Government Expenditure and Economic Growth in a Small Open Economy: A Disaggregated Approach

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General Overview

Outline

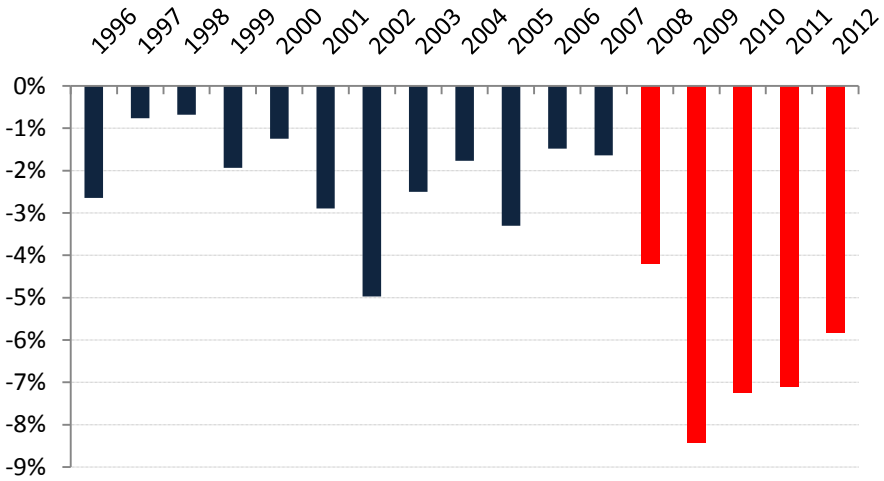
- Motivation
- Brief review of literature
- Methodology
- Results
- Conclusion

Motivation

Motivation

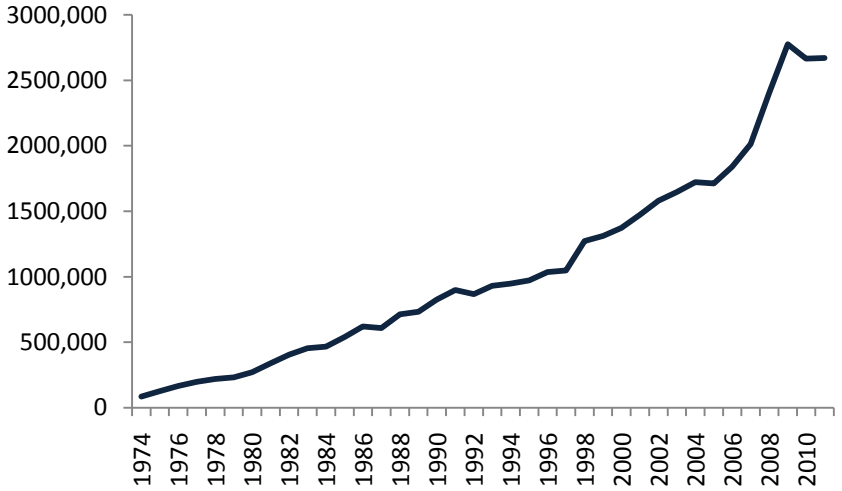
- Government of Barbados has been plagued with budget deficits for the last 3 decades.

Budget Deficit



Source: Central Bank of Barbados

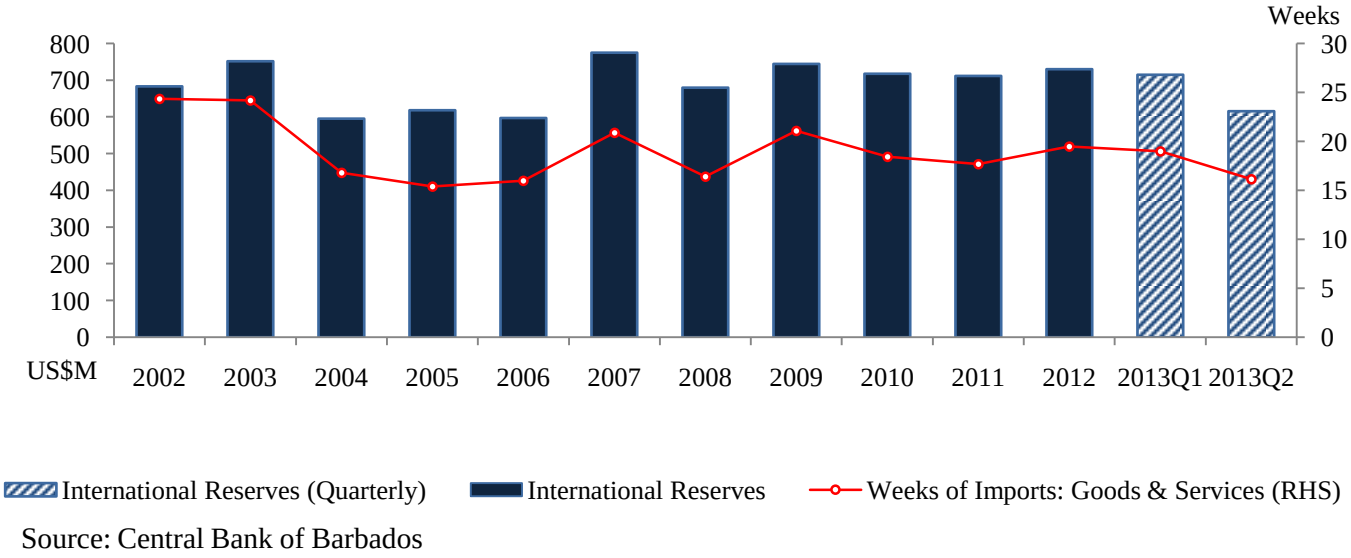
Real Government Expenditure



Source: Central Bank of Barbados

Motivation

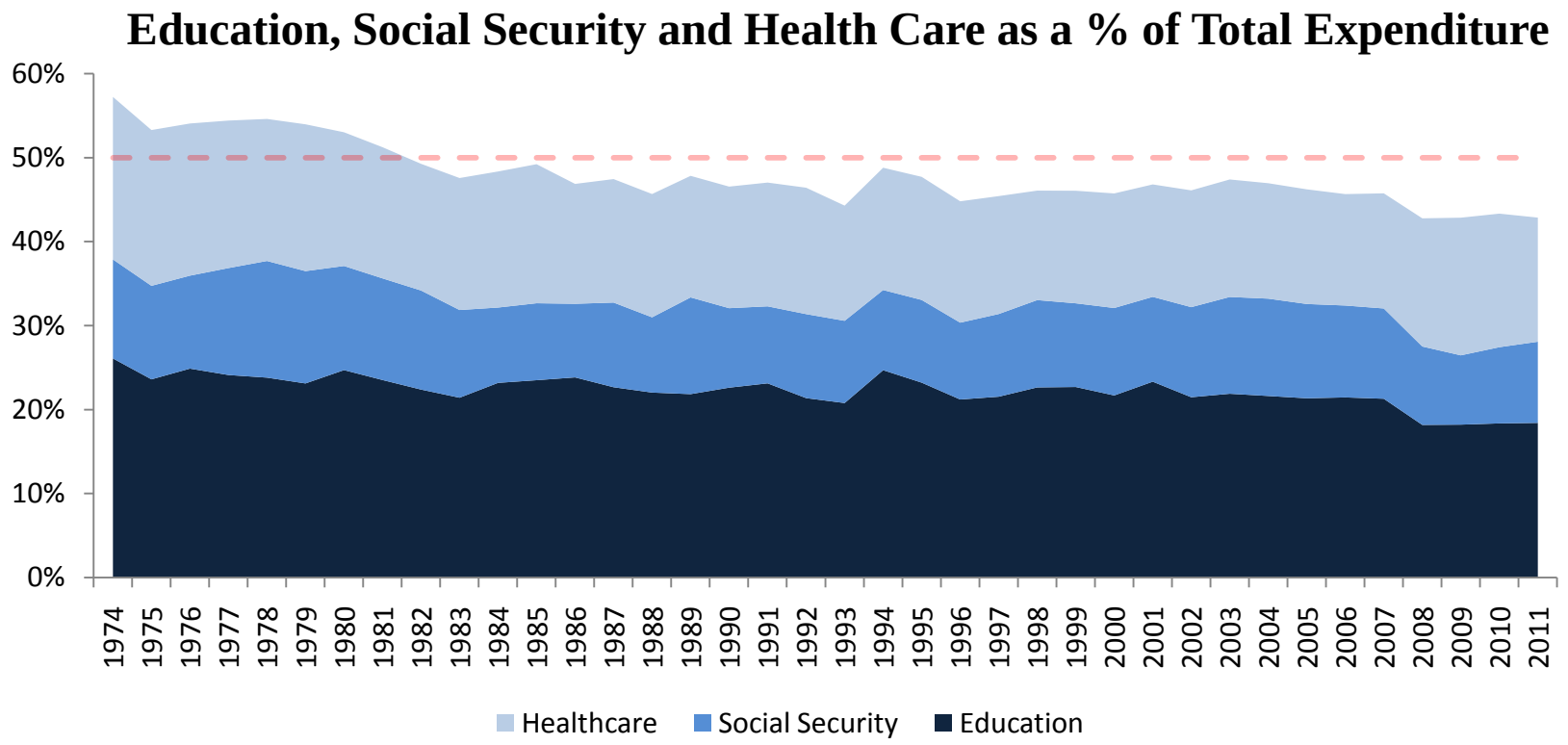
- These widening imbalances coupled with low growth, have started to adversely impact the IR of the monetary authority.



Source: Central Bank of Barbados

- Government has undertaken a self-imposed fiscal adjustment which is tied heavily to a reduction in government's expenditure.

Motivation



- Government's fiscal adjustment includes a reduction in expenditure on education and health care.

Literature Review

Literature Review

Total Government Expenditure and Growth

Author	Study Area	Relationship between Government Expenditure and Economic Growth
Barro (1991)	Using a sample of 98 countries between 1960 and 1985	Negative and significant relationship.
Ghura (1995)	33 Sub-Saran African economies	Negative
Ram (1986)	115 nations	Negative
Lee (1995)	89 countries	Negative

Literature Review

Total Government Expenditure and Growth

Author	Study Area	Relationship between Government Expenditure and Economic Growth
Harko (2000)	21 Asian Countries	Positive
Alexiou (2007)	Greece	Positive
Bairam (1990)	20 African territories	No significant relationship
Conte and Darrat (1988)	OECD countries	No significant relationship

Literature Review

The Decomposition of Government Expenditure and Growth

Category of Government Expenditure	Authors	Relationship with Economic Growth
Health Care	Alfonso and Alegre (2011)	positive
	Khan and Ahmed (1999)	positive
	Devarajan et al (1996)	negative (insignificant)
Social Security	Keneller et al. (1999)	negative
	Afonso and Fuceri (2010)	negative
	Bellentini and Ceroni (2000)	positive
Education	Jung and Throbecke (2003)	Positive
	Belgrave and Craigwell (1995)	Positive
	Landau (1986)	Negative

Methodology

Methodology

- Dynamic Ordinary Least Squares (DOLS)
- Unrestricted Error correction model (UECM)
  - Support variables of differing degrees of integration
  - Permits the estimation of both long-run multipliers and short-run dynamics via cointegrating relationships amongst the variables under investigation.

Methodology

Dynamic Ordinary Least Squares

- The DOLS approach applies leads and lags on the first differences of the non-stationary variables in the long-run regression.

$$y_t = \beta' x_t + \sum_{j=-k_1}^{+k_2} \gamma_j \Delta x_{t-j} + u_t \qquad (1)$$

$$\Delta y_t = \alpha_0 + \sum_{j=1}^{k_2} \alpha_j \Delta y_{t-j} + \sum_{j=0}^{k_2} \delta_j \Delta x_{t-j} + \rho u_{t-1} + v_t \qquad (2)$$

- Equations (1) and (2) are the long-run and ECM specifications, respectively.

Methodology

Unrestricted Error Correction Model

- In contrast the UECM requires a single equation to capture both the long and short-run dynamics
  - $\Delta y_t = \alpha_0 + \sum_{j=1}^{p} \alpha_j \Delta y_{t-j} + \sum_{j=0}^{q} \delta_j \Delta x_{t-j} + \rho\, y_{t-1} + \varphi'\, x_{t-1} + v_t$
- In this case, the long-run coefficients are calculated as -(φ/ρ) and p and q are the maximum lag lengths for the lagged dependent variables and first differenced regressors respectively

Data

- This study utilises annual observations covering the period 1975-2010.

- The data set comprises data on central government's total government expenditure, spending on education, health, social security and real per capita GDP.

- The control variables are: openness to international trade, population and investment, indicated in the literature (see for instance Craigwell et al., 2012)

Results

Results

Baseline

	Long-run Impact Multipliers		Short-run Dynamics	
Regressors	**DOLS**	**UECM**	**DOLS**	**UECM**
Population	3.5194***	3.6149***	-33.4419***	-18.842
	(0.2998)	(0.5065)	(9.224)	(18.4545)
Openness	-0.0045***	-0.0037***	-0.0029***	-0.0040***
	(0.0008)	(0.0008)	(0.0005)	(0.0005)
Investment	0.0094***	0.0048***	0.0078***	0.0094***
	(0.0022)	(0.0014)	(0.0016)	(0.0023)
Total Expenditure/GDP	-0.008	-0.0043	-0.0074***	-0.0055***
	(0.0059)	(0.0044)	(0.0019)	(0.002)

***,** and * represent statistical significance at the 1%,5% and 10% levels of significance respectively

Results

Baseline (Robustness)

	Long-run Impact Multipliers		Short-run Dynamics	
Regressors	**DOLS**	**UECM**	**DOLS**	**UECM**
Population	2.5886	4.3085***	-37.4083***	-1.1031
	(1.6596)	(1.3285)	(6.9213)	(19.819)
Openness	-0.0035***	-0.0036***	-0.0031***	-0.0035***
	(0.0009)	(0.0008)	(0.0006)	(0.0007)
Investment	0.0100***	0.0040**	0.0082***	0.0083***
	(0.0024)	(0.0013)	(0.0023)	(0.0029)
Total Real Expenditure	0.0545	-0.0747	-0.1579*	-0.0407
	(0.113)	(0.0788)	(0.0833)	(0.0795)

***,** and * represent statistical significance at the 1%,5% and 10% levels of significance respectively

Results

Public Expenditure on Education

	Long run Impact Multipliers		Short-run Dynamics	
	DOLS	**UECM**	**DOLS**	**UECM**
Education Expenditure/GDP	-0.0391***	-0.0208	-0.0384***	-0.0398***
	(0.013)	(0.0121)	(0.0102)	(0.0122)
Education Expenditure/Total Exp	0.0021	0.0041	-0.0034	-0.0029
	(0.0034)	(0.0049)	(0.0026)	(0.0029)
Real Education Expenditure	0.0059	-0.0099	-0.1046***	-0.041
	(0.0945)	(0.0737)	(0.0324)	(0.0386)

***,** and * represent statistical significance at the 1%,5% and 10% levels of significance respectively

Results

Public Expenditure on Health Care

	Long run Impact Multipliers		Short-run Dynamics	
	DOLS	**UECM**	**DOLS**	**UECM**
Health Expenditure/GDP	-0.0534**	-0.0248	-0.0387***	-0.0204
	(0.0212)	(0.0169)	(0.001)	(0.014)
Health Expenditure/Total Exp	-0.0136	-0.0165***	-0.0018	-0.0025
	(0.008)	(0.0057)	(0.006)	(0.0066)
Real Health Expenditure	-0.2256*	-0.2971***	-0.0825**	-0.0887**
	(0.1101)	(0.0519)	(0.0376)	(0.0351)

***,** and * represent statistical significance at the 1%,5% and 10% levels of significance respectively

Results

Public Expenditure on Social Security

	Long run Impact Multipliers		Short-run Dynamics	
	DOLS	**UECM**	**DOLS**	**UECM**
Social Security Expenditure/GDP	0.0056 (0.0377)	0.0371 (0.0241)	-0.0272 (0.0254)	-0.0059 (0.0325)
Social Security Expenditure/Total Exp	0.0006 (0.0094)	0.0087 (0.007)	0.0149** (0.0061)	0.0089 (0.0081)
Real Social Security Expenditure	0.0614 (0.1034)	0.0979 (0.0618)	-0.0137 (0.0700)	0.0631 (0.0738)

***,** and * represent statistical significance at the 1%,5% and 10% levels of significance respectively

Conclusion

Conclusion

- Generally the findings suggest that total government spending by the Barbadian fiscal authorities produces a drag on economic growth, particularly in the short-run, with a much smaller impact over time.

- This supports the theory that governments can indeed over-consume and crowd out private sector involvement in economic activity.
- It also follows the trend of counter-cyclical policy and high debt levels.

Conclusion

- More Specifically:
- Education-
  - The findings here were mixed. The impact of an increase in the ratio of spending on education to total public spending on real GDP per capita suggest an insignificant, yet positive relationship between the two in the long-run.
  - Education Relative to nominal GDP has a statistically significant negative influence on growth both in the short and long-run, while any short-run rise in real educational spending reduces per capita GDP growth rates.
  - This negative relationship was previously discovered by Landau (1986).

Conclusion

- Health care-
  - There is a negative impact of public health expenditure on growth.
  - Like education, this follows the general result with regards to total government spending, implying that more recent inefficiencies in the health service may be contributing to decreasing returns to scale from real spending on health care by government.

Conclusion

- Social Security-
  - Produces a largely insignificant impact on real per capita output. On the sole occasion this variable was found to be statistically significant albeit not robust the impact of spending on GDP growth in the short-run was positive.
  - This may be that during times of economic downturns, increased spending on social security and safety nets relative to other components of expenditure, act as automatic stabilisers contracting the negative effects of expanding unemployment and partially mitigating the fall in aggregate demand within the economy.

The End