

# Medium Term Exchange Rate Dynamics



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# Can we explain large and persistent deviations from PPP?

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- Sterling 1997-2002
- Euro weakness late 1990s, and dollar strength.
- In all cases UIP plus guestimates on expected interest rates not nearly enough to explain deviations.
- Dollar strength - asymmetric technical progress shock?



# Modelling approach

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- Differentiated products sold under imperfect competition (FEER approach)
- Microfoundations of aggregate trade equations problematic
  - competitiveness elasticities low
  - Incomplete pass through
  - X/K: new goods or old



# Three Term Model

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- Long term = steady state
- Medium term (FEER – Internal Balance): dynamics from consumption, investment and assets
- Short term: adds nominal inertia (here backward looking Phillips curve)



# Model structure

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- Blanchard/Yaari consumers (no REq)
- q model of investment
- Uncovered Interest Parity
- taxes move to gradually achieve debt target
- short term: real interest rates target inflation. Monetary policy has no role in medium/long term.

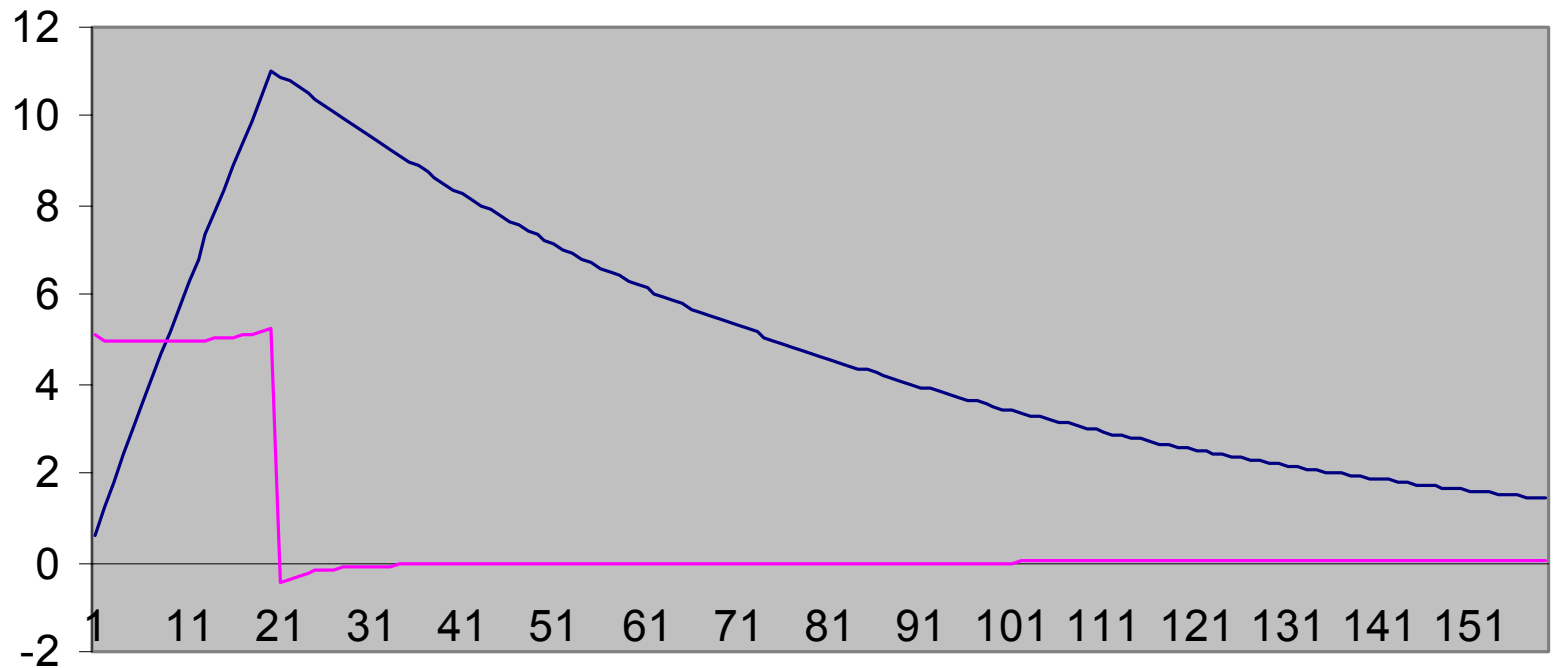


# Model simulations

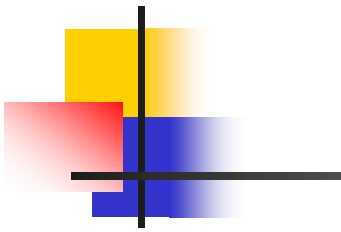
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- 5 year positive government spending shock (1% of GDP)
- Structural consumption shock
- Technical progress shock (GDP +3% over two year period, anticipated)
  - UK and US style economies

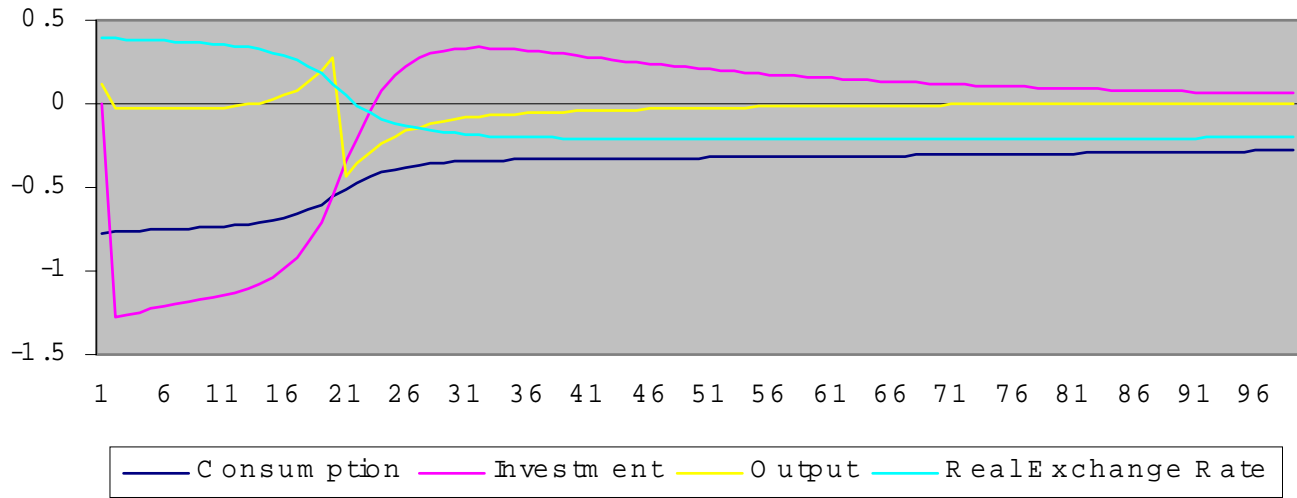
**Chart 3.3 5 year government spending increase**



— Debt — Government spending



**Chart 3.4 5 year government spending increase**



**Chart 3.5 5 year G increase, medium term**

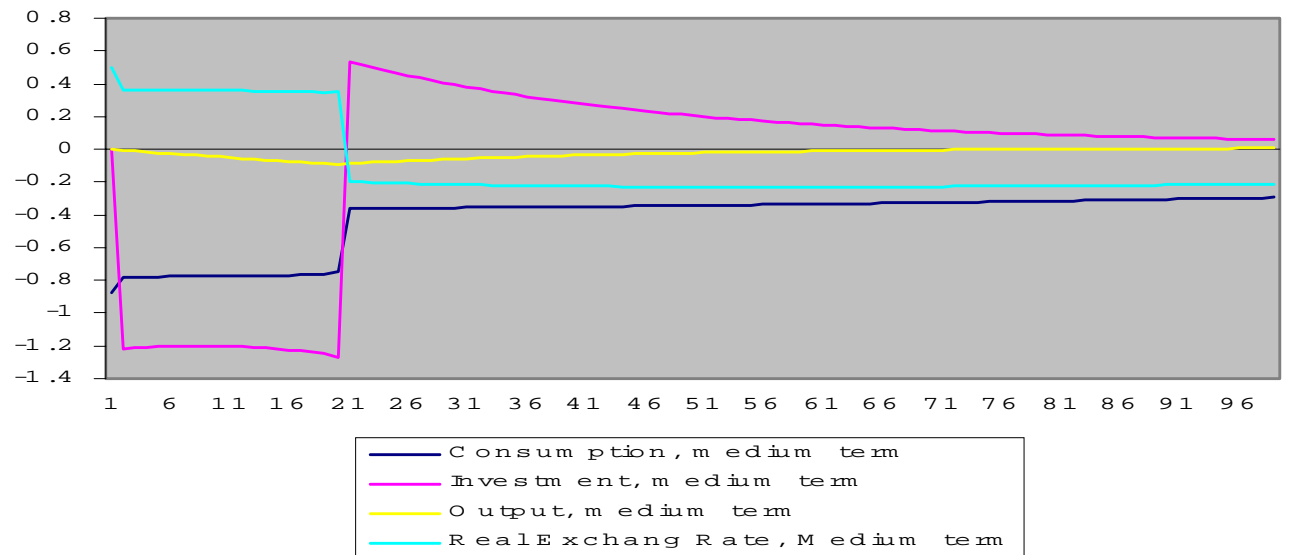
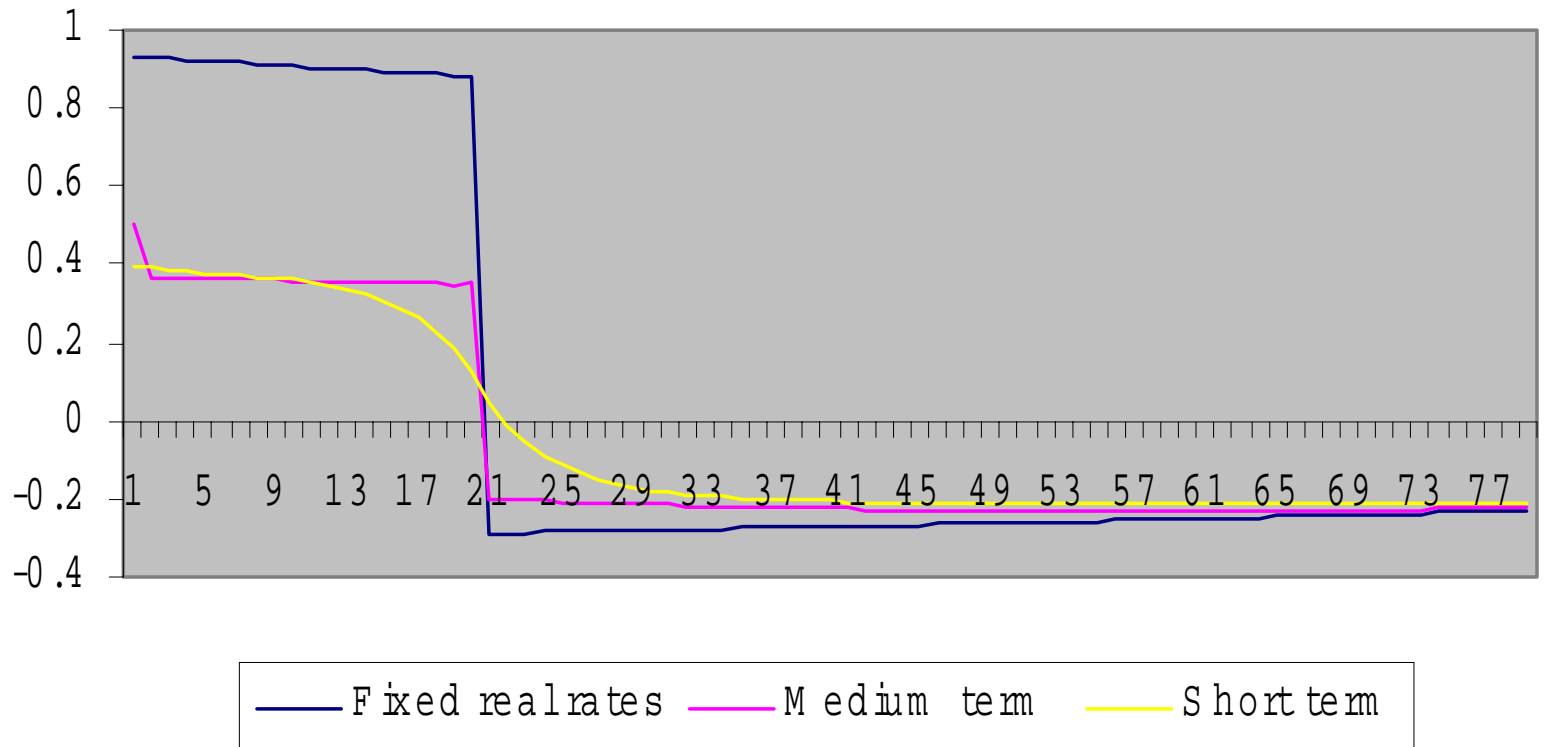
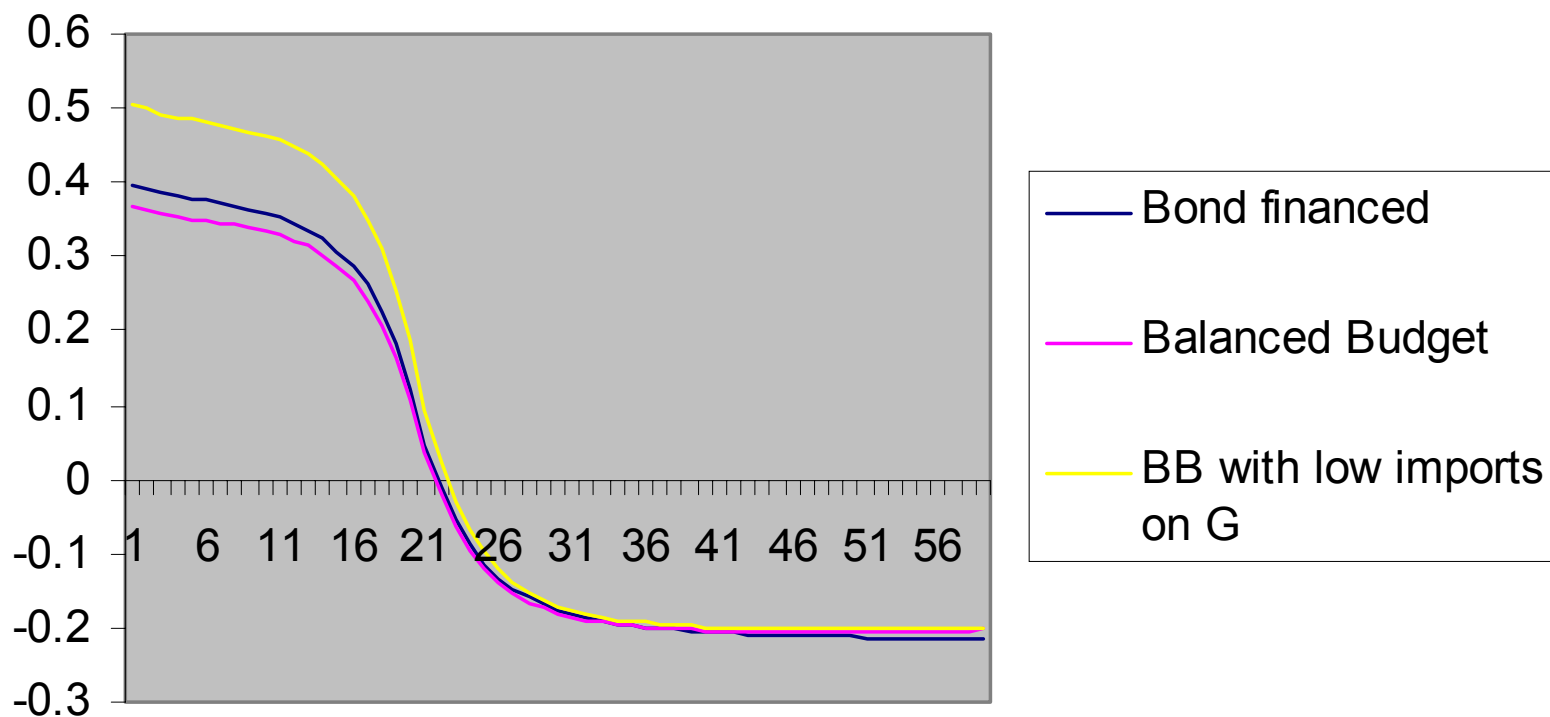


Chart 3.6 Five year G increase. The impact of endogenous and fixed real rates on the real exchange rate.



**Chart 3.8 Impact of a 5 year Balanced Budget fiscal expansion on the real exchange rate**



**Chart 3.10 Response of consumption to parameter changes**

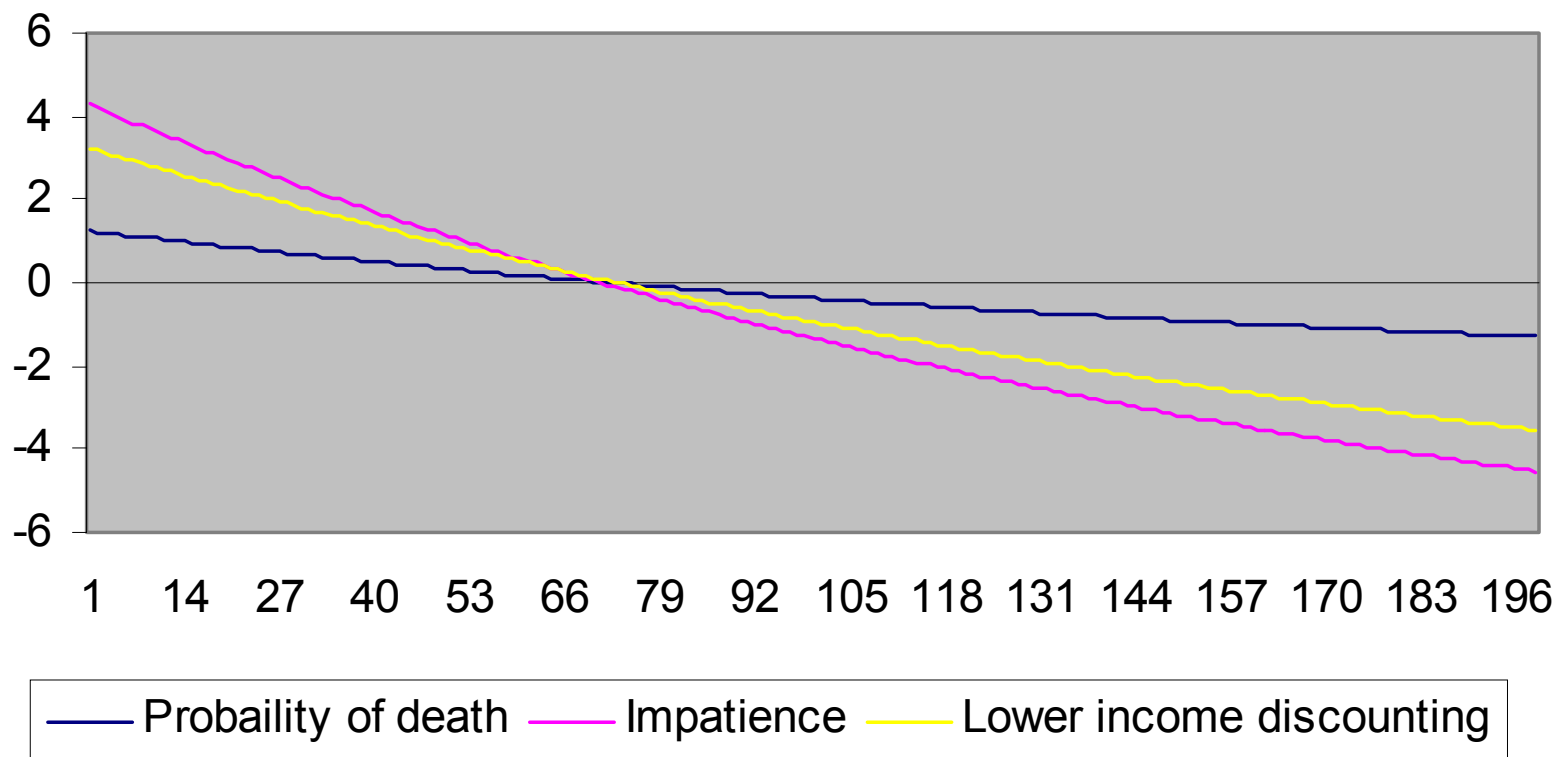


Chart 4.1 Anticipated technical progress  
shock - medium term model

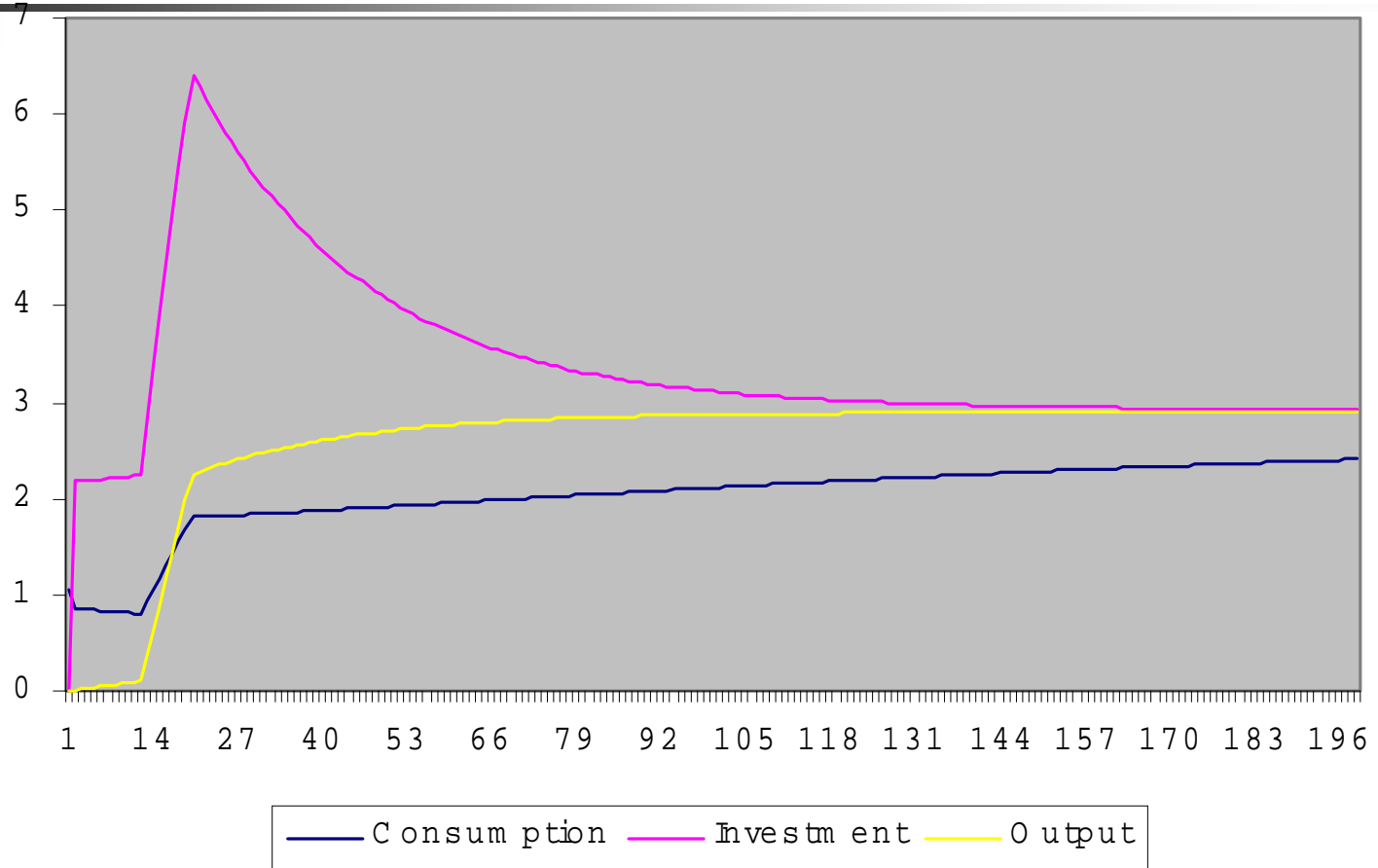
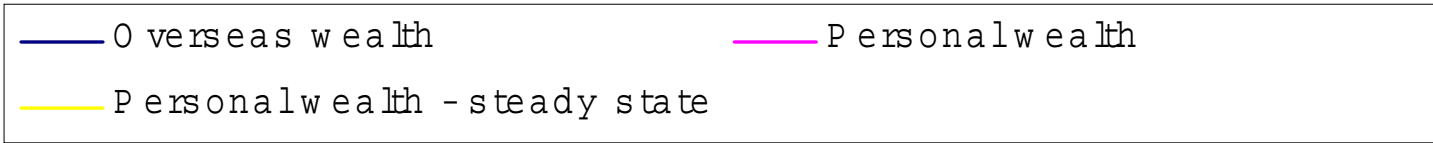
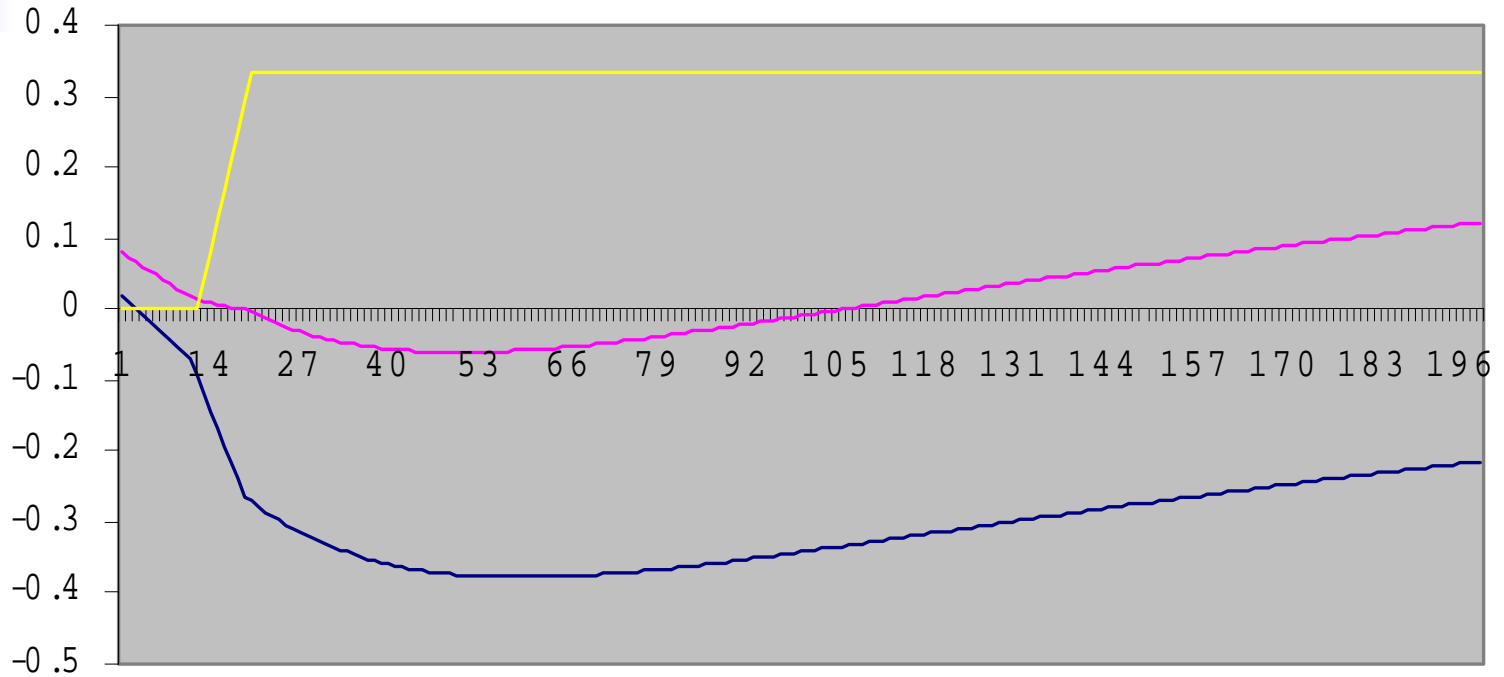
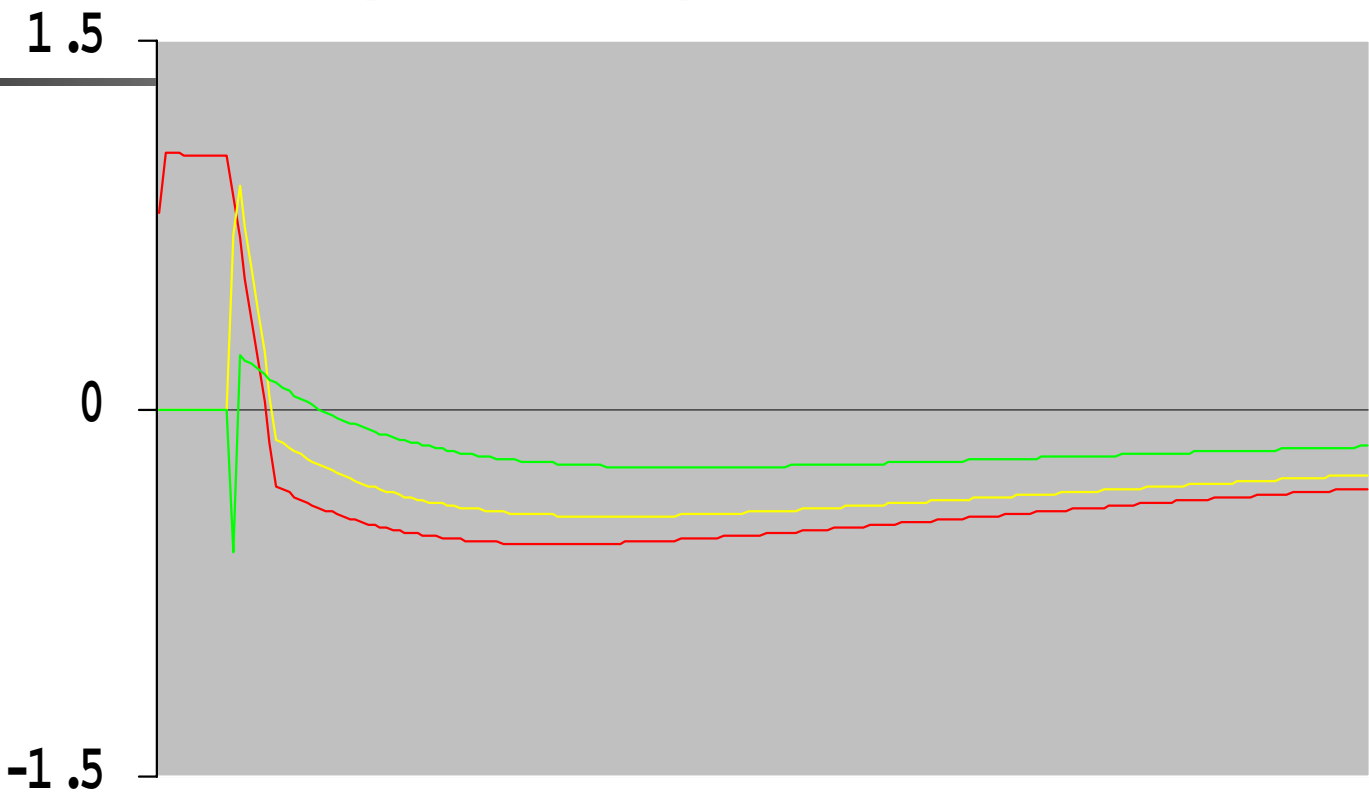


Chart 4.2 Anticipated Technical Progress  
Shock - medium term and steady state

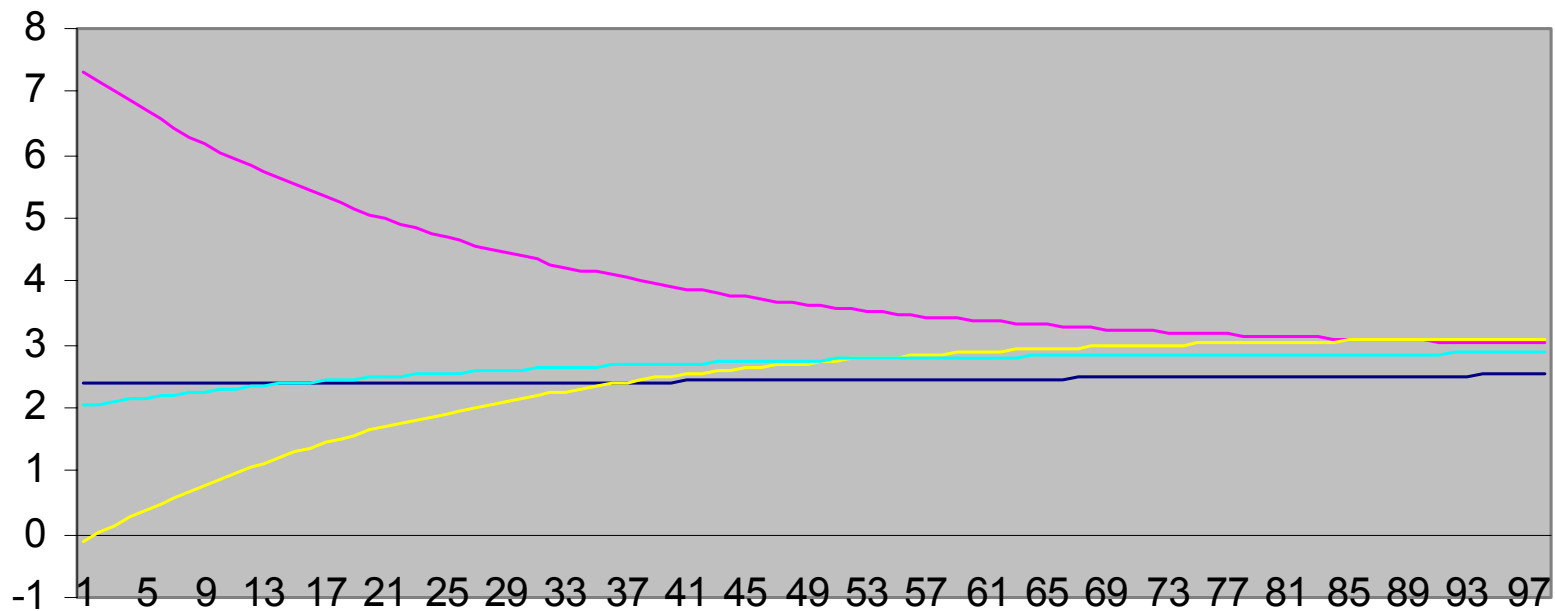


Technical Progress Shock and Real Exchange Rate:  
Anticipated, Unanticipated and Immediate



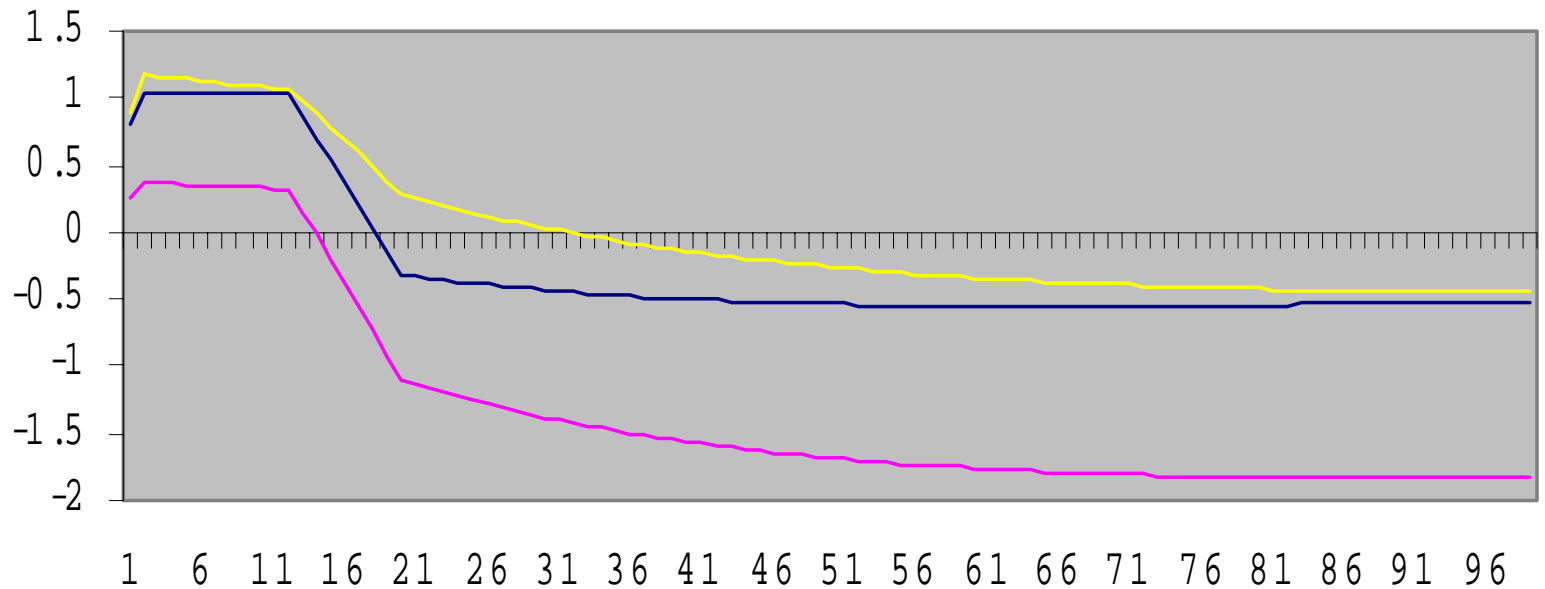
— Anticipated — Unanticipated — Immediate

**Chart 4.4 Immediate Technical Improvement**



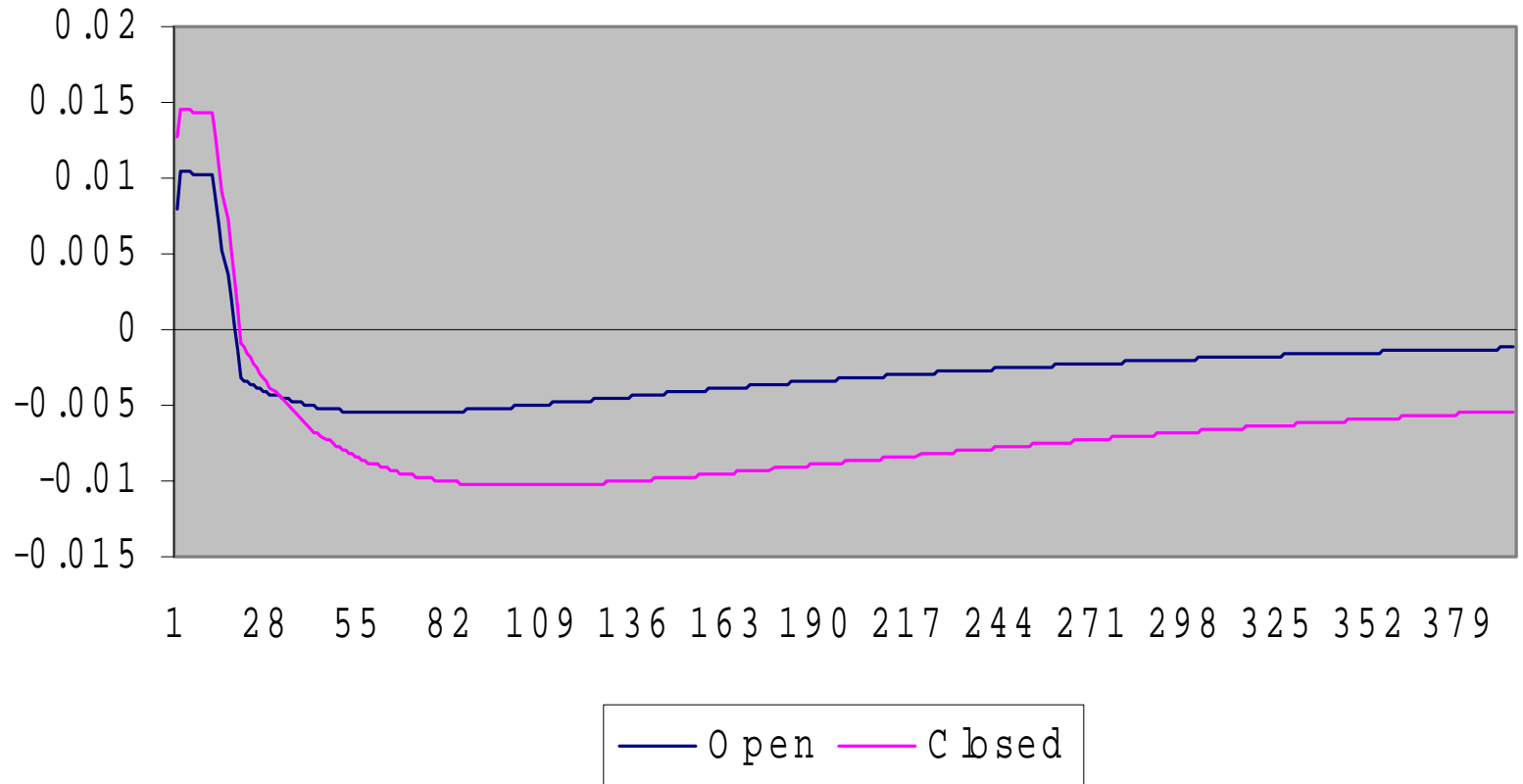
— Consumption — Investment — Exports — Output

Chart 4.5 Real Exchange Rate response to Anticipated Technical Progress: alternative export specifications

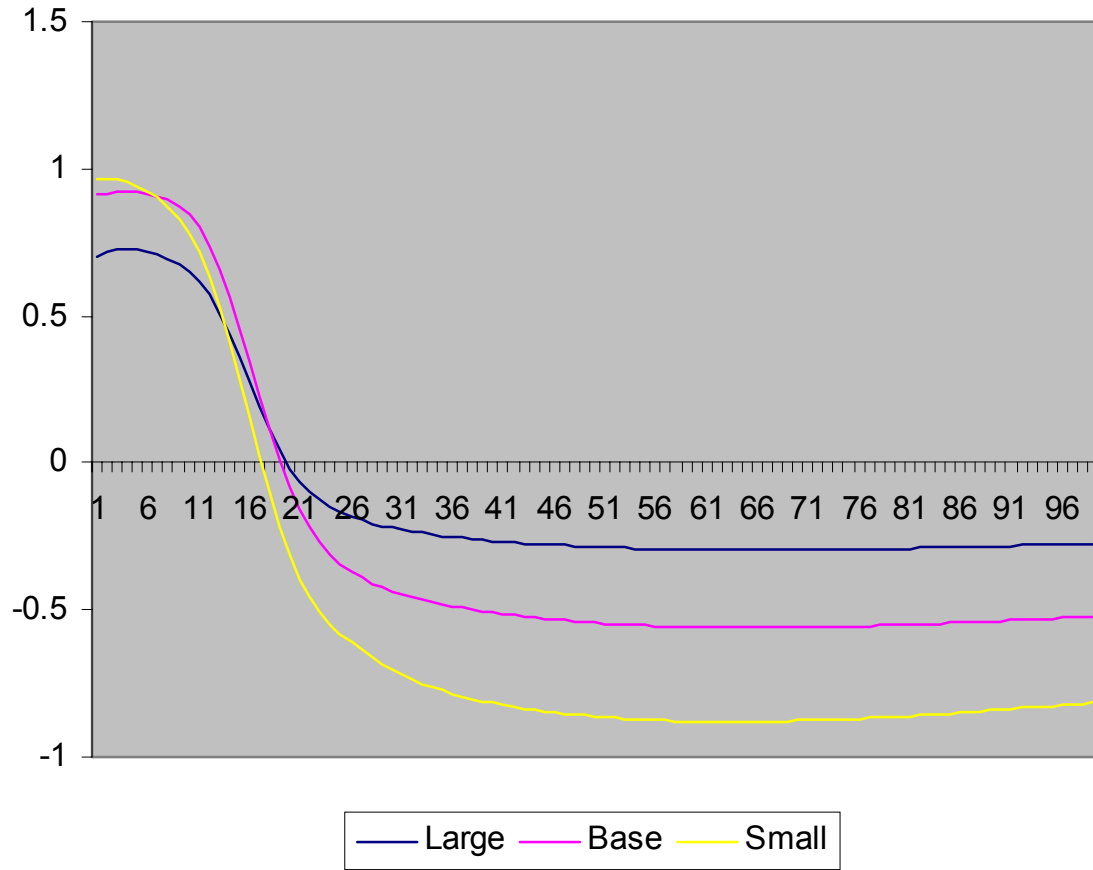


— Base case (capital) — No capital effect — with technical progress

Chart 4.6 Real Exchange Rate Response to Anticipated Technical Progress for Open and Less Open Economies



**Chart 4.7 Real Exchange Rate Paths for Anticipated Technical Progress with varying trade competitiveness elasticities**





# Conclusions

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- Applying standard shocks to model can generate persistent deviations from steady state real exchange rate. These are medium term, and can dominate short term.
- Large deviations (i.e.  $> 5\%$ ) require either very large shocks or extreme parameter values
- The appreciation following a technical progress shock mainly results from its anticipation.

Chart 4.3 Technical Progress Shocks and the Real Exchange Rate: Anticipated, Unanticipated and Immediate

