DOCUMENTOS DE TRABAJO

Fuelling Future Prices: Oil Price and Global Inflation

Carlos Medel

N.º 770 Septiembre 2015

BANCO CENTRAL DE CHILE

DOCUMENTOS DE TRABAJO

Fuelling Future Prices: Oil Price and Global Inflation

Carlos Medel

N.º 770 Septiembre 2015

BANCO CENTRAL DE CHILE

BANCO CENTRAL DE CHILE

CENTRAL BANK OF CHILE

Documentos de Trabajo del Banco Central de Chile
Working Papers of the Central Bank of Chile
Agustinas 1180, Santiago, Chile
Teléfono: (56-2) 3882475; Fax: (56-2) 3882231

Documento de Trabajo
N° 770

Working Paper
N° 770

FUELLING FUTURE PRICES: OIL PRICE AND GLOBAL INFLATION*

Carlos Medel
Banco Central de Chile

Abstract

Several years ago, the entire world experienced how fast and damaging certain inflationary shocks can be transmitted across seemingly uncorrelated countries. Despite the analysis of fuzzy transmission mechanisms, a direct inflationary transmission channel through global commodity prices shocks has been always of interest to policymakers—especially those concerned on imported inflation. The majority of international-to-domestic pass-through price measures are obviously in-sample estimations. However, in this article I analyse to what extent either global inflation or the Brent oil price provides more valuable information for future domestic inflation rates. I compare ten different multihorizon forecasts coming from a family of univariate time-series models for 53 countries. Each of these ten models is augmented with an exogenous variable—either and *ad-hoc* global inflation factor or Brent oil price. Overall, in almost 90% of the countries the use of any of these two variables improves the forecasting accuracy compared to the case without any exogenous factor. In 74 and 60% of the countries the global-inflation-based forecast outperforms oil-based forecast at 1- and 12-months-ahead. Twenty-four-months ahead the oil-based-forecast outperforms in 62% of the countries. Major predictive gains are observed for European OECD and Caribbean countries.

Resumen

Algunos años atrás, el mundo entero testificó cómo ciertos shocks inflacionarios rápidos y dañinos pueden ser transmitidos a través de países aparentemente no correlacionados. A pesar del análisis de complejos mecanismos de transmisión, el canal de transmisión directo de shocks inflacionarios mediante precios mundiales de materias primas, ha sido siempre de interés para los hacedores de política—especialmente los interesados en la inflación importada. La mayoría de las medidas internacionales de traspaso a precios domésticos son, evidentemente, estimaciones dentro de muestra. Sin embargo, este artículo analiza en qué medida o bien la inflación global o el precio de petróleo Brent proporciona información más valiosa para las futuras tasas de inflación doméstica. Se comparan diez proyecciones multihorizonte procedentes de una familia de modelos de series de tiempo univariadas para 53 países. Cada uno de estos diez modelos se aumenta con un factor *ad-hoc* exógeno de inflación global o precio del petróleo. En general, en casi 90% de los países el uso de cualquiera de estas dos variables mejora la precisión de predicción en comparación con el caso sin ningún factor exógeno. En el 74 y el 60% de los países, el pronóstico con inflación global supera al pronóstico basado en el precio del petróleo a 1 y 12 meses adelante. 24 meses adelante, la proyección con el precio del petróleo supera la especificación alternativa en 62% de los países. Las principales ganancias predictivas se observan en los países OCDE-Europa y del Caribe.

---

* The views and ideas expressed in this paper do not necessarily represent those of the Central Bank of Chile or its authorities. Any errors or omissions are responsibility of the author. This is an author's original manuscript of an article published in *Nottingham Economic Review*. Email: cmedel@bcentral.cl.

1 Introduction

Oil price has been widely recognised as the driving process behind energy prices (Gao *et al.*, 2014). Moreover, its influence towards the most associable CPI-basket component (*Energy CPI*) is found to have first- as well as second-round effects on headline inflation by affecting subsequent components. Many mechanisms of unexpected oil shocks propagation to specific economic sectors has been analysed in the literature.[1] Many studies also analyse the effects of oil shocks on stock returns, consumer expenditures, and the manner in which monetary policy is conducted (Kilian and Park, 2009; Eldstein and Kilian, 2009; Bernanke *et al.*, 1997).

Many studies focus on different pass-through measures of oil to domestic prices (Barsky and Kilian, 2002; Chen, 2009; Kilian and Lewis, 2011). As an indicator leading to policy decisions, traditional econometric estimations comprise in-sample estimates. On the other hand, Alquist *et al.* (2013) summarise literature concerning out-of-sample oil price forecasting and evidence that oil might *Granger cause* certain price indexes. Nevertheless, most evidence has been collected for industrialised economies. Hence, it neglects the role that some developing commodity-exporting economies may play into global price dynamics. It is worth mentioning that oil–a highly traded commodity across the world–could provide detrimental welfare effects at a country level even when non-market shocks hit a *remotely* located producer.[2] These effects are independent of country's development level and rather based on its intensity of use and substitutability.

Especially since the collapse of Lehman Brothers bank in the US–marking the start point of the financial crisis–efforts have been conducted into understanding the many global economic linkages across the world. As a result, new modelling techniques explicitly incorporate a "global dimension" as a new ingredient when explaining domestic dynamics; inflation forecasting literature was no exception. Ciccarelli and Mojon (2010) analyse the role of a global inflation factor when forecasting domestic inflation rates in 22 OECD countries. Their findings suggest this factor plays a significant role in samples predating the commodity prices boom of 2007-8 (and the financial crisis of 2008-9).

Ciccarelli and Mojon's (2010) analysis is subsequently extended in Medel *et al.* (2014) in four fronts: incorporating remaining OECD countries, different domestic inflation measures, extending the econometric setup, and a sample span until 2013.3 (in monthly frequency). The results still favour the global inflation factor improving forecast accuracy in around the half of 31 OECD countries. Similar results have been recently confirmed and extended by Friedrich (2014).

Hence, in an after-crisis macroeconomic scenario a natural question emerges. To what extent global inflation and oil prices help to forecast domestic inflation rates? Which of these two global variables provides more valuable information for future domestic inflation rates? In this article I make use of a family of tractable time-series forecasting models to compare the forecast accuracy between an *ad-hoc* leave-one-out principal component of global inflation–$GInf$, comprising 52 countries–and the Brent oil price, $P(Oil)$. The results show, roughly speaking, that global-inflation-based forecasts outperforms those oil-based when predicting at 1- and 12-months ahead. At 24-months-ahead, oil-based-forecasts are better than the alternative. These results suggest a major role for global indicators as the driving process behind domestic inflation, as well as oil price driving world inflation in the long-run.

The rest of the article proceeds as follow. Section 2 describes entirely the econometric setup: forecasting models, data, and the out-of-sample statistical inference assessment. Section 3 presents the results graphically for each of the 53 countries grouped in regions. Finally, Section 4 concludes.

[1] See, for instance, Peersman and Van Robays (2009) for a review.

[2] See Peersman and Van Robays (2012) for a cross-section comparison of oil shocks responses in industrialised economies.

2 Econometric setup

I compare ten different multihorizon forecasts coming from a family of univariate time-series models introduced by Pincheira and Medel (2015)–labelled DESARIMA. Each of these ten models is augmented with an exogenous variable–either $GInf$ or $P(Oil)$. Then, it is calculated the root mean squared forecast error (RMSFE) statistic for h-months-ahead forecast, h={1,12,24}. A final step involves two subsequent "RMSFE Ratios": the ratio between the equally-weighted RMSFE achieved with the augmented models over the equally-weighted RMSFE achieved with the baseline specifications. Finally, the Giacomini and White (2006) test (GW) is used in order to provide statistical inference.

2.1 Models

The DESARIMA family of models is fully explained in Pincheira and Medel (2015), and stands for Driftless Extended Seasonal Autoregressive Integrated Moving Average. The idea behind these models is to provide a common framework for time-series models that have been traditionally used for forecasting with a relative success. This is the case, for instance, of the so-called *airline model* (Box and Jenkins, 1970), the random walk, and the IMA model for macroeconomic variables.

This forecast-producing device exploits two traditional features of CPI: seasonality and stochastic trending. To control for the former, the corresponding frequency-based lag polynomial is included. For the latter, certain restrictions delivering a unit-root-alike specification between the models are imposed. Defining by π_t the year-on-year CPI inflation and by f_t the exogenous factor, the DESARIMA family is presented in Table 1.

Table 1: The DESARIMA family (*)

1:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \varepsilon_t - \theta\varepsilon_{t-1}$
2:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \varepsilon_t - \theta_E\varepsilon_{t-12}$
3:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \varepsilon_t - \theta\varepsilon_{t-1} - \theta_E\varepsilon_{t-12}$
4:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \varepsilon_t - \theta\varepsilon_{t-1} - \theta_E\varepsilon_{t-12} + \theta\theta_E\varepsilon_{t-13}$
5:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \rho(\pi_{t-1} - \pi_{t-2}) + \varepsilon_t - \theta\varepsilon_{t-1} - \theta_E\varepsilon_{t-12} + \theta\theta_E\varepsilon_{t-13}$
6:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \rho(\pi_{t-1} - \pi_{t-2}) + \varepsilon_t - \theta\varepsilon_{t-1} - \theta_E\varepsilon_{t-12}$
7:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \rho(\pi_{t-1} - \pi_{t-2}) + \varepsilon_t - \theta_E\varepsilon_{t-12}$
8:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \rho(\pi_{t-1} - \pi_{t-2}) + \varepsilon_t - \theta\varepsilon_{t-1}$
9:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \rho(\pi_{t-1} - \pi_{t-2}) + \varepsilon_t$
10:	$\pi_t - \pi_{t-1} = \gamma f_{t-1} + \varepsilon_t$

(*) $\varepsilon_t \sim iid\mathcal{N}(0, \sigma_\varepsilon^2)$. f_t is the exogenous factor. Source: Author's elaboration.

In Table 1, $\{\gamma, \rho, \theta, \theta_E, \sigma_\varepsilon^2\}$ are parameters to be estimated, and $\varepsilon_t \sim iid\mathcal{N}(0, \sigma_\varepsilon^2)$. The f_t variable is constructed as follows. For $GInf$, and considering the i^{th} out of a total of N=53 countries, it takes the first principal component (Φ) of the π_t-set of N-1 countries: $f_t^{(i)} = \Phi(\{\pi_t^{(j)}\}_{j=1}^{j=N-1})$, for all $j \neq i$. Note that this leave-one-out measure differs of that of Ciccarelli and Mojon (2010) when excluding from Φ the country to which forecast is made. The factor is re-estimated every time that an observation is added. The oil-price version of f_t is simply the first difference of the Brent oil price, $f_t = \Delta P(Oil)$.

2.2 Data

The source of inflation data is the *IFS IMF Database*, while for the Brent oil price is *Bloomberg*. The sample spans from 1995.1 to 2013.3 (219 observations) in monthly frequency. The estimation is made in a rolling scheme with a fixed-size window of 100 observations. Hence, the first forecast made 1-month-ahead start in 2003.5 comprises an evaluation sample of 119 observations. The preferred transformation for both inflation and oil price deliver a stationary variable according to the Augmented Dickey-Fuller and Phillips-Perron tests.

The number of analysed countries achieved is 53, pertaining to two groups: OECD and *Centre for Latin American Monetary Studies* (CEMLA, from its Spanish acronym).[3] In order to take advantage of the geographical location of these countries, the results are shown separately for four subdivisions: (i) European OECD (23), (ii) Non European OECD (8), (iii) Southern CEMLA (12), and (iv) Caribbean CEMLA countries (10) [in parenthesis: the number of countries]. Belize, Estonia, and Nicaragua are omitted due to short sample. Chile and Mexico belong to both groups, but are presented as Non European OECD precisely because their macroeconomic performance outreached their regional standards.

As a multihorizon forecast, and the fact that the factor enters into each equation with one lag, an auxiliary forecast of the f_t is used. Based on their accuracy, the auxiliary forecast comes from the airline model for both f_t.

2.3 Forecast accuracy assessment

Forecast ability comparison between both factors is provided by the RMSFE Ratio and GW.

2.3.1 RMSFE Ratio

This measure is used given its direct interpretation when comparing two point forecast. In this case, it is formally defined as:

$$\mathsf{RMSFE\ Ratio}_h = \frac{\mathsf{RMSFE}_h^{Factor}}{\mathsf{RMSFE}_h^{Baseline}} = \frac{\left[\frac{1}{T}\sum_{t+h}^{T}(\pi_{t+h} - \pi_t^{h,f})^2\right]^{\frac{1}{2}}}{\left[\frac{1}{T}\sum_{t+h}^{T}(\pi_{t+h} - \pi_t^{h,b})^2\right]^{\frac{1}{2}}},$$

for h-step-ahead comparisons, where $\pi_t^{h,\mathcal{M}}$ is the forecast of π_{t+h} made at t for horizon h considering methodology $\mathcal{M}$=$\{Baseline; GInf; P(Oil)\}$. "Baseline" refers to the model without incorporating any exogenous factor, labelled as "b". RMSFE$_h^{\mathcal{M}}$ is computed as the equally-weighted average of each $\mathcal{M}$. Naturally, figures below unity imply a better performance of the forecast containing f_t; representing a "predictive gain" of (1−RMSFE Ratio)% compared to Baseline.

2.3.2 Giacomini-White testing procedure

This test is incorporated to provide statistical inference on forecast *superiority* (one-sided). The null hypothesis consists of NH: $\mathbb{E}(d_h) \leq 0$, against the alternative AH: $\mathbb{E}(d_h) > 0$, where:

$$d_h = (\pi_{t+h} - \pi_t^{h,b})^2 - (\pi_{t+h} - \pi_t^{h,f})^2.$$

The procedure is fulfilled following a one-side t-type test for $\mathbb{E}(d_h)$ with a HAC for $\widehat{\sigma}^2_{d_h}$.

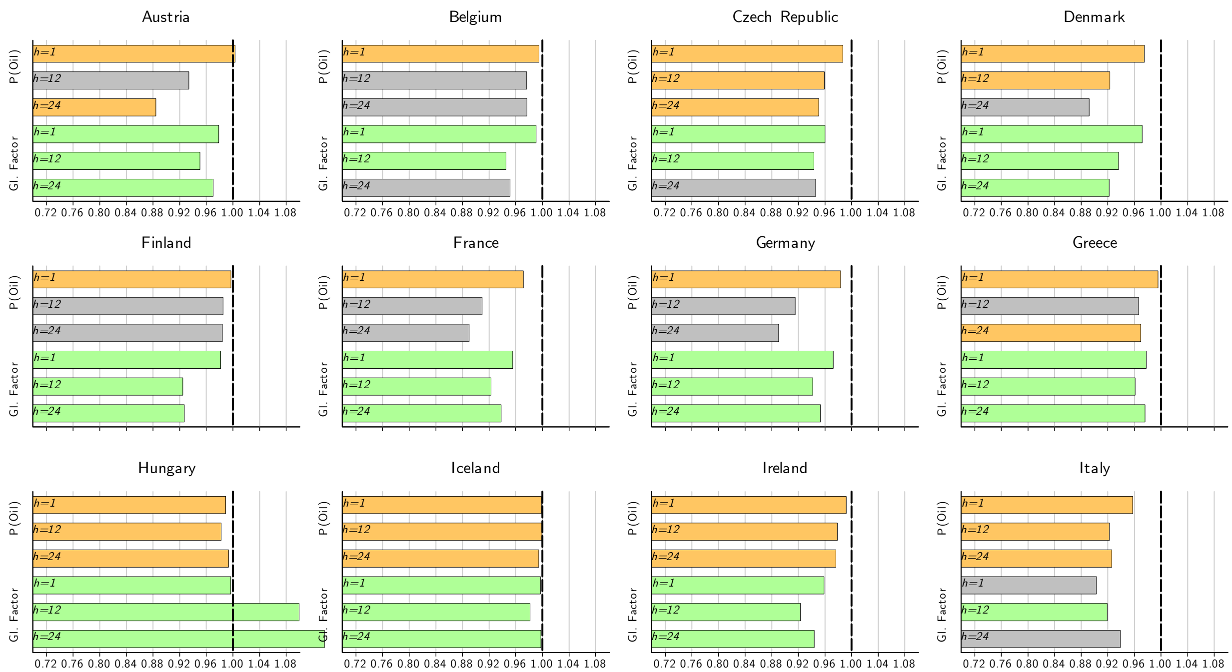
3 Results

Overall, in almost 90% of the countries the use of the f_t variable improves the forecasting accuracy. This is adverted for both measures of f_t. In 74% of these countries $GInf$ outperforms $P(Oil)$ for h=1, 60% for h=12, and 38% for h=24.

[3] A country list is not provided for the sake of space. However, the results (Section 3) are presented individually.

The results for European OECD countries are presented in Figures 1-2. In four cases (Hungary, Iceland, The Netherlands, and Norway) neither $GInf$ or $P(Oil)$ provide any predictive gain for any of the three horizons. When considering $P(Oil)$ this is the case just for the UK and Poland for h=12 and 24. In 74% of these countries $GInf$ outperforms $P(Oil)$ for h=1, 52% for h=12, and 30% for h=24 (favouring $P(Oil)$). Some remarkable predictive gains with any of the f_t are noticed for France, Italy, Luxembourg, Portugal, Spain, and Switzerland.

Figure 1: European OECD 1/2. RMSFE Ratio of $P(Oil)$ and $GInf$ (*)

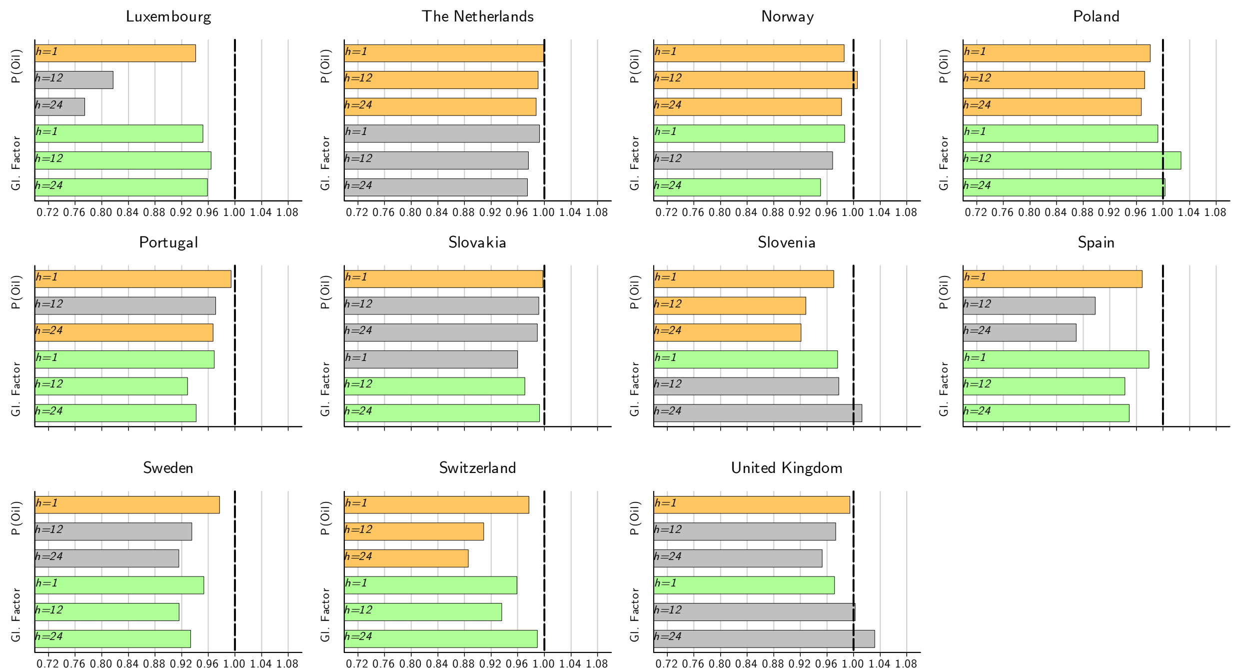


(*) Vertical line: RMSFE Ratio=1. Gray-shaded bars indicates that more than 50% of the DESARIMA model rejects the GW-test NH at 10% level of confidence (favouring f_t compared to the baseline). Source: Author's elaboration.

The results for Non European OECD are depicted in Figure 3. It is suggested that Mexican and Turkish inflation does not react with neither of these variables. Major gains with $P(Oil)$ are observable for Chile, while with $GInf$ for the US, especially at 24-months-ahead. In 75% of these countries f_t improves accuracy with either $P(Oil)$ or $GInf$. However, no *big* gains are noticeable with $GInf$ (except for the US). In 62% of these countries $GInf$ outperforms $P(Oil)$ for h=1, 50% for h=12, and 37% for h=24 (favouring $P(Oil)$).

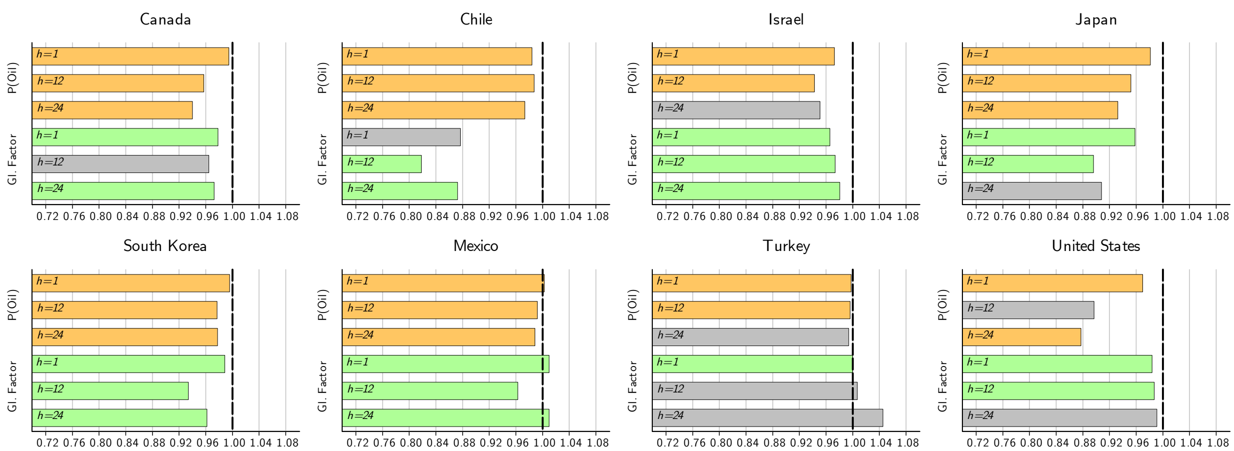
In Figure 4 are presented the results for Southern CEMLA countries. Interestingly, in all cases except Aruba, there is no a role for $GInf$. When considering $P(Oil)$, this seems to be the case for Brazil, Ecuador, Guyana, Paraguay, Suriname, and Uruguay. Interestingly, Venezuela–a big OPEC oil exporter–does not exhibit a major gain with $P(Oil)$. This region seems less prone to incorporate future global prices information in their domestic future inflation. Despite these small gains, in 77% of these countries $GInf$ outperforms $P(Oil)$ for h=1, 65% for h=12, and 46% for h=24 (favouring $P(Oil)$).

Figure 2: European OECD 2/2. RMSFE Ratio of $P(Oil)$ and $GInf$ (*)



(*) See notes in Figure 1. Source: Author's elaboration.

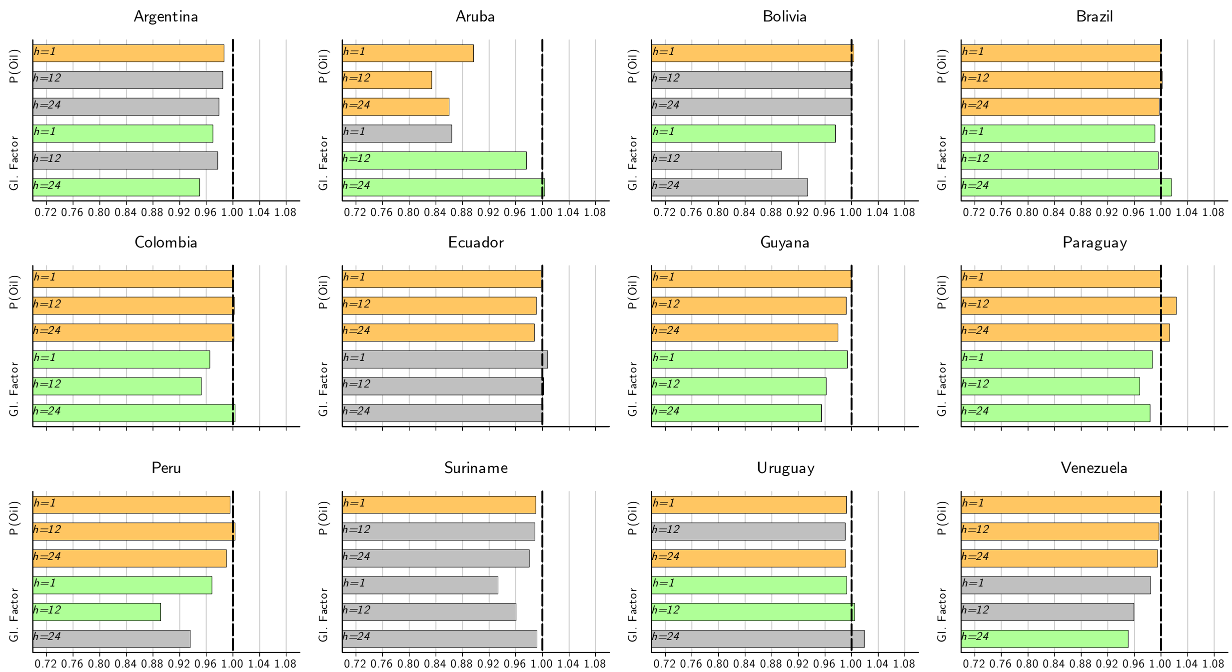
Figure 3: Non European OECD. RMSFE Ratio of $P(Oil)$ and $GInf$ (*)



(*) See notes in Figure 1. Source: Author's elaboration.

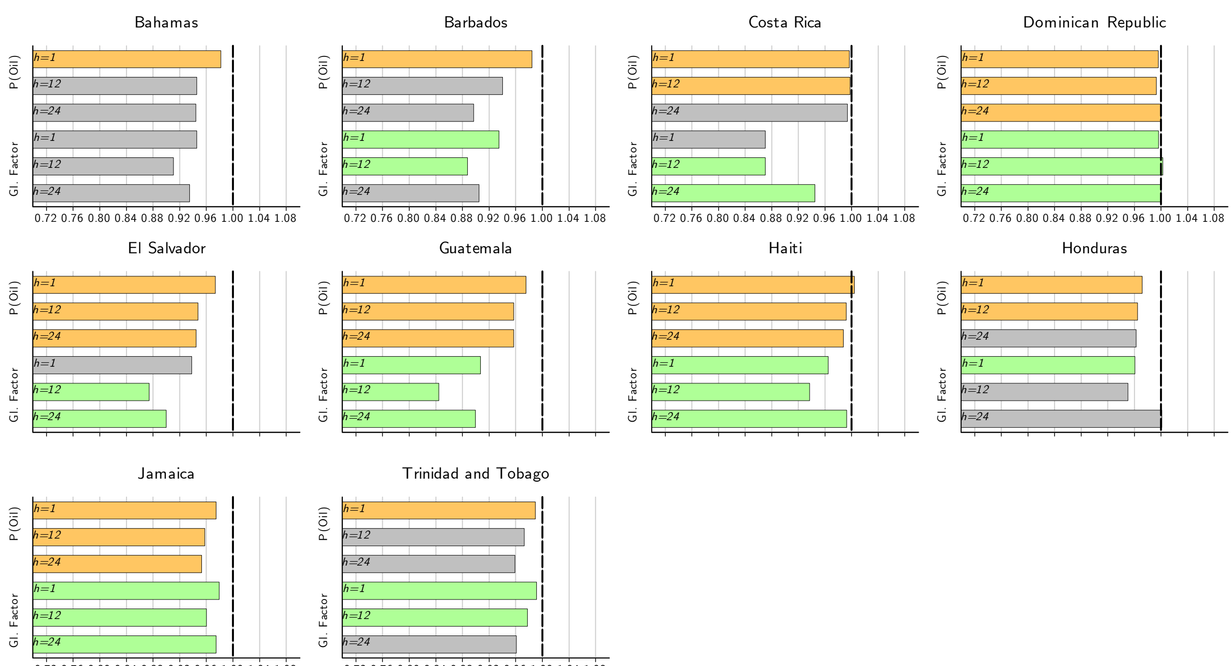
Finally, in Figure 5 are depicted the results for Caribbean CEMLA countries. In this case it is adverted a major role for the $P(Oil)$ compared to $GInf$, specially in Costa Rica and Guatemala. In 78% of these countries $GInf$ outperforms $P(Oil)$ for h=1, 78% for h=12, and 44% for h=24 (favouring $P(Oil)$). No major improvements are noticed for Dominican Republic and Trinidad and Tobago with any factor, which contrast remarkably gains obtained for Barbados and El Salvador.

Figure 4: Southern CEMLA. RMSFE Ratio of $P(Oil)$ and $GInf$ (*)



(*) See notes in Figure 1. Source: Author's elaboration.

Figure 5: Southern CEMLA. RMSFE Ratio of $P(Oil)$ and $GInf$ (*)



(*) See notes in Figure 1. Source: Author's elaboration.

Statistical inference is carried out for those cases in which the RMSFE Ratio is less than unity. The results by horizon, h={1,12,24}, show that in 19, 23, and 21% of the countries in which $GInf$

outperform baseline forecasts, those gains are statistically significant in more than five of the models. Same figures with $P(Oil)$ achieve 0, 38, and 38%, suggesting more robust results.

4 Concluding remarks

To what extent do global inflation and oil price help to forecast domestic inflation rates? Which of these two variables provides more valuable information for future domestic inflation rates?

By analysing multihorizon forecasts coming from the DESARIMA family for 53 countries there are two adverted major findings. These are: (i) a major role for global measures of prices when forecasting domestic inflation rates ($GInf$ in the short- and $P(Oil)$ in the long-run), and (ii) that major predictive gains–*i.e.* more sensitive to global factors–are inflation rates of European OECD and Caribbean CEMLA countries. These results also provide a quick guide on how current global inflationary trends and oil price forecasts could impact domestic inflation.

Acknowledgements

I thank the comments and suggestions to Diana Beltekian and Pablo Medel. Nevertheless, I exclude them for any error or omission that remains at my own responsibility.

Disclosure

No other interest rather than an economic research question on applied economics has motivated this article. There is no any conflict of interest of any kind involved in the production of this article.

References

1. Alquist, R., L. Kilian, and R.J. Vigfusson (2013). *Forecasting the Price of Oil*, in G. Elliot and A. Timmermann (Eds.), *Handbook of Economic Forecasting, Volume 2.* Elsevier, North Holland.

2. Barsky, R. and L. Kilian (2002). *Do We Really Know that Oil Caused the Great Stagflation? A Monetary Alternative*, in B.S. Bernanke and K.S. Rogoff (Eds.), *NBER Macroeconomics Annual 2001.* MIT Press, US.

3. Bernanke, B.S., M. Gertler, and M. Watson (1997). "*Systematic Monetary Policy and the Effects of Oil Price Shocks*", Brookings Papers on Economic Activity **1**.

4. Box, G.E.P. and G.M. Jenkins (1970). *Time Series Analysis. Forecasting and Control*. Holden-Day, US.

5. Chen, S.S. (2009). "Oil Price Pass-through into Inflation," *Energy Economics* **31**(1): 126-133.

6. Ciccarelli, M. and B. Mojon (2010). "Global Inflation," *Review of Economics and Statistics* **92**(3): 524-535.

7. Eldstein, P. and L. Kilian (2009). "How Sensitive are Consumer Expenditures to Retail Energy Prices?" *Journal of Monetary Economics* **56**: 766-779.

8. Friedrich, C. (2014). "*Global Inflation Dynamics in the Post-Crisis Period: What Explains the Twin Puzzle?*" Working Paper 14-36, Bank of Canada.

9. Gao, L., H. Kim, and R. Saba (2014). "How do Oil Price Shocks affect Consumer Prices?" *Energy Economics* **45**: 313-323.

10. Giacomini, R. and H. White (2006). "Tests of Conditional Predictive Ability," *Econometrica* **74**(6): 1545-1578.

11. Kilian, L. and L.T. Lewis (2011). "Does the Fed Respond to Oil Price Shocks?" *Economic Journal* **121**: 1047-1072.

12. Kilian, L. and C. Park (2009). "The Impact of Oil Price Shocks on the US Stock Market," *International Economic Review* **50**(4): 1267-1287.

13. Medel, C.A., M. Pedersen, and P. Pincheira (2014). "*The Elusive Predictive Ability of Global Inflation*," Working Paper 725, Central Bank of Chile.

14. Peersman, G. and I. Van Robays (2009). "Oil and the Euro Area Economy," *Economic Policy* **24**: 603-651.

15. Peersman, G. and I. Van Robays (2012). "Cross-country Differences in the Effects of Oil Shocks," *Energy Economics* **34**(5): 1532-1547.

16. Pincheira, P. and C.A. Medel (2015). "Forecasting Inflation with a Simple and Accurate Benchmark: The Case of the US and a Set of Inflation Targeting Countries," *Czech Journal of Economics and Finance* **65**(1): 2-29.

Documentos de Trabajo **Banco Central de Chile**	**Working Papers** **Central Bank of Chile**
NÚMEROS ANTERIORES	PAST ISSUES
La serie de Documentos de Trabajo en versión PDF puede obtenerse gratis en la dirección electrónica: www.bcentral.cl/esp/estpub/estudios/dtbc. Existe la posibilidad de solicitar una copia impresa con un costo de Ch$500 si es dentro de Chile y US$12 si es fuera de Chile. Las solicitudes se pueden hacer por fax: +56 2 26702231 o a través del correo electrónico: bcch@bcentral.cl.	Working Papers in PDF format can be downloaded free of charge from: www.bcentral.cl/eng/stdpub/studies/workingpaper. Printed versions can be ordered individually for US$12 per copy (for order inside Chile the charge is Ch$500.) Orders can be placed by fax: +56 2 26702231 or by email: bcch@bcentral.cl.

DTBC – 769
Inflation Dynamics and the Hybrid Neo Keynesian Phillips Curve: The Case of Chile
Carlos Medel

DTBC – 768
The Out-of-sample Performance of an Exact Median-unbiased Estimator for the Near-unity AR(1) Model
Carlos Medel y Pablo Pincheira

DTBC – 767
Decomposing Long-term Interest Rates: An International Comparison
Luis Ceballos y Damián Romero

DTBC – 766
Análisis de Riesgo de los Deudores Hipotecarios en Chile
Andrés Alegría y Jorge Bravo

DTBC – 765
Economic Performance, Wealth Distribution and Credit Restrictions Under Variable Investment: The Open Economy
Ronald Fischer y Diego Huerta

DTBC – 764
Country Shocks, Monetary Policy Expectations and ECB Decisions. A Dynamic Non-Linear Approach
Máximo Camacho, Danilo Leiva-León y Gabriel Péres-Quiros

DTBC – 763
Dynamics of Global Business Cycles Interdependence
Lorenzo Ductor y Danilo Leiva-León

DTBC – 762
Bank's Price Setting and Lending Maturity: Evidence from an Inflation Targeting Economy
Emiliano Luttini y Michael Perdersen

DTBC – 761
The Resource Curse: Does Fiscal Policy Make a Difference?
Álvaro Aguirre y Mario Giarda

DTBC – 760
A Microstructure Approach to Gross Portfolio Inflows: The Case of Chile
Bárbara Ulloa, Carlos Saavedra y Carola Moreno

DTBC – 759
Efectos Reales de Cambios en el Precio de la Energía Eléctrica
Lucas Bertinato, Javier García-Cicco, Santiago Justel y Diego Saravia

DTBC – 758
The Labor Wedge and Business Cycles in Chile
David Coble y Sebastián Faúndez

DTBC – 757
Accounting for Labor Gaps
François Langot y Alessandra Pizzo

DTBC – 756
Can a Non-Binding Minimum Wage Reduce Wages and Employment?
Sofia Bauducco y Alexandre Janiak

DTBC – 755
The Impact of the Minimum Wage on Capital Accumulation and Employment in a Large-Firm Framework
Sofia Bauducco y Alexandre Janiak

BANCO CENTRAL
DE CHILE