Observations on Growth and Savings in the Turkish Economy: A Macroeconomic Perspective

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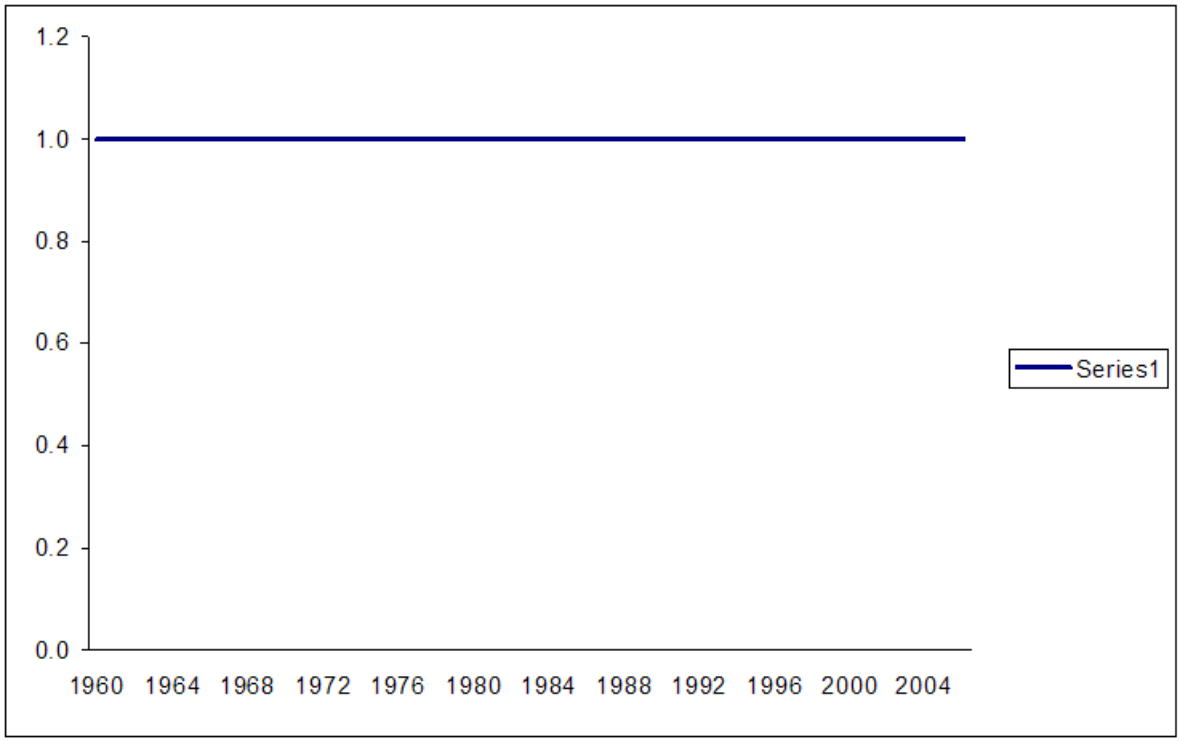
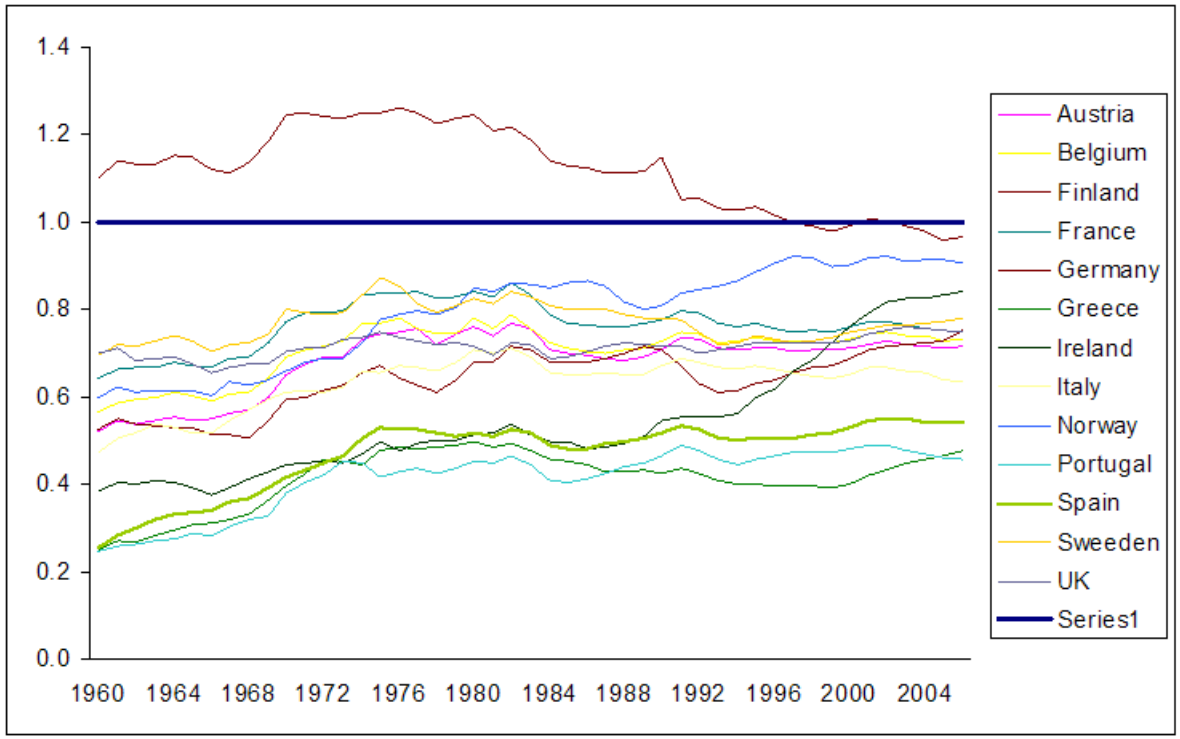
In this paper we examine the growth performance of the Turkish economy though a growth accounting exercise.

Examine GDP per working age person relative to the U.S.*

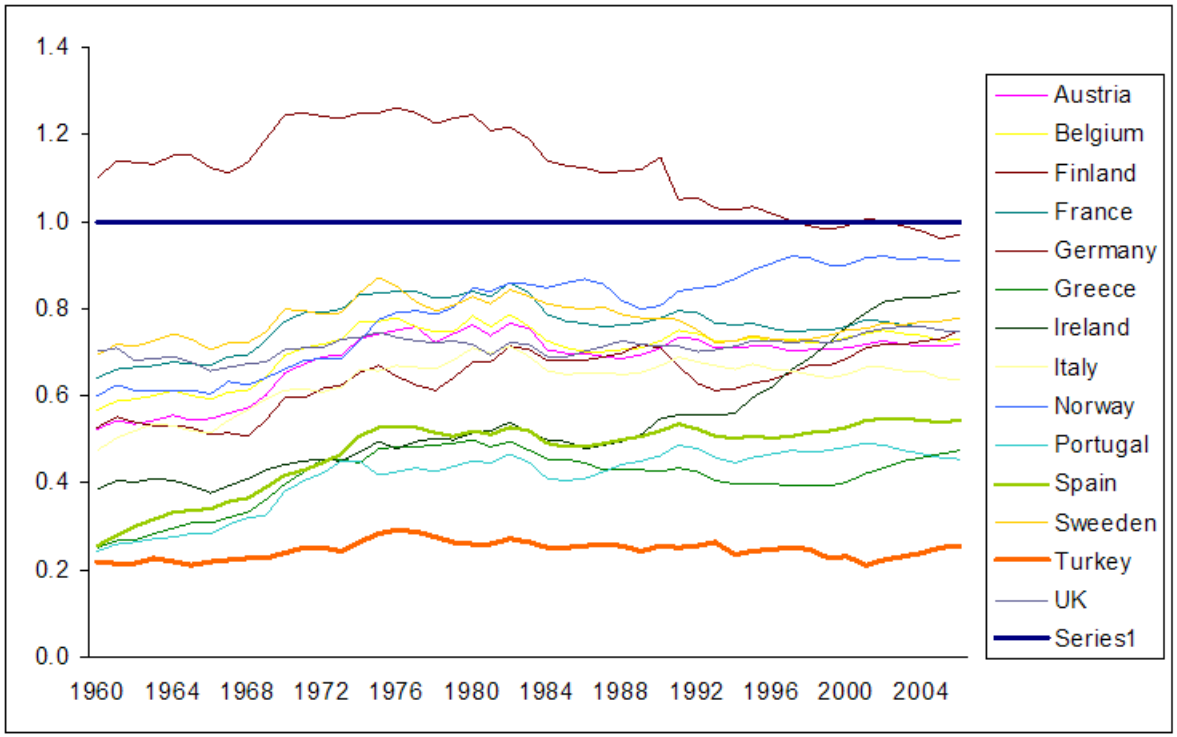
*Population Data is from OECD Labor Force Statistics and GDP data is from The Conference Board and Groningen Growth and Development Centre, Total Economy Database.



GDP per working age person relative to the U.S.

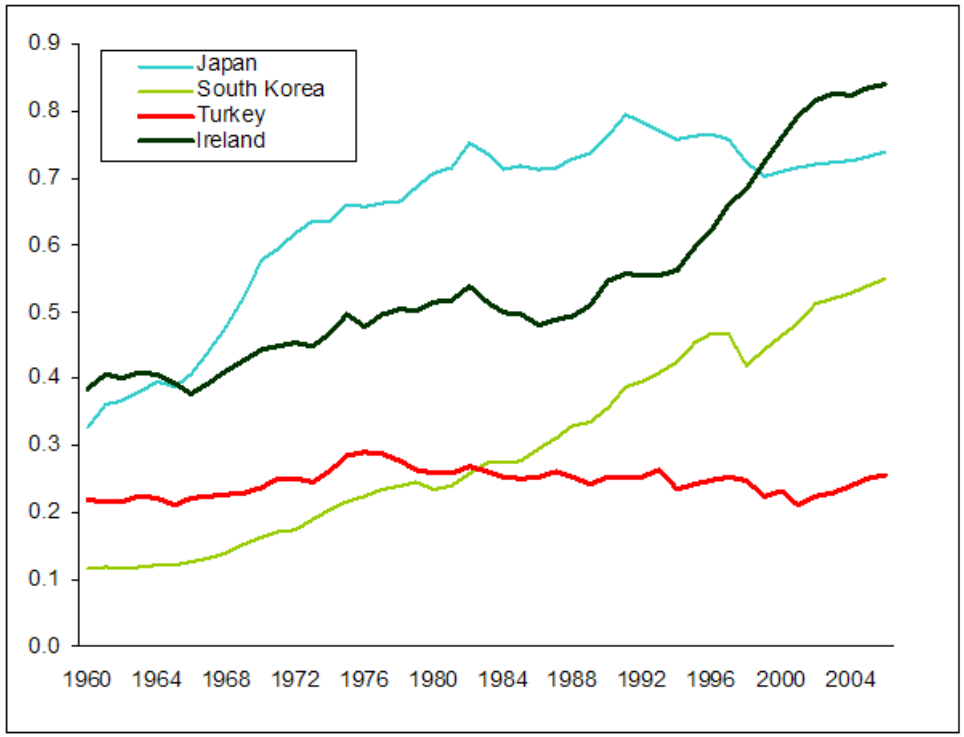


GDP per working age person relative to the U.S.



GDP per working age person relative to the U.S.

Growth Fact: Turkish GDP per person relative to the U.S. has been stagnant since 1960s.



GDP per working age person relative to the U.S.

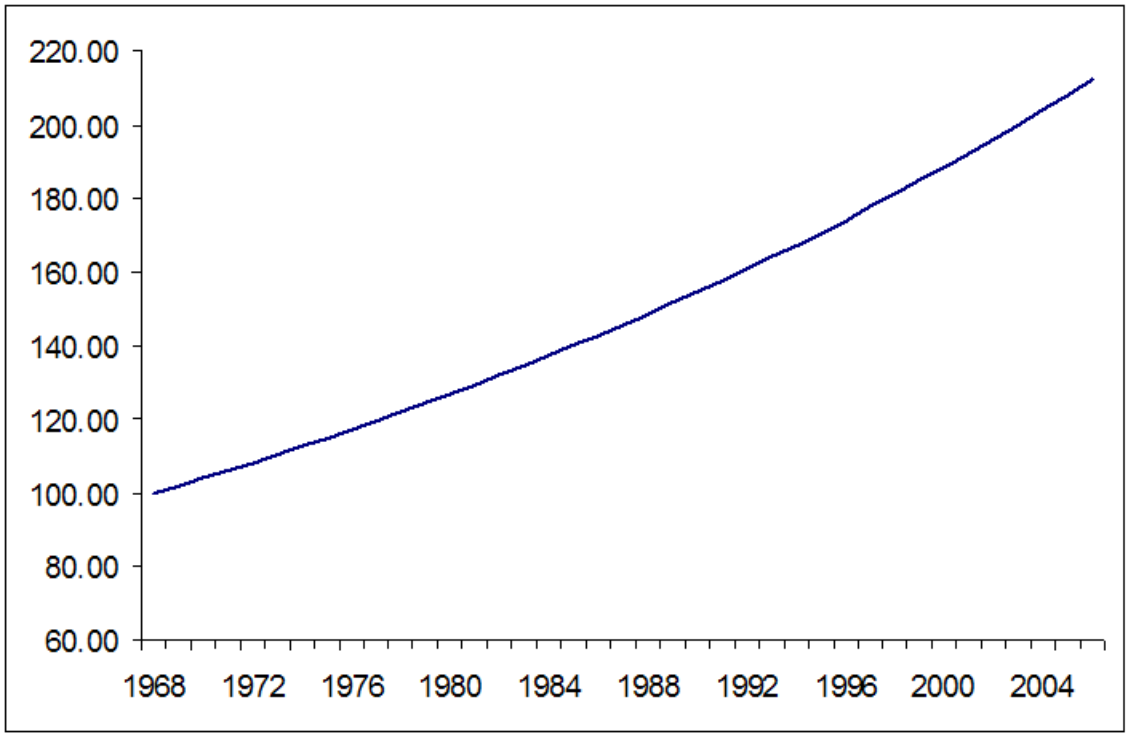
Growth Fact: Catch up is possible

Another way to look at the data:

- Following the definitions in Kehoe and Prescott (2002)
  - Economies are expected to grow under "normal conditions".
  - If output is significantly above trend, the economy is in a boom.
  - If it is significantly below trend, the economy is in a depression.
  - Use 2% trend as the trend growth expected under "normal conditions" and examine the deviations from trend.

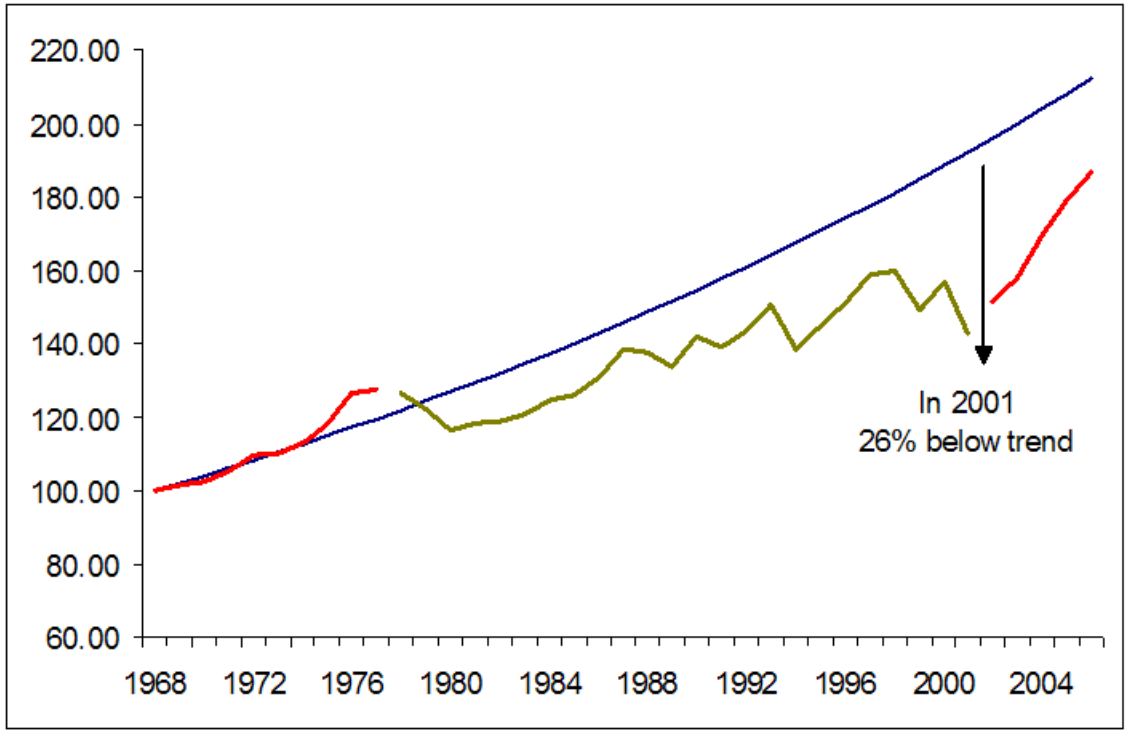
- Kehoe and Prescott (2002) propose two criteria for classifying a cyclical episode as a great depression:
  - the downturn must be sufficiently severe (about 20% below trend);
  - the decline must be rapid.

Examine GDP per working age person:



GDP per working-age person

Examine GDP per working age person:†



GDP per working-age person

†GDP in 1987 Turkish Liras, WDI.

This figure suggest that Turkey experienced a **"great depression"** according to Kehoe and Prescott definition between 1977 and 2001.

What factors were responsible for the "great depression"?

Growth Accounting‡

$$Y_t = A_t K_t^{\alpha} (h_t E_t)^{1-\alpha},$$

where Y_t is GDP in year t , K_t is the capital stock, h_t is hours worked per employee, E_t is total employment, A_t is TFP and α is capital's share of income.

‡GDP data from Penn World Tables Version 6.2, Capital data constructed by us; Labor data from Total Economy Database.

Four factors that contribute to growth can be decomposed in the following way:

$$Y_t/N_t = A_t^{1/(1-\alpha)}(K_t/Y_t)^{\alpha/(1-\alpha)}(E_t/N_t)h_t,$$

We can examine the sources of growth in Y_t/N_t due to:

- TFP factor, $A_t^{1/(1-\alpha)}$
- Capital intensity factor, $(K_t/Y_t)^{\alpha/(1-\alpha)}$
- Employment rate, E_t/N_t
- Hours worked per worker, h_t

Decomposition of Average Annual Changes in Real GDP per Working-Age Person (percent)

	Capital Share	
Period / Sources of Growth	*0.35*	***0.50***
1960-1977		
Output per working-age person	3.32	**3.32**
Due to		
TFP factor	3.13	**1.64**
Capital intensity factor	1.71	**3.20**
Employment rate	-1.01	**-1.01**
Hours worked per worker	-0.50	**-0.50**
1977-2001		
Output per working-age person	0.51	**0.51**
Due to		
TFP factor	0.57	**-0.52**
Capital intensity factor	1.28	**2.39**
Employment rate	-1.21	**-1.21**
Hours worked per worker	-0.11	**-0.11**
2001-2004		
Output per working-age person	4.17	**4.17**
Due to		
TFP factor	7.41	**8.72**
Capital intensity factor	-1.40	**-2.59**
Employment rate	-1.23	**-1.23**
Hours worked per worker	-0.42	**-0.42**

- 1960-1977 versus 1977-2001:

Declining TFP growth is the most important difference

- 2001-2004:

Declining capital intensity

Increasing TFP factor

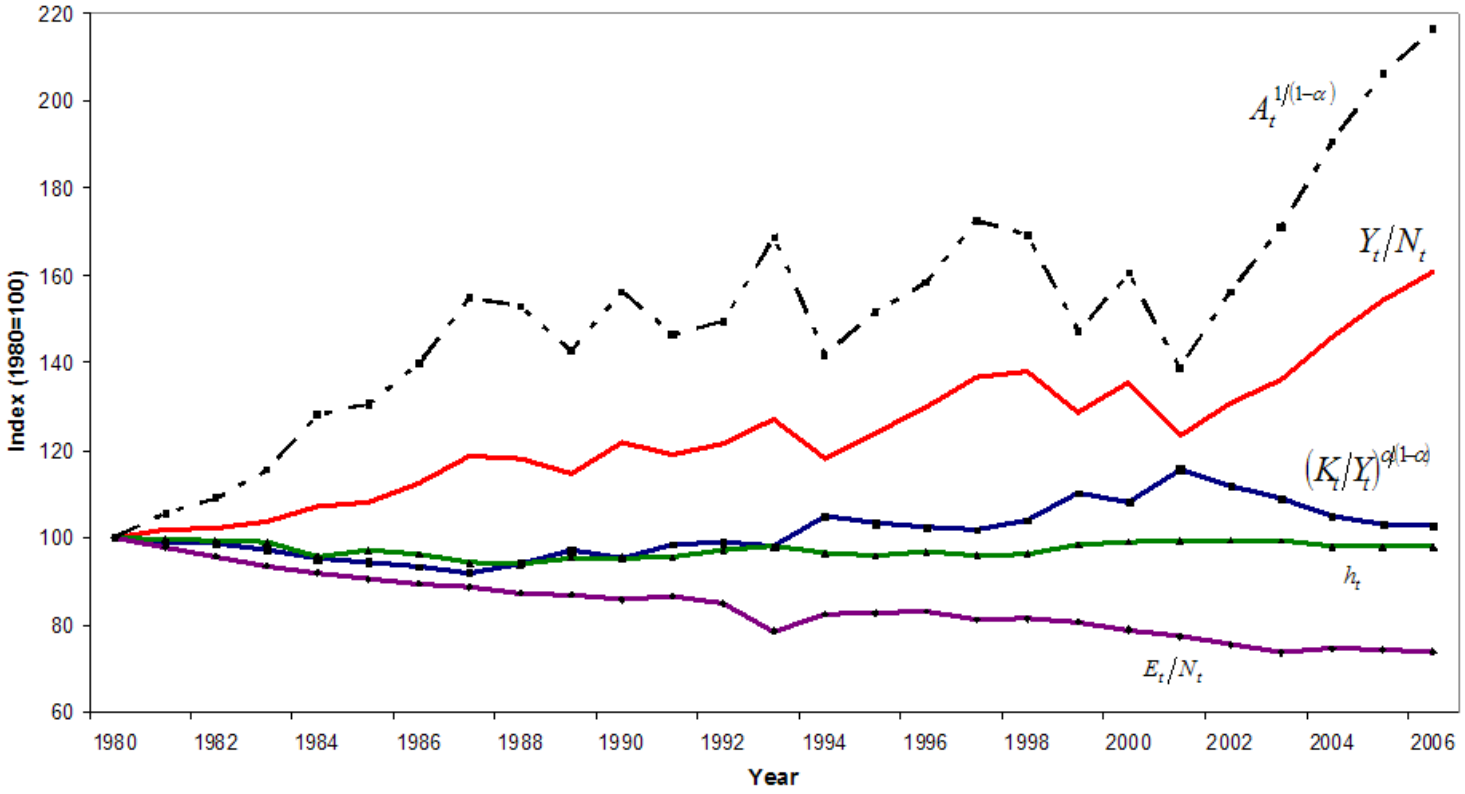


Figure 4a. Growth Accounting for Turkey, 1980-2006
(capital share is 0.35)

How did the "growth miracles" happen:

Contribution to growth	Y/L	K/L	H	A
1961-1973	7.59	1.46	(0.07)	6.19
1973-1990	2.93	1.46	0.62	0.85
1990-2000	0.99	1.13	0.37	(0.50)

Japan

Contribution to growth	Y/L	K/L	H	A
1961-1987	2.97	0.84	0.62	1.51
1987-2000	6.03	1.32	0.69	4.02

Ireland

Conclusion

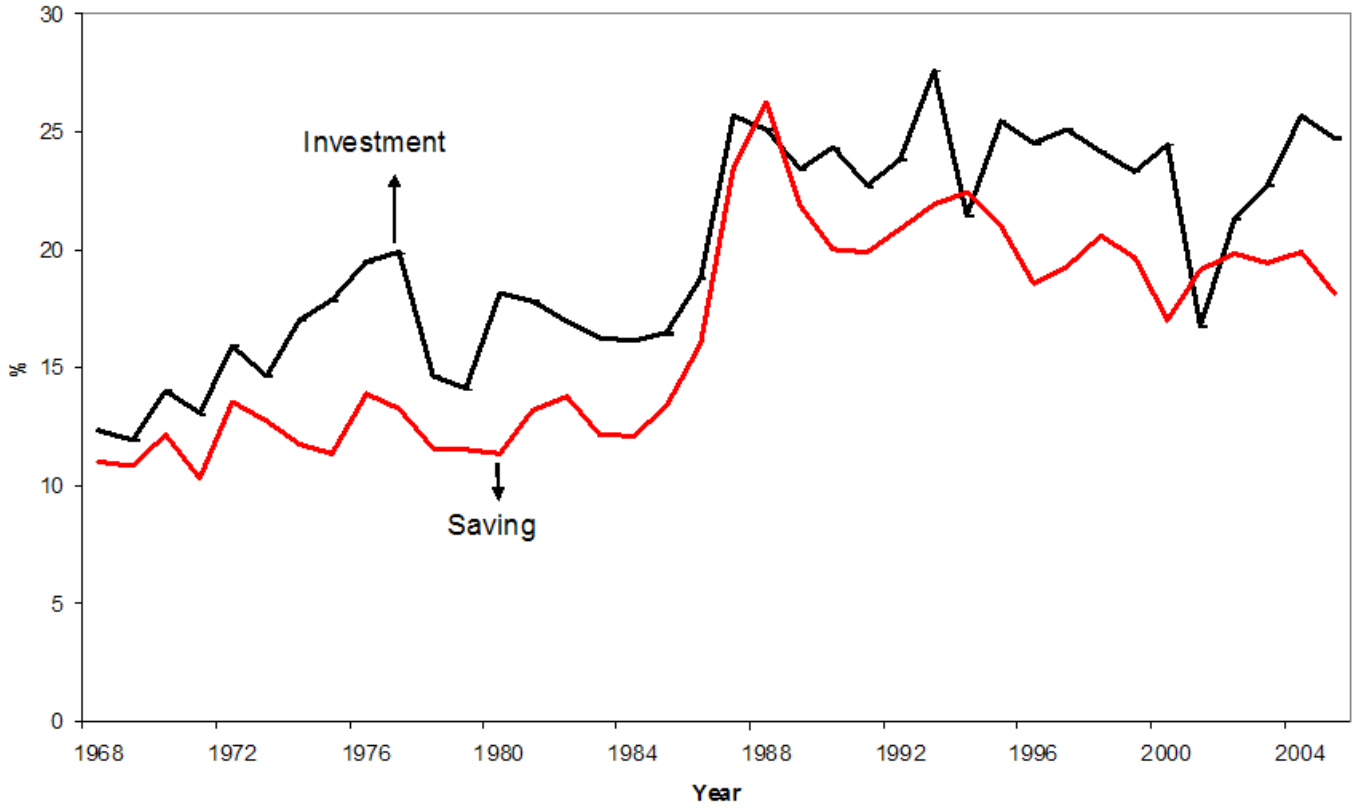
- Productivity growth is as important as capital accumulation (if not more)!

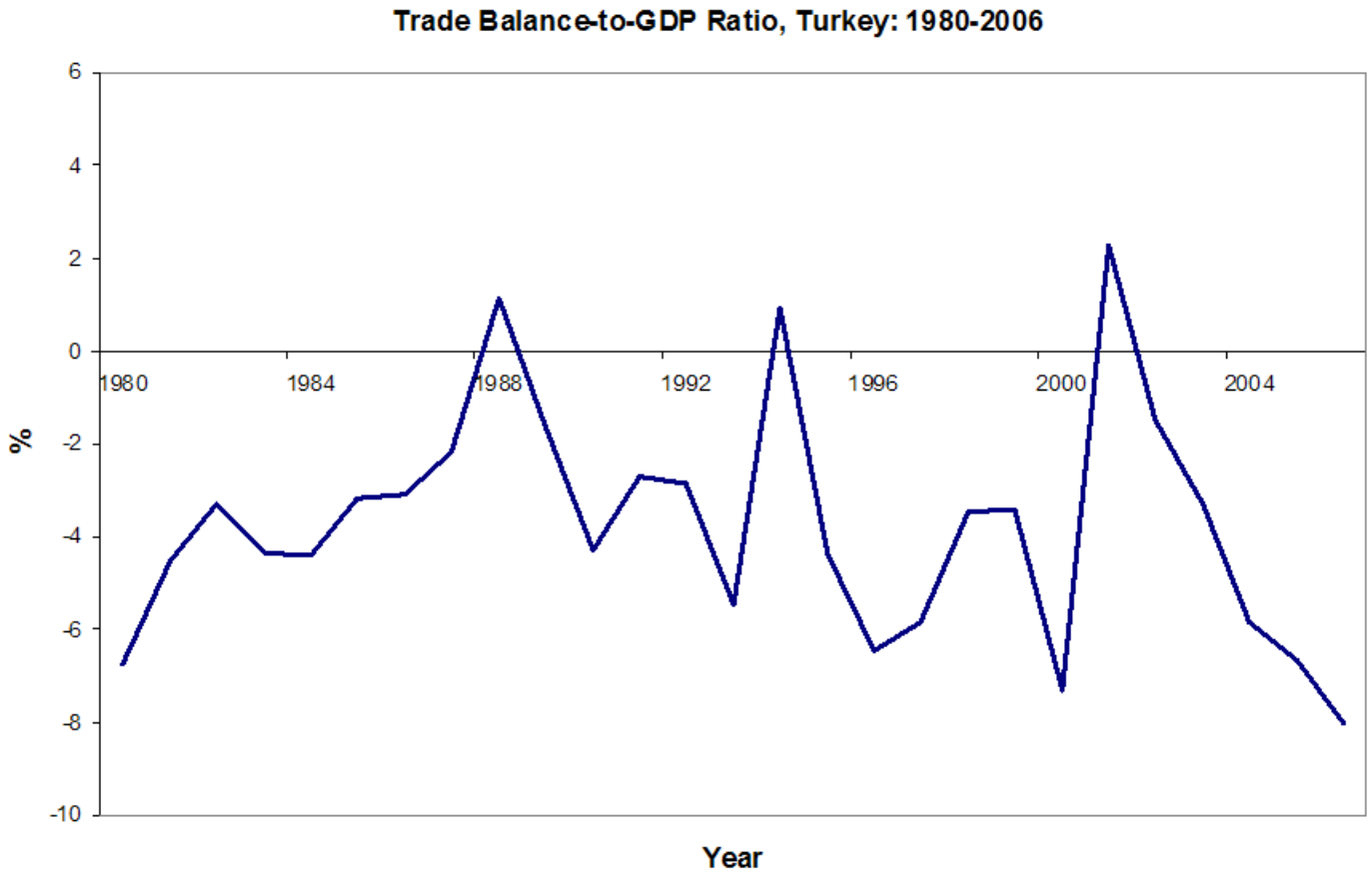
- What factors contribute to high TFP growth?
  - "Rule of Law"
  - Policies toward innovation (Patents; R&D incentives)
  - Sound macroeconomic policies
  - Strong and stable political institutions
  - Education
  - Openness

What has been happening the capital accumulation and labor?

Saving and Investment:§

§Gross domestic savings are calculated as GDP less final consumption expenditure (private+gov). Investment is gross capital formation (% of GDP). Both from WDI.


30
25
20
15
10
5
0
%
Investment
Saving
1968
1972
1976
1980
1984
1988
1992
1996
2000
2004
Year


Trade Balance-to-GDP Ratio, Turkey: 1980-2006
6
4
2
0
-2
-4
-6
-8
-10
%
1980
1984
1988
1992
1996
2000
2004
Year

The evolutions of the total civilian employment to working-age person ratios in Turkey, EU15, and the United States:¶

¶OECD Labor Force Statistics.

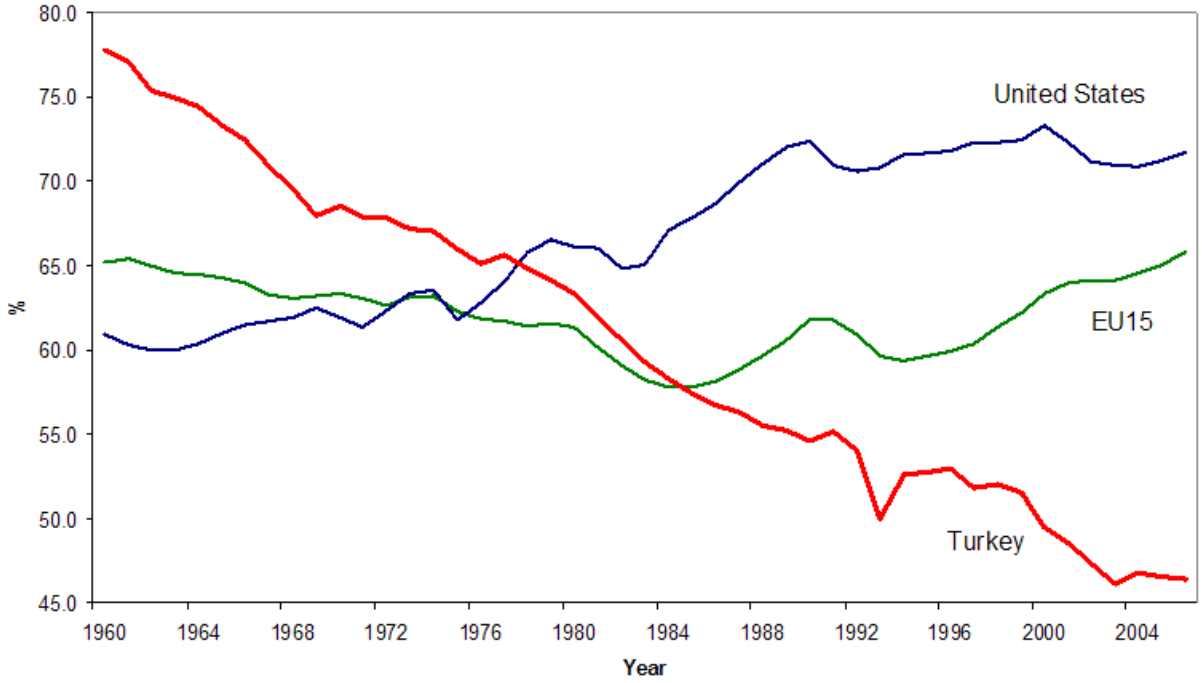


Figure 6b. Employment to Working-Age Population Ratio: A Comparison