

Comment

Francisco A. Gallego: This interesting paper presents a number of stylized facts on the degree of price flexibility in the retail sector in Uruguay. The paper also gives a brief review of the literature on price rigidity/flexibility using big microdata sets (emphasizing the stylized facts and the determinants of price flexibility), a short discussion on what we should expect regarding flexibility in a small open economy such as Uruguay's, a description of the data set used in the paper, new evidence on several features used to characterize price rigidity in retailing in Uruguay, and some explanations of differences and similarities with other papers. The new evidence complements that in a series of papers on price flexibility in other Latin American countries.

The Macro- and Microeconomics of Price Setting

I should begin with a caveat about my background: I am not a macroeconomics expert; I am an applied microeconomist (and a part-time professor of an MBA course on pricing). I think that is both a limitation and an asset for a discussant writing on this topic, for two reasons. First, in my view the problem of setting prices is mostly a microeconomic problem. Second, *Economía* is a general interest journal; therefore a more microeconomic view of the problem may help readers by complementing the authors' interpretation of the results.

The theoretical question—What are the economics of price setting?—is important for two reasons. First, without a clear theoretical framework, interpreting empirical regularities is complicated. Second, without clear interpretations of the results, it is difficult to derive sound policy implications. The authors attempt to present a theoretical interpretation of the results in table 8, where they illustrate how the different stylized facts that they find in Uruguay are consistent with or contradict several (macro and industrial

organization) theories of price setting. That helps in interpreting the evidence and deriving conclusions. However, there is one conceptual point that is not addressed in the paper or in other papers in the literature: What is the benchmark of price flexibility? Putting it differently, how big is price flexibility? After reading the paper, it is unclear to me whether price flexibility is high or low in Uruguay.

The answer to this question may come from a naïve benchmark provided by the Taylor/Calvo/Fischer stylized macro models.¹ However, from a conceptual point of view it may be possible to think of more sophisticated benchmarks. First, we may want to evaluate price flexibility relative to cost flexibility. If that is the benchmark, then the big first-day-of-the-month effect provided by the authors may imply a high degree of flexibility, but if costs move in a more continuous way, the same result may imply extremely low flexibility. Second, we may want to evaluate the flexibility of price plans. If that is the relevant benchmark, then what does observed flexibility of actual prices tell us? Probably not a lot. Third, does the relevant benchmark include price movements related to active pricing (for example, intertemporal discrimination) strategies? If so, should we exclude price movements related to sales? The macroeconomic answer to that question depends on whether sales are related to macro/monetary shocks. Similarly, should we exclude temporary movements of prices? In all, it is hard for me to conclude that price flexibility is high or low just by looking at how frequently prices move without knowing the relevant benchmark.

The Data Set

The characteristics of the data set used in the paper are key to interpreting results, comparing results with those of other papers, and deriving implications about economic policy. In my view, the four key features of the data set are the following:

1. It includes self-reported prices.
2. It includes the prices of the most relevant products and brands sold by retailers.

1. Calvo (1983); Fischer (1977); and Taylor (1980).

3. It includes relatively big retailers (either chains or retailers with at least three cashiers in a store).
4. It is collected so that the government can give price information to consumers.

Feature 1 is not a big problem (but see footnote 3 on this), but features 2, 3, and 4 make the interpretation of the results a bit more convoluted than the paper suggests. The relatively high degree of price flexibility that the authors identify in the paper for Uruguay (for example, vis-à-vis Chile) may well be a consequence of the fact that the data set captures strategic behavior of big retailers doing active pricing on products that are important to consumers. If that is the case, then prices in the “whole” economy may not be as flexible as indicated when using this data set.

This point is also important in comparing the results with those of other papers in the literature and in determining whether price flexibility is high in Uruguay. For instance, the findings of low price flexibility in the United States come from papers—such as Nakamura (2008) and Nakamura and Svensson (2008)—that use data sets that include price information from the CPI dataset. This contrasts with the findings in Ellis (2009), which finds a higher degree of price flexibility using a data set that includes only big retailers. Along the same lines, the results available for Chile present the same result: Medina, Rappoport, and Soto (2007), using data on big and small retailers, finds much lower price flexibility than Chaumont and others (2010), which uses data on big retailers. It may well be the case that the observed high price flexibility in this data set cannot be extrapolated to Uruguay’s entire economy.

The Empirical Analysis

In general, the authors present a relatively complete set of empirical regularities given the information available. This is useful in itself and also in comparing the regularities with those from other countries (see Klenow and Malin 2010 for a detailed review of the empirical results of price behavior). However, I think additional exercises could be done in future research and additional interpretation could be done of some of the results presented in the paper.

First, more microeconomic pricing patterns could be studied in more detail—for instance, patterns of synchronization across brands, goods, retailers, and cities. The paper already presents an interesting exercise along these

TABLE 1. Regressions of City Price Synchronization on City Population and Population Density^a

	<i>Dependent variable: log (FK synchronization index)</i>			
	(1)	(2)	(3)	(4)
Log (population)	-0.0363 (0.0106)	-0.0590 (0.0191)	-0.0379 (0.0124)	-0.0590 (0.0191)
Log (population density)	-0.0468 (0.0082)	-0.0514 (0.0128)	-0.04478 (0.0092)	-0.0514 (0.0128)
Sigma	—	0.7143 (0.1928)	—	0.9071 (0.2628)
R ²	0.6828	—	0.5720	—
Sample	All cities		Excluding Montevideo	
Estimation method	OLS	Tobit	OLS	Tobit

a. Standard errors (constant, not reported) are in parentheses.

lines and finds that there is a high degree of synchronization across cities, chains, and products. However, how do we interpret these results? On one hand, if there is high synchronization, strategic pricing may be less relevant in explaining price movements than macro or product-specific shocks and may imply a very flexible economy in which retailers—in very competitive markets—quickly respond to input price changes. On the other hand, high synchronization may be a consequence of very concentrated markets with a few supermarkets (or supermarket chains). I think that the results reported by the authors suggest that. There is some heterogeneity in synchronization across cities. The authors mention that synchronization is significantly lower in Montevideo, a city with more supermarkets (and by far the biggest city in the country). I think that this point is important, and I collected some data to study it with more detail.

Table 1 reports the results of running regressions on the log of the FK synchronization estimator in each city on the log of population and the log of population density in the city.² I present both OLS and Tobit regressions (given that the FK index is right censored at 1) and regressions using information for all the available cities, excluding Montevideo. All variables are statistically significant, present the expected signs, and are economically relevant: increasing the log of total population by 1 standard deviation decreases the log FK index by about 0.60 of a standard deviation. Similarly, increasing population density by 1 standard deviation decreases the log of the

2. I have data on population density only for some cities. For cities with missing information on this variable I imputed the population density of the *departamento* to which the city belongs.

FK index by about 0.50 of a standard deviation. These are relevant estimates that suggest that there is some IO process that may be driving results of high synchronization at the city level in a country like Uruguay.³ I think that future research should study this point in more detail because it is important in understanding the pricing process, which can improve understanding of the macro implications of several shocks.

Second, I think one could use the data set to identify how many of the price changes are related to sales or temporary price decreases. Klenow and Malin (2010) provides an interesting theoretical and empirical discussion of this topic that may be applied in future research on Uruguay. As I argue above, if sales explain a nontrivial part of price changes, then from a macroeconomic perspective the key question is whether sales respond to macroeconomic shocks.

Third, in order to understand mechanisms and generate benchmarks to evaluate the degree of price flexibility that we observe in Uruguay, I think it may be interesting to study whether the degree of flexibility varies by goods with different characteristics—for instance, goods that differ in the degree of labor intensity. We know that wages are probably much less flexible than most goods.

Finally, I think that the authors should study in more detail the first-day-of-the-month effect, which is an intriguing result. The authors argue that this effect may reflect the fact that most providers change prices just on the first day of the month. If so, the results of the paper imply that there is a lot of price flexibility in Uruguay because changes in the price of inputs quickly pass through the prices of final goods. Unfortunately, the paper does not present quantitative evidence on this point. One is tempted to think that perhaps input prices change in a continuous way and, as the authors argue, the retailers face some menu cost that decreases at the beginning of each month. If that is the case, the first-day-of-the-month effect implies just a moderate degree of price flexibility because changes in input prices do not pass through output prices immediately but at the beginning of the next month.⁴

3. Klenow and Malin (2010) argues exactly along these lines when the authors compare Luxembourg and Germany in terms of synchronization: *The higher ratio observed in Luxembourg compared to Germany likely reflects the difference in the size of the market upon which the ratio is computed and the relatively small number of outlets in Luxembourg.*

4. There is also a reporting issue that may explain the first-day-of-the-month effect: retailers report the prices on a monthly basis in the last days of each month. If so, there may be systematic mismeasurement in self-reported prices in which the reports change discretely from month to month. I do not think the checking process of the reported data takes care of this bias.

Conclusion

Borraz and Zipitría present new evidence on price-setting behavior for small open economies. The paper allows us to compare several dimensions of price flexibility with those in other countries. However, I mostly think of this paper as a beginning of a research line, not as a final answer to a set of research questions. Moreover, I suspect that there is room for new research using more theoretically motivated microeconomic and industrial organization models. I look forward to seeing more research on this and other topics from the authors.

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