Part II

Growth and Development

3 Growth and Development Facts

History of Economic Growth Theory: a Roadmap

1. Smith, Ricardo, Malthus, Marx, Stuart Mill little hope for sustained growth.

2. Forgotten for a long while. Ill attempted in UK (Harrod and Domar).

3. Robert Solow (MIT, Nobel 1987): two main papers: 1956 and 1957.

4. Completed by David Cass (Penn) and Tjalling Koopmans (Nobel 1971).

5. 80's and 90's: Paul Romer (Stanford), Robert Lucas (Chicago, Nobel 1995).

6. 2000 Parente and Prescott (ASU and here sometimes, Nobel 2004) and others, what makes some countries poo rer than others. The development problem.

Growth Facts (Nicholas Kaldor)

Stylized growth facts (empirical regularities of the growth process) for the US and for most other industrialized countries

1. Output (real GDP) per worker $y = \frac{Y}{L}$ and capital per worker $k = \frac{K}{L}$ grow over time at relatively constant and positive rate.

2. They grow at similar rates, so that the ratio between capital and output, $\frac{K}{Y}$ is relatively constant over time.

3. The real return to capital r (and the real interest rate $r - \delta$) is relatively constant over time.

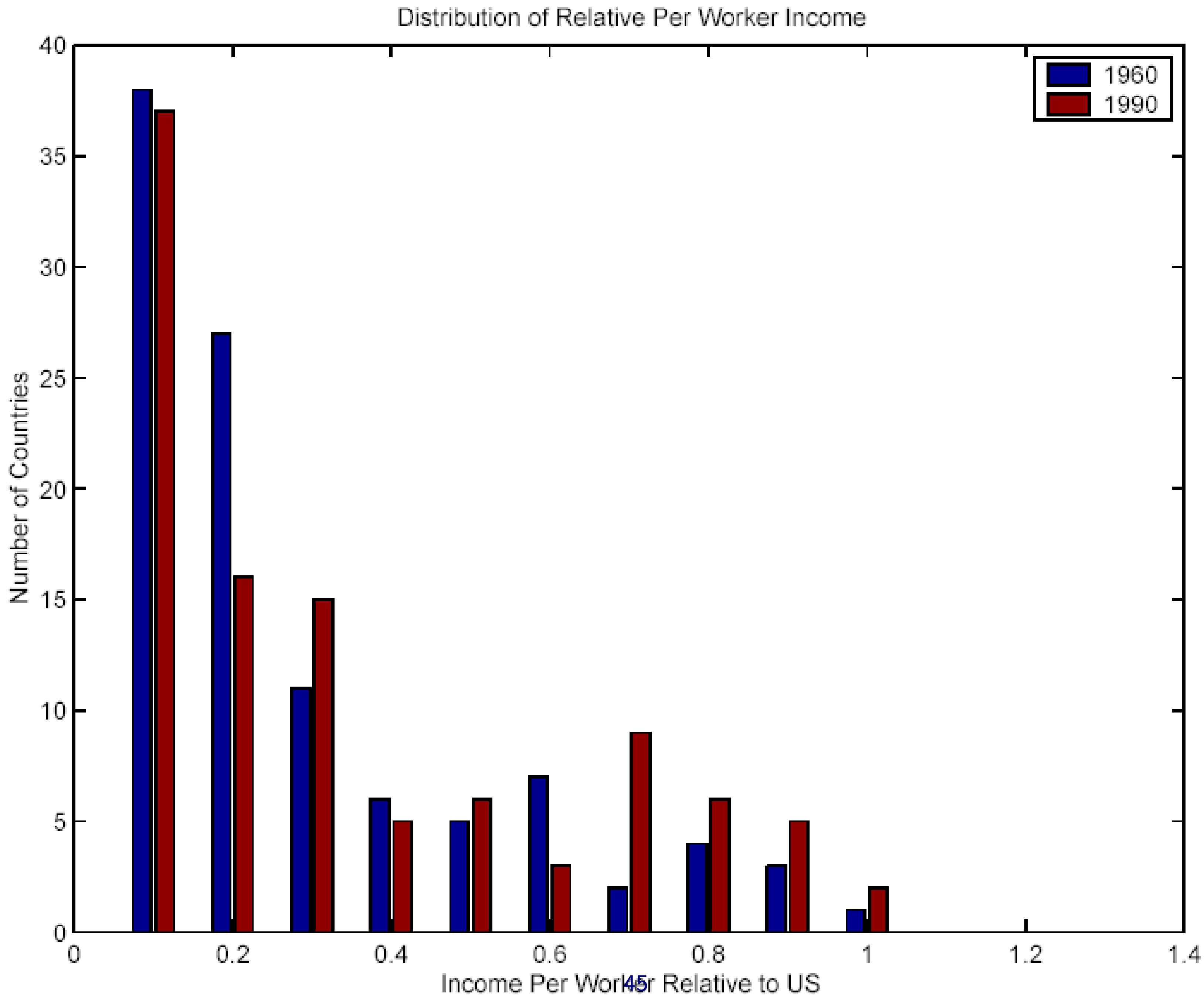
4. The capital and labor shares are roughly constant over time.

Data

- How do incomes and growth rates vary across countries.
- Summers-Heston data set at Penn: follow 104 countries over 30 years.
- Focus on income (GDP) per worker.
- Measure income (GDP) using PPP-based exchange rates.

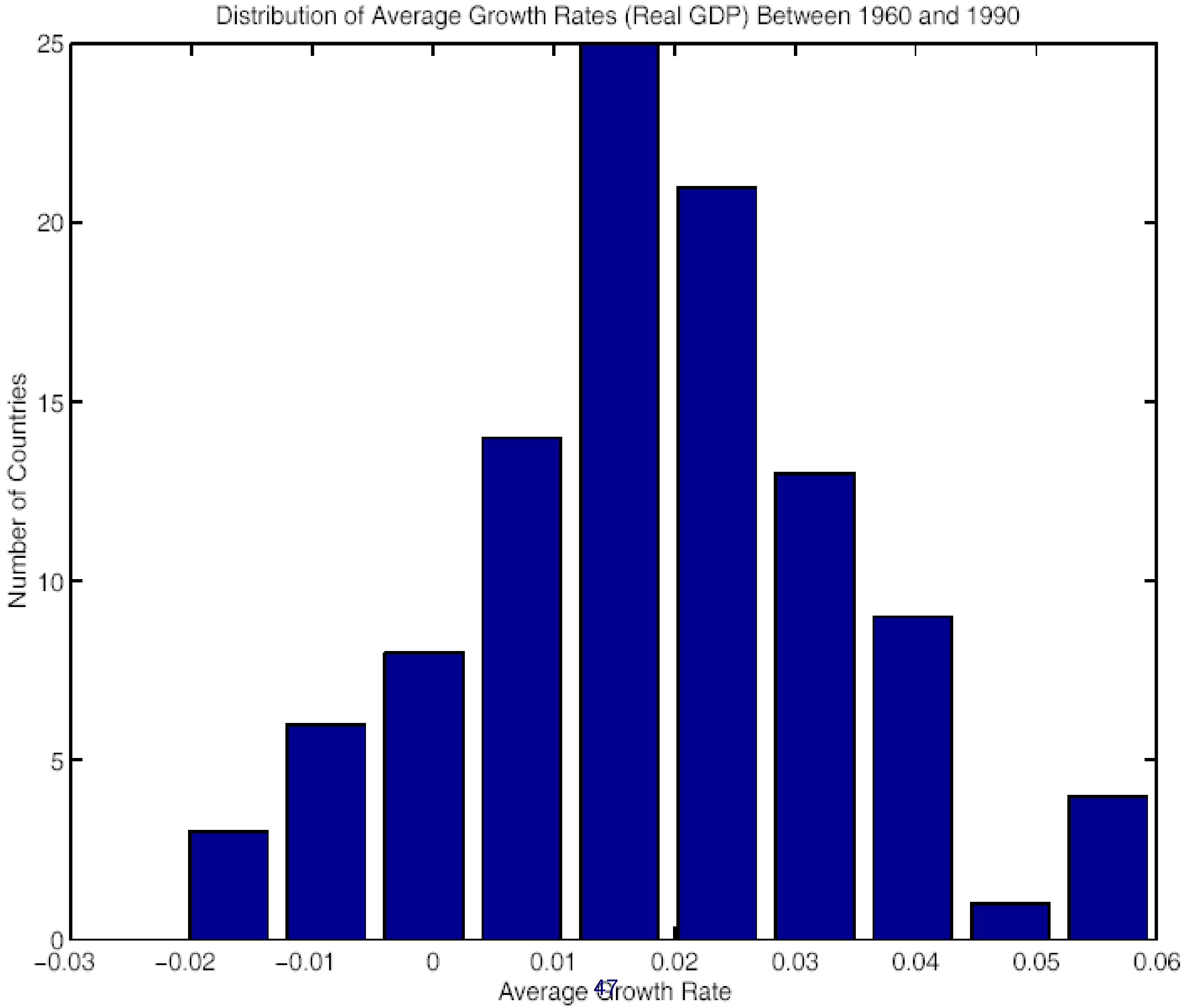
Development Facts

1. Enormous variation of per worker income across countries.

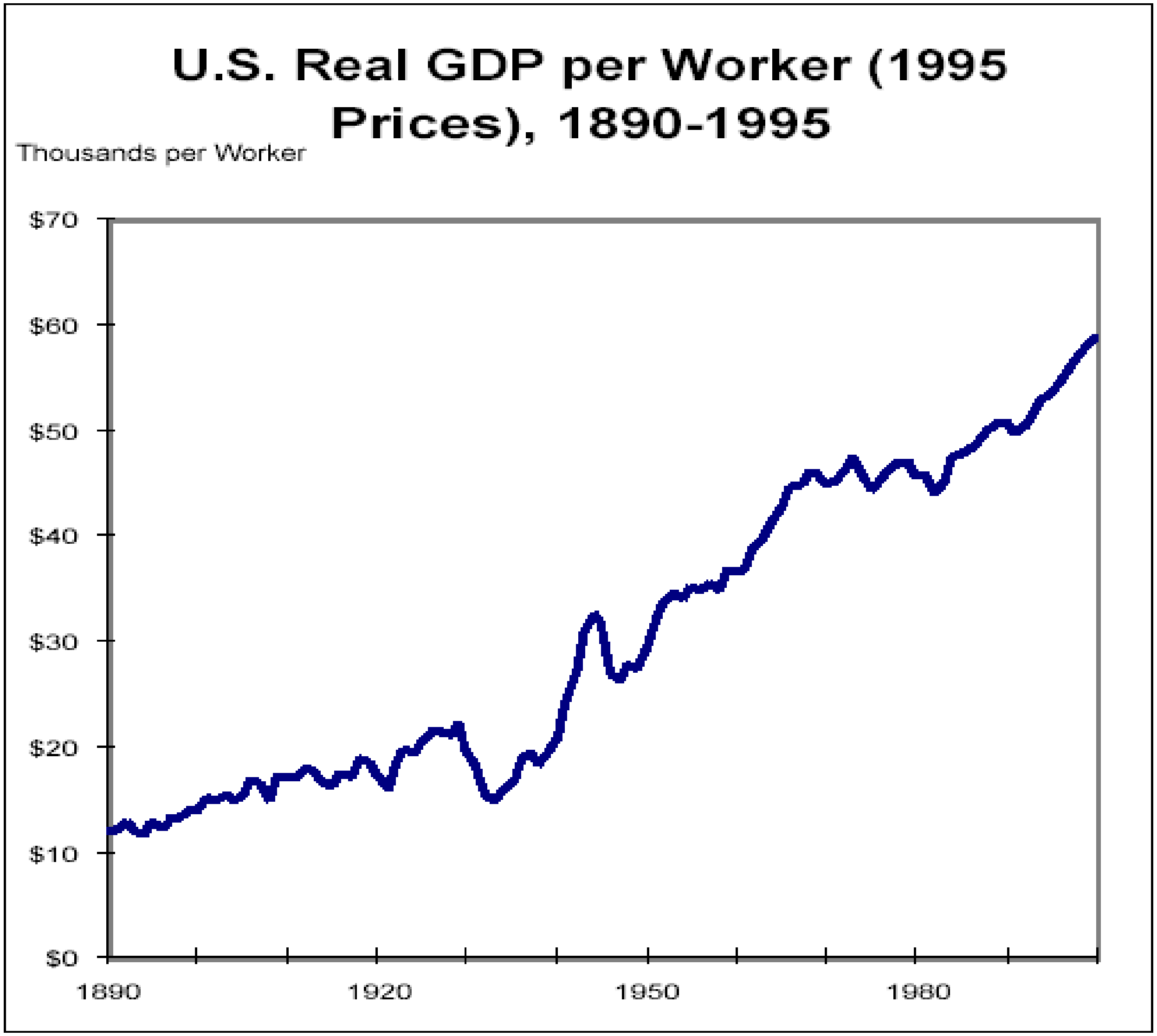

Distribution of Relative Per Worker Income
1960
1990
Number of Countries
Income Per Worker Relative to US
0
5
10
15
20
25
30
35
40
0
0.2
0.4
0.6
0.8
1
1.2
1.4

2. Enormous variation in growth rates of per worker income across countries.

Growth "Miracles"	g_{60-97}
South Korea	5.9%
Taiwan	5.2%
Growth "Disasters"	
Venezuela	-0.1%
Madagascar	-1.4%


Distribution of Average Growth Rates (Real GDP) Between 1960 and 1990
Number of Countries
0
5
10
15
20
25
−0.03
−0.02
−0.01
0
0.01
0.02
0.03
0.04
0.05
0.06
Average Growth Rate

3 Growth rates are not constant over time for a given country.



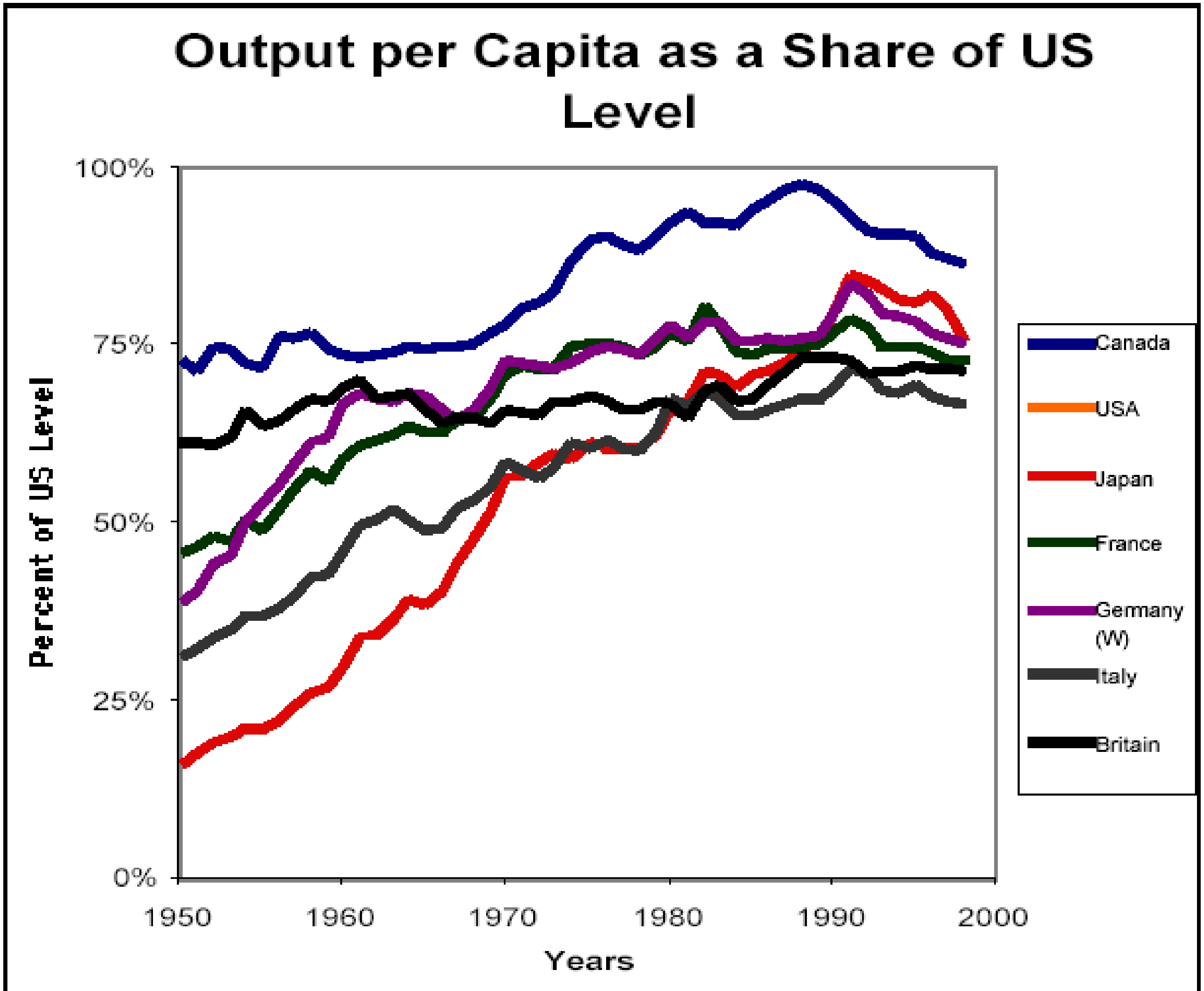
U.S. Real GDP per Worker (1995 Prices), 1890-1995
Thousands per Worker
$70
$60
$50
$40
$30
$20
$10
$0
1890
1920
1950
1980

4. Countries change their relative position in the international income distribution.

5. Growth in output and growth in international trade are closely related.

6. Demographic transition. All this has happened while population has grown a lot.

7. International migration. Both skilled and unskilled workers move from poor to rich countries.


Output per Capita as a Share of US Level
100%
75%
50%
25%
0%
Percent of US Level
1950
1960
1970
1980
1990
2000
Years
Canada
USA
Japan
France
Germany (W)
Italy
Britain