

Exchange Rate Pass-Through to Domestic Prices: The Case of South Africa

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Order of Presentation

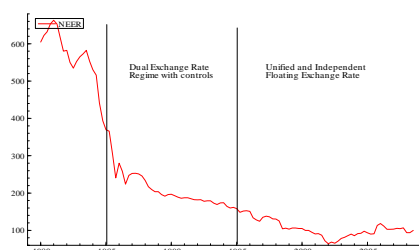
- Introduction
- ER Policy and recent developments in inflation
- Summary of the literature on ERPT
- Adopted approach
- Main findings
- Conclusions

Introduction

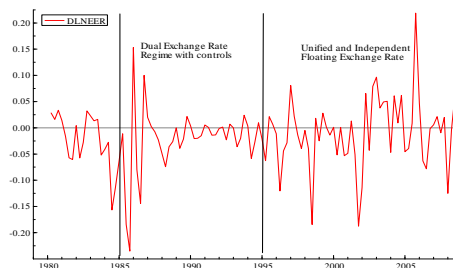
- The debate on ERPT in most developed countries has moved from estimation to explaining the seemingly low rates
- Inflation in South Africa has seen a downward trend over the past 15 years
- From an average rate of 19.2% in 1986 the inflation rate dropped to 9.8% in 1993 and bottomed at 1.4% in 2004 before peaking again at 11.5% in 2008 for obvious reasons
- The purpose of this paper is to estimate the exchange rate pass-through to domestic prices in South Africa using an unrestricted VAR model.

EVOLUTION OF EXCHANGE RATE POLICY AND RECENT DEVELOPMENTS IN INFLATION

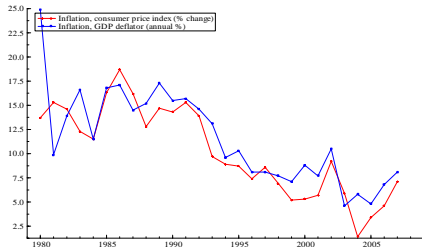
The NEER: 1980Q1 to 2008Q3



Short-term variability of the NEER expressed as percentage change from previous quarter (1980Q1 to 2008Q3)



Recent Developments in inflation



SUMMARY OF THE LITERATURE

Literature

- The literature is extensive
- Theory
 - Law of one price
 - Philip curve framework
- ERPT is studied at two levels;
 - Micro (industry) and
 - Macro levels (general price levels)
- Approaches
 - Single equations
 - Simultaneous-equations
 - Seemingly Unrelated Regression (SUR) models
 - VARs
- Little work has been done using South African data
- Following McCarthy (2000), Faruqee (2006); Ito and Sato (2006) we use a VAR

METHODOLOGY AND ESTIMATION

Adopted Approach

- Following McCarthy (2000) and others the study uses innovation accounting tools;
 - impulse response and
 - variance decomposition
- within the framework of an unrestricted VAR to examine the degree of ERPT
- The ordering of the VAR is based on the distribution chain argument in terms of the pricing structure

Approach cont'd

$$\pi^{oil} \rightarrow gap \rightarrow \Delta e \rightarrow i \rightarrow \Delta m \rightarrow \pi^{MP} \rightarrow \pi^{PPI} \rightarrow \pi^{CPI}$$

- Oil price and output gap control for supply and domestic shocks respectively
- causality runs from exchange rate to prices
- Extent of endogeneity increases from top to bottom of the order
- Monthly data from 1998M1 to 2009M5 is used (113 months)
- NEER is used to account for EXR

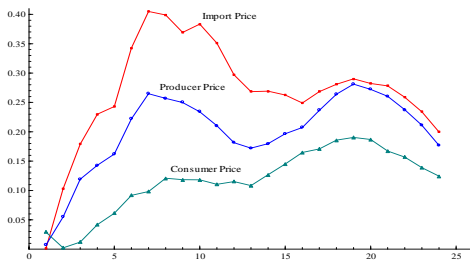
Main Findings

- The outcomes are consistent with the findings from Bhundia (2002) who studied ERPT for the period immediately preceding the formal adoption of inflation targeting
- While in Bhundia's paper the pass-through to consumer price inflation peaks at 12.3% after 8 quarters (24months) here we attained a pass-through of 12.5% in 24 months.
- However, what is most insightful is the fact that the pass-through to producer price has fallen significantly from 72% after 24 months in the Bhundia paper to 20% in the present work after a peak of 40% after 7 months.
- The pass-through to PPI inflations has reduced considerably over the years.

Profile for Exchange Rate Pass-Through Elasticity for Domestic Prices due to 1% change in Exchange Rate

Period	Import Price	Producer Price	Consumer Price
After 3 months	0.179	0.119	0.012
After 6 months	0.343	0.222	0.092
After 7 months	0.404	0.265	0.098
After 8 months	0.399	0.257	0.121
After 12 months	0.297	0.181	0.115
After 24 months	0.199	0.177	0.125

Estimated Cumulative Exchange Rate Pass-Through



Variance decomposition of import price inflation

Period	Oil price	Output gap	Exchange rate	Interest rate	Money supply	Import Price	Producer Price	Consumer Price
1	1.62	0.14	0.16	0.21	0.37	97.49	0.00	0.00
3	27.60	1.51	8.87	0.56	1.97	54.64	4.63	0.21
6	25.24	3.52	9.76	0.56	2.56	50.14	7.17	1.05
12	24.89	4.07	9.91	0.67	2.76	49.34	7.29	1.07
24	24.91	4.07	9.93	0.68	2.76	49.26	7.31	1.08

Variance decomposition of PPI Inflation

Period	Oil price	Output gap	Exchange rate	Interest rate	Money supply	Import Price	Producer Price	Consumer Price
1	7.67	0.12	0.10	0.00	0.92	1.01	90.18	0.00
3	18.85	1.95	11.88	0.03	0.94	8.40	55.58	2.38
6	18.69	2.72	13.05	0.19	1.09	9.83	51.71	2.71
12	18.51	3.22	13.17	0.28	1.27	9.85	50.99	2.70
24	18.54	3.22	13.18	0.28	1.27	9.86	50.94	2.70

Variance decomposition of CPI Inflation

Period	Oil price	Output gap	Exchange rate	Interest rate	Money supply	Import Price	Producer Price	Consumer Price
1	4.36	0.43	3.62	2.95	0.00	1.68	3.23	83.72
3	8.03	0.71	5.12	8.77	2.34	1.79	5.49	67.75
6	8.76	0.75	7.50	8.28	2.21	3.18	6.03	63.49
12	9.08	0.94	7.94	8.08	2.21	3.37	6.35	62.01
24	9.08	0.95	7.95	8.08	2.21	3.37	6.36	61.97

Conclusions

- The effect of exchange rate shock on consumer price inflation, a major focus of monetary policy, is very modest
- The effect of oil price shocks seem to be more pronounced at each domestic price level, to the extent that it is even at par with short-term interest rates in explaining fluctuations in the consumer price inflation
- While the pass-through coefficient for consumer price inflation (12.5%) is not very different from the 12.3% obtained by Bhundia (2001) there are stark differences between the values for the PPI
- Pass-through to PPI has reduced considerably over the years
- The closeness of the values between the PPI and CPI pass-through indicates that favourable shocks to producer price inflation can have substantial moderating effect on CPI inflation and vice versa.