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Towards Measuring Economic Policy Uncertainty in Latin America: A First Little Step[1]

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Abstract

I provide a quick look at economic policy uncertainty indices in Latin America, constructed using text-search methods. The indices show spikes whenever important economic policy-related issues arise. Descriptive evidence also showcases how global economic policy uncertainty influences Latin American countries, but to different extents. These indices can be useful to assess how economic policy uncertainty may impact the economy. This is important since Latin American countries are experiencing turbulent political and economic times and will, probably, continue to do so in coming years. I encourage researchers, especially Latin American researchers, to measure economic policy uncertainty in their countries.

Introduction

Economic policy uncertainty (EPU, hereafter) is a major issue for the world economy. Some prominent examples of rises in EPU are the 2008 financial crisis, the Brexit referendum, and the 2016 US presidential election. Yet, reliable measures of EPU are only available to a handful of countries, which in Latin America (LATAM) includes Brazil, Mexico, and Chile. This is important since economic uncertainty, which EPU is a part of, has been shown to have non-negligible effects on economic activity.[3]

In this document, I explain why text-search methods provide a well-designed strategy to measure EPU in LATAM countries. To do so, I mostly rely on methods pioneered by Baker, Bloom, and Davis (2016).[4] I argue that the indices behave quite well when compared with countries' economic history, and provide a reliable measure to conduct empirical exercises.

Recent events have shown the importance of understanding EPU in LATAM. For example, on 11 March 2014, Michelle Bachelet assumed the presidency of Chile. With her, a large program of breakthrough reforms in major fields (such as labor regulations, education, and taxes) arrived. Several academics and policymakers were concerned about the impact that the program would have on the economy. In 2015, the International Monetary Fund (IMF) provided estimates that around one-third of Chile's economic growth decline in the past years was due to external reasons, leaving two-thirds to internal causes.[5]

That internal causes explain two-thirds of the economic activity drop opened the door to study what were the reasons behind them, and to look for a way of quantifying them. In Cerda, Silva, and Valente (2016), we constructed the Chilean EPU index to fill that gap.[6] If the text-search method was right, an EPU index must have increased during this period. As it is shown below, this was exactly what happened.

The structure of this document is as follows. In Section 2, I describe how to construct the EPU indices. In Section 3, I show the EPU indices for Brazil, Chile, and Mexico. I also compare them to the

global economic policy uncertainty index constructed by Davis (2016). Section 4 illustrates the potential of the EPU indices. Finally, Section 5 concludes.

Indices Construction Using Text-search Methods[7]

Indices constructed using text-search methods rely on frequency counts of articles that meet certain criteria. In this section, I show how to use these methods, first implemented by Baker, Bloom, and Davis (2016), to construct the Chilean EPU index.[8]

First, I access a unique database that contains all the digital archives of articles published by *El Mercurio* and La Segunda, two of the most important newspapers in the country, from 1993 to December 2017. Second, I make a monthly raw count of articles that contain at least one word in each of the following categories: Economic (E), Policy (P), Uncertainty (U), and Chile (C). Table 1 provides a detailed account of the terms used in the text search.

To avoid the fact that in each month the number of articles may increase only because a newspaper is writing more articles, I scale the raw count by the total number of articles published by each newspaper in each month. Then, I compute the standard deviation of these scaled counts between January 1993 and October 2016 and divide them by their respective standard deviation to obtain a normalized measure for each newspaper. I then take a simple average in each month of these normalized measures to obtain a unique monthly series. Finally, I normalize the series to have a mean of 100. The resulting series corresponds to the Economic Policy Uncertainty Index.

The Behavior of EPU Indices

Figure 1 shows the EPU indices for Brazil, Chile, and Mexico,[10] where I labeled some of the major world economic episodes during the last 20 years.

Note that the EPU indices tend to follow a similar pattern. All countries show increases whenever an international event occurs, as they did, for example, during the Asian crisis or the sub-prime crisis. This indicates that there may exist an aggregate uncertainty component common to these countries.

Table 1. Keywords in Spanish

Category	Words
Economic (E)	Any word beginning with *"econ"*, such as words like *economista*, *economía*, and *económico*
Policy (P)	*Política** or *impuesto** or *regulación* or *regulaciones* or *recaudación* or *reforma* or *congreso* or *senad** or *diputad** or *gasto fiscal* or *gasto pública* or *déficit fiscal* or *deuda pública* or *presupuesto fiscal* or *Banco Central* or *Ministerio de Hacienda*
Uncertainty(U)	*Incertidumbre* or *incierto*
Chile (C)	Any word beginning with *"Chile"*

Note: A * is included to account for any word that begins with the word left of the symbol. For instance, *"impuesto*"* includes both the word *impuesto* and *impuestos*.

Overall, however, different countries have different movements due to their own internal events. The Mexican case is interesting as it has shown large levels of EPU from 1996 until 2004. Some of the internal episodes that contributed to EPU during this period were the massive election loss of the Institutional Revolutionary Party (PRI) in 1997 (the first in almost 70 years), the tight monetary policy of Banxico in 1998, and concerns about Petróleos Mexicanos (Pemex, a Mexican oil company) in 2003. Since then, the Mexican EPU index has remained stable around its mean, showing its last peak during the 2016 US presidential election.[11] This highlights the importance of correctly understanding what the EPU index tells, and does not tell. Higher levels of EPU do not necessarily mean a bad thing. Mexico was obviously exposed to several sources of external uncertainty in recent years, most notably since Trump's administration took office. However, what its EPU index reflects is that this uncertainty is not as relevant when compared to its historical average.

Since 2014, economic policy uncertainty in Brazil has increased at a rapid rate due to political corruption scandals. In 2014, a corruption scandal involving Brazil's most important oil company, Petroleo Brasileiro (Petrobras), emerged. The Workers' Party (PT) and its coalition partners, who by that time ruled the country, received billions of dollars from Petrobras since they appointed the company's most important executives.[12]

Since then the scandal climbed to extremely large levels of EPU, with events such as the impeachment of President Rousseff in 2016 as one of the milestones. Nevertheless, Brazilian authorities were able to create an environment of confidence for the economy and democracy in the past year, as illustrated in the decline of Brazil's EPU index, but much remains to be done to ensure its stability. Note that this marks a stark difference with the EPU behavior of Mexico and Chile. Brazilian EPU stems primarily from internal causes throughout the years.

Chilean EPU, in contrast, is heavily influenced by external events. To see this, note that almost all the peaks in its EPU index correspond to major global events: the Asian crisis in 1998, the dot-com bubble in 2001, the great recession of 2008, and the China's slowdown of 2016. This illustrates the small open economy nature of Chile. However, there are at least two episodes where the Chilean EPU index did not have an external source, both of which occurred during 2014. Interestingly, these coincide with the time when President Bachelet's government introduced two major reforms: the tax reform in August and the labor reform in December.

Conclusions regarding internal versus external events are even more properly illustrated in Figure 2, which shows the EPU index for these countries together with the global economic policy uncertainty (GEPU) index. Davis (2016) constructed the index as a weighted average of EPU indices from countries that account for two-thirds of world GDP.[13] In that figure, we observe that (i) Chilean EPU closely follows GEPU (except in the last years); (ii) Brazilian EPU does not follow GEPU, except for episodes of large uncertainty (such as global crises); and (iii) the Mexican EPU constantly declined throughout the years, following in some periods the GEPU pattern.

Overall, the EPU indices tend to track rather well both internal and external EPU events. While it is true that the text-search method may be prone to errors, for instance that of false positives, until now it is doing a decent job in terms of capturing prominent EPU events.

Fig 1. Economic Policy Uncertainty Indices for Latin American Countries

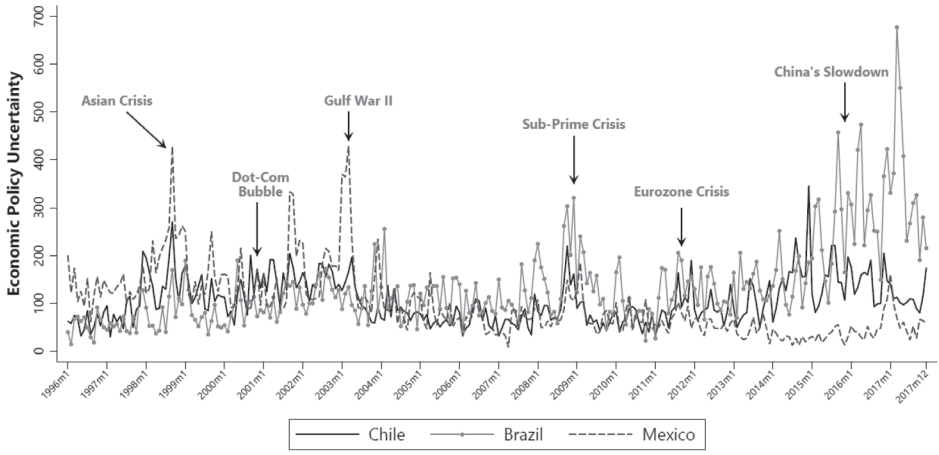
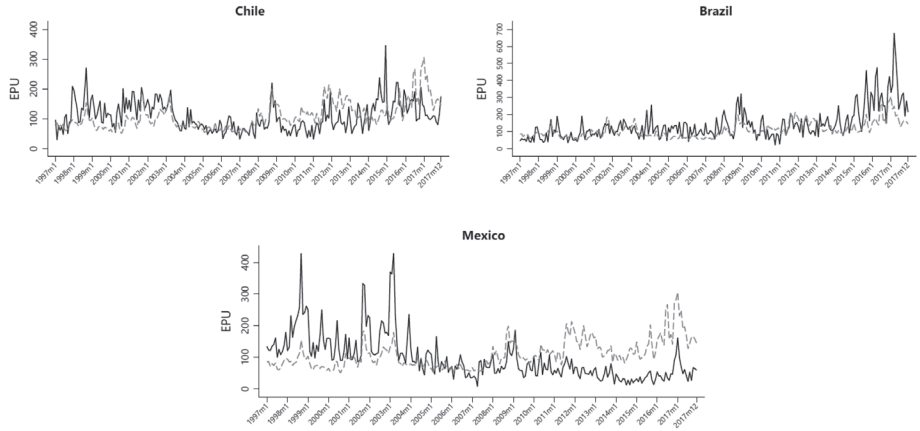


Fig 2. Economic Policy Uncertainty Indices for Latin American countries and Global Economic Policy Uncertainty Index.



Note: The gray dashed line corresponds to the Global Economic Policy Uncertainty index of (Davis 2016). The black solid line correspond to the EPU index of the respective country.

The Relevance of EPU Indices for Policymakers

The last section demonstrated how indices constructed using text-search methods are useful in quantifying what had previously only been qualitative beliefs. This is important since it provides policy makers with a way to assess how people's attitudes toward the economic environment are. In addition, these quantitative measures may allow policymakers to quantify the impact of EPU on people and the economy in general.

The latter is better illustrated with an example. As I argued in the introduction, economic uncertainty may be one of the causes behind the Chilean economic slowdown in the past four years. In Cerda, Silva, and Valente (2017), we estimate that Chilean economic uncertainty is, on

average, 70 percent internal, i.e. due to factors other than consumers' confidence or external uncertainty (as measured by the VIX index).[14] We also estimate that a one standard deviation economic uncertainty shock entails a drop in GDP of around 2.5 to 5 percentage points. If we take the lower-bound impact (2.5 percent), we conclude that an internal uncertainty shock implies a GDP drop of 1.75 percent. This is about 70 percent of the observed GDP growth drop between 2013 and 2016, which fell from 4 percent in 2013 to 1.6 percent in 2016. Surely, this exercise can be refined and improved. However, it is interesting to note that this is almost the same order of magnitude that the IMF attributes to internal causes for the Chilean economic slowdown.

The last exercise illustrates one of the potentials of these indices, as it is not the only kind of exercise that we can do. For instance, it is possible to test if EPU impacts the economy in different ways during booms and busts.[15] In addition, we can also explore the role that EPU has at the micro-level, such as that of firms or consumers.[16] This has been done during recent years, but much remains to be done. That is our challenge.

Conclusion

I have shown how to construct EPU indices using text-search methods, as in Baker et al. (2016).[17] Using available indices for LATAM countries, I show that they represent rather well the economic uncertainty expected behavior, i.e. they show spikes whenever important economic policy-related issues arise. Descriptive evidence also shows that global economic policy uncertainty influences LATAM countries but to different extents. Small open economies, like Chile, show spikes mainly during international events; while big economies, like Brazil, show spikes due to internal reasons.

The years to come are going to be plagued by erratic behavior in EPU with its corresponding effect on important macroeconomic variables, as extensive economic literature suggests. Therefore, measures of EPU will be a valuable asset in the next years to assess how EPU may affect the economy. Researchers around the world should try their best to collect data from newspapers and to apply text-search methods that until now have shown to be useful.[18] With my colleagues in Chile, we made a little step towards this goal. I strongly encourage others – especially Latin American researchers – to do so.

NOTES

[1] I would like to thank José Tomás Valente, Sergio Urzúa, and Scott Baker for useful comments and suggestions.

[2] Latin American Center for Economic and Social Policies (CLAPES UC), Pontificia Universidad Católica de Chile. Email: alsilvau@uc.cl.

[3] Nicholas Bloom, "Fluctuations in Uncertainty," *Journal of Economic Perspectives* 28, no. 2 (2014): 153-176; Scott R. Baker et al., "Measuring Economic Policy Uncertainty," *The Quarterly Journal of Economics* 131, no. 4 (2016): 1593-1636.

[4] Baker et al., "Measuring Economic Policy Uncertainty."

[5] International Monetary Fund, "World Economic Outlook: Adjusting to Lower Commodity Prices," 2015, http://www.imf.org/external/pubs/ft/weo/2015/02/.

[6] Rodrigo Cerda et al., "Economic Policy Uncertainty Indices for Chile," 2016, http://www.policyuncertainty.com/media/EPU_Chile.pdf.

[7] In this section, I draw heavily from my work with Rodrigo Cerda and José Tomás Valente on this topic, as in Cerda et al., "Economic Policy Uncertainty Indices for Chile" and Cerda et al., "Impact of Economic Uncertainty in a Small Open Economy: The Case of Chile," Applied Economics (2017): 1-15. I would like to thank them for kindly allowing me to use it at my discretion. In addition, I extend that work by incorporating more data that has become available since we published the indices for the first time at www.policyuncertainty.com.

[8] The same procedure is applied to construct the Mexican and Brazilian EPU indices (Baker et al., "Measuring Economic Policy Uncertainty").

[9] This database was provided by *El Mercurio Documentation Center*, which stores all the articles both in paper and digital archives.

[10] Data was extracted from www.policyuncertainty.com and was constructed using the methods presented in Baker et al., "Measuring Economic Policy Uncertainty."

[11] For a detailed account of the EPU episodes for

Mexico, see "Economic Policy Uncertainty Index for Mexico, January 1996 to September 2017," http://policyuncertainty.com/media/Mexico_EPU_Index.pdf.

[12] Joe Leahy, "What is the Petrobras Scandal that is Engulfing Brazil?" *Financial Times*, 31 March 2016, https://www.ft.com/content/6e8b0e28-f728-11e5-803c-d27c7117d132.

[13] Steven J. Davis, "An Index of Global Economic Policy Uncertainty," National Bureau of Economic Research, Working Paper no. 22740, 2016.

[14] Note that this is economic uncertainty and not economic policy uncertainty. The only difference between the indices is that the first do not use the terms C and P that I explained in Section 2.

[15] Giovanni Caggiano et al., "Economic Policy Uncertainty Spillovers in Booms and Busts," Melbourne Institute Working Paper Series, no. 13/17, 2017.

[16] Baker et al., "Measuring Economic Policy Uncertainty"; Hyunseob Kim and Howard Kung, "The Asset Redeployability Channel: How Uncertainty Affects Corporate Investment," *The Review of Financial Studies* 30, no. 1 (2017): 245-280.

[17] Baker et al., "Measuring Economic Policy Uncertainty."

[18] This is by no means the only way to measure uncertainty. Nonetheless, all countries seem to have newspapers. Not all of them, however, have the extensive data requirements that other methods need. For other methods, see Kyle Jurado et al., "Measuring Uncertainty," *American Economic Review* 105, no. 3 (2015): 1177-1216, and the literature review therein.

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