MIDAS Modeling for Core Inflation Forecasting

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Discussion by Jonathan Wright

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Billion Prices Project used web scraping to measure online prices

Original motivation for Argentina was to be better measure than CPI (e.g. Cavallo (2013))

Current paper takes different approach: treating official monthly Buenos Aires price index as “true”
  - Nowcast/forecast with daily SSPS data.
Paper Summary

- Main exercise considers forecasting at the end of the month
- Very important methodological/substantive problem
- Modest evidence that the daily data via MIDAS can help with 3 months of lags for nowcasting
A provincial price index that raised itself to prominence in recent years is the consumer price index compiled by the General Department of Statistics and Censuses of the Government of the Autonomous City of Buenos Aires, known as IPCBA. Although this index only contemplates the territory of the City of Buenos Aires (with a population close to 3 million), it should be reasonable to expect that price dynamics in the Buenos Aires Metropolitan Area (which encompasses a much larger population, close to 14 million or 1/3 of the total population of Argentina) share most of its features with the pricing structure of the City Buenos Aires, resulting from arbitrage by reason of geographical proximity, as this should prevent large distortions, at least in nonregulated markets. A more restricted version of the index is also published, called “resto IPCBA” (rIPCBA) and it serves as a measure of core inflation. Compared to the headline version, it excludes products with strong seasonal patterns and regulated prices (e.g. public utility services) and represents 78.15% of the headline index. rIPCBA is available since July 2012 and is released monthly, with approximately a two-week publication lag.

These two indexes, as well as other provincial private and public price indexes, are closely monitored by the monetary authorities, as well as the general public, particularly the recently released National Price Consumer Index by INDEC. As the name implies, this is the only index with full national coverage. However, this index consists of less than two years of data points and this limits the possibility of drawing any relevant inferences.

Inflation in Argentina in recent years has been high, unstable and volatile, particularly from 2012 to most of 2016 when Argentina experienced high monetization of fiscal deficits, strict capital controls and two major devaluations of the currency. The average monthly inflation rate has been fluctuating around 2.2% for rIPCBA and 2.1% for the monthly aggregated SSPS series, with coefficients of variation at 35% and 49% respectively. This should pose a significant challenge for economists to formulate accurate forecasts. Figure (1) illustrates the comparison between these two indexes and provides a quick glimpse at the potential predictive power of the high frequency index. Overall and for the scope of this work, rIPCBA is available from July 2012 to December 2017 (66 data points) while SSPS ranges from November 1, 2007 to December 31, 2017 (3714 data points).

![Figure 1: Comparison between rIPCBA inflation and SPSS inflation aggregated to monthly frequency](image-url)
Possible reasons why lags help

- Smooths out measurement error in SPSS
- Web prices are fast moving and lead other prices
Main comment

- Sample period is very short and models with very few parameters may do best
- Random walk benchmark: $\pi^r_{t+h} = \pi^r_t$

**RMSPEs over 2015-2017; $h = 1$**

<table>
<thead>
<tr>
<th>Model</th>
<th>RMSPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDAS-ADL Almon ($L_x = 3$)</td>
<td>0.56</td>
</tr>
<tr>
<td>MIDAS-ADL Flat ($L_x = 3$)</td>
<td>0.57</td>
</tr>
<tr>
<td>Autoregression</td>
<td>0.62</td>
</tr>
<tr>
<td>Random Walk</td>
<td>0.51</td>
</tr>
</tbody>
</table>
Main comment

How about

\[ \pi_{IPCA}^t + \sum_{j=0}^{mLx-1} \pi_{SPSS}^{t+1-j/m} \]

\[ \pi_{IPCA}^t + \theta \sum_{j=0}^{mLx-1} \pi_{SPSS}^{t+1-j/m} \] (restricted flat MIDAS)
A provincial price index that raised itself to prominence in recent years is the consumer price index compiled by the General Department of Statistics and Censuses of the Government of the Autonomous City of Buenos Aires, known as IPCBA. Although this index only contemplates the territory of the City of Buenos Aires (with a population close to 3 million), it should be reasonable to expect that price dynamics in the Buenos Aires Metropolitan Area (which encompasses a much larger population, close to 14 million or $\frac{1}{3}$ of the total population of Argentina) share most of its features with the pricing structure of the City Buenos Aires, resulting from arbitrage by reason of geographical proximity, as this should prevent large distortions, at least in nonregulated markets. A more restricted version of the index is also published, called "resto IPCBA" (rIPCBA) and it serves as a measure of core inflation. Compared to the headline version, it excludes products with strong seasonal patterns and regulated prices (e.g. public utility services) and represents 78.15% of the headline index. rIPCBA is available since July 2012 and is released monthly, with approximately a two-week publication lag.

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![Graph](image)

Figure 1: Comparison between rIPCBA inflation and SSPS inflation aggregated to monthly frequency
Indices diverge in 2016: must affect comparison

Suspect that exchange rate could also be useful for prediction
More comments

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  - Not quite the best use of the method, as monthly data not available till middle of month $t + 1$.
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Would include Diebold-Mariano tests
Broader comment

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Broader comment

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Conclusions

- Great paper on an important question
- MIDAS is motivated by parsimony
- But the best forecast in this problem might be even more parsimonious