Monetary Transmission in Developing Countries

IGC Workshops on Fiscal and Monetary Policy, November 2-3, 2012

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Ministry of Finance, Government of India

The views expressed are those of the authors.
List of Papers

• Monetary Transmission in Low-Income Countries: Effectiveness and Policy Implications (with Peter Montiel (Williams College) and Antonio Spilimbergo (IMF): IMF Economic Review, 2012

• Monetary Policy and Bank Lending Rates in Low-Income Countries: Heterogeneous Panel Estimates (with Peter Montiel and Peter Pedroni (Williams College) and Antonio Spilimbergo (IMF)

• How Effective is Monetary Transmission in Developing Countries? A Survey of the Empirical Evidence? (with Peter Montiel, Williams College)

Available at

http://www.prachimishra.net/research.htm
What is monetary transmission?

• How do monetary policy instruments affect aggregate demand?
  – Output
  – Inflation

• What are the mechanisms?
Main challenge

• All happy families resemble one another, each unhappy family is unhappy in its own way [Tolstoy]

• All happy monetary transmission mechanisms resemble one another, each dysfunctional economy is dysfunctional in its own way
Main challenge (contd.)

• Plenty of books/articles on just a few happy families (mainly advanced countries)

• Scattered information on many unhappy families

• Challenge: how could we describe/characterize so many “unhappy families”?
Preview of findings

• A priori reasons to believe that monetary transmission should work differently in developing countries

• Indeed some empirical evidence to show that developing countries exhibit weaker transmission of monetary policy shocks to bank lending rates than do advanced countries.
Outline of the talk

• Describe the “typical” happy family (i.e. the characteristics of the “ideal” monetary transmission) as a benchmark

• Compare to characteristics of unhappy families (derived from about 90+25 family pictures)

• Argue that most unhappy families share some characteristics (contrary to Tolstoy’s quote)

• Show some econometric evidence comparing happy and unhappy families.

• Develop a simple analytical framework to understand unhappiness (and its implications)
Benchmarking happiness

• Short-term interest rate channel
  – Interbank market to interest rates on short-term government securities

• Bank lending channel
  – Interbank rate to bank lending rates

• Exchange rate channel
  – Short-term interest rate to exchange rate
Benchmarking happiness (contd.)

• Long-term interest rate channel
  – Short-term to long-term interest rate

• Asset channel
  – Long-term interest rates to asset values

• Balance sheet channel
  – Asset values to external finance premiums
Benchmarking happiness (contd.)

• Strong institutional environment:
  – loan contracts are protected;
  – financial intermediation conducted almost exclusively through formal financial markets

• Independent central bank.

• Well-functioning/highly liquid
  – interbank market for reserves.
  – secondary market for government securities with broad range of maturities.
  – markets for equities and real estate.

• High degree of international capital mobility.

• Floating exchange rate.
Benchmarking unhappiness

- The formal financial sector is small
- Central banks have less independence
- Quality of institutional and regulatory environment is poor
- Money and interbank markets are poorly developed
- Secondary markets for government securities are also poorly developed
- Competition in the banking sector is weak
- Restrictions on the role of the market in setting bank loan rates are more prevalent
Benchmarking unhappiness (contd.)

- Governments cannot issue long-term domestic currency-denominated bonds
- Small number of listed firms and minimal turnover in stock market
- Poorly-defined property rights inhibit the buying and selling of real estate
- Small degree of *de facto* integration with international capital markets
- Little exchange rate flexibility
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Sources. Beck et. al., 2009; IMF Structural Reform Database
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Source. Beck et. al., 2009
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Upshot

• Expect interest rate, asset and exchange rate channels to be weak.
  – Absence/poor development of securities markets
  – Small/illiquid markets for assets
  – Imperfect integration with international financial markets and fixed exchange rates

• Bank lending channel should take center stage (in relative terms)

• But effectiveness depends on the extent to which central bank policy actions affect commercial bank lending rates
Methodologies to study the bank lending channel

• Simple correlations

• Panel VAR methodology (Mishra, Montiel, Pedroni and Spilimbergo)
Bank lending channel: two steps

• From policy rate to money market rates

• From money market rates to bank lending rates
Simple country-by-country estimating equation

\[ y_{it} = \alpha_i y_{it-1} + \beta_i y_{it-2} + \gamma_i x_{it} + \delta_i x_{it-1} + \eta_i x_{it-2} + \varepsilon_{it} \]

Short-term effect: average of estimated \( \gamma_i \)

Long-term effect = \( \frac{\gamma_i + \delta_i + \eta_i}{1 - \alpha_i - \beta_i} \)
Data

• Discount rates, money market rates and lending rates

• International Financial Statistics, IMF

• Monthly frequency

• Jan 1960-December 2008
Table 2. Correlation between changes in discount rate and changes in money market rate

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Table 3. Correlation between changes in money market rate and changes in lending rate

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### Table 4. Transmission mechanisms and bank concentration

Dependent variable: monthly changes in lending rate

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Structural panel VAR methodology

• Transmission from monetary policy innovations to bank lending rates

• **Whether effects of monetary policy differ systematically in LICs?**

• Panel methodology that allows individual country responses to be heterogeneous (Pedroni, 2008).

• Use long-run restrictions (Blanchard-Quah, 1989) to identify the effects
  – Long-run money neutrality
Data

• 63 countries (20 advanced, 14 emerging and 29 LICs)

• 1960-2008

• Quarterly data

• Nominal money base or M0 (line 14 of IFS)

• Commercial bank lending rate (line 60 of IFS)
Figure 2: Response of log(lending rate) to country-specific nominal shocks

- 25th percentile
- Median
- 75th percentile
Figure 1. Impulse Responses of Log Lending Rate to a One-Unit Nominal Shock. U.S. and Uganda
<table>
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<td>p-value for the F-stat</td>
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Figure 5. Predicted Four-Quarter Impulse Responses Conditional on Country Specific Characteristics

Notes. The predicted responses are based on the coefficient estimates in Table 1 (including the constant) and country-group means shown in Table 2.
Bottom-line

- Wide variations in impulse response of lending rate to a domestic MP shock across countries

- Countries with better institutional environments, more developed financial structures, and more competitive banking systems are those where MP is most effective in influencing lending rates.
Policy Implications

• Simple framework based on Blinder (1998) adaptation of Brainard (1967)

• Structure of economy:

\[ y = y_0 + am + \varepsilon \]

\( y \)  Aggregate demand

\( m \)  Monetary policy instrument
\[ E(\alpha) = \mu_\alpha \]
\[ V(\alpha) = \sigma_\alpha^2 \]
\[ E(\varepsilon) = 0, V(\varepsilon) = \sigma^2 \]

- Central Bank has to set MP before it realizes the values of \( \alpha \) and \( \varepsilon \).

- Central Bank objective: stabilize aggregate demand around a desired value \( y^* \).
\[ L(m) = E(y - y^*)^2 \]

\[ m_s^* = \frac{(y^* - y_0)}{(\mu_a + \sigma_a^2 / \mu_a)} \]

**Under no uncertainty**

\[ m_N^* = \frac{(y^* - y_0)}{\mu_a} \]

**Under uncertainty**

\[ \frac{m_s^*}{m_N^*} = \frac{1}{1 + (\sigma_a^2 / \mu_a^2)} < 1 \]

Optimal monetary policy is less activist under uncertainty
Intuition under uncertainty

- Cost: more aggressive monetary policy increases the ex ante variability of aggregate demand

- Benefit: closing the gap between actual and desired aggregate demand

- Weaker the effect (smaller mu) and more uncertain (larger sigma): less activist the monetary policy
Implications – under weak and unreliable monetary transmission

• Inflation targeting framework less desirable

• Case for flexible exchange rate regimes weakened

• Case for capital account restrictions weakened
Conclusions

• Standard description of monetary transmission in advanced countries assumes strong institutional environment, not likely to hold in developing countries

• Relatively, bank lending channel could be the most relevant

• Evidence on bank lending channel weak

• Need more carefully executed country case studies
Thank you!
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Happiness relies on effective arbitrage along several margins

Between:

• domestic short-term securities

• domestic short-term and long-term securities

• long-term securities and equities

• domestic and foreign securities

• domestic financial and real assets
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