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Articles

INFLATION EXPECTATIONS: A SYSTEMATIC LITERATURE REVIEW AND BIBLIOMETRIC ANALYSIS

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ABSTRACT: The main purpose of this work is to conduct a systematic literature review regarding inflation expectations, their determinants, and their implications for policy making in Latin America. The analysis shows the importance of inflation expectations in the countries that use an inflation targeting scheme, while also supporting the idea that inflation expectations can affect other sectors of the economy. As for the determinants of expectations, the findings show the importance of past iterations of expectations, supporting the idea that the inflation expectations are heavily determined by themselves. The amount of research being conducted in this field is not comprehensive. This is even more evident in the Latin American region since it is a recent research field with a meager number of publications, deeming our study useful for future research. The classification process makes it easier to know the most common variables and econometric methods used to find the determinants of inflation expectations and their impact on other economic variables.

KEYWORDS: Inflation expectations; inflation targeting; VAR models; behavioral economics.

JEL CLASSIFICATION: E31; E51; E52; E58.

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AS EXPECTATIVAS DE INFLAÇÃO: UMA REVISÃO SISTEMÁTICA DE LITERATURA E ANÁLISE BIBLIOMÉTRICA

RESUMO: O objetivo principal deste trabalho é realizar uma revisão sistemática da literatura sobre o tema das expectativas de inflação, seus determinantes e implicações de política das expectativas na América Latina. A análise mostra a importância das expectativas de inflação nos países que adotam o regime de metas para a inflação, também corroborando a ideia de que a expectativa pode afetar outros setores da economia. Quanto aos determinantes das expectativas, os resultados mostram a importância das interações passadas das expectativas, corroborando a ideia de que as expectativas de inflação são determinadas por si. A quantidade de trabalhos realizados nesta área não é grande, pois, trata-se de um campo de pesquisa recente; sendo ainda mais evidente na região da América Latina, já que uma quantidade muito pequena de trabalhos cobre o campo na área. O presente trabalho mostra-se útil para outras pesquisas, pois o processo de classificação facilita saber quais são as variáveis mais comuns e os métodos econométricos utilizados para encontrar os determinantes das expectativas de inflação e seu impacto nas demais variáveis econômicas.

PALAVRAS-CHAVE: expectativas de inflação; metas de inflação; modelos VAR; economia comportamental.

INTRODUCTION

For most countries, both the government and the monetary authorities engage in a joint effort to keep the economy stable and the population's needs fulfilled. The main monetary goals are price stability and economic growth. The effects of monetary policy are transmitted into the economy through different channels, such as the interest rate or the exchange rate.

The development of such transmission mechanisms depends on the adopted monetary policy conduction regime: monetary strategy, exchange rate strategy, and inflation targeting strategy. Each is associated with their respective nominal anchors: monetary aggregates, the exchange rate, and inflation expectations. Since the early 1990s, countries such as New Zealand, Canada, and the United Kingdom have led the world in the implementation of the inflation targeting strategy, which monitors inflation expectations to compare their dynamics with core and total inflation based on a medium-term numerical target (generally a range), defined by the monetary authority, to channel actual inflation along the path of the agreed target. In detail, Svensson (2010) mentioned that the inflation targeting strategy started to be implemented in Latin America, in Brazil (June), and Chile and Colombia (September), in 1999.

Based on this strategy, we could say that policy making directly impacts the agents' expectations and moves them towards the target. However, different economic shocks affect the agents' expectation formation process, making it more difficult to reach the inflation target. To collect information on inflation expectations, central banks use mainly two methods: survey-based and market-based. Each captures the expectations of a sum of economic groups.

For countries employing the inflation target scheme, expectations are significant for their policy-making process. So the common question is, what drives inflation expectations? To answer this question, we must first conduct a literature review to understand how the academic community approaches this question in the different contexts of the countries. With this review, we expect to find the most common econometric methodologies and variables used in their modeling. This process helps both a future estimation process for the determinants of the inflation expectations in Latin America and gives a more classified ground for the field that includes the more common models used and their respective variables.

This paper follows a simple literature review structure, beginning by describing the methodology used to fulfill the research purpose. Next, we explain the results obtained, classified in different categories, to reach a detailed analysis of the studies conducted in the research field. In the final section, the findings are discussed, concluding the process.

1. METHODOLOGY

To fulfil the objective of analyzing the determinants and implications of inflation expectations in Latin America, this systematic literature review was done by researching on the *Web of Science* and *Scopus* academic platforms. These platforms were selected due to their vast number of works and great diversity in their scientific research and fields of knowledge.

The employed search equations among both platforms were ["*Inflation expectations*" + "*Latin America*"] and ["*Inflation expectations*" + "*Determinants*"]. This equation relates to the analyses of inflation expectations, specifically in Latin America. Still, as the preliminary searching process was done, few documents analyzed this topic for this specific geographical location. Hence, for a much richer review, the use of two search equations was fundamental to gain an overall dimension within Latin America and an in-depth analysis of the inflation expectations and behavioral macroeconomics topics.

The preliminary process for selecting the search equation involved the analysis of the main topics, the titles, abstracts, and keywords. This helped to understand which works were analyzing the Latin American region and which ones had considered inflation expectations as the main or supporting topic. Table 1 shows the number of papers obtained using each search equation[1] in both databases.

Table 1 – Search equation results

Search Equation	Database	Results	Total of Reviewed papers
"Inflation expectations" + "Latin America"	Scopus	3	4
	WoS	3	
	Both	2	
"Inflation expectations" + "Determinants"	Scopus	39	49
	WoS	*32*	
	Both	*22*	

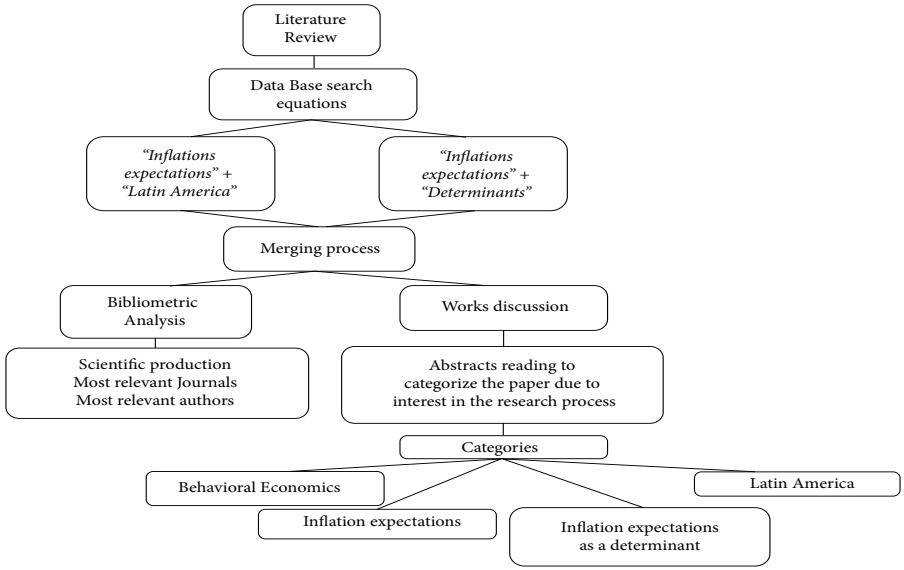
Source: Authors' own elaboration based on Scopus and WoS results.

To allow for a more in-depth analysis, the works obtained in both databases were exported in a *Bib* text format with the complete data from the documents, which are condensed in the databases. Once this process was completed, the *Bibliometrix* by Aria and Cuccurullo (2017) application in the R software was used for the bibliometric

[1] These search equations were selected because they suited better the research purpose, but other search equations that were considered: "Inflation expectations", "Inflation expectations" + "model*", "Inflation expectations" + "VAR model*", "Inflation expectations" + "DSGE model*" and "Inflation expectations" + "policy implications".

analysis, enabling the scientific mapping process. Figure 1 shows the methodological approach of this literature review.

Figure 1 – Methodological approach



Source: Authors' own elaboration.

2. RESULTS AND DATA ANALYSIS

This section is mainly divided into two subsections: the bibliometric analysis and the discussion of the publications. The first subsection focuses on a bibliometric analysis based on the *Bibliometrix* tool by Aria and Cuccurullo (2017); this covers different aspects such as authors' information, impact, and their production over the years. This helps the systematic review acquire background information on literary production worldwide, particularly on inflation expectations. The second subsection focuses on the discussion around the published articles. The purpose of this is to get a better picture of studies revolving around inflation expectations, more specifically, in Latin America, giving a clear academic view for further studies on this topic.

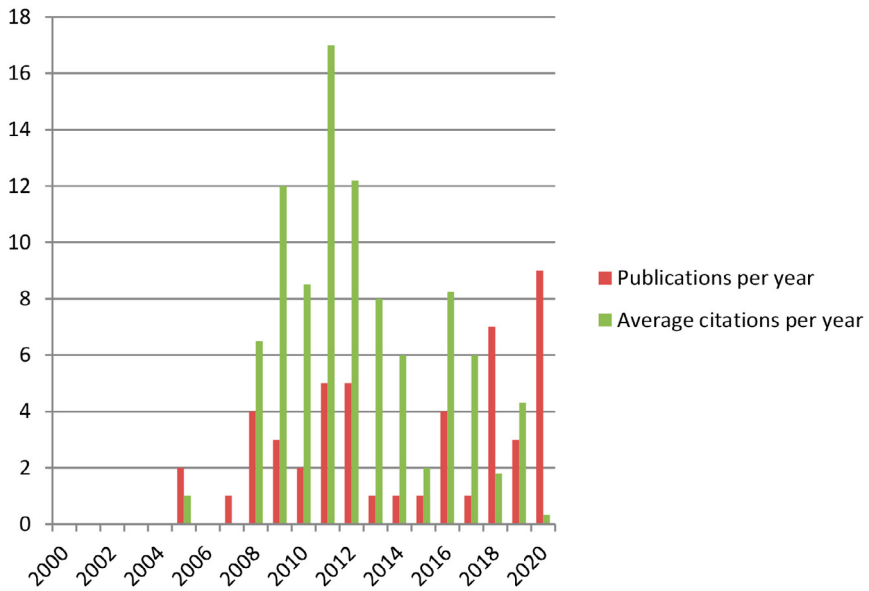
2.1. BIBLIOMETRIC ANALYSIS

The bibliometric analysis mainly focuses on the *Bibliometrix* tool by Aria and Cuccurullo (2017). This was accomplished by converting the information found in both

databases into *Bib* text format for the works that both search equations cast (see the search equations in Table 1). The first search equation reveals an obstacle for the specific research of this work: the lack of results regarding the inflation expectations topic in the Latin American region. Results indicate that this research area is still new in the academic community, making it a vibrant area of research. However, it is vital to question if the available literature in these databases is related to mainstream economics and if heterodox positions that could help understand the inflation expectations formation in Latin America are hidden in other database.

Figure 2 exposes the scientific production published over the years, on the inflation expectations determinants and the studies on Latin America between 1991 and 2020, which add up to 51 documents. As presented in this figure, this research topic is relatively new. Even more, there was a gap between 1991 and 1999 during which there were no publications. The following years have around two to five published papers, but the last decade is found to be the most productive period, since most of the works obtained by the search equation were published during this period.

Figure 2 – Annual scientific production and average citation per year



Source: Authors' own elaboration with the *Bibliometrix* Aria and Cuccurullo (2017) tool.

Due to the atypical average citations in the first years (1991-1999), they were not included in the graph. Considering that these first years have the oldest publication,

it is reasonable to expect that they have the highest average citations; the year with the highest average citations is 1999 with 54.

Now analyzing the scientific production by country, we can conclude some exciting things. Firstly, we can observe from Table 2 that the scientific production of inflation expectations in Latin America is low. Only Brazil (3) and Chile (1) have publications. Indeed, scientific productions do not target Latin America as a geographical research field, but the region itself fails to produce documents focusing on inflation expectations and their determinants.

Secondly, we can also notice that the United States and the United Kingdom, with 21 and 10 publications, respectively, are leading scientific production around the world. As shown in Table 2, most countries in the database have just one publication.

Table 2 – Top Country scientific production

Region	*Frequency*
USA	*21*
UK	*10*
Vietnam	*5*
Germany	*4*
India	*4*
South Africa	*4*
Brazil	*3*
Czech Republic	*3*
Poland	*3*
Pakistan	*2*
Chile	*1*

Source: Authors' own elaboration with *Bibliometrix* Aria and Cuccurullo (2017) tool.

The difference in publications among the researchers is not so variable. Seven of the top ten researchers have two publications and an *h*-index between one and two. This supports the observation that this research field is still new and has not been discussed as much as other topics. The most locally cited authors do not necessarily match the most relevant authors. Authors, such as Armona, Cerisola, Fuster, Gelos, Posen, and Zafar have local citations. Table 3 shows the most cited documents worldwide, which also does not match the most relevant authors.

This table also shows that there are no recent studies among the most cited worldwide. The oldest document obtained with the database is also the most cited paper worldwide, followed by many publications that are at least half a decade old or more.

Table 3 – Most cited documents worldwide

Document	Total Citations
Berk (1999)	54
Del Negro and Eusepi (2011)	40
Carvalho and Minella (2012)	24
Wimanda, Turner, and Hall (2011)	21
Baur, Beckmann, and Czudaj (2016)	20
Kanas, Vasiliou, and Eriotis (2012)	19
Cerisola and Gelos (2009)	19
Dokko *et al.* (1991)	17
Ueda (2010)	15
Dua (2008)	15

Source: Authors' own elaboration with *Bibliometrix* Aria and Cuccurullo (2017) tool.

Since the work's discussion section is listed below and all the most cited documents have their spot in the listed categories (see Table 5), it is pertinent that the papers get highlights of their principal findings separated into sections.

Berk (1999) measures inflation expectations and their influence on inflation, analyzing survey-based expectations. Berk used what the authors call a "variation of the Carlson-Parkin probability method" since it allows a time-varying response by not assuming unbiased survey expectations, using past and future price development information. These results showed that inflation expectations were not stationary and were generally cointegrated, so both the expectations and the inflation rates proved to have a long-run relation.

Del Negro and Eusepi (2011) provide information on inflation expectations as a part of the estimation of a Dynamic Stochastic General Equilibrium (DSGE) model to explain the behavior of the observed expectations. They considered three variants of the model: the central banks' behavior on the inflation targeting scheme and the agents' information, including some with perfect and imperfect information in the models. Findings proved that inflation targeting is needed to capture the evolution of expectations, as imperfect information shapes these expectations.

Carvalho and Minella (2012) study the effects of the inflation targeting strategy in Brazil based on survey forecasts and inflation expectations. These surveys are carried out at a sectorial level. The origin of expectations may be the rational way economic agents make decisions. This contrast with the work of Cerisola and Gelos (2009), who used a Bayesian Vector Autoregression (VAR) model to forecast Brazilian inflation. As pointed out by Cerisola and Gelos (2009), expectations drive the inflation in a significant way from the time the inflation targeting strategy was implemented. Carvalho and Minella's

work employs different methods to evaluate this, by using epidemiology estimations. Results indicate that the top-performing forecasters in Brazil have played an important role as focal points for survey participants. Additionally, survey respondents also exhibited significant adaptative responses to their own forecast errors and past forecast levels. Inflation expectations proved to correlate with the confidence in the country and its Central Bank, as expected. This indicates that the rational decision-making of the survey participants is also a conclusion reached by other researchers and not only in Brazil.

In the study by Wimanda, Turner, and Hall (2011), an important statement is made to analyze inflation dynamics in Indonesia after adopting an inflation target scheme. In this case, inflation expectations play an essential role in controlling the variability of the inflation rate, allowing it to adjust better to the previously set target. The results obtained by means of a structural VAR model showed that the inflation in Indonesia is heavily determined by both backward and forward-looking expectations, with the first one being more critical. This means events are heavily driving expectations, also showing that the central bank's lack of independence influences short-run expectations.

On the other hand, gold is a valuable resource that catches the interest of forecasters since it is affected by many factors and dynamics. By applying a Dynamic Model Averaging (DMA), Baur, Beckmann, and Czudaj (2016) aim to control the uncertainty and help forecast the gold prices. As they explain, gold price forecasting has no established methodology and variables influencing the price change over time. Still, some of the ddeterminants, such as inflation, stock prices, and exchange rates, prove to be more relevant. This might imply that inflation expectations could be appropriate to be a good determinant of the price of gold over time. Results show that due to the changing nature of the variables that drive this price, models with a more parsimonious approach had better forecasting results.

Regarding banks' performance, Kanas, Vasiliou, and Eriotis (2012) affirm that macroeconomic variables, such as inflation and interest rates, could influence bank profitability. Their model uses the business cycle, diversification, monetary policy, inflation expectations, loan portfolio behavior, and credit risk as explanatory variables. Once again, expectations played an essential role in the stability of overall economic entities and sectors. Regarding real estate, Dokko *et al*. (1991) find that inflation expectations' impact on real estate is linked to the environment and the local market conditions, reporting that expectations share a close relationship with the contextual aspects of the domain.

To identify local applications, Cerisola and Gelos (2009) analyze inflation expectations since the adoption of inflation targeting in Brazil during a crisis period. To determine what drives inflation expectations, they use a Vector Error Correction (VEC) model that includes past inflation, the policy interest rate, and wage values, among others. The study helps to settle the relationship between fiscal policy and the credibility of the Central Bank by anchoring inflation expectations, while also helping to lower future inflation.

Conversely, Ueda (2010) focuses on a comparative exercise based on household inflation expectations, identifying that households' expectations change quickly, which may be explained by their beliefs about food and energy prices. Additionally, Dua (2008) affirms that consumers' expectations influence the demand for housing. Specifically, some of the determinants of consumer's perception of buying houses are housing sector variables (prices and rates), their economic condition (income disposal), and expected economic conditions (expected rates and changes in financial status).

Finally, it is vital to highlight that, the most productive years, the most frequent keywords among the documents analyzed were related to inflation expectations. This result is exciting due to the research purpose of this literature review, solidifying the topic as an emerging field and creating a steady ground for future research. Table 4 shows the most important journals that have published articles about inflation expectations and their determinants. As we can observe, the number of publications is not high due to the novelty of the research field, but reveals possible submission journals for future works on related topics.

Table 4 – Top 10 most essential journals

Journal	*Publication number*	*H-Index*
Applied Economics	2	2
Czech Journal of Economics and Finance	2	1
International Economics and Economic Policy	2	2
International Finance	2	2
International Review of Financial Analysis	2	1
Journal of Money, Credit and Banking	2	2
Acta Oeconomica	1	0
Comparative Economic Research	1	1
Economia – Journal of the Latin American and Caribbean Economic Association	1	0
Economica Chilena	1	0

Source: Authors' own elaboration with *Bibliometrix* Aria and Cuccurullo (2017) tool.

2.2. WORK DISCUSSIONS

This section is based on the 51 papers obtained from the merge of results of both search equations. The discussion is accomplished by classifying all the documents into categories which allows for a more detailed review since the records were grouped by common topics and common objectives. The categories are explained in Table 5.

Table 5 – Work discussion categorizing

Categories	Description	Documents
Inflation expectations	Contains the documents that study the inflation expectations and what affects it and the documents related to the formation of said expectations.	Dokko (1991), Berk, J. M. (1999), Dua (2008), Horváth (2008), Proaño (2009), Ueda (2010), Coffinet and Frappa (2010), Del Negro and Eusepi (2011), Posen (2011), Wimanda, Turner, and Hall (2011), Doh (2011), Yap and Allen (2011), Kanas, Vasiliou, and Eriotis (2012), Abdullah and Kalim (2012), Fuhrer (2012), Nair (2012), Hayo and Mazhar (2014), McAdam and Willman (2013), Baur, Beckmann, and Czudaj (2016), Nampewo and Opolot (2016), Białowolski (2016), Mackiewicz (2016), Weber (2018), Armona, Fuster, and Zafar (2019), Ganić (2018), Stillwagon (2018), Pop and Roman (2018), Bulut (2018), Madito and Odhiambo (2018), Boneva *et al* (2019), Daniels, Mazumder, and VanHoose (2019), Bojaj and Djurovic (2020), Jolly and Indapurkar (2020), Abaidoo and Anyigba (2020), Nasir, Duc Huynh, and Yarovaya (2020), Nasir, Duc Huynh, and Vinh Vo (2020)
Latin America	This category is specifically for the papers that focus their study on one or various Latin American countries. This could contain topics that fit any of the above categories, but due to the interest of this research, they are classified separately.	Gelos and Rossi Irondo (2008), De Mello and Moccero (2009), Cerisola and Gelos (2009), Carrasco and Ferreiro (2011), De Mello and Moccero (2011), Carvalho and Minella (2012), Mariscal, Powell, and Tavella (2014), Caldas and Curi (2017), Caputo (2022), Silveira and Caldas (2020)

Source: Author' own elaboration.

INFLATION EXPECTATIONS DOCUMENTS

The inflation expectations topic can be approached in two ways: the documents can be used to either analyze the inflation expectation and its determinants or study some other issue as inflation expectations serve as a determinant of, for example, the inflation rate. Thus, the following discussion revolves around those two variants of the inflation expectations analysis.

Since inflation is a crucial variable in almost every aspect of the economy, a key question is how inflation can drive policymakers to produce more effective policies to improve society's well-being. Forecasting inflation is very important in this regard, as Bojaj and Djurovic (2020) did. They combined different methods (such as SVAR) in the modeling of the inflation rate.

One of the sectors affected by inflation, and subsequently by inflation expectations, is the food sector. Abdullah and Kalim (2012) aimed to determine the main factors influencing food price inflation in Pakistan. Many factors can influence food prices on

both supply and demand side, and knowing those factors is crucial; however, more recently inflation expectations seem to be the variable in the spotlight.

The article of Armona, Fuster, and Zafar (2019) encompasses the formation of home price expectations and the behavior of families regarding those expectations; this is measured via a survey performed by the researchers. The expected behavior of the respondents is based on two conditions: the expectations are influenced by their beliefs about future price changes, and the respondents are not fully informed about past price changes. Results show how expectations became a primary driver in the housing market, also related to the behavior of the people; expectations are being affected not just by past iterations of the price level but also by the experience of individuals.

Boneva *et al* (2019) acknowledge another economic agent that could generate expectations: the firms. Additionally, they identified some key economic variables, such as prices and wages, new orders, employment, unit costs, and capacity operation. Firms can make decisions based on their beliefs about the future values of such variables. As firms expect higher prices and costs, the outcomes for those expectations tended to be lower, since the expectations are influenced by microeconomic and macroeconomic variables, such as the GDP and the inflation rate. Nowadays, a popular method of analyzing inflation is the New Keynesian Phillips Curve. The paper of McAdam and Willman (2013) centers its analysis on the understanding of inflation and its implication as a policy setting device. The estimation of the curve could be improved, as the authors propose, in correlation with the economic cycle.

What drives expectations in any sense is more contextual, as each field has its variables. Whatever the expectations are for inflation, house prices, or wage prices, there is something that remains constant across all of them: the past as a strong indicator of what to expect. If people have past information about the variable, they tend to predict which will affect their perceptions and their behavior. Understanding the agents as boundedly rational, we can expect that they will want to maximize their profits or utility in any regard. Maintaining their confidence is essential for anchoring their expectations, and their experience heavily affects their confidence.

Economic science supports this hypothesis. In this regard, the documents obtained through the search equations made use of different econometric techniques to meet their research goals. Due to the nature of this document, it is essential to highlight the empirical methodology used in each document of this section since it can help give a baseline of econometric models that are employed and help future researchers to decide which type of model best suits their purposes. Thus, Table 6 categorizes the different methodologies found across the documents and the publications that use said econometric method.

Table 6 – Method classification

Sub-categories	Modeling method		Documents
Inflation expectations	AR	VAR	Stillwagon (2018), Fuhrer (2012)
		SVAR	Bojaj and Djurovic (2020), Wimanda, Turner, and Hall (2011), Ueda (2010)
		VECM	Abdullah and Kalim (2012), Horváth (2008)
		ARDL	Nampewo and Opolot (2016), Nasir, Duc Huynh and Vinh Vo (2020), Bulut (2018), Nasir, Duc Huynh, and Yarovaya (2020)
		GARCH	Coffinet and Frappa (2010), Weber (2018)
		GMM	Proaño (2009)
	Panel Data		Ganić (2018)
	DSGE		Del Negro and Eusepi (2011), Doh (2011)
	Phillips Curve	Phillips Curve	Posen (2011)
	DMA		Baur, Beckmann, and Czudaj (2016)
	Carlson-Parkin probability method		Berk, J. M. (1999)
	Semi-parametric model		Kanas, Vasiliou, and Eriotis (2012)
	Time Series cross-section model		Dokko *et al*. (1991)
	OLS	OLS	Daniels, Mazumder, and VanHoose (2019), Hayo and Mazhar (2014)
		RLS	Pop and Roman (2018)
	Latent class model		Białowolski (2016)
	SUR model		Abaidoo and Anyigba (2020)
Behavioral Economcis	AR	VAR	Armona, Fuster, and Zafar (2019), Dua (2008)
		OLS	Nair (2012)
	Panel Data	Bayesian Model Averaging	Boneva *et al* (2019)
		3SLS	Yap and Allen (2011)
	Phillips Curve	Neo Keynesian Phillips Curve	McAdam and Willman (2013)

Source: Authors' own elaboration.

LATIN AMERICA DOCUMENTS

This literature review aims to gather information about inflation expectations and their determinants, as previously mentioned. Still, our interest is in specifically analyzing Latin America with the help of the search equation employed in the databases and the

classification process. We found a total of nine documents analyzing inflation expectations in Latin America. This result supports the bibliometric analysis showing us that this research field, within this region, has not been widely studied, making it an interesting unexplored field for research.

Understanding the scientific production regarding inflation expectations in the Latin American region is not the only interest of this literature review; we also aim to know what variables and what methods have been used in such documents. This would help future investigations in the field by providing a baseline for empirical research. Table 7 displays the only ten documents extracted from the database that study the Latin American region.

Table 7 – Latin American documents

Paper	Author(s)	Variables	Model	Timespan	Countries
Addiction to inflation or fiscal deficits? The Chilean experience of the 1970s	Rodrigo Caputo	Nominal money balances. Nominal money prices. Expected inflation level in the next period. Elements of money demand not captured by the model. Elasticity of real money demand concerning expected inflation (it is possible to derive the optimal rate of inflation, which maximizes seigniorage). Ext. debt. Dom. debt.	Cointegration techniques. VECM. Cagan Model.	1971-1980 monthly	Chile
Monetary Policy and Inflation Expectations in Latin America: Long-Run Effects and Volatility Spillovers	Luiz De Mello; Diego Moccero	Interest rate. Expected inflation. Inflation target. Exchange rate. The output gap. Deviations of expected inflation from the target.	M-GARCH. Cointegration techniques. Elliott-Rithenberg-Stock (ERS). ADF-GLS.	1999-2008 monthly	Brazil, Chile, Colombia, and Mexico
Survey forecasts in Brazil: A prismatic assessment of epidemiology, performance, and determinants	Fabia A. Carvalho; André Minella	Inflation forecasts. Interest rate forecasts. Exchange rate forecasts.	ARMA. VAR. BVAR. Inspired by Carroll's (2003) epidemiology model.	2000-2008 monthly	Brazil
What drives inflation expectations in Brazil? An empirical analysis	Martín Cerisola; Gaston Gelos	Expected inflation. Inflation. Inflation target. Primary surplus. Real interest rate. Real effective exchange rate gap. Real wage gap.	VAR. VECM. OLS and GMM.	1995-2005 monthly	Brazil

(*Cont.*)

Table 7 – Latin American documents

Paper	Author(s)	Variables	Model	Timespan	Countries
Sovereign credit news and disagreement in expectations about the exchange rate: evidence from Brazil	Diego Silveira; Gabriel Caldas Montes	Credit rating agency's variables. Output gap. Budget. Debt. Interest rate. US monetary policy interest rate. Inflation. Reserves. Global risk aversion. Dummy variable for the global financial crisis. Exchange rate volatility. Dummy for the Brazilian political crisis.	OLS and GMM	2001-2018 monthly	Brazil
On the Credibility of Inflation Targeting Regimes in Latin America	Rodrigo Mariscal; Andrew Powell; Pilar Tavella	Variables were obtained from inflation surveys. Inflation expectations	AR	2006-2012 monthly	Brazil, Chile, Colombia, Guatemala, Mexico, Paraguay, Peru, and Uruguay
Monetary policy and macroeconomic stability in Latin America: The cases of Brazil, Chile, Colombia, and Mexico	Luiz De Mello; Diego Moccero	Inflation. The output gap. Nominal interest rate. Nominal exchange rate. Structural errors	Macro-structural model. VAR	1996-2006 monthly	Brazil, Chile, Colombia, and Mexico
Disagreement in expectations about public debt, monetary policy credibility, and inflation risk premium	Gabriel Caldas Montes; Alexandre Curi	Inflation risk premium. The disagreement in expectations about public debt. The credibility index. Expected inflation. Nominal interest rate. Real interest rate	Fisher equation. GMM. OLS	2005-2015 monthly	Brazil
Inflation Process in Uruguay	Gaston Gelos; Alejandro López; Marco Piñon	Consumer Price Index (CPI). Expected inflation. Marginal Costs. Past inflation.	Structural price-setting model.	1998-2006 monthly	Uruguay
Inflation Targeting and Economic Performance: The Case of Mexico	Carlos A. Carrasco; Jesús Ferreiro	General Index of Economic Activity (IGAE). Inflation Rate. Consumer Price Index (INPC).	ARIMA. Hodrick-Prescott filter.	1993-2009 monthly	Mexico

Source: Authors' own elaboration.

From Table 7, we can extract various findings. The tendency to use monthly data responds to the necessity of having sufficient observations to explain or forecast with the help of econometric models. Also, this is linked to the use of models that recognize

past variations as driving factors for present and future values. Thus, we can observe the frequent use of VAR models introduced by Sims (1980). On the other hand, we can see that various monetary policy elements, such as the interest rates and inflation, are considered, indicating rates. This indicates that inflation expectations (heavily present across the documents) are not just a part or a determinant of macroeconomic variables, but also the other way around.

First, we have Gelos and Rossi Irondo (2008) tracking the case of Uruguay and the financial implications of dollarization. More precisely, the first section of the document focuses on inflation and the financial crisis of the country. They highlight the importance of inflation expectations on the inflation dynamics. In the case of Uruguay, the inflation rate, also known as the Consumer Price Index (CPI), is driven by inflation expectations, as their empirical process shows. Even more interesting, the monthly effect of the expectations exceeds the annual impact these have on the inflationary process.

After the expectations prove significant in the inflation process, the authors evaluated the determinants of expectations. The model for this process includes past inflation, fiscal outcomes, the exchange rate, monetary variables, and real wages. Results suggest that the lagged values of the inflation rate are the most critical variables for expectations. The process shows that expectations are indeed a significant factor in the inflationary process and are also driven by the monetary authority's actions (the Central Bank, in this case).

As previously assessed, Caldas and Curi (2017) intended to determine the effect of some macroeconomic variables on the inflation risk premium for Brazil, highlighting the importance of the inflation target regime. To obtain the inflation risk premium, the authors use a methodology based on a modern Fisher equation, assisted by the difference between the real and nominal interest rate and the expected inflation rate. One crucial highlight that the authors make in their study is that the fiscal balance and public debt sustainability are correlated with the implementation of the inflation targeting regime, which makes the relationship between fiscal and inflation variavles essential. Thus, this paper provides evidence for the incidence of the disparities between inflation expectations and public debt, impacting on the monetary policy credibility.

Alternatively, Silveira and Caldas (2020) proposed an analysis for Brazil regarding the role that credit rating agencies have the financial markets and the economy at a macroeconomic level. One of the things credit rating agencies affect is expectations about inflation. As mentioned in other works, expectations anchor inflation, making it easier to reach the inflation target. The disagreements in the financial sector about the exchange rate expectations affect inflation expectations. Consequently, the role of credit rating agencies is decisive in the financial industry since their announcements and expectations tend to affect other macroeconomic variables, as shown by the authors in their study.

In their article, Carrasco and Ferreiro (2011) analyze the implications of inflation targeting in Mexico. The impact of inflation targeting is not constant across countries. Thus, each country needs to be studied independently for a more detailed analysis. As they explain, Mexico imposed the inflation targeting regime to stabilize prices that are always being affected by the country's political situation. Using monthly data on inflation, they manage to evaluate the effects of inflation targeting by using an ARIMA model and comparing the results with United States (USA) inflation performance due to their trading relationship.

Caputo's (2022) work is centered around the Chilean context with inflation, revolving in four areas: fiscal deficit, monetary expansion, exchange rate policy, and wage rate policy. Their econometrical analysis uses the model proposed by Cagan (1956), explaining that inflation expectations will primarily determine the money demand.

Luiz De Mello and Diego Moccero worked together on two occasions to analyze four of the most important economies in Latin America: Brazil, Chile, Colombia, and Mexico. In their 2009 study, De Mello and Moccero, estimated what drives the inflation expectations in the mentioned countries (De Mello; Moccero, 2009). Later, they analyze how the changes in a macroeconomic level changed the dynamics in the monetary policy (De Mello; Moccero, 2011). All four countries make use of the inflation targeting scheme to stabilize their economies and maintain their inflation low. One of the essential factors for the positive performance of this regime is the ability to anchor expectations.

The data obtained for both studies are available at each country's Central Bank (see Table 7 for the variables used). Implementing the inflation targeting regime shows a positive relationship with reducing inflation volatility and anchoring expectations. Since the relationship between inflation expectations and monetary policy is present, even in the long run, monetary authorities react to inflation expectations. The confidence in them helps to have a less volatile expectation over inflation. Both documents agree on the direct relationship between the interest rate and expectations. Evidence shows that volatility in the macroeconomic environment has diminished since the adoption of the regime.

As we can see, a common characteristic among all the documents in this subsection is the analysis of the inflation targeting regime, proving that this systematization has helped stabilize the emerging economies in the Latin American region. This topic is linked to inflation expectations. Mariscal, Powell, and Tavella (2014) deliver a more generalized perspective by analyzing eight Latin American countries. The study analyzes the credibilityof this regime and shows, as many authors suggest, that the key to the correct process of controlled inflation relies on anchoring the expectations. One of the critical factors of Mariscal's paper relies on testing the stability of expectations across time and

how it manages the external shocks to the inflation rate. The results proved that expectations not fully anchored responded to said shocks even at a small pace.

CONCLUSIONS

The main findings of the literature review rely on studying the implications of inflation expectations in various sectors of the economy, since many articles studied the role of economic agents' expectations in different areas. Important economic agents, such as large corporations and financial groups, are not the only ones that can generate expectations potentially altering the course of some economic variables. Households proved to be as influential as other agents. Expectations are constructed to be boundedly rational, in which agents rationally make decisions expecting to obtain the best utility outcome for them. Their future beliefs are built the same way as in the past, which is still a critical driver of these expectations.

In a macroeconomic sense, the expectations over inflation proved to be one of the most influential variables in the economic spectrum. In recent years, the importance of the expectations in the macroeconomic study field gained importance as they are significant within the dynamics of the economy, according to the econometric models shown. Even though expectations became a crucial element in the policymaking of the countries, this is an element that indicates the population's perception of the work of the central banks that helps keep the economy stable.

One of the most common topics in the database's documents is the relationship between inflation expectations and the targeting scheme. Many publications, specifically in Latin America, focus their study on analyzing this relationship. The main findings validate this relationship and point out that inflation expectations are crucial for successfully implementing an inflation-targeting scheme. This fact is due to the expectations' capability to stabilize the inflation rate's volatility, as many studies point out. Monitoring inflation expectations has proved to be a key element of success in Latin American monetary policy, since it has helped the inflation targeting scheme stay within the range of the targeted inflation zone.

As for the modeling process, the most common method of modeling the economic dynamics (whether the determinants of inflation or the determinants of expectations) is VAR models. These capture past iterations of multiple variables and help determine the drivers of some economic phenomena, such as inflation expectations. Some authors use variations SVAR or Bayesian VAR models for their research purpose. Hence, VAR models provide a good starting point for the modeling dynamic. It is worth mentioning that some authors combine the VAR models with some variations of

macroeconomic equations to give a more accurate analysis – such as McAdam and Willman (2013).

For this literature review, it is essential to mention some limitations of the available publications. First, it is crucial to expand the behavioral part of the topic of expectations to better understand this phenomenon, given that it is heavily driven by factors such as culture, religion, geographical conditions, economic conditions, and past events, among others. Second, data collection in each country is limited by the way data on economic variables are measured and collected, imposing restrictions on data availability. Additionally, modeling and comparing the expectations dynamics of more than one county is challenging, since the driving forces can be completely different between countries, or the data time length of one country limits the whole countries' dataset.

One of the interests of this literature review is to further understand Latin American's situation regarding inflation expectations. Our study showed, first, that the topic of inflation expectations in the region is not as rich as in other countries. The number of studies published in Latin America and those conducted on the region, as we saw, represents about 20% of the documents obtained with the search equation.

On the other hand, the Latin American documents present a more homogeneous way of approaching the inflation expectations topic since the regional economies are not widely different in their economic policy. The documents shared the interest in the inflation targeting scheme as this is a common thing in Latin American countries. There is a tendency towards analyzing a group of countries instead of individually, differing from the global works that rarely applied models to compare the dynamics of more than one country.

Finally, it is important to clarify that this literature review is limited to the publications available at Scopus and Web of Science. Hence, any study on this topic that might have been published elsewhere was not classified in these sources. In this regard, one of the open questions that we have after this exploratory exercise is if there is a bias in the top-quality journals to publish papers that are closely linked to the mainstream position at the expense of publications with, so-called, "heterodox" approaches that could offer interesting insights to understand the formation of inflation expectations in emerging economies, such as those of Latin America.

Hence, this situation is a key limitation of this paper, which contemplates an exploration based on the most frequently mentioned databases. Still, it opens the door for future work to enhance the review. As we addressed above, this research field is exciting and very new for all emerging economies in the world, not just in Latin

America. The way agents make decisions and how they manage expectations of the future is still an emerging field of investigation, filled with potential due to its implications for the policymakers.

REFERENCES

ABAIDOO, R.; ANYIGBA, H. Bank performance variability and strands of inflationary conditions. *European Journal of Management and Business Economics*, v. 29, n. 3, p. 235-253, 2020. Available at: https://www.emerald.com/insight/content/doi/10.1108/EJMBE-09-2018-0100/full/pdf?title=bank-performance-variability-and-strands-of-inflationary-conditions. Accessed on: 15 Aug. 2022.

ABDULLAH, M.; KALIM, R. Empirical analysis of food price inflation in Pakistan. *World Applied Sciences Journal*, v. 16, n. 7, p. 933-939, 2012. Available at: http://escholar.umt.edu.pk:8080/jspui/bitstream/123456789/492/3/Full%20View.pdf. Accessed on: 20 Mar. 2021.

ARIA, M.; CUCCURULLO, C. Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Infometrix*, v. 11, n. 4, p. 959-975, 2017. DOI: https://doi.org/10.1016/j.joi.2017.08.007.

ARMONA, L.; FUSTER, A.; ZAFAR, B. Home price expectations and behaviour: Evidence from a randomized information experiment. *Review of Economic Studies*, v. 86, n. 4, p. 1-40, 2019. DOI: https://doi.org/10.1093/restud/rdy038.

BAUR, D. G.; BECKMANN, J.; CZUDAJ, R. A melting pot – Gold price forecasts under model and parameter uncertainty. *International Review of Financial Analysis*, v. 48, p. 282-291, 2016. DOI: https://doi.org/10.1016/j.irfa.2016.10.010.

BERK, J. M. Measuring inflation expectations: A survey data approach. *Applied Economics*, v. 31, n. 11, p. 1467-1480, 1999. DOI: https://doi.org/10.1080/000368499323337.

BIAŁOWOLSKI, P. The influence of negative response style on survey-based household inflation expectations. *Quality and Quantity*, v. 50, p. 509-528, 2016. DOI: 10.1007/s11135-015-0161-9.

BOJAJ, M.; DJUROVIC, G. Forecasting inflation: A combination approach. *Engineering Economics*, v. 31, n. 2, p. 145-154, 2020. DOI: https://doi.org/10.5755/j01.ee.31.2.24609.

BONEVA, L. *et al.* Firms' price, cost and activity expectations: Evidence from micro data. *The Economic Journal*, v. 130, n. 627, p. 555-586, 2019. DOI: https://doi.org/10.1093/ej/uez059.

BULUT, U. Inflation expectations in Turkey: Determinants and roles in missing inflation targets. *Journal of Central Banking Theory and Practice*, v. 7, n. 3, p. 77-90, 2018. DOI: https://doi.org/10.2478/jcbtp-2018-0024.

CAGAN, P. The monetary dynamics of hyperinflation. *In*: FRIEDMAN, M. (Ed.). *Studies in the quantity of money*. Chicago: The University of Chicago Press, 1956. p. 25-117. Available at: https://www.bu.edu/econ/files/2011/01/Cagan1.pdf. Accessed on: 20 Mar. 2021.

CALDAS, G.; CURI, A. Disagreement in expectations about public debt, monetary policy credibility, and inflation risk premium. *Journal of Economics and Business*, v. 93, p. 46-61, 2017. DOI: https://doi.org/10.1016/j.jeconbus.2017.06.003.

CAPUTO, R. Addiction to inflation or to fiscal deficits? The Chilean experience of 1970s. *International Journal of Financial Economics*, v. 27, n. 1, p. 99-110, 2022. DOI: https://doi.org/10.1002/ijfe.2140.

CARRASCO, C. A.; FERREIRO, J. Inflation targeting and economic performance: The case of Mexico. *Panoeconomicus*, v. 58, n. 5, p. 675-692, 2011. DOI: https://doi.org/10.2298/PAN1105675C.

CARVALHO, F. A.; MINELLA, A. Survey forecasts in Brazil: A prismatic assessment of epidemiology, performance, and determinants. *Journal of International Money and Finance*, v. 31, n. 6, p. 1371-1391, 2012. DOI: https://doi.org/10.1016/j.jimonfin.2012.02.006.

CERISOLA, M.; GELOS, G. What drives inflation expectations in Brazil? An empirical analysis. *Applied Economics*, v. 41, n. 10, p. 1215-1227, 2009. DOI: https://doi.org/10.1080/00036840601166892.

COFFINET, J.; FRAPPA, S. Determinants of the inflation compensation curve in the euro area. *The European Journal of Finance*, v. 16, n. 8, p. 769-783, 2010. DOI: https://doi.org/10.1080/1351847X.2010.481460.

DANIELS, J. P.; MAZUMDER, S.; VANHOOSE, D. D. Expected inflation and the sacrifice ratio. *International Finance*, v. 22, n. 3, p. 1-16, 2019. DOI: https://doi.org/10.1111/infi.12340.

DE MELLO, L.; MOCCERO, D. Monetary policy and inflation expectations in Latin America: Long-run effects and volatility spillovers. *Journal of Money, Credit and Banking*, v. 41, n. 8, p. 1671-1690, 2009. Available at: https://www.jstor.org/stable/20685080. Accessed on: 12 Mar. 2021.

DE MELLO, L.; MOCCERO, D. Monetary policy and macroeconomic stability in Latin America: The cases of Brazil, Chile, Colombia, and Mexico. *Journal of International Money and Finance*, v. 30, n. 1, p. 229-245, 2011. DOI: https://doi.org/10.1016/j.jimonfin.2010.08.002.

DEL NEGRO, M.; EUSEPI, S. Fitting observed inflation expectations. *Journal of Economic Dynamics and Control*, v. 35, n. 12, p. 2105-2131, 2011. DOI: https://doi.org/10.1016/j.jedc.2011.04.005.

DOH, T. The yield curve in an estimated nonlinear macro model. *Journal of Economic Dynamics and Control*, v. 35, n. 8, p. 1229-1244, 2011. DOI: https://doi.org/10.1016/j.jedc.2011.03.003.

DOKKO, Y. *et al*. Determinants of the rate of return for nonresidential real estate: inflation expectations and market adjustment lags. *Real Estate Economics*, v. 19, n. 1, p. 52-69, 1991. DOI: https://doi.org/10.1111/1540-6229.00540.

DUA, P. Analysis of consumers' perceptions of buying conditions for houses. *The Journal of Real Estate Finance and Economics*, v. 37, n. 4, p. 335-350, 2008. DOI: https://doi.org/10.1007/s11146-007-9084-0.

FUHRER, J. The role of expectations in inflation dynamics. *International Journal of Central Banking*, p. 137-165, 2012. Available at: https://www.ijcb.org/journal/ijcb12q0a7.pdf. Accessed on: 30 Mar. 2021.

GANIĆ, M. An empirical analysis of factors affecting bank interest margins: Evidence from the southeast European Countries. *Comparative Economic Research*, v. 21, n. 2, p. 81-98, 2018. Available at: https://www.ceeol.com/search/article-detail?id=746485. Accessed on: 30 Mar. 2021.

GELOS, G.; ROSSI IRONDO, F. *Macroeconomic implications of financial dollarization*: The case of Uruguay: Inflation process in Uruguay. Washington, DC: International Monetary Fund, 2008.

HAYO, B.; MAZHAR, U. Monetary Policy committee transparency: Measurement, determinants, and economic effects. *Open Economic Review*, v. 25, p. 739-770, 2014. DOI: https://doi.org/10.1007/s11079-013-9296-2.

HORVÁTH, R. Undershooting of the inflation target in the Czech Republic: The role of inflation expectations. *Finance a úvěr-Czech Journal of Economics and Finance*, v. 58, p. 482-492, 2008. Available at: http://journal.fsv.cuni.cz/storage/1145_1145_6__horvath.pdf. Accessed on: 25 Apr. 2021.

JOLLY, T.; INDAPURKAR, K. An analytical study on inflationary expectations with reference to evidences from the world. *International Journal of Advanced Science and Technology*, v. 29, n. 3, p. 2536-2550, 2020. Available at: http://sersc.org/journals/index.php/IJAST/article/view/4413. Accessed on: 23 Apr. 2021.

KANAS, A.; VASILIOU, D.; ERIOTIS, N. Revisiting bank profitability: A semi-parametric approach. *Journal of International Financial Markets, Institutions, and Money*, v. 22, n. 4, p. 990-1005, 2012. DOI: https://doi.org/10.1016/j.intfin.2011.10.003.

MACKIEWICZ-ŁYZIAK, J. Central bank credibility: Determinants and measurement a cross-country study. *Acta Oeconomica*, v. 66, n. 1, p. 125-151, 2016. DOI: https://doi.org/10.1556/032.2016.66.1.6.

MADITO, O.; ODHIAMBO, N. M. The main determinants of inflation in South Africa: An empirical investigation. *Organizations and Markets in Emerging Economies*, v. 9, n. 2, p. 212-232, 2018. DOI: https://doi.org/10.15388/omee.2018.10.00011.

MARISCAL, R.; POWELL, A.; TAVELLA, P. *On the credibility of inflation targeting regimes in Latin America*. Washington, DC: Inter-American Development Bank, 2014. (IDB Working Paper Series). Available at: http://hdl.handle.net/10419/115476. Accessed on: 20 Mar. 2021.

MCADAM, P.; WILLMAN, A. Technology, utilization, and inflation: What drives the new Keynesian Phillips Curve? *Journal of Money, Credit and Banking*, v. 45, n. 8, p. 1548-1579, 2013. Available at: https://www.jstor.org/stable/42920085. Accessed on: 5 May 2021.

NAIR, L. R. Policy disciplining effect of capital account openness in India. *Transition Studies Review*, v. 19, n. 1, p. 43-57, 2012. DOI: https://doi.org/10.1007/s11300-012-0229-3.

NAMPEWO, D.; OPOLOT, J. Financial innovations and money velocity in Uganda. *African Development Review*, v. 28, n. 4, p. 371-382, 2016. DOI: https://doi.org/10.1111/1467-8268.12218.

NASIR, M. A.; DUC HUYNH, T. L.; VINH VO, X. Exchange rate pass-through and management of inflation expectations in a small open inflation targeting economy. *International Review of Economics and Finance*, v. 69, p. 178-188, 2020. DOI: https://doi.org/10.1016/j.iref.2020.04.010.

NASIR, M. A.; DUC HUYNH, T. L.; YAROVAYA, L. Inflation targeting and implications of oil shocks for inflation expectations in oil-importing and exporting economies: Evidence from three Nordic Kingdoms. *International Review of Financial Analysis*, v. 72, 2020. DOI: https://doi.org/10.1016/j.irfa.2020.101558.

POP, R. E.; ROMAN, M. D. Learning dynamics and the rationality of inflation expectations in CEE countries. *Economic Computation and Economic Cybernetics Studies and Research*, v. 52, n. 2, p. 21-36, 2018. DOI: https://doi.org/10.1016/j.irfa.2020.101558.

POSEN, A. The soft tyranny of inflation expectations. *International Finance*, v. 14, n. 3, p. 541-566, 2011. DOI: https://doi.org/10.1111/j.1468-2362.2011.01287.x.

PROAÑO, C. R. (De-)Stabilizing two-country macroeconomic interactions in an estimated model of the US and the Euro Area. *International Economy and Economic Policy*, v. 6, p. 421-443, 2009. DOI: https://doi.org/10.1007/s10368-009-0145-0.

SILVEIRA, D.; CALDAS, G. Sovereign credit news and disagreement in expectations about the exchange rate: Evidence from Brazil. *Journal of Economic Studies*, v. 48, n. 3, 2020. DOI: https://doi.org/10.1108/JES-10-2019-0483.

SVENSSON, L. E. *Inflation targeting*. Cambridge, MA: NBER Working Paper Series, Working Papen w16654, Dec. 2010. Available at: https://www.nber.org/system/files/working_papers/w16654/w16654.pdf. Accessed on: 24 Mar. 2021.

SIMS, C. A. Macroeconomics and reality. *The Econometric Society*, v. 48, n. 1, p. 1-48, 1980. DOI: https://doi.org/10.2307/1912017.

STILLWAGON, J. R. TIPS and the VIX: Spillovers from financial panic to breakeven inflation in an automated, nonlinear modeling framework. *Oxford Bulletin of Economics and Statistics*, v. 80, n. 2, p. 218-235, 2018. DOI: https://doi.org/10.1111/obes.12218.

UEDA, K. Determinants of households' inflation expectations in Japan and the United States. *Journal of the Japanese and International Economies*, v. 24, n. 4, p. 503-518, 2010. DOI: https://doi.org/10.1016/j.jjie.2010.06.002.

WEBER, C. S. Central bank transparency and inflation (volatility) – New evidence. *International Economics and Economic Policy*, v. 15, p. 21-67, 2018. DOI: https://doi.org/10.1007/s10368-016-0365-z.

WIMANDA, R. E.; TURNER, P. M.; HALL, M. J. Expectations and the inertia of inflation: The case of Indonesia. *Journal of Policy Modeling*, v. 33, n. 3, p. 426-438, 2011. DOI: https://doi.org/10.1016/j.jpolmod.2010.08.009.

YAP, G.; ALLEN, D. Investigating other leading indicators influencing Australian domestic tourism demand. *Mathematics and Computers in Simulation*, v. 81, n. 7, p. 1365-1374, 2011. DOI: https://doi.org/10.1016/j.matcom.2010.05.005.

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