Estimation of import demand function for Pakistan

By

Zunia Saif Tirmazee

Resham Naveed

Research Question

- Identify factors that explain the variations in import demand of Pakistan.
- Towards that end:
  - Two regression equations were estimated using VECM
    - Conventional import demand function
    - Additional determinants i.e., TOT and Foreign Exchange reserves availability
  - Analysis of residuals
  - Two subperiods post 1980's
    - 1980-2000
    - 2000-2012

Further Analysis of Import trend of Pakistan

- Falling imports to GDP ratio for Pakistan from 1980 to 2000

Legend:
— Imports
– – Exports
⋯ Balance of Trade

X-axis: Time (1980, 1990, 2000, 2010)
Y-axis: 0
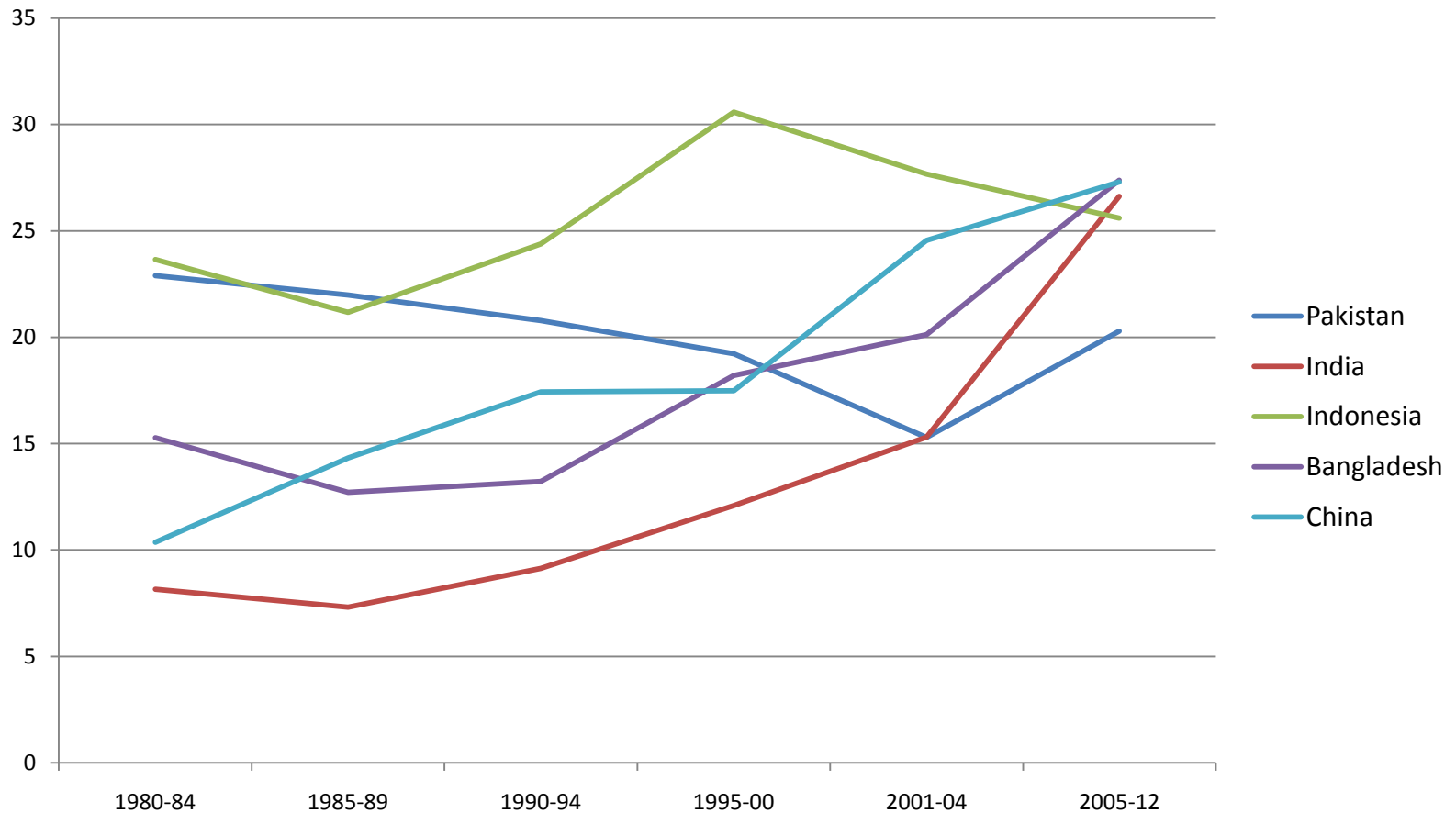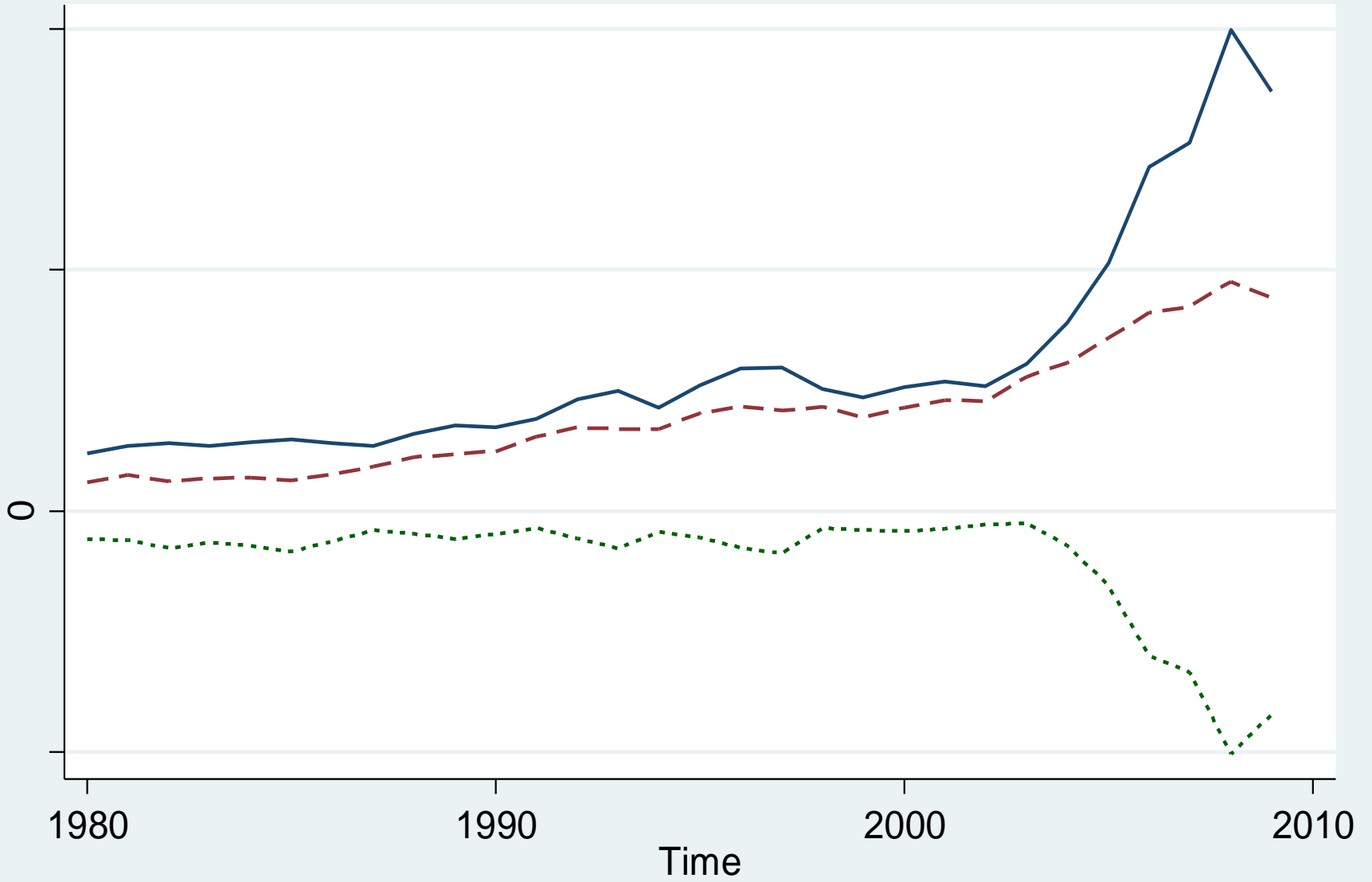
Composition of imports of Pakistan

	Share of Total Manufacturing imports (%)			
Commodities	2002-04	2005-06	2007-09	2010-12
Capital Goods	31	36	32	24
Consumer Goods	10	10	12	15
Industrial Raw Materials				
Capital Goods	6	7	8	7
Consumer Goods	52	46	51	55

Base Model

In line with the literature, the first model we estimated is conventional import demand function.

M= f (RP, Y)

That is imports (M) are a function of the relative prices(RP) measured as the ratio of import price index to domestic price index and

real income (Y) is measured by real gross domestic product.

Model 2

- Once the base model is estimated the second model is specified as follows

  M = f (Y, RP, TOT, FXR/Y)

Where TOT is terms of trade defined as unit value of exports divided by unit value of imports.

FXR/Y is the ratio of foreign exchange reserves to output.

The Results: Model 1

Coefficients	Equation (1)	
	Elasticities	
Coefficients	**Short Run**	**Long Run**
ΔLnM_{t-1}	0.286	-
	(0.206)	-
ΔLnY_t	1.146**	0.621***
	(0.669)	(0.193)
$\Delta LnRP_t$	-0.157**	-0.246
	(0.072)	(1.414)

The Results: Model 2

| Coefficients	Equation (2)	
	Elasticities	
Coefficients	**Short Run**	**Long Run**
ΔLnM_{t-1}	-0.124	-
	(0.181)	-
ΔLnY_t	0.498	2.400***
	(0.544)	(0.813)
$\Delta LnRP_t$	-0.055	-0.679**
	(0.121)	(0.361)
$\Delta LnTOT_t$	0.630**	0.411**
	(0.290)	(1.063)
$\Delta Ln(FXR/Y)_t$	0.159**	1.186***
	(0.070)	(0.319)
Constant	0.060	-
	(0.030)	-
Error Correction Term	-0.1436***	
	(0.0425)	

Analysis of Residuals of the two Models
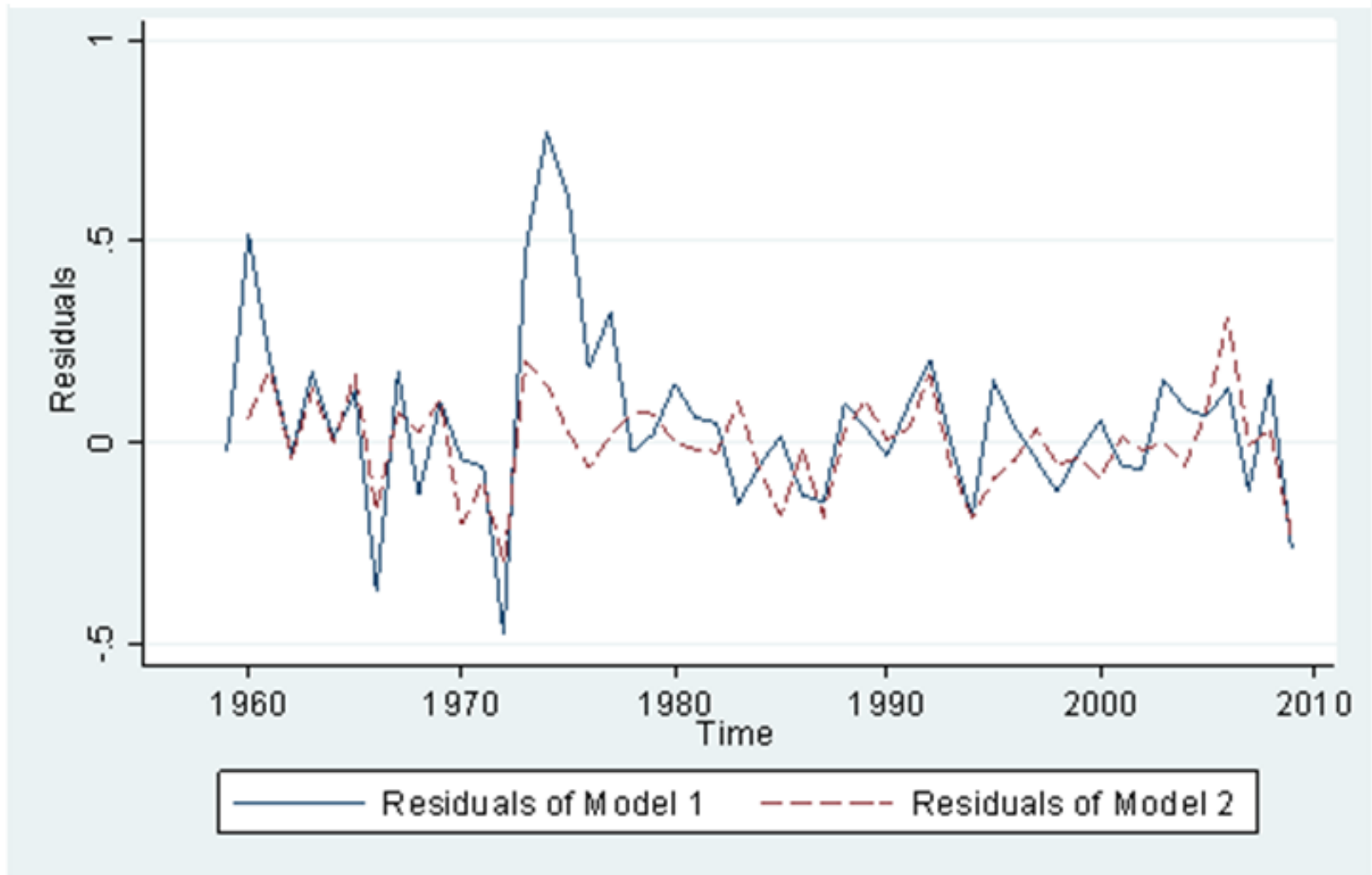
Fig 2: Line Plots of Residuals of Equation (1) and Equation(2)

Further Analysis of Import trend of Pakistan

- Falling imports to GDP ratio for Pakistan from 1980 to 2000
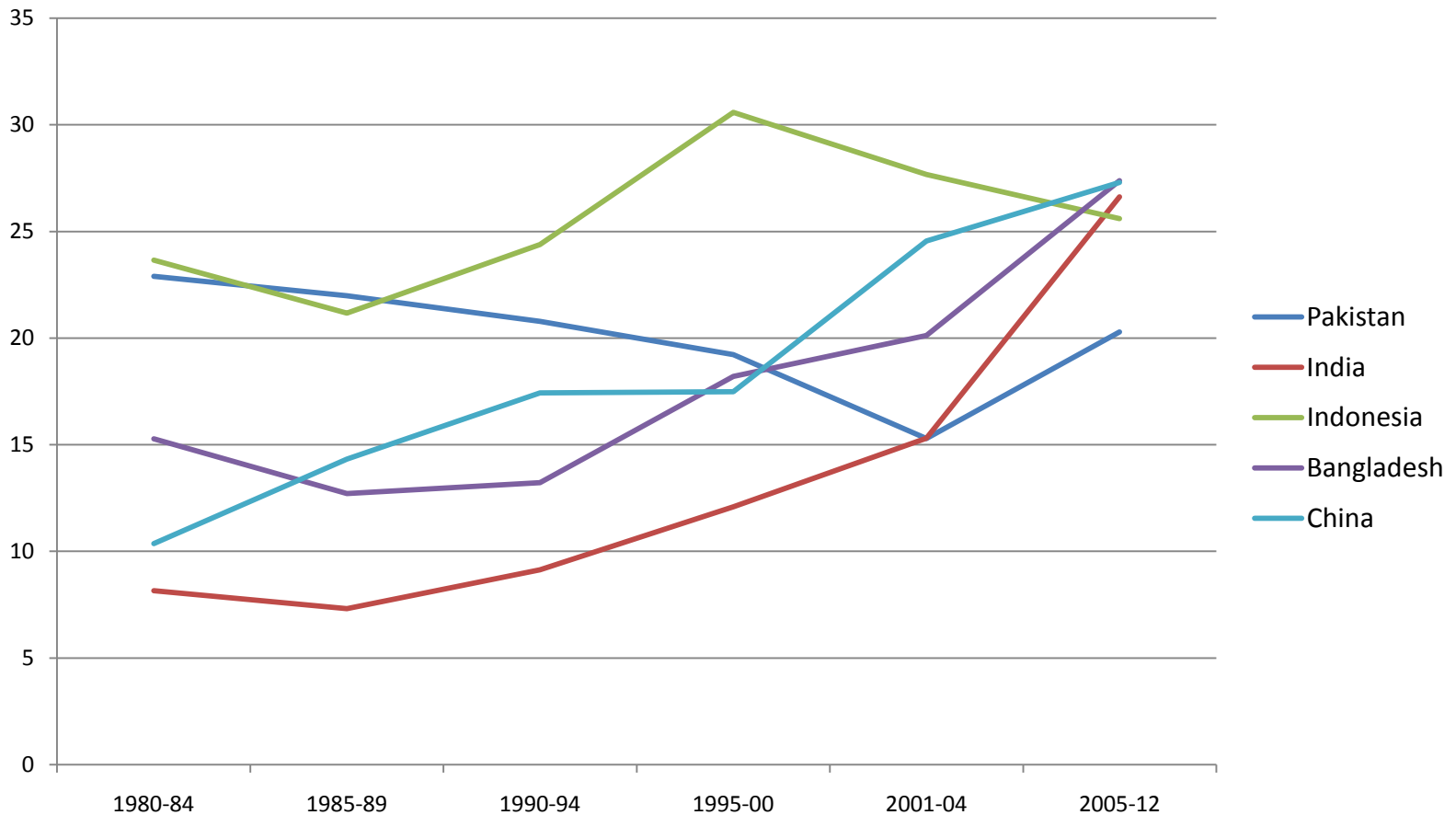
Significance of this pattern

- Unusual for a developing country
- Imports and GDP feed on each other
- Falling imports to GDP ratio implies
  - Pakistan is import constrained
  - Fall in net capital inflows
  - Inadequate foreign exchange reserves to finance imports

Analysis of Two Sub Periods

Coefficients	1980-2012		1980-2000		2000-2012
	(1)		(2)		(3)
ΔLnY$_t$	-0.18***		-0.166***		0.612**
	0.043		0.043		0.058
ΔLnRP$_t$	0.045		0.102		0.058
	0.121		0.152		0.138
NFI	0.027***		0.068***		0.016
	5.80E-06		1.62E-05		0.071

Conclusion

- Conventional import demand function loses its significance in the long run
- TOT and foreign exchange availability help to smooth out the residuals of the conventional import demand function
- From 1980's to 2000 falling net capital inflows explain the slow growth of imports relative to GDP
- Subsequent recovery for import demand after 2000 led to 2008 balance of payments crisis when imports started catching up.