Global Economy

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Lecture 3

- Measures of economic growth and development

- Economic growth is measured as the percent rate of increase in real gross domestic product GDP (or GDP per capita).

Rate of economic growth

$$\frac{GDP_1 - GDP_0}{GDP_0}$$

where GDP_1 is GDP in current period,

GDP_0 is GDP in basic period.

Economic growth, 2001-2018 Source: https://data.worldbank.org/

Country	Average annual GDP growth	
	2001-2018	**2009-2018**
Azerbaijan	8.4%	2.2%
China	9.2%	7.9%
France	1.3%	0.9%
India	6.8%	7.1%
Italy	0.2%	-0.3%
Japan	0.8%	0.7%
Korea	3.8%	3.1%
Poland	3.7%	3.5%
Portugal	0.5%	0.1%
Spain	1.7%	0.4%
Turkey	4.9%	5.2%
Ukraine	2.2%	-1.5%
US	1.9%	1.8%

Why GDP as a measure of happiness and well-being party fails?

- GDP is an average. So even if most people in a country are worse off from one year to the next, GDP may increase if a few people are doing very well.

- GDP does not reflect what money is spent on in society. Simply, the more money is spent, the higher the GDP.

Examples:

- The United States spend more money per capita on healthcare than other developed countries, and the quality by any measure longevity, morbidity, etc.) is lower.

- The more people are put in prison and the more prisons are built, the higher the GDP (Prison population rate)

Prison population rate (per 100,000 of the national population), 2018
Source: World Prison Population List, 2018

Azerbaijan	235	**Poland**	194
China	118	**Portugal**	127
France	100	**Spain**	126
India	33	**Turkey**	288
Italy	98	**Ukraine**	157
Japan	41	**US**	655
Korea	109		

Why GDP as a measure of happiness and well-being party fails?

- Failure to make qualitative distinctions.
- Failure to value natural, human, and social capital.
- Failure to value free time.
- Failure to value unpaid work.
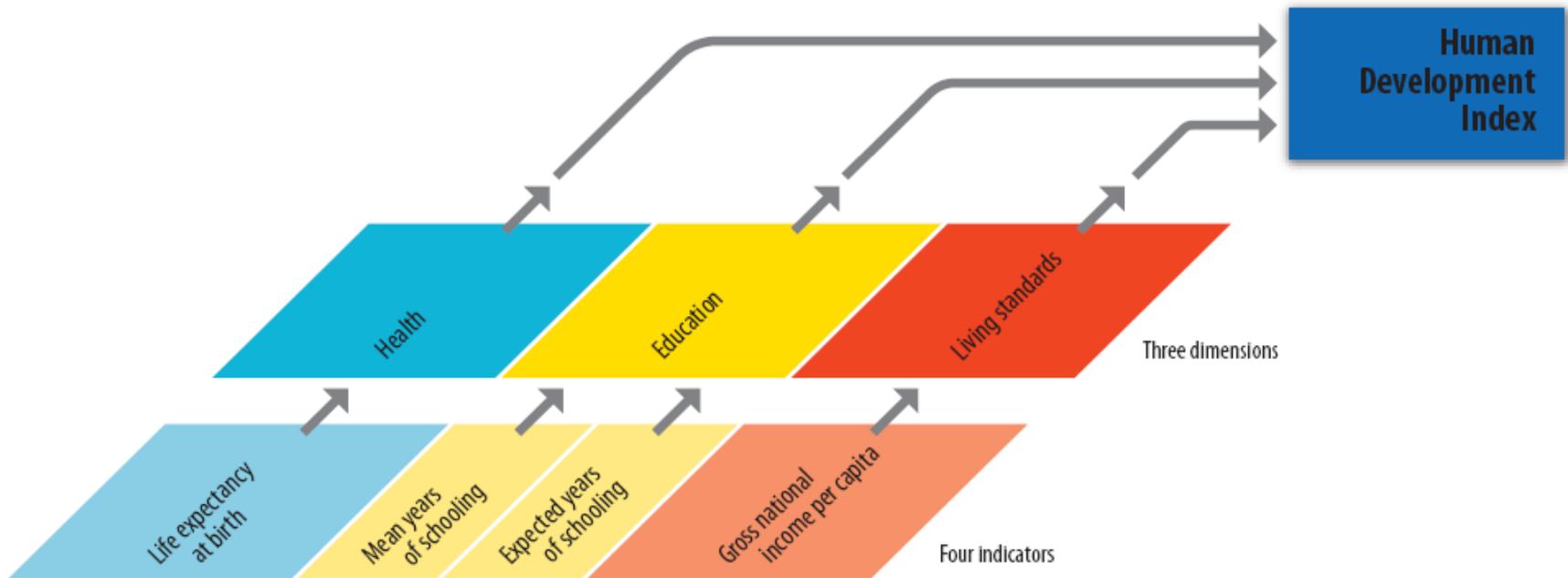- Failure to account for equity.

- Human Development Index (HDI)

- Measures of happiness in nations (Average Happiness, Happy Life Years)

- Happy Planet Index

- Gross National Happiness (GNH) – an alternative approach to progress

Human Development Index (HDI)

- Starting with the 2010 report HDI combines three dimensions

- A long and healthy life (measured by life expectancy at birth),
- Access to knowledge (measured by two indicators: Mean years of schooling and Expected years of schooling),
- A decent standard of living (measured by the GNI per capita expressed in purchasing power parity (PPP) US dollars).
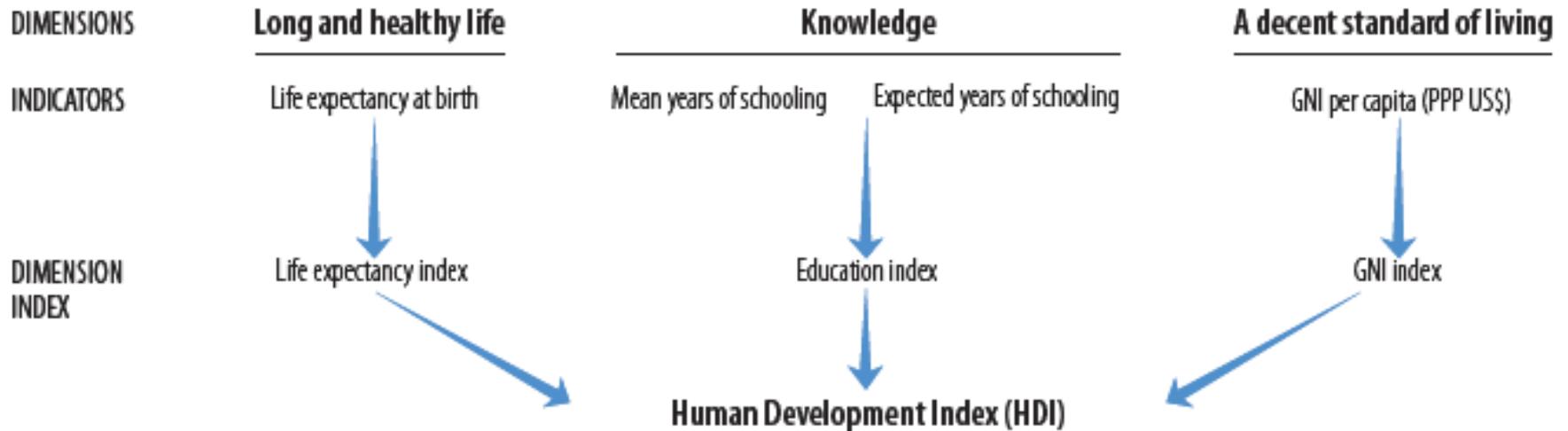
Components of HDI

Source: Human Development Report 2010 (http://hdr.undp.org)

Calculating HDI
Source: Human Development Report 2010 (http://hdr.undp.org)

DIMENSIONS	Long and healthy life	Knowledge	A decent standard of living
INDICATORS	Life expectancy at birth	Mean years of schooling Expected years of schooling	GNI per capita (PPP US$)
DIMENSION INDEX	Life expectancy index	Education index	GNI index

Human Development Index (HDI)

These three dimensions are standardized to values between 0 and 1, and the geometric mean is taken to arrive at the overall HDI value in the range 0 to 1.

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

$$\text{Income index} = \frac{\ln(\text{actual value}) - \ln(\text{minimum value})}{\ln(\text{maximum value}) - \ln(\text{minimum value})}$$

$$\text{HDI} = \sqrt[3]{\textit{Life expectation index} \cdot \textit{Education index} \cdot \textit{Income index}}$$

Goalposts for Calculating the HDI

Source: Human Development Report 2010 (http://hdr.undp.org)

Indicators	Observed maximum	Minimum
Life expectancy at birth	83.2 (Japan, 2010)	20.0
Mean years of schooling	13.2 (United States, 2000)	0
Expected years of schooling	20.6 (Australia, 2002)	0
Combined education index	0.951 (New Zealand, 2010)	0
Per capita income (PPP $)	108,211 (United Arab Emirates, 1980)	163 (Zimbabwe, 2008)

Example: Poland, 2010

Life expectancy at birth	76.0
Mean years of schooling	10.0
Expected years of schooling	15.2
Per capita income (PPP $)	17,803

HDI, Poland, 2010

1.Life expectancy index

$$\frac{76.0-20}{83.2-20}=0.8861$$

2. Education index

$$\frac{\sqrt{0.7576 \cdot 0.7379}-0}{0.951-0}=0.7862$$

where:

- Mean years of schooling index $\quad \dfrac{10.0-0}{13.2-0}=0.7576$

- Expected years of schooling index $\quad \dfrac{15.2-0}{20.6-0}=0.7379$

3. Income index

$$\frac{\ln(17,803)-\ln(163)}{\ln(108,211)-\ln(163)}=0.7223$$

$$HDI = \sqrt[3]{0.8861 \cdot 0.7862 \cdot 0.7223}=0.795$$

HDI, 2017

Very high human development	0.953-0.800
High human development	0.798-0.700
Medium human development	0.699-0.556
Low human development	0.546-0.452

HDI, 2017

Source: Human Development Report, 2018; http://hdrstats.undp.org

Rank	Country	HDI	Rank	Country	HDI
1	Norway	0.953	189	Niger	0.354
2	Switzerland	0.944	188	Central African Republic	0.367
3	Australia	0.939	187	South Sudan	0.388
4	Ireland	0.938	186	Chad	0.404
5	Germany	0.936	185	Burundi	0.417
6	Iceland	0.935	184	Sierra Leone	0.419
7	Hong Kong	0.933	183	Burkina Faso	0.423
7	Sweden	0.933	182	Mali	0.427
9	Singapore	0.932	181	Liberia	0.435
10	Netherlands	0.931	180	Mozambique	0.437

HDI, 2017

Source: Human Development Report, 2018; http://hdrstats.undp.org

Rank	Country	HDI	Rank	Country	HDI
80	Azerbaijan	0.757	33	Poland	0.865
86	China	0.752	41	Portugal	0.847
24	France	0.901	26	Spain	0.891
130	India	0.640	64	Turkey	0.791
28	Italy	0.880	88	Ukraine	0.751
19	Japan	0.909	13	US	0.924
22	Korea	0.903			

Components of HDI, 2017

Source: Human Development Report, 2018; http://hdrstats.undp.org

Country	Life expectancy at birth (years)	Mean years of schooling	Expected years of schooling	Per capita income (constant 2011 US $ PPP)
Azerbaijan	72.1	10.7	12.7	15,600
China	76.4	7.8	13.8	15,270
France	82.7	11.5	16.4	39,254
India	68.8	6.4	12.3	6,353
Italy	83.2	10.2	16.3	35,299
Japan	83.9	12.8	15.2	38,986
Korea	82.4	12.1	16.5	35,945
Poland	77.8	12.3	16.4	26,150
Portugal	81.4	9.2	16.3	27,315
Spain	83.3	9.8	17.9	34,258
Turkey	76.0	8.0	15.2	24,804
Ukraine	72.1	11.3	15.0	8,130
US	79.5	13.4	16.5	54,941

World Database of Happiness

- Erasmus University Rotterdam

- Ruut Veenhoven (1942) is director of World Database of Happiness and founding director of the Journal of Happiness Studies

Measures of happiness in nations Source: http://worlddatabaseofhappiness

Nation	Average happiness, 2010-2018 Satisfaction with life (scale 0-10)	Happy Life Years, 2010-2018
Azerbaijan	6.3	44.6
China	6.5	49.0
France	6.3	51.9
India (2005-2014)	5.5	36.6
Italy	7.6	62.9
Japan	6.1	51.3
Korea	6.1	49.9
Poland	7.0	53.2
Portugal	6.0	47.6
Spain	6.9	56.5
Turkey	6.2	46.4
Ukraine	5.5	37.3
US	7.1	55.9

Happy Planet Index (HPI)

- HPI was introduced by New Economic Foundation in July 2006.

- The HPI reflected the average years of happy life produced by a given society, nation or group of nations, per unit of planetary resources consumed.

- Each country's HPI is a function of its average subjective life satisfaction, life expectancy at birth, and ecological footprint per capita.

Happy Planet Index (HPI)

- Now the HPI is one of the first global measures of sustainable well-being.

- It tells us how well nations are doing in terms of supporting their inhabitants to live good lives now, while ensuring that others can do the same in the future, i.e. sustainable well-being for all.

- HPI calculates the number of Happy Life Years (life expectancy adjusted for experienced well-being) achieved per unit of resource use.

$$\text{Happy Planet Index} \approx \frac{\text{Experienced well-being} \times \text{Life expectancy}}{\text{Ecological Footprint}}$$

Happy Planet Index (HPI)

- The **ecological footprint** is a measure of human demand on the Earth's ecosystem. It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste.

- If every person in the world consumed at the rate of the average Qatari, it would take 11.7 planet earths to sustain that lifestyle.

Source: The Happy Planet Index, 2016

Rank	Happy Planet Index Score	
1	Costa Rica	44,7
2	Mexico	40,7
3	Colombia	40,7
4	Vanuatu	40,6
5	Vietnam	40,3
6	Panama	39,5
7	Nicaragua	38,7
World Average		26,4
138	Togo	13,2
139	Luxembourg	13,2
140	Chad	12,8

Source: The Happy Planet Index, 2016

Rank	Experienced wellbeing	
1	Switzerland	7,8
2	Norway	7,7
3	Iceland	7,6
4	Sweden	7,6
5	Netherlands	7,5
6	Denmark	7,5
7	Finland	7,4
World Average		5,4
138	Syria	3,2
139	Benin	3,2
140	Togo	2,9

Rank	Life expectancy	
1	Hong Kong	83,6
2	Japan	83,2
3	Italy	82,7
4	Switzerland	82,6
5	Iceland	82,2
6	Spain	82,2
7	Australia	82,1
World Average		70,9
138	Sierra Leone	49,8
139	Lesotho	48,9
140	Swaziland	48,9

Source: The Happy Planet Index, 2016

Rank	Ecological Footprint per capita (gHa)	
1	Luxembourg	11,7
2	Australia	10,7
3	Hong Kong	9,7
4	United States of Ame	8,9
5	Canada	8,3
6	Trinidad and Tobago	7,6
7	Oman	7,2
World Average Footprint		3,3
World Average Biocapacity		1,7
138	Afghanistan	0,8
139	Bangladesh	0,7
140	Haiti	0,6

Happy Planet Index (HPI), 2016
Source: The Happy Planet Index

Rank	Country	HPI	Rank	Country	HPI
	Azerbaijan	n.a.	62	Poland	27.5
72	China	25.7	79	Portugal	24.8
44	France	30.4	15	Spain	36.0
50	India	29.2	68	Turkey	26.4
60	Italy	28.1	70	Ukraine	26.4
58	Japan	28.3	108	US	20.7
	Korea	n.a.			

- The term was coined in 1972 by Jigme Singye Wangchuck, the 4th King of Bhutan.

- *Gross National Happiness is more important than Gross National Product* (Jigme Singye Wangchuck, the 4th King of Bhutan, 1986 Interview with Financial Times).

Gross National Happiness

	Percentage contribution of sufficiency of each domain to overall happiness
Psychological well-being	11.97%
Time-use	10.45%
Community vitality	11.83%
Cultural diversity and resilience	9.91%
Health	14.07%
Education	9.06%
Ecological diversity and resilience	12.11%
Living standard	11.27%
Good governance	9.32%

Determinants of Economic Growth - Basic Growth Theories

Growth Strategies

Development Theories

- The understanding of what generates economic growth has the fundamental meaning for human welfare.

- In order to explain growth experiences observable in the real world an enormous number of theoretical models have been developed.

Kuznet's stylized facts (1955)

	Portion of total employees	Portion of total final consumption
Primary sector (agriculture, forestry and mining)	falls	falls
Secondary sector (industrial production)	stays constant	stays constant
Tertiary sector (services)	raises	raises

Kaldor's stylized facts (1961)

1. Per capita output grows over time, and its growth rate does not tend to diminish.
2. The growth rate of output per worker differs substantially across countries.
3. Physical capital per worker grows over time.
4. The ratio of physical capital to output is nearly constant.
5. The shares of labor and physical capital in national income are nearly constant.

Classification of Different Growth Models
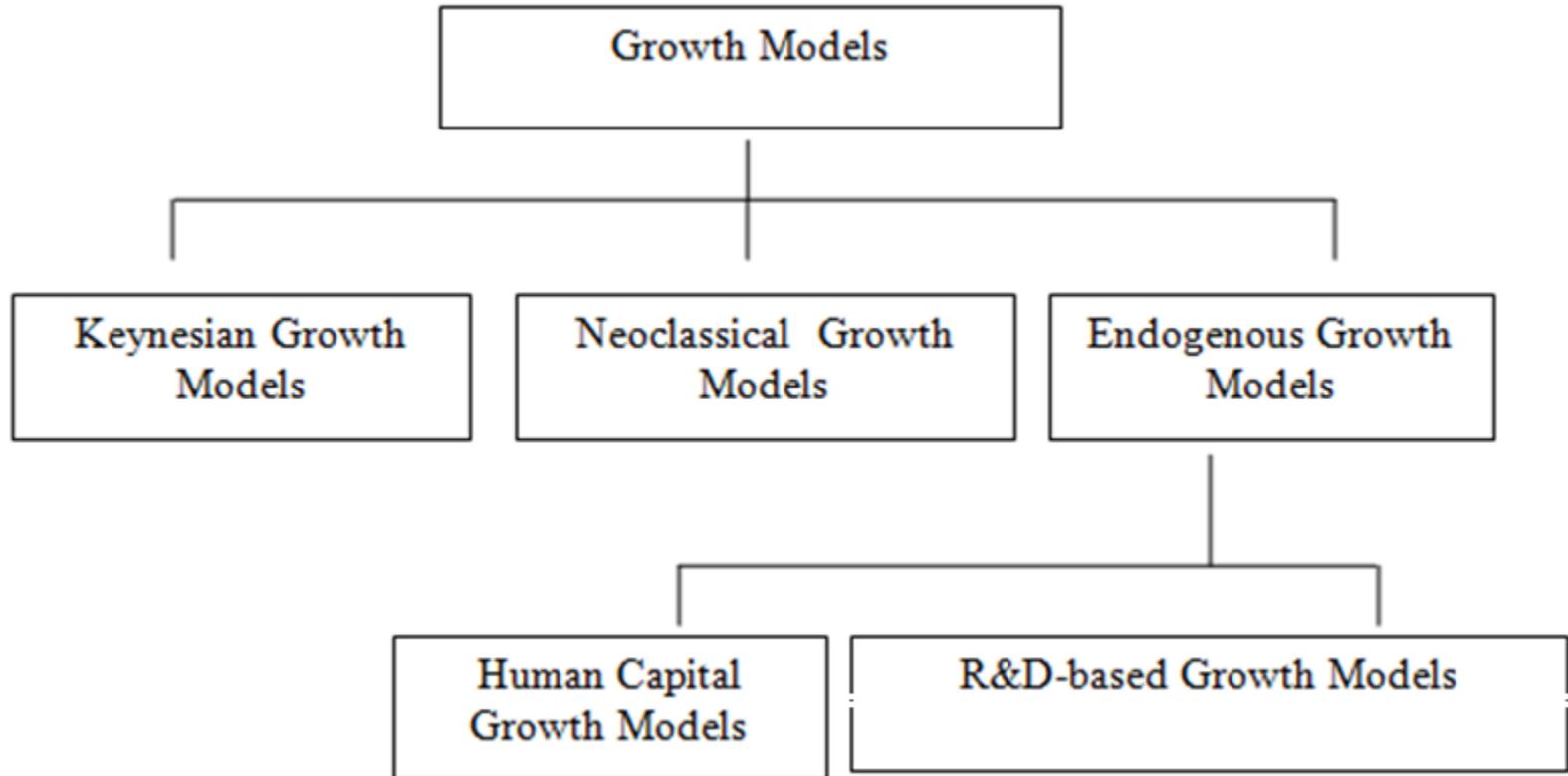
The Keynesian growth models

- **The growth rate of GDP is directly (positively) related to the saving rate**, i.e., the more an economy is able to save – and therefore invest – out of a given GDP, the bigger will be the growth of GDP.
- **The growth rate of national income is indirectly (negatively) related to the economy's capital-output ratio**, i.e., the higher is ICOR, the lower will be the rate of GDP growth.
- Economic growth can be accelerated by
  - changing the saving rate
  - improving technology.

- **Neoclassical models**: Growth is determined by accumulation of capital, labour and technological progress (advances in knowledge).

- The major shortcoming of the neoclassical models is that technological progress is assumed to be exogenous.

- The exogenous models are unable to explain the sustained growth in per capita income in the world economy over last two hundred years.

- They cannot also answer the question: why, at any point in time, some countries are significantly richer than others, why, some countries grow faster than others?

- The inability of the neoclassical models to explain important features of cross-country income and growth data has caused the development of the new (endogenous) growth theory.

- In these models, growth is endogenous in the sense that the rate of (physical and human) capital accumulation or the rate of technological change and, hence, the growth rate of output per worker are endogenously determined based on optimising behaviour of firms and consumers.

- **The endogenous growth models**: the P. Romer R&D-based growth model (long-run growth is driven primarily by the accumulation of knowledge by forward-looking, profit-maximizing agents), the Uzawa-Lucas human capital model.

- Three drivers of long-term growth: machinery and equipment, human capital, research and development.

Determinants of economic growth – empirical analysis

- Investment in physical capital,
- Investment in human capital (health, education),
- The level of financial sector development,
- Foreign trade,
- The share of the state in economy,
- Economic freedom,
- Political stability,
- Income inequality.

Growth Strategies

Growth Strategies – Washington Consensus

Source: Rodik D., Rethinking Growth Strategies, WIDER Annual Lecture 8, 2005, p. 12.

Original Washington Consensus	Augmented Washington Consensus the previous 10 items, plus:
1. Fiscal discipline 2. Reorientation of public expenditures 3. Tax reform 4. Financial liberalization 5. Unified and competitive exchange rate 6. Trade liberalization 7. Openness to FDI 8. Privatization 9. Deregulation 10. Secure Property Rights	11. Corporate governance 12. Anti-corruption 13. Flexible labour markets 14. Adherence to WTO disciplines 15. Adherence to international financial codes and standards 16. "Prudent" capital-account opening 17. Non-intermediate exchange rate regimes 18. Independent central banks/inflation targeting 19. Social safety nets 20. Targeted poverty reduction

1989 - fall of communism in Poland

- In the winter of 1988 Poland experienced massive strikes.
- The government initiated the discussion with the banned trade union Solidarity and other opposition groups in an attempt to defuse growing social unrest.
- **Round Table Talks** (February 6 - April 5 of 1989) - beginning of Polish political and economic transformation.
- Polish officials agreed to have free, democratic elections to the lower house of Polish parliament and senate.

The main problems of the Polish economy before 1990

- Foreign debt (the Paris Club - group of financial officials from the world's biggest economies, the London Club - group of private creditors).
- In the second half of 1989 the level of foreign currency reserves was close to zero resulting in inability to purchase even the most crucial products from abroad.
- Chronic shortages, queues and inability to satisfy basic consumer needs.
- Hyper-inflation.
- Budget deficit.

Foreign debt, 1971-1989 (USD, billion)

Source: G.W. Kołodko, *Od szoku do terapii. Ekonomia i polityka transformacji.* Poltext.
Warszawa 1999, p. 34.

Year	Debt	**Year**	Debt
1971	**1.3**	1981	25.5
1972	1.7	1982	25.2
1973	3.1	1983	26.4
1974	5.3	1984	26.8
1975	8.4	1985	29.3
1976	12.1	1986	33.5
1977	15.4	1987	39.2
1978	18.5	1988	39.2
1979	21.9	1989	**40.8**
1980	25.0		

Inflation
Source: www.stat.gov.pl

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1989	11.0	7.9	8.1	9.8	7.2	6.1	9.5	39.5	34.4	54.8	22.4	17.7
1990	79.6	23.8	4.3	7.5	4.6	3.4	3.6	1.8	4.6	5.7	4.9	5.9

- Poland mainly relied on heavy industry which was characterized by the lack of any motivational or competitive mechanisms, monopolization, inefficiency and outdated technology. Industry relied on massive subsidies.
- The agriculture was mainly based on small farms which could only survive if subsidized. Farmers did not know how to function in a free market economy.
- Service sector was minimal, light industry and distribution underdeveloped.

- **Macroeconomic stabilization** – limiting budget deficits, reducing inflation and establishing fully convertible currency with real exchange rate.

- **Economic liberalization** – market competition and the institutions of private property.
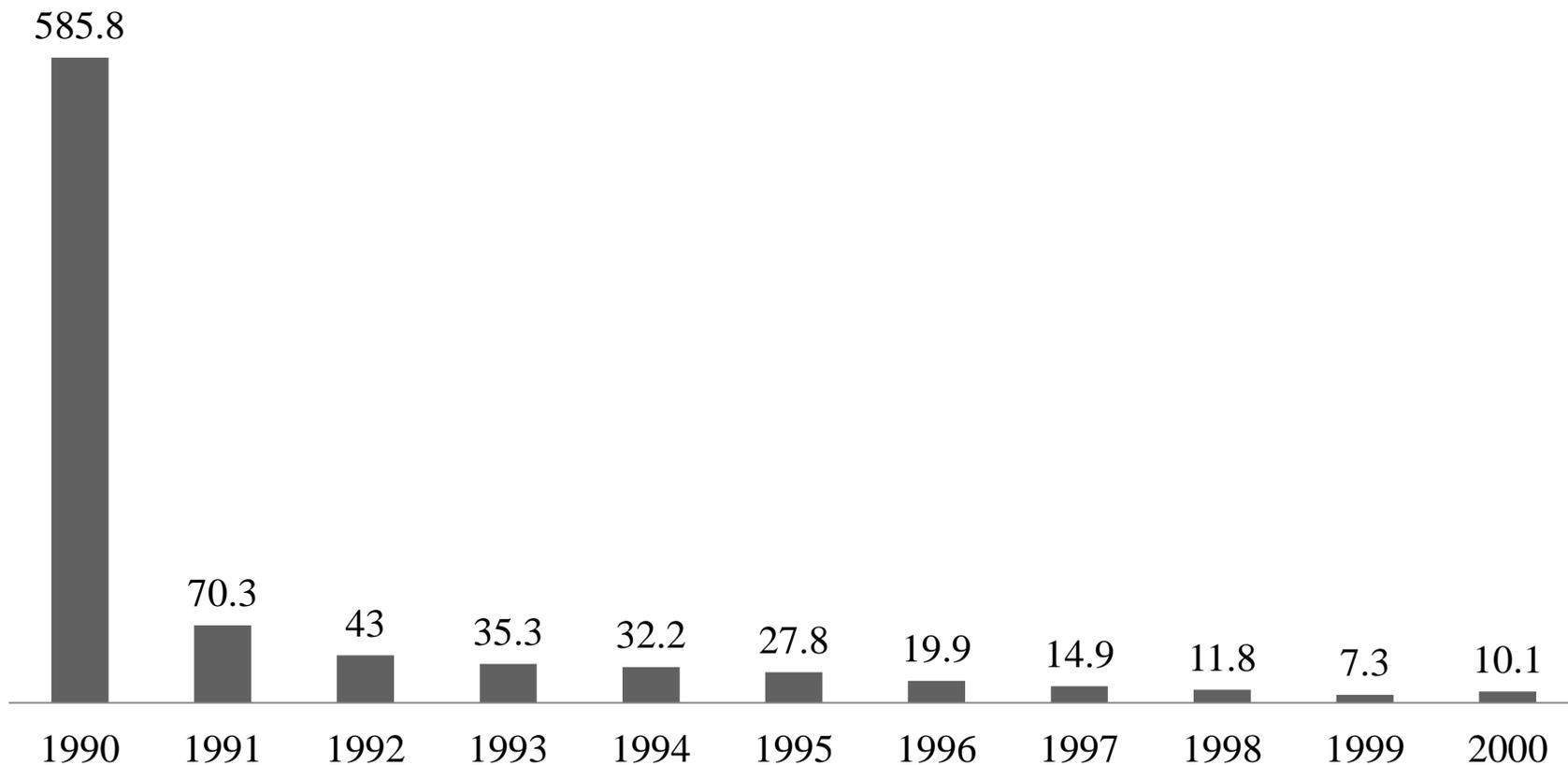
Poland 1990 – The Balcerowicz Plan

Act on Financial Economy Within State-owned Companies	The Act abolished the principle under which, unprofitable state-owned companies were financed from budget and allowed state-owned companies to declare bankruptcy.
Act on Banking Law	The Act prohibited the central bank to finance the budget deficit and issue unlimited amount of money.
Act on Credits	The Act abolished preferential loans for state-owned companies and tied interest rates to inflation rates.
Act on Taxation of Excessive Wage Rise	The Act introduced tax on extensive wage growth (so called popiwek).
Act on New Rules of Taxation	The Act uniformed tax rule for all sectors of the economy

Poland 1990 – The Balcerowicz Plan

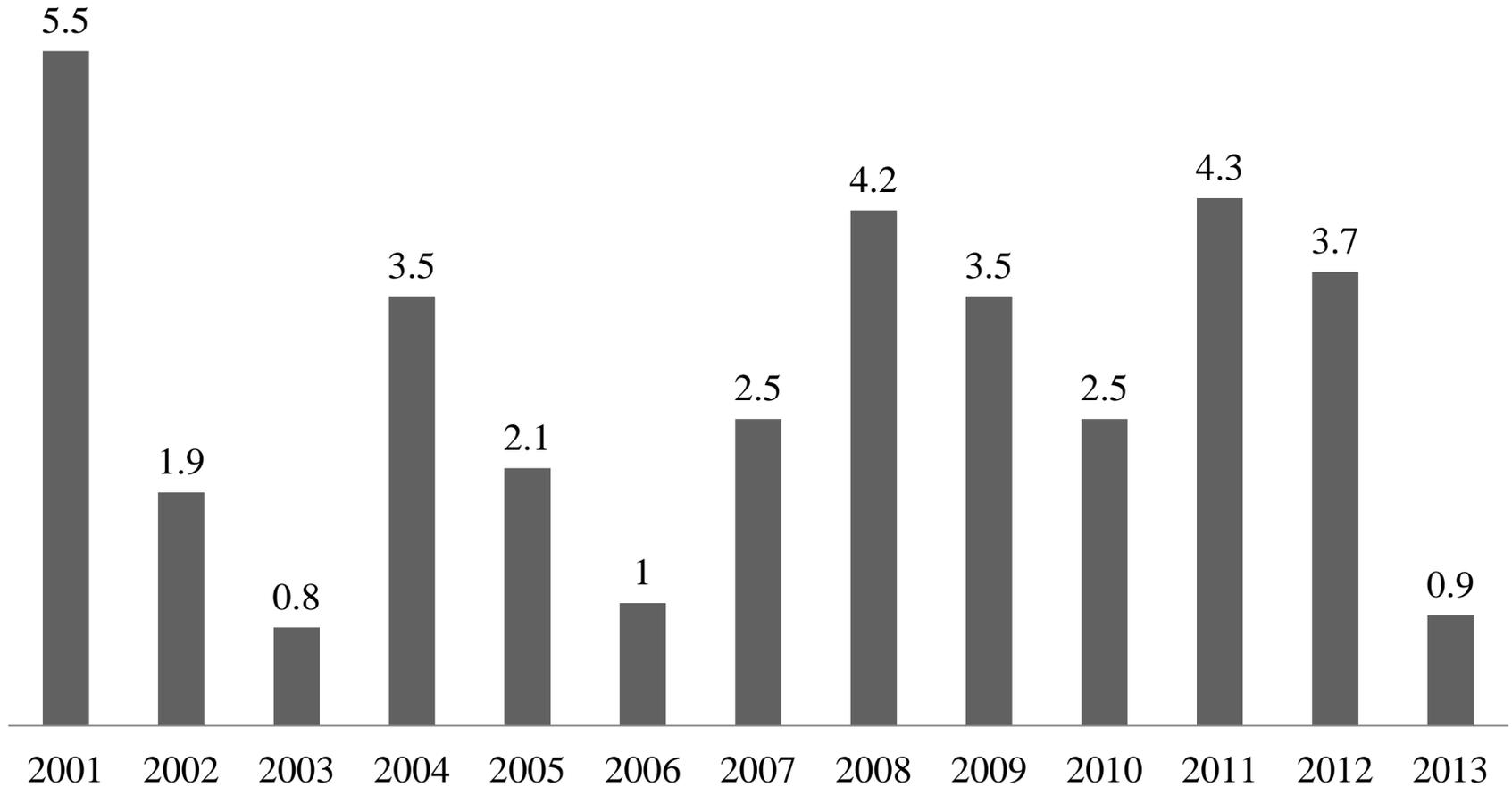|	
Act on Economic Activity of Foreign Investors	The Act allowed companies with foreign capital to repatriate their profits and exempted them from paying the tax levied on extensive wage growth. The Act obligated those enterprises to sell foreign currencies to the state. The exchange rate was set by the central bank.
Act on Foreign Currencies	The Act introduced internal convertibility of the Złoty, abolished the state monopoly in international trade and obligated companies to sell foreign currencies to the state.
Act on Customs Law	The Act introduced the same customs law for every business entity.
Act on Employment	The Act regulated the responsibilities of unemployment agencies.
Act on Special Circumstances Under Which a Worker Could be Laid Off	Act guaranteed severance pay and temporary unemployment benefits for those who lost their jobs.

The effects of the Balcerowicz Plan - inflation, Poland, 1990-2000
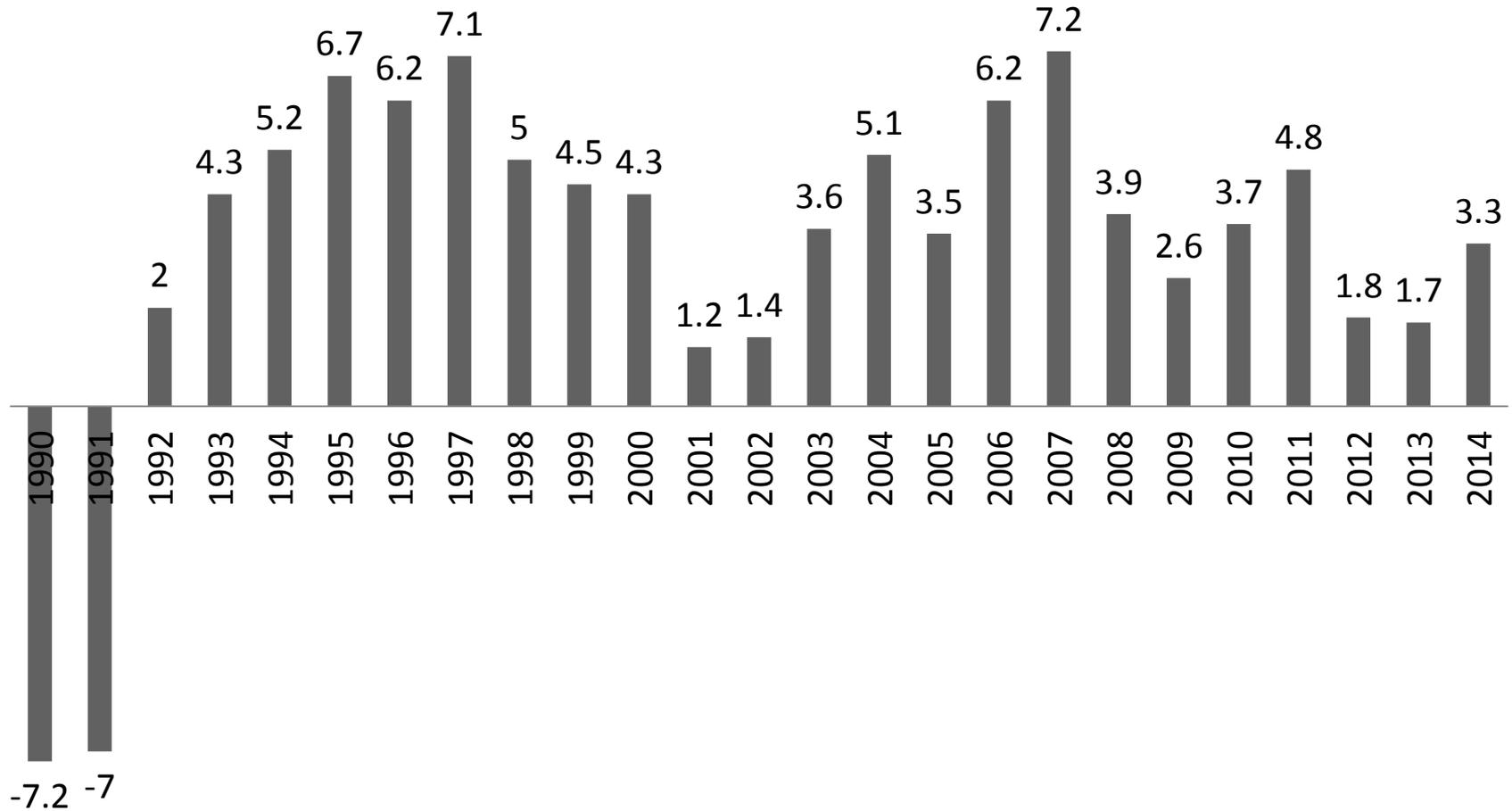
Source: www.stat.gov.pl

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
585.8	70.3	43	35.3	32.2	27.8	19.9	14.9	11.8	7.3	10.1

Inflation, Poland, 2001-2013
Source: www.stat.gov.pl

| Year	Value
2001	5.5
2002	1.9
2003	0.8
2004	3.5
2005	2.1
2006	1
2007	2.5
2008	4.2
2009	3.5
2010	2.5
2011	4.3
2012	3.7
2013	0.9

Real GDP growth (Annual percent change), Poland, 1990-2014

Source: www.imf.org

The effects of the Balcerowicz Plan

- Despite these successes, the Balcerowicz Plan was heavily criticized for causing a radical decline in living standards for large groups of people, mainly workers of unprofitable state-owned enterprises and state-run farms (PGRs) which were dissolved after 1989.

- The result were many poverty-stricken regions and structural unemployment that persists in some areas to this day.

Unemployment rate (annual, percent), Poland, 1990-2012
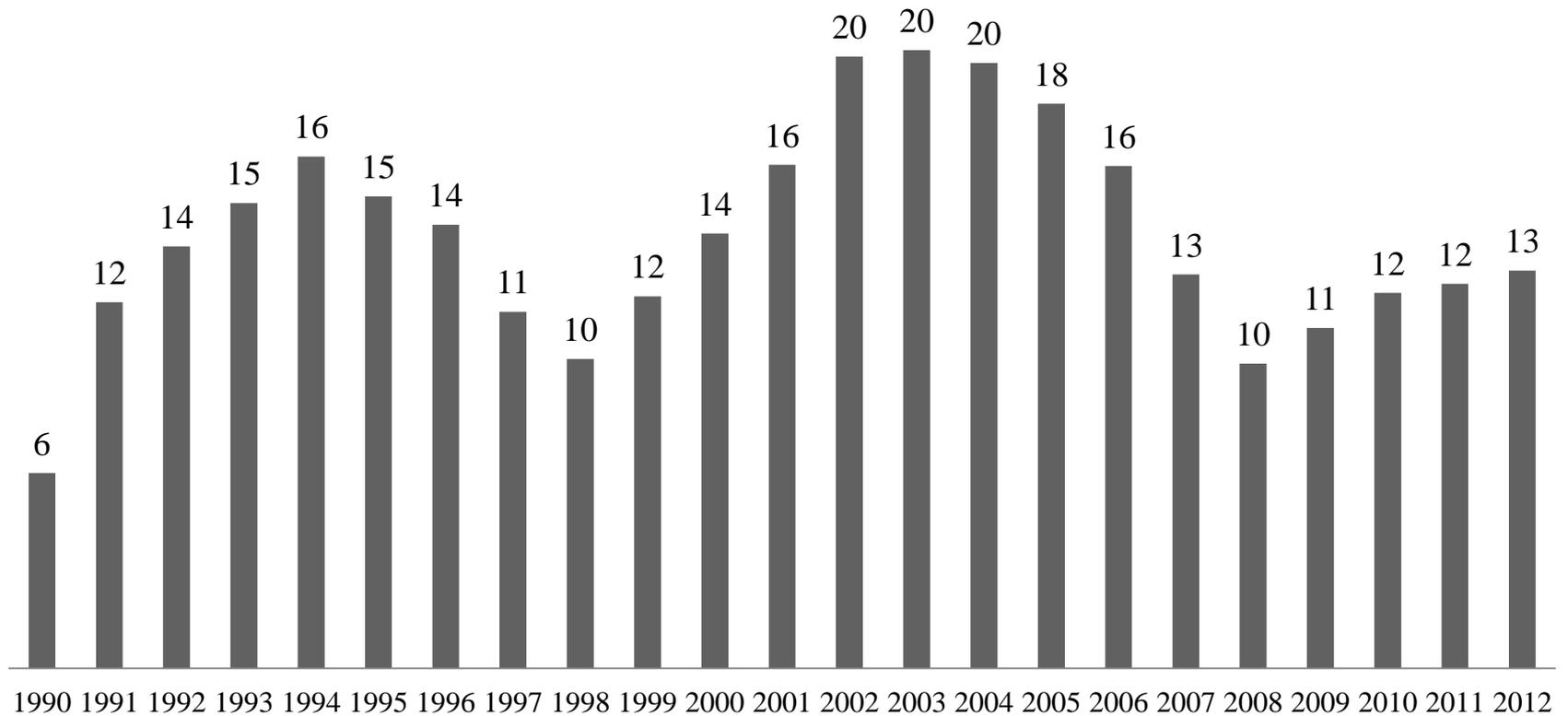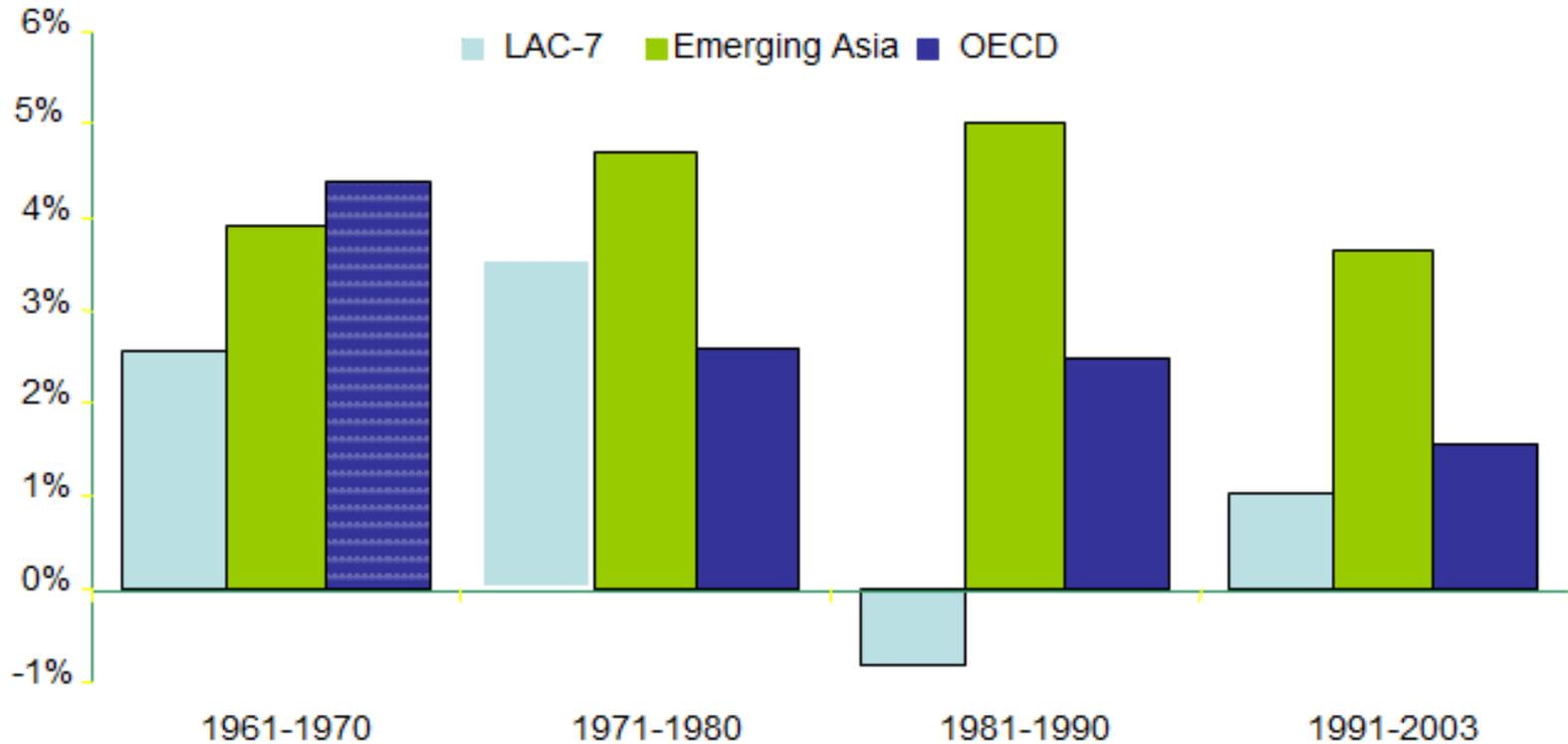
Emerging Asia includes Indonesia, Korea, Malaysia, Philippines and Thailand
LAC – Latin American Countries

Country	Growth rate in the 1990s	Trade policies in the 1990s
China	7.1	Average tariff rate 31.2%, NTBs, not a WTO member (11 December 2001)
Vietnam	5.6	Tariffs range between 30-50%, NTBs and state trading, not a WTO member (11 January 2007)
India	3.3	Tariffs average 50.5%

East Asian Anomalies

Source: Rodik D., Rethinking Growth Strategies, WIDER Annual Lecture 8, 2005, p. 6

Institutional domain	Standard ideal	„East Asian" pattern
Property rights	Private, enforced by the rule of law	Private, but government authority occasionally overrides the law (esp. in Korea)
Corporate governance	Shareholder ("outsider") control, protection of shareholder rights	Insider control
Business-government relations	Arms' length, rule based	Close interactions
Industrial organization	Decentralized, competitive markets, with anti-trust enforcement	Horizontal and vertical integration in production (chaebol); government-mandated "cartels"

East Asian Anomalies

Source: Rodik D., Rethinking Growth Strategies, WIDER Annual Lecture 8, 2005, p.6

Institutional domain	Standard ideal	East Asian" pattern
Financial system	Deregulated, securities based, with free entry. Prudential supervision through regulatory oversight	Bank based, restricted entry, heavily controlled by government, directed lending, weak formal regulation
Labor markets	Decentralized, deinstitutionalized, "flexible" labor markets	Lifetime employment in core enterprises (Japan)
International capital flows	"Prudently" free	Restricted (until the 1990s)
Public ownership	None in productive sectors	Plenty in upstream industries