The Exchange Rate and Consumer Prices in Pakistan: Is Rupee Devaluation Inflationary?

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This paper challenges the popular view that devaluation of the rupee is inflationary. Recent developments in the theoretical literature are reviewed to explain why consumer prices would be unresponsive to exchange rate changes in the short run. Then empirical tests are conducted for Pakistan during the period 1982 to 2001 to examine whether inflation is systematically related to changes in the exchange rate. The empirical analysis finds no association between rupee devaluations and inflation in Pakistan. It appears, therefore, that concerns about the inflationary consequences of rupee devaluation are unsupported by the facts.

1. INTRODUCTION

Does devaluation lead to an increase in prices? This is a critical question that policy-makers in Pakistan have faced continuously over the past three decades or so, and particularly since 1982, following the adoption of a flexible exchange rate policy. At the beginning of 1972, the US dollar exchanged for about five Pakistani rupees. After a devaluation in 1972 and a small revaluation in 1973, the exchange rate remained fixed at about ten rupees per dollar till the end of 1981. The exchange rate was allowed to vary since January 1982 and it rose to a rate around sixty rupees per dollar over the next two decades. This increase involved a number of sizable rupee devaluations. Such devaluations receive considerable attention and often raise the concern that they would contribute to inflation. The concern about inflation is based on the popular view, which has sometimes been shared by officials in policy-making circles, that consumer prices are significantly affected by imported goods prices, which increase quickly in response to a devaluation.[1] This view is generally

[1]A related view emphasises the role of "input inflation" via devaluation-induced increases in electricity tariffs and prices of petroleum products (*ABN AMRO Economic Bulletin*, July 2002).

thought to find support in empirical studies of inflation in Pakistan. In the most recent study on the subject, Ahmad and Ali (1999) assert that the "recent empirical work in Pakistan provides consistent evidence that the domestic price level responds significantly but gradually to exchange rate devaluation" (p. 237).

Obviously, if the devaluation-inflation link exists, then devaluation comes with an important cost that necessarily must be factored into the exchange rate policy. Furthermore, it implies that the authorities can only affect the real exchange rate temporarily, because as domestic prices rise, the initial effects of a nominal depreciation on the real exchange rate would be reversed. On these two counts at least, exchange rate policy becomes fairly constrained.

This paper argues that the fear of inflation associated with devaluations in Pakistan is largely unfounded. We draw on recent developments in the literature on the exchange rate pass-through and the purchasing power parity to suggest reasons why consumer prices might be unresponsive to changes in the exchange rate. We also reexamine the evidence for Pakistan and present new results, which demonstrate that rupee devaluations have had little impact on inflation.[2] The theory underlying the relationship between the exchange rate and consumer prices is reviewed in Section 2. The empirical analysis is discussed in Section 3. The conclusions of the paper are contained in Section 4.

2. THE EXCHANGE RATE PASS-THROUGH TO CONSUMER PRICES

This section briefly discusses the channels through which changes in the exchange rate pass-through to consumer prices. We begin with the conventional model that implies a significant and, under certain conditions, a complete pass-through to consumer prices in the short run.[3] We then discuss certain departures from the conventional model suggested by recent literature, which could account for little or no pass-through in the short run. Finally, we examine the long-run relationship between the exchange rate and the price level, and discuss conditions that would weaken this relationship.

2.1 Traded and Non-traded Goods

The basket of goods entering the consumer price index (CPI) can be divided into traded and non-traded goods. Letting P_t denote the CPI in period t, we can express it as

$$P_t = (P_t^T)^\theta (P_t^{NT})^{1-\theta}, \qquad \dots \qquad \dots \qquad \dots \qquad \dots \qquad \dots \qquad (1)$$

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[2]Our results complement those of Siddiqui and Akhtar (1999), which show no causal relation between changes in the exchange rate and consumer-price inflation in Pakistan.

[3]The degree of pass-through to a particular price index is defined as the elasticity of the price index with respect to the exchange rate. The pass-through is complete when this elasticity equals one.

where P_t^T and P_t^{NT} are the price indexes for traded and non-traded goods, and θ is the weight assigned to traded goods. The home price of traded goods can be directly linked to the price of foreign traded goods adjusted for the exchange rate. The conventional model assumes that traded goods are produced under competitive conditions. This assumption implies that, in the absence of trade barriers, the price of a traded good expressed in a particular currency will be the same in each country.[4] The following relation can then be derived by aggregating over prices of individual traded goods:

$$P_t^T = S_t P_t^{T*}, \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (2)$$

where S_t is the exchange rate (expressed as the price of foreign currency) and P_t^{T*} is the foreign price index for traded goods (which is assumed to use the same weights as the home index). This relation implies that a change in the exchange rate will fully pass-through to the traded goods price index. The relation can be easily modified to introduce trade costs (e.g., transportation costs, tariffs, and non-tariff barriers). These costs introduce a wedge between the home and (exchange-rate adjusted) foreign prices, but as long as these costs are determined independently of the exchange rate, the exchange rate pass-through to traded goods prices would continue to be complete.

The price for the non-traded goods sector will be determined by the demand and supply functions for this sector. These functions would depend on the ratio of non-traded goods to traded goods prices. Let γ be the price ratio that clears the non-traded goods market. Thus, in equilibrium

$$P_t^{NT} = \gamma P_t^T. \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (3)$$

Relation (3) provides an indirect link between the exchange rate and the non-traded goods price index. If the price of non-traded goods is flexible and adjusts quickly, (3) will hold in the short run. In this case, there will be a complete pass-through in the short run to both traded and non-traded goods prices [via (2) and (3)] and hence to the CPI. In fact, assuming that relations analogous to (1) and (3) hold for the foreign economy, we can also link the domestic CPI to both the exchange rate and the foreign CPI. Using (1), (3), their foreign counterparts, and (2), we can obtain

$$P_t = S_t P_t^* (\gamma / \gamma^*)^{1-\theta}, \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (4)$$

where P_t^* and γ^* represent the CPI and the equilibrium relative price of non-traded goods in the foreign country. The home CPI responds fully to the foreign CPI as well as the exchange rate in this relation.

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[4]Arbitrage would eliminate inter-country price differences under these conditions. This result is referred to as the "Law of One Price".

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The short-run impact of the exchange rate on CPI would be weakened if non-traded goods prices are sticky. Exchange rate changes would now affect only traded goods prices in the short run and the short-run pass-through to CPI would equal the share of traded goods, θ.[5] The share of traded goods can be substantial and thus the short-run pass-through to CPI can be sizeable even if non-traded goods prices adjust slowly.

2.2 The Short-run Pass-through

We next discuss a number of variations of the above model that could cause the short-run pass-through to be small. Consider, first, the variations that loosen the traded goods price relation (2) in the short run. One important point of departure in the recent literature has been to relax the assumption of perfect competition. Under imperfect competition, prices include a markup over costs and producers have the discretion to vary the markup across countries (i.e., they can price to market).[6] The pass-through to traded goods price would be incomplete if variations in the markup offset changes in the exchange rate.[7] However, the equilibrium markup need not respond systematically to exchange rate changes. In fact, it can be shown that the equilibrium markup would be invariant with respect to the exchange rate under the standard assumption of a constant price elasticity of demand.

Another argument is that imperfectly-competitive producers would change prices infrequently in the presence of even small menu costs. Infrequent price adjustment would not prevent complete pass-through in the importing country if the producer (exporter) fixes the price in its own currency. However, if the price is set in local (importer's) currency and is sticky, it would be unresponsive to exchange rate fluctuations in the short run.[8] Local currency pricing can thus play an important role in blocking the impact of exchange rate changes on traded goods prices in the short run. However, while local currency pricing has been observed in some large industrial countries, such as the United States, it is not clear whether this practice occurs in developing countries like Pakistan.

A weak response of the traded goods component of the CPI may also be explained by the fact that imported goods are generally not sold directly to

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[5] A 1 percent change in the exchange rate will cause a 1 percent change in the traded goods price index according to (2) and thus a θ percent change in CPI by (1).

[6] See, for example, Krugman (1987) for a discussion of pricing to market. It is assumed that trade costs and other factors segment international markets and make it difficult to arbitrage inter-country price differences.

[7] The price of a traded good i supplied by a foreign producer would equal $P_{it}^T = \mu_{it} S_t C_{it}^*$, where μ_{it} represent the markup and C_{it}^* is the foreign marginal cost. The pass-through would be incomplete if μ_{it} is inversely related to S_t.

[8] See Devereux and Engel (2001) for a discussion of local currency pricing and its implications for monetary policy.

consumers. Many imported goods are, in fact, intermediate inputs imported by firms producing final products.[9] If prices of the final products are adjusted infrequently, changes in the cost of inputs resulting from fluctuations in the exchange rate will not be quickly passed on to consumers. Even non-intermediate imports go through distribution channels (transportation, marketing, retailing) before they are delivered to consumers. These channels largely use non-traded services, which can account for a large fraction of the consumer price.[10] The price component represented by local services would then not be affected by the exchange rate in the short run.

The short-run pass-through could also be weakened by certain factors that introduce biases in measured prices and are of special relevance to developing economies. For example, a home-currency devaluation could induce a substitution of cheaper lower-quality local goods for imported goods. Burstein, Eichenbaum, and Rebelo (2001) refer to this phenomenon as "flight from quality" and argue that it helps explain why a number of large devaluations had a small impact on the measured inflation rate. Price regulation of "essential" commodities and foreign exchange controls could represent another important source of bias in the observed price and exchange rate data. Because measured values would not fully reflect true market values under these policies, the pass-through relation would be distorted.

2.3 The Long-run Relation

The reasons discussed above can insulate traded goods prices from changes in the exchange rate in the short run. However, they do not explain why traded and non-traded goods prices would not fully respond to exchange rate changes in the long run. To understand the long-term association between these variables, it is important to note that both the exchange rate and consumer prices are determined endogenously and respond differently to various shocks. Estimates of the effect of the exchange rate on consumer prices essentially capture the average response of the two variables to a variety of shocks. To explain the long-run relation between the exchange rate and consumer prices, it is useful to discuss how these variables would respond to different shocks. We can distinguish three types of shocks.

First, there are temporary shocks to the foreign exchange and financial markets. These arise largely from policy interventions and private speculation triggered by changing expectations of future values. These shocks account for much of the short-term variability of the exchange rate, but may have little effect on consumer prices for reasons discussed above.

Second, there are permanent shocks to the money stock. These shocks would be fully passed on to both the exchange rate and consumer prices in the long run.

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[9]A number of recent open economy macro-economic models [e.g., McCallum and Nelson (1999)], in fact, treat all imports as intermediate inputs.

[10]See Burstein, Neves, and Rebelo (2001) for a discussion of the importance of the distribution costs.

Suppose, for example, that home money supply increases permanently by 10 percent. Assuming that the long-run money demand is unchanged, monetary equilibrium would require that the CPI rise by 10 percent in the long run. As this change would not affect the equilibrium relative price of non-traded goods (γ), relation (4) implies that the exchange rate would also rise by 10 percent. Thus a permanent monetary shock would bring about a change in the price level that would match the exchange rate change in the long run.

Finally, there are real shocks (to technology and preferences) that lead to permanent changes in relative prices. These shocks would influence only the exchange rate in the long run. As an example, assume that labour productivity in traded goods increases permanently. This change would increase the wage rate in both the traded and non-traded goods sectors and increase the equilibrium price for the non-traded goods sector (where labour productivity has not risen). Since the money market is not affected, the CPI would be unchanged. However, relation (4) would require that the exchange rate fall to compensate for the increase in the relative price of non-traded goods. The long-run response to a permanent real shock, therefore, involves a change in the exchange rate but not the price level.

As the above discussion indicates, the long-run association between the exchange rate and CPI would depend on the relative importance of monetary and real shocks. Monetary shocks would tend to be less important in economies where long-run inflation rates are low. The long-run relation between the exchange rate and CPI is likely to be weak in such economies.[11] Identification of this relation would be made difficult, moreover, by the presence of noise introduced by temporary shocks to the exchange rate.

The long-run link between the exchange rate and prices can be related to Purchasing Power Parity (PPP) theory. According to this theory, the exchange rate and the ratio of home and foreign price levels would exhibit the same proportional change in the long run. This implication can be restated in terms of the behaviour of the real exchange rate, defined as the nominal exchange rate divided by the ratio of the price levels (i.e., the real exchange rate equals $S_t P_t^* / P_t$). PPP implies that the real exchange rate will revert to a constant level in the long run. In terms of the model with traded and non-traded goods discussed above, it can be seen from (4) that PPP will hold only if the ratio, γ/γ^*, is constant in the long run. As discussed above, however, this condition would not be satisfied if the home and foreign economies are subject to different permanent real shocks.

3. EVIDENCE FOR PAKISTAN

For our empirical analysis we focus on the period since 1982, during which the dollar-rupee exchange rate was no longer fixed. The behaviour of the

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[11]Choudhri and Hakura (2001) present evidence that the pass-through (in the short as well as the long run) is positively related to the average inflation rate across countries.

exchange rate (ER), the domestic consumer price index (CPI), and an index of foreign consumer prices (FCPI) are shown in Figure 1 from the first quarter of 1982 to the second quarter of 2001.[12] FCPI represents a weighted average of the consumer prices for Pakistan's trading partners expressed in US dollars with weights based on Pakistan's foreign trade. Note that this index is influenced by each country's US dollar exchange rate, and thus tends to be more variable than the consumer price series for individual countries expressed in national currencies.

To examine the exchange rate pass-through to consumer prices, we estimate the effect of ER on CPI, using FCPI as the control variable. As Figure 1 indicates, these series exhibit a marked upward trend and appear to be non-stationary. The Augmented Dickey-Fuller (ADF) test indicates that all three series contain a unit root.[13] Estimation of the pass-through relation in levels could thus lead to finding a spurious relation between these variables. The relation in first differences, on the other hand, would ignore relevant information if these variables were co-integrated. These variables would be co-integrated if the PPP holds and thus the real exchange rate for Pakistan (RER) is stationary.[14] The path of RER is also shown in Figure 1. There has been a significant increase in RER (or a decrease in the real value of the rupee) during the 1980s and 1990s, and RER does not appear to converge to a constant value (or a deterministic path).[15] The ADF test does not reject the hypothesis that RER (in logs) has a unit root.[16] We assume that the exchange rate and prices are not co-integrated and thus estimate the relation between these variables in first differences.

Estimates of the exchange rate pass-through are based on a regression equation of the following form:

$$\Delta \log CPI_t = a + \sum_{i=1}^{n} b_i \Delta \log CPI_{t-i} + \sum_{i=0}^{n} c_i \Delta \log ER_{t-i}$$
$$+ \sum_{i=0}^{n} d_i \Delta \log FCPI_{t-i} + e_t, \qquad \ldots \qquad \ldots \qquad (5)$$

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[12]The source of all data is IMF, *International Financial Statistics*. The series on the real effective exchange rate for Pakistan was used to construct the FCPI measure.

[13]Applying the ADF test to each series expressed in logs, including an intercept, a deterministic trend, and using up to 4 lags, the test statistic does not reject the unit-root null at the 10 percent level for all three series.

[14]In this case, there is a co-integrating relation between logs of ER, FCPI and CPI with a co-integrating vector (1, 1, –1).

[15]One possible explanation of the sharp increase in RER is that the traded-goods productivity gap between foreign countries and Pakistan has widened over the past two decades.

[16]The ADF statistic with an intercept, trend, and 4 lags is –2.038 while the 10 percent critical value is –3.160.

a. Nominal Exchange Rate
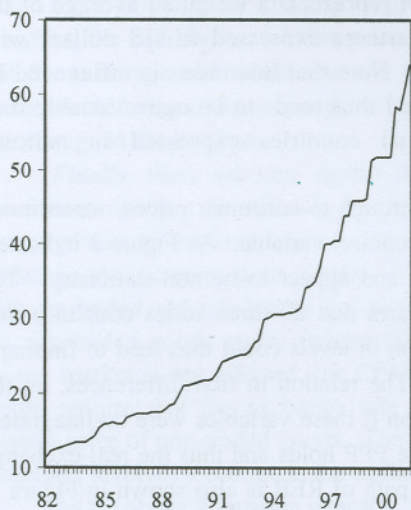
b. Consumer Price Index
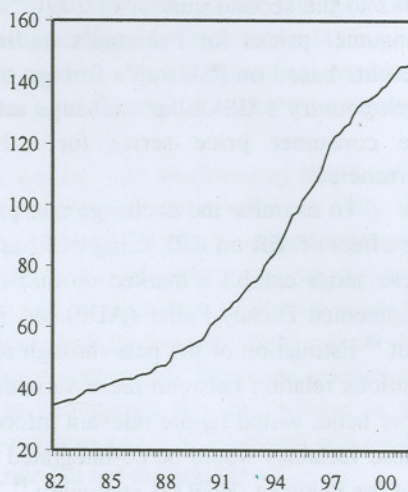
c. Foreign Consumer Price Index

d. Real Exchange Rate

Fig. 1. Selected Series for Pakistan, 1982:1–2001:2.

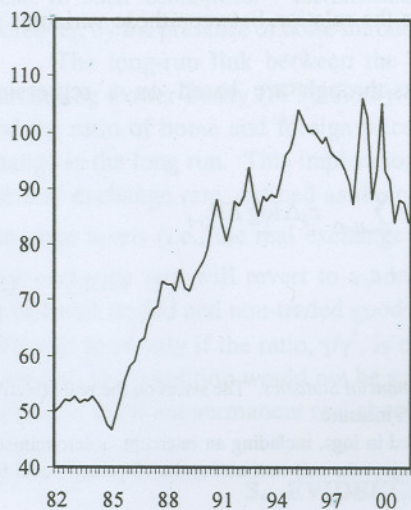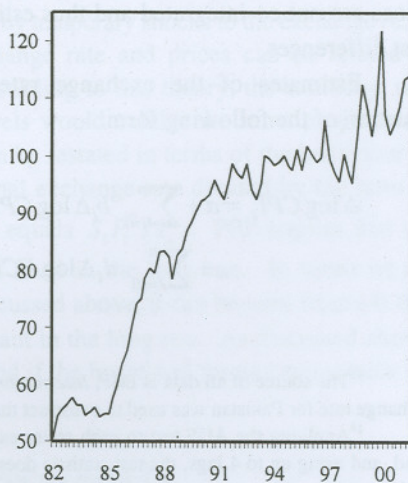where lags are introduced to allow for gradual adjustment in prices and e_t is the error term.[17] This equation can be used to derive estimates of the degree of the exchange rate pass-through over different periods. The pass-through coefficient after m periods is defined as the effect of a one unit increase in *log ER* in period t on log *CPI* in period $t + m$, and can be readily calculated from estimates of coefficients, namely the b_i's and c_i's , in (5).

Equation (5) is estimated using quarterly data from 1982:1 to 2001:2. Two estimates of this equation are shown in Table 1: one based on 4 lags for each variable, and the other using the Schwartz criterion to determine the optimal lag length for each variable. In both cases, the effect of *ER* on *CPI* is insignificant. Estimates of the short-run pass-through, in fact, are negative. For example, the regression equation using the Schwartz criterion implies that the pass-through coefficient is −0.02 in the current quarter, and −0.01 after 4 quarters. Equation (5) focuses on the effect of the US dollar exchange rate. For a given US dollar-rupee rate, the rupee value in another currency could vary because of changes in the

Table 1

Estimates of the Pass-through Relation

Variable	Coefficient (*t*-value in Brackets)			
	(1)		(2)	
Constant	0.007	(1.29)	0.007	(2.01)
$\Delta\log CPI_{t-1}$	0.450	(3.56)	0.444	(3.71)
$\Delta\log CPI_{t-2}$	−0.300	(−2.23)	−0.311	(−2.42)
$\Delta\log CPI_{t-3}$	0.275	(2.03)	0.283	(2.21)
$\Delta\log CPI_{t-4}$	0.239	(1.89)	0.244	(2.05)
$\Delta\log ER_{t-1}$	0.004	(0.06)		
$\Delta\log ER_{t-2}$	−0.027	(−0.45)		
$\Delta\log ER_{t-3}$	−0.033	(−0.59)		
$\Delta\log ER_{t-4}$	0.065	(1.18)		
$\Delta\log FCPI_t$	−0.022	(−0.55)	0.005	(0.16)
$\Delta\log FCPI_{t-1}$	0.009	(0.24)		
$\Delta\log FCPI_{t-2}$	−0.012	(−0.31)		
$\Delta\log FCPI_{t-3}$	0.007	(0.20)		
$\Delta\log FCPI_{t-4}$	0.043	(1.10)		
$\overline{R}^2$	0.260		0.307	
S.E. of Regression	0.010		0.010	

Note: The dependent variable is $\Delta\log CPI_t$. The lags in regression (2) are determined by the Schwartz criterion.

[17]For a discussion of a theoretical model that would suggest a pass-through relation of this form, see Choudhri and Hakura (2001).

currency's exchange rate with respect to the US dollar. The effect of such a change on consumer prices would operate via FCPI. As Table 1 shows, however, even this variable does not have a significant impact on CPI.[18]

The unresponsiveness of consumer prices to the exchange rate can be seen clearly by looking at the behaviour of the inflation rate after large rupee devaluations. During the sample period, the rupee registered quarterly depreciations of more than 10 percent only three times, once at the beginning and twice at the end of the period. Figure 2 shows the behaviour of the inflation rate for several quarters after these devaluations. As the figure shows, the devaluations do not have any appreciable effect on the path of the inflation rate.

Consumer prices include retail margins that depend on local services and are likely to be insensitive to the exchange rate. It may be thought that the exchange rate may exert a stronger influence on the wholesale price index (WPI) that excludes retail margins and gives more weight to traded goods. Equation (5) was thus re-estimated replacing $\Delta\log CPI$ by $\Delta\log WPI$. The effect of ER remained insignificant even in this equation.[19] These results are consistent with the recent view discussed in the previous section that even the traded goods prices respond weakly to the exchange rate.

One limitation of the pass-through relation estimated above is that exchange rate changes are not exogenous, but reflect the effect of a variety of shocks. Each shock may have a different pattern of effect on prices. A structural model is needed to identify individual shocks and to trace the effect of each shock on the exchange rate and prices. Although a thorough analysis along these lines is beyond the scope of this paper, we briefly explore this issue by estimating a simple Vector Auto-regression (VAR).

We consider a VAR with two endogenous variables, $\Delta\log ER$ and $\Delta\log CPI$, and one exogenous variable, $\Delta\log FCPI$. In this simple framework, we can distinguish between two types of shocks: (1) shocks to asset markets and (2) shocks to goods markets. Asset market shocks are thought to account for much of the observed exchange rate volatility. It is thus interesting to examine how these shocks pass-through to consumer prices. To identify these shocks we exploit the assumption that information about goods markets becomes available with a lag, so that asset market shocks are independent of the contemporaneous value of $\Delta\log CPI$. Under this assumption, the reduced-form shock to $\Delta\log ER$ can be viewed as an asset market shock, and Cholesky decomposition can be used to estimate the response of consumer prices to this shock.

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[18]We also estimated (5) after redefining ER as the effective exchange rate (i.e., the price of a basket of currencies using Pakistan's trade weights), and FCPI as the corresponding foreign consumer price index. The influence of the effective exchange rate was statistically insignificant in this equation as well.

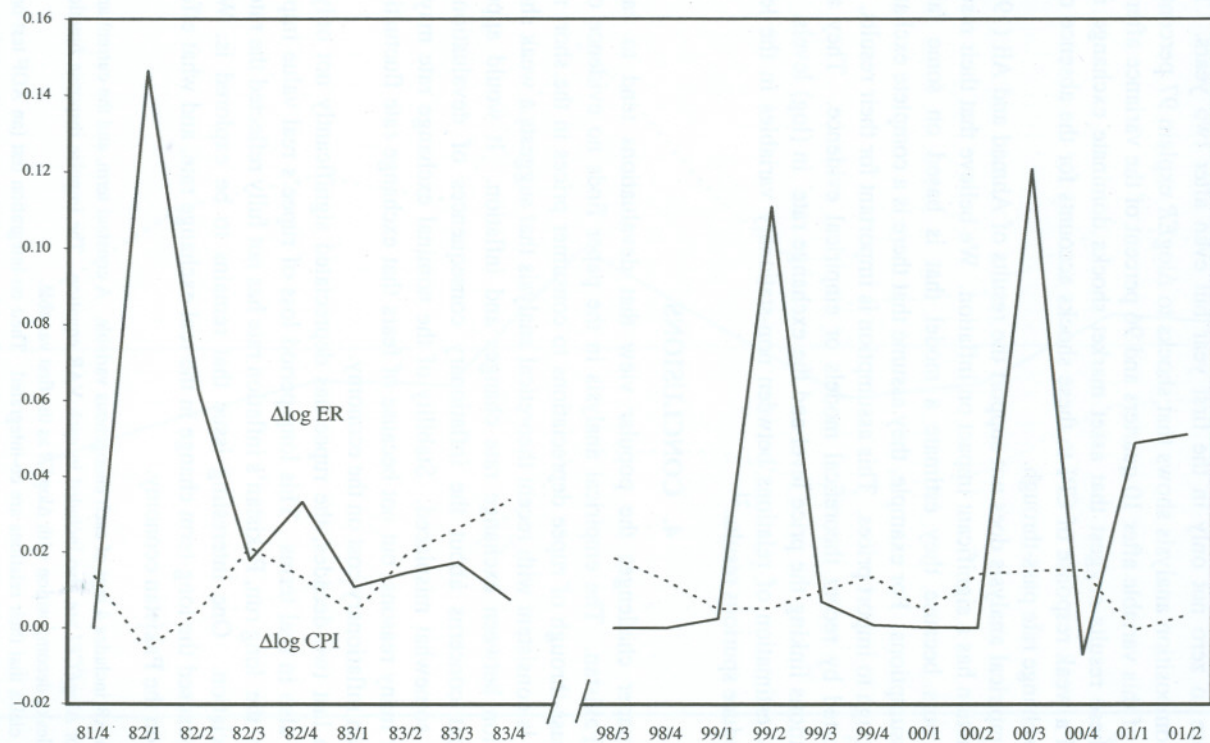[19]The results are available on request from the authors.

Fig. 2. The Inflation Rate after Large Devaluations.

Figure 3 shows the response of $\Delta \log CPI$ to a one standard-deviation shock to $\Delta \log ER$ over 10 quarters.[20] Two standard deviation bands for this impulse response function are also shown in the figure. The response of the rate of inflation to the shock is close to zero not only in the first year but even after two years. The variance-decomposition analysis shows that shocks to $\Delta \log ER$ explain 97 percent of the variance of this variable after 10 quarters and 96 percent of the variance after 20 quarters. These results suggest that asset market shocks dominate exchange rate changes, and a weak response of CPI to these shocks accounts for the absence of a significant exchange rate pass-through.

Our empirical analysis does not support the results of Ahmad and Ali (1999) that a devaluation has a significant impact on inflation. We believe that their results differ from ours because they estimate a model that is based on some fairly restrictive assumptions. For example, they assume that there is a complete exchange rate pass-through to import prices. This assumption is important for their results, but is not supported by recent theoretical models or empirical evidence. They also estimate relations linking the price level and the exchange rate in (log) levels. As noted above, estimation of relations between non-stationary variables in the level form can produce spurious results.[21]

4. CONCLUSIONS

This paper challenges the popular view that devaluations tend to cause inflation in Pakistan. The empirical analysis in the paper finds no evidence of a significant pass-through of rupee depreciations to consumer prices in the short run. This finding is consistent with recent theoretical analysis that suggests a weak short-run association between exchange rate changes and inflation. It would appear, therefore, that concerns about the inflationary consequences of devaluation in Pakistan are somewhat misplaced. Stability of the nominal exchange rate may be desirable for many reasons, but not because of fears that exchange rate fluctuations will impose an inflationary cost on the economy.

In the last two decades, the rupee has depreciated significantly not only in nominal but also in real terms. This long-period loss of rupee's real value implies that even in the long run, Pakistan's inflation rate has not fully reflected the rate of rupee depreciation. One interesting issue that remains to be explored is: What factors have caused the long-term change in the real exchange rate, and what effects has this had on the Pakistan economy.

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[20]The VAR includes 4 lags of each endogenous variable. A constant term, and the current and 4 lagged values of $\Delta \log FCPI$ are also included in each VAR equation. The impulse response function is based on a Cholesky decomposition with $\Delta \log ER$ as the first variable.

[21]They claim that their relations are co-integrated. Their co-integration test (an ADF test on the residuals), however, is applied after imposing a number of *ad hoc* restrictions on each relation. We eschew estimating our pass-through relation in the level form in view of the indication of a unit root in the real exchange rate.
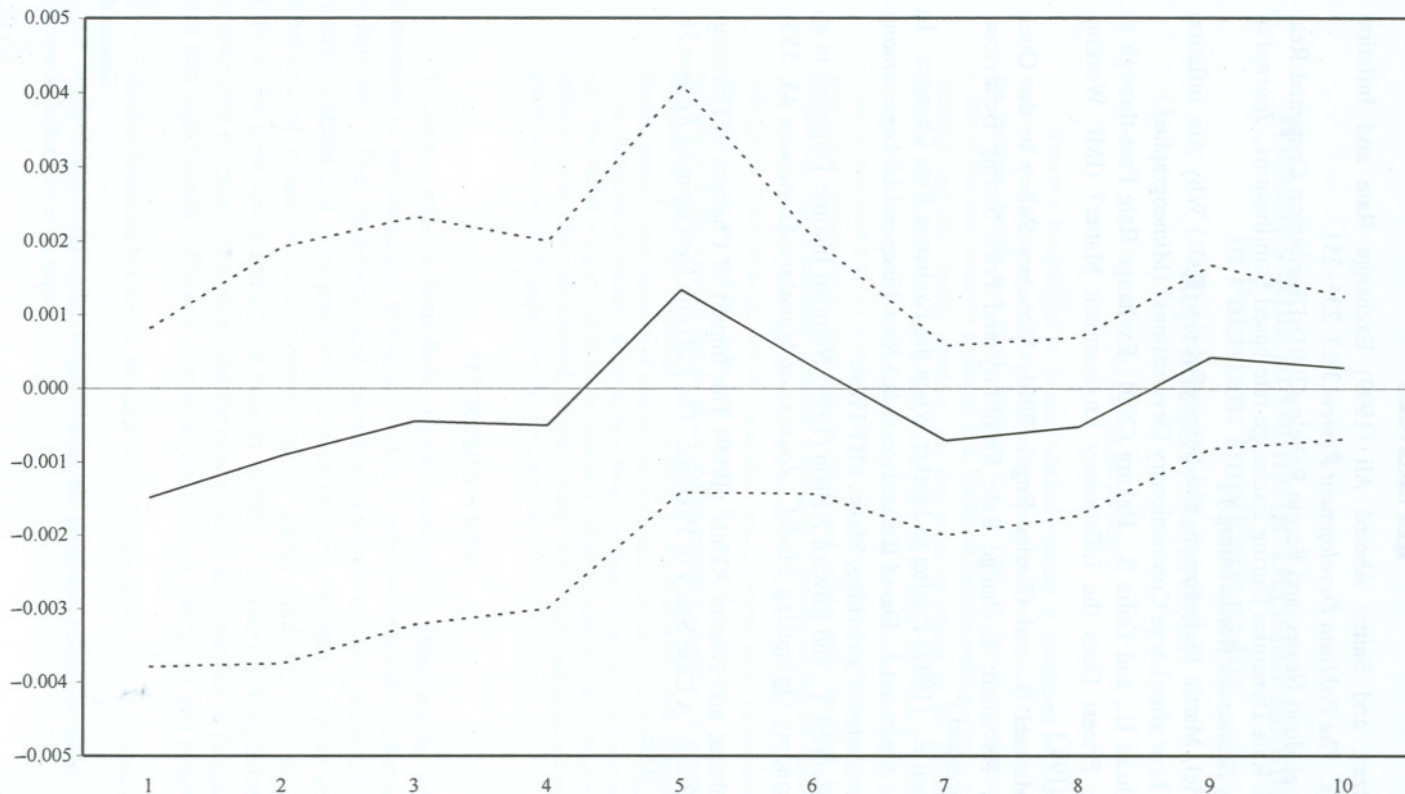
* Response of Δ log CPI to one standard deviation Δ log ER Innovation.

Fig. 3. The Response of the Inflation Rate to Asset Market Shocks.*

References

Ahmad, Eatzaz, and Saima Ahmed Ali (1999) Exchange Rate and Inflation Dynamics. *The*
 Pakistan Development Review 38:3, 235–251.
Burstein, Ariel, Joao Neves, and Sergio Rebelo (2001) Distribution Costs and Real Exchange Rate Dynamics During Exchange-rate-based Stabilisations. *Journal of Monetary Economics,* forthcoming.
Burstein, Ariel, Martin Eichenbaum, and Sergio Rebelo (2001) Why Are Inflation Rates So
Low after Large Contractionary Devaluations? Mimeo.
Choudhri, Ehsan U., and Dalia S. Hakura, 2001, "Exchange Rate Pass-Through to Domestic
Prices: Does the Inflationary Environment Matter?," IMF Working Paper 01/194.
Devereux, Michael B., and Charles Engel, 2001, "Monetary Policy in the Open Economy
Revisited: Exchange Rate Flexibility and Price Setting Behavior," mimeo.
Krugman, Paul R., 1987, "Pricing to Market When the Exchange Rate Changes" in Sven W.
Arndt and J. David Richardson (eds.), *Real-Financial Linkages Among Open Economies* (Cambridge, Mass.: MIT Press).
McCallum, Bennett T., and Edward Nelson, 1999, "Nominal Income Targeting in an Open-
Economy Optimizing Model," *Journal of Monetary Economics,* 43, 553-578.
Siddiqui, Rehana, and Naeem Akhtar, 1999, "The Impact of Changes in Exchange Rate on
Prices: A Case Study of Pakistan," *The Pakistan Development Review*, 38: 4 Part II, 1059-1066

Women's Role in Domestic Decision-making in Pakistan: Implications for Reproductive Behaviour

NAUSHIN MAHMOOD

Women's involvement in domestic decision-making is recognised as a distinct aspect of their autonomy with implications for reproductive behaviour. Using data from the Pakistan Fertility and Family Planning Survey 1996-97, this study examines the extent of Pakistani women's participation in household decision-making relative to their husbands and other family members, and determines its effects on the demand for children and contraceptive use in both urban and rural settings. The findings reveal that women's decision-making authority is clearly related to the context in which they live, as urban women have a say in household matters, almost equal to their husbands', whereas most rural women report that their husbands and other family members have a predominant role in household decisions with regard to seeking medical treatment for a sick child or to make purchases of household items. The results also indicate that women with greater freedom to go outside home alone are also more likely to participate in domestic decisions, and the linkage is stronger for rural than for urban women. The multivariate analysis reveals that the effect of decision-making variables on measures of reproductive behaviour is strongly, conditioned by socio-economic and demographic factors, implying that measures of women's empowerment give only a partial explanation of the likelihood of women's desire to have fewer children and to increase contraceptive use. The results suggest that Pakistani women's enhanced role in household decision-making has an effect on achieving gender equality and fertility reduction outcomes—goals that are central to population and development policy.

INTRODUCTION

Women's role in household decision-making is identified as an important dimension of her status and autonomy which in turn has implications for reproductive behaviour. The theoretical and empirical research on the relationship between women's status and demographic behaviour has revealed that the more conventional measures of education, employment, marital status duration, etc., are inadequate proxies for their status and do not explain women's decision-making autonomy, their control over economic resources and the power relations dynamics of families—factors that can significantly influence women's reproductive intentions and behaviour [Balk

(1994); Jejeebhoy (1996); Govindasamy and Malhotra (1996); Sathar and Kazi (1997)]. Yet, few studies have measured these dimensions of women's status, and fewer have thus far used these direct measures in different socio-cultural contexts [Basu (1992); Morgan and Niraula (1995); Sathar and Kazi (2000)].

The nature and extent of women's involvement in decision-making and its linkage with reproductive behaviour is not a much researched topic in the social context of Pakistan. Most studies of gender-related aspects of demographic change in Pakistan have used such commonly available measures as women's education, economic activity, and attitudes towards family planning to explain their fertility and contraceptive use behaviour or demand for children [Syed (1978); Shah (1986); Sathar, *et al*. (1988); Mahmood and Ringheim (1997)].   These analyses have lacked assessment of the critical dimensions of women's status that are considered to enhance their relative position within the household in relation to demographic behaviour. This is largely because the routinely available fertility and demographic surveys do not provide adequate information on direct measures of women's status. At the same time, small-scale studies, including qualitative analysis, that have focussed on assessing various aspects of women's status and gender relations parameters have lacked the advantages offered by large-scale socio-demographic surveys. However, with the availability of the nationally representative survey of Fertility and Family Planning (1996-97)[1] which incorporates several direct measures of women's position in the household, it becomes possible to address some of the questions relating to women's decision-making autonomy, gender inequality, and reproductive behaviour.

Recognising that Pakistan is a patriarchical society exhibiting high levels of gender inequality in social and economic spheres, a closer look at women's participation in domestic decision-making and its relation with reproductive choices and fertility attitudes would provide further insight into family building behaviour— a question of great relevance to achieving gender equality and further declines in fertility.

The objective of the study is to examine women's role in household decision-making and see whether it is linked to their freedom of movement and reproductive behaviour, more specifically in urban and rural areas with distinct social and cultural characteristics. The main questions addressed in the paper are:

— First, to what extent are Pakistani women involved in domestic decision-making relative to their husbands and other family members, and how closely are standard proxies of women's status, i.e., education, employment, marital status duration, etc., associated with domestic and reproductive decision-making authority?

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[1]The survey was conducted by the National Institute of Population Studies (NIPS), Islamabad, in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM). For details of the sample size, design, and preliminary findings of the survey, see NIPS and LSHTM (1998).

— Second, do women with a greater role in decision-making and greater freedom of movement also exhibit desirable demographic outcomes—such as higher contraceptive use and lower demand for children, and how do these relationships vary between the urban and rural settings or across regions?

These questions are of special significance in Pakistan's social context because of large variation in individual and regional characteristics of surveyed women, and the complex nature of gender relations and fertility-limiting behaviour in urban and rural settings.

THEORETICAL ARGUMENTS

Deriving from both the theoretical and empirical work that identifies the relationship between women's status and demographic behaviour [Mason (1984, 1993, 1998); Dyson and Moore (1983); Malhotra, Schuler, and Boender (2002)], it is recognised that a woman's involvement in domestic decision-making is a distinct aspect of her autonomy. For example, women who have a greater say in household matters are also likely to have freedom of movement, access to resources, and equality in their relationship with the spouse.

In determining the connection between women's decision-making autonomy and reproductive attitudes and behaviour it is important to understand the social and cultural context in which they live. In relatively modern and gender-egalitarian societies, one would expect greater female autonomy and freedom of movement on account of widespread schooling, greater opportunities for work, and equality of gender relations, whereas in traditional and patriarchical settings women's actions and behaviour at the individual and community levels are influenced by social norms, division of gender roles, and the variability in gender relations.

It is argued that religious values and cultural practices in traditional settings restrict women's decision-making options and freedom of movement at the same time that they encourage and favour their reproductive role. Recognising the importance of the family as the basic social unit and the complementarity of male and female roles in such societies, it is likely that women tend to play a major role in household matters and exert substantial influence on domestic and reproductive decisions because they fall within the socially prescribed female domain. It is alternatively argued that the "outside" role of men and their control of the economic resources empower them to have more influence on household decision-making, whereas women's position and role within the household depends much more on their social and economic status, access to education, health care, job opportunities, etc. Thus, the association between women's decision-making autonomy and demographic outcome would be affected by their social and economic class and the variability and complexity of gender relations within and across societies. Research findings, however, support the view that women's status is often measured by socio-

economic background factors, i.e., women's education and/or employment, which appear to have an indirect and more speculative effect on fertility change [Mason (1993)], and need to be supplemented by more direct measures of women's status so as to assess the underlying process of demographic behaviour. Hence, it is of interest to understand how the constraints of gender inequality and limited decision-making power of women in less modern societies like that of Pakistan influence the reproductive attitudes and behaviour of couples.

SOCIO-CULTURAL BACKGROUND

The social structure of Pakistan is based on deep-rooted cultural and traditional beliefs and values. The family system is patriarchical and patrilocal with strong gender biases perpetuated in society. Men have a dominant role as the household head, with the primary responsibility of financially supporting the family. However, women and children contribute significantly to farm and agricultural work especially in rural areas. There is generally a preference for joint family system, with a strong desire for having more sons than daughters. Men participate more in the formal outside-home affairs and decision-making in the community, while women tend to play a major role within home in terms of nurturing of children and maintenance of household. Overall, gender inequality in social and economic spheres is evident from the wide gap between male and female literacy and educational attainment (especially in rural areas), low female work participation in the formal sector, and high mortality among girl children (1-4 years) and mothers [Mahmood and Nayab (1998)]. People living in different regions/provinces speak their own local languages, especially in rural areas, and can be distinguished by their distinct ethno-linguistic groups and social customs. Despite this regional and cultural diversity, people are united by one common religion, Islam (97 percent of the population). Given that Pakistan has a large, homogeneously Muslim population, it is likely that religious beliefs and values in combination with low educational attainment levels and limited economic and social autonomy among women contribute to a lack of self-efficacy in adopting the small family size norms and fertility-limiting behaviour.

On the demographic front, fertility level has declined only recently from a high level of more than six births per woman in the early 1970s to around five births per woman in the 1990s, [NIPS (2001)], suggesting a slow-paced fertility transition in Pakistan. The modest decline in fertility has been associated with increasing levels of contraceptive use and rising age at marriage, especially of females, and the downward trend in family size desires [Sathar and Casterline (1998); Soomro (2000)]. Contraceptive prevalence rate has risen from a low level of 6 percent in the 1970s to about 28 percent in the 1990s. There is an evidence of falling fertility desires as indicated by wanted total fertility rate of less than four children. At the same time, it is reported that about 44 percent of women have expressed the desire for no more children, and

33 percent of the women surveyed have unmet need for family planning [NIPS (2001)]. Women often mention their husband's disapproval of family planning as one of the reasons for non-use of contraception and indicate that the influence of husbands in household and reproductive decisions is dominant [Mahmood (1998)].

These socio-cultural conditions, in combination with the issue of unmet contraceptive need, pose a challenging situation for policy-makers and population programme managers to effectively implement fertility reduction objectives of the programme. If the socio-cultural set up is portrayed with men as the dominant force in all aspects of family life, then the population programme needs to enhance male involvement and approval for family planning. Alternatively, if most of family planning services are provided to women only, then whether they are largely autonomous in decision-making or depend on husbands' consultation and involvement is an important aspect to be studied in the socio-cultural context of Pakistan.

DATA AND METHODS

The data set used in this study is the Pakistan Fertility and Family Planning Survey (PFFPS) of 1996-97, a nationally representative sample of 8,362 women between the ages of 15–49 years. The present analysis is limited to 7,584 currently married women in the weighted sample for whom fertility-limiting behaviour and decision-making autonomy is a relevant issue. The data includes many questions on women's say in household matters such as: 'Who makes the final decision about child treatment in case of illness?'; 'Who decides about household purchases including food, clothing etc?' The availability of this information, with a wide variety of background, household and socio-economic indicators, and detailed measures of fertility and contraceptive use, provides the basis for examining the gender inequality aspects and reproductive behaviour of women in urban and rural areas of Pakistan.

The methods employed to study the hypothesised relationships between the predictor and dependent variables include bivariate and multivariate analyses. First, variations in women's household decision-making are examined by their background socio-economic characteristics. The extent of women's participation in household matters is measured by the simple percentage responses in relation to selected characteristics in bivariate relationships. The multivariate analysis is then used to determine which characteristics of women are significant in explaining women's decision-making involvement in the household. The analysis pertains to currently married urban and rural women for whom having a say in household affairs *vis-à-vis* their husbands and other family members is an active issue.

These results are then examined using logistic regression models to see whether—or to what extent—the decision-making variables ultimately explain the reproductive behaviour of women. The analysis is done for urban and rural women separately to see the differential effect of selected factors on the dependent variables in the two types of settings.

Dependent Variables

The multivariate analysis undertaken to determine the effect of selected predictor variables on reproductive behaviour analysis focuses on two dependent variables: the desire for children coded as 1 if a woman wants no more children, and zero otherwise; and current use of contraceptives defined as 1 if a woman is using any method, and zero otherwise. Because of the dichotomous dependent variables, logistic regressions are used to examine the net effect of women's position variables on desired fertility and contraceptive use after controlling for background characteristics.

Independent Variables

Among several questions asked the women about the decision-making pattern within households and their freedom of moving outside home, only those questions are used in the analysis that are least speculative and are relevant to the objectives of the study.

Decision-making Autonomy

A woman's overall input in household decisions is a key indicator of her authority and importance within the family [Govindasamy and Malhotra (1996); Sathar and Kazi (2000)]. On the decision-making issue,[2] three questions[3] are used to assess women's final say in household matters: 'Who usually takes the final decision about treatment when a child is sick?'; 'Who takes final decision about what to buy for food?'; and 'Who takes the final decision to buy clothes for yourself?' The responses available to these questions are: (1) respondent; (2) husband; (3) jointly/mother-in-law/others. These responses indicate the preference for egalitarian or independent decision-making in women's everyday life matters, and their ability to influence household finances, which is considered largely a male domain in Pakistani society. The responses to the two questions on household purchases including food and clothing show similar distributions and are merged together to reflect the broader nature of domestic decisions involving financial and consumption matters.

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[2]Domestic decision-making in Pakistan's social context usually involves the opinion and input of all family members including mother-in-law or elders in the family, especially in a joint or extended family set-up. However, the questions chosen to examine women's involvement in decision-making pertain to only those which indicate women's reporting about making final decisions *vis-à-vis* their husbands and other family members in household matters.

[3]A separate question on reproductive decision-making was also asked the women who reported the first use of method: 'Who decided to use this particular method?' 'Was it mainly the wife's decision, her husband's or someone else's?' This question pertains to ever users only which reduces the sample to less than half, and hence is not included as a decision-making variable in the analysis. However, the survey report shows that the wife's decision to use a particular method has almost the same weight as the husband's for both urban and rural women [NIPS and LSHTM (1998), p. 139].

Freedom of Movement

Restrictions on women's movement outside the house are considered to deny them opportunities to participate in schooling or employment, limit their access to resources and information, and reduce their ability to take care of themselves and their children in case of illness [Jejeebhoy (1996); Khan (1998)]. On the mobility issue, two questions are used to measure women's independence to go out of the house: 'Within the last four weeks, have you been outside this village/neighbourhood for any purpose without the company of any adult?'; and 'Could you go by yourself to a health clinic/hospital if you needed or would you have to be accompanied by someone else?' The responses to these questions indicate women's freedom to travel alone to the market, friends or relatives, or a health centre without being escorted or seeking permission from the husband or another family member—chiefly an issue for relatively younger Pakistani women.

Husband-Wife Communication

If couples can openly discuss family matters and the desire for children with each other, chances of mutual influence and agreement in desired fertility and contraceptive use are likely to be higher [Mahmood (1998)]. But communication between husband and wife may be hampered by social norms of modesty and privacy concerning sexuality, as well as by the subordinate position of women in Pakistani society. Using information on whether the woman has talked to her spouse about family planning matters in the past year, a variable on husband-wife communication is included in the analysis as a parameter reflecting gender relations within a household.

In addition to indicators of these specific dimensions of gender inequality and decision-making, selected background characteristics that can affect both women's position and reproductive behaviour are included in the analysis. These are education, employment status, paid work, and cultural and economic differences represented by the four regions/provinces. Because the demographic outcomes are greatly influenced by lifecycle factors, women's age, parity, and marriage duration are included as control variables in the analysis. Almost all variables used are categorical/dummies to examine which category of any selected variable is important in explaining variations in the dependent variables.

RESULTS

(a) Background Characteristics of Women

In all, about 70 percent of women are rural (5340) and 30 percent urban (2245), with about 48 percent having more than four living children. The majority of surveyed women reside in the Punjab province (58 percent) and the least minority in

Balochistan region (5 percent), whereas the proportions residing in Sindh and the NWFP are 22 percent and 14 percent, respectively. A further disaggregation of the sample by urban and rural areas shows wide variations in characteristics of selected subgroups of women.

The percentage distributions of currently married urban and rural women with selected background characteristics are presented in Figure 1. Education levels of these women are very low, as about 86 percent of rural and 49 percent of urban women have never attended school or are exposed to only informal or Quranic learning. Rural women, in particular, indicate extremely low levels of educational attainment, as about 11 percent have completed primary and middle level schooling and only about 3 percent have attained secondary and above levels compared with urban women of those levels of schooling—24 percent and 27 percent, respectively. Even more alarming is the situation that the vast majority of women (85.8 percent urban and 78.8 percent rural) report as not being engaged in any employment activity. Of the remaining women who report to be working, a slightly higher percentage—10.2 percent—are engaged in self-employment in urban areas as compared to 17.3 percent in rural areas, and only about 4 percent report to be working for someone else or in cash-based economic activities (see Appendix Table 1 for detailed percentage distribution of these variables). These figures almost certainly underreport the contribution of women to their family work and reflect women's own perceptions about the economic value of their work, and the worth given to women's work in society. There is evidence from other research studies in developing countries like India and Egypt on underreporting of female work and biases in the estimation and measurement of women's participation in the labour force that arise mainly because of poorly constructed questionnaires, misperceptions of male interviews/respondents, and ambiguous definitions [Anker (1981); Anker, Khan and Gupta (1988)].

The percentage distributions of the two measures of decision-making, and women's freedom of movement along with the two dependent variables, are shown in Figure 2 for urban and rural areas. With regard to decision-making for child's treatment in case of illness, urban women appear to have an equal say in the household in comparison with their husbands (39 percent), whereas rural women are much less empowered than their husbands to make the final decision in this regard (23 percent wives vs. 55 percent husbands). The input by mother-in-law and other family members is about 21 percent in both urban and rural areas. In case of having a final decision regarding food and clothing purchases, about 36 percent of urban women report their input as almost equally matched by their husbands'—37 percent, whereas only 21 percent of rural women have the authority to make such decisions as compared with 50 percent by husbands. The involvement of other family members in decisions about household purchases is about 28 percent in both types of area. Thus, it is evident that domestic decision-making is not primarily a woman's domain

Urban Women

Rural Women
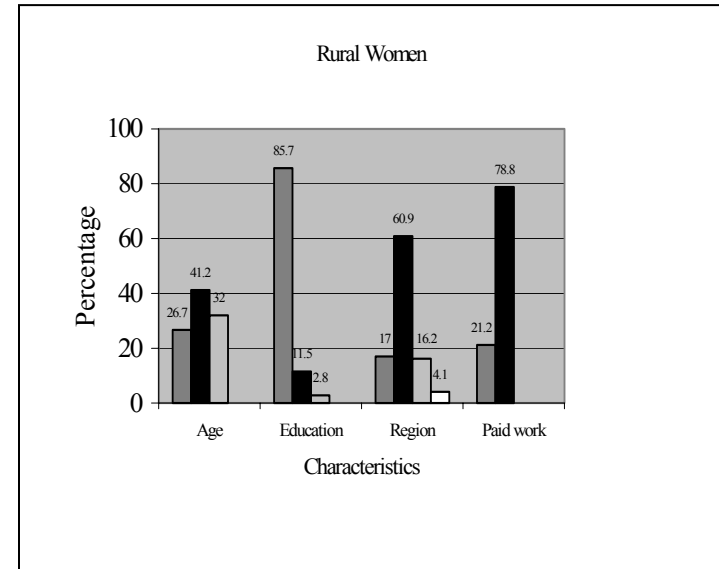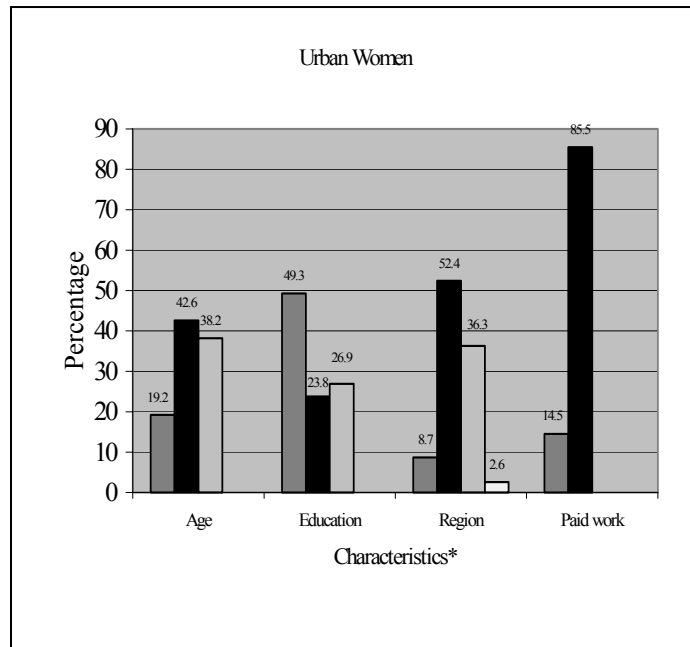
*Various categories of characteristics are measured in the order as:
Age = 15-25, 25-34, 35+; **Education** = none/informal, below matric and above;
Region = NWFP, Punjab, Sindh, Balochistan; **Paid work** = yes, no.

Fig. 1. Percentage Distribution of Currently Married Urban and Rural Women, by Background Characteristics, Pakistan, 1996-97.

Urban Women

Rural Women
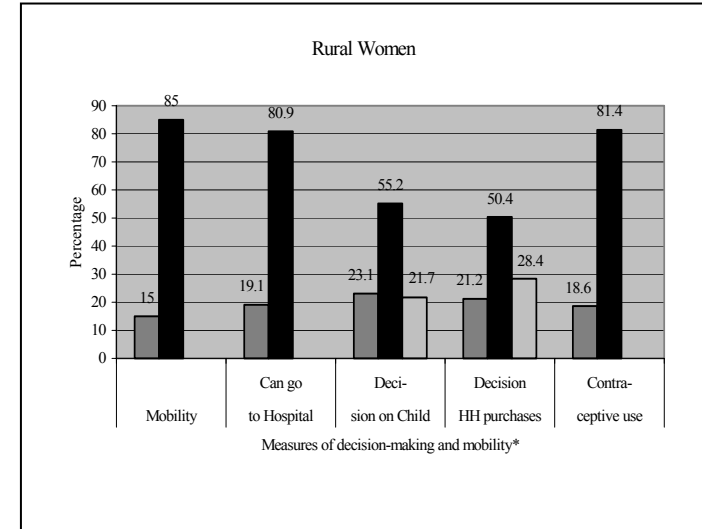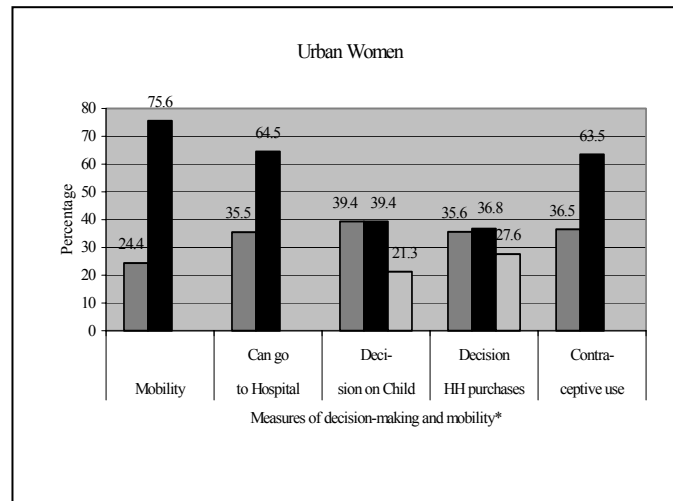
*Various categories of measures of decision-making and mobility are:

Mobility = gone outside home alone, no; **Can go to hospital alone** = yes, accompanied/depends;

Decision on child treatment = wife, husband, jointly/others; **Decision HH purchases** = wife, husband, others; **Contraceptive use** = yes, no.

Fig. 2.   Percentage Distribution of Currently Married Urban and Rural Women, by Measures of Decision-making, Mobility, and Contraceptive Use, Pakistan, 1996-97.

in rural areas but largely involves input by the husband and other family members, while exposure to urban living enhances women's decision-making authority, making their point of view have the same weight as the husband's.

The percentage distribution for other measures of women's position within households is supportive of the view that only a small minority have the freedom to go outside the house alone for various purposes. For example, only about 15 percent of rural and 24 percent of urban women report to be autonomous in moving alone, and about 19 percent of rural and 35 percent of urban women exercise the freedom to go to a hospital/clinic independently, reflecting very limited mobility among rural women.

With regard to various aspects of reproductive behaviour, it is evident from Figure 2 that of currently married non-pregnant women, about 36 percent of urban and only 18.6 percent of rural women have reported using a contraceptive method. As for other indicators of reproductive and family planning behaviour, almost one-half (49.5 percent) of urban and 39 percent of rural women express the desire for no more children. Also, more than half of rural women (57.8 percent) and almost half of urban women (48.7 percent) have never discussed family planning with their husbands (see Appendix Table 1 for the percentage distribution of women for all variables used in the analysis, including life-course factors such as age, parity, and marriage duration).

(b) Variations in Women's Decision-making

Decision About Child Treatment

The results of bivariate relationships between selected background characteristics of women and decision-making about child treatment in case of illness are presented in Figure 3 for urban and rural women separately. Overall, about 39.3 percent of urban and 23 percent of rural women participate in final decisions about child treatment. Variations in final decision-making by levels of education appear to be large, especially in case of rural women. For example, only 22 percent of rural women with no formal education indicate their involvement in making the final decision about child treatment, as compared to 51.2 percent with secondary and above levels of education and 25 percent with primary and middle level of education. Urban women, on the other hand, indicate less variation in decision-making by levels of education, i.e., 36 percent for illiterate vs. 41 and 44 percent for below-matric and higher levels. Clearly, substantial variability exists in women's reported decision-making regarding regional affiliation. As Figure 3 indicates, women living in the Punjab have the highest participation in decision-making (40.2 percent urban and 30.7 percent rural), whereas women residing in rural parts of Sindh and Balochistan have much less say in domestic decisions—only 11.8 and 4.2 percent, respectively. Work participation and employment status do not
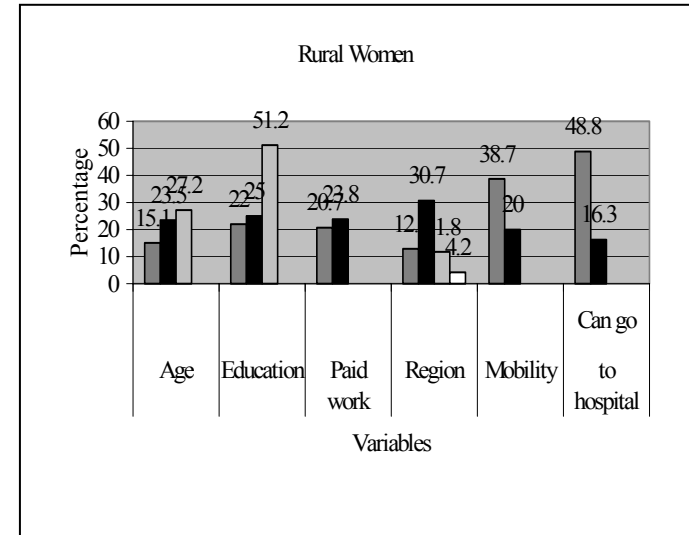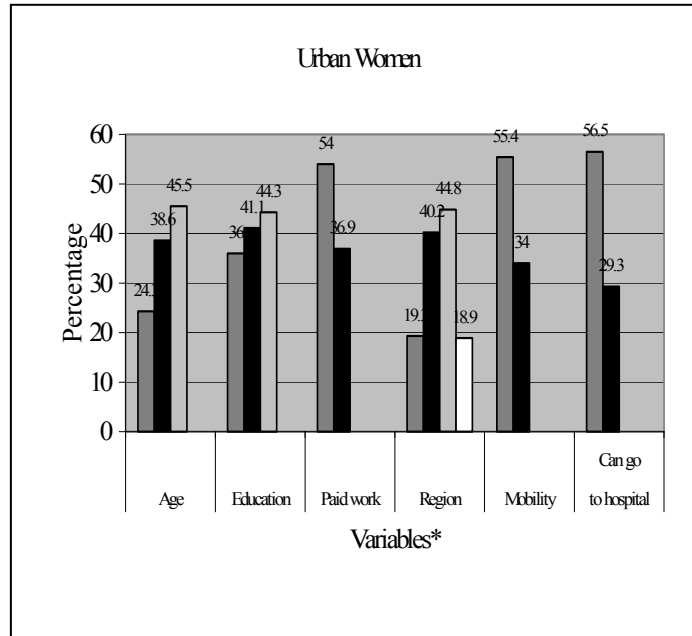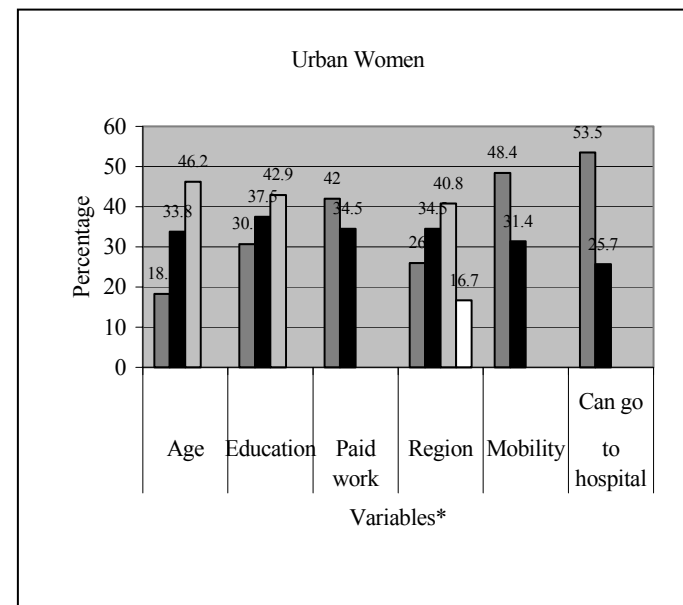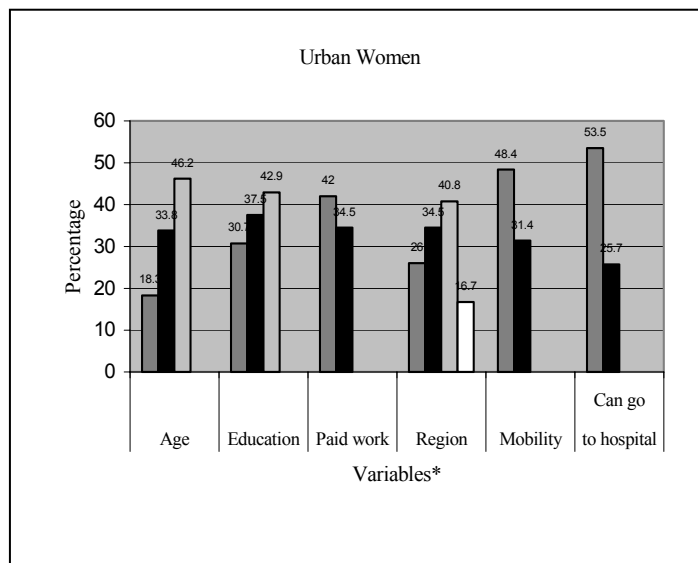
*Same as described in Figures 1 and 2.

Fig. 3. Percentage of Currently Married Urban and Rural Women who Report Taking the Final Decision about Treatment of a Sick Child in the Household, Pakistan, 1996-97.

appear to enhance women's decision-making power, especially in rural areas, where only a small proportion of women is engaged in paid employment.

Women's ability to move outside the house alone indicates their independence and freedom of movement, which are likely to enhance their autonomy in decision-making aspects of their domestic lives. As is evident from Figure 3, women's mobility measures significantly contribute to increasing their involvement in decision-making as more than half of urban women and between 38 to 48 percent of rural women who can go outside the house or to a hospital/clinic alone report their input in the final decision about child treatment. Among lifecycle factors, the results are as expected, as older women with high parity and longer marriage duration have a greater say in household matters than the relatively younger and low parity women. (See Appendix Table 2 for variations in women's reported decision-making in case of treatment of sick child for all factors used in the analysis).

Decisions About Household Purchases

Variations in women's final decision-making for household purchases including food items and clothing by selected background characteristics are presented in Figure 4. In all, about 35.5 percent of urban and 21 percent of rural women have reported their involvement in final decisions about household purchases. This reveals that women's involvement in decisions about household purchases is somewhat less than that observed in the case of treatment of sick child, reflecting that women have a somewhat greater say in the household in problems related to nurturing or taking care of children—a socially prescribed female domain. However, the pattern of distribution shows that women with higher levels of education, greater mobility, paid work, and longer marriage duration report having greater participation in final decision-making about household purchases than those with no formal schooling, limited mobility, no paid work, and less marriage duration. Furthermore, women living in rural parts of the four regions have reported a much lower input in household purchase decisions than their counterparts in urban areas. For example, 29.6 percent of rural women in Punjab and only 8.7 percent of those residing in rural parts of the NWFP, 8 percent in Sindh, and 7.7 percent in Balochistan report their involvement in domestic decision-making. This reveals that a large majority of rural women, except for those living in the Punjab, have very little say in decision-making, especially in the case of making household purchase decisions. Compared with this, 34.5 percent of urban women in the Punjab, 40.8 percent in Sindh, 26 percent in the NWFP, and about 17 percent in Balochistan have reported their participation in household purchase matters. This indicates that there is substantial variability in women's input in domestic decision-making between urban and rural areas across regions. (See Appendix Table 3 for variations in final decision-making in household purchases for all factors used in the analysis).

Urban Women

Urban Women

*Same as described in Figures 1 and 2.

Fig. 4. Percentage of Currently Married Urban and Rural Women who Report Taking Final Decision about Household Purchases, i.e., Food and Clothing, Pakistan,1996-97.

(c) Multivariate Analysis of Domestic Decision-making

In order to examine which characteristics of women are important in determining their decision-making authority in the household, two-category dependent variables with regard to child treatment and household purchases (defined as one for wife and zero otherwise) are used for urban and rural women separately. In logistic regression models, the odds ratios of making decisions regarding child treatment and household purchases show the magnitude of increase in the dependent variable for each unit increase in the independent variable in comparison with the omitted (reference) category of the discrete variables. This analysis allows to determine the extent to which background characteristics and mobility factors predict women's domestic decision-making after controlling for lifecycle and socio-economic variables. The regression results of the two measures of decision-making, i.e., child treatment and household purchases, are presented in Table 1 for urban and rural women.

As expected, age and marriage duration increase the likelihood of women's participation in domestic decision-making. The results indicate that relatively older women and with longer marriage duration are between 1.5 to 2.0 times more likely to make household decisions than women in younger ages and less marriage duration. It is also evident from Table 1 that after controlling for lifecycle factors and other background characteristics, the measures of women's mobility have a significant impact on enhancing women's decision-making input in the household. In fact, the autonomy to go to a hospital/clinic alone shows the strongest effect on the dependent variables. This means that woman's freedom of movement and her ability to go to a hospital or clinic independently is important to increasing her involvement in domestic decision-making, particularly for rural women. This relationship indicates that Pakistani women's autonomy regarding domestic decision-making is linked with their mobility status within the household. Regional variations indicate that Punjabi women, especially in rural areas, have much greater involvement in decision-making than those living in other regions. This may be reflective of the Punjabi culture where women are relatively more egalitarian, make significant contribution to farm work, and are given more importance in the family than their rural counterparts in other regions. The finding that women in Punjab are relatively more empowered to participate in decisions relating to children and household responsibilities concurs with results of the study in rural Punjab that shows higher participation of women in domestic spheres than other dimensions of autonomy [Sathar and Kazi (1997)].

It also appears that women's education does not play a significant role in enhancing women's participation in decisions about child treatment except for those few rural women with secondary and above levels of education. For household purchases, only urban women's education makes a significant difference in exercising decision-making authority. With employment, the situation is even more

Table 1

Odds Ratios of Final Decision-making Regarding Child Treatment and Household
Purchases as a Function of Women's Mobility and Background
Characteristics, Pakistan, 1996-97

	Decision Regarding Child Treatment		Decision Regarding Household Purchases	
	Urban Women (n=2011)	Rural Women (n=4609)	Urban Women (n=2245)	Rural Women (n=5340)
Variables	Odds Ratios		Odds Ratios	
Women's Age				
15–24 (r)	–	–	–	–
25–34	2.20***	1.42	1.53**	1.29**
35+	2.19***	1.11	1.97**	1.10
Marriage Duration				
<10 (r)	–	–	–	–
10–19	1.22*	1.88***	1.86***	1.70***
20+	1.46	2.30***	1.76***	2.57***
Women's Education				
None/Informal (r)	–	–	–	–
Primary and Middle	1.19	0.96	1.48***	0.95
Secondary and Above	1.07	3.17***	1.63***	1.36
Paid Work				
Not Working (r)	–	–	–	–
Yes	1.37**	0.86*	0.96	0.55***
Region				
Balochistan (r)	–	–	–	–
NWFP	0.85	2.30**	1.60	0.78
Punjab	2.20**	5.91***	1.91*	3.64***
Sindh	2.51**	2.84***	2.57**	1.12
Mobility				
No (r)	–	–	–	–
Yes	2.36***	1.13	2.53***	2.99***
Go to Hospital Alone				
Accompanied/Depends (r)	–	–	–	–
Yes	1.50***	3.48***	2.53***	2.99***
Husband-Wife Communication				
No (r)	–	–	–	–
Yes	1.32**	1.20**	1.10	1.13

Significant at *P≤ .05; **P≤ .01 and ***P≤ .001.

(r) = reference category.

complex. The results show that effects of paid employment are contrary to expectations as women engaged in economic activity are less likely to participate in household decision-making, except for those few urban women who are expected to be engaged in cash employment. The odds ratios of less than 1.00 for rural women in paid work suggest that their employment status tends slightly to increase chances of their husbands'/others' to make household decisions. This supports the contention that in settings such as Pakistan, where gender norms support the male provider role and large proportion of women are engaged in unpaid family help or self-employment in rural areas, the small proportion of women engaged in paid employment tend to underreport their economic contribution to their families, and this may undermine the possibility of their gaining and exercising decision-making power within the household. This needs to be investigated further in the light of the circumstances of the small proportion of women engaged in paid employment and the type of work in which these women are involved. More interestingly, husband-wife communication has a significant effect on decisions regarding child treatment, while it is not significant for decisions regarding household purchases, for both urban and rural women.

(d) Women's Decision-making Role and Reproductive Behaviour

To determine whether women's involvement in household decision-making is important in affecting demographic outcome, two measures of reproductive behaviour are used for analysis: wanting no more children and current contraceptive use. Logistic regression models are estimated to show the relationships between selected explanatory variables and the two dependent variables.

Desire for Children

The desire for children is categorised into a dichotomous variable indicating wanting no more children equal to 1 and zero otherwise. The regression results of the predictors of women wanting no more children are shown in Table 2. An odds ratio above 1.00 indicates greater likelihood of wanting no more children, whereas the odds ratios below 1.00 indicate the opposite. The results are presented in three models. First, only measures of decision-making and mobility are considered in model 1. Then additional control variables such as age, parity, women's education and their work status are included in model 2. And, finally, controls for region are added in model 3. This approach permits to determine whether background factors, especially education, employment, and regional differentials tend to capture the effect of decision-making variables through these measures of women's position on reproductive behaviour. This analysis presents separate models for urban and rural women.

Table 2

Odds Ratios of Desire for No More Children as a Function of Decision-making and Socio-demographic Variables among Currently Married Urban and Rural Women, Pakistan, 1996-97

	Urban Women			Rural Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Variables	Odds Ratios			Odds Ratios		
A. Decision-making Variables						
Decision for Child Treatment						
Mother-in-law/Other (r)	–	–	–	–	–	–
Wife	2.27***	1.48**	1.48**	1.76***	1.04	1.01
Husband	1.74***	1.20	1.21	2.04***	1.25*	1.27*
Decision HH Purchases						
Mother-in-law (r)	–	–	–	–	–	–
Wife	1.66***	1.26*	1.29*	2.38***	1.58***	1.51***
Husband	1.43***	1.15	1.16	1.76***	1.15	1.19
Mobility						
No (r)	–	–	–	–	–	–
Yes	1.23*	1.09	1.13	1.39***	1.11	1.09
Can Go to Hospital Alone?						
Accompanied/Depends (r)	–	–	–	–	–	–
Alone	1.06	0.96	0.94	1.70***	1.18	1.09
Husband-Wife Communication						
No (r)	–	–	–	–	–	–
Yes	2.58***	2.56***	2.41***	2.26**	2.37***	2.29**
B. Socio-demographic Indicators						
Women's Age						
15–24 (r)	–	–	–	–	–	–
25–34		2.65***	2.58***		3.24***	3.19***
35+		4.19***	4.06***		7.81***	7.64***
Parity						
<4 Children (r)	–	–	–	–	–	–
4+ Children		3.23***	3.26***		5.21***	5.49***
Women's Education						
None/Informal (r)	–	–	–	–	–	–
Primary and Middle		1.01	0.99		1.61***	1.48***
Secondary and Above		1.11	1.16		2.81***	2.62***
Paid Work						
No (r)	–	–	–	–	–	–
Yes		0.72*	0.73*		1.00	0.95
C. Region of Residence						
Balochistan (r)	–	–	–	–	–	–
NWFP			1.18			1.58**
Punjab			1.44			2.11***
Sindh			1.11			1.46**
−2 log Likelihood	2918.6	2576.2	2568.1	6460.1	5065.8	5035.3
(N)	(2245)			(5340)		

Significant at *P≤ .05; **P≤ .01 and ***P≤ .001.

(r) = reference category.

The results in Table 2 indicate that decision-making variables are significantly related to women's desire for no additional children. As model 1 shows, the odds of desiring no more children are higher for wives than their husbands or other family members with regard to child treatment and household purchases decision-making. This means that most women who participate actively in household matters are also more likely to desire fewer children. However, women's mobility and freedom of movement indices have a strong relationship with the desire for no more children for rural women only, and a mild effect in case of urban women. Also of interest is the finding that husband-wife communication is important in increasing the likelihood of wanting no more children as the variable shows the strongest effect for both urban and rural women.

In model 2, the strength of decision-making variables is substantially reduced for wives and becomes insignificant for husbands after introducing controls for socio-demographic indicators. Also notable is the finding that the effect of mobility factors observed earlier for rural women is wiped off in model 2. As expected, the lifecycle factors such as age and parity have a powerful influence on reducing desired fertility with relatively older (35 years and above) and high parity women (4 or more children), showing the strongest effect particularly in case of rural women. More interestingly, education plays no significant role in determining the desire for no more children for urban women, whereas this effect is strong for rural women. As observed from Table 2 (model 2), the odds of rural women with primary as well as secondary and above schooling are about 1.4 to 2.8 times higher than those for women with no education. The effects of paid work are somewhat confounding as the odds ratios of less than 1.00 indicate the tendency of those few working women to deviate from desiring no more children than those not working. Such an effect is mildly significant for urban women only, and insignificant for rural women.

The inclusion of region in model 3 does not change the picture much. As we can see from Table 2, region of residence itself has no strong effect on desired fertility of urban women, while it shows significant variations among rural women. This means that the regional variations as observed in the bivariate analysis reflected mainly the socio-economic and decision-making differences among respondents in those regions so that region ceases to be significant once these are controlled for at least for urban women in the sample. For rural women, on the other hand, region remains significant in determining the desire for no more children after controlling for all other variables in the analysis. The results reveal that women living in rural Punjab show the greatest likelihood to want no more children, closely followed by women in the NWFP and Sindh, in comparison with those living in Balochistan.

Current Contraceptive Use

Taking current contraceptive use as another indicator of reproductive behaviour, the variable is defined as 1 for those who reported using any method at

the time of survey and zero otherwise. The logistic regression results are shown in Table 3 as a function of decision-making and background characteristics of urban and rural women separately. The odds ratios above 1.0 indicate greater likelihood of using a contraceptive method for each unit increase in specific category of discrete variables in comparison with the omitted (reference) category and are presented in three models.

The results in Table 3 indicate that the effects of decision-making and mobility variables on contraceptive use are strong and significant for urban women across all models, but give a somewhat mixed picture for rural women. For urban women in model 3, where controls for socio-demographic factors and region of residence are included, all variables except those for paid employment and region, show a significant positive impact on contraceptive use. The odds ratios of using contraceptives are the highest for women with higher ages, high parity, primary as well as secondary and above schooling, and those reporting husband-wife communication. However, the effects of wife's decision-making on use also remain positive and significant. For rural women, on the other hand, the findings indicate that except for participation in decisions with regard to household purchases and freedom to go outside home alone, all other variables are important in increasing the likelihood of the woman's using a contraceptive method. This means that most of the effect of decision-making and mobility factors for rural women is channelled through her demographic and educational background. As Table 3 (model 3) shows, the odds ratios of rural women are the highest for primary as well as secondary and above levels of education, high parity, and communication with husbands about family planning.

Also interesting to note is the finding that paid work tends slightly to lower women's use of contraception in comparison with those not working. It appears that paid employment for those few rural women does not empower them to make family planning choices, and these women may be especially conscious of accepting family planning as normative behaviour. Moreover, women's paid employment is most often based on need rather than choice, and as such may not be a motivating factor to adopt fertility control behaviour.

Overall, these results suggest that much of the effect of decision-making variables on reproductive behaviour is captured by socio-demographic indicators; notable are age, parity, and level of education. Age and parity can always be expected to account for much of the variation in desired fertility and contraceptive use, but the fact that the inclusion of other socio-demographic indicators has weakened the strength of the decision-making and mobility variables supports the argument that a woman's autonomy is substantially conditioned by her socio-economic background and the type of setting in which she lives. Hence, women's decision-making involvement gives only a partial explanation of their demographic behaviour once these background factors are controlled for. Despite this, however, it

Table 3

Odds Ratios of Current Contraceptive Use as a Function of Decision-making and Socio-demographic Variables among Currently Married Urban and Rural Women, Pakistan, 1996-97

	Urban Women			Rural Women		
Variables	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
A. Decision-making Variables						
Decision for Child Treatment						
Mother-in-law/Other (r)	–	–	–	–	–	–
Wife	2.28***	1.62***	1.61***	1.73***	1.45**	1.39**
Husband	2.24	1.77***	1.78***	1.53***	1.35**	1.38**
Decision HH Purchases						
Mother-in-law/Other (r)	–	–	–	–	–	–
Wife	2.23***	1.88***	1.90***	1.38	1.11	1.03
Husband	1.64***	1.39***	1.60***	0.99*	0.80*	0.83*
Mobility						
No (r)	–	–	–	–	–	–
Yes	1.37**	1.22*	1.24*	1.20*	1.03	1.04
Can Go to Hospital Alone						
Accompanied/Depends (r)	–	–	–	–	–	–
Alone	1.35**	1.23*	1.22*	1.73***	1.48***	1.39**
Husband-Wife Communication						
No (r)	–	–	–	–	–	–
Yes	3.24***	3.64***	3.58***	5.67***	5.23***	5.35***
B. Socio-demographic Indicators						
Women's Age						
15–24 (r)	–	–	–	–	–	–
25–34		2.81***	2.77***		1.56**	1.49**
35+		4.01***	3.94***		1.79***	1.70***
Parity						
<4 Children (r)	–	–	–	–	–	–
4 and More		2.61***	2.63***		3.90***	3.09***
Women's Education						
None/Informal (r)	–	–	–	–	–	–
Primary and Middle		2.51***	2.49***		2.97***	2.71***
Secondary and Above		2.35***	2.38***		4.39***	4.09***
Paid Work						
No (r)	–	–	–	–	–	–
Yes		0.97	0.97		0.90**	0.79**
Region						
Balochistan (r)	–	–	–	–	–	–
NWFP			1.24			1.79**
Punjab			1.43			3.36***
Sindh			1.27			3.18***
–2 log Likelihood		2365.3	2363.3	4403.7	4413.8	4067.4
(N)		(2245)			(5340)	

Significant at *P≤ .05; **P≤ .01 and ***P≤ .001.

(r) = reference category.

is worth noting that husband-wife communication is critical in determining reproductive behaviour of Pakistani women as its effects remain strong and positive across all models for both urban and rural samples of women.

CONCLUSIONS

The results of the study provide important insights into the relationship between women's decision-making power and reproductive behaviour in two distinct urban and rural settings of Pakistan. Although the relationship is complex and mediated by many socio-demographic and cultural factors, the analysis reveals broad patterns and variations in women's domestic decision-making and the limited explanatory power it has in predicting demographic behaviour.

The findings reveal that women's decision-making authority is strongly related to the context in which they live, with urban women having an almost equal say as their husbands in domestic decisions, whereas rural women report that most household matters are predominantly decided by their husbands and other family members. There is a clear regional diversity in women's involvement in decision-making, indicating to some extent the variability in power relations and gender inequality across regions, especially in rural areas. The results also indicate that women who enjoy freedom to go either to a neighbouring village or to hospital/clinic alone are also more likely to participate in domestic decisions, and the linkage is stronger for the rural than urban women. This means that efforts to improve women's status indicators in terms of mobility and access to health services and other resources can have important repercussions for enhancing women's position in the household and thus influencing demographic outcome.

The ways in which women's decision-making position influences reproductive behaviour are rather more complex and give a somewhat mixed picture for urban and rural women. However, it appears that decision-making autonomy as such is not irrelevant or negative in shaping and influencing fertility intentions and contraceptive use. Rather, it has an important independent effect and only a partial implication for women's demographic behaviour. However, the strong and positive relationship between husband-wife communication and contraceptive use or desire for future birth is evident for both urban and rural women across all models. It can be inferred from this that policy-makers and programme managers should increasingly consider men's involvement in family planning programme objectives, while focusing on women's special needs and constraints in accessing the availability of services. The results also suggest that the impact of decision-making autonomy on measures of reproductive behaviour is strongly conditioned by socio-economic and demographic factors. In this regard, the results confirm the importance of women's education and lifecycle factors in determining reproductive behaviour, especially in case of rural women. However, the case for the use of paid employment as a proxy of women's position and decision-making authority,

especially in its relationship to fertility behaviour, is discredited by these results. The contrary effect to that expected of paid work on measures of decision-making and reproductive behaviour as well as the small number of women reported as engaged in paid employment raise some questions about exploring this relationship further.

These results suggest that greater gender inequality and limited decision-making power of women in a given social context clearly affect reproductive behaviour. The fact that decision-making measures of empowerment have a mitigated effect on women's decision-making (once the conditioning effect of socio-economic and regional factors is taken into consideration) means that these measures of empowerment give only a partial explanation of women's fertility-related behaviour. This study, however, reinforces the point that while efforts at improving Pakistani women's status in terms of their enhanced role in domestic decision-making is not just an appropriate goal and a positive end in itself, but that the benefits extend to achieving gender equality and fertility reduction outcomes—goals that should be central to a population and development policy.

Appendix Table 1

Percentage Distribution of Currently Married Urban and Rural Women, by
Socio-economic and Demographic Characteristics, Pakistan, 1996-97

Characteristics	Urban Women		Rural Women	
	%	Number	%	Number
All Women	100.0	(2245)	100.0	(5340)
Women Age				
15–24	19.2	(431)	26.7	(1426)
25–34	42.6	(957)	41.2	(2205)
35+	38.2	(857)	32.0	(1709)
Marriage Duration				
<10 Years	36.1	(788)	40.8	(2118)
10-19 Years	36.8	(802)	38.7	(1907)
20+ Years	10.9	(591)	22.5	(1167)
Parity				
Less than 4 Living Children	51.0	(1144)	52.4	(2795)
4 or More	49.0	(1101)	47.6	(2545)
Women's Education				
None/Informal	49.3	(11.06)	85.7	(4578)
Below Matric (1–9)	23.8	(535)	11.5	(615)
Matric and Above (10+)	26.9	(604)	2.8	(147)
Region				
NWFP	8.7	(195)	17.0	(907)
Punjab	52.4	(1176)	60.9	(3253)
Sindh	36.3	(814)	16.2	(866)
Balochistan	2.6	(59)	4.1	(313)
Paid Work				
Yes	14.5	(325)	21.2	(1133)
No	85.5	(1920)	78.8	(4207)
Employment Status				
Not Working	85.5	(1920)	78.8	(4207)
Works for Someone Else	4.2	(95)	3.8	(206)
Self-employed	10.2	(230)	7.9	(926)
Mobility				
Gone Outside Home Alone	24.4	(848)	15.0	(803)
No	75.6	(1697)	85.0	(6234)
Can Go to Hospital				
Alone	35.5	(796)	19.1	(1019)
Accompanied/Depends	64.5	(1149)	80.9	(4320)
Decision about Child Treatment				
Wife	39.4	(791)	23.1	(1066)
Husband	39.4	(791)	55.2	(2545)
Jointly/Others	21.3	(428)	21.7	(998)
Decision about HH Purchases				
Wife	35.6	(793)	21.2	(1134)
Husband	36.8	(826)	50.4	(2689)
Others	27.6	(620)	28.4	(1516)
Husband-Wife Communication				
Never	48.7	(1042)	57.8	(3087)
Once or More	51.3	(1152)	42.2	(2252)
Contraceptive Use				
Yes	36.5	(819)	18.6	(994)
No	63.5	(1425)	81.4	(4345)
Desire for Additional Children				
No More Children	49.5	(1111)	39.2	(2094)
Want More Children	50.5	(1134)	60.8	(3245)

Appendix Table 2

Percentage of Currently Married Urban and Rural Women
Reporting Final Decision-making about Child Treatment, Pakistan: 1996-97

Characteristics	Urban Women			Rural Women		
	%	Number	χ2 Values	%	Number	χ2 Values
All Women	39.3	(2011)		23.1	(4609)	
Women Age						
15–24	24.3	(300)	51.5	15.1	(910)	94.1
25–34	38.6	(876)	P<.001	23.5	(2065)	P<.001
35+	45.5	(835)		27.2	(1634)	
Marriage Duration						
<10	32.3	(657)	38.3	16.5	(1640)	
10–19	40.5	(776)	P<.001	26.3	(1829)	136.2
20+	46.0	(576)		27.6	(1139)	P<.001
Parity						
<4	33.4	(910)	38.8	19.8	(2065)	84.9
4+	44.2	(1101)	P<.001	25.8	(2544)	P<.001
Women Education						
No Formal Education	36.0	(1004)	18.5	22.0	(3966)	121.9
Below Matric	41.1	(470)	P<.001	25.0	(516)	P<.001
Matric and Above	44.3	(537)		51.2	(127)	
Region						
NWFP	19.3	(176)		12.9	(790)	
Punjab	40.2	(1073)	60.1	30.7	(2819)	279.0
Sindh	44.8	(708)	P<.001	11.8	(735)	P<.001
Balochistan	18.9	(54)		4.2	(264)	
Paid Work						
Yes	54.0	(291)	35.2	20.7	(987)	4.9
Not Working	36.9	(1720)	P<.001	23.8	(3621)	P<.10
Employment Status						
Works for Someone Else	50.0	(80)	35.9	31.6	(187)	210.6
Self-employed/Family	55.5	(211)	P<.001	18.1	(800)	P<.001
Not Working	36.9	(1720)		23.8	(3623)	
Mobility						
Moved Alone	55.4	(505)	74.7	38.7	(764)	128.9
No	34.0	(1505)	P<.001	20.0	(3854)	P<.001
Can Go to Hospital						
Alone	56.5	(744)	144.5	48.8	(971)	457.7
Accompanied	29.3	(1266)	P<.001	16.3	(3638)	P<.001
Husband-Wife Communication						
Never	37.4	(927)	12.1	21.1	(2517)	13.5
Once or More	41.1	(1083)	P<.001	25.6	(2092)	P<.001

Appendix Table 3

*Percentage of Currently Married Urban and Rural Women Reporting Final
Decision-making about Household Purchases, Pakistan, 1996-97*

Characteristics	Urban Women			Rural Women		
	%	Number	χ2 Values	%	Number	χ2 Values
All Women	35.5	(2245)		21.2	(5340)	
Women Age						
15–24	18,3	(431)	164.8	10.0	(1426)	420.3
25–34	33.8	(957)	P<.001	22.0	(2205)	P<.001
35+	46.2	(857)		29.0	(1709)	
Marriage Duration						
<10 Years	23.6	(788)		13.3	(2118)	593.5
10-19 Years	41.8	(803)	142.4	25.1	(1907)	P<.001
20+ Years	45.0	(591)	P<.001	30.8	(1167)	
Parity						
<4 Living Children	30.9	(1144)	80.9	16.3	(2795)	429.9
4+ Living Children	40.3	(1101)	P<.001	26.7	(2545)	P<.001
Women Education						
No Formal Education	30.7	(1106)		20.6	(4577)	
Below Matric	37.5	(539)	74.1	23.6	(615)	84.3
Matric and Above	42.9	(609)	P<.001	30.8	(146)	P<.001
Region						
NWFP	26.0	(196)		8.6	(807)	
Punjab	34.5	(1176)	46.0	29.6	(3253)	415.3
Sindh	40.8	(814)	P<.001	8.0	(866)	P<.001
Balochistan	16.7	(60)		7.7	(314)	
Paid Work						
Yes	42.0	(324)	10.9	15.4	(1132)	44.8
Not Working	34.5	(1921)	P<.001	22.9	(4207)	P<.001
Employment Status						
Works for Someone Else	45.3	(95)		19.0	(205)	
Self-employed/Family	40.6	(229)	11.6	14.3	(920)	40.6
Not Working	34.5	(1921)	P<.05	22.9	(4209)	P<.001
Mobility						
Gone Outside Home Alone	48.4	(548)	51.9	39.2	(803)	184.0
No	31.4	(1697)	P<.001	18.1	(4536)	P<.001
Can Go to Hospital						
Alone	53.5	(795)	173.0	47.8	(1019)	531.7
Accompanied/Depends	25.7	(1449)	P<.001	15.0	(4321)	P<.001
Husband-Wife Communication						
Never	33.2	(1092)	7.3	19.0	(3088)	38.6
Once or More	37.8	(1152)	P<.15	24.2	(2252)	P<.001

REFERENCES

Anker, Richard (1981) Research on Women's Role and Demographic Change: Survey Questionnaires for Household, Women, Men and Communities with Background Explanations. Population and Labour Policies Programme ILO. Geneva. (Report.)

Anker, Richard, M. E. Khan, and R. B. Gupta (1988) Women's Participation in the Labour Force: A Methods Test in India for Improving its Measurement. Women, Work and Development 16. ILO. Geneva. (Report.)

Balk, Deborah (1994) Individual and Community Aspects of Women's Status and Fertility in Rural Bangladesh. *Population Studies* 48:1, 21–45.

Basu, Alaka M. (1992) *Culture, the Status of Women, and Demographic Behaviour: Illustrated with the Case of India*. Oxford, UK: Calarendon Press.

Dyson, Tim, and Mick Moore (1983) On Kinship Structure, Female Autonomy, and Demographic Behaviour in India. *Population and Development Review* 9:1, 35–60.

Govindasamy, P., and Anju Malhotra (1996) Women Position and Family Planning in Egypt. *Studies in Family Planning* 27:6, 328–339.

Jejeebhoy, Shireen J. (1996) Women's Autonomy and Reproductive Behaviour in India: Linkages and Influence of Socio-cultural Context. In *Comparative Perspectives on Fertility Transition in South Asia.* Liege, Belgium: IUSSP 1, 20–27.

Khan, Ayesha (1998) Female Mobility and Social Barriers to Accessing Health/Family Planning Services: A Qualitative Research Study in Three Punjabi Villages. Ministry of Population Welfare (Government of Pakistan)/Centre for Population Studies, LSHTM/Department for International Development (British Government).

Mahmood, Naushin (1998) Reproductive Goals and Family Planning Attitudes in Pakistan: A Couple-level Analysis. *The Pakistan Development Review* 37:1, 19–34.

Mahmood, Naushin, and Durr-e-Nayab (1998) Gender Dimensions of Demographic Change in Pakistan. *The Pakistan Development Review* 37:4, 705–725.

Mahmood, Naushin, and Karin Ringheim (1997) Knowledge, Approval and Communication about Family Planning as Correlates of Desired Fertility Among Spouses in Pakistan. *International Family Planning Perspectives* 23, 122–129.

Malhotra, Anju, Sidney R. Schuler, and Carol Boender (2002) Measuring Women's Employment as a Variable in International Development. Background Paper prepared for the World Bank Workshop on Poverty and Gender: New Perspectives.

Mason, Karen Oppenheim (1984) The Status of Women, Fertility, and Mortality: A Review of Interrelationships. University of Michigan Population Studies Centre Ann Arbor: University of Michigan. (Research Report No. 84–58.)

Mason, Karen Oppenheim (1993) The Impact of Women's Position on Demographic Change during the Course of Development. In Nora Federici, Karen Oppenheim Mason, and Solvi Songer (eds.) *Women's Position and Demographic Change*. Oxford: Clarendon Press. pp. 19–42.

Mason, Karen Oppenheim (1998) Wives' Economic Decision-making Power in the Family: Five Asian Countries. In Karen Oppenheim Mason, Noriko O. Tsuya, and Minja Kim Choe (eds.) *The Changing Family in Comparative Perspective: Asia and the United States.* Honolulu, HI: East-West Centre. pp. 105–133.

Morgan, S. Philip, and Bhanu B. Niraula (1995) Gender Inequality and Fertility in Two Nepali Villages. *Population and Development Review* 21:3, 541–561.

National Institute of Population Studies (NIPS) (2001) Pakistan Reproductive Health and Family Planning Survey: 2000-01. Pakistan. *(*Preliminary Report.)

National Institute of Population Studies (NIPS) and London School of Hygiene and Tropical Medicine (LSHTM) (1998) Pakistan Fertility and Family Planning Survey: 1996-97 (PFFPS). Islamabad. (Main Report.)

Sathar, Zeba A, N. Crook, C. Callum, and S. Kazi (1988) Women Status and Fertility Change in Pakistan. *Population and Development Review* 24:4, 773–796.

Sathar, Zeba A., and Shahnaz Kazi (1997) *Women's Autonomy, Livelihood and Fertility: A Study of Rural Punjab.* Islamabad: Pakistan Institute of Development Economics.

Sathar, Zeba A., and Shahnaz Kazi (2000) Women's Autonomy in the Context of Rural Pakistan. *The Pakistan Development Review* 39:2, 89–110.

Sathar, Zeba, A., and John Casterline (1998) The Onset of Fertility Transition in Pakistan. *Population and Development Review* 24:4, 773–796.

Shah, Nasra M. (ed.) (1986) *Pakistani Women: A Socio-economic and Demographic Profile.* Islamabad: Pakistan Institute of Development Economics.

Soomro, G. Y. (2000) A Re-examination of Fertility Transition in Pakistan. *The Pakistan Development Review* 39:3, 248–261.

Syed, Sabiha H. (1978) Female Status and Fertility in Pakistan. *The Pakistan Development Review* 17:4, 408–430.