



Productivity and Competitiveness as determinants of Growth: Empirical Evidence from a Small Island Economy- Mauritius

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Outline

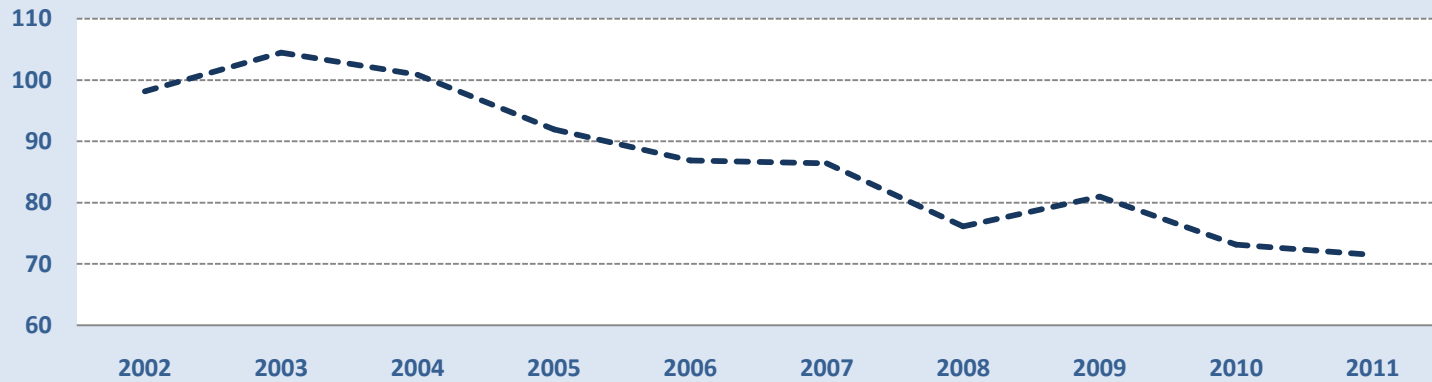
- Mauritius and indicators
- Literature review
- Data, Hypothesis & Methodology
- Results
- Robustness Check
- Conclusion & Policy recommendations

Mauritius

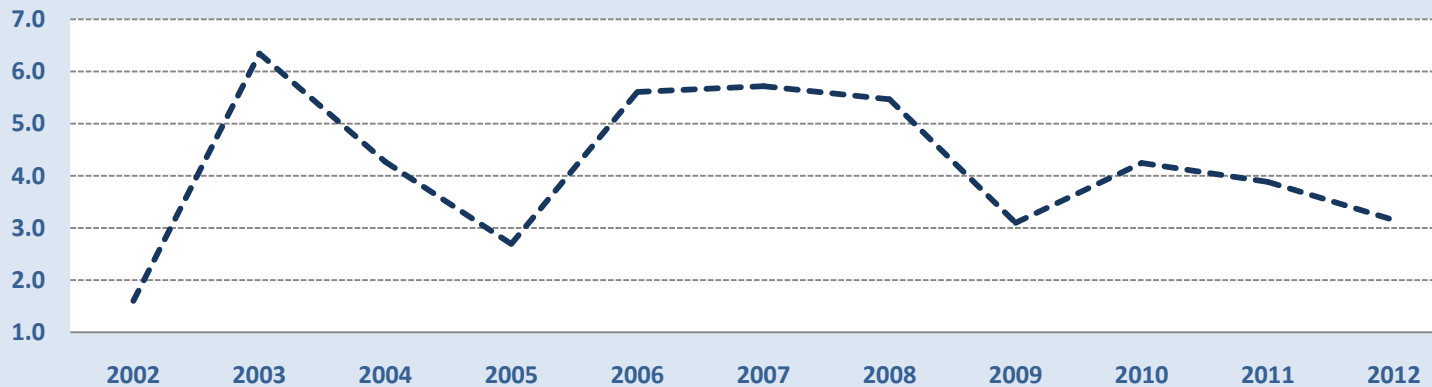


Indicators

TOT index

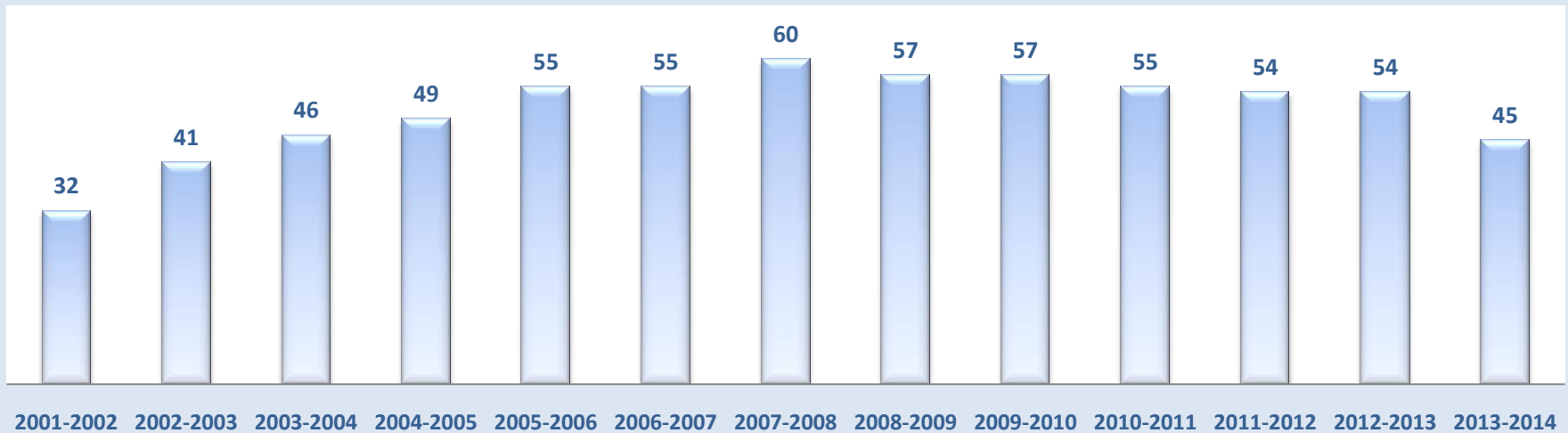


GDP growth (Percent)



Indicators

Global Competitiveness Index



Trade Openness (% of GDP)

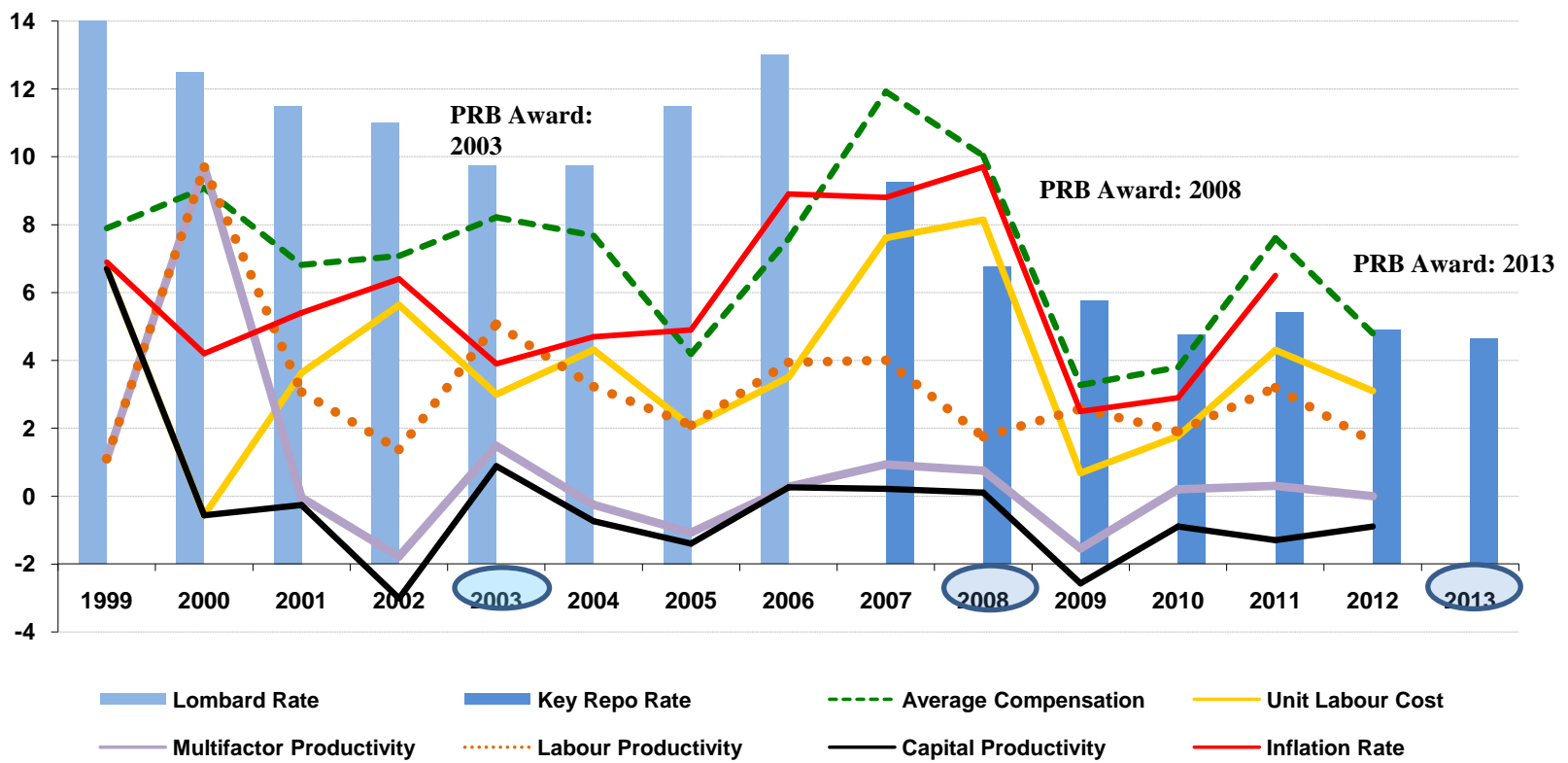




Indicators

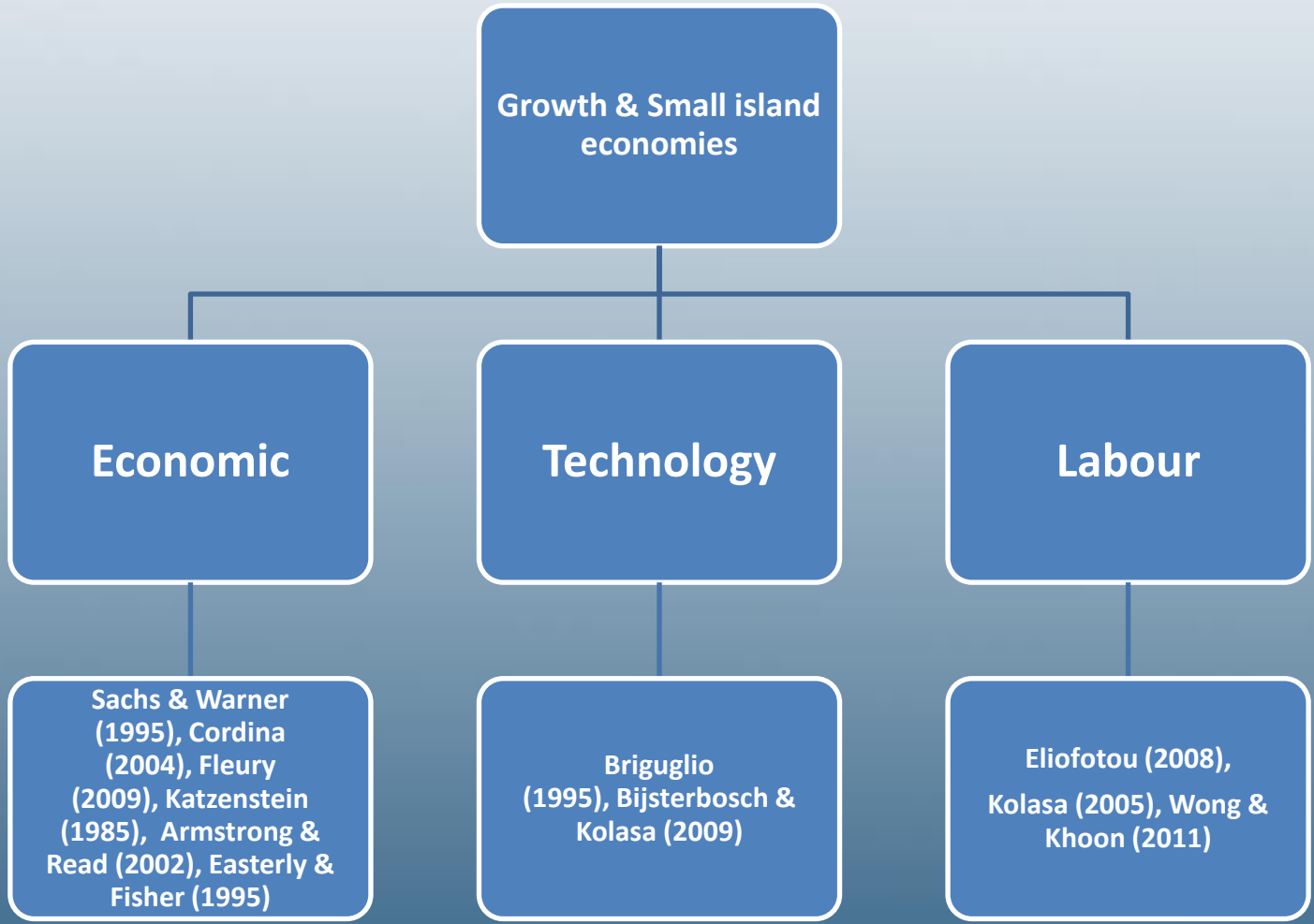
Growth Rates of Average Compensation, Unit Labour Cost, Labour and Capital Productivity, Policy Rates (Lombard and Key Repo Rate) and Inflation Rates - Total Economy

Per cent





Literature on Growth and Small island economies



Hypothesis Testing

Table 1: Hypotheses - Determinants of growth

Variable name	Hypothesis
Real output	N/A
Labour productivity	+
Capital productivity	+
Multifactor productivity	+
Unit labour cost	+/-
USD/MUR	+/-
Labour cost manufacturing	+/-
Wage rate index	+/-
Inflation	+/-



Definition

Table 2: Variable, acronym, definition and source

Variable	Acronym	Definition	Source
Real output	RO	$(\text{Value added in year } n / \text{Value added in base year}) * 100$	Statistics Mauritius
Labour productivity	LP	$(\text{Output} / \text{Labour input}) * 100$	Statistics Mauritius
Capital productivity	CP	$(\text{Output} / \text{Capital input}) * 100$	Statistics Mauritius
Multifactor productivity	MP	$(\text{Output} / \text{Multifactor input}) * 100$	Statistics Mauritius
Unit labour cost	ULC	$(\text{Labour cost} / \text{output}) * 100$	Statistics Mauritius
USD/MUR	USDMUR	Volatility of exchange rate between US and MUR	Bank of Mauritius
Labour cost manufacturing	LCM	Cost incurred per labour in the manufacturing sector	Statistics Mauritius
Wage rate index	WRI	Measure of change in price of labour	Statistics Mauritius
Inflation	INFL	Year-on -Year inflation rate	Bank of Mauritius

Methodology

- $Growth = f(\text{productivity, competitiveness})$
- $RO_t = \beta_0 + \beta_1 MP_t + \beta_2 ULC_t + \beta_3 USDMUR_t + \beta_4 LCM_t + \beta_5 WRI_t + \beta_6 INFL_t + \varepsilon_t$
- $RO_t = \gamma_0 + \gamma_1 LP_t + \gamma_2 ULC_t + \gamma_3 USDMUR_t + \gamma_4 LCM_t + \gamma_5 WRI_t + \gamma_6 INFL_t + \varepsilon_t$
- $RO_t = \alpha_0 + \alpha_1 CP_t + \alpha_2 ULC_t + \alpha_3 USDMUR_t + \alpha_4 LCM_t + \alpha_5 WRI_t + \alpha_6 INFL_t + \varepsilon_t$
- Estimation technique: OLS, PCA
- Robustness check: GDP growth as dependent variable



Descriptive Statistics

Table 3: Descriptive statistics of data for period 2002-2012

	RO	LP	CP	MP	ULC	USDMUR	LCM	WRI	INFL
Mean	4.16	2.80	-0.86	0.61	4.01	0.46	2.80	6.78	5.74
Median	4.20	2.57	-0.86	0.34	5.28	0.71	2.57	5.00	4.90
Mode	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.70	3.90
Standard Deviation	1.48	1.19	1.16	1.10	8.28	6.62	1.19	3.56	2.51
Kurtosis	-0.95	-0.61	-0.43	-0.17	0.32	-0.49	-0.61	-0.24	-1.25
Skewness	-0.13	0.62	-0.53	0.43	0.11	0.22	0.62	1.08	0.41
Min	1.60	1.37	-3.02	-1.06	-10.60	-9.60	1.37	3.10	2.50
Max	6.30	5.06	0.64	2.71	19.62	12.62	5.06	13.70	9.70
Count	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

*N/A: not applicable

Correlation Coefficients

Table 4: Pearson correlation coefficients

	RO	LP	CP	MP	ULC	USDMUR	LCM	WRI	INFL
RO	1.00								
LP	0.61	1.00							
CP	0.95	0.52	1.00						
MP	0.90	0.82	0.90	1.00					
ULC	0.47	0.00	0.59	0.36	1.00				
USDMUR	-0.40	-0.01	-0.53	-0.35	-0.49	1.00			
LCM	0.10	-0.11	0.22	0.15	0.61	-0.54	1.00		
WRI	0.29	-0.13	0.16	0.08	0.24	-0.19	0.46	1.00	
INFL	0.50	0.10	0.61	0.38	0.47	-0.28	-0.25	-0.12	1.00

What are the determinants of growth?

Table 5: Determinants of growth

The table reports regression results with real output as dependent variable. Ordinary least squares estimation are reported. Independent variables are defined in Table 2. T-statistics are shown in italics. *Significance at 10 per cent level, **significance at 5 per cent level and ***significance at 1 per cent level are reported.

Independent variable	Equation (2)	Equation (3)	Equation (4)
MP	0.954125*** <i>5.19</i>		
LP		0.582953* <i>2.46</i>	
CP			1.062067** <i>4.15</i>
ULC	-0.43 <i>-1.77</i>	-0.78 <i>-2.04</i>	-0.27 <i>-0.82</i>
USMUR	-0.63 <i>-1.95</i>	-1.102112* <i>-2.19</i>	-0.37 <i>-0.85</i>
LCM	-0.167538* <i>-2.40</i>	-0.23 <i>-1.95</i>	-0.10 <i>-1.11</i>
WRI	0.269166** <i>2.88</i>	0.407212** <i>2.78</i>	0.18 <i>1.42</i>
INFL	0.23 <i>1.44</i>	0.49 <i>2.06</i>	0.12 <i>0.56</i>

Test: Principal Components Analysis

Table 6: Determinants of growth using Principal Components Analysis

The table reports regression results with real output as dependent variable. Principal Components Analysis estimation are reported. Independent variables are defined in Table 2. T-statistics are shown in italics. *Significance at 10 per cent level, **significance at 5 per cent level and ***significance at 1 per cent level are reported.

Independent variable	Equation (2)	Equation (3)	Equation (4)
MP	1.209246*** <i>6.617378</i>		
LP		0.871888** <i>3.200022</i>	
CP			1.245474*** <i>7.659506</i>
ULC	0.098539 <i>1.105469</i>	0.144472 <i>0.938452</i>	0.032201 <i>0.408982</i>
USMUR	0.102317 <i>0.911586</i>	0.099041 <i>0.512788</i>	0.052407 <i>0.534101</i>
Cumulative Proportion	87%	86%	89%

Robustness Check

Table 7: Determinants of growth

The table reports regression results with GDP growth as dependent variable. Ordinary least squares estimation are reported. Independent variables are defined in Table 2. T-statistics are shown in italics. *Significance at 10 per cent level, **significance at 5 per cent level and ***significance at 1 per cent level are reported.

Independent variable	Equation (A)	Equation (B)	Equation (C)
MP	0.933069***		
	<i>4.795567</i>		
LP		0.615647**	
		<i>2.955274</i>	
CP			0.990749**
			<i>3.225829</i>
ULC	-0.450085	-0.751414*	-0.333607
	<i>-1.740076</i>	<i>-2.245744</i>	<i>-0.852636</i>
USMUR	-0.659533	-1.072291*	-0.465647
	<i>-1.922124</i>	<i>-2.42503</i>	<i>-0.883113</i>
LCM	-0.161791*	-0.2156	-0.107782
	<i>-2.187814</i>	<i>-2.091474</i>	<i>-0.971958</i>
WRI	0.255937*	0.380166**	0.186542
	<i>2.584413</i>	<i>2.958808</i>	<i>1.216782</i>
INFL	0.247894	0.484057*	0.170596
	<i>1.473468</i>	<i>2.305998</i>	<i>0.666411</i>



Conclusion & Policy Recommendations

Conclusion

- Empirical evidence demonstrates relationship between real output, GDP growth and productivity
- Mixed evidence between real output, GDP growth and competitiveness

Policy recommendations

- Bring structural changes to economy- promote alternative sectors (ocean economy, regional tertiary education hub, high-end tourism)
- Negotiate competitive contracts with external partners (non-double taxation agreements, reduced legislative burdens)



THANK YOU