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Abstract

At the turn of the century, some new governments in Latin America have been characterized as populist (the so-called new Latin American Left). We focus on the macroeconomic implications of the policies adopted by these governments (instead of their leaders' rhetoric) and we investigate to what extent this characterization holds. To do so, we identify economic populism with a bivariate vector autoregressive model using real and nominal wages and where populist shocks have no long-run effects on the former variable. The underlying idea of this identification is that populist leaders tend to prioritize income distribution with higher nominal wages disregarding the consistency with the evolution of productivity. Our results indicate that economic populism is not as widespread as previously thought, and that our nuanced approach leads to more informative results. For instance, while we find populism in Argentina, the results for Brazil, Bolivia and Ecuador show only sporadic populist events. In the remaining countries, we do not find persistent economic populism.

Keywords: Macroeconomics of populism; Income redistribution; Structural VARs; Long-run restrictions; Latin America.

JEL Classification: C32; E64; H11; N36.

"How can we explain Latin America's proclivity toward macroeconomic mismanagement? Is it deeply rooted ignorance on the mechanics of deficit financing, or is it the deliberate consequence of Machiavellian politics or, is it, perhaps, the unavoidable outcome of distributional struggles?"Dornbusch and Edwards (1991).

1   Introduction

The sequence of economic, political and epidemiological crises are believed to have brought back the seed of charismatic leaders who pursue populist policies. In particular, while US and Europe's new populism are predominantly linked to the Great Recession (Algan et al. (2017); Guiso et al. (2019); Stankov (2018)), Latin America's one is linked to the failure of the market-oriented policies implemented in the 90's (Edwards (2019)). While there seems to be agreement among researchers that D. Trump in the US, B. Johnson in the UK and J. Bolsonaro in Brazil are recent examples of populism (Edwards (2019); Rovira et al. (2017)), there is no consensus on a fit-all definition of populism.

This lack of a single definition enriches the debate and the academic research. Sociologists (Gidron and Hall, 2017), political scientists (Colantone and Stanig, 2019; Norris, 2020) and economists (Acemoglu et al., 2013), among others, use different strategies to study this phenomenon, allowing for thorough multidisciplinary studies of a country's populist experience. The other side of the coin is that such richness restricts the scope for comparative and historical studies, as not all definitions or data requirements may be satisfied for all countries and periods.

For instance, Guiso et al. (2019) characterize populist candidates' success along three dimensions: anti-elite rhetoric, immediate "economic" protection and hiding the costs of that protection. The last two dimensions are related to the influential work of Dornbusch and Edwards (1990), who defined macroeconomic populists as those governments implementing expansive policies to redistribute income. Other approaches use a stringent set of ideas ("the ideational" view) or the candidates' rethoric to define parties or politicians. The implementation of these definitions are based on disparate methodologies, like text analysis, political surveys, experts' surveys and so on.[1]

In this paper, we follow-up on the above-mentioned definitions by narrowing down the concept of economic populism with a focus on actual economic outcomes rather than declamations. In particular our definition of populism is used retrospectively to evaluate incumbents across countries, as we rely on nominal and real wages. On the lines of Dornbusch and Edwards (1990); Canitrot (1975), we emphasize the redistributive efforts of populism through

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[1]The classification of political parties into populist or not usually follows a thorough study of their platforms, as in Van Kessel (2015) and/or Chapel Hill Expert Survey. However, the use of this measure collides with political economy/electoral models in which candidates' announcements are thought to be cheap talk.

wages. Hence, populist governments increases nominal wages regardless of the fundamentals of the economy (i.e., factors' productivity), while non-populist ones increase them as a result of productivity improvements, if at all. In other words, we identify populist and non-populist governments according to whether the nominal wages increases respond to populist or productivity shocks.

We use data from Argentina, Bolivia, Brazil, Chile, Ecuador, Nicaragua, Peru and Uruguay – usually called the New Latin American Left (Levitsky and Roberts (2011))– plus Colombia and Mexico, covering most Latin American presidential terms in the XXIst century, according to data availability. These countries are the perfect laboratory experiment for our methodology. They arguably had populist experiences since the beginning of the century, and so enough time has passed by to be able to test whether they implemented populist policies. Moreover, the quality of data is very good, not only because of the periodicity (monthly) but also because it spans for almost twenty years.[2] Additionally, not only in the 1980's these countries were the muse for Dornbusch and Edwards (1991)'s influential perspective of macroeconomic populism, but also Edwards (2019) argues that the new populists' objective in Latin America is to raise wages (without discarding other types of new populism in Europe).[3] In particular, Lula da Silva in Brazil and Evo Morales in Bolivia are seen as the paroxysm of the movement. With communist or socialist claims, they were union leaders in key economic sectors (metallurgical and coca producers), and concentrated the support of poor workers (urban and rural, respectively).

In order to classify these countries with our proposed measure of populism, we follow the methodology in Blanchard and Quah (1989), adapted by Campos and Casas (2020) for the identification of populist regimes. While the former use a bivariate vector autoregressive (VAR) to distinguish between demand and supply shocks, the latter use a model with nominal and real wages to identify two type of disturbances: productivity shocks, that have long-term effects on real wages, and populist shocks, that do not. This methodology is quite agnostic from a formal perspective: the underlying theory of the identification scheme is just the basic concept of the real wages determination by productivity in the long-run.

In more detail, firstly a bivariate VAR model is estimated to disentangle populist and productivity shocks using nominal and real wages only. The identifying restriction is done on the long-run impact matrix by imposing that populist shocks cannot have permanent effects on real wages. Among the benefits of this agnostic definition of populism, two stand out: first, populism is a continuous measure rather a dichotomous classification of governments. Second, the implementation of this definition is straightforward, and therefore can be used to evaluate populist experiences elsewhere.

In a second estimation, it is possible to disentangle between populist and demand shocks

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[2]Venezuela has been excluded because of lack in data.

[3]Dornbusch and Edwards (1991) is sustained with a thorough description of the Latin American experience in the 70s and 80s, but its approach has been applied to other populist experiences – in Europe and elsewhere (Guriev (2018)).

by adding an index of economic activity (industrial production). The identification scheme imposed in this second estimation uses sign restriction on the short-term impact matrix and zero-restriction in the long-term one. The key underlying assumption to identify separately populist and demand shocks is that the latter are allowed to potentially have long-run effects on real wages. This assumption is consistent with many different economic theories, as summarized by Keating (2013).

The main results of the work come from the variance decomposition of nominal wages to populist shocks, i.e, how much of nominal wages variations can be explained by that disturbance, and the historical counterfactual. This last tool is particularly useful as it shows how much would have nominal wages increased were populist shocks absent. The evidence indicates that Chile, Nicaragua, Peru and Uruguay did not experience populist regimes. In Bolivia, Brazil and Ecuador some populism events were found, though barely significant. Only in Argentina did populist shocks explain most of the nominal wages' variation. As a consequence, our results indicate that the New Latin American Left cannot be qualified as an homogenous populist movement. If any, important distinctions among the different countries should be made.

Within the scope of our results, it could be then argued that the new Latin American left was not shaped by economic populist policies that jeopardized the growth of the country at the expense of their constituencies. In that regard, this is an optimistic interpretation, as it shows that societies – or politicians– may learn the lessons from history. For instance, real wages along these twenty years increased around 1.5% on median per year. Beyond this paper, the deterioration of the institutional quality, probably present in LATAM in this period and maybe in EU, should be studied with attention, regardless of the current classification of governments.

The rest of the paper is organized as follows: section 1.1 performs a literature review to contextualize the paper's contribution; section 2 describes the new Latin American left and goes briefly through each of the governments that are analyzed in the subsequent sections. Section 3 explains the empirical approach used to disentangle between, first, productivity and populist shocks, and then, demand disturbances as well. Section 4 presents the evidence reported with impulse responses, variance decomposition and historical counterfactuals plots. Finally, section 5 concludes.

1.1 Literature review

Even though a large share of the population, including academics and political pundits, frown upon the advancements of populism, its causes and its economic effects are debated. The increasingly predominant role played by the so-called populist leaders is largely associated with inflammatory rethorics and myopic policy proposals (Keefer et al. (2019); Guiso et al. (2019); Algan et al. (2017); Edwards (2019)). On the other side of the coin, Rodrik (2018)

argues that economic populism (not institutional populism) may have long-term benefits. For instance, Rodrik claims that Sanders in the U.S. would be a democratic populist – i.e, that abides the political/institutional restraints but not the economic ones. And that this kind of populism may represent an opportunity to break from the "liberal technocracy".

The literature that explains the raise to power of populist candidates is also rich. From a theoretical standpoint, Acemoglu et al. (2013) argue that in the presence of corruption, populist proposals may be honest politicians' strategy to signal honesty. And Prato and Wolton (2020) state that voters' demand for reform may cause populist proposals. Chesterley and Roberti (2018) goes a bit beyond and study the populist's incentives (and mechanisms) to remain in power. From a different angle, the seminal work of Sachs (1990) posed that income inequality was conducive to social conflict and political pressure to raise lower classes' income, and this typically ends up in macroeconomic misalignment. In the same line, Leon (2014) observed that left-wing populism redistribute too much and Gerchunoff et al. (2020) described a populist paradox, characterized as a weak equilibrium between macroeconomic balance and social peace.

From a comparative standpoint, there is a branch of the literature that use content-analysis or rhetorical measures of populism applied to parties and investigate – empirically– the conditions for their raise to power. In this line, Guiso et al. (2019); Algan et al. (2017) show that poor economic conditions (failure of the *troika*'s policies, and raise in unemployment, respectively) increase the winning chances of populist parties. Keefer et al. (2019) focus on the effect of trust on the individual preference of populist candidates: they show that low trust individuals tend to elect populist candidates who would lead to low quality governments.

Our paper has a similar goal than Rooduijn and Pauwels (2011), in the sense that they highlight the difficulties of pursuing serious comparative and historical analysis of populism with disparate definitions of populism. They follow a different – and we claim, more demanding– strategy: they use classical and computer-based content-analysis to identify populist ideas in the political manifesto of parties. Using the measures in Hawkins (2009) – who assess populist manifestos with an "holistic" perspective– Rode and Revuelta (2014) look at the institutional consequences of populism. The main difference with respect to these papers is that we do not impose a definition of populism. We rather measure whether the economic implications of populism are present in the data, and we let the results signal whether the data is consistent with populist policies.

With this agnostic definition of economic populism, that abstracts from other components such as the leader's electoral rhetoric or appeal to voter's sentiments, we evaluate ex-post whether presidents in South America and Mexico had implemented populist economic measures.

2 Institutional Background

Known as Latin America's "lost decade", the 1980's sharp decline of income and macroeconomic failure led the impulse for orthodox policies. Contrary to the policies of the popular leaders of the 80s (Peru's Alan García in 1985-90, or Nicaragua's Daniel Ortega in 1985-90, among others), who pursued state intervention and protectionism, the 1990s resulted in policies aligned with the Washington consensus. In some cases, even candidates with workers-based political support ended up imposing liberal policies (Murillo (2000); Cukierman and Tommasi (1998)).

Nonetheless, in a pendular fashion, after the failure of the ninetees' policies, the "New Latin American Left" was going to rule over most countries in the region and, even in some of them, with the same presidents as in the 1980's. This was the case of Alan García in Peru (2006) and Daniel Ortega in Nicaragua (2007). In others, union leaders with socialist backgrounds were being elected, as Lula da Silva in Brazil (2003) and Evo Morales in Bolivia (2006). And there was even the case of the former guerrilla leader José Mujica being elected as president of Uruguay in 2010.

Given the poor macroeconomic record of popular movements in the region, some observers highlighted the resemblance of the new left with the nationalistic governments of the 1970's and 1980's (Barret et al. (2008)). Others, tried hard to difference between this new left from the old left (Levitsky and Roberts (2011)). Even others, intended to discriminate between a good and a bad left among these new political movements (Webber and Carr (2012)). However, all these classifications proposed were based on subjective evaluations of the political leaders rather than in some objective measurement. As such, the new governments were classified as populist on behalf of their speeches, their accumulation of power, their (dis)respect of institutions or their corruption scandals, all categories which are hard to evaluate in any quantitative fashion. Therefore, the new Latin American left has been set by default as a populist movement if no further clarification is attempted.

All countries we study in this period, fom 2000 to 2019, had at least one president who belonged to a left-wing party, and most share the commonality of being presumably populist regimes either because the past of their leaders, their anti-establishment rhetoric or their campaign promises (Arnson and de la Torre (2013)). That is, the Kirchner's in Argentina (2003-15), Evo Morales in Bolivia (2006-19), Lula da Silva and Dilma Rousseff in Brazil (2003-16), Daniel Ortega in Nicaragua (2007-actually), Alan García and Ollanta Humala in Peru (2006-16), Michelle Bachelet in Chile (2006-10 and 2014-2018), Rafael Correa in Ecuador (2007-17), and Tabaré Vázquez and José Mujica in Uruguay (2005-20).

Two notable exceptions are Fernando Lugo in Paraguay (2008-12) and Hugo Chávez and Nicolás Maduro in Venezuela (1999-actually), who were also presidents from left-wing parties, but they are not included in the case studies due to data restrictions.[4]

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[4]Data about Venezuela is unavailable for the analyzed period and data from Paraguay is bi-annual and

Argentina: Néstor Kirchner (2003-2007) and Cristina Fernández de Kirchner (2007-2015). After the 2001 political and economic crises, which included a default on the governments debt and a large devaluation, Nestor Kirchner was elected president. He was, at the time, a *protégée* of the incumbent Eduardo Duhalde. In 2003, both Duhalde and Kirchner represented the same faction of the Peronist party, which is arguably the strongest party in Argentina since Perón's first presidency in 1946. Kirchner held office from May 2003 to December 2007. Instead of running for re-election, his wife Cristina Fernández de Kirchner was elected president. She had a prominent career in politics within the Peronist party as well (being a member of Congress since 1997). In 2007 she run as a candidate of a coalition of peronist factions, "Frente para la Victoria", and ruled until December 2015. All this period is covered in our analysis.

Bolivia: Evo Morales (2006-2019). "Movimiento al Socialismo" (MAS) is a political party that was originally supported by coca producers organized around *Ayllus*, whose leader was Evo Morales (Howard (2010)). His experience as a union leader and then a party leader resulted in Morales being elected president in 2006 with a large support of the Bolivian rural population – historically discriminated and excluded from power, arguably due to their indigenous origins. Evo Morales modified the Constitution and was re-elected president two times. After the first-round of the presidential elections of 2019, a *coup d'etat* was organized due to electoral fraud accusations. If he had won that election, he would have served his fourth term as President of Bolivia. All this period is covered in our analysis.

Brazil: Lula da Silva (2003-2010) and Dilma Rousseff (2011-2016). As a metallurgic union leader, Lula da Silva raised to stardom in the "Partido dos Trabalhadores" (PT, or workers' party in english). As its leader, he run for president three times before being elected in 2003. He was re-elected once and succeeded by Dilma Rousseff in 2011. Rousseff was re-elected in 2015, but she was impeached in 2016 by a coalition of her own vice-president (M. Temer) and conservative parties. Lula was imprisoned during nineteen months with corruption charges and freed in 2019, but the accusations were not dropped. All this period is covered in our analysis.

Chile: Michelle Bachelet (2006-2010 and 2014-2018) and Sebastián Piñera (2014-2018). Michelle Bachelet gained popularity as Ricardo Lagos' Health Minister (2000-2006) and the first female Defense Minister in Ibero-America (2002-2006). She became the candidate of the center-left coalition called *Concertación* and became the second woman to be president in America. Characterized by a low profile, away from incendiary rhetoric, her presidency was tainted by some corruption scandals. She was succeeded by a right-wing

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for a short period.

businessman, Sebastián Piñera. When he finished his term in 2014, Bachelet was again elected president. All this period is covered in our analysis.

Colombia: Álvaro Uribe (2002-2010) and Juan Manuel Santos (2010-2018). Álvaro Uribe ran for president without the formal support of any of the two mayor parties (Partido Liberal – his previous party– and Partido Conservador). Despite having belonged to the center-left party, he could be characterized as a center-right candidate. As such, he trumped the cause of "democratic security" against guerrillas and benefited from the support of the US through the "Plan Colombia" (Posada-Carbó (2011)). He reformed the constitution and was re-elected president in 2006. In 2010, Juan Manuel Santos, a candidate from the center-left party (Liberal) was elected president and later re-elected in 2014. In 2016 he won the Peace Nobel Prize for his efforts to struck a peace agreement with the *Fuerzas Armadas Revolucionarias de Colombia* (FARC). All this period is covered in our analysis.

Ecuador: Rafael Correa (2007-2017) and Lenin Moreno (2017-now) Correa served three presidential terms, in representation of the party he founded, "Alianza País", beginning in January 2007. During his first term, the Constitution was reformed, ending his mandate early in 2009. He was then re-elected until 2013 and again until 2017. Correa did not run again, and instead his two-times vicepresident Lenin Moreno was elected until 2021. We cover both presidents until Januray 2020. Additionally, since the year 2000, Ecuador adopted the U.S. dollar as its own currency. This "dollarization" is taken into account during the analysis.

Peru: Alan García (2006-2011) and Ollanta Humala (2011-2016). Similarly to Daniel Ortega in Nicaragua, Alan García's first term was in 1985. This term was marked by a surge of terrorism and mismanagement of the economy. He was candidate of the socialist party *Partido Aprista Peruano* (APRA) again in 2001 (he lost) and in 2006, where he defeated Ollanta Humala, an ex-militar who organized a *coup d'etat* against Alberto Fujimori, president of the country during the period 1990-2000. Humala, as member of the *Partido Nacionalista Peruano* (PNP), won the elections in 2011 and held the office until 2016. García was investigated of corruption and, allegedly, committed suicide in 2019. All this period is covered in our analysis.

Uruguay: Tabaré Vázquez (2005-2010, 2015-2020)and José Mujica (2010-2015).
Both men belonged to the same party, *Frente Amplio*, traditionally left-wing. Vázquez – a medical doctor– was the first Uruguayan president not to come from the two traditional parties (Colorado and Blanco). Mujica was a member of the *Tupamaros* (a left-wing guerrilla) and was "imprisoned" for his guerrilla activities in the 70s. All this period is covered

in our analysis.

Among the non South American countries, we include Mexico and Nicaragua:

Mexico: Vicente Fox (2000-2006), Felipe Calderón (2006-2012) and Enrique Peña Nieto (2012-2018)   Vicente Fox was the first elected candidate from a party different than the *Partido Revoucionario Institucional* (PRI) since 1910. His policies were consistent with the Washington Consensus' policies. Both Fox and his successor, Felipe Calderón, belonged to the traditional opposition to PRI, the *Partido de Acción Nacional* (PAN). Calderón's presidency was marked by the arguably failed "drug war" that led to many thousands of homicides during his term. In 2012, PRI comes back to the presidency of Mexico by the hand of Enrique Peña Nieto. Fox took office in December 2000 and our period covers since January 2001 until the end of Peña Nieto's term.

Nicaragua: Daniel Ortega (2007-now).   He is part of the "Frente Sandinista de Liberación Nacional" since its foundation and the president of that party since 1991. He first served as president of the country in 1985 for five years. He run for president again in 1996 and 2001, but only won in 2006, when he was elected president again, and re-elected for other two terms. He is currently serving his last term. All this period is covered in our analysis.

3   The empirical approach

Following Campos and Casas (2020), we propose to estimate a bivariate VAR with nominal and real wages and identify two sources of structural innovations in the long-run impact matrix: productivity and populist shocks. In addition, we proposed in that work an alternative specification of the VAR model where demand shocks con be identified as well. Here, we apply this same methodology to identify populist regimes among the New Latin American left.

3.1   The VAR model

For each country, we perform a baseline estimation of a structural VAR with real and nominal wages and an alternative estimation with those two variables plus IPI growth, which is used as a proxy for real output growth. The baseline identification is done in the long-run impact matrix only, which allows to disentangle between two sources of innovations: a productivity shock, that can have long-run effects over both variables, and a populist shock, which is restricted not to have any long-run impact on real wages. In the alternative specification,

described below, a demand shock can be identified as well with a mix of sign and exclusion restrictions applied in the short and long-run, respectively.

Structural VARs have become popular tools in macroeconomics since the Sims (1980)'s critique of the 'incredible restrictions' that the Cowles Commission used in their large macroeconomic models. One advantage of the structural VARs is that they do not need to impose as many restrictions as in a fully structural approach (like in a Dynamic Stochastic General Equilibrium –DSGE– framework). However, structural VARs have been subject to several critics precisely because of this. So, much precaution has to be taken when interpreting the results of these models in many of their usual applications. The way to overcome this has been to design structural VARs where the restrictions imposed come from theories that are widely accepted and, to much of the possible extent, unquestionable.

In this sense, structural VARs identified with long-run restrictions posses the advantage of relying on the consensus that some structural shocks are purely transitory by nature. One commonly accepted model has been developed by Blanchard and Quah (1989) to identify demand and supply shocks, considering that the former con only have transitory effects on output. Another relevant work using this idea is the model proposed by Enders and Lee (1997) to identify real and nominal shocks to the exchange rate by assuming that nominal disturbances can only have transitory effects over the real exchange rate. What these two works, as many others using long-run restrictions, have in common is the theoretical robustness that justify their empirical approach. The identification scheme imposed here can be defended on similar grounds.

Indeed, structural VARs have become a standard tool not only in macroeconomics. The works of Brandt and Freeman (2009) and Battilossi et al. (2013) are two relevant examples of a growing literature that lies at the crossroads of political economy, economic history and structural VAR analysis.

The starting point of the methodology is the moving average (MA) representation of the structural VAR model:

$$B(L)Y_t = e_t \quad with \quad e_t \sim N(0, I_K) \tag{1}$$

where Y_t is the vector of endogenous variables, B represents the matrices of structural coefficients with their respective lag order (L) and e_t are the structural shocks. As this is a fully identified model, K represents both the number of variables and the number of structural shocks.

Baseline identification. The identification is performed in the VAR's structural-form:

$$\underbrace{\begin{bmatrix} \Delta w_t \\ \Delta W_t \end{bmatrix}}_{Y_t} = \underbrace{\begin{bmatrix} \cdot & 0 \\ \cdot & \cdot \end{bmatrix}}_{\Xi_\infty} \underbrace{\begin{bmatrix} e_t^y \\ e_t^p \end{bmatrix}}_{e_t} \tag{2}$$

where the vector of endogenous variables consists on real (Δw_t) and nominal wages (ΔW_t) variations, and is used to identify two structural shocks: the productivity (ε_t^y) and the populist innovations (ε_t^p). Notice that the upper-right coefficient in the long-run impact matrix Ξ_∞ is set to zero to impose that populist shocks cannot have permanent effects over real wages. The appendix below shows the details of the estimation.

Alternative specification. A potential issue with the VAR model described above is that some populist shock might be confounded with positive demand disturbances. To identify demand shocks, in addition to populist and productivity disturbances, Campos and Casas (2020) proposed an alternative setting of the VAR where both signs and long-run restrictions are imposed. In this alternative framework, populist shocks are still the only disturbance with no long-run effects over real wages. Because, as stated by Keating (2013), who confronted Blanchard and Quah (1989), many theoretical models show that demand innovations can potentially have permanent real effects.

For the alternative setup, IPI growth is included as an additional variable in model (1). It is then possible to identify three sources of innovations with the algorithm of Arias et al. (2014), which was designed to combine sign and exclusion restrictions at different time horizons. In particular, the identification proposed is:

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\underbrace{\begin{bmatrix} \Delta y_t \\ \Delta w_t \\ \Delta W_t \end{bmatrix}}_{Y_t} = \underbrace{\begin{bmatrix} \cdot & + & + \\ \cdot & + & - \\ + & \cdot & \cdot \end{bmatrix}}_{B_0^{-1}} \underbrace{\begin{bmatrix} e_t^p \\ e_t^y \\ e_t^d \end{bmatrix}}_{e_t}
\tag{3}
$$

$$
\vdots \quad = \underbrace{\begin{bmatrix} \cdot & \cdot & \cdot \\ 0 & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{bmatrix}}_{\Xi_\infty} \vdots
$$

where Δy_t is IPI growth, e_t^d is a demand shock, B_0^{-1} is the impact matrix and the rest of the elements were described above. A populist shock is identified as a short-run increase in nominal wages with no permanent impact on real wages. On the other hand, a demand (as well as a productivity) shock can potentially have long-run effects on real wages. In the short-run, a productivity innovation raises output and real wages. Whereas a demand shock increases output but decreases real wages, because prices rise. The appendix presents a detailed description of the estimation of this model.

3.2 Data

The VAR model (1) in the baseline estimation (2) uses nominal and real wages yearly variations, calculated with CPI inflation. Variables for all countries are in monthly frequency,

except for quarterly frequency which was the only available for Bolivia. For the alternative setup (3), yearly variations in the monthly IPI were used as proxy for aggregate output. For Bolivia, quarterly real GDP was used. While for Mexico, Nicaragua and Peru global activity indexes were used because IPI were not available for their whole samples. All data is seasonally adjusted.

The data sources for Argentina are the national statistic institute (INDEC) and Cavallo (2012) for CPI from 2007 until 2015 because the official index was known to be underestimated during those years. The sample goes from 2003:M5 to 2015:M12, which includes all Kirchners' administrations. For Bolivia, the data is from its national statistic institute (INE) and it starts at 2006:Q1 until 2019:Q3. It includes all of Evo Morales' governments. Brazilian data is from its national statistics institute (IBGE) from 2004:M3 until 2016:M8. This period includes most of Lula's administrations and Rousseff's one.

For Chile the data was obtained from its national statistic institute (INE) for the period 2006:M3-2018:M3, which includes two governments of Bachelet and, between them, one of Piñera's administrations. For Colombia, wages and IPI are from its national statistics institute (DANE) and the CPI is from its central bank. The sample goes from 2002:M8 until 2018:M3 and includes Uribe's and Santos' governments. For Ecuador, wages are from its central bank while CPI and IPI are from its national statistics institute (INEC). The data goes from 2007:M1 to 2020:M1, including all of Rafael Correa's governments and part of that of his successor, Lenin Moreno.

For Mexico, the wages are from its social security institute, the CPI was obtained from its national statistics institute (INEGI) and a global activity indicator (IGAE) was used instead of the IPI and obtained from its central bank. The sample goes from 2001:M1 to 2018:M4, which includes the governments of Fox, Calderón and Peña Nieto. For Nicaragua, all data comes from its central bank from 2007:M1 to 2018:M12, including all of Daniel Ortega's lasts governments. For Peru, the data comes from its central bank, which reports real GDP in monthly frequency and was used instead of the IPI. The data goes from 2006:M7 to 2016:M7, which includes the governments of Alan García and Ollanta Humala. Finally, the data of Uruguay comes from its national statistics institute (INE) and goes from 2005:M3 to 2020:M1, including the presidencies of Tabaré Vázquez and José Mujica.

Figure 1 below shows the evolution of nominal wages and inflation for the countries studied during the periods analyzed. It is there clear that all countries display quite a stable evolution both in prices and wages inflation, which comes as a consequence of their moderated macroeconomic outcome during the studied years. The only exception to this was the case of Argentina, which had a constant increment in these variables in the 2000's.

As for Brazil, the data goes from March 2004 to August 2016, including Lula and Dilma Rousseff's administrations. As it could be seen in Figure 1, during 2003 there were outliers in nominal wages. So, these observations were excluded in the estimation to prevent parameter's instability.
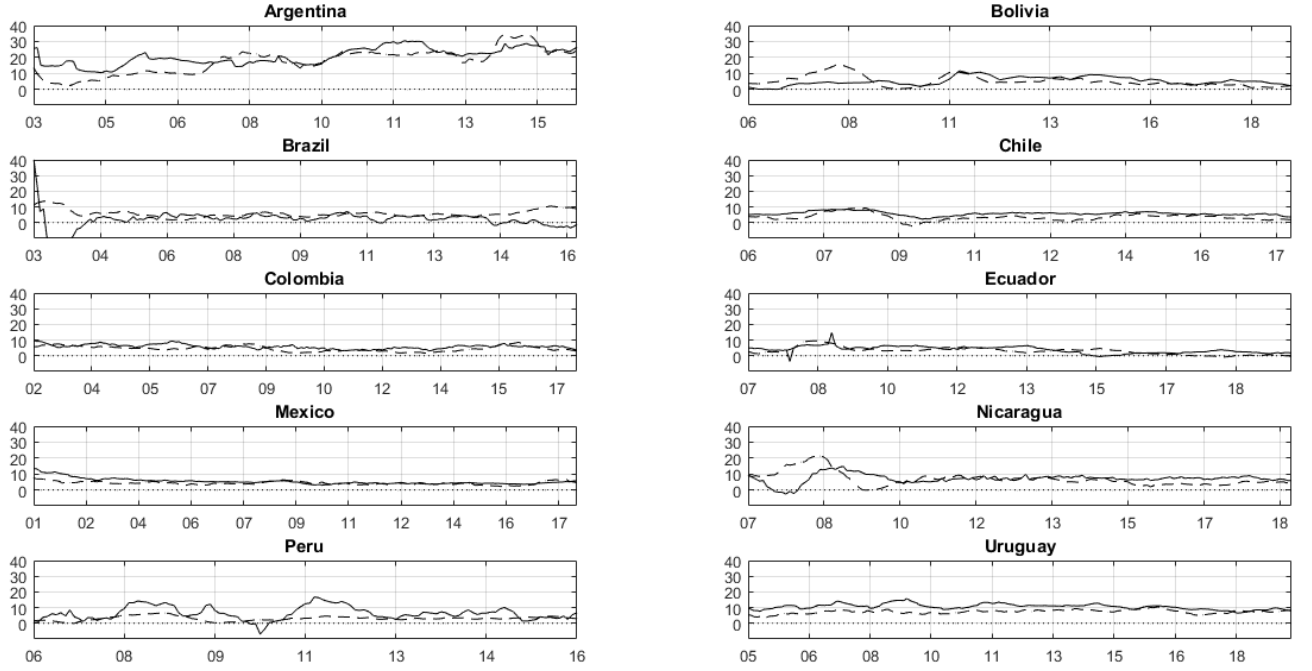
Fig. 1: Nominal wages (—) and inflation (−−)

Note: yearly variations in the logs of nominal wage (ΔW) and CPI prices.

4 The evidence

We now turn to the main results of the work, presented with accumulated responses, forecast error variance decompositions and historical counterfactuals. Accumulated responses are preferred to impulse response functions because the focus here is on the long rather than the short-run effects of the structural shocks. The most important results are derived, though, from the variance decompositions and historical counterfactuals, which do not indicate the presence of widespread populism in the region.

4.1 Baseline estimation

We report first the accumulated responses using the estimates of Model (1) with the identification scheme (2).

The effect of populist shocks over real wages is described in Figure 2, where it can be verified that there is no permanent impact. Although this result is partly driven by the long-run identifying restriction, it is important to highlight that real wages' responses to populist shocks can be different from zero in the short-run. One would expect positive populist shocks that rise nominal wages to produce at least transitory increases in short-run real wages, as in Chile or Colombia. It might also be the case that real wages barely change, which suggests a

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strong short-run price pass-through of labor costs to goods' prices, as in Argentina, Bolivia, Brazil and Ecuador. In fact, Aaronson (2001) has verified that prices might not be so sticky when nominal wages rise. It can be assumed that countries with faster price pass-through of wages can be those with higher inflation. This can mostly certainly apply for the case of Argentina.
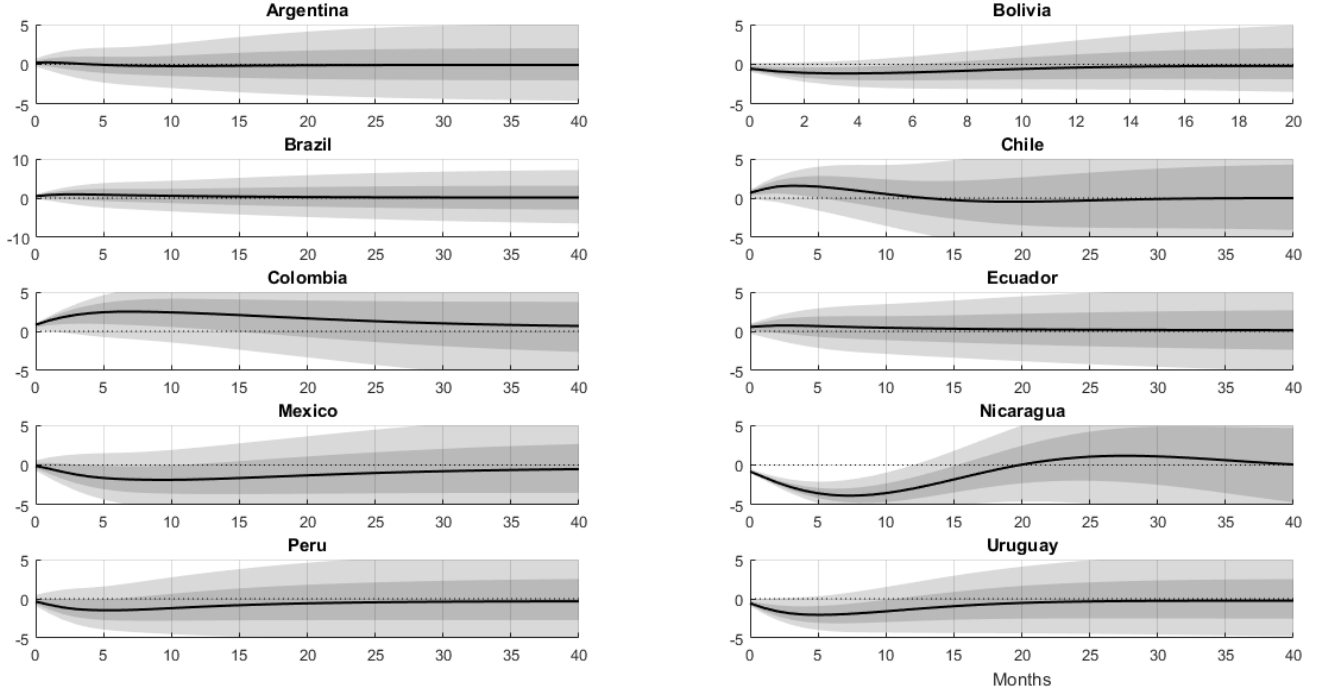

Fig. 2: Accumulated responses of real wages to populist shocks, baseline estimates

Note: The solid line depicts the median, while the shaded areas show the 68% and 95% confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 2,000 bootstrap replications of the estimated VAR model (1) identified with scheme (2).

More generally, the accumulated responses highlight the internal consistency of our model: productivity shocks tend to have a significantly permanent effect over real wages, and populist shocks provoke a permanent increase in nominal wages for all countries. In addition, increases in productivity tend to have a positive impact on nominal wages.[5]

Countries' classification: From the estimation of Model (1) with the identification scheme (2) we obtain the variance decomposition of nominal wages to populist shocks, reported in Figure 3. By looking at this graph it can be deduced what degree of populism did the countries have. Because, according to our identification strategy, populist governments

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[5]Chile is the exception, where the impact is negative. This result can be interpreted in line with the technology shocks described in Galí (1999), that decrease hours worked and, hence, can have a negative impact on nominal wages. All these results are shown in Figure 6 of the appendix.

are those who force income distribution in favor of workers by raising their nominal wages disregarding the productivity of labor.

These results are very useful to categorize countries into three broad groups: the non-populist, the potential populist and the intermediate ones. For instance, in spite of the coarse comparison between populist and productivity shocks, the cases of Peru and Nicaragua are clear cut. The populist shocks explain around 15% and 25% in median, respectively, of their nominal wages' volatility at longer time horizons. So, it seems that the presidencies of Daniel Ortega in Nicaragua and those of Alan García and Ollanta Humala in Peru were not populist, according to these results.
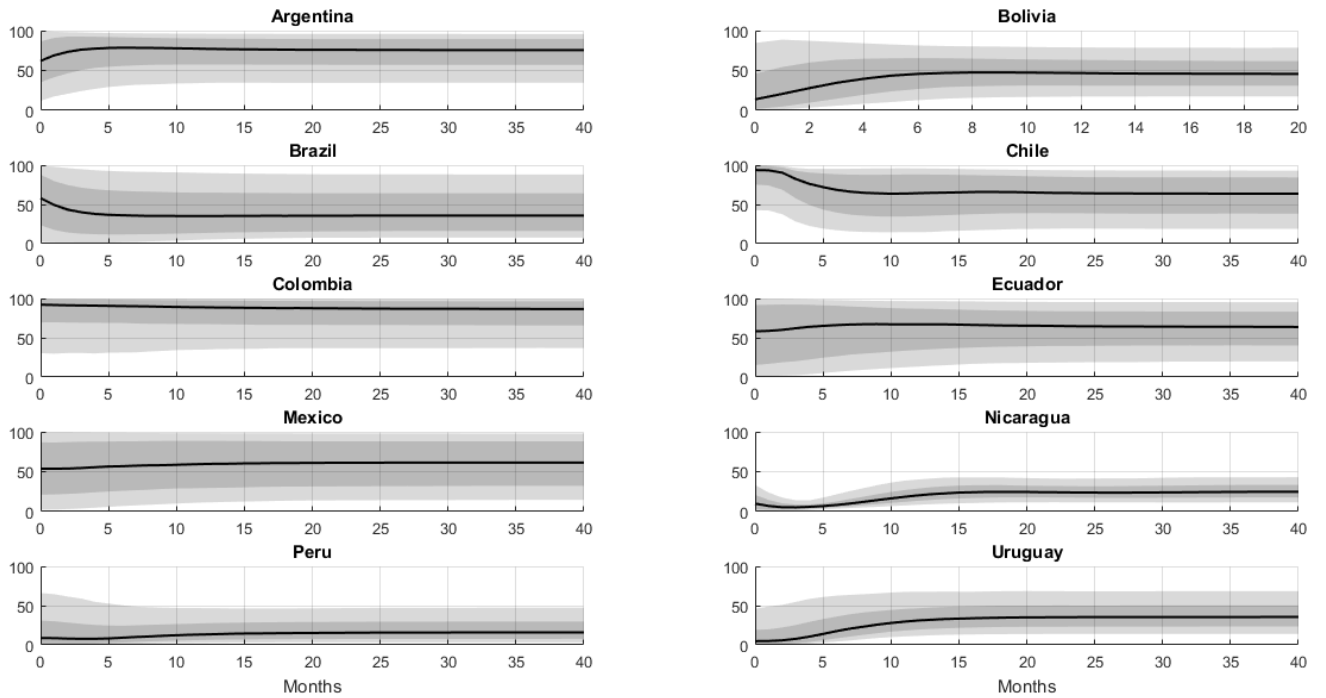

Fig. 3: Variance decomposition of nominal wages to populist shocks, baseline estimates

Note: The solid line depicts the median, while the shaded areas show the 68% and 95% confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 2,000 bootstrap replications of the estimated VAR model (1) identified with scheme (2).

The potential populists are also clear: Argentina, Chile, Colombia, Ecuador and Mexico. The median depicts that more than fifty percent of the long-run changes in nominal wages are explained by populist shocks. The case of Argentina is consistent with previous findings (see Campos and Casas (2020)). Also the administration of the Kirchners in Argentina and Correa in Ecuador have been already characterized as populists by Acemoglu et al. (2013). Additionally, the case of Ecuador is interesting, due to the dollarization of the currency, which implies that there is no possibility of debt monetization and, hence, populism becomes less likely. However, our identifying assumption relies on wage policy. So, it can be assumed that

a populist leader can make pressure for wage rises in the private sector without the need of deficit financing. The Mexican case is less obvious as PAN – the conservative party– ruled two thirds of the period.

The cases of Chile and Colombia are, at least, puzzling. For instance, for almost half of the period we study, Chile was ruled by Michelle Bachelet. Although she belongs to the socialist party, not only she has not been associated with New Latin American left but also her policies were relatively centrist with a moderate ruling style. As for Colombia, it was governed by Uribe from 2002 to 2010 and by Santos from 2010 to 2018. Not only they were either right-wing or center-right but also none of them have been characterized as populist leaders before. Looking back in history, Chile and Colombia never had classical populist leaders according to the literature, except for Salvador Allende in Chile in the 1970, who is sometimes consider as such in Dornbusch and Edwards (1990). Moreover, both countries have a track of sustained growth since the 1980's and have implemented orthodox policies since then.

The intermediate cases are the most interesting ones: Brazil, Bolivia and Uruguay. These countries had around fifty percent of the variation of nominal wages explained by populist shocks, at all time horizons. Prima facie, the case of the South American countries is not surprising, Lula da Silva, Evo Morales and Pepe Mujica are all stereotypical representatives of the Latin American new Left: ex-union leaders and ex-guerrillero, left wing charismatics with good oratorical skills. Uruguay is also interesting as, despite being ruled by the left during the whole period, the populist shock explains "only" around 35% of the variation of nominal wages. at its peak.

These results show that the classification of new Latin American left as populist is partial and incomplete. On the one hand, the countries with the most "populist"-like leaders are not necessary the most populist according to our mechanisms (Brazil, Bolivia, Uruguay, or even Peru and Nicaragua). On the other hand, at first glance, Argentina is the only country that fits the ex-ante classification.

For completeness, in the Appendix we also report the variance decomposition for productivity shocks on real and nominal wages, as well as populist shocks on real wages. [6] Keeping in mind that these baseline model provides stark classifications, we move to a robust estimation to shed light on these interesting cases.

4.2 Alternative estimates

The broad division into two shocks is very useful to classify black or white cases, but it is not as useful for the grayer areas. Hence, we provide an alternative estimation using the

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[6]See Figure 7. The first two columns display, respectively, how much did productivity and populist shocks contributed to real wages' volatility, with a clear predominance of the former rather than the latter disturbances. This evidence is quite comforting as populist shocks are not expected to have a significant impact on the variations of real wages.

identification scheme 3, where we include the IPI index in addition to real and nominal wages variations. This estimation allows to identify the demand shock as a third structural innovation and, hence, it is possible to discriminate between populist and demand disturbances.

In the Appendix, we report the normalized accumulated responses, which are not substantively different to the baseline model[7]. On the other hand, the variance decomposition of the alternative specification does provide new insights. First of all, this alternative model displays a lower level of populism than the one estimated with the baseline model for all countries. Second, there are only three countries where populism clearly dominates the other disturbances as main drivers of nominal wages. In Figure 4 we show the effect of populist shocks on nominal wages, but the full set of results can be fund in the Appendix[8].

Countries' classification: Repeating the exercise of the previous section, we can easily classify countries looking at the variance decomposition of nominal wages when subject to populist shocks of Figure 4.

First of all, Uruguay joins Peru and Nicaragua among the non-populist countries. Peru's case is remarkable, as according to all estimates, populist shocks explain almost zero variation of the nominal wages, with precision. Second, the countries in where the populist shock explains the most are Argentina, Ecuador and Colombia. However, contrary to the previous section, only in Argentina the shock explains more than 50% of the nominal wage's variation in median. In the case of Ecuador and Colombia, the shock explains around half of the variation (which was the criterion to be an intermediate case in Section 4.1). However, it should be taken into account the degree of uncertainty of these estimates.

The remaining cases can be classified as intermediate. Among those, in Chile around 27% of the variance in nominal wages is explained by our populist shock in median at the longer horizon. If we constructed a model with three equiprobable random shocks, this country would be more populist. Hence, even though we think of it as an intermediate case, it should be taken into account as a "mild" intermediate case. On the other hand, Brazil, Bolivia and Mexico are intermediate cases that could be paired with the populist ones. In

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[7]Figure 8 shows the accumulated responses of productivity, populist and demand shocks over real and nominal wages and output. As in the baseline estimates shown in Figure 6, productivity shocks have permanent effects on real wages but populist shocks do not. As for demand shocks, they tend to have, in median, a negative long-run effect on real wages. Regarding nominal wages' responses, productivity shocks have positive effects (the counter-intuitive negative response of Chile seen in Figure 6 is no longer present), populist innovations are also positive and demand shocks do not have a common pattern in all countries, besides that they all have reduced significance. The last three columns of Figure 8 show the effects of the structural shocks over the aggregate activity. The productivity shocks, displayed in the seventh row, tend to have permanent effects in output for most countries. Populist innovations, plotted in the eighth column, have negligible, or even negative impact, for all countries. And demand disturbances, shown in the last column, tend to have positive, though mostly transitory, effects in all countries.

[8]Most of the results in Figure 9 are in line with the expectations. That is, real wages are not significantly affected by populist shocks. Instead, they are mainly affected by either productivity or demand innovations. As for the aggregate demand, there is not a clear pattern shared by all countries. Though productivity and demand disturbances tend to dominate, populist shocks seemed to play a non-negligible role in Bolivia, Peru and Uruguay.

these countries, the variance decomposition shows that the populist shock explains between 30% and 35% of the nominal wages' variance, and they are estimated with relative precision.
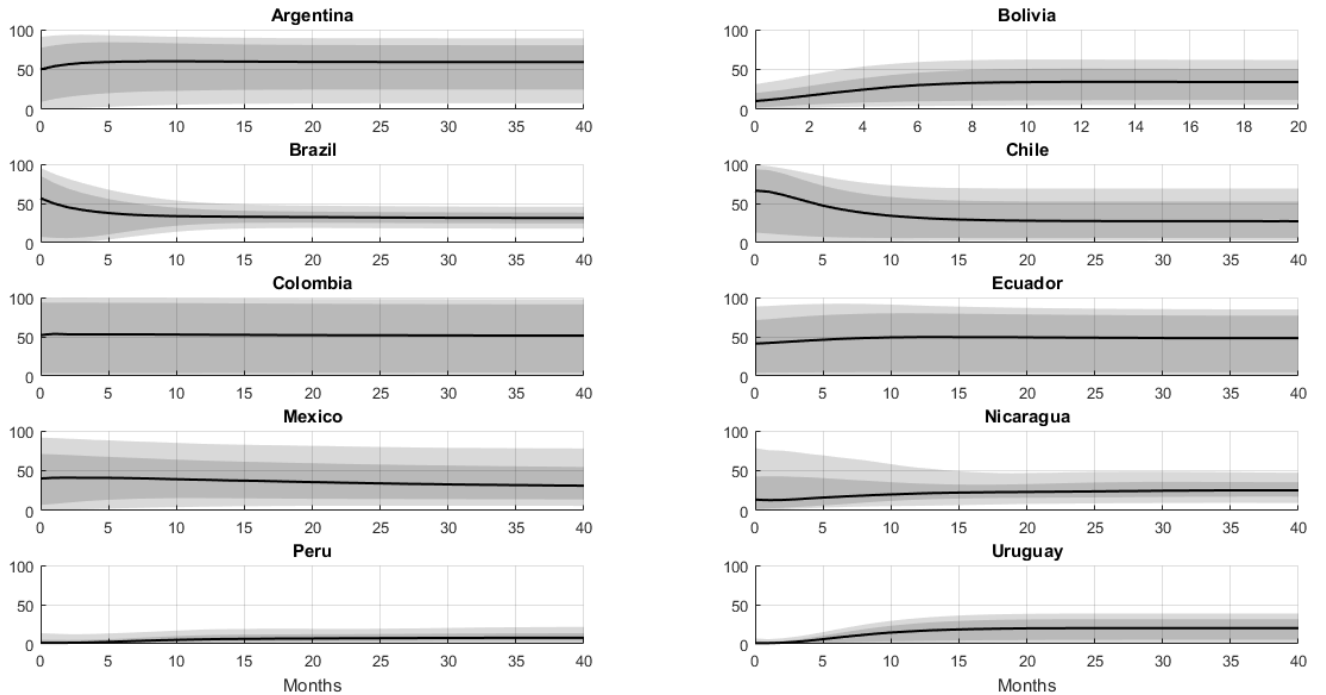

Fig. 4: Variance decomposition of nominal wages to populist shocks, alternative estimates

Note: The solid line depicts the posterior median, while the shaded areas show the 68% and 95% posterior confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 10,000 draws of the estimated VAR model (1) identified with scheme (3).

In sum, we are left with countries who are greatly suspected of populism, via increases of nominal wages that are not paired with productivity (nor demand) shocks: Argentina, Ecuador and Colombia. Also, there are three countries, who could be considered populists: Brazil, Bolivia and Mexico. Except for the case of Colombia and Mexico, the remaining countries could have been suspected of economic populism before this analysis. Remarkably, Peru, Uruguay, and Nicaragua – countries ruled by charismatic and popular leaders from the left– are definitely not populist according to our estimates.

Hence, we look with more detail on the shocks and construct an historical counterfactual, which will allow us to disentangle the intermediate cases and more.

4.3   Counterfactuals

The forecast error variance decomposition of nominal wages described above is crucial to quantify populism. However, an historical counterfactual can complement that tool by focusing on increases on nominal wages only, and by observing how were these rises affected

by populist shocks. In addition, a historical counterfactual allows us to compare different magnitudes of rises in nominal wages. Because it is not the same to have big rises in nominal wages explained by populist shocks, than to have only small rises explained by them.

Figure 5 shows the actual (detrended) nominal wages variations with continuous lines, together with its historical counterfactual for the baseline and alternative estimates with dashed and dotted lines, respectively. These last two lines represent the evolution that nominal wages' would have had if there were no populist shocks. The shaded areas represent the positive differences between the wage and its counterfactuals. The darker area is the difference between the observed wages and the counterfactual (calculated with demand, productivity and populist shocks) while the remaining lighter area is explained only by the counterfactual, calculated with the baseline model. Thus, the dark plus the light gray shaded areas represent the presence of populism under the baseline estimation only, while the dark shaded area indicates the presence of populism for both specifications. In extent, the bigger the shaded areas are, the stronger were the populist shocks during the nominal wages' increases. And the bigger the dark shaded area is, the more confident can we be of the presence of populism, because this estimate is robust to the alternative specification.
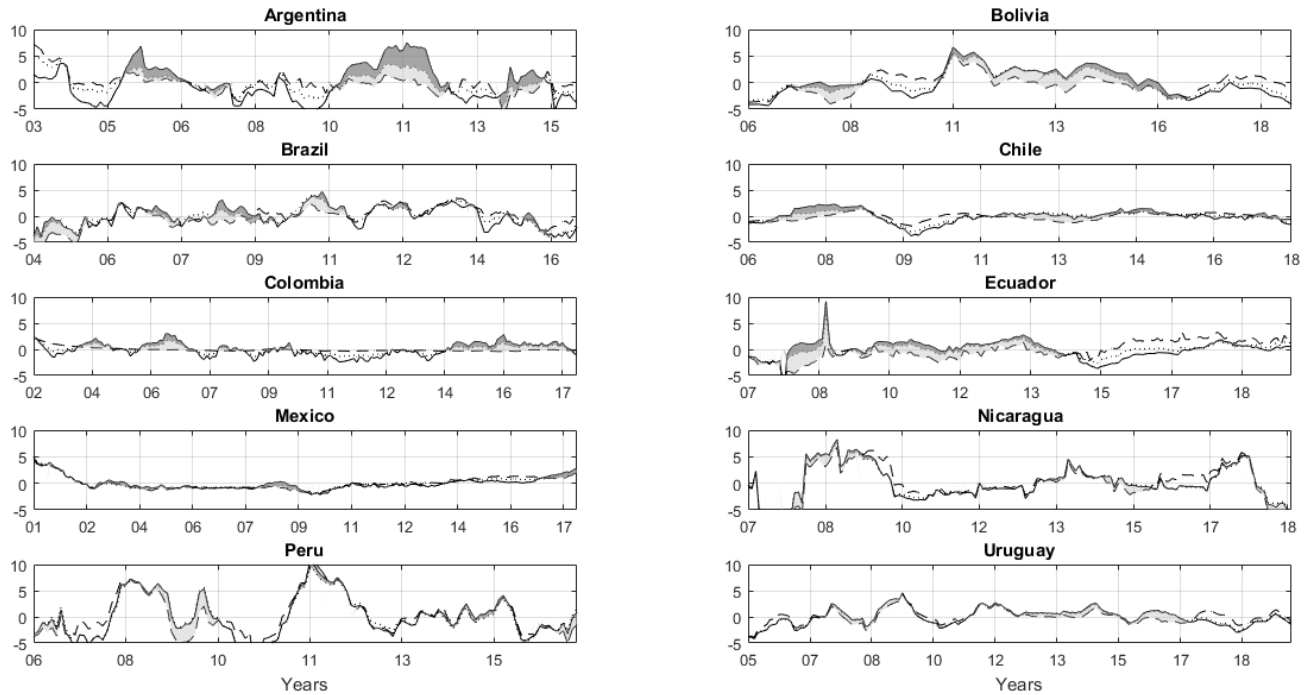

Fig. 5: Counterfactuals of nominal wages without populist shocks, baseline and alternative estimates

Note: Nominal wages variations (——) and its baseline (− −) and alternative (· · ·) counterfactuals without populist shocks. The dark plus the light gray shaded areas indicate the presence of populism under the baseline estimation only, while the dark shaded area indicates the presence of populism for both specifications. Based on 2,000 bootstrap replications and 10,000 posterior draws of model (1) identified with schemes (2) and (3), respectively.

Focusing on the alternative model (i.e. the darker areas), in Figure 5 it can observed that populism has not been a characteristic feature of this period. Beginning with the non-populist countries (Peru, Uruguay and Nicaragua), even when there are large variations of nominal wages, the differences between the counterfactual and the observed wage are negligible, and rarely explained by the robust alternative model. A similar situation is observable in the case of Chile and, especially, Mexico. In these cases, it is not only that the counterfactuals overlap almost entirely, but also the nominal wages are relatively constant during this period. The only small discrepancies that could be explained by populist shocks are during the Great Recession of 2008.

The remaining intermediate cases (Brazil and Bolivia) and the populist ones (Argentina, Colombia and Ecuador) are analyzed individually.

Argentina's case is straightforward. There is a large volatility of nominal wages that show persistent differences with the counterfactuals for sustained periods of time. And these discrepancies are largely explained by the populist innovations (with both models).

In **Colombia**, the increase in nominal wages since 2014, which coincides with Santos' second term, were mainly driven by populist shocks. Nonetheless, these rises were mild when compared with the rest of the countries. So, it can be observed that the presence of populism was barely significant in economic terms.

Brazil 's nominal wages are relatively volatile but the discrepancies with the counterfactuals are explained mostly with the baseline model (i.e., they are not robust to the alternative specification). That is, they are not generally robust to introducing a demand shock, except during the Great Recession. Only during that time, populism may have played a role according to the alternative model.

Bolivia shows relatively large volatility of nominal wages and discrepancies with its counterfactuals. These differences are explained with the robust populist model, to a certain extent, both before the Great Recession and between 2014 and 2016. In comparison to the least populist country (Peru), and taking into account the variance decomposition, Bolivia could be considered to have had populist economic policies that increased nominal wages, regardless of the workers' productivity.

Ecuador 's case is similar to Bolivia's. There is a relateively large volatitily with sustained discrepancies, mostly explained by populism since the Great Recession until 2014. Coincidentally, this period coincides with Correa's terms until the year after his last re-election.

In sum, we confidently say that Argentina had populist policies in the XXIst century, and that, to some extent, Correa's Ecuador and Evo Morales' Bolivia as well. Brazil has seen some variation of the nominal wages explained by populist shocks, especially during the

great recession.

It is important to highlight that our analysis flows from the simplest model to the historical counterfactuals without entering into contradictions, but refining the results. For instance, the baseline variance decomposition implied that Argentina, Ecuador, Colombia, Mexico and Chile had an important presence of populist innovations driving nominal wages. However, the following step discards Mexico and Chile from this group, as the classification is robust only for the first three countries in the variance decomposition obtained with the alternative estimates. Later on, it becomes clear by looking at Figure 5 that these results were probably amplified by calculating the effect of populist shocks both in rises and drops of nominal wages, and not taking into account the magnitude of these changes. For instance, the historical decomposition shows that the countries per se cannot be classified as populist, but Argentina and Ecuador.

5   Conclusions

The New Latin American left has been typically defined as a populist political movement which, in many dimensions, resembled that of the old left of the 1970's and 1980's. In a sense, both movements had charismatic leaders with anti-elite rhetoric and demagogic campaign promises. Nevertheless, is it convenient to qualify populism based in speeches given in the heat of the contest? Can we trust a method based on the leaders' attributes which more often than not are difficult to formalize? Would it not be more acceptable to rely on an approach that can be used to quantify the degree of populism instead of reaching an unobjectionable qualification?

We follow on Campos and Casas (2020) to investigate populism in the XXIst century in Latin America. The advantages of this methodology is that it is not demanding in terms of the data required and that the identifying assumption is quite accurate. This is, that populist shocks cannot have permanent effects on real wages. The main idea underlying this identifying assumption comes from the works of (Canitrot, 1975; Dornbusch and Edwards, 1990) who, among others, stated that truly populist leaders force income distribution favoring workers in the short-run, but causing prices to rise in the long-run.

The main results of the work are obtained calculating the accumulated responses, the variance decompositions and the historical counterfactuals. The last two tools are particularly useful as they can determine, respectively, how were nominal wages variations affected by populist shocks and which would have been the increase in nominal wages were these shocks absent. The evidence indicates that the governments in Nicaragua, Peru and Uruguay were clearly non-populist and that those of Bolivia, Brazil and Ecuador had quite a moderate level of populism. Only in Argentina were populist shocks important drivers of nominal wages' rises. It is then concluded that, with the exception of Argentina, there is no evidence of a predominance of populist shocks elsewhere in the region. Hence, the New Latin American

left should not be characterized as a populist movement. Or at least, important distinctions between these countries should be taken into account.

A   Appendix

We describe here the estimation of the VAR model under both the baseline and alternative specifications. For a detailed description, see Kilian and Lutkepohl (2017).

In order to perform the estimation, the structural MA model (1) is expressed in its VAR form:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + A_0 e_t$$

where $A_i = B_0^{-1} B_i$ for $i = 1, 2, \ldots, p$ and $A_0 = B_0^{-1}$ is the impact matrix. Once stationarity of the variables is checked, the VAR is represented in its reduced-form:

$$Y_t = \mathbf{A} Y_{t-1} + u_t \qquad u_t \sim \mathcal{N}(0, \Sigma_u)$$

where $u_t = A_0 e_t$ and $\mathbf{A}$ is the companion form. For the baseline specification (2), the VAR is estimated by OLS and confidence bands are built by bootstrapping 2,000 times from estimated residuals.

For the alternative specification (3), a Bayesian estimation is performed instead. Because, whenever sign restrictions are used, the VAR is more often estimated with Bayesian rather than frequentists methods. This implies that the confidence bands and the point estimates are derived from a posterior instead of a bootstrapped distribution. In addition, it must be kept in mind that inequality restrictions like the ones imposed in (3) imply that the model is only set identified. Hence, any model satisfying those restrictions is equally valid. So, the confidence bands reflect not only estimation but also identification uncertainty.

The reduced-form VAR is estimated with the independent Gaussian-Inverse Wishart prior and the Gibbs sampler by:

$$g(\theta \mid y) \propto f(y \mid \theta) g(\theta)$$

where the posterior distribution $g(\theta \mid y)$ is estimated from the joint sample $f(y \mid \theta)$ with the $g(\theta)$ prior distribution, and $\theta = (\alpha, \Sigma_u)$ are the parameter estimates (where α represents the reduced-form VAR coefficients). The prior is assumed to be:

$$g(\alpha, \Sigma_u) = g_\alpha(\alpha) g_{\Sigma_u}(\Sigma_u) \quad ; \quad \alpha \sim \mathcal{N}(\alpha^*, V_\alpha) \quad ; \quad \Sigma_u \sim \mathcal{IW}_K(S_*, n)$$

where a a random walk prior is selected for the prior mean (α^*), because data in Figure 1 shows persistence. And for the prior variance $V_\alpha = \eta I_K$, the hyperparameter is set at $\eta = 1$, reflecting the ignorance about its true value. As for the hyperparameters of the covariance matrix, the draws are obtained from the Wishart distribution with prior $S_* = I_K$ and n

degrees of freedom. A burn-in sample of 20,000 draws is run, and then 10,000 draws are kept to obtain the estimates of the reduced-form VAR parameters θ. As for the structural estimation, it is performed based on the algorithm developed by Arias et al. (2014) drawing with replacement from the reduced-form estimates and keeping only those short and long-term impact matrices satisfying the identification scheme described in (3).

After the VAR is identified in its baseline and alternative schemes, as described in (2) and (3), respectively, we obtain the accumulated responses:

$$\Psi_n = \sum_{i=0}^{n} \Theta_i$$

where $\Theta_i = (J\mathbf{A}^i J')B_0^{-1}$, J is an operational matrix and $i = 0, 1, 2, \ldots, H$ is the desired horizon. In order to allow for an easier comparison of the accumulated responses across countries in Figures 2, 6 and 8, the estimated covariance matrices are normalized using their first elements as denominator.

Next, the variance decomposition of variable k to shock j at horizon h is obtained with:

$$VarDec_j^k(h) = MSPE_j^k(h)/MSPE^k(h)$$

where $MSPE_j^k(h)$ is the mean squared prediction error of each shock and $MSPE^k(h)$ is the sum of the contribution of all disturbances to each variable.

Finally, we do the counterfactual of nominal wages without populist shocks with:

$$W_t - \hat{W}_t^p$$

where W_t is the (detrended) actual series of nominal wages variations and $\hat{W}_t^p$ is the cumulative contribution of populist shocks to them up to date t, calculated with:

$$\hat{W}_t^p = \sum_{i=0}^{t-1} \Theta_{Wp,i} e_{p,t-i}$$

where, $\Theta_{Wp,i}$ is the response of nominal wages to the populist shock at horizon i and $e_{p,t}$ is the populist shock at time t.
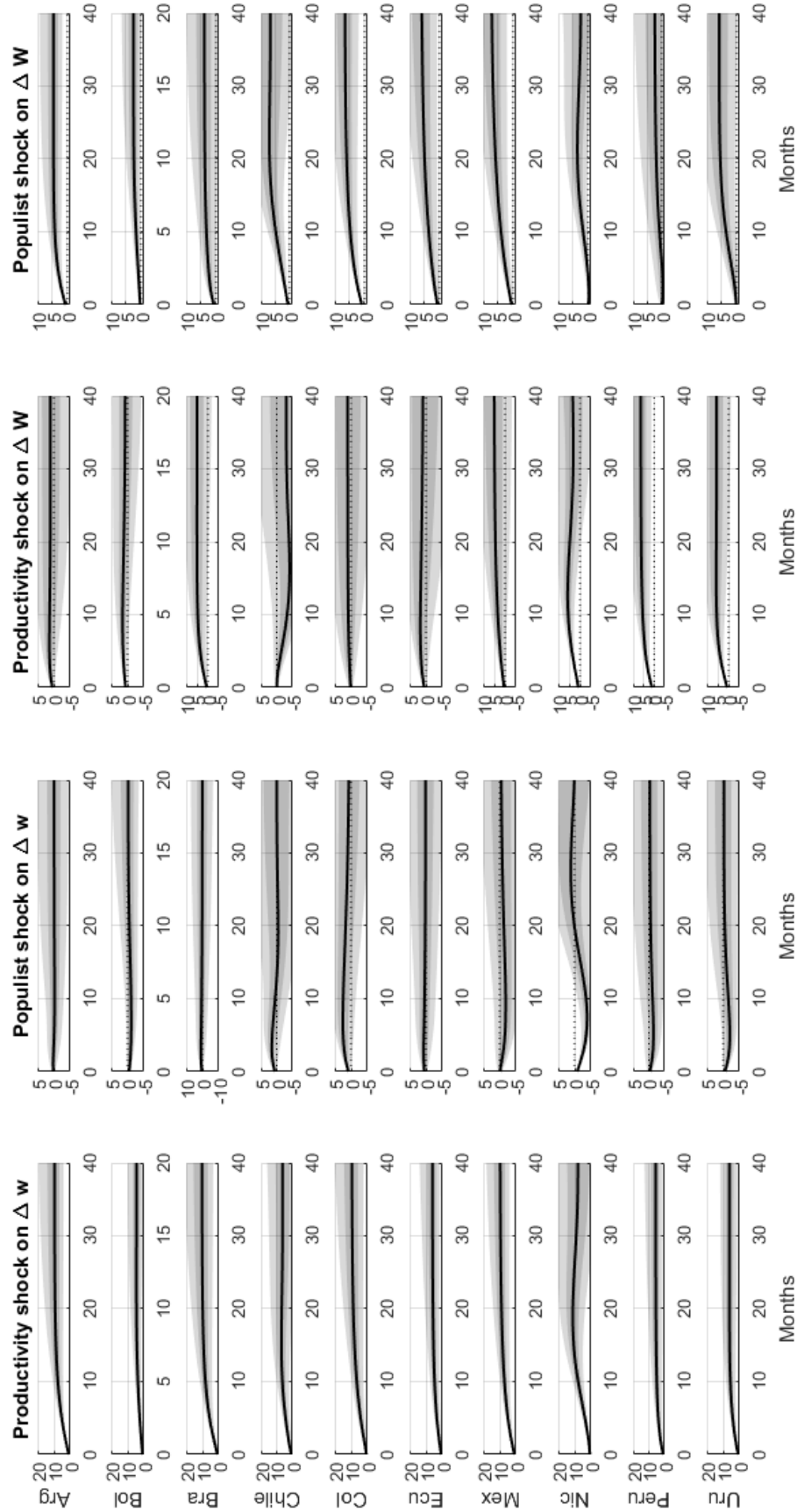
Fig. 6: Accumulated responses, baseline estimates

Note: The solid line depicts the median, while the shaded areas show the 68% and 95% confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 2,000 bootstrap replications of the estimated VAR model (1) identified with (2).
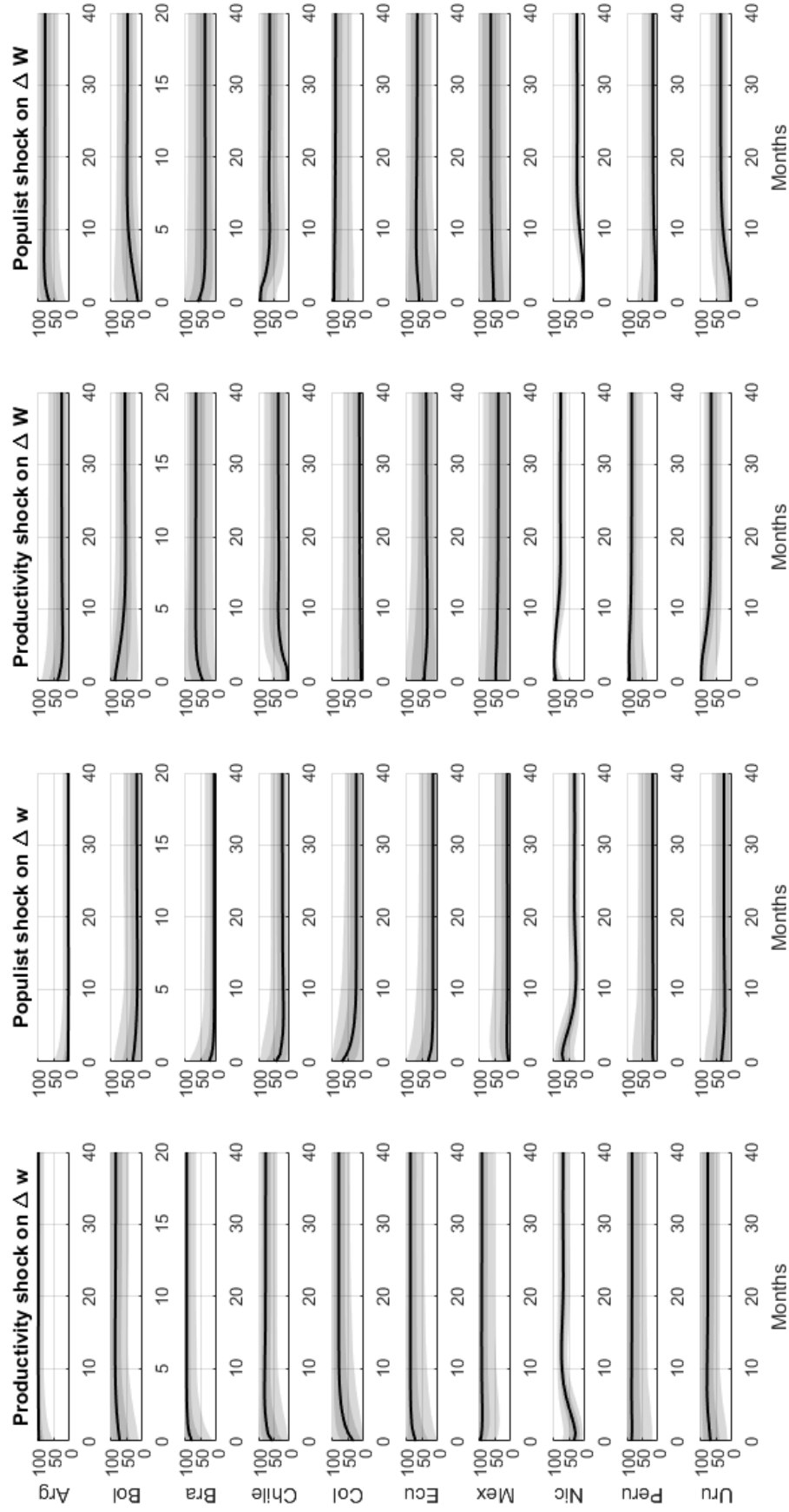
Fig. 7: Variance decomposition, baseline estimates

Note: The solid line depicts the median, while the shaded areas show the 68% and 95% confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 2,000 bootstrap replications of the estimated VAR model (1) identified with (2).
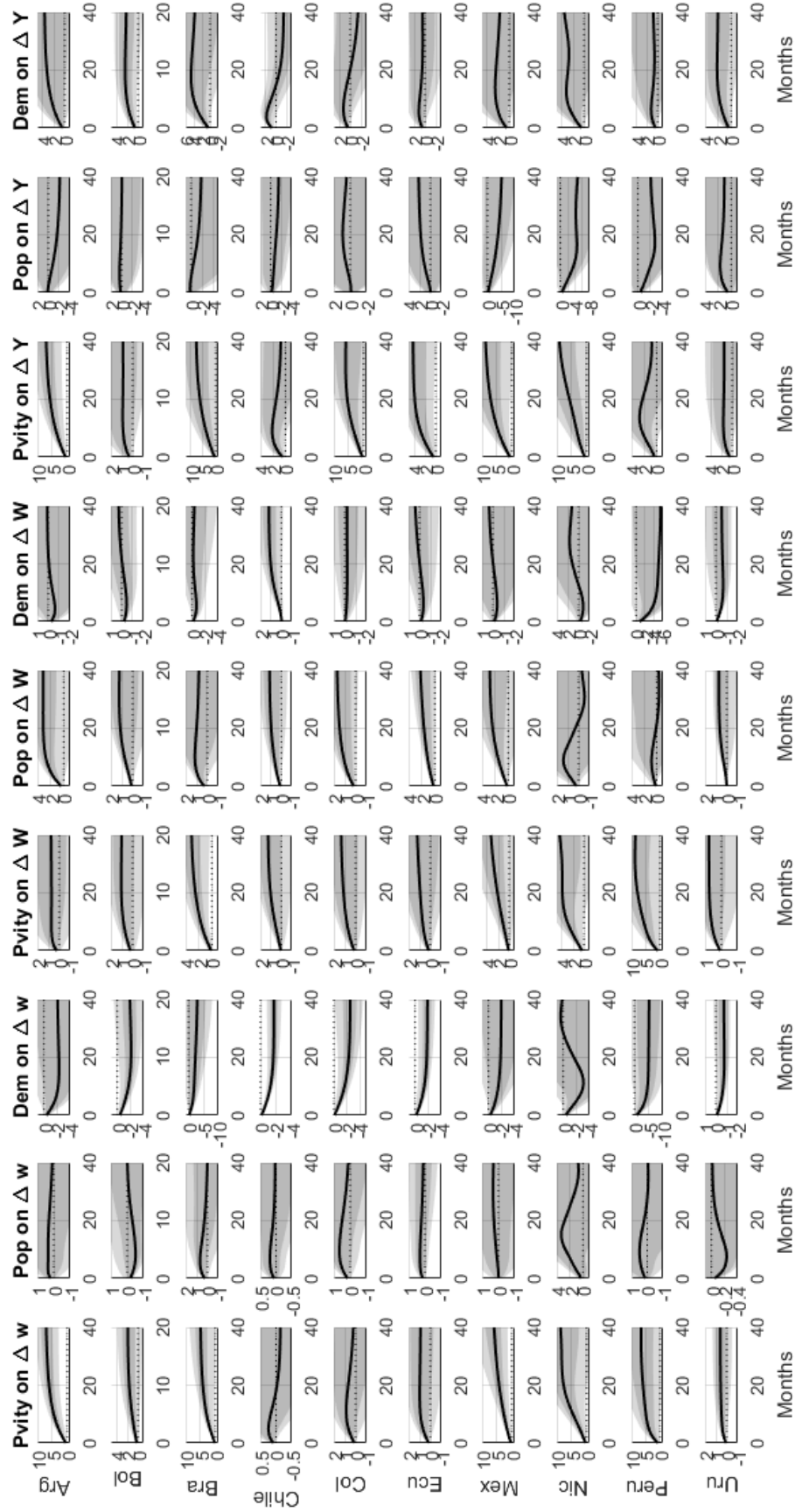
Fig. 8: Accumulated responses, alternative estimates

Note: The solid line depicts the posterior median, while the shaded areas show the 68% and 95% posterior confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 10,000 draws of the estimated VAR model (1) identified with scheme (3).

Fig. 9: Variance decomposition, alternative estimates

Note: The solid line depicts the posterior median, while the shaded areas show the 68% and 95% posterior confidence intervals. The horizontal axis depicts months, except for Bolivia that consists on quarters. Based on 10,000 draws of the estimated VAR model (1) identified with scheme (3).
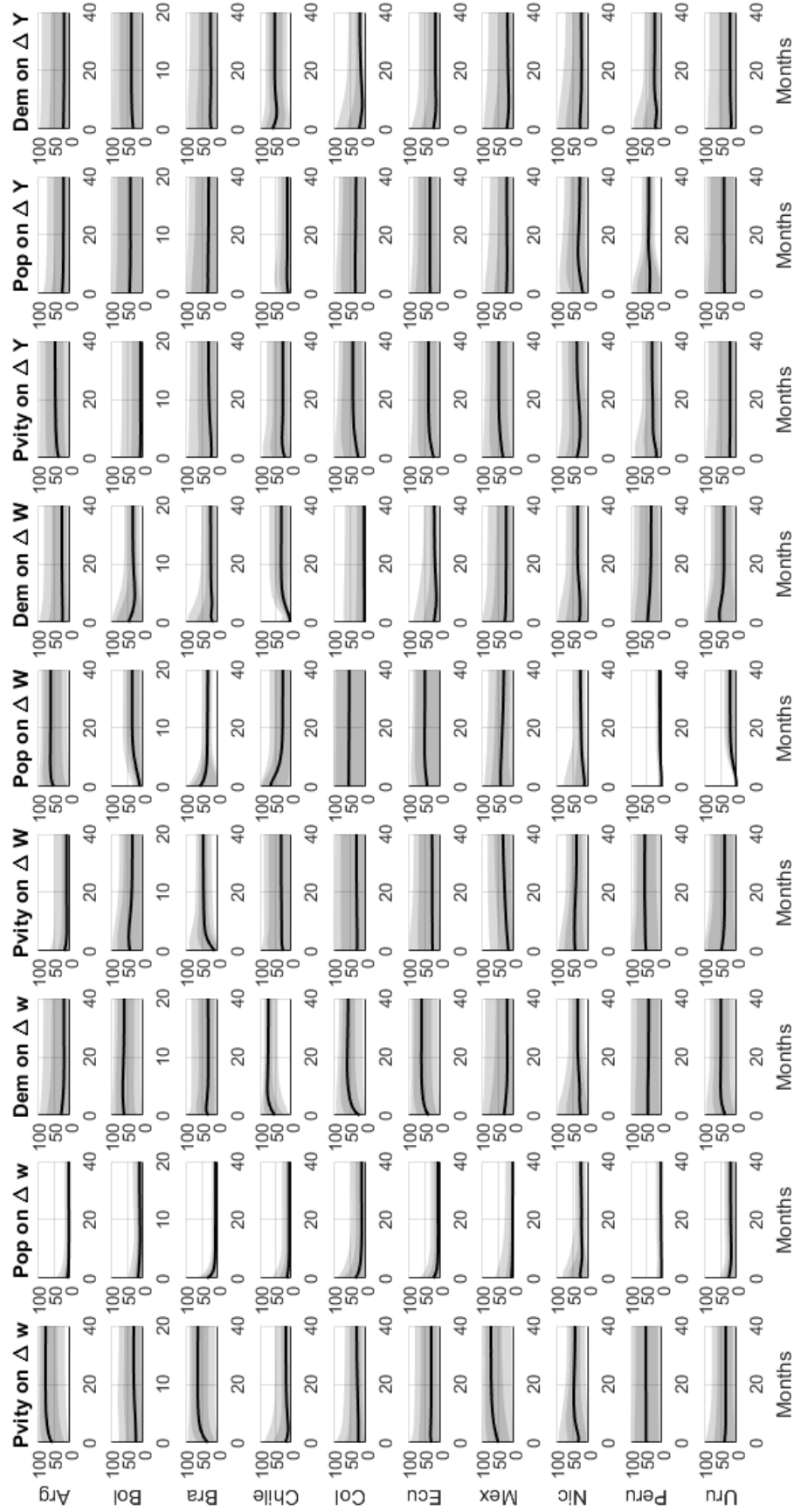
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