A Bayesian Approach to Quantifying Capital Account Restrictions in Small States

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Motivation

- Capital account liberalisation could have important effects.

- Many techniques have been used to evaluate the macroeconomic effects of liberalisation.

- Theory provides no guidance as it relates to choosing among these potential indicators.

Motivation (cont'd)

- Given the competing indicators available, conflicting results are available.

- To address this shortcoming, the study proposes a Bayesian approach to index construction.

- This framework allows one to provide robust estimates of capital account liberalisation.

Brief Review of Literature

Types of Indicators

- Ex-post Macroeconomic Indicators
- Capital Account Restrictiveness Indices
- Regression-Based Indices

Brief Review of Literature (cont'd)

- ***Ex-Post Indicators***
  - Eken (1984), Feldman (1986) and Levich (1987) propose that the integration of capital markets can be evaluated by the quantity of capital flow across borders
  - Lane and Milesi-Ferretti (2001) utilise annual estimates of portfolio and direct investment assets and liabilities as a ratio of gross domestic product

Brief Review of Literature (cont'd)

- ***Capital Account Restrictiveness Indices***
  - IMF's Annual Report on Exchange Arrangements and Exchange Restrictions
  - An index of the proportion of years in which countries had an open capital account could also be employed. (see Grilli and Milesi-Ferretti (1995); Rodrik (1998); Klein and Olivei (1999)).

Brief Review of Literature (cont’d)

- ***Regression-Based Indicators***
  - Feldstein and Horioka (1980) exploit the idea that in a closed economy the return on savings is the national marginal product of capital.
  - Edwards and Khan (1985) estimate the degree of capital mobility by utilising information from an interest rate determination equation.

Methodology

- Theory provides little or no guidance to help sort between all of the various approaches.

- A Bayesian approach to estimating the indicators of capital account restrictions is therefore employed.

Methodology (cont'd)

- The prior probability of specification *j* is therefore given by:

$$P(I_j) = \left(\prod_{i=1}^{k_j} I_{ji} \frac{\bar{k}}{K} \right) \left(\prod_{i=1}^{k_j} (1 - I_{ji}) \left(1 - \frac{\bar{k}}{K} \right) \right)$$

- The number of potential indicators variables included in every model, is fixed to 1,3 and 6.

- Other values for were considered.

Methodology (cont'd)

- Observations on the indicators of capital account liberalisation are derived for the period 1960 to 2009.

- However, because of data limitations some variables are not available for the entire sample period.

- The countries classified in this study as small states are those presently included in the list used by the United Nations Department of Economic and Social Affairs.

Results

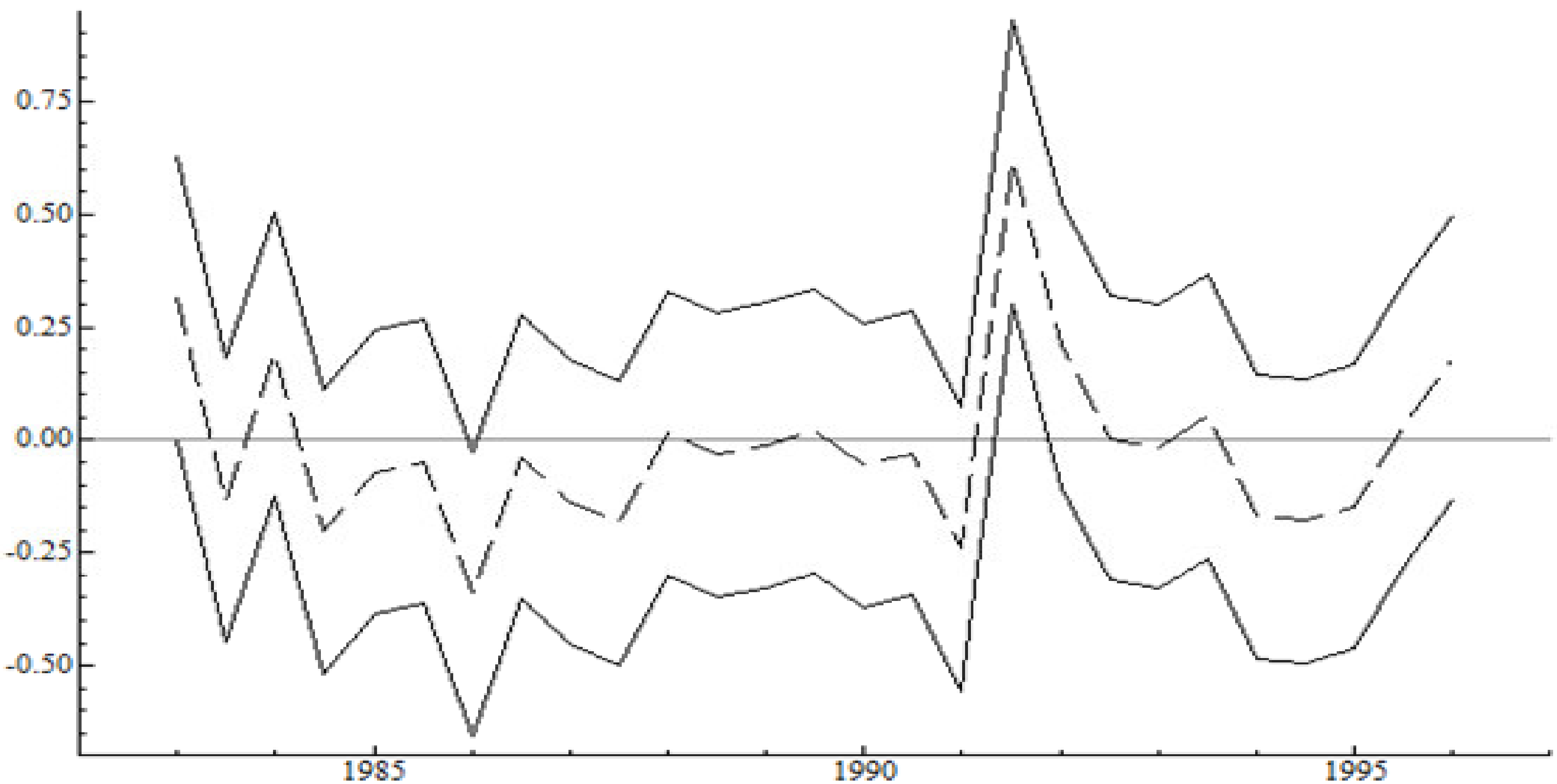
- All analysis is done using 1000 draws from the database.

- Figures 1-3 therefore provide the estimates of the liberalisation indicator assuming that 1, 3 or 6 variables are used to form the indicator variable.

- All variables are standardized (demeaned and divided by the standard deviation) before calculating the un-weighted average.

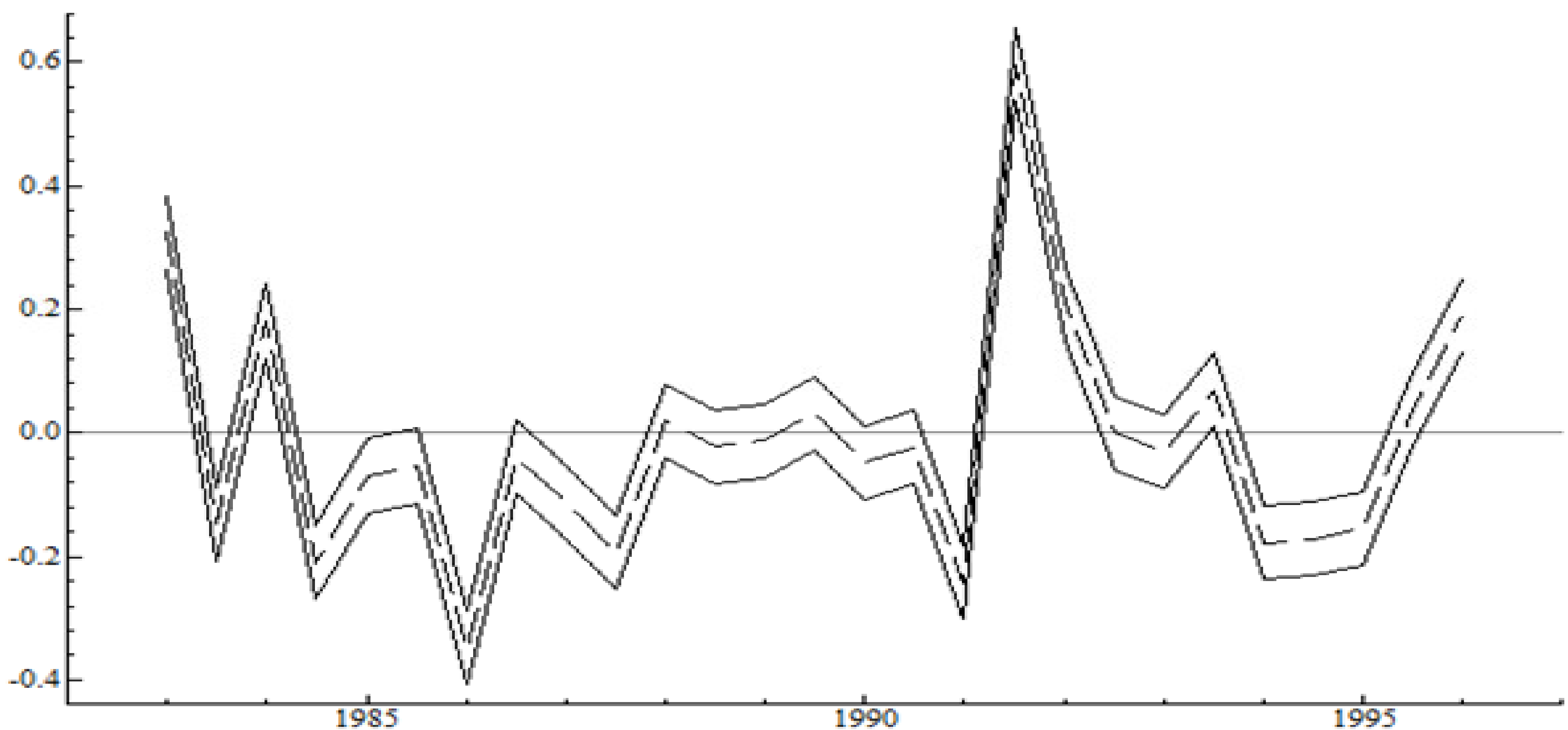
Results (cont'd)

Figure 1: Indices of Capital Account Controls ($k = 1$)



Results (cont'd)

Figure 3: Indices of Capital Account Controls ($k = 6$)



Results (cont'd)

- The approach suggested in the current study is particularly well suited to assessing the likely effects of capital account restrictiveness on national incomes.

- Inconclusive evidence in relation to the potential effects of removing capital controls on economic growth (see Moore, 2010).

Results (cont'd)

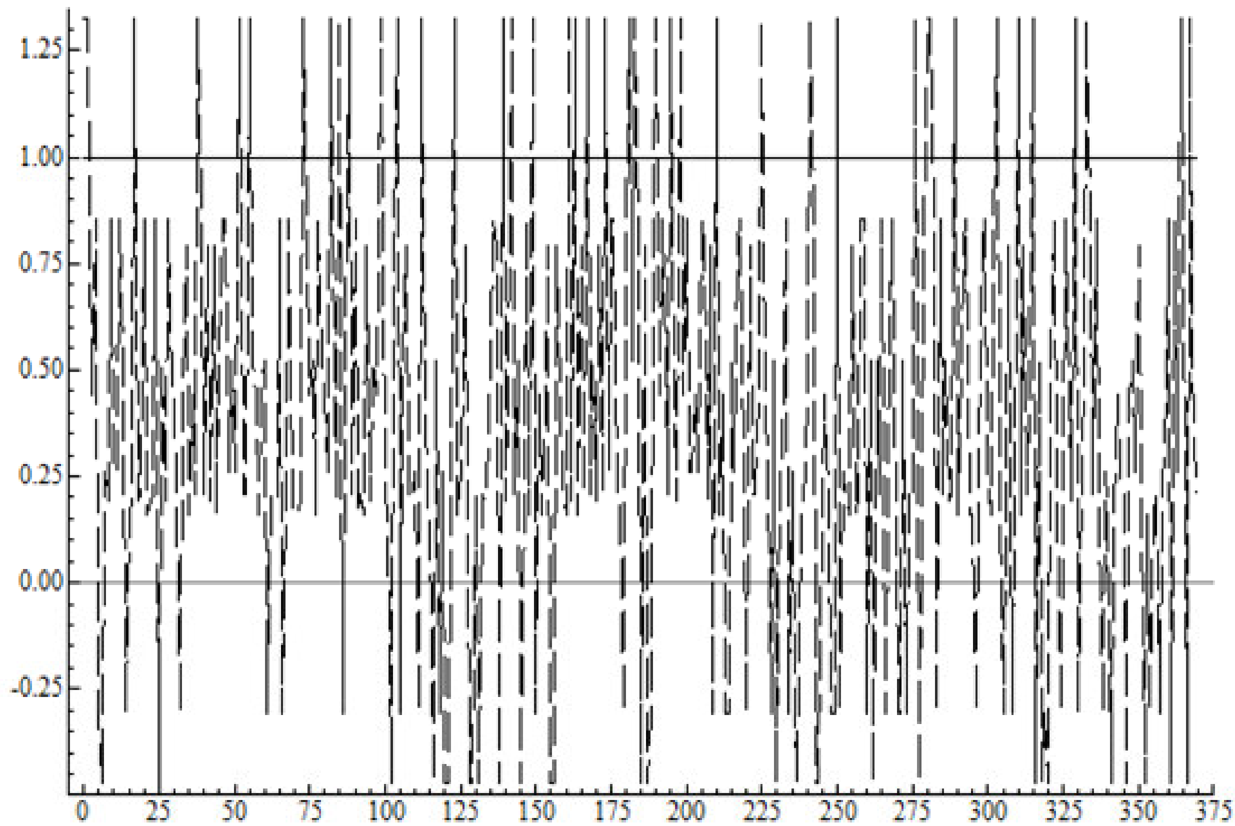
- This indicator is then employed in the growth regression of the following form:

$$\ln(y_{it}) - \ln(y_{it-1}) = \alpha_i + \beta_1 \left(\frac{I_{it}}{Y_{it}}\right) + \beta_2 KA_{it} + u_{it}$$

- Following Levine and Renelt (1992) only the share of investment in GDP is included in the regression, as this tends to be the most robust determinant in cross-country growth regressions.

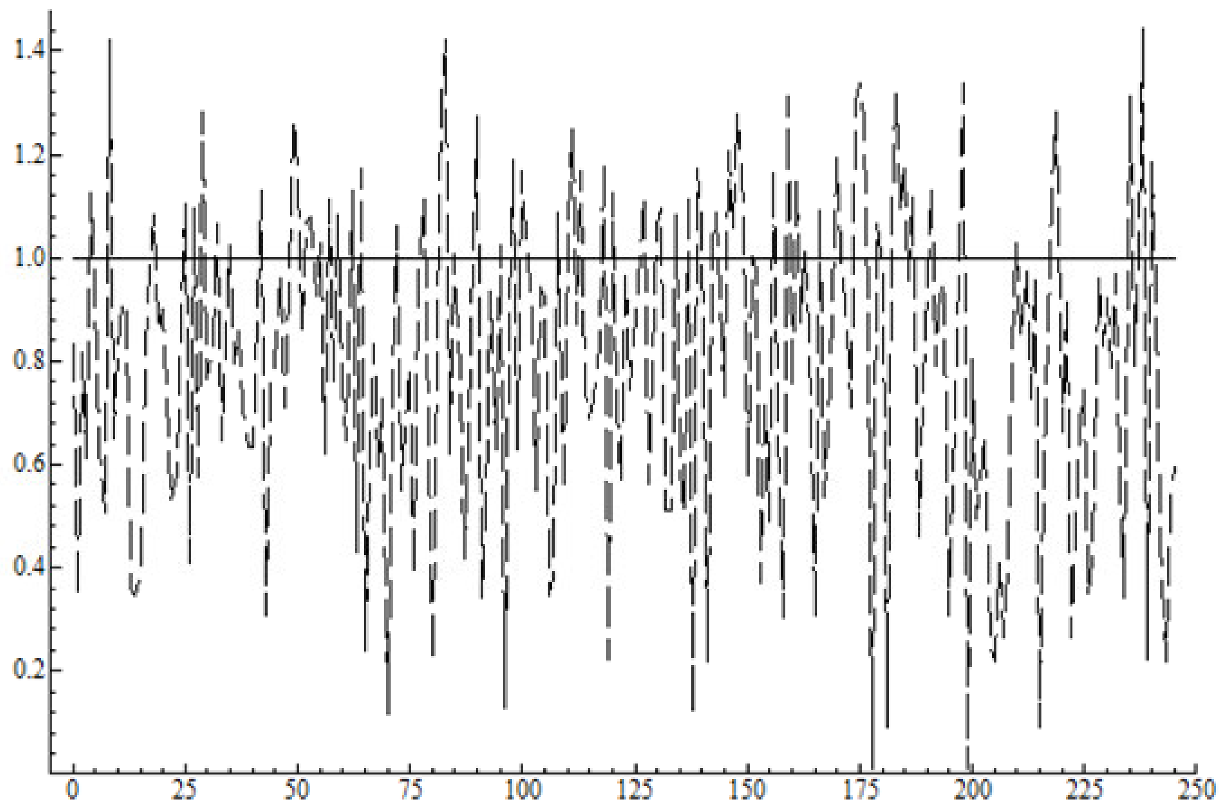
Results (cont’d)

Figure 4: Significance of Capital Controls Variable in Growth Regression $(k = 1)$, t-statistic/1.96



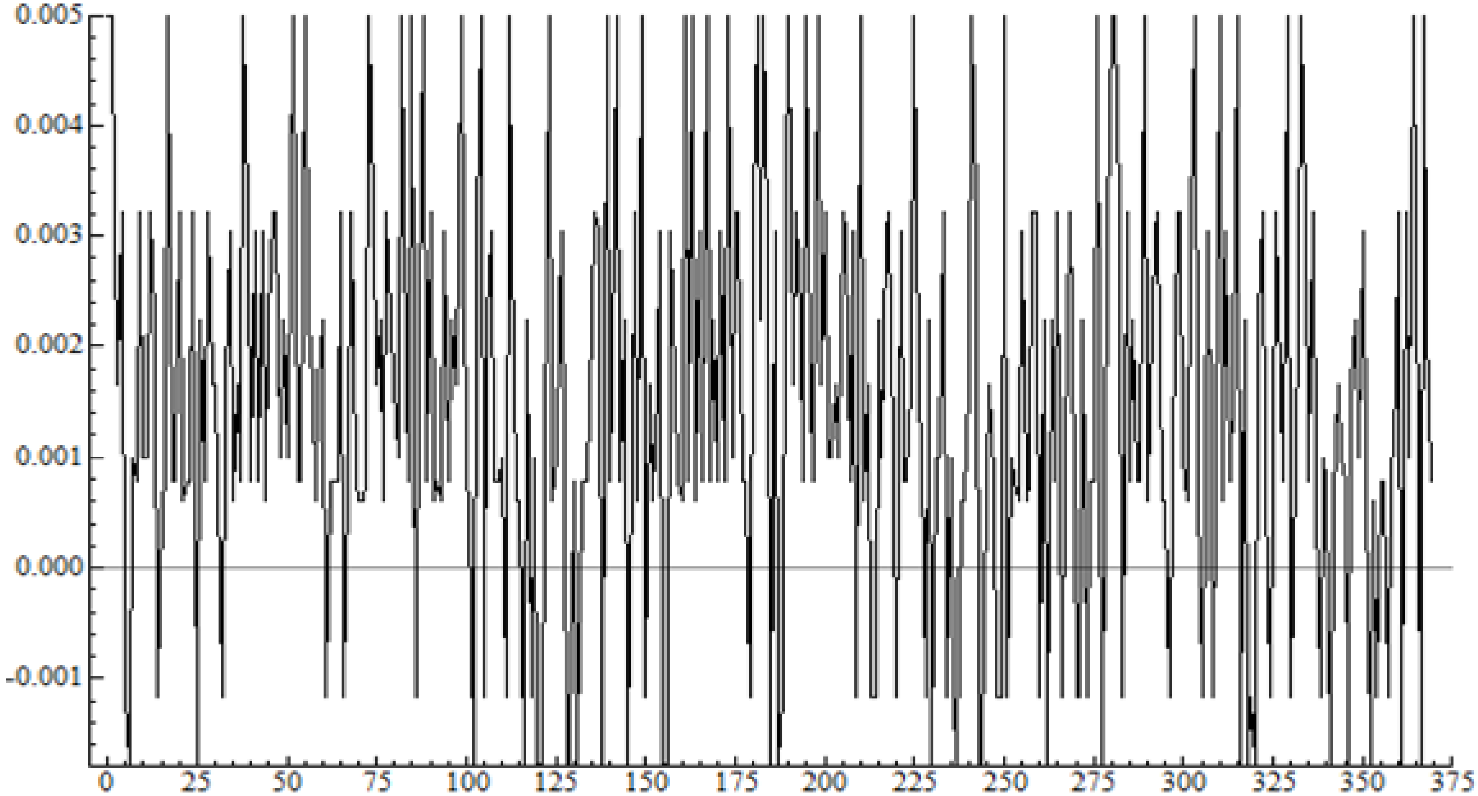
Results (cont'd)

Figure 6: Significance of Capital Controls Variable in Growth Regression ($k = 6$), t-statistic/1.96



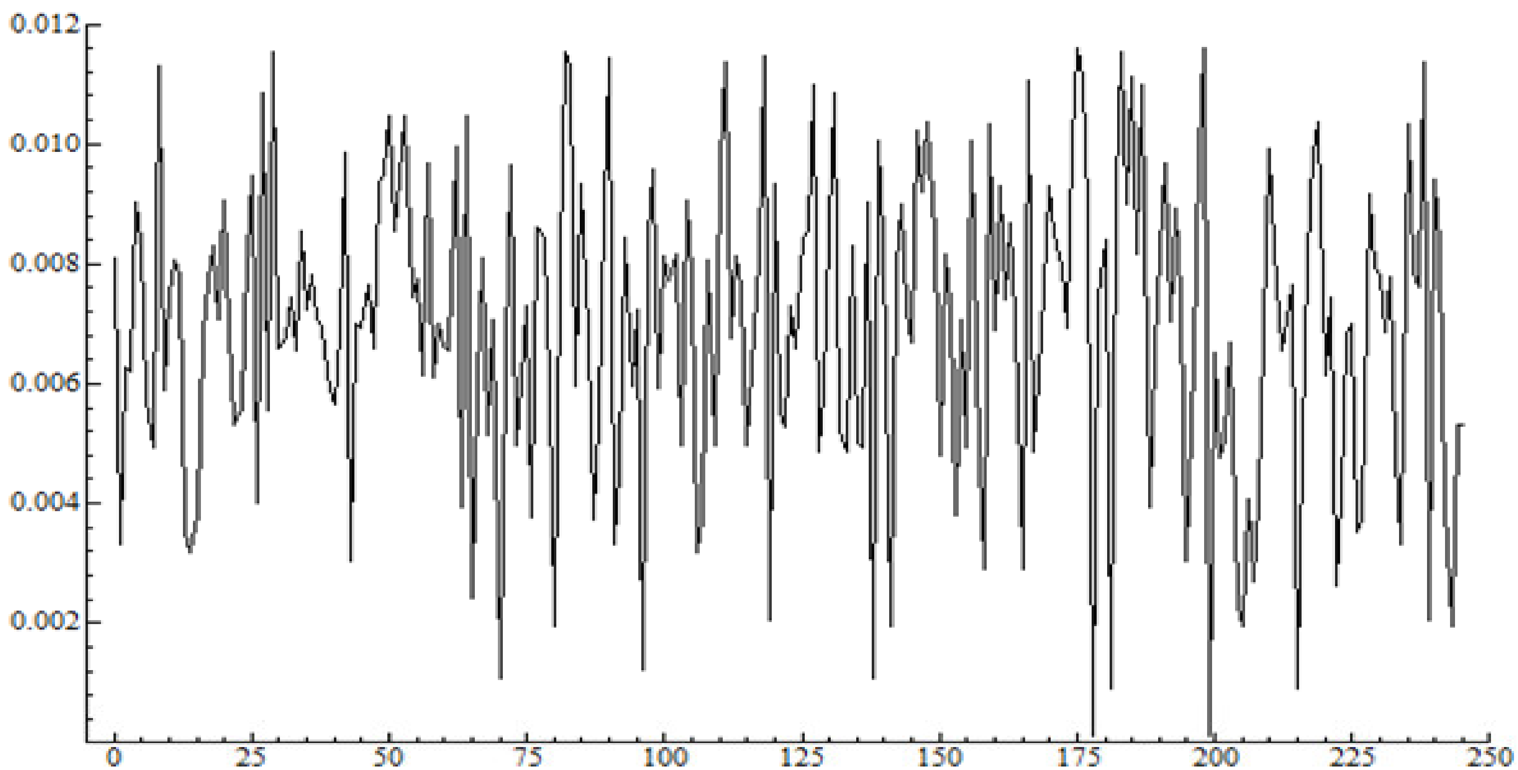
Results (cont'd)

Figure 7: OLS Coefficient Estimates for Capital Account Controls ($k = 1$)



Results (cont'd)

Figure 10: OLS Coefficient Estimates for Capital Account Controls ($k = 6$)



Conclusions

- One of the main problems with assessing the potential importance of capital account liberalisation is the difficulty of deriving a consistent indicator that is applicable to every country and time period.

- Using data on 34 small states between 1960 and 2009, this paper derives 11 indicators of capital account liberalisation in these countries.

Conclusions

- This study therefore proposes a Bayesian approach to index construction based on Bayesian averaging, which builds indices of capital account restrictiveness by sampling from a wide cross-section of potential indicators.
- The study finds that most small states appeared to have removed some capital account restrictions since 1995.
- Augmenting a basic cross-country growth equation with the indicator suggested that liberalisation has a statistically insignificant but positive impact on per capita GDP growth in small states.