Aviation Economics & Finance

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OUTLINE

Macroeconomics for Aviation Strategy & Management

- The basics – the airline (firm) and the economy
- Aggregation and Measurement
- The Macro System (micro components)
- Defining and Measuring Macro-Variables
- Prices, inflation & Real Quantities

WHY MACROECONOMICS?

- THY is a global airline operating in many countries and in many currencies
- THY collects revenue if different currencies
- THY purchases capital (aircraft, U.S. $), fuel (U.S. $) and services (local catering, baggage handling) in different currencies
- Macroeconomic environment will affect both demand for THY services and the costs of providing them, affect it s network strategy
- A country's fiscal and more importantly monetary policies will affect, exchange rates, inflation, interest rates and economic growth
- *This section of the course in Macroeconomics is designed to provide students with a unified framework that can be used to analyze macroeconomic issues such as growth, productivity, labor markets, wages, business cycles, inflation, money, interest rates, monetary policy, fiscal policy, and financial crises.*

FROM THE AGGREGATE ECONOMY TO THE FIRM: MACRO TO MICROECONOMICS

- explaining how the whole economy fits together and how the firm is affected by broad economic fluctuations
- **aggregation and measurement**
  - micro-macro distinction
  - averages: the representative individual
  - benefits/costs of aggregation theories
  - measurement problems and the definition of economic variables
- **exogenous and endogenous variables**
  - exogenous variables - outside the operating environment but influencing/defining the operating environment.
  - endogenous variables: determined inside the operating environment ....manager has *some* control over these.

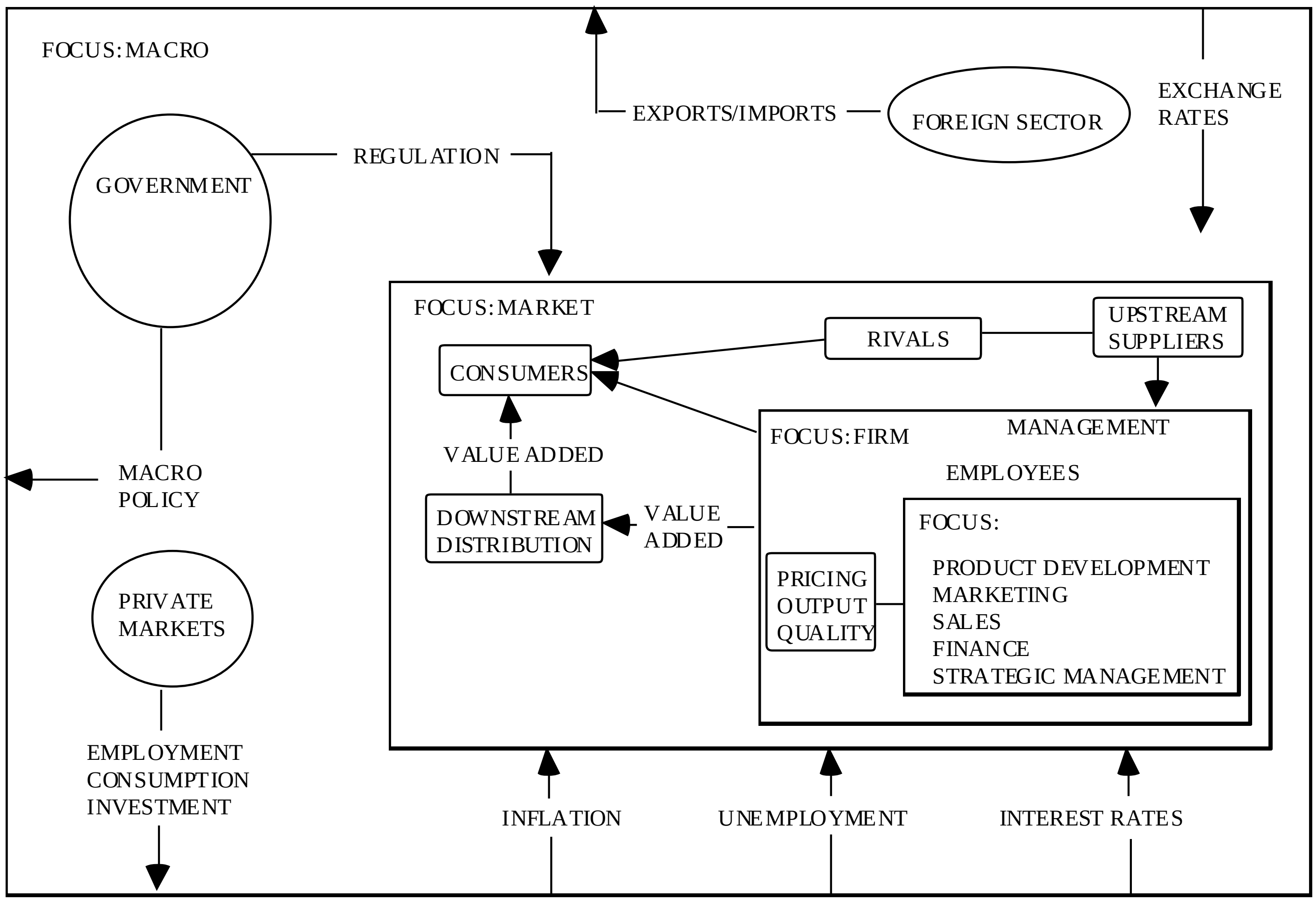
MICRO AND MACRO MARKETS

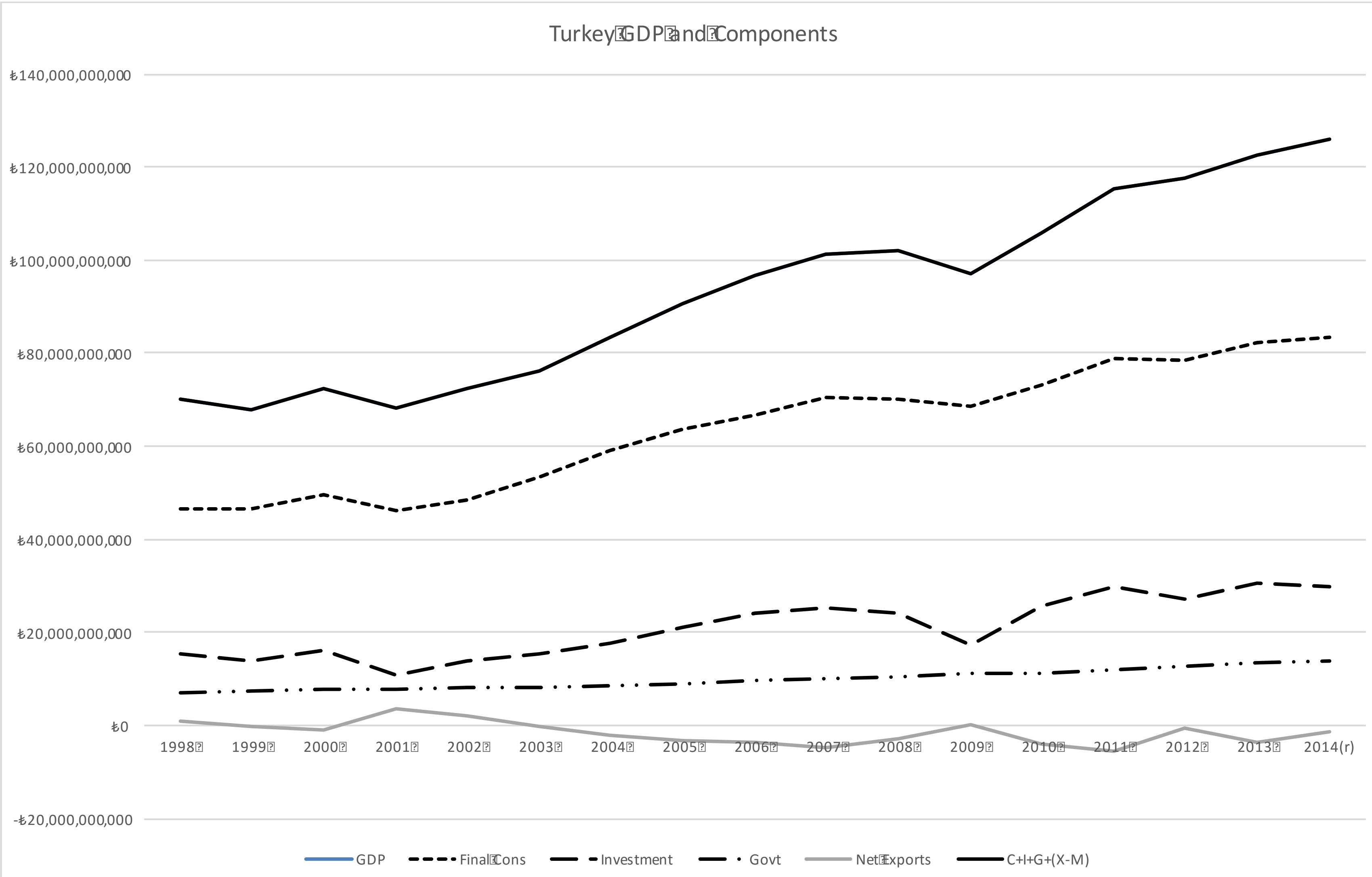
- **micro markets:** in a micro market we are looking at the aggregate behavior of all potential consumers and producers in a particular market as defined by:
  - the good being produced...ASK!
- what is observed in micro markets?
  - Product characteristics
  - Consumer characteristics
  - producer characteristics
  - Market characteristics

MICRO AND MACRO MARKETS

- **a macro system:** Analyzing the aggregate behavior of all consumers and producers in an economy.
- What is Observed :
  - prices and price trends: inflation, exchange rates, interest rates
  - aggregate output for the economy
    - expenditures by: consumers, investors, governments, firms (domestic & foreign)
    - GDP = C + I + G + (X-M)
- Employment
- Debt and deficits

THE MANAGER'S PERSPECTIVE…ZOOMING IN ON THE ECONOMY





Turkey GDP and Components
₺140,000,000,000
₺120,000,000,000
₺100,000,000,000
₺80,000,000,000
₺60,000,000,000
₺40,000,000,000
₺20,000,000,000
₺0
-₺20,000,000,000
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014(r)
GDP
Final Cons
Investment
Govt
Net Exports
C+I+G+(X-M)

DEFINING AND MEASURING MACRO-VARIABLES

- **What is inflation? How is it measured? Why is inflation a problem?**
- Defined: inflation is a measure of how the "price level" changes over time (usually increasing!)
- The price level: a measure the general level of prices in an economy
- How is this measure constructed?
  - Statistical Agency surveys households and uses the information from the survey to define a representative basket of goods
  - it then converts the price of this basket of goods into an index number
- **the CPI (consumer price index)** → a price index measures the average % change in a group of prices over time.
  - The "base" index is the number 100, so if the index jumps from 100 in the base year to 110 in the following year, we can see that on average the prices in the group have risen by 10%.

DEFINING AND MEASURING MACRO-VARIABLES

- Inflation cont'd - some measurement problems:
  - 1. individuals or regions may differ from the average
  - 2. households may switch away from high priced items. If this is not allowed for, the index will overstate the index.
  - 3. new (higher quality) products may replace existing items in the basket over time
- Why is inflation a problem?
  - Inflation redistributes income in an arbitrary way
  - Inflation provides a disincentive to save and thus reduces the funds available for investment
    - real savings depends upon the after tax rate of interest
    - after tax yield on savings is: $i \cdot (1\text{-}t)$ - p`
  - Changes in the rate of change of the price level impose adjustment costs on businesses, employee groups

DEFINING AND MEASURING MACRO-VARIABLES

- (Un)employment
- What is unemployment? → Unemployed individuals are members of the labor force that do not have a job but want one.
- How do we measure it? *The labor force means: individuals who are employed and those who are involuntarily unemployed; voluntarily unemployed, retired, students, not legally part of the labor force*
- The unemployment rate is just the ratio of involuntarily unemployed to the total labor force: $un = \frac{u}{L} \times 100$
- Why is unemployment a problem?
  - reduced consumer demand
  - reduced savings and investment
  - increased social unrest
  - Affects income distribution

Defining and Measuring Macro-Variables

- Output and [Economic] Growth
  - "gross domestic product" (GDP) and ΔGDP is the standard way in which we measure the performance of economies around the world because [real] GDP per capita (GDP/pop.) is a measure of real income
- **GDP** = the market value of all final goods and services produced in the economy in one year whether they are sold or not.
  - market prices express our valuation of those goods which are produced.
    Gross National Product (**GNP**) = GDP + net property income from abroad

CONCEPT OF VALUE ADDED

- As a good moves through the stages of production it increases in value. At each stage in the process someone adds value to one or more intermediate goods and marks up the price to cover production costs and to make some profit
- Example:
  - ranch sells treated fleece to wool processor
  - processor sells wool to clothing manufacturer
  - clothing wholesaler sells suit to retailer
  - retailer sells suit to Andrew/Andrea

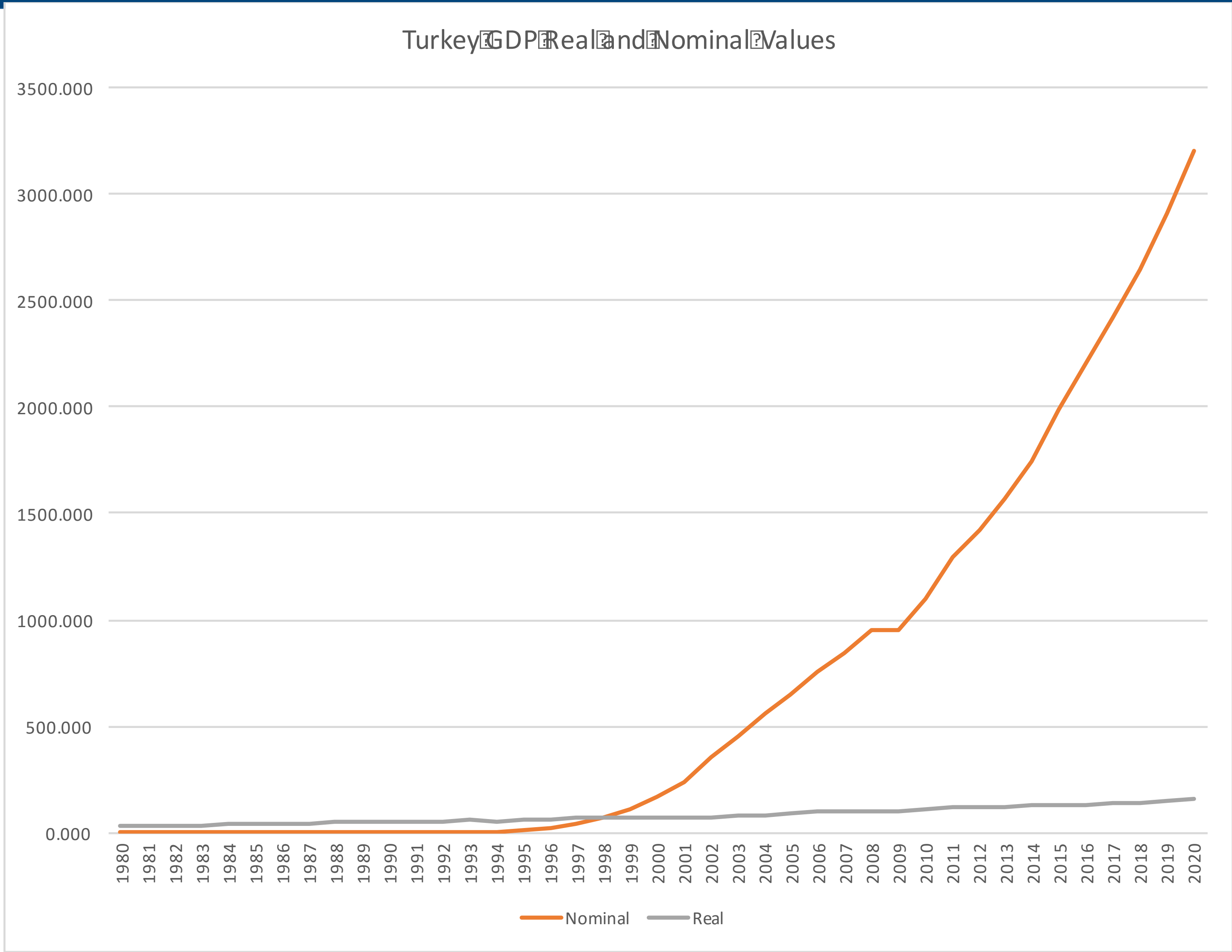
		value added
rancher's price	$ 60	$ 60
processor’s price	$100	$ 40
manuf.'s price	$125	$ 25
wholesale price	$175	$ 50
retail price	$250	$ 75
		$250

MEASURING GROSS DOMESTIC PRODUCT-GDP

- **calculating GNP: 3 approaches**
  - → add up all the value added - GDP at factor cost (needs net income from abroad to yield GNP)
  - → add up all the incomes earned by the various factors of production: profits and income from employment excludes transfers - measures GDP at factor cost
  - → add up all the expenditures on <u>final</u> goods and services - consumption and investment expenditures (takes account of taxes and imports but excludes exports) - GNP would include this)
- What is not included in calculations of GNP that should be?
  - →home production, quality change
- What is included in calculations of GNP that should not be?
  - "externalities" : the external effects of producing goods (eg. pollution)

INTEREST RATES-THE PRICE OF BORROWED MONEY!

- ***The Bank Rate: the rate at which Chartered Banks can borrow from the Central Bank.***
  - The Prime Rate: The rate at which banks lend to their "best" customers.
  - Prime = bank rate + markup for administration and profit.
  - Rates are adjusted to account for risk, inflation, duration etc...
- Interest rates influence:
  - investment spending
  - consumer spending
  - government spending
- Deficits and the national debt
  - A government deficit/surplus is simply [revenues less expenditures]
  - The National Debt = accumulated deficits (expressed as % of GDP)


Turkey GDP Real and Nominal Values
3500.000
3000.000
2500.000
2000.000
1500.000
1000.000
500.000
0.000
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
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1994
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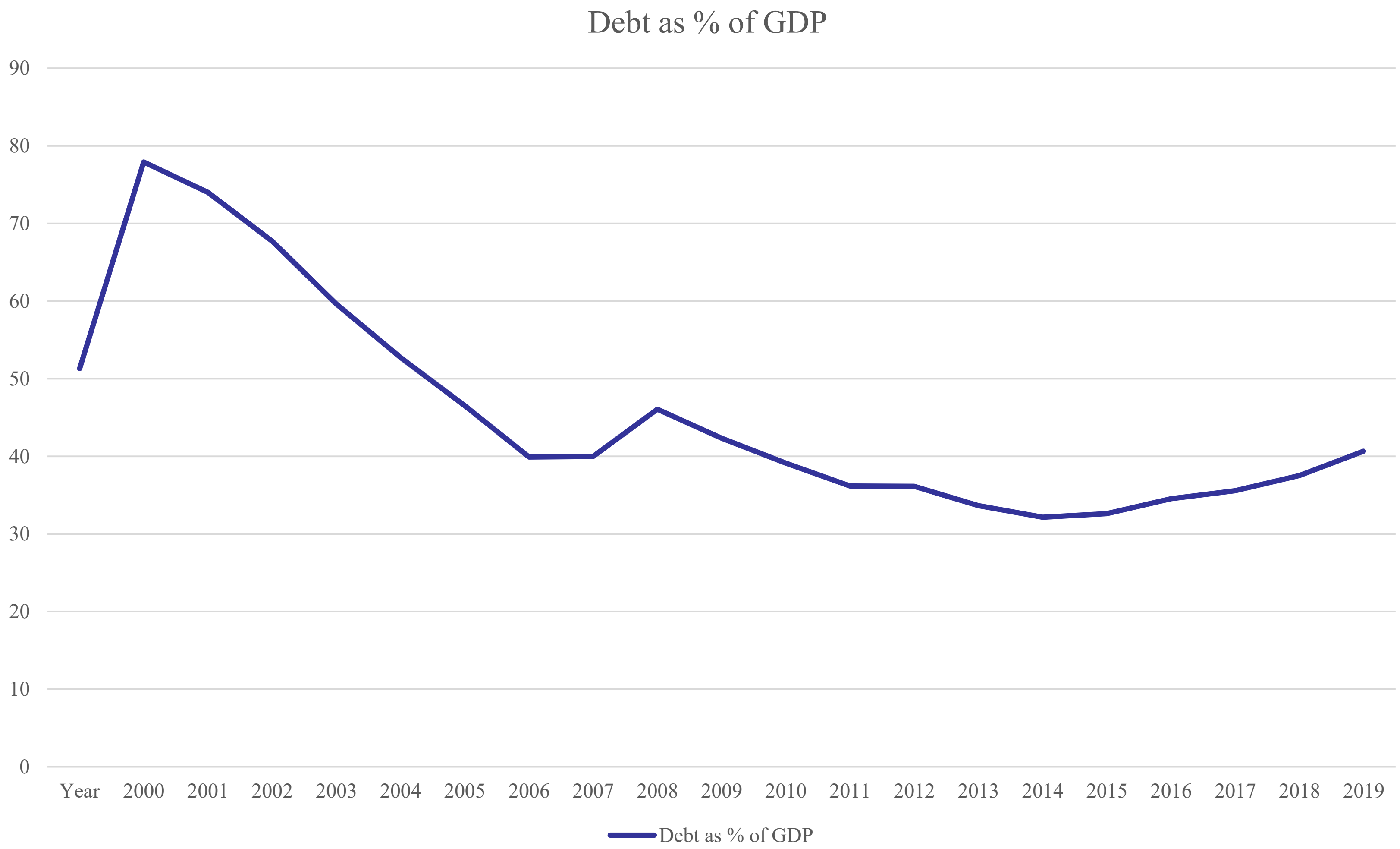
2018
2019
2020
Nominal
Real


Debt as % of GDP
90
80
70
60
50
40
30
20
10
0
Year
2000
2001
2002
2003
2004
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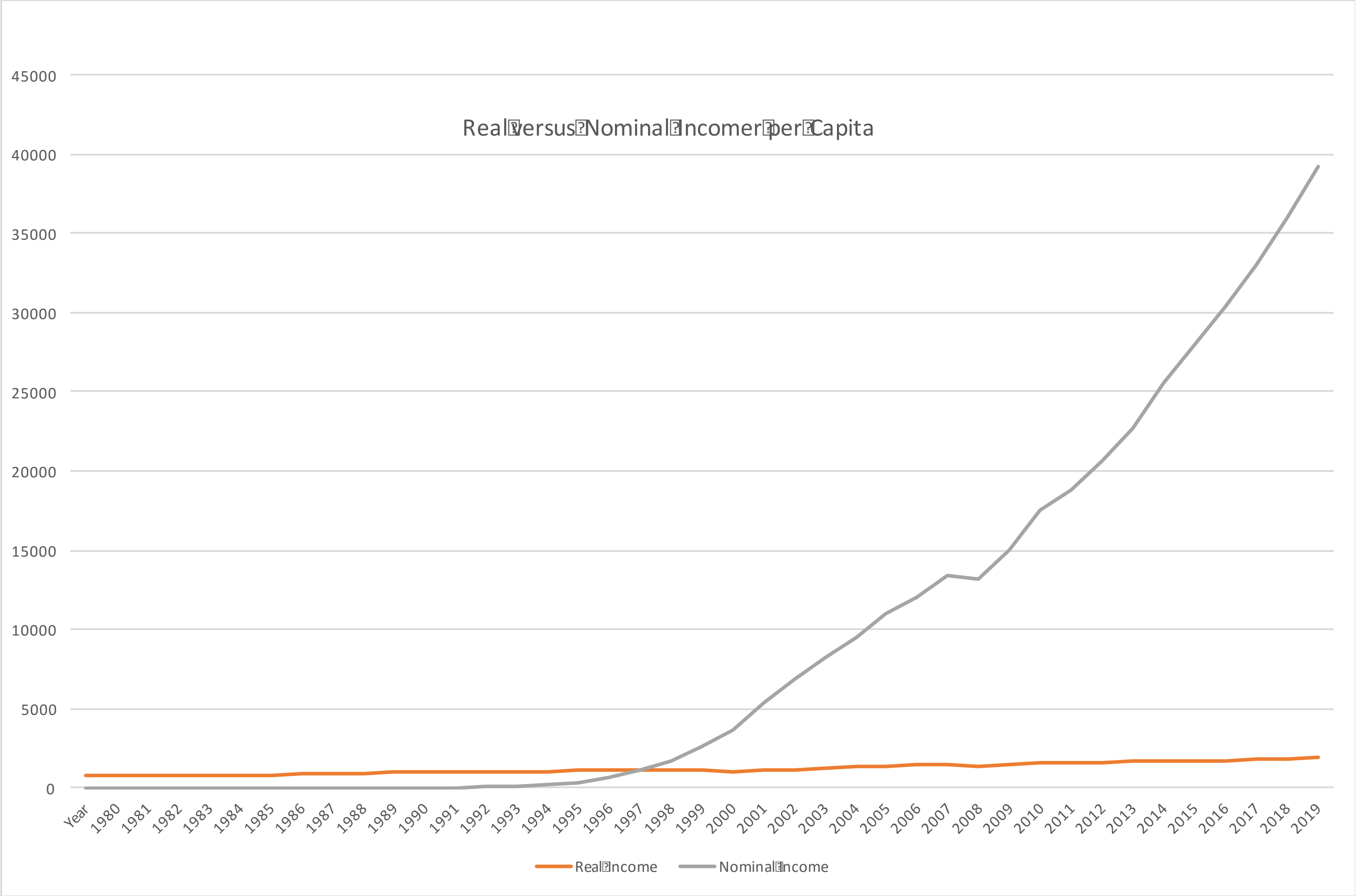
2017
2018
2019
Debt as % of GDP



Real versus Nominal Income per Capita
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
Year
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
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2001
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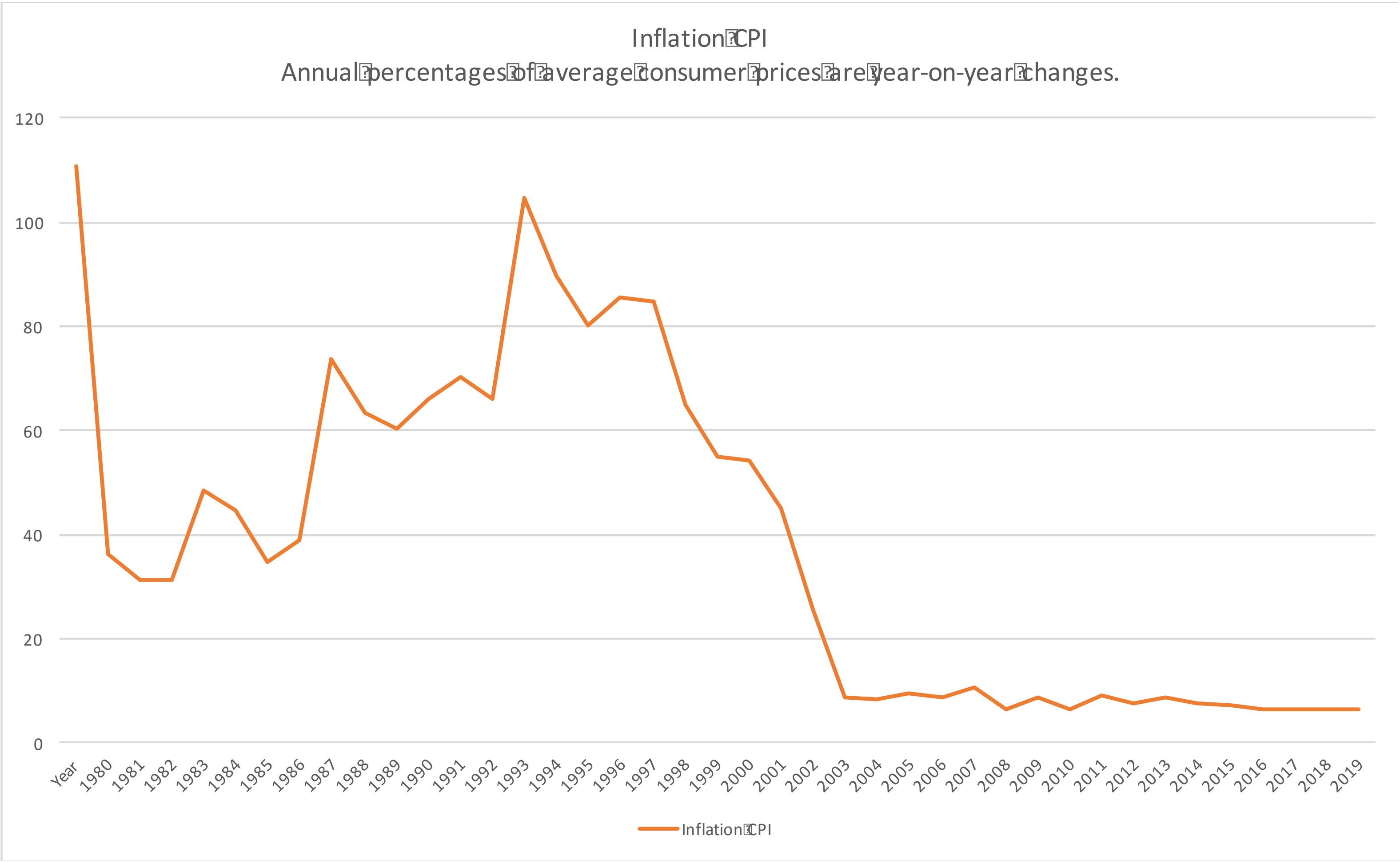
2016
2017
2018
2019
Real Income
Nominal Income


Inflation CPI
Annual percentages of average consumer prices are year-on-year changes.
120
100
80
60
40
20
0
Year
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
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1998
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2012
2013
2014
2015
2016
2017
2018
2019
Inflation CPI

TURKISH AIRLINES İTÜ

END OF MODULE 14