PERUVIAN ECONOMIC ASSOCIATION

Cyclicality of Fiscal Transfers for a Latin American Small Open Economy: The Perils of Earmarked Transfers

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June 2019

Abstract

We construct the largest fiscal transfers database for Peru (from 1999 to 2015) to analyze the relationship between government transfers and the economic cycle. Although most transfers of social programs behave independently of the economic cycle, two of the largest transfer programs to sub-national governments, FONCOMUN and Windfall & Royalties transfers, are clearly procyclical. They are earmarked to the national Value-Added tax revenue and to the corporate tax of extractive industries, respectively. These transfer rules could lead to scarcity of resources for sub-national governments during a drop in terms-of-trade induced recession.

JEL Classification: E32, H53, H77

Key words: Economic Cycle, Fiscal Transfers.

1 Introduction

It is a common held believe that Latin American countries have procyclical fiscal policies during economic downturns. However, new studies have found a change in the lack of counter-cyclicality of fiscal policies (e.g., Braun (2001); Lane (2003); Alesina et al. (2008); Ilzetzki and Végh (2008); Égert (2014); Vegh and Vuletin (2014); Combes et al. (2017)). Indeed, Vegh and Vuletin (2014) find that the commonly assumed pro-cyclicality of government expenditures in Latin American countries changed from 1998 onwards. Specifically, the authors show that before 1998, Latin-American countries would contract public spending in periods of crisis, but after 1998 they have been more likely to increase it (as most industrialized nations do, to ameliorate the drop in output).

Likewise, Vegh and Vuletin (2015) point out that taxes might also change in reaction to economic downturns. They find that tax policy is acyclical in industrial countries but still procyclical in developing countries. Furthermore, the better the institutional quality of the economy and the more financially integrated it is, the less procyclical (more countercyclical) it is likely to be. Moreover, they found that tax and spending policies are typically conducted in a symmetric way over the business cycle. Countries with a more procyclical spending policy typically have a more procyclical tax policy, and vice versa.

Following the literature, we construct the longest database of fiscal transfers for Peru (from 1999-2015). We investigate the cyclicality of Peruvian government's fiscal transfers to households and sub-national levels of government (regional and municipal). Peru is a small open Latin American economy that grew an annual average of 5.14% from 1999 to 2015, with one of the lowest inflation rates in the region. Furthermore, the country reduced its poverty rates by almost half in the past decade. This outstanding performance is to a large extent associated with favorable terms of trade, specifically in relation to the international prices of minerals such as gold, silver, and copper.

We found that most of the transfers to households relate to structural socio-economic needs of the population and behave independently of the economic cycle. However, two of the biggest transfer programs to sub-national governments, FONCOMUN and Windfall & Royalties, show a positive relation with GDP. FONCOMUN depends directly on revenue collection from the Value-Added Tax (IGV for its name in Spanish), while Windfall & Royalties relates to corporate taxes from the extraction of non-renewable resources.

Our findings are interesting for the region as a whole, as several Latin American economies had in place, at one time or another, transfers based on pre-determined proportions of the

taxation of extractive industries.[1]

The paper proceeds as follows. The next section describes the sources of our data set and the methodology employed to analyze the cyclicality of the transfer programs. Section three describes the Peruvian economic cycle and fiscal transfers composition. Section four our findings and possible explanations for it. Finally, section five concludes.

2 Data and Methodology

We use data from the budget execution monitoring system of the Finance Ministry, and the Peruvian Central Bank database. We classify fiscal transfers based on the final recipient: households and subnational governments. The first ones provide funds to financially constrained households or communities in need if they meet a set of socio-demographic criteria. The second ones refer to transfers to sub-national levels of government (regional and municipal) to fund specific programs, to ensure their proper functioning, or to meet legal requirements.

Transfers to households consist mainly of seven social programs; the longest ones being the Integral Health Insurance (SIS), the Nutritional Assistance program (Qali Warma), Housing Subsidy, and the Social Development Cooperation Fund (FONCODES).[2] On the other hand, the most important intergovernmental transfer programs are the Municipal Compensation Fund (FONCOMUN), discretionary Regular transfers, and Windfall & Royalties from extractive industries. [3]

We estimate adjusted correlations between each transfer program and GDP. Correlations, are calculated over the cycle component of the seasonally adjusted GDP and each transfer, both in real terms (base year 2007).[4] Specifically, we first calculate the implicit quarterly deflator by dividing nominal GDP over real GDP. We convert each transfer program into real terms using the calculated deflator. We seasonally adjust GDP and each transfer program using the Census X12 method, and extract the cyclical component of all series using the Hodrick-Prescott filter. Finally, we estimate and test the significance of the correlation between the cyclical components of the adjusted GDP and that of each transfer program.

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[1] See Brollo et al. (2013) and Brosio and Jimenez (2012) for a review of the region policies and specific examples on Colombia, Brazil, and Bolivia.

[2] Relatively new are the Day Care program installed in 2012 (Cuna Mas), the Non-Contributory Pension program (Pension65) established in 2010, and a Conditional Cash Transfer program established in 2005 (JUNTOS).

[3] In 1999 the Peruvian government created the national food assistance program (PRONAA, for its name in Spanish); which was re-structured in 2013 and renamed as Qali Warma. For our analysis, we consider both programs as Qali Warma.

[4] Appendix, Table A1 presents correlations calculated only over seasonally adjusted amounts of GDP and transfer programs, both also in real terms.

In addition to the contemporaneous relation between the economic cycle and transfer programs, we estimate correlations with lags and leads of the (cyclical component of) GDP up to one year.

3 Peruvian Cycle and Fiscal Transfers

The Peruvian economy grew at an annual rate of about 5.14% from 1999 to 2015. Its good performance is associated with favorable terms of trade. Specifically, international mineral prices (such as gold, silver and copper).[5] standardized seasonally adjusted gdp

Figure 1a plainly shows the (standardized) terms of trade having a leading indicator role to the standardized (seasonally adjusted) GDP cycle.[6] A raise in the terms of trade would increase the profitability and amount of investments (particularly in mining), that would in turn lead to GDP growth in future quarters. The relationship most clear example is the reduction in terms of trade from 2006Q3 to 2008Q4, which was followed by a decline in the (cyclical component of) GDP. The subsequent rebound of the terms of trade in 2009, also led to a bounce in the GDP. The link between the two series is telling of the nature of Peruvian cycles; as the terms of trade series was not manipulated beyond a common standardization.[7]

Figure 1: Cyclical Component of GDP

(a) Terms of trade and Cycle (b) GDP Cycle
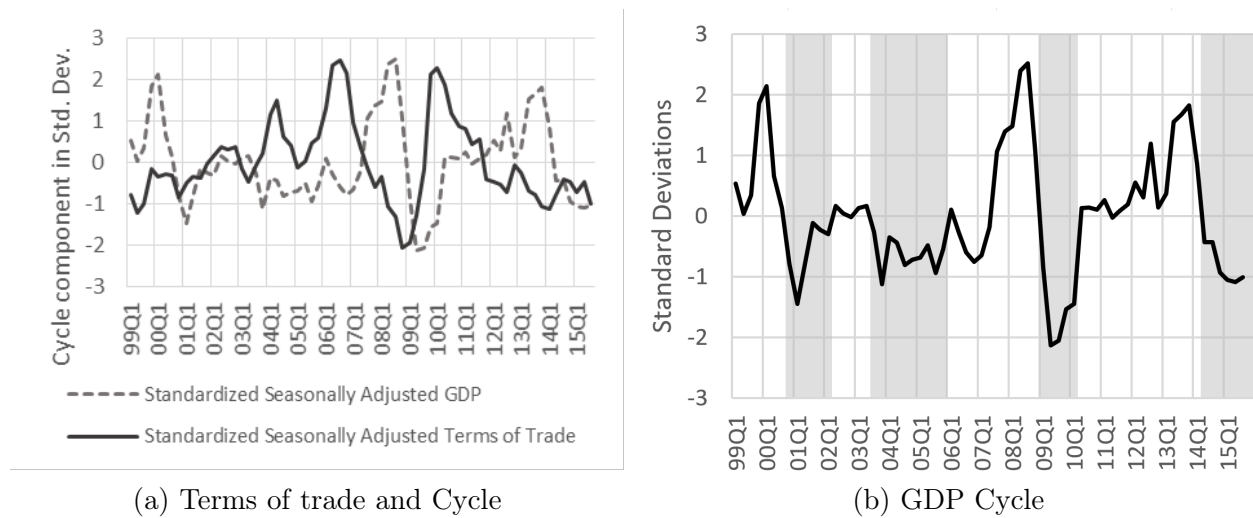
To highlight the cyclical behavior of fiscal transfers we color the four most identifiable periods of economic downturn: from 2000q4 to 2002q1, 2003q3 to 2005q4, 2009q1 to 2010q1, and 2014q2 to 2015q4 (see figure 1b). We believe they are sufficiently severe and continuous to be considered downturns.

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[5] From 2003 to 2014 the prices of gold, silver and copper grew, on average, by 12%, 13% and 13% annually, respectively.

[6] The Peruvian Central Bank calculates terms of trade as the difference between exports nominal price index and imports nominal price index.

[7] Dancourt et al. (1997) analyzed the short and long term behavior of the Peruvian GDP between 1950 and 1996. They claim that five of the six recessions relate to unfavorable terms of trade.

As mentioned above we separate fiscal transfers to households from transfers to sub-national governments. Figure 2 presents the cyclical component of the seasonally adjusted longest-running transfer programs: The Integral Health Insurance (SIS), whose coverage is determined by law and relates to economically vulnerable households; the Nutritional Assistance Program (Qali Warma), whose main goal is to improve the nutritional state of population living in extreme poverty and vulnerable population (such as pregnant women and children); the Housing Subsidy program (BFH), a direct subsidy given by the state, destined exclusively to help household acquire a dwelling; and FONCODES, a program aimed at helping poor rural communities improve their production and economic opportunities. It is based in a demand-driven system in which rural communities agree on the development of a specific productive or social infrastructure project.

Regarding sub-national governments, Peru has two levels: regional governments (GR) and local governments (GL); which can be either provincial municipalities (corresponding to the provinces of each region) and municipal governments (corresponding to the districts of each province). As such, the most important intergovernmental transfers are: FONCOMUN, a budget transfer to all local governments designed to ensure the functioning of municipalities and to compensate those with vulnerable population; Regular transfers, discretionary transfers from the central government ministries with no centralized rules for their allocation; and Windfall and Royalties, fiscal transfers funded by taxes from mining, gas, oil, hydropower, fisheries and forestry activities. The distribution among sub-national governments and possible uses are set by law.[8] Figure 3 presents the cyclical component of their seasonally adjusted series.[9]

4   Results

From figures 2 and 3, and table 1, we can distinguish two different patterns between fiscal transfers and the economic cycle. First, most of the main social programs to households (such as Qali-Warma, SIS, FONCODES, etc) are acyclical. We find little evidence that they co-move with the cycle. We argue that the disbursements of these funds (or expenditure

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[8]The majority of resources must be allocated in capital investments and only up to 20% can be used to current expenditure and maintenance. The mining windfall is distributed according to the following rules: 10% goes to the district municipalities in which the resources are extracted, 25% to district municipalities of the province in which the resources are extracted, 40% to provincial municipalities in the department where the resources are extracted, 20% to the regional government and 5% to national universities.

[9]It is worth noting that over the period analyzed, total fiscal transfers to households and subnational governments changed markedly. Among the most important changes were political decentralization in 2002, changes in the redistribution of windfalls to subnational governments in 2001, the creation of social programs (such as JUNTOS and PENSION65), and the expansion of social services (such as health care). These changes affected the amount being transferred throughout the years.

on services) relate more to the structural needs of the population, such as alleviating rural poverty (FONCODES), addressing health needs (SIS), and ensuring child nutrition and care (Qali Warma).[10]

The only large transfer program to households correlated with the GDP cycle is the housing subsidy program, which presents a significant negative contemporaneous correlations with the GDP cycle.[11] That is, it increases during recessions and decreases in booms. The third quadrant of figure 2 visibly shows its counter-cyclical behavior, particularly from 2009 onward.

Second, we find that two transfer programs to regional and local sub-national governments show a significant positive correlation with GDP. One of them is the FONCOMUN transfers to municipalities, which depends directly on revenue collection from Value-Added Tax (IGV) and represents on average 11% of municipalities budget. Amounts transferred under this program are clearly related to the performance of the economy. An increase in the (cyclical component of) GDP leads to a rise in (the cyclical component of) FONCOMUN transfers four to twelve months later.

Windfall & Royalties transfers, to regional and local governments, are also a significant source of income for sub-national governments. They represent, on average 23% of the budget of municipalities, and show a positive and significant correlation with the economic cycle. Specifically, GDP leads them by a quarter and up to a year. Windfall transfers come from taxes on firms that extract non-renewable resources (including minerals, gas, and oil). To the extend that the economic cycle reflects the performance of the mining sector, the leading behavior of GDP with respect to these funds, becomes expected.

The patterns found are evidence of a severe dependence on GDP performance, specifically in relation to mining production. As such, the Windfall & Royalties and FONCOMUN rules for transfers may lead sub-national governments to a vulnerable position. An economic downturn associated with a reduction in mining production will reduce future transfers from both FONCOMUN and Windfall & Royalties. Hence, a prolonged decreased in extractive-industries output would lead to a scarcity of resources for sub-national governments.

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[10]We also find acyclical behaviour for JUNTOS, Pension65 and Cuna Mas. These programs, however, do not have a sufficiently large series to be adequately analyzed. We present their cyclical behaviour and correlations in Appendix Table A2. Figure 4 presents the cyclical component of their seasonally adjusted series.

[11]We also find negative correlation for one quarter lead and lag. We focus on the counter-cyclical pattern of the transfer.

5 Conclusions

We find that most of the Peruvian social programs transfers behave independently of the economic cycle, and relate to the structural needs of the population. Nevertheless, two large transfer programs to sub-national governments (FONCOMUN and Windfall & Royalties) show a positive and significant relation with it. Specifically, they follow the trend of the cyclical component of the GDP from one to four quarters.

FONCOMUN transfers to municipalities depend directly on revenue collection from Value-Added Tax, while Windfall & Royalties transfers depend on corporate income taxes from the extraction of non-renewable resources. The lagging behavior of Windfall & Royalties transfers (to the GDP cycle) should be of interest to all Latin American economies with a transfer scheme similar to Peru. The guiding rules of these programs may lead sub-national governments to a vulnerable position during a prolonged decrease of extractive industries output.

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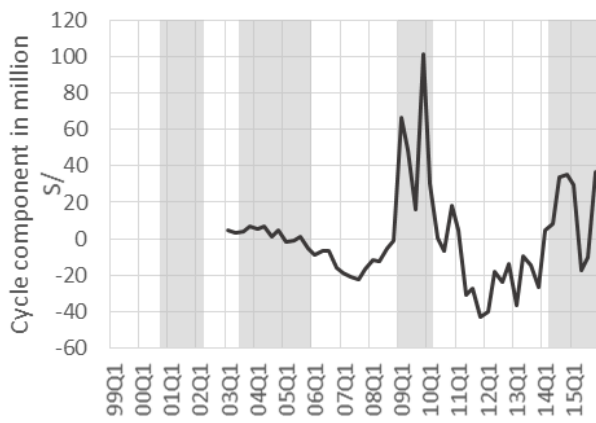
Figure 2: Transfers: Households
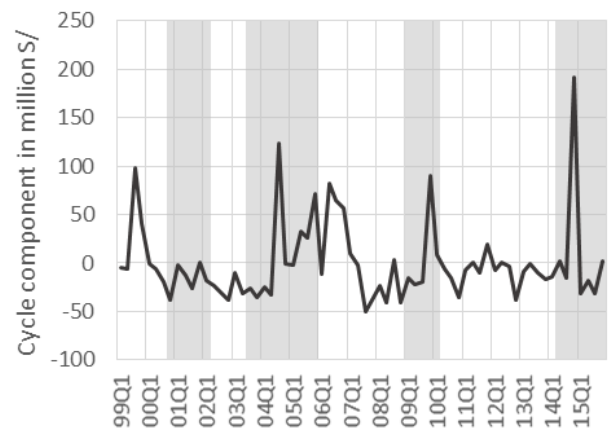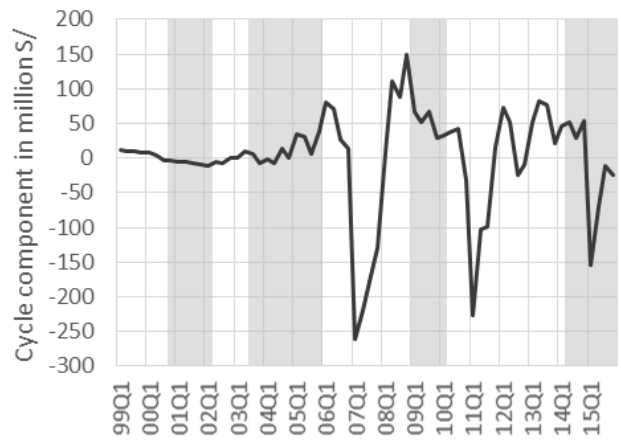## (Cycle component in millions)
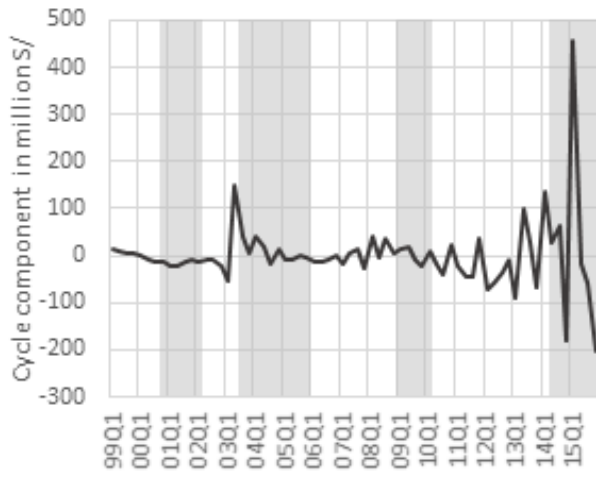
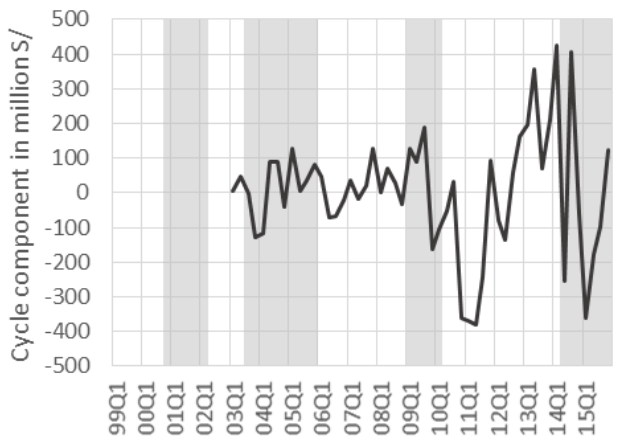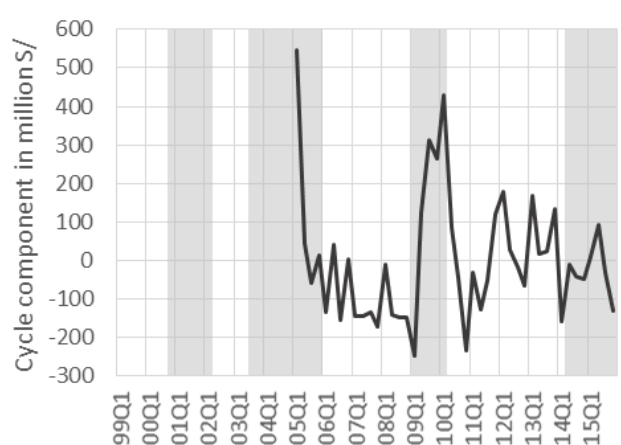SIS
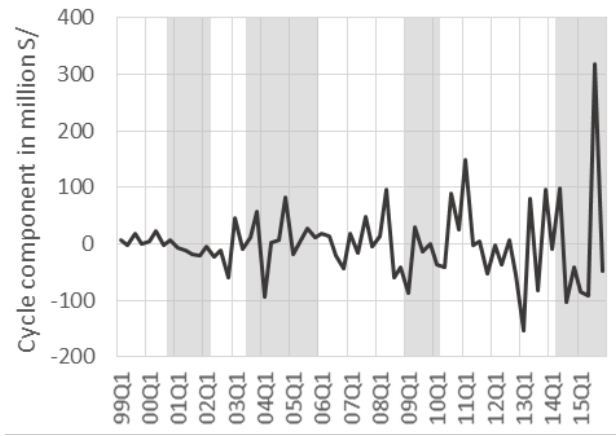
Qali Warma

Housing Subsidy (BFH)

FONCODES

9

Figure 3: Transfers: Sub-National Governments
(Cycle component in millions)
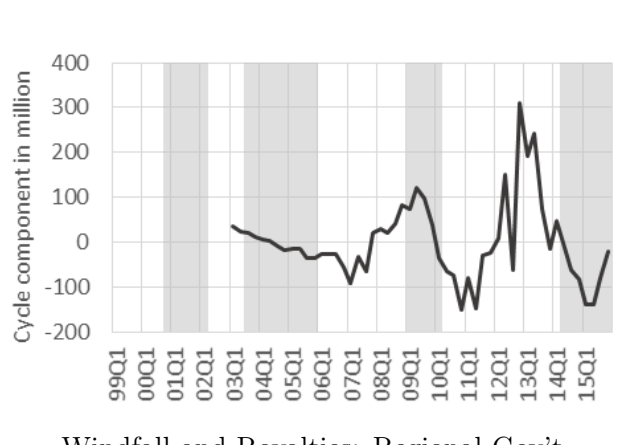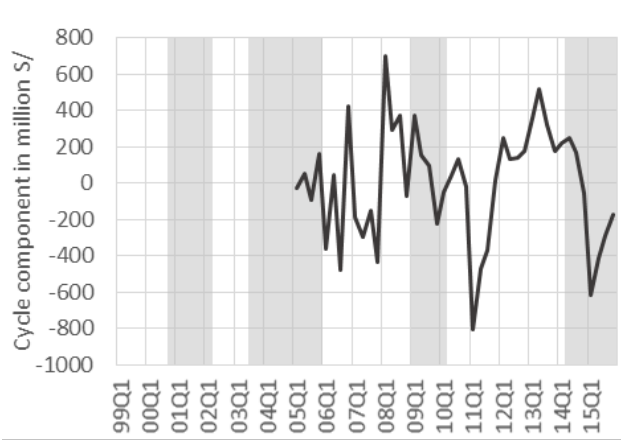

FONCOMUN

Regular Transfers: Regional Gov't

Regular Transfers: Local Gov't

Windfall and Royalties: Regional Gov't

Windfall and Royalties: Local Gov't

10

Table 1: Adjusted Correlation between GDP Cycle and Transfers Cycle

	% GDP 2015	X_t moves after GDP				GDP_t, X_t	X_t moves before GDP			
		GDP_t, X_{t+4q}	GDP_t, X_{t+3q}	GDP_t, X_{t+2q}	GDP_t, X_{t+1q}		GDP_t, X_{t-1q}	GDP_t, X_{t-2q}	GDP_t, X_{t-3q}	GDP_t, X_{t-4q}
Fiscal transfers to households										
GN_15_SIS	0.25%	0.13	0.114	0.109	0.061	0.01	-0.09	-0.13	-0.09	-0.25*
GN_07_QALI WARMA	0.20%	-0.243	-0.1	-0.06	0.009	0.05	0.09	0.11	-0.04	-0.06
GN_04_BFH	0.15%	0.327*	0.135	-0.12	-0.34*	-0.51*	-0.61*	-0.5*	-0.46*	-0.32*
GN_11_FONCODES	0.02%	0.041	-0.15	-0.21	-0.22	-0.2	-0.11	-0.05	-0.007	0
Transfers: Sub-national governments										
GR_01_Regular Transfers	3.32%	0.232	0.344*	0.216	0.201	0.23	0.12	0.08	0.01	-0.18
GL_01_FONCOMUN	0.78%	0.254*	0.268*	0.256*	0.229	0.11	-0.05	-0.31*	-0.49*	-0.57*
GL_03_Windfall & Royalties	0.66%	0.257	0.38*	0.428*	0.384*	0.33	0.29	0.11	-0.14	-0.39*
GL_07_Regular Transfers	0.51%	0.121	-0.18	-0.38*	-0.46*	-0.36*	-0.14	-0.08	0.02	0.05
GR_04_Windfall & Royalties	0.22%	0.372*	0.447*	0.346*	0.328*	0.2	0.21	0.18	0.04	-0.03

Source: Prepared by the authors.

Note: * correlation is statistically significant at the 5 percent level.

Abbreviations: GN (national government), GR (regional governments), GL (local governments) and "q" (quarterly period).

6 Appendix

Figure 4: Transfers: Households
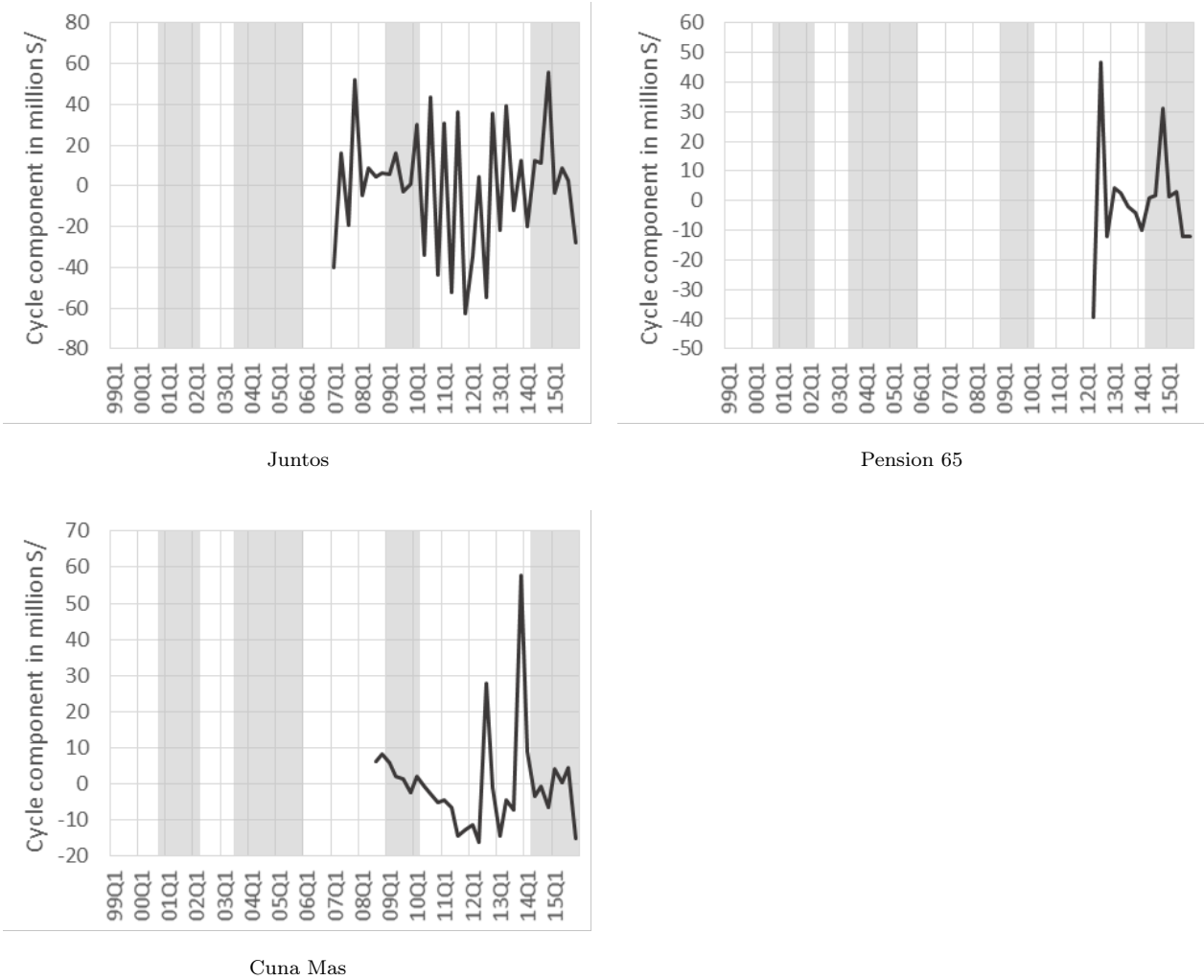(Cycle component in millions)

Juntos

Pension 65

Cuna Mas

Table A1: Simple Correlation between GDP Cycle and Transfers Cycle

	% GDP 2015	X_t moves after GDP				GDP_t, X_t	X_t moves before GDP			
		GDP_t, X_{t+4q}	GDP_t, X_{t+3q}	GDP_t, X_{t+2q}	GDP_t, X_{t+1q}		GDP_t, X_{t-1q}	GDP_t, X_{t-2q}	GDP_t, X_{t-3q}	GDP_t, X_{t-4q}
Fiscal transfers to households										
GN_15_SIS	0.25%	0.601*	0.604*	0.609*	0.61*	0.61*	0.63*	0.62*	0.61*	0.67*
GN_07_QALI WARMA	0.20%	0.453*	0.466*	0.47*	0.479*	0.49*	0.48*	0.46*	0.47*	0.48*
GN_04_BFH	0.15%	0.862*	0.853*	0.842*	0.832*	0.83	0.81*	0.8*	0.79*	0.79*
GN_11_FONCODES	0.02%	-0.25*	-0.29*	-0.33*	-0.34*	-0.35*	-0.36*	-0.34*	-0.34*	-0.33*
GN_02_JUNTOS	0.17%	0.686*	0.687*	0.672*	0.676*	0.67	0.66*	0.64*	0.59*	0.57*
GN_03_PENSION 65	0.12%	0.879*	0.86*	0.845*	0.82*	0.85	0.8*	0.83*	0.86*	0.84*
GN_17_CUNA MAS	0.05%	0.82*	0.806*	0.794*	0.78*	0.78	0.76*	0.74*	0.72*	0.69*
Fiscal transfers to sub-national governments										
GR_01_Recursos ordinarios	3.32%	0.959*	0.959*	0.955*	0.952*	0.95	0.95*	0.94*	0.93*	0.93*
GL_01_FONCOMUN	0.78%	0.931*	0.933*	0.934*	0.934*	0.93*	0.93*	0.92*	0.91*	0.91*
GL_03_Windfall & Royalties	0.66%	0.613*	0.625*	0.633*	0.635*	0.64	0.66*	0.69*	0.73*	0.79*
GL_07_Recursos ordinarios	0.51%	0.73*	0.714*	0.703*	0.699*	0.7	0.72*	0.72*	0.71*	0.7*
GR_04_Windfall & Royalties	0.22%	0.675*	0.685*	0.689*	0.695*	0.7	0.72*	0.76*	0.8*	0.84*

Source: Prepared by the authors.

Note: * correlation is statistically significant at the 5 percent level.

Abbreviations: GN (national government), GR (regional governments), GL (local governments) and "q" (quarterly period).

Table A2: Adjusted Correlation between GDP Cycle and Transfers Cycle

	% GDP 2015	X_t moves after GDP				GDP_t, X_t	X_t moves before GDP			
		GDP_t, X_{t+4q}	GDP_t, X_{t+3q}	GDP_t, X_{t+2q}	GDP_t, X_{t+1q}		GDP_t, X_{t-1q}	GDP_t, X_{t-2q}	GDP_t, X_{t-3q}	GDP_t, X_{t-4q}
Fiscal transfers to households										
GN_02_JUNTOS	0.17%	0.102	0.147	-0.02	-0.074	-0.06*	-0.04	-0.03	-0.17	-0.09
GN_03_PENSION 65	0.12%	0.345	0.16	0.031	-0.15	0.03	-0.27	-0.12	0.09	0
GN_17_CUNA MAS	0.05%	0.079	0.144	0.291	0.274	0.26	-0.1	-0.3	-0.21	-0.29

Source: Prepared by the authors.
Note: * correlation is statistically significant at the 5 percent level.
Abbreviations: GN (national government), GR (regional governments), GL (local governments) and "q" (quarterly period).