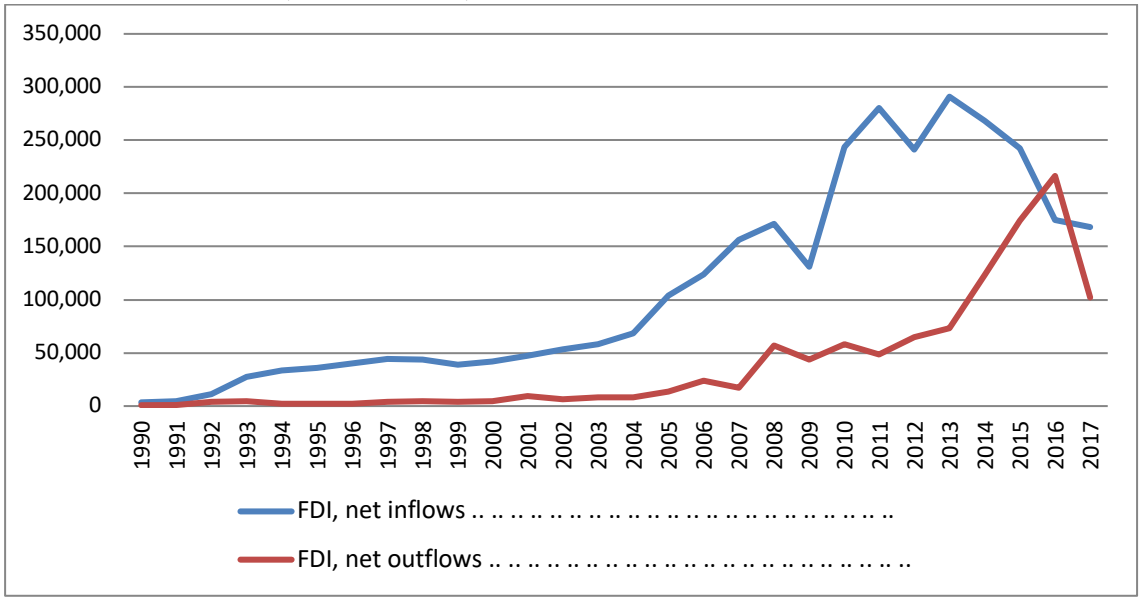
É amplamente conhecida e discutida a importância da China para a economia mundial. Atualmente, a China representa a segunda maior economia do mundo, com um PIB de aproximadamente US$ 12 trilhões em 2017 – atrás apenas dos EUA, mas em franca caminhada para atingir o primeiro lugar em algumas décadas. Além disso, a China é o principal exportador mundial, com uma pauta que tem passado por um processo extraordinário de diversificação e sofisticação tecnológica ao longo dos últimos anos (Rodrik, 2006). Particularmente desde a crise financeira internacional de 2008-2009, a China tem sido a principal locomotiva de crescimento da economia global, dadas as baixas taxas de crescimento de outras grandes economias, como EUA, União Europeia e Japão. É também o maior credor internacional, com reservas em dólar superiores a US$ 3 trilhões (em 2017).

Um dos elementos mais importantes na trajetória da China desde o início deste século tem sido a expansão de investimentos chineses no exterior, guiada por uma ampla estratégia de internacionalização intitulada "China Going Global". Tal estratégia tem sido moldada e ajustada ao longo do tempo, em função tanto dos movimentos da economia internacional quanto das necessidades específicas da economia chinesa.

No período mais recente, particularmente desde 2013, sob a presidência de Xi Jinping, a China ingressou em nova etapa de seu processo de desenvolvimento, descrito na literatura como "Novo Normal" da China. Esta fase se caracteriza por maior ênfase no aumento do consumo doméstico, em detrimento de investimentos e exportações, e também por taxas de crescimento – em média – mais baixas, em torno de 6% ao ano. No que se refere à estratégia de internacionalização "Going Global", o foco neste período é a expansão de capitais produtivos chineses no exterior – por meio de investimento direto externo, tanto *greenfield* quanto aquisições de empresas – e o crescente financiamento a investimentos em infra-estrutura, em boa medida vinculado ao projeto das Novas Rotas da Seda (*Belt and Road Initiative*).

O gráfico 1 mostra a evolução dos investimentos diretos externos na China (*FDI inflows*) e dos investimentos diretos chineses no exterior (*FDI outflows*). Observa-se que estes últimos eram de fato pouco expressivos até o início dos anos 2000, e que tiveram expressivo crescimento no período mais recente. Como se discutirá mais adiante neste artigo, a dinâmica recente de IDE chinês no Brasil deve ser entendida à luz dessa estratégia mais ampla de internacionalização.

Gráfico 1. Investimento direto externo na China e investimento direto chinês no exterior, 1990-2017 (US$ milhões)



Fonte: World Bank – World Development Indicators (2018).

Por outro lado, no Brasil, o presidente eleito Jair Bolsonaro tem manifestado inúmeras vezes sua disposição em buscar um alinhamento mais próximo aos Estados Unidos. Em seu primeiro discurso após o resultado as eleições, prometeu libertar "o Brasil e o Itamaraty das relações internacionais com viés ideológico a que foram submetidos nos últimos anos", indicando sua intenção em reverter o movimento de aproximação com países do Sul global – e particularmente dos BRICS – que foi uma das características importantes da política externa brasileira a partir dos governos Lula. A escolha do ministro das relações exteriores e a visita de um dos filhos de Bolsonaro aos Estados Unidos também representam gestos na mesma direção.

A reação chinesa foi imediata. O jornal *China Daily*, vinculado ao Departamento de Publicidade do Partido Comunista Chinês, e principal jornal diário da China publicado em inglês, dedicou um editorial a Bolsonaro, intitulado "*No reason for 'Tropical Trump' to disrupt relations with China*". O texto cobra do presidente eleito uma postura "objetiva e racional" a respeito das relações Brasil-China, e enfatiza que a China representa o maior mercado para as exportações brasileiras e sua principal fonte de superávit comercial. Ademais, sugere que Bolsonaro não copie as práticas comerciais de Donald Trump – atualmente em guerra comercial com a China – pois os custos para a economia brasileira poderiam ser extremamente altos.

Este artigo busca discutir os potenciais impactos do governo Bolsonaro sobre a relação Brasil-China. As próximas duas seções apresentam o histórico recente da

relação entre os dois países, particularmente no que se refere a comércio internacional e a investimento direto externo da China no Brasil. Em seguida, procura-se especular sobre os possíveis efeitos de um afastamento do Brasil em relação à China, em função de um alinhamento político mais próximo aos Estados Unidos. O artigo se encerra com algumas considerações finais acerca dos problemas associados a tal estratégia, caso venha de fato a ser adotada.

2. O efeito China na economia brasileira[1]

A economia brasileira apresentou um desempenho muito favorável ao longo da última década em vários indicadores. Particularmente, entre 2004 e 2011, observa-se a recuperação das taxas de crescimento econômico (quase 5% a.a., em média) após as "décadas perdidas" de 1980 e 1990. Tal recuperação do crescimento foi acompanhada por inflação moderada, sucessivos superávits comerciais, queda contínua das taxas de desemprego, elevação dos salários reais, melhoria na distribuição de renda e redução expressiva da pobreza.

O bom desempenho observado no período pode ser atribuído, em parte, ao chamado "efeito China". O Brasil foi afetado pela forte expansão chinesa nos anos 2000, com intensa demanda por *commodities* agrícolas e minerais, o que levou a um crescimento sistemático das exportações brasileiras. Desde 2009, a China é o principal parceiro comercial do Brasil, sendo que a participação chinesa nos fluxos comerciais brasileiros cresceu seis vezes em um período de apenas dez anos. Em linhas gerais, o papel da China na trajetória da economia brasileira no período recente está associado à geração de expressivos superávits comerciais observados ao longo do tempo, o que aliviou a restrição externa ao crescimento. Com isso, ajudou a evitar crises de balanço de pagamentos, que eram recorrentes em períodos de maior crescimento da economia brasileira, e permitiu a melhoria dos indicadores de risco país ao longo do período, com efeitos positivos sobre a taxa de juros doméstica.

Por outro lado, a relação com a China apresenta impactos negativos a longo prazo associados à primarização da pauta de exportações – as vendas de produtos primários e manufaturas baseadas em recursos naturais cresceram quatro vezes entre 2003 e 2013 – e à desindustrialização prematura da economia brasileira, dada a forte concorrência dos produtos manufaturados chineses no mercado doméstico. Tal expansão das exportações de *commodities* tem como uma de suas

[1] Esta seção está baseada em Libânio (2018).

consequências a sobrevalorização da taxa de câmbio – configurando um quadro típico de "doença holandesa" (Palma, 2014) – que penaliza fortemente a exportação de setores manufatureiros, nos quais o Brasil não possui vantagens comparativas e sofre forte concorrência asiática, principalmente chinesa.

Nas palavras de Medeiros e Cintra (2015, p. 32),

> a expansão Chinesa gerou dois efeitos distintos sobre os países, um "efeito demanda" ou macroeconômico que se exerce através do seu impacto sobre as exportações, balança comercial, e investimentos e um "efeito estrutura" ou setorial através do seu desigual impacto sobre os setores ou atividades segundo o grau de complementaridade e de rivalidade

Em resumo, o "motor externo" de crescimento da economia brasileira nos anos 2000, associado ao papel da China enquanto grande consumidor de *commodities*, teve importante papel para garantir taxas elevadas de crescimento sem estrangulamento no balanço de pagamentos. Ao mesmo tempo, trouxe como efeito colateral a primarização da pauta de exportações brasileira e a desindustrialização prematura de nossa economia.

3. Brasil-China: relações de comércio e investimentos no período mais recente

As exportações brasileiras observaram crescimento expressivo desde o início deste século. Particularmente entre 2003 e 2008, sua taxa de crescimento anual foi, em média, de 22%, o que se explica principalmente pelo aumento da demanda e dos preços de *commodities* agrícolas e minerais, provocados pela ascensão da China no comércio internacional (Hiratuka e Sarti, 2016). Em virtude de seu padrão de crescimento intensivo em *commodities,* a China foi a principal responsável pela expansão da demanda mundial por produtos como minério de ferro, petróleo, cobre e soja, o que beneficiou países exportadores de matérias-primas – entre os quais o Brasil – tanto pelo aumento dos volumes exportados, como pela evolução favorável dos termos de troca.

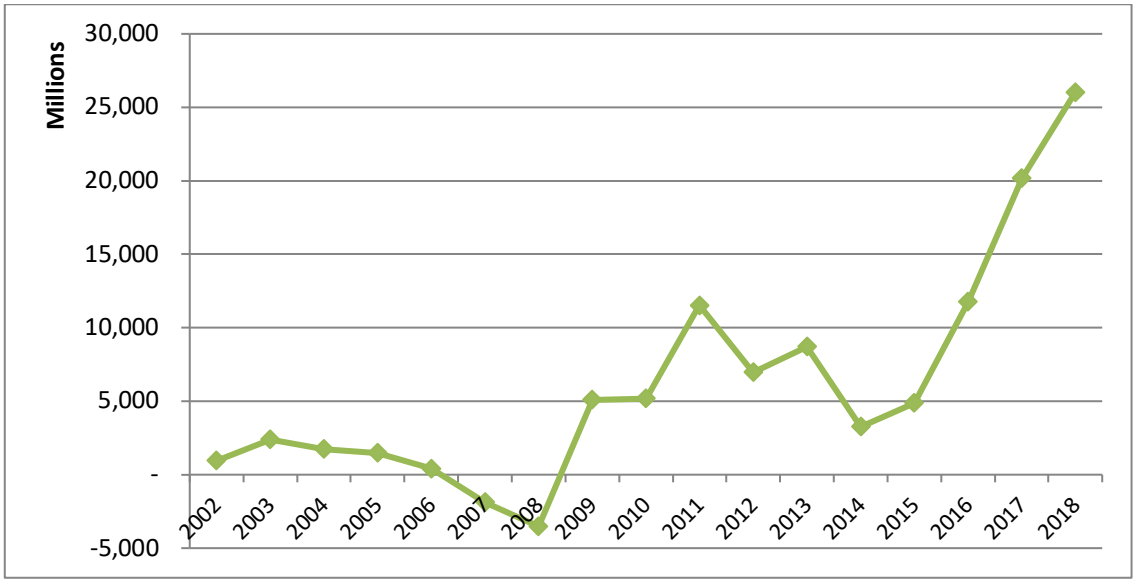
Desde 2009, a China é o principal parceiro comercial do Brasil. A relação comercial entre os dois países segue um padrão bem definido: enquanto a pauta de exportações do Brasil para a China é fortemente concentrada em produtos primários e manufaturas baseadas em recursos naturais, as exportações chinesas para o Brasil são concentradas em manufaturas. A corrente de comércio entre os dois países é significativa e apresentou crescimento expressivo ao longo do tempo. Até 2004, situava-se em valores abaixo de US$ 10 bilhões ao ano. Na década atual,

a corrente de comércio entre Brasil e China tem oscilado entre US$ 60 e US$ 90 bilhões ao ano.

Cabe ainda destacar que a China é a principal fonte de superávit na balança comercial brasileira. O saldo comercial entre os dois países tem sido sistematicamente favorável ao Brasil desde 2002, com exceção dos anos 2007 e 2008. No período mais recente (2015-2018), em particular, o saldo comercial brasileiro nas transações com a China tem tido crescimento muito expressivo, superando a marca de US$ 20 bilhões ao ano em 2017 e 2018 (gráfico 2). Neste último ano – de janeiro a novembro – o superávit comercial total obtido pelo Brasil foi de aproximadamente US$ 51 bilhões, o que significa que a China contribuiu com mais de 50% do saldo comercial brasileiro nesse período.

Os principais produtos exportados para a China em 2018 foram, nesta ordem, soja, petróleo e minério de ferro. Importante frisar que a China absorveu cerca de 80% das exportações brasileiras de soja e mais de 50% das exportações de petróleo e minério de ferro. Cabe ainda notar, nesses resultados, a influência da guerra comercial recente entre EUA e China, uma vez que: (i) as exportações brasileiras de soja são o principal responsável pelo aumento do saldo comercial em 2018, em comparação a 2017; (ii) as exportações mensais de soja dos EUA para a China tem mostrado recuo considerável ao longo de 2018; (iii) Brasil e EUA são os principais fornecedores de soja para o mercado chinês, de modo que a guerra comercial tem como uma de suas consequências a substituição de soja norte-americana por soja brasileira no abastecimento do mercado chinês.

Gráfico 2. Saldo comercial Brasil-China, 2002-2018 (US$ milhões)



Fonte: Elaboração própria, a partir de dados da SECEX/MDIC (2018). Nota: Para o ano de 2018, os dados correspondem aos meses de janeiro a novembro, pois os dados de dezembro ainda não estavam disponíveis quando da elaboração deste artigo.

Por outro lado, os investimentos diretos chineses no Brasil têm desempenhado papel destacado nos últimos anos. Como mencionado anteriormente, este movimento não se restringe ao Brasil, e responde a uma estratégia mais ampla de internacionalização da economia chinesa. Intitulada *China Going Global*, tal estratégia tem suas origens em 1999 e coincide inicialmente com a admissão da China à OMC, ocorrida em 2001. Sua motivação principal era a busca por maior inserção das firmas chinesas no comércio internacional.

Mais recentemente, a estratégia *Going Global* foi ajustada para atender aos objetivos nacionais da China em seu novo padrão de crescimento, com maior foco em consumo, crescimento do setor de serviços e investimento em inovação. Neste caso, a China busca avançar nas cadeias de valor de modo a fugir da chamada "armadilha da renda média", e expandir a participação das firmas chinesas no exterior. Assim, o foco da estratégia chinesa de internacionalização, que nos anos 2000 era baseado principalmente em comércio, passa recentemente dar maior importância aos investimentos diretos e financiamento a projetos de infraestrutura.

Segundo Hiratuka (2018, p. 3),

> growth heavily based on the expansion of investments, driven by the linkage between urbanization and industrialization, has resulted in overcapacity in several Chinese industries and thus increased the pressure for capital outflows and changes towards an economy that is less dependent on gross capital formation in the internal market.

Em relação à América Latina, e ao Brasil em particular, os interesses chineses estão associados principalmente ao fornecimento de matérias primas agrícolas e minerais, considerando questões de segurança alimentar e energética, que são caras ao país mais populoso do mundo. Cabe notar que o perfil dos investimentos chineses na região, sendo voltados para setores intensivos em recursos naturais, tende a reforçar as características da inserção comercial dos países da América Latina no comércio internacional como exportadores de *commodities*.

Segundo o governo brasileiro, a China realizou 104 projetos de investimento direto no Brasil entre 2003 e 2018, totalizando US$54 bilhões. Foram ainda anunciados, embora não confirmados, outros 165 projetos de investimentos chineses no Brasil, que totalizariam mais US$70 bilhões (Brasil, 2018).

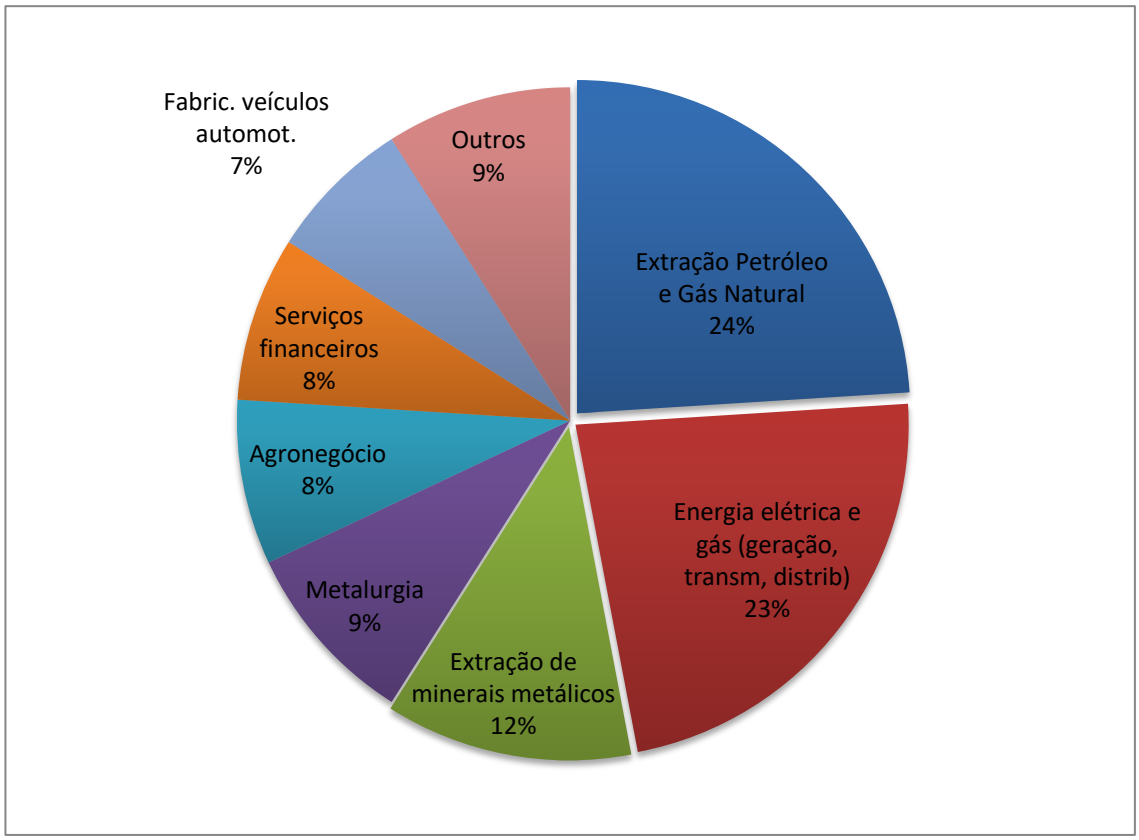
Observa-se uma clara mudança de patamar entre a década passada e a atual no que se refere à magnitude de tais investimentos, coerentemente com as mudanças na estratégia de internacionalização chinesa descritas anteriormente. Entre 2003 e 2009, os valores investidos se situam em torno de algumas centenas de milhares de dólares. Entre 2010 e 2017, por sua vez, os investimentos chineses

no Brasil atingiram, em média, cerca de US$ 6,5 bilhões ao ano. Cabe ainda notar que a maior parte dos investimentos confirmados (cerca de 90%) se refere a fusões e aquisições, principalmente de empresas brasileiras relativamente consolidadas em seus setores de atuação, como estratégia de minimização de riscos.

O gráfico 3 mostra a distribuição setorial dos investimentos chineses, confirmados e anunciados, entre 2003 e 2017. Os setores de energia, extração mineral e de petróleo e gás concentram quase 60% desses investimentos. A indústria automobilística, o agronegócio e os serviços financeiros também tem participação importante no período. Segundo a Secretaria de Assuntos Estratégicos (Brasil, 2018, p. 4), o direcionamento setorial dos investimentos chineses variou ao longo do tempo, atendendo principalmente às novas oportunidades que foram surgindo:

> Nos anos de 2010 a 2012 (...) houve fortes investimentos (...) nas áreas de petróleo e gás e mineração. Entre os anos de 2013 e 2016, destacaram-se a indústria automobilística e de mineração. Já de 2014 em diante, registra-se crescente entrada de investimentos no setor de energia.

Gráfico 3. Distribuição setorial do IED chinês anunciado/confirmado no Brasil, 2003-2017 (em %)



Fonte: Brasil – Secretaria de Assuntos Internacionais (2018).

Em resumo, a observação dos dados de comércio bilateral e de investimentos da China no Brasil, bem como o reconhecimento da importância

crescente do país asiático no cenário mundial sugere que o papel desempenhado pela China na economia brasileira é central, e tende a ganhar ainda mais importância no futuro. A próxima seção se dedica a discutir as potenciais perdas e ganhos de um alinhamento mais próximo do Brasil aos Estados Unidos, considerando a importância das relações de comercio e investimento entre os dois países.

4. As consequências econômicas de J.M. Bolsonaro

Para discutir a conveniência (ou não) de um maior alinhamento econômico e diplomático do Brasil aos EUA, e o consequente estremecimento das relações com a China, é necessário avaliar também o status das relações Brasil-EUA. Neste sentido, a pergunta que se quer responder é se tal realinhamento poderia trazer mais ganhos, em termos de comércio e investimentos norte-americanos, do que perdas de fluxos de comércio e investimento com a China.

Em termos de comércio internacional, os Estados Unidos foram por algum tempo o principal parceiro comercial do Brasil, mas foram ultrapassados pela China desde 2009. Nos últimos anos, a corrente de comércio entre os dois países tem se mantido relativamente estável, com média anual de cerca de US$ 50 bilhões no período 2015-2018. Em comparação, a corrente de comércio entre Brasil e China apresentou média anual de US$ 72 bilhões no mesmo período – o que confirma e quantifica a maior importância da China como parceiro comercial do Brasil.

Outro dado importante a se destacar diz respeito ao saldo comercial das transações com os nossos principais parceiros. No caso dos EUA, a balança comercial com o Brasil tem sido relativamente equilibrada nos últimos anos. Isto é, observa-se resultados superavitários e deficitários ao longo do tempo, mas o acumulado no período 2015-2018 é um pequeno déficit para o Brasil, de aproximadamente US$ 1,2 bilhões. Este resultado indica que a relação comercial Brasil-EUA não tem impactos significativos sobre nosso saldo no balanço de pagamentos e, assim, não tem efeitos macroeconômicos substantivos, nem para a geração de demanda autônoma, nem para o afrouxamento da restrição externa ao crescimento. Cabe ainda destacar que o contraste com a relação Brasil-China, já discutido na seção anterior, é significativo, pois o saldo comercial brasileiro acumulado em 2015-2018 foi, neste caso, de cerca de US$ 63 bilhões.

Em relação a investimentos diretos externos, os EUA têm representado papel de destaque para a economia brasileira ao longo do tempo. Segundo estudo

do congresso dos EUA, o estoque total de investimentos diretos externos norte-americanos no Brasil é de US$65 bilhões (Jackson, 2017).

Cabe notar que o presidente norte-americano Donald Trump, em entrevista recente, prometeu mais de US$200 bilhões de investimentos no Brasil, condicionado à remoção de barreiras tarifárias para a entrada de produtos norte-americanos no país. Embora a proposta possa parecer tentadora, é preciso avaliar se tal declaração é crível, ou se a proposta é factível. Para tanto, a tabela 1 mostra a evolução dos investimentos diretos externos dos Estados Unidos nos últimos anos. Verifica-se que o IDE norte-americano (total) flutua em torno de US$ 300 bilhões e US$ 400 bilhões por ano ao longo desta década. No entanto, participação do Brasil como destino dos investimentos é modesta, oscilando entre 2% e 4% do total dos investimentos, o que normalmente corresponde a valores inferiores a US$ 10 bilhões por ano. Portanto, a promessa de Trump representaria multiplicar por vinte o volume de investimentos norte-americanos no Brasil ou, visto por outro ângulo, que o Brasil passasse a absorver pelo menos metade dos IDEs norte-americanos no mundo. Logo, a proposta não parece factível, e uma avaliação mais segura deveria tomar como base os valores observados no passado recente.

Tabela 1. Investimento externo direto dos EUA no mundo, 2010-2017 (US$ milhões)

Ano	Valor
2010	349.828
2011	436.616
2012	377.240
2013	392.796
2014	387.529
2015	307.056
2016	312.975
2017	379.221

Fonte: World Bank – World Development Indicators (2018).

Assim, quando se compara EUA e China na condição de investidores internacionais no Brasil, com base nos dados existentes, os resultados indicam certo equilíbrio. Embora os EUA sejam o principal país em IDE no mundo, a trajetória de crescimento econômico da China e sua estratégia de crescente internacionalização permite supor que ela tende a se aproximar cada vez mais do líder, também nesse quesito.

Esta mesma perspectiva poderia se aplicar em relação a IDEs especificamente direcionados ao Brasil. Ou seja, embora os EUA tenham

historicamente maior relevância nesse quesito, os investimentos chineses no Brasil verificaram um salto importante nos últimos anos e são, atualmente, comparáveis aos investimentos norte-americanos no país. Como mencionado anteriormente, dado o grande potencial do Brasil em setores-chave de interesse dos chineses, como energia, extração mineral e agronegócio, é bastante provável que os investimentos da China no Brasil continuem a crescer nos próximos anos, a não ser que haja movimentos de ruptura na relação entre os dois países.

Em resumo, a observação dos dados de comércio internacional e investimento direto externo sugere que a China já representa atualmente um papel mais importante para a economia brasileira do que os EUA. Isto porque possui uma corrente de comércio mais elevada, garante um superávit comercial muito mais expressivo para o Brasil, e tem investimentos no país em magnitude comparável ao rival norte-americano, mas com maiores perspectivas de crescimento.

Assim sendo, as declarações do presidente eleito contrárias à China e favoráveis aos EUA podem ser justificadas por motivações políticas e ideológicas, mas economicamente tendem a ferir, mais do que beneficiar, os interesses do país. Por outro lado, como os impactos negativos de uma guerra comercial com a China recairiam fortemente sobre setores politicamente importantes na base de apoio ao governo Bolsonaro, como a bancada ruralista, a aposta mais provável é que – como em tantos outros casos – as declarações bombásticas não tenham efeito concreto e possam ser desmentidas ou revertidas em seguida. Os próximos anos trarão a resposta.

5. Considerações finais

Este artigo procurou discutir os potenciais impactos do governo Bolsonaro sobre a relação Brasil-China. A eleição de 2018 no Brasil apresentou um importante componente geopolítico, alimentado por declarações inflamadas em relação a diferentes possibilidades de inserção internacional do Brasil, em um momento particularmente delicado em função da guerra comercial envolvendo as duas principais potências econômicas mundiais – e que são, ao mesmo tempo, os principais parceiros comerciais do Brasil – EUA e China.

Inicialmente, apresentou-se o histórico recente da relação entre Brasil e China, particularmente no que se refere a comércio internacional e a investimento direto externo da China no Brasil. Em seguida, procura-se discutir as possíveis vantagens de uma aproximação com os EUA e o consequente afastamento do Brasil

em relação à China, caso se confirmem as reiteradas falas de membros do novo governo, inclusive do novo presidente.

Por um lado, a importância da América Latina – e do Brasil, em particular – para a estratégia nacional chinesa parece evidente, levando em conta os setores de energia, extração mineral e agronegócio, que são prioritários para as questões de segurança alimentar e segurança energética da China. Como principal parceiro comercial do Brasil e importante fonte de investimentos, Pequim insiste – com o pragmatismo que lhe é característico – que "não há razão para que o 'Trump tropical' comprometa as relações com a China".

Por outro lado, há um avanço da política externa estadunidense em várias frentes para frear a ameaça chinesa, entre as quais se inclui a busca por um "enquadramento" dos países de América Latina, tradicional campo de influência dos Estados Unidos. No entanto, deve-se ver com cautela as promessas feitas por Trump em relação a investimentos norte-americanos no Brasil, uma vez que os valores anunciados não parecem factíveis.

Cabe ainda notar que um esfriamento das relações do Brasil com a China parece politicamente pouco plausível, dados os impactos negativos sobre setores politicamente importantes ao novo governo, como a bancada do agronegócio, que é extremamente dependente do mercado chinês. Os potenciais benefícios de uma aproximação com os Estados Unidos não parecem compensar tais custos.

A principal conclusão do artigo é que a China tem papel crucial nas relações econômicas do Brasil com o exterior e que não há justificativa para qualquer tipo de ruptura nessa relação, sob pena de o Brasil sofrer efeitos adversos em sua balança comercial e na recepção de investimentos externos.

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