



EGYPT: ECONOMIC DEVELOPMENT AND POLICIES CONFERENCE

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Growth Accounting for Egypt What are the Proximate Sources of Growth

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Presentation outline

- Objective of the paper
- Main Sections
- Some key points in each section
- Main Findings and some policy advice

The objective of the paper

- To develop an understanding of Egypt's growth experience from 1955-2019 by applying a simple growth accounting exercise to decompose Egypt's growth rates into the contribution of factor accumulation (labour and Capital) and the contribution of Total Factor Productivity(TFP) (catch all parameter for everything else that affects the effectiveness with which labour and capital are used)

The objective of the paper

- We use Version 10.0 of Penn World Table Data(PWT), which improves over earlier versions by providing estimates for TFP based on a translog production function . It also provides measures of physical capital stock and human capital.
- We analyse : The evolution of TFP over the period of analysis
- We ask :
- Was the observed growth pattern more capital-based or productivity-based?
- Could the observed growth pattern be sustained?
- What policy actions are needed for a more sustainable growth path?.



Paper Outline

Section 1: Introduction

Section 2: An overview of Egypt's growth Record

Section 3: The evolution of labour, capital, labour productivity and labour share

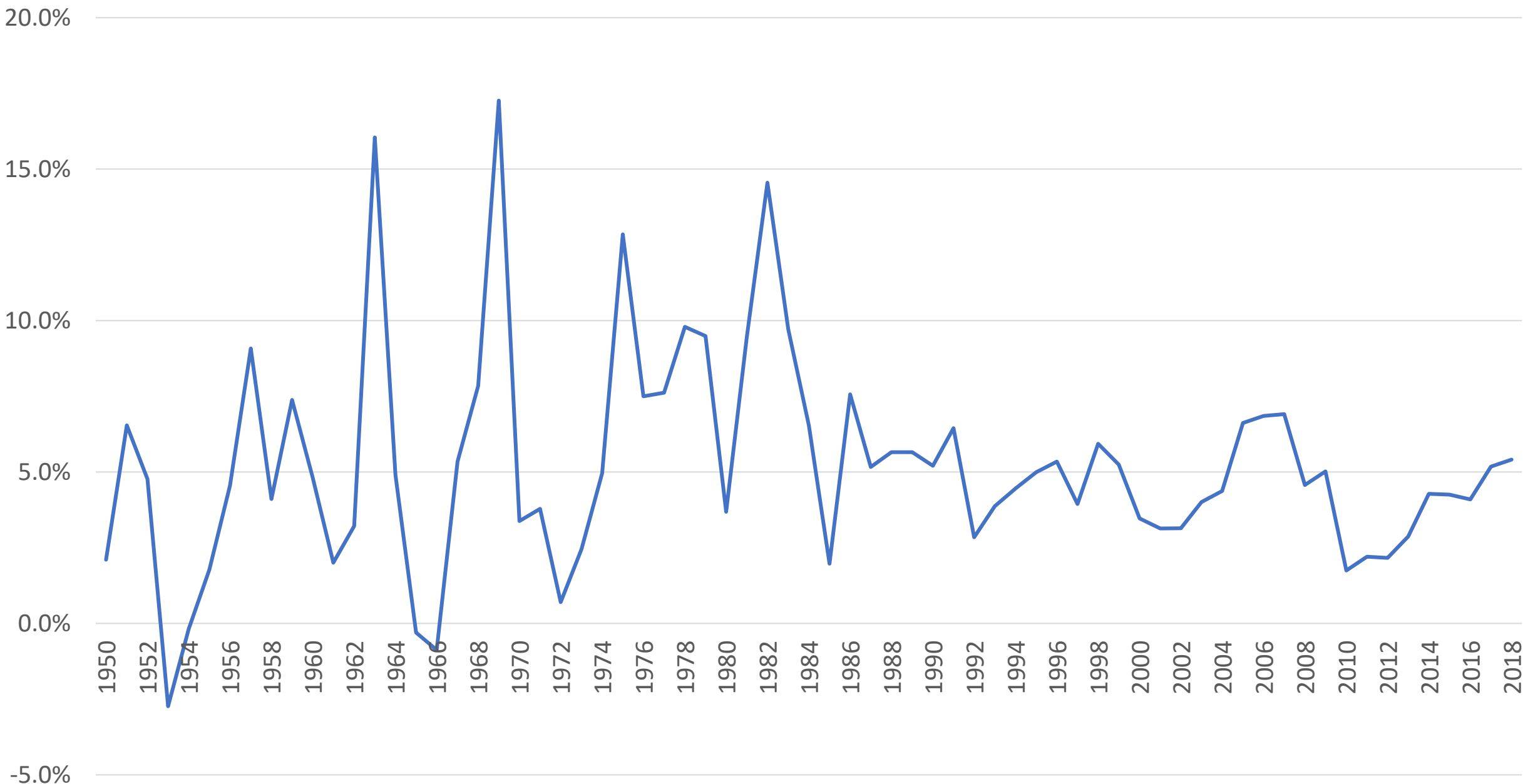
Section 4: TFP growth in Egypt

Section 5: Decomposition of Output Growth

Section 6: Conclusion



Section 2 : Egypt’s Growth Record from 1950-2019





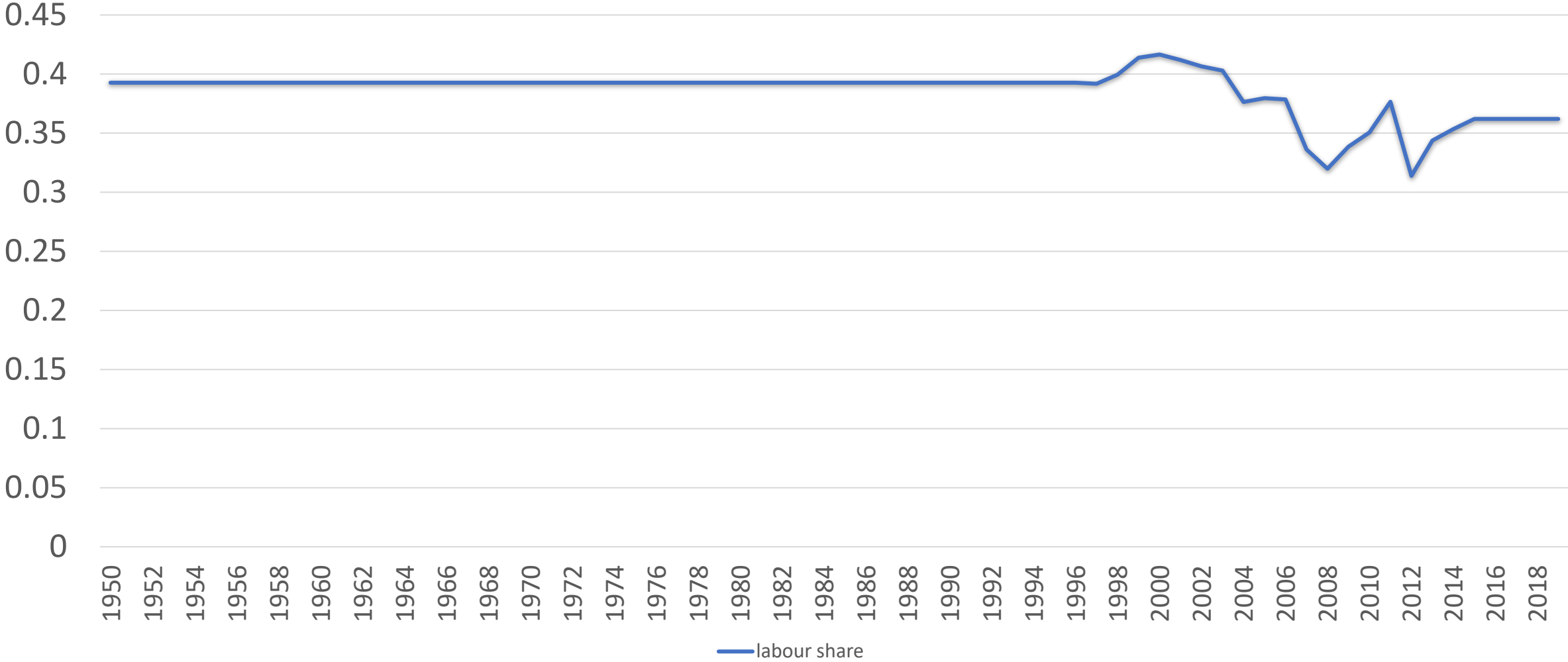
Section 3: Evolution of Labour, Capital, Labour productivity in Egypt 1950-2019

- Employment increased almost 5-fold from 1950 to 2019
- The quality of Labour, as reflected by a Human Capital Index based on the years of schooling, increased 2.5-fold during the same period
- Capital stock increased 89-fold during the same period
- The capital labour ratio increased 18-fold, with an average annual growth rate of 4.2%, which was reflected on a higher labour productivity
- Labour productivity increased 7.6-fold with an average annual growth rate of 2.9% over the entire period of analysis
- Thus the production process has become more capital intensive over time as the capital output ratio grew on average by 1.3% p.a.



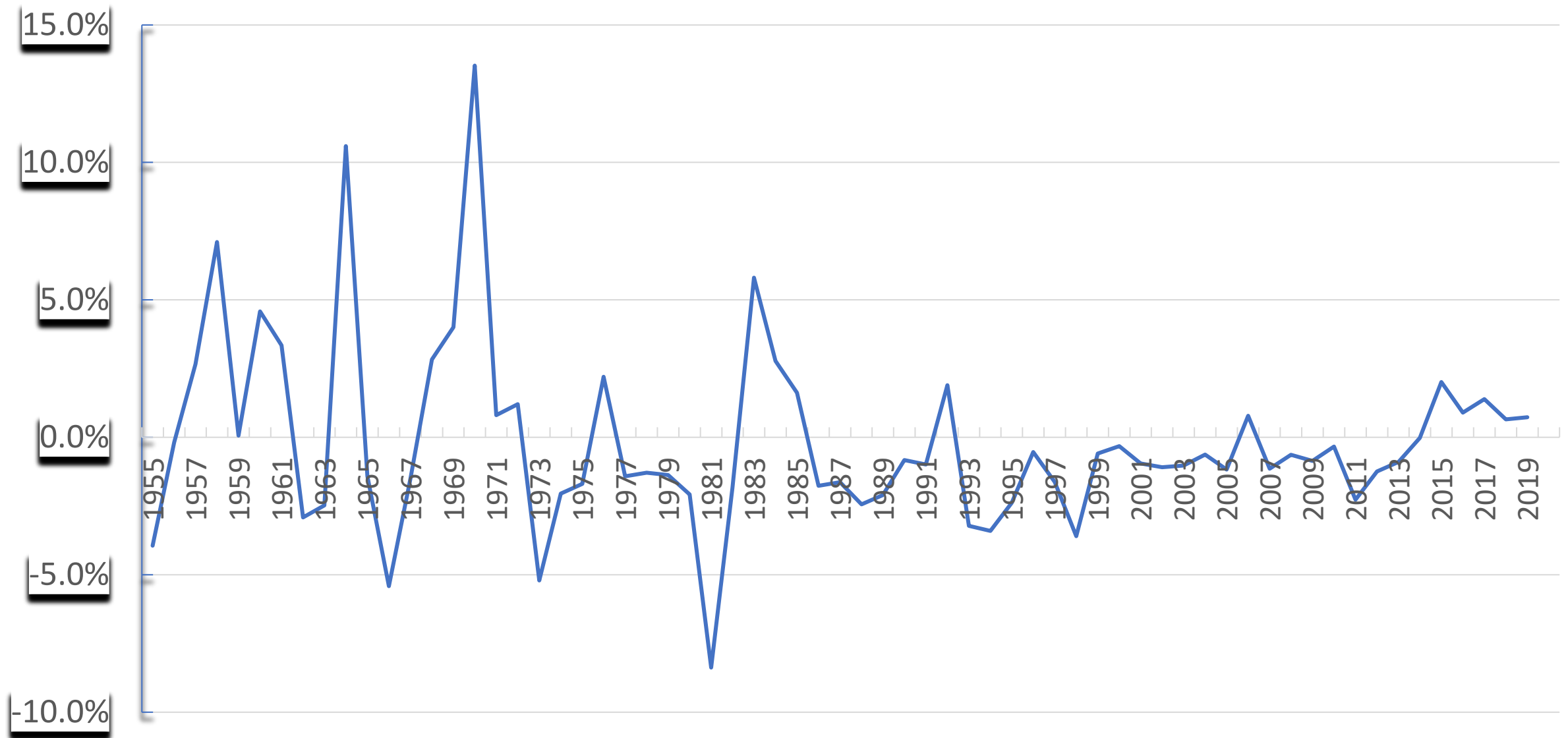
Section 3 continued

Figure 2: Labour Share in GDP from 1950 -2019





Section 4 : TFP Growth Rate from 1955-2019





Section 4 continued : Table (1) : Average growth rates of output, Labour input, Capital and TFP

years	\hat{Y}	$\hat{L} + \hat{HC}$	\hat{K}	\widehat{TFP}
1955-1960	4.5%	2.2%	3.2%	1.7%
1960-1965	6.4%	1.3%	6.1%	2.0%
1965-1970	5.7%	2.4%	4.7%	2.0%
1970-1975	5.4%	4.0%	5.0%	1.1%
1975-1980	8.7%	4.3%	12.6%	-0.9%
1980-1985	8.9%	4.4%	12.1%	-0.3%
1985-1990	5.4%	5.1%	8.4%	-1.2%
1990-1995	4.7%	4.7%	7.4%	-1.5%



Table (1) continued : Average growth rates of output, Labour input, Capital and TFP

years	\hat{Y}	$\hat{L} + \widehat{HC}$	\hat{K}	\widehat{TFP}
1995-2000	5.0%	4.2%	7.5%	-1.5%
2000-2005	3.9%	4.0%	5.9%	-0.9%
2005-2010	5.7%	5.3%	6.8%	-0.6%
2010-2015	3.0%	3.2%	3.5%	-0.5%
2015-2019	4.6%	2.7%	3.7%	1.1%
1955-2019	5.4%	3.7%	6.7%	-0.1%



Section 5: Decomposition of Output Growth for Egypt

- PWT uses a broad translogarithmic production function
- a Cobb Douglas would be a good first order approximation.
- So Given the data, We can express GDP growth rate by simply adding up

$$\hat{Y} = \widehat{TFP} + \alpha(\hat{L} + \widehat{HC}) + (1 - \alpha)\hat{K}$$

and α is labor share (0.4) and $(1 - \alpha)$ (0.6) is capital share under the neoclassical assumptions of constant returns to scale and perfect competition.

- Thus the contributions of factor inputs to growth in output can be measured by factor growth rates weighted by their income shares.



Table (2) Average Percentage points Contributed to Output Growth rate by Factor Accumulation &TFP

Period	Labour Input	Capital	TFP	Output Growth
1955-1960	0.9%	1.95%	1.7%	4.5%
1960-1965	0.5%	3.7%	2.0%	6.2%
1965-1970	1.0%	2.8%	2.0%	5.8%
1970-1975	1.6%	3.0%	1.1%	5.7%
1975-1980	1.7%	7.5%	-0.9%	8.3%
1980-1985	1.8%	7.3%	-0.3%	8.7%
1985-1990	2.0%	5.0%	-1.2%	5.9%



Table (2) continued :Average Percentage points Contributed to Output Growth rate by Factor Accumulation and TFP

Period	Labour Input	Capital	TFP	Output Growth
1990-1995	1.9%	4.4%	-1.5%	4.8%
1995-2000	1.7%	4.5%	-1.5%	4.7%
2000-2005	1.6%	3.5%	-0.9%	4.3%
2005-2010	2.1%	4.1%	-0.6%	5.7%
2010-2015	1.3%	2.1%	-0.5%	2.9%
2015-2019	1.1%	2.2%	1.1%	4.4%
1955-2019	1.5%	4.0%	-0.1%	5.3%

Section 6: Conclusion

Main Findings

- Capital accumulation has been the main driver of growth in Egypt over more than five decades
- TFP has indeed deteriorated over the entire period of analysis
- Unless we improve TFP, Egypt will not be able to sustain growth by relying only on investment led growth due to constraints imposed by population growth and diminishing returns of Capital.

Section 6: Conclusion

Why TFP has declined ?

- We argue that negative contribution of TFP from mid-seventies to 2015 is due to insufficient remedies to chronic problems that Egypt faced.
- These problems worsened over time and were reflected on a declining TFP .
- Examples of the insufficient solution
- Following the move to Open door policy: new laws were super imposed over old conflicting laws leaving a state of ambiguity and discretion in law enforcement and opening room for corruption.
- Similarly, there was only a partial liberalization of the incentive structure by continuing to have administered prices , subsidies and overvalued exchange rate.

Section 6: Conclusion

What can be done to Improve TFP ?

- In general, TFP can be increased via a combination of structural and institutional reforms aimed at reallocating resources to the most productive sectors
- There is a substantial role for public policy to play in this regard, a non exhaustive list includes removing inefficient taxes, subsidies and administered prices, enhancing competition, improved property rights and law enforcement, etc.

Thank You