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Price setting & price stickiness: A developing economy perspective☆

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ABSTRACT

We study price setting in Pakistan using 1189 structured interviews of managers organized by the State Bank of Pakistan–Pakistan's Central Bank. We find that on an annual basis the incidence of price adjustment is three times higher than in developed countries. The remaining price rigidity is explained by the existence of firms' interactions with the informal sector, strategic interactions with other firms and the uncertainty about temporariness of shocks. The exchange rate and cost-push shocks matter more and are incorporated faster into prices than financial cost and demand-pull shocks. The roughly bimodal nature of price reviewing strategies together with a high frequency of price adjustment imply that monetary policy will carry low potency. Time-dependent price reviewing strategies tend to dominate state-dependent strategies, but the ratio of price reviews to actual adjustment is too high and inconsistent with the moderate levels of inflation experienced by Pakistan.

1. Introduction

Sticky prices are fundamental to modern day macroeconomics as they imply that instead of being vertical the aggregate supply curve is upward sloping. As a result, aggregate demand and output may comove; monetary policy can influence the business cycle through demand management. The question therefore is: Are prices really sticky? If so, what type of price setting rules are used in the economy? The reason for this question is because different price setting rules lead to dramatically different predictions about non-neutrality of money. If price setting is time-dependent, monetary shocks generally have real effects. If price setting is state-dependent, the question whether money has real effects is more complex. For this

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Table 1
International comparisons of inflation levels and informal sector.

Countries (HIC[a])	π[b]	Drift[b]	σ[b]	Informal[c]	Countries (UMC[a])	π	Drift	σ	Informal
1.Austria	2.44	0.15	0.33		28.Algeria	9.36	0.29	2.14	34.5
2.Bahamas	3.00	0.17	0.55	26.5	29.Botswana	9.30	0.30	0.87	32.9
3.Barbados	3.94	0.22	1.23		30.China	4.49	0.23	0.82	12.7
4.Belgium	2.65	0.16	0.44	21.9	31.Colombia	14.52	0.28	0.82	37.3
5.Canada	2.87	0.16	0.44	15.7	32.Costa Rica	15.81	0.30	1.40	25.7
6.Cyprus	3.23	0.17	0.95	28	33.Dominica	2.48	0.14	0.99	
7.Denmark	2.91	0.17	0.31	17.7	34.D. Republic	15.16	0.29	2.35	31.9
8.Finland	2.99	0.17	0.47	17.7	35.Fiji	4.32	0.22	0.93	32.4
9.France	2.73	0.16	0.30	15	36.Grenada	2.76	0.16	1.04	
10.Greece	8.97	0.23	0.68	27.5	37.Jamaica	16.77	0.34	2.34	
11.Hungary	11.37	0.26	1.09	24.4	38.Jordan	4.87	0.23	1.47	18.5
12.Italy	4.42	0.20	0.30	27	39.Malaysia	2.75	0.17	0.53	30.9
13.Japan	0.73	0.06	0.44	11	40.Mauritius	6.41	0.25	1.34	22.7
14.Luxembourg	2.71	0.16	0.41	9.7	41.Mexico	27.92	0.29	0.99	30
15.Malta	2.17	0.14	0.85	27.2	42.Panama	2.04	0.14	0.52	63.5
16.Netherlands	2.15	0.14	0.28	13.2	43.Paraguay	13.31	0.30	2.08	38.8
17.Norway	3.42	0.18	0.39	18.7	44.S. Africa	9.22	0.29	1.06	27.3
18.Portugal	7.07	0.24	0.62	23	45.St. Lucia	2.95	0.18	1.51	
19.Saudi Arabia	1.45	0.11	0.48	18.1	46.Thailand	3.46	0.19	0.70	50.6
20.Seychelles	4.52	0.21	1.45						
21.Singapore	1.86	0.13	0.58	12.9					
22.Spain	4.64	0.21	0.56	22.5					
23.St. K & Nevis	3.06	0.18	1.03						
24.Sweden	3.21	0.17	0.60	18.8					
25.Switzerland	1.67	0.11	0.46	8.5					
26.T. & Tobago	7.48	0.30	1.31	33.4					
27.U.S	2.95	0.17	0.44	8.6					
Mean	**3.73**	**0.17**	**0.63**	**19.43**	Mean	**8.84**	**0.24**	**1.26**	**32.65**

Source: World Bank database except columns 5 and 10.
[a] HIC: High-Income Countries; UMC: Upper-Middle-Income Countries.
[b] The terms π, Drift and σ denote average year-on-year inflation, estimated drift on CPI and volatility in π, respectively; all estimated for 1981–2014.
[c] Informal sector as a percentage of GDP, period average of 1999–2007 from Schneider et al. (2010).

reason the body of theoretical and empirical literature on this subject is vast and expanding as new datasets on individual prices become available. For the most part, this literature has focused on developed countries and shows that the degree of price stickiness is considerable and pricing strategies are heterogenous.

The objective of this paper is to study the extent, nature and explanations for price stickiness in Pakistan; bringing into focus a developing country perspective. Pakistan differs from most developed countries where similar studies have been conducted in that monetary policy is procyclical; inflation levels are moderate (close to 10%), persistent and volatile[1]; the size of informal sector– we use the term informality, is large; and the economy has an open current account.

In this regard, a scoping exercise for 75 countries partitioned according to World Banks' income classification shows interesting findings. Indeed, in Tables 1 and 2 (in the Appendix) we report the results for the following variables: inflation and its volatility; drift in the consumer price index (CPI)- estimated using a random-walk model with a drift; and informality. As expected, we find that high-income countries (HIC) and a large majority of upper-middle-income countries (UMC) behave differently from Pakistan, but there are some exceptions. For example, in the HIC group Hungary and in the UMC group Algeria, Colombia, Costa Rica, Dominican Republic, Malaysia, Mexico, Paraguay and South Africa, all share with Pakistan moderate inflation rates and a large informal sector. Turning to lower-middle-income countries (LMIC) and lower-income countries (LIC), average inflation rate and its volatility, the drift in the CPI series and the average size of the informal sector are similar to those for Pakistan; though LICs tend to be on the higher side. We therefore find that effectively many countries share features similar to those for Pakistan, but certainty not all of them. Given this discussion, the results in this paper are likely to be useful for economies with moderate and volatile inflation and those with sizeable levels of informality; providing a novel context to study price stickiness.

In this paper, we report the results of 1189 face-to-face structured interviews carried out in period 2009–2011 with managers of formal[2] firms in manufacturing and services sectors. Our methodology is comparable with surveys conducted in developed countries– in particular (Blinder, 1991; Blinder et al., 1998) for the United States (US), Fabiani et al. (2007) for the Euro area (European Union, EU) and Greenslade and Parker (2012) for the United Kingdom, but offers four novel departures. First, we ask our firms to reveal their interactions with the informal sector. Second, we include a more detailed

[1] See especially (Agénor and Montiel, 2010) and (Frankel, 2010) and the literature therein on developing countries.
[2] By formal we mean firms are officially registered, tax liable and report data to employment agencies.