



Economic Convergence and Decoupling in Monetary Policy

Mehmet Yörükođlu

Deputy Governor

Central Bank of Turkey

Current Issues in Economic Governance

3 April 2008, Bilkent, Ankara

Overview

1. World inflation developments in the last two decades
 - Great Moderation
 - Reduction in inflation dispersion across countries
 - Coupling of inflation and monetary policy
2. Recent inflation developments
 - Decoupling of inflation and monetary policy between advanced and emerging market economies;
 - Emerging market economies;
 - Rising inflationary pressures, tighter monetary stance is necessary.
 - Advanced economies;
 - Moderate inflationary pressure, monetary accommodation continues.
 - Explaining the decoupling in Monetary Policy
 - Future Prospects

World inflation developments in the last two decades: The Great Moderation

Chart 4 Consumer prices
Graphique 4 Prix à la consommation

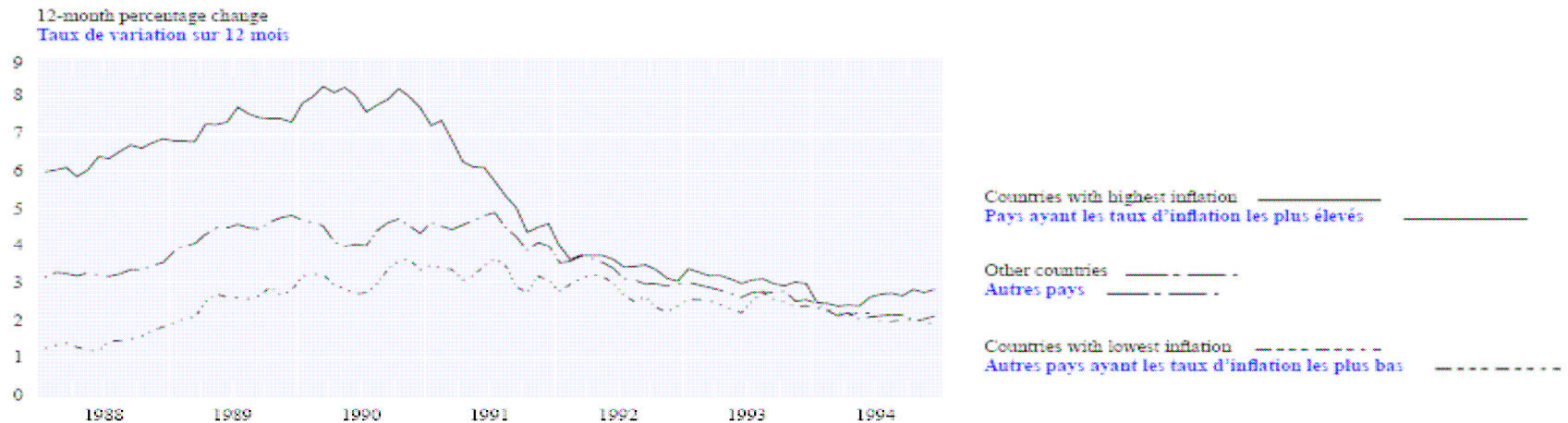


Chart 1 Consumer prices: 1971-1994 (For composition of country groups see notes on page 53.)
Graphique 1 Prix à la consommation de 1971 à 1994 (La composition des groupes de pays figure à la page 53.)



World inflation developments in the last two decades: The Great Moderation

Table 1. World CPI Inflation

(Percent per annum)

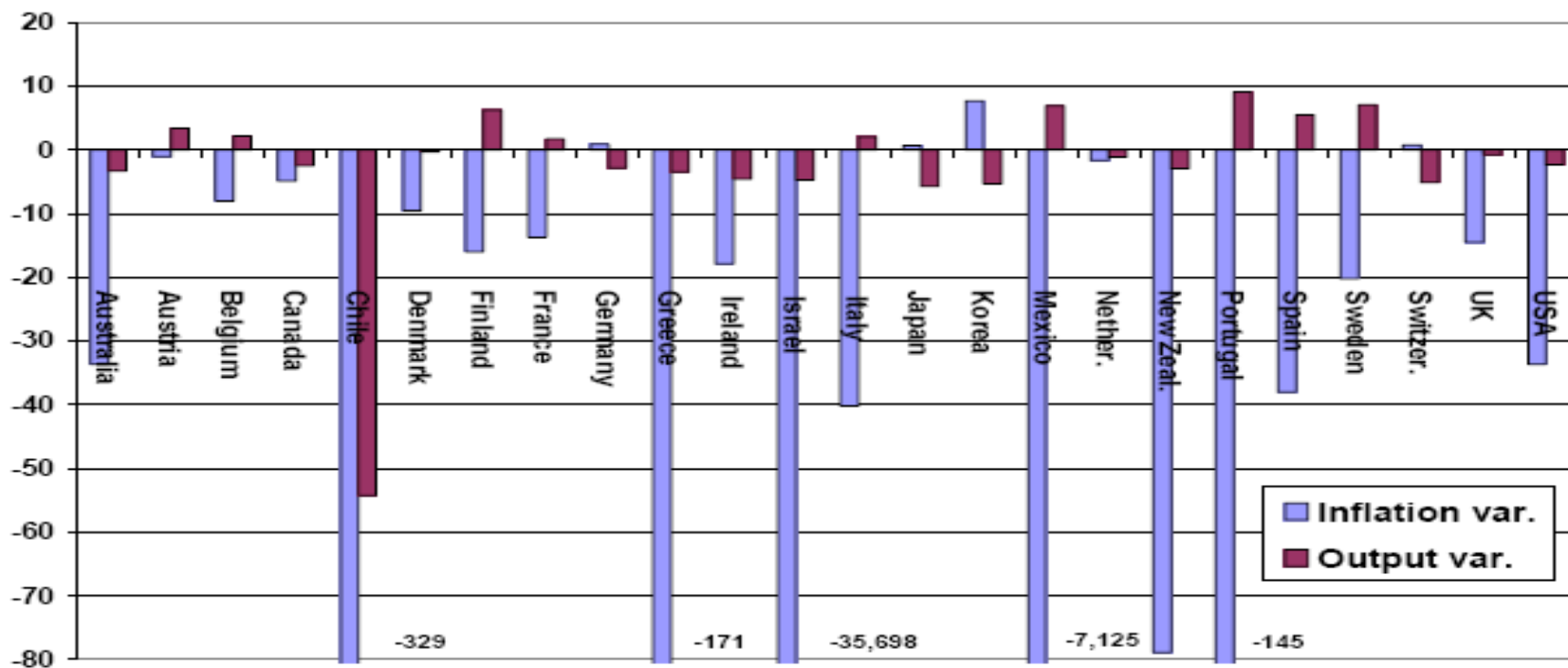
	1980-84	1985-89	1990-94	1995-99	2000-03	2000-04	2003
World	14.1	15.5	30.4	8.4	4.1	3.9	3.9
Industrial economies	8.7	3.9	3.8	2.0	2.0	1.8	1.9
Developing countries	31.4	48.0	53.2	13.1	5.7	5.6	6.0
Africa	16.8	17.9	39.8	20.6	11.8	11.0	10.7
Asia	9.0	11.5	10.5	7.3	2.3	2.4	2.6
Latin America	82.4	185.9	232.6	17.2	8.2	7.9	10.9
Middle East	18.6	22.5	30.4	29.6	16.4	15.3	13.4
Transition economies	6.2	7.7	363.2	53.9	14.5	13.4	10.0

Source: IMF, *World Economic Outlook*.

From "Globalization and Global Disinflation", by Kenneth Rogoff, 2003.

World inflation developments in the last two decades: The Great Moderation

Figure 1: Change in inflation and output variability (83-90 vs. 91-98)

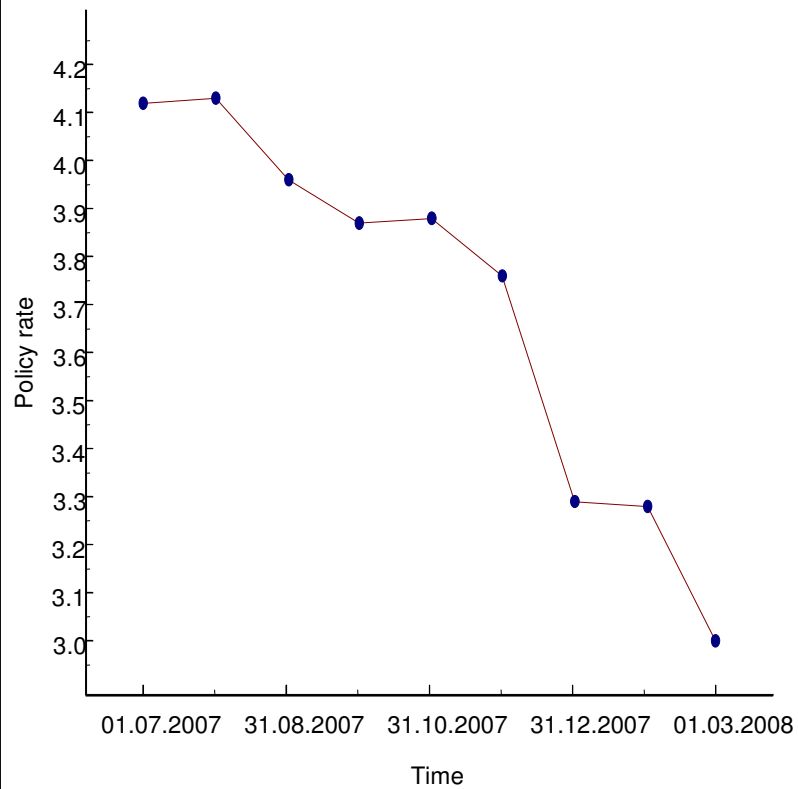


Inflation variability is measured as the squared deviation from a 2% target level (x 10,000)

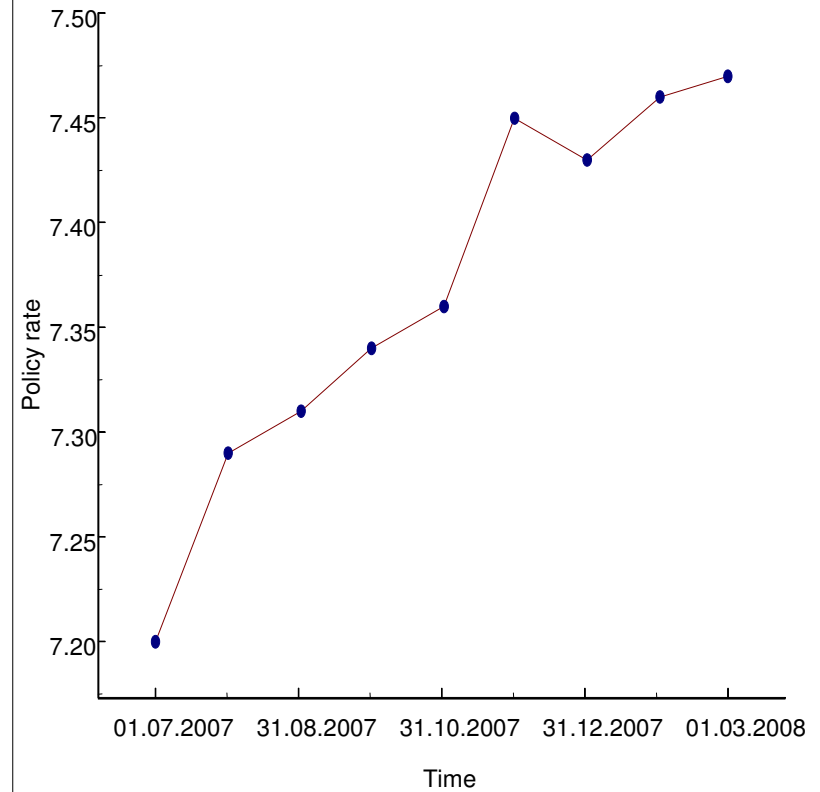
Output variability is measured as the squared deviation from an H-P trend (x 10,000)

Recent inflation developments:

Average Policy Interest Rate in Developed Economies



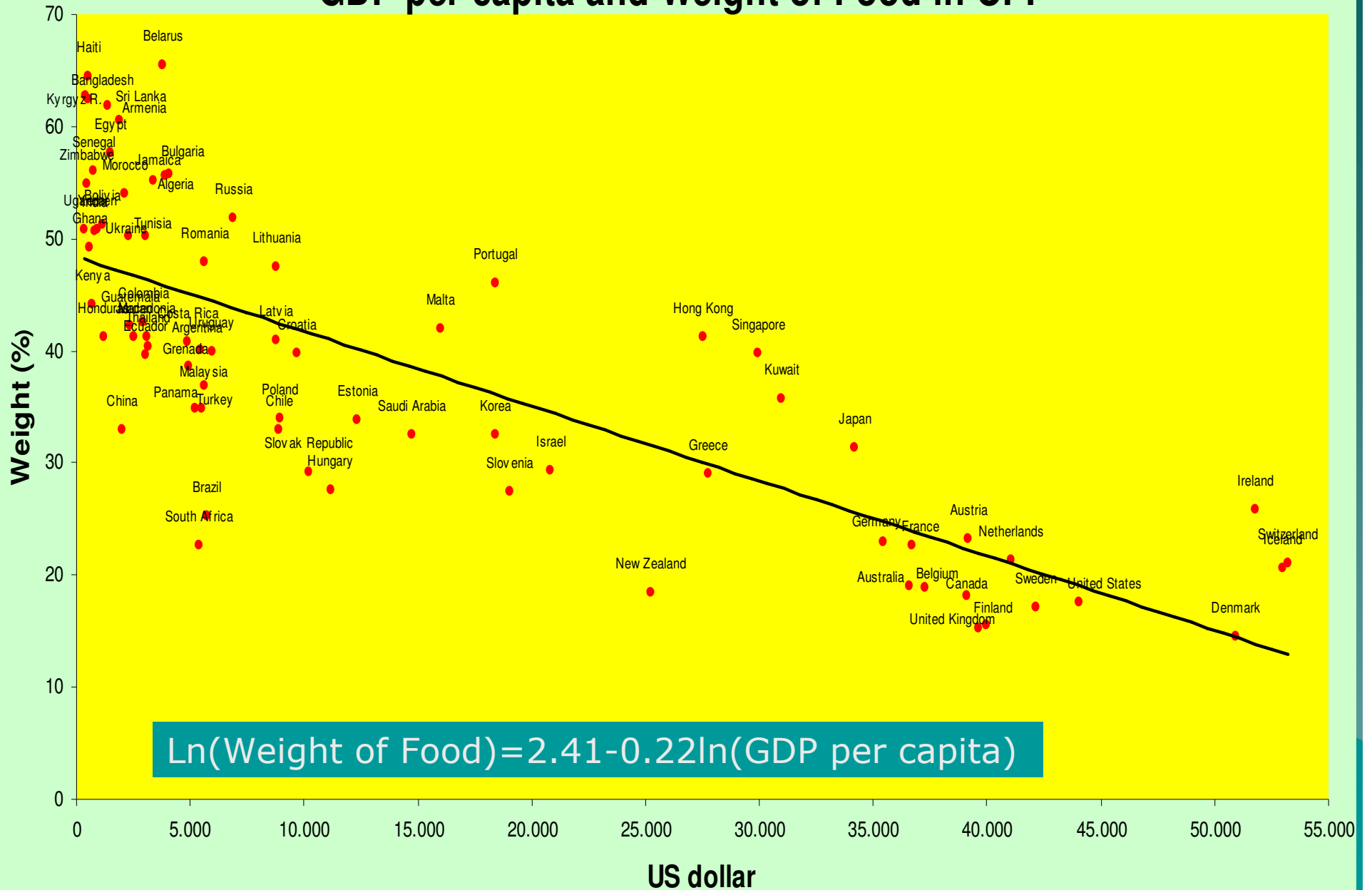
Average Policy Interest Rate in Emerging Market Economies



Potential Decoupling in Inflation and Monetary Policy

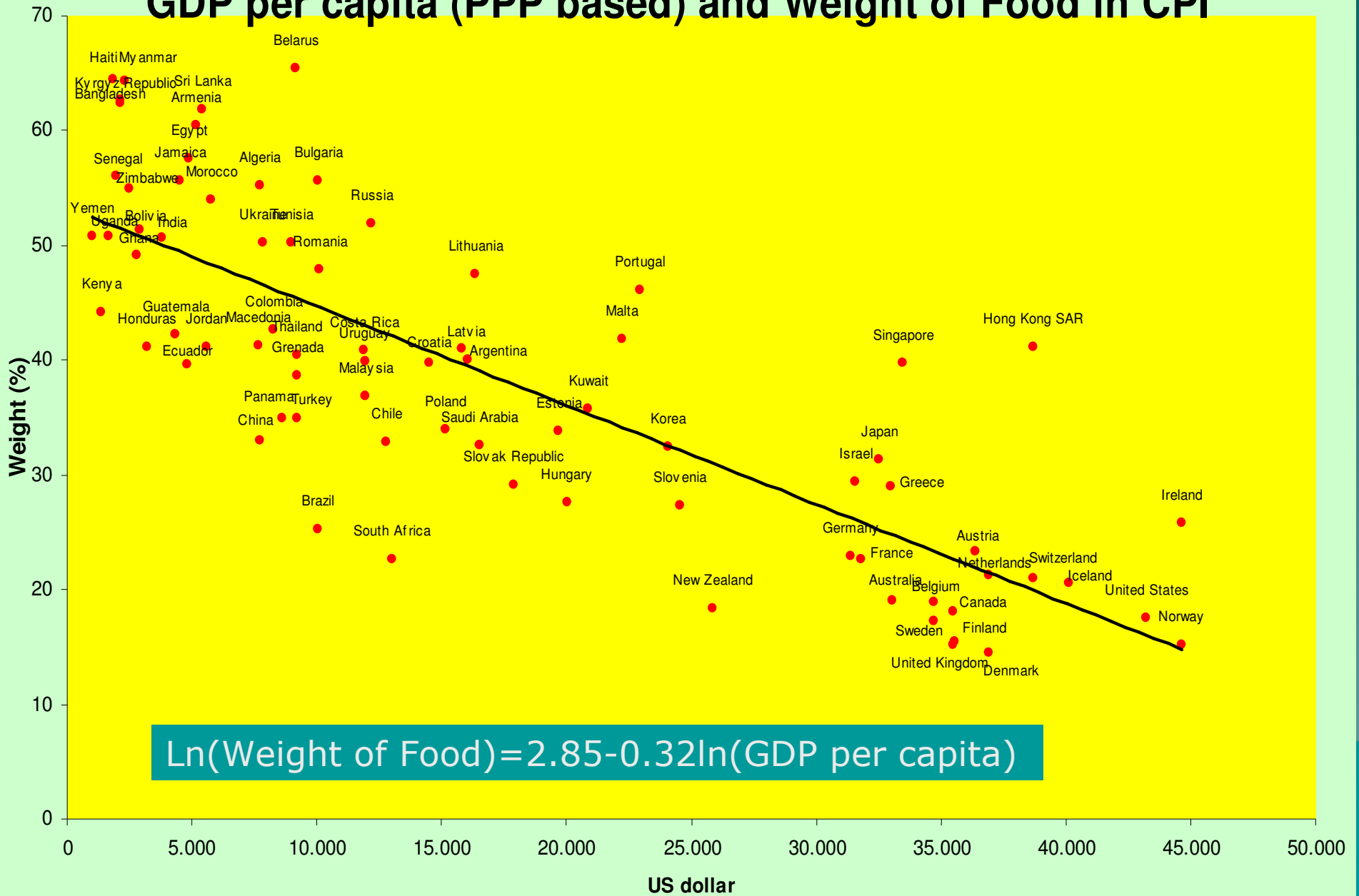
- ◆ Asymmetry in consumer baskets of advanced and EMEs.
 - Food is more significant in the basket of EMEs and developing economies.
 - ◆ Food prices has potential to increase due to
 - Rapid growth,
 - Lack of sufficient agricultural productivity growth in EMEs and developing economies.
 - Rapid employment shift from agriculture to industries in EMEs.
 - High-tech consumer products are more significant in the consumer basket of advanced economies.
 - ◆ Rapidly declining price and increasing quality of especially CIT products.

GDP per capita and Weight of Food in CPI



$$\ln(\text{Weight of Food}) = 2.41 - 0.22 \ln(\text{GDP per capita})$$

GDP per capita (PPP based) and Weight of Food in CPI



Stylized Facts About Economics of Agriculture

◆ Demand

- Income elasticity of demand < 1
 - ◆ varies significantly across sub categories
 - For cereals ~ 0.3 , for milk and meat ~ 0.9
- Abs(price elasticity of demand) < 1
 - ◆ varies significantly across sub categories
 - For cereals ~ 0.2 , for milk and meat ~ 1

Stylized Facts About Economics of Agriculture

◆ Supply

– Advanced economies,

- ◆ Historically relatively high productivity growth (TFP growth \sim 1-1.5%)
- ◆ Stable land use and employment
- ◆ Capital intensive
- ◆ Labor productivity is not much different from labor productivity of industries'

– EMEs and developing economies,

- ◆ Historically relatively low productivity growth (TFP growth $<$ 1%)
- ◆ Stable or decreasing land use
- ◆ Decreasing employment
- ◆ Labor intensive
- ◆ Labor productivity is much lower than labor productivity of industries'

◆ Prices

- Upto early 2000`s relative price of food  , since then 

A Simple Model

Agricultural Production Function

$$Y_a = AF(A, K, L, N) = AK^{\alpha_1} L^{\alpha_2} N^{1-\alpha_1-\alpha_2}$$

$$\gamma_a = \gamma_A + \alpha_1 \gamma_K + \alpha_2 \gamma_L + (1 - \alpha_1 - \alpha_2) \gamma_N \dots \dots (1)$$

$$\gamma_D = \varphi_y \gamma_y + \varphi_p \bar{p}_a \dots \dots (2)$$

$$\bar{p}_a = \frac{\gamma_D - \varphi_y \gamma_y}{\varphi_p} \dots \dots (3)$$

A Back-of-the-envelope Example

$$Y_a = AF(A, K, L, N) = AK^{\alpha_1} L^{\alpha_2} N^{1-\alpha_1-\alpha_2}$$

$$\alpha_1 = 0.2, \alpha_2 = 0.5;$$

$$\gamma_K = 4\%, \gamma_L = 0\%, \gamma_N = -3\%;$$

$$\gamma_a = \gamma_A + \alpha_1 \gamma_K + \alpha_2 \gamma_L + (1 - \alpha_1 - \alpha_2) \gamma_N \dots\dots (1)$$

$$\gamma_a = 1 + (0.2)4\% + (0.3)(-3\%) + 0.5(0\%)$$

$$\gamma_a = 0.9\%$$

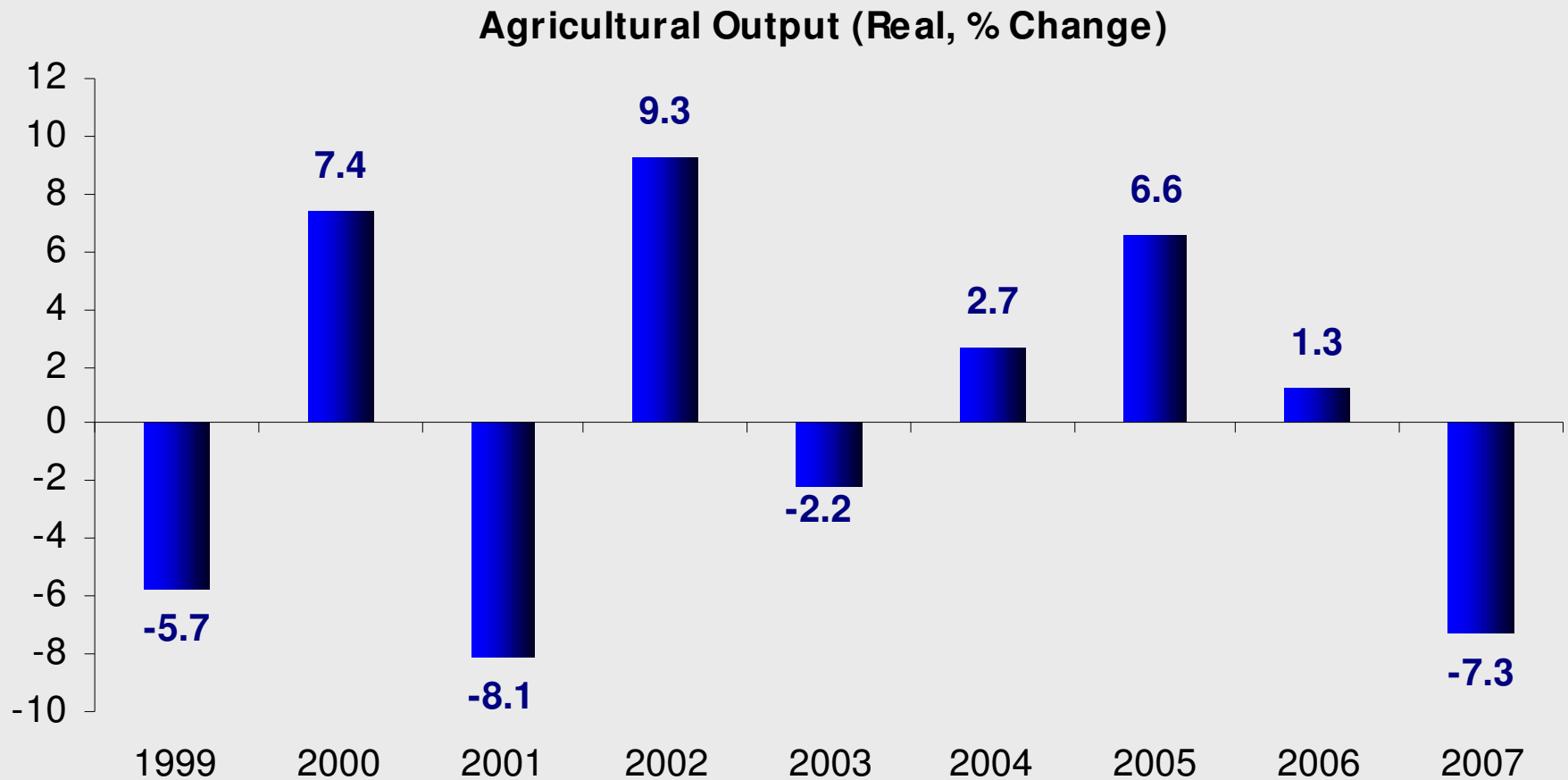
$$\gamma_D = \varphi_y \gamma_y + \varphi_p \bar{p}_a \dots\dots (2)$$

$$\bar{p}_a = \frac{\gamma_D - \varphi_y \gamma_y}{\varphi_p} \dots\dots (3)$$

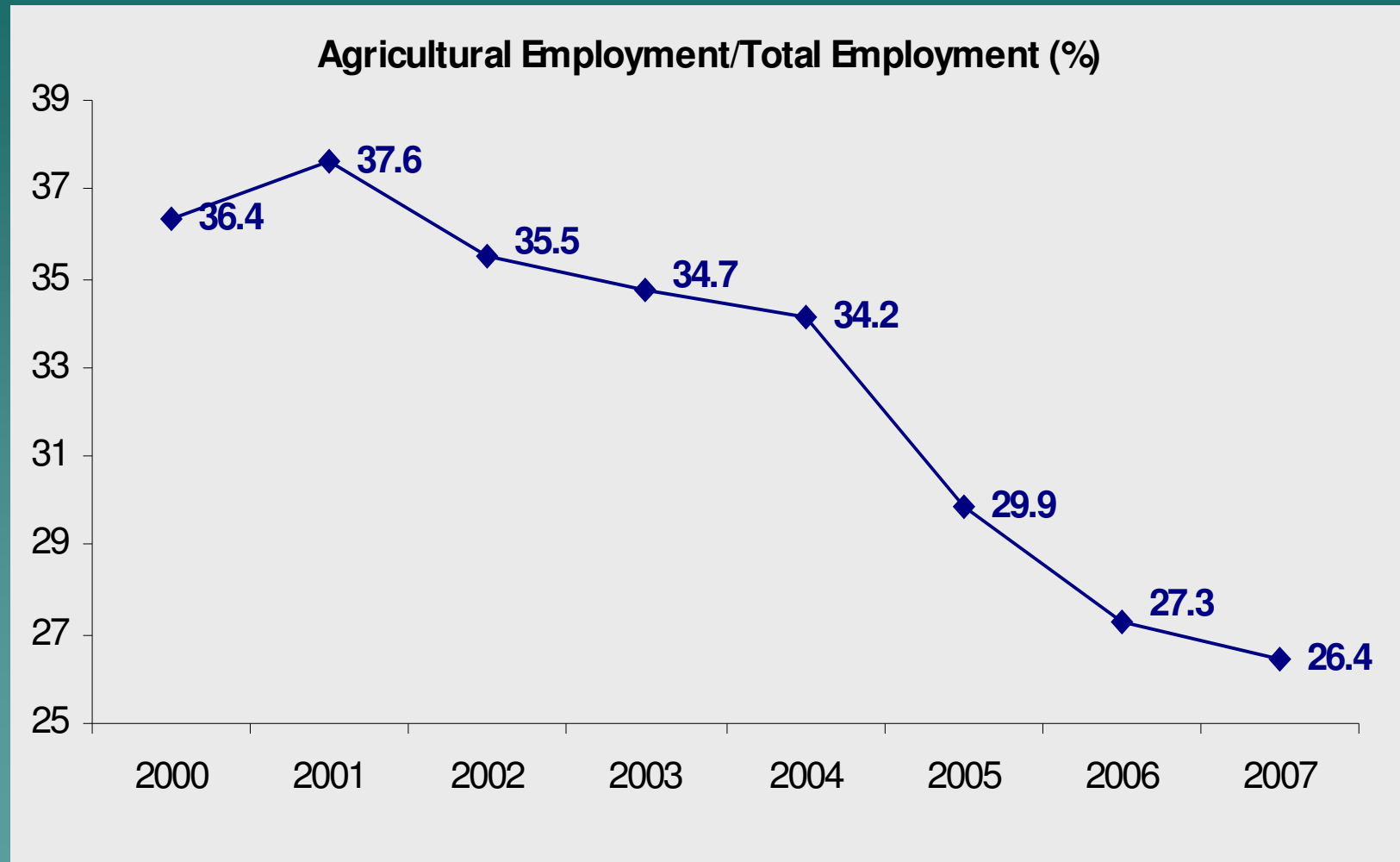
$$\varphi_y = 0.6, \varphi_p = -0.4;$$

$$\bar{p}_a = \frac{0.9 - 0.6(7\%)}{-0.4} = 8.25\%$$

Growth of agricultural output in Turkey



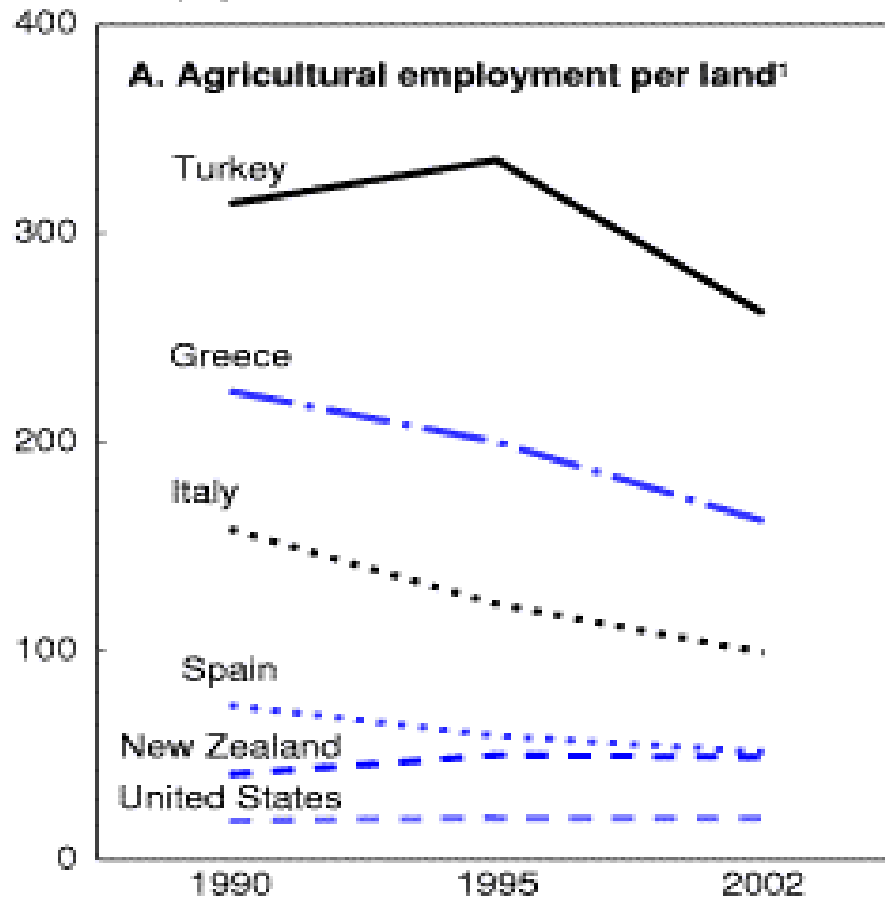
Employment Share of Agriculture in Turkey



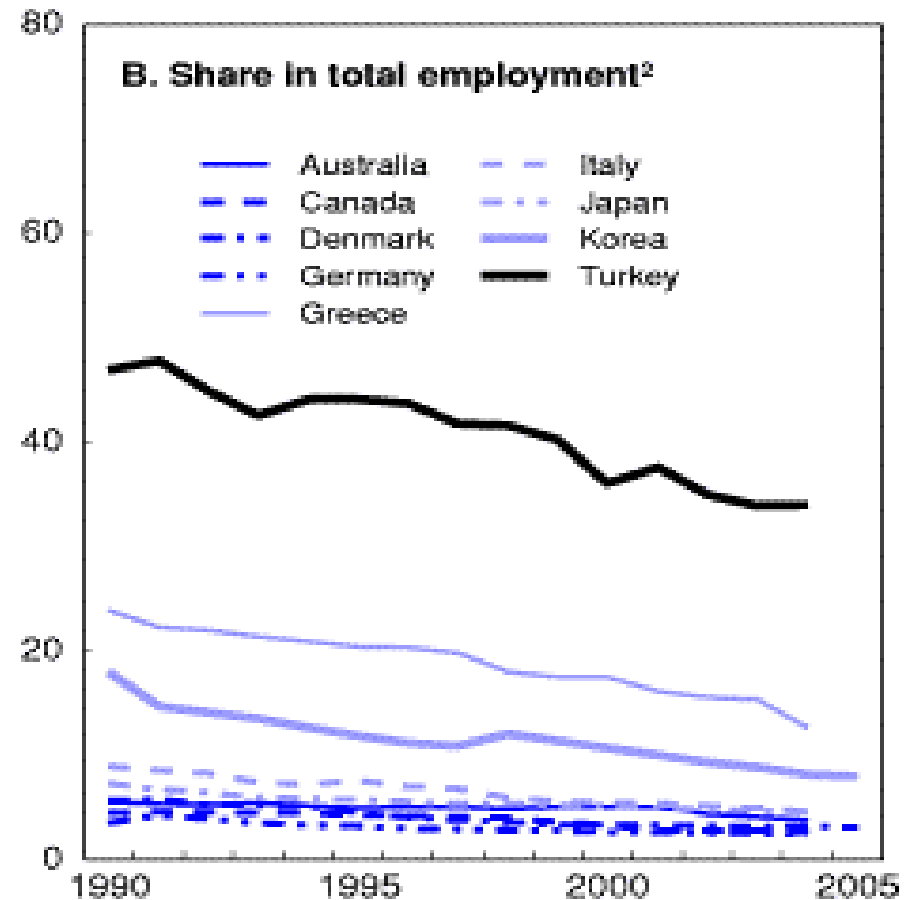
Source: Turkstat

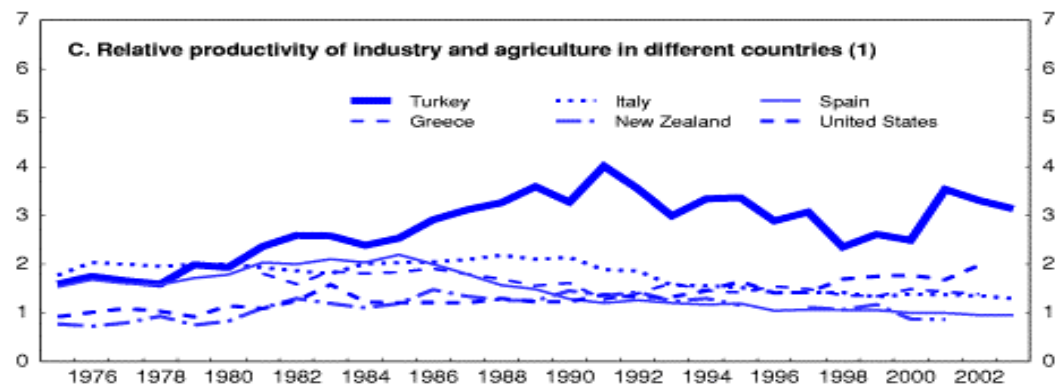
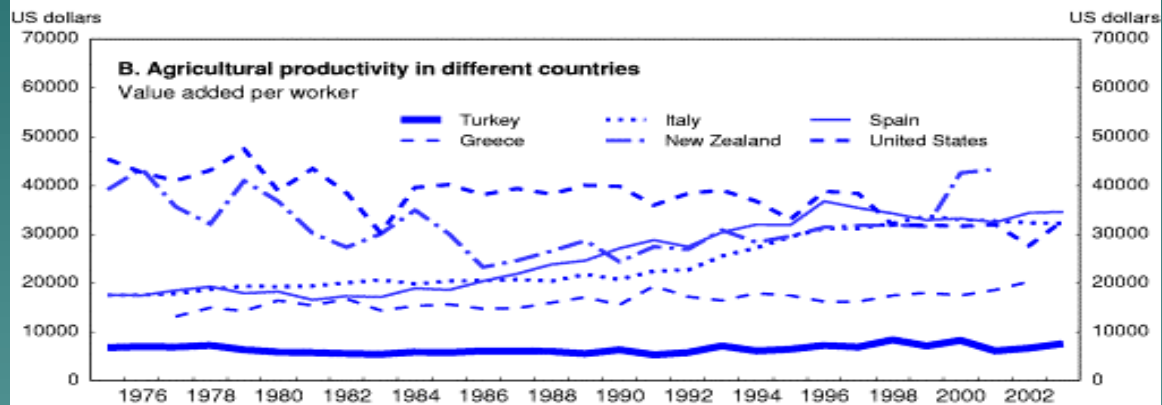
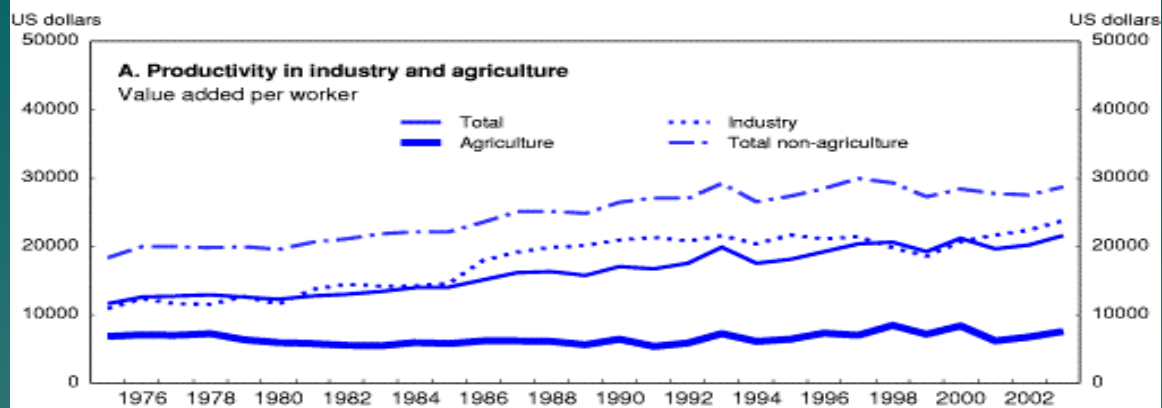
Comparison of Agricultural Trends

Number of Employees



Per cent





From Economic Survey of Turkey 2006, OECD.

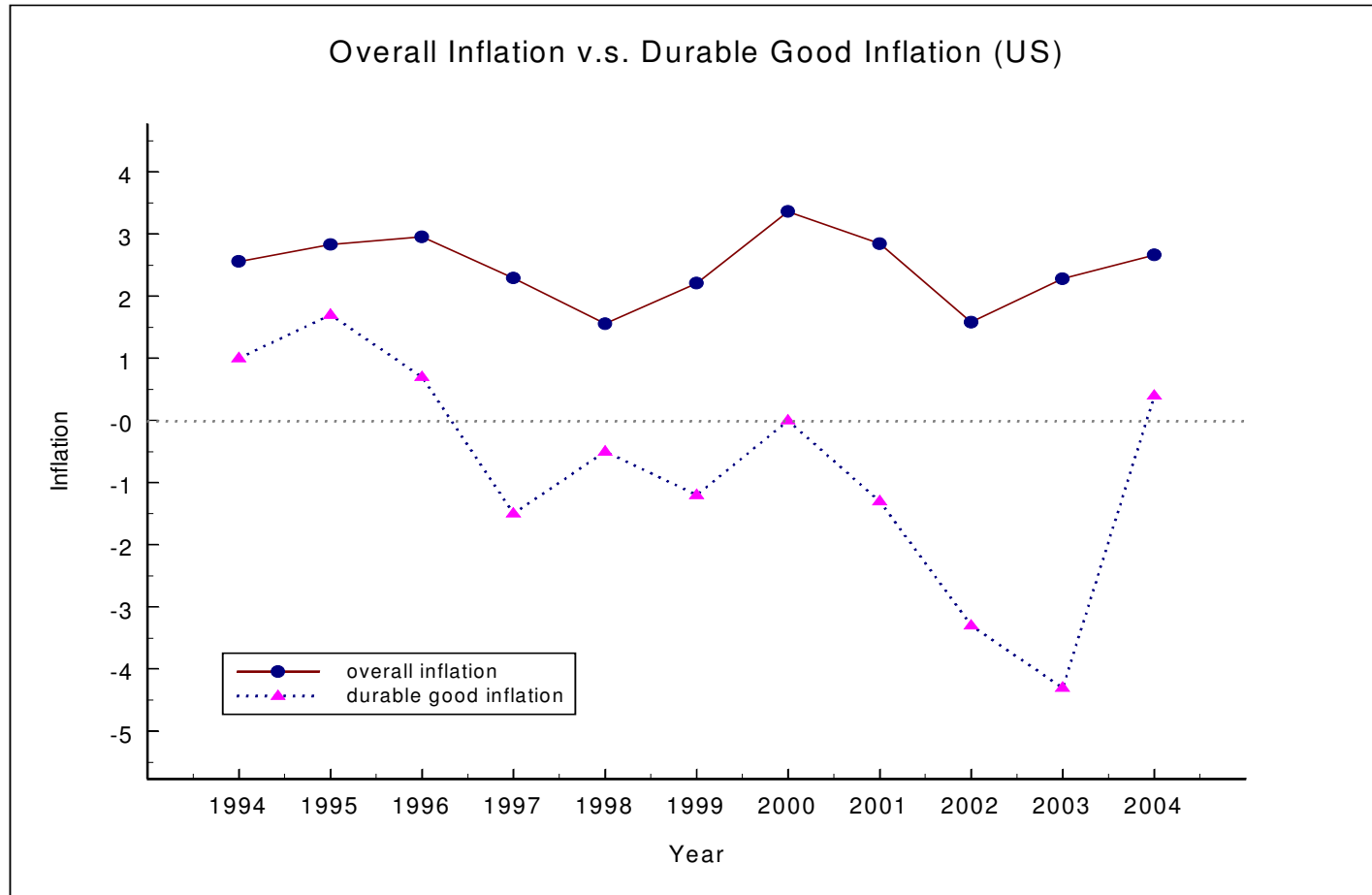
Household consumption expenditure by quintiles ordered by income (%)

Household consumption expenditure by quintiles ordered by income (%)

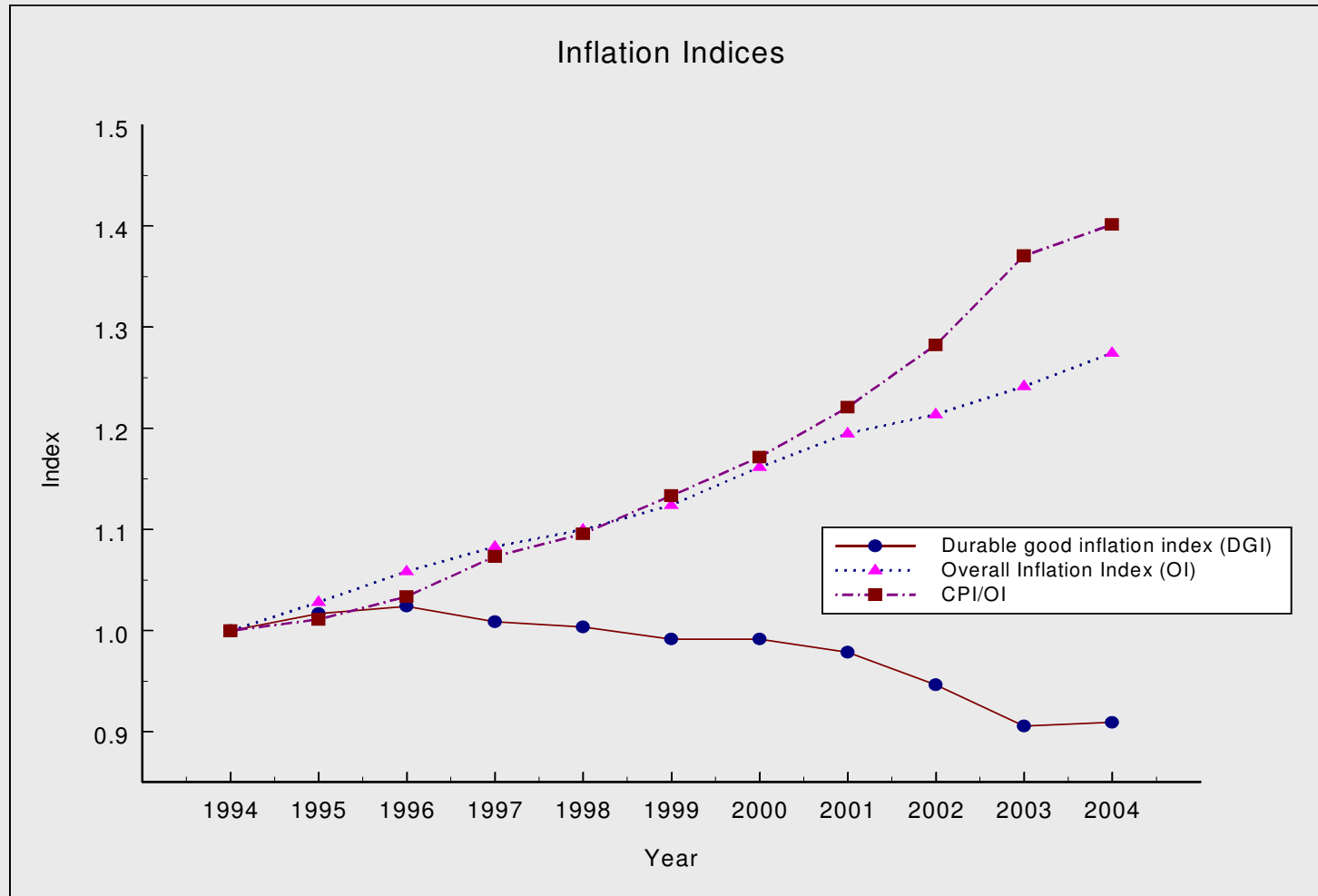
	2004					2005					2006				
	1.	2.	3.	4.	5.	1.	2.	3.	4.	5.	1.	2.	3.	4.	5.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Food and non-alcoholic beverages	40,0	34,2	29,8	26,0	19,3	37,8	31,9	27,9	24,4	18,2	36,5	31,4	26,9	24,5	18,6
Alcoholic beverages, cigarette and tobacco	5,1	5,0	5,0	4,4	3,5	5,2	4,9	4,5	3,9	3,6	5,6	4,9	4,5	4,1	3,2
Clothing and footwear	5,2	5,7	6,1	6,6	7,2	6,3	6,0	5,9	5,9	6,6	5,3	5,3	5,9	5,9	6,2
Housing and rent	27,6	29,1	28,5	27,3	25,2	25,4	27,9	29,2	27,1	23,1	28,3	29,5	29,4	28,0	24,4
Furniture, houses appliances and home care	4,9	5,6	6,9	6,8	7,2	6,0	7,3	6,7	6,8	6,8	5,4	5,9	6,7	6,8	5,9
Health	2,4	2,2	2,0	2,1	2,4	2,3	2,0	2,1	2,2	2,4	2,4	2,2	2,1	2,0	2,3
Transportation	4,2	5,5	7,0	9,3	13,3	5,1	6,7	9,3	12,7	18,0	5,5	7,0	9,1	12,2	19,7
Communication	3,1	4,1	4,2	4,6	5,0	3,6	3,9	4,2	4,7	4,5	3,6	4,0	4,3	4,2	4,4
Entertainment and culture	1,2	1,4	2,0	2,2	3,5	1,3	1,9	1,8	2,2	3,6	1,5	1,8	1,9	2,3	2,6
Educational services	0,5	0,9	1,2	2,1	3,3	0,7	0,7	1,2	1,9	2,9	0,5	1,5	1,6	2,0	3,1
Restaurant and hotels	2,7	3,7	3,8	4,6	5,4	2,8	3,8	4,0	4,3	5,2	2,6	3,5	3,8	4,2	4,9
Various good and services	3,3	2,6	3,4	4,0	4,6	3,6	3,0	3,2	4,0	5,2	2,8	3,1	3,9	3,9	4,7

Source: Turksat

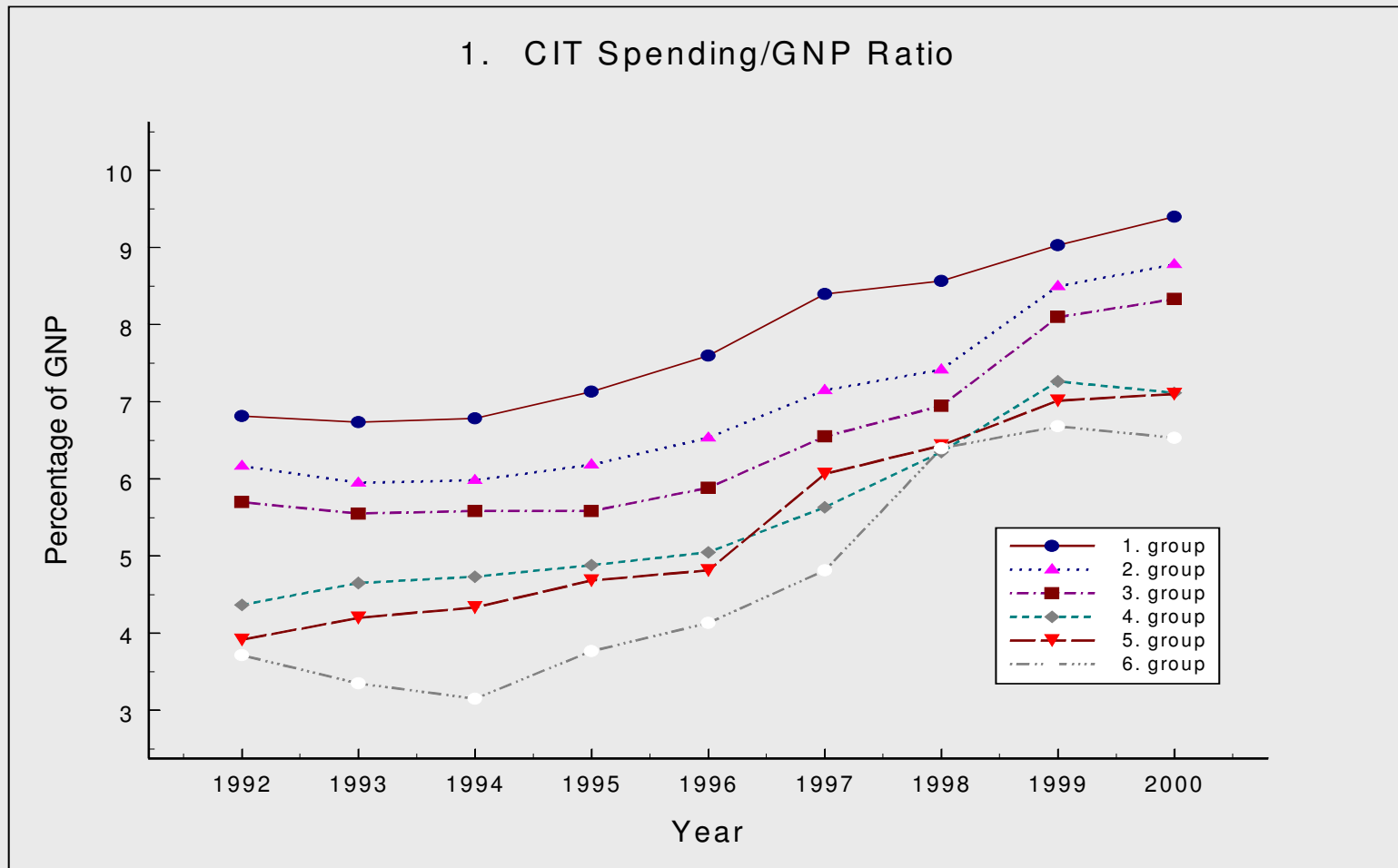
Asymmetry 2: High-tech consumer products



Growth of Inflation Indices



CIT Spending – GNP Ratio



Potential Decoupling in Monetary Policy?

- ◆ Studies show that due declining high-tech consumer good prices inflation in US is 1-2% lower.
- ◆ A back-of-the-envelope comparison about potential inflation differential between US and Turkey:
 - Potential Differential = Differential(Food Asymmetry) + Differential(High-tech cons. Prod. Assym.)

Potential Decoupling in Monetary Policy?

- ◆ Convergence dynamics together with the consumer basket asymmetries;
 - Inflation in EMEs and developing countries may have an upward pressure;
 - EME Central Banks may be more concerned about inflation whereas advanced countries' Central Banks may be more concerned about growth.
 - In EMEs and developing economies,
 - ◆ Tighter monetary policy
 - ◆ Exchange rate appreciation
 - ◆ Higher inflation targets