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ORIGINAL PAPER

Is There a Link Between Exchange Rate Pass-Through and the Monetary Regime: Evidence from Sub-Saharan Africa and Latin America

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Abstract This paper investigates the relationship between the monetary regime: pegged, currency board, dollarization, and the exchange rate pass-through for a sample consisting of 15 Sub-Saharan Africa countries and 12 Latin American countries. The research findings about pass-through rates will shed light on the feasibility of a monetary union for Sub-Saharan Africa. The inclusion of the latter country group was deemed desirable to explore pass-through behavior in several monetary regime options not often used in Sub-Saharan Africa.

Keywords Dollarization · Exchange rate pass through · Monetary union

JEL E00 · F00 · F30

Introduction

The choice of an exchange rate regime for developing and emerging countries is an ongoing debate in international finance. The general view held today is that intermediate exchange rate regimes are no longer viable, and that developing and emerging countries have to adopt either an extremely fixed or a fully flexible exchange rate regime. In an attempt to gain policy credibility, many countries have opted for extremely fixed regimes such as a currency board, monetary union, or official dollarization.

Although economists have extensively discussed the costs and benefits of fixed and flexible exchange rate regimes, an opportunity to further explore the economic implications of these regimes is presented in the exchange rate pass-through literature. Typically, the exchange rate pass-through is defined as the percentage change in local currency import prices resulting from a 1% change in the exchange rate between the importing and exporting countries. When import prices respond 100% to exchange rate movements, pass-through is said to be full or complete. On

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the other hand, a less than 100% response of prices means that pass-through is incomplete or partial. In this paper, the definition of exchange rate pass-through is broadened to include the impact of exchange rate movements on both import prices and consumer prices. Using this definition, I explore the link between exchange rate pass-through and the monetary regime in a sample consisting of 15 Sub Saharan African and 12 Latin American countries. The paper is organized as follows. Section "A Brief Overview of the Literature" provides a brief review of the pass through literature. Section "The Choice of the Monetary Regime" describes the monetary regimes in Sub Saharan Africa and Latin America. The empirical analysis and results are given in sections "Exchange Rate Pass-Through: Empirical Analysis" and "Results" respectively. The final section concludes.

A Brief Overview of the Literature

The Law of One Price (LOOP) stipulates that exchange rate pass-through into import prices should be complete. According to LOOP, and under the assumption of costless arbitrage, identical products would sell for the same common currency price in different countries. This relation is depicted by Eq. 1. In the equation, p is the home currency price of the good in country H, p^* is the foreign currency price of the good in country F, and E is the exchange rate of H's currency per unit of F's currency. Thus for the good i:

$$p_i = Ep_i^* \tag{1}$$

Empirical tests of the validity of LOOP for a good (i) over a given period of time (t), usually involves estimating the following regression—where all variables are expressed in logs:

$$p_t = \alpha + \delta p^* + \gamma E_t + \varepsilon_t \tag{2}$$

If LOOP holds, then Eq. 2 would predict that α=0, δ=1 and γ=1. Changes in the exchange rate would be completely passed through to the domestic price of good i.

The degree of exchange rate pass through is estimated using an equation similar to that given in (3),

$$p_t = \alpha + \delta X_t + \gamma E_t + \psi Z_t + \varepsilon_t \tag{3}$$

where (all variables are in logs) p is the local currency import price, X is a measure of the exporter's costs, E is the exchange rate (expressed as the importer's currency per unit of the exporter's currency), Z is a set of control variables that may include import demand shifters such as competing prices or income, and ε is the error term. The pass-through coefficient is represented by γ.

Hooper and Mann (1989); Campa and Goldberg (2002); Goldberg and Knetter (1997), have estimated equations similar to that given by Eq. 3. Their findings suggest that exchange rate pass-through is incomplete. One explanation offered is that the currency in which a country's imports are priced determines the degree of exchange rate pass-through.

Other explanations have been offered for the less than hundred percent response of prices to exchange rate movements. Khundrakpam (2007) posits that the greater

the share of imports in consumption and in production, the higher the degree of exchange rate pass through. An (2006) finds that pass-through tends to be higher in smaller economies and lower in larger economies because foreign exporters are more willing to maintain market shares in large markets. She also finds that the more persistent the exchange rate shock the higher the degree of exchange rate pass-through.

In the 1990s, low inflation rates were observed in many countries despite episodes of large currency depreciations (Gagnon and Ihrig (2001), Campa and Goldberg (2002), Marazzi et. al (2005)). To explain this phenomenon, Taylor (2000) argued that the observed decline in pass-through may be explained by a lower and more stable inflation environment which has resulted in a decline in the pricing power of firms. Choudhri and Hakura (2001), Gagnon and Ihrig (2001), Bailliu and Fujii (2004) tested Taylor's proposition. The empirical findings in support of the relationship between exchange rate pass-through and the inflationary environment make the case for monetary integration since the main objectives of monetary integration is to reduce the inflation rate. A lower inflation rate would mean a lower degree of exchange rate pass-through.

The Choice of the Monetary Regime

Mundell (1961) put forth the criteria for establishing a common currency; a high degree of capital and labor mobility, greater flexibility of wages/prices, greater (actual or potential) trade among member countries, and a similarity in the shocks that the member countries face. Monetary integration is said to reduce transactions costs, enhance trade, and stimulate economic growth. It also means that member countries have to forego the use of independent monetary policy to respond to shocks that may be asymmetric in nature.

Monetary integration can take many forms; formal or informal exchange rate union, full monetary union, official dollarization, and currency board. In Africa, monetary integration has taken the form of a monetary union, while official dollarization has been more prevalent in Latin America.

Currently in Africa, two currency areas exist: the CFA franc zone and the Common Monetary Area, although a number of other regional monetary integration initiatives are being considered[1]. The CFA franc was established in 1945 by France for its colonies and serves as currency to two separate groups of sub-Saharan African countries; French West Africa and French Central Africa. The West African Economic and Monetary Union (WAEMU) comprises of Benin, Burkina Faso, Cote D'Ivoire, Mali, Niger, Senegal, and Togo. The Central African Economic and Monetary Community (CAEMC) includes Chad, Republic of Congo, Equatorial Guinea, Gabon, Cameroon, and Central African Republic. Each region of the CFA franc zone has its own central bank which conducts monetary policy for the region.

[1] Several other regional monetary initiatives are also being considered in Africa. On April 20, 2000 in Accra, Ghana, the leaders of six West African countries declared their intention to proceed to a monetary union, the West African Monetary Zone (WAMZ).

The Common Monetary Area (CMA) consists of the Republic of South Africa, Lesotho, Namibia, and Swaziland; the latter three of which have their currencies tied to the South African rand[2]. Monetary policy in the CMA is determined by the South African Reserve Bank (SARB), and is based on the domestic objectives of the South African economy.

Latin American countries have mostly adopted dollarization as the exchange regime. Panama adopted dollarization since 1904, Ecuador and El Salvador adopted the regime in 2000 and 2001 respectively, while in 1999, Argentina has contemplated this alternative. As stated earlier, dollarization can be either official or nonofficial. Official dollarization occurs when a country completely abandons its local currency and instead adopts a foreign currency (i.e. the US dollar) as legal tender. In this case, the foreign currency serves all the functions of money. In addition, the money supply is denominated in dollars and is supported by the balance of payments and by a sufficient amount of foreign currency reserves. In dollarizing, the country loses the use of its independent monetary policy.

Unofficial dollarization, or *de facto* dollarization, refers to the situation whereby private individuals use a foreign currency (either with or without formal legal approval) alongside the local currency as a means of payment or as a store of value. Unofficial dollarization can include holding foreign bonds and other non-monetary assets abroad, holding foreign currency deposits in domestic or foreign banks, or even simply carrying foreign currency notes in wallets and under mattresses.

Exchange Rate Pass-Through: Empirical Analysis

This section begins with a discussion of the data and empirical specification. Using a sample of 27 countries over the period 1980–2005, I investigate the link between exchange rate pass-through and the type of monetary regime. The country list is given in Appendix Table A1. The countries were chosen primarily on the basis of data availability. Sources of data are the IMF's "International Financial Statistics" and "Direction of Trade Statistics," and the World Bank's "World Development Indicators."

An important first step in analyzing the relationship between exchange rate pass-through and the monetary regime is to highlight the differences in the average rate of inflation and exchange rate volatility that exists between the different groups of countries. This data is reported in Table 1. As shown in the table, average inflation and exchange rate volatility is generally lower in the extremely fixed regimes (i.e. monetary unions and officially dollarized countries) than in the other types of regimes. In Sub-Saharan Africa, for example, average inflation and exchange rate volatility is lowest in the CFA franc zone. The second lowest rates are observed within the CMA, followed by WAMZ and COMESA. Among the Latin American countries, the average rate of inflation and exchange rate volatility is lower in the countries that are officially dollarized and increases with the degree of unofficial dollarization.

[2] The rand is legal tender in Lesotho and Namibia, but not in Swaziland. South Africa thus shares seigniorage with Lesotho and Namibia to compensate for the circulation of the rand in those countries.

Table 1 Average inflation and exchange rate volatility in countries with different monetary regimes

Country	Average Inflation Rate (Percent)	Inflation Variability (SD Units)	Mean Nominal Exchange Rate	Exchange Rate Volatility (SD Units)
Sub-Saharan Africa				
CFA Franc Zone				
Cameroon	6.08	7.87	108.46	22.04
Central African Republic	2.8	8.04	97.18	23.94
Cote D'Ivoire	5.6	5.65	96.45	29.64
Gabon	4.12	9.27	123.38	29.89
Togo	5.26	9.04	119.53	21.73
CMA (South African Rand)				
Lesotho	11.3	7.36	181.69	62.18
South Africa	10.61	4.59	236.03	177.8
WAMZ				
Gambia (Managed Float)	10.67	11.25	109.29	48.55
Ghana (Managed Float)	34.08	28.22	8644.92	19117.71
Nigeria (Managed Float)	23.11	19.7	2242.82	3252.35
Sierra Leone (Managed Float)	43.1	41.94	15865.9	28738.69
COMESA				
Burundi (Managed Float)	10.43	7.85	167.5	66.2
Congo, DR (Independent Float)	1353.13	4666.05	6.00E+12	1.26E+13
Malawi (Managed Float)	22.26	15.95	739	596.91
Uganda (Independent Float)	51.99	67.18	15019.12	46607.68
Latin America				
Officially Dollarized				
Ecuador	34.21	22.21	3070.73	4356.49
El Salvador	11.94	8.38	101.04	29.71
Panama	1.89	2.87	73.6	31.04
Highly Dollarized				
Argentina	316.82	732.53	1.53E+07	5.02E+07
Bolivia	536.77	2301.11	5113.9	12959.04
Costa Rica	19.48	16.1	182.69	139.45
Nicaragua	1058.53	2559.86	2.36E+13	4.15E+13
Paraguay	16.08	8.65	58.65	49.82
Uruguay	43.11	31.41	133.23	62.52
Moderately Dollarized				
Chile	13.38	9.65	79.84	22.75
Colombia	19.17	8.08	233.14	166.71
Venezuela	31.71	23.14	1628.18	2045.33

*Volatility is measured as the standard deviation—SD—of the variable

Based on the inflation performances described above, one should expect a lower pass-through rate for the officially dollarized countries in Latin America and the currency unions in Sub-Saharan Africa. One should also expect exchange rate pass-through rates to be higher (the degree of unofficial dollarization) as such countries tend to have higher rates of inflation. Given that the values for the average inflation rates for Argentina, Bolivia, Nicaragua and the Democratic Republic of Congo are off the chart these countries were removed from the sample in order not to bias the estimated coefficients.

In estimating exchange rate pass-through, one may examine pass through of exchange rate movements into import prices and, thus, use the import price index as a measure of the price level[3], or alternatively one may use the producer price index and the consumer price index as measures of the price level.[4] In my situation, I use the consumer price index rather than import prices.

Also, I use the nominal effective exchange (NEER) rate rather than the bilateral exchange rate vis-à-vis the United States dollar[5]. The NEER is calculated as the trade-weighted average of a country's exchange rate against other currencies, and it was chosen as a measure of the exchange rate for two reasons. First, my sample of countries includes some fixed exchange rate regimes whose nominal exchange rate against the U.S. dollar (expectedly) remains unchanged throughout the sample period. Using the NEER allows for some variation in the exchange rate of these fixed exchange rate regimes and makes it possible to estimate the degree to which the exchange rate movements get passed through to consumer prices. The second reason for using the NEER is that countries, in general, are engaged in trade with more than one other country, implying that one should consider not only how changes in the bilateral rate affect prices, but how changes in the country's currency vis-à-vis the currencies of its trading partners affect consumer prices.

Information on the NEER was, however, unavailable for Argentina, El Salvador and Panama. Including these countries in the sample was deemed necessary. Including Argentina enables me to study pass through under a currency board arrangement, and adding Panama and El Salvador (two of only three officially dollarized countries in Latin America) allows me to study pass-through in fully dollarized regimes.

For the reasons stated above, I calculated NEER for Argentina, El Salvador and Panama as follows:

$$NEER_t = 100 * \Pi \left(\underset{i=1}{\overset{n}{S^*_{it}}} \right)^{w^*_i} \tag{4}$$

$$S^*_{it} = S_{it}/S_{i0}$$

$$w_i = (X_i + M_i)/(X + M);\ w^*_i = \frac{w_i}{\sum_{i=1}^{n} w_i} \text{ and } \sum_{i=1}^{n} w^*_i = 1$$

[3] Examples of studies that have estimated the exchange rate pass through coefficient using an import price measure include Campa and Goldberg (2002), Campa, Goldberg and Gonzalez-Minquez (2005), Marazzi et al (2005), etc.

[4] Baillu and Fujii (2004), McCarthy (2006) and Faruquee (2006), are examples of studies that have estimated pass through both into consumer and producer prices. Many other studies such as Choudhri and Hakura (2001) and Gagnon and Ihrig (2001) have also examined the degree of exchange rate pass through into consumer prices.

[5] Carranza and Galdon-Sanchez (2004), for example use the nominal effective exchange rate vis-à-vis the US dollar to estimate pass through into 15 Latin American countries.

S_{it} is the nominal exchange rate of the i-th trading partner in period t per unit of the importing country's currency.

S_{i0} is the nominal exchange rate of the i-th trading partner in the base period (year 2000) per unit of the importing country's currency.

X_i is the amount of exports to the i-th trading partner

M_i is the amount of imports from the i-th trading partner

W_i is the i-th trading partner's share of the importing country's total trade. W_i must be at least 1% for the country to be included in NEER calculations, and as recommended by the IMF's methodology, these weights are changed every 5 years. I thus calculate weights for the years 1980, 1985, 1990, 1995, and 2000. The weights of each country are later standardized so that $\sum w_i^* = 1$.

Table A2 in the Appendix presents the percent of total trade for all trading partners included in the calculation of NEER for Argentina, El Salvador and Panama.

Because the NEER is expressed as an index of the foreign currency per unit of the domestic currency, an increase in the index marks an appreciation of the domestic currency. To be consistent with the definition of the exchange rate used in the pass through literature (i.e. domestic currency per unit of the foreign currency) I use (1/NEER) in all specifications[6].

Export partners' production cost is another variable that is standard in all empirical estimations of exchange rate pass-through. The inclusion of this control variable provides support for the notion that exporting firms adjust their mark-ups in response to movements in the exchange rate.

To measure exporting partners' production cost, I follow Campa and Goldberg's (2002) methodology and construct a proxy given by

$$C_t^{x,j} = neer_t^j * P_t^j / reer_t^j \tag{5}$$

This proxy gives a measure of trading partners' cost (over all partners x of importing country j) with each partner weighted by its importance in the importing country's trade.

$C^{x,j}$ is the cost faced by country *j's* trading partners, $neer^j$ and $reer^j$ are the nominal and real effective exchange rates for the importing country j respectively, and P^j is the consumer price index in the importing country j.

Because data on NEER and REER are, again, unavailable for Argentina, El Salvador and Panama, I follow much of the pass through literature[7] and construct a trade-weighted CPI index (TWCPI) to proxy for export partners' production cost.

$$TWCPI_t = 100 * \prod_{i=1}^{n} \left(CPI_{it}^*\right)^{w_i^*} \tag{6}$$

$$CPI_{it}^* = CPI_{it} / CPI_{i0}$$

[6] Campa and Goldberg (2002) follow the same procedure.

[7] E.g. Choudhri and Hakura (2001), Gagnon and Ihrig (2001).

CPI_{it} is the consumer price index of the i-th trading partner in period t

CPI_{i0} is the consumer price index of the i-th trading partner in the base period (year 2000).

Both W_i and W* are as defined in the NEER calculations above.

In estimating exchange rate pass-through, it is also important to control for the effects of inflation persistence on prices. There is a positive link between the persistence of inflation and the inflation rate which indirectly implies a positive relationship between inflation persistence and exchange rate pass-through (i.e. the more persistent inflation is, the less exchange rate movements are perceived to be transitory and the more firms might respond via price adjustments). In order to properly isolate the effects of exchange rate movements on the CPI, it is therefore important to control for the persistence of inflation. The lagged difference in the log of CPI is used as a measure of inflation persistence.

Other determinants of exchange rate pass-through are also explored. These include the size of the economy, exchange rate volatility, trade openness, and the size of the public debt.

According to An (2006), exchange rate pass-through is expected to be higher in smaller economies and lower in larger economies because foreign exporters are more willing to maintain market shares in large markets; they (exporters) therefore exercise pricing-to-market in larger economies thereby reducing exchange rate pass-through. McCarthy (2006) further notes that in a large country, the inflationary effect of currency depreciation on domestic prices is counteracted by a decline in the world price (because of lower world demand), thereby reducing the degree of pass-through. For a small country, a currency depreciation would have no effect on world prices, and pass-through would be greater.

The effect of exchange rate volatility on pass-through. depends on whether exchange rate movements are perceived to be transitory or persistent[8]. When exchange rate volatility is high, the cost of price adjustment also rises. If the exchange rate shock is perceived to be transitory, exporters (or importers) would be more willing to adjust their profit margins rather than change prices thereby reducing the extent of pass-through. If, however, the shock is expected to persist then exporters and importers would be more likely to change prices than adjust profit margins.

The effect of trade openness on exchange rate pass-through can be both direct and indirect. The more a country is open (i.e. there is a large presence of imports and exports), the more movements in exchange rates are transmitted via import prices into CPI changes. Trade openness has also been shown to be negatively correlated with inflation[9]. This gives rise to an indirect channel, whereby openness is negatively correlated with inflation. The direct and indirect channels move in opposite directions with the overall sign of the correlation between pass-through and openness being either positive or negative.

[8] This relationship is also discussed in An (2006) and McCarthy (2006).

[9] Romer (1993) finds empirical evidence that trade openness puts a check on inflationary finance.

The empirical equation that is estimated is given by Eq. 7:

$$\begin{aligned}\Delta cpi_{i,t} = {} & \beta_0 + \beta_1 group_{i,t} + \beta_2 \Delta cpi_{i,t-1} + \beta_3 \Delta x\_cos\ t_{i,t} + \beta_4 \Delta neer_{i,t} \\ & + \beta_5 \left(\Delta neer_{i,t} * group_{i,t}\right) + \beta_6 \left(\Delta neer_{i,t} * \Delta rgdp_{i,t}\right) \\ & + \beta_7 \left(\Delta neer_{i,t} * \Delta trade_{i,t}\right) + \beta_8 \left(\Delta neer_{i,t} * \Delta ex\_vol_{i,t}\right) + \varepsilon_{i,t}\end{aligned} \tag{7}$$

for sub-Saharan Africa, group = 0 if the country belongs to COMESA, group = 1 if the country is part of WAMZ, group = 2 if the country is a member of the CMA and group = 3 if the country is within the CFA franc zone.

For the Latin American countries, group = 0 if the country has a moderate degree of unofficial dollarization, group = 1 if the country has a high degree of unofficial dollarization and group = 2 if the country is fully/officially dollarized. The interactive terms capture the effect of regime type, economic size, and trade openness on the degree of exchange rate pass through.

Out of the twelve Latin American countries in my sample, only Ecuador, El Salvador, and Panama are officially dollarized. Because Ecuador and El Salvador have only been fully dollarized since the early 2000s, and given that the data for this sample was available only for 2000 to 2005, I have used quarterly data to allow for more data points. Data on real GDP and trade openness is available on an annual basis from the World Bank's World Development Indicators. This data was converted into quarterly data using STATA's denton command.

Results

The empirical results are presented in Tables 2 and 3. The tables show fixed effects and random effects estimates of Eq. 7 for Sub-Saharan Africa and Latin America respectively. The Hausman test, however, favors the use of the fixed effects model in estimating Eq. 7 for both Sub-Saharan African countries and Latin American countries.

The results may be summarized as follows: exchange rate pass-through is incomplete (i.e. the pass-through coefficient, $\Delta neer$, is less than one) and it is significantly influenced by the inflation environment. Regimes that succeeded in reducing inflation did tend to have lower degrees of exchange rate pass-through.

In Sub Saharan Africa, for example, average inflation rate is highest within the COMESA group of countries. When the pass-through rate in the other regional groups is compared to pass-through among COMESA countries (the base group), I find that pass-through in the CFA, CMA, and WAMZ countries is significantly lower. Compared to the countries within COMESA, pass-through in WAMZ countries is about 26 percentage points lower; 50 percentage points lower in CMA countries; and 54 percentage points lower in CFA countries. The implication of this finding is that the monetary regimes in the CFA, CMA, and WAMZ groups are more credible than the regimes being operated within COMESA countries; in that these regimes have given rise to lower inflation rates.

Table 2 Exchange rate pass-through and the monetary regime in Sub-Saharan Africa

Variable	Fixed Effects Estimated	Random Effects Estimates
WAMZ		0.034
		(0.024)
CMA		0.011
		(0.027)
CFA		−0.030
		(0.021)
Δcpi(t−1)	0.136***	0.170***
	(0.041)	(0.039)
Δx_cost	0.456***	0.462***
	(0.041)	(0.041)
Δneer	0.619***	0.621***
	(0.069)	(0.067)
Δneer*WAMZ	−0.264***	−0.222***
	(0.089)	(0.085)
Δneer*CMA	−0.503***	−0.488***
	(0.171)	(0.170)
Δneer*CFA	−0.235***	−0.229***
	(0.113)	(0.111)
Δneer*rgdp	0.057	−0.132
	(0.521)	(0.518)
Δneer*trade	0.105	0.076
	(0.106)	(0.106)
Δneer*ex_vol	0.052***	0.053***
	(0.015)	(0.015)
Constant	0.043***	0.036***
	(0.010)	(0.018)
N	332	332
Hausman Test Statistic	27.00***	

The findings for Latin America also show a positive relationship between exchange rate pass-through and the inflation environment. Countries that are officially dollarized, as well as those with a moderate to low degree of unofficial dollarization, have experienced a significantly lower exchange rate pass-through coefficient than those of unofficially dollarized economies.

The effects of size and trade openness on exchange rate pass-through are not significant for either the Sub Saharan African or Latin American countries. However, the effect of exchange rate volatility on pass-through is shown to be positive and significant in Sub-Saharan Africa and significantly negative in the Latin American region. As previously discussed, the effect of exchange rate volatility on pass-through depends on

Table 3 Exchange rate pass-through and the monetary regime in Latin America

Variable	Fixed Effects Estimates	Fixed Effects Estimates
full_dolla		−0.003
		(0.003)
lo_dolla		0.001
		(0.002)
Δcpi(t−1)	0.383***	0.501***
	(0.045)	(0.040)
Δx_cost	0.034***	0.037***
	(0.012)	(0.013)
Δneer	0.203***	0.189***
	(0.044)	(0.045)
Δneer*full_dolla	−0.294*	−0.152
	(0.167)	(0.174)
Δneer*lo_dolla	−0.165***	−0.123***
	(0.042)	(0.043)
Δneer*rgdp	−0.333	−0.134
	(0.859)	(0.910)
Δneer*trade	0.374	0.577
	(1.085)	(1.118)
Δneer*ex_vol	−0.023*	−0.022
	(0.013)	(0.014)
Constant	0.009***	0.007***
	(0.001)	(0.002)
N	189	189
Hausman Test Statistic	30.36***	

the whether exchange rate movements are perceived to be transitory or persistent. The above finding suggests that exchange rate movements in Sub Saharan Africa are perceived to be permanent while exchange rate movements in Latin American are viewed as transitory. Firms are therefore more willing to adjust their profit margins in Latin American than in Sub Saharan Africa in response to swings in the exchange rate.

In estimating exchange rate pass-through, it is important that the effects of inflation inertia and trade partners' production cost on prices be controlled for (as shown in the tables that both of these effects are significant for Sub-Saharan Africa and Latin America). Both variables show a positive impact indicating that firms (domestic and foreign) adjust their prices more the more persistent inflation is and the higher the cost of production. For example, a 10% increase in export partners' cost will (on average) raise prices by about 5% in Sub-Saharan Africa and by less than 1% in Latin America. A 10% increase in inflation persistence, on the other hand, will tend to raise prices by about 1% in Sub Saharan Africa and about 4% in Latin America.

Conclusion

This paper sought to determine whether or not exchange rate pass-through is affected by the type of exchange rate regime that a country adopts—specifically whether pass through is lowest in extremely fixed exchange rate regimes (i.e. monetary unions and official dollarization). The findings of the study cast doubt on the validity of the proposition that there exists a link between exchange rate pass through and the monetary regime. Pass through tends to be lower in countries with low inflation rates. In Sub Saharan Africa, for example, pass-through is significantly lower in the CFA, CMA, and WAMZ countries, all of whom have a lower average inflation rate than countries within COMESA. Pass-through, however, is not significantly different among CFA, CMA, and WAMZ countries; suggesting that monetary integration among the West African states may not have added significantly to regime credibility. In Latin America, pass-through turned out to be also lower for the regimes that have a lower average inflation rate, i.e. for both officially dollarized countries and countries with low unofficial dollarization.

The implication of these findings is that no specific type of regime can be advocated as a means of achieving credibility. Developing and emerging countries cannot gain policy credibility by simply adopting an extremely fixed exchange rate regime such as a monetary union or official dollarization. The appropriate choice of a regime for developing countries should, therefore, not be restricted to the two polar extremes: fully fixed or freely floating.

Appendix

Table A1 Country list

Latin America	Sub-Saharan Africa
Argentina	Burundi
Bolivia	Cameroon
Chile	Central African Republic
Colombia	Congo, DR
Costa Rica	Cote D'Ivoire
Ecuador	Gabon
El Salvador	Gambia
Nicaragua	Ghana
Panama	Lesotho
Paraguay	Malawi
Uruguay	Nigeria
Venezuela	Sierra Leone
	South Africa
	Togo
	Uganda
$N = 27$	

Table A2 Percent of total trade of all countries included in calculating NEER and TWCPI

	Argentina	El Salvador	Panama
Nominal Effective Exchange Rate			
1980	82.52	94.96	83.92
1985	78.14	94.26	83.76
1990	87.86	93.16	78.08
1995	89.45	92.22	83.90
2000	88.15	93.16	83.85
Trade Weighted CPI			
1980	80.57	94.96	83.92
1985	75.56	94.26	83.76
1990	87.86	93.16	78.08
1995	87.29	92.22	83.90
2000	84.36	93.16	83.32

Table A3 Definition of variables

Variable Name	Definition	Source and Frequency
CPI	Consumer Price Index: a measure of the general price level.	IFS—annual and quarterly
NEER	Nominal Effective Exchange Rate: the value of a currency against a weighted average of several foreign currencies	IFS—annual and quarterly
REER	Real Effective Exchange Rate: the nominal effective exchange rate divided by a price deflator or index of costs.	IFS—annual and quarterly
X_Cost	Exporters' cost: a proxy for the production cost faced by a country's trading partners. It is measured as (NEER/REER) * CPI	Constructed—annual and quarterly
Trade	Trade openness: the sum of exports and imports of goods and services measured as a share of gross domestic product	WDI—annual
Ex_Vol	Exchange rate volatility: standard deviation of the nominal effective exchange rate over four quarters	Constructed—annual
RGDP	Real RDP: GDP in constant 2000 U.S. Dollars	WDI—annual

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