Performance of World Economies

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Kaldor's stylised facts

- Per capita output grows over time and its growth rate does not tend to diminish;
- Physical capital per worker grows over time;
- The rate of return to capital is nearly constant;
- The ratio of physical capital to output is nearly constant;
- The shares of labour and physical capital in national income are nearly constant;
- The growth rate of output per worker differs substantially across countries.

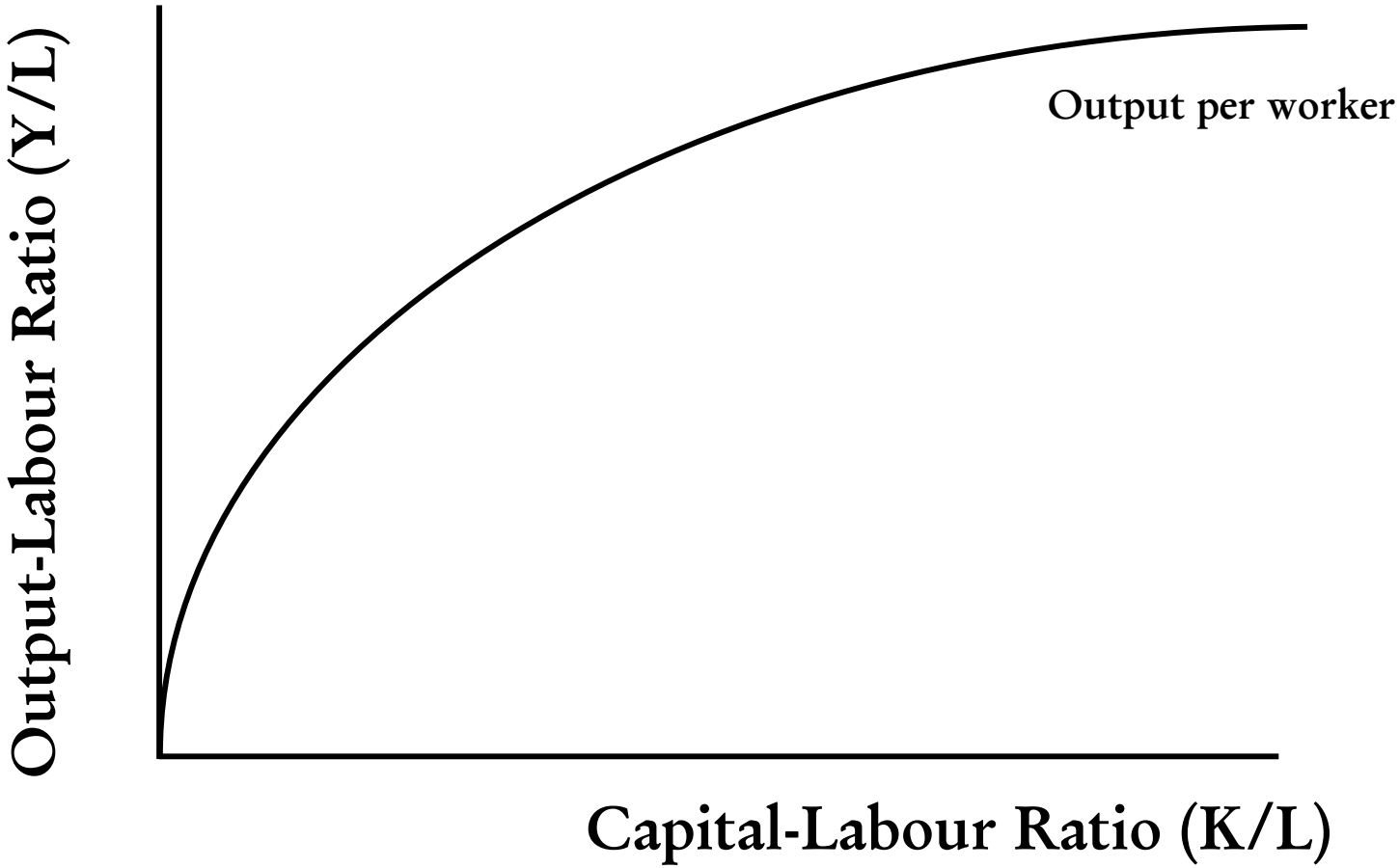
international labour productivity

	1820	1870	1890	1913	1929	1938	1950	1960	1973	1987	1998
	UK=100			USA=100							
USA	83	96	99	100	100	100	100	100	100	100	100
Japan	31	18	20	18	22	23	15	20	45	60	68
Germany	62	48	53	50	42	46	34	52	73	91	106
France	80	54	53	48	48	54	42	51	74	99	102
Italy	58	39	35	37	35	40	38	46	78	96	100
UK	100	100	100	78	67	64	58	57	68	81	82
Canada	..	62	63	75	66	58	68	72	75	83	80

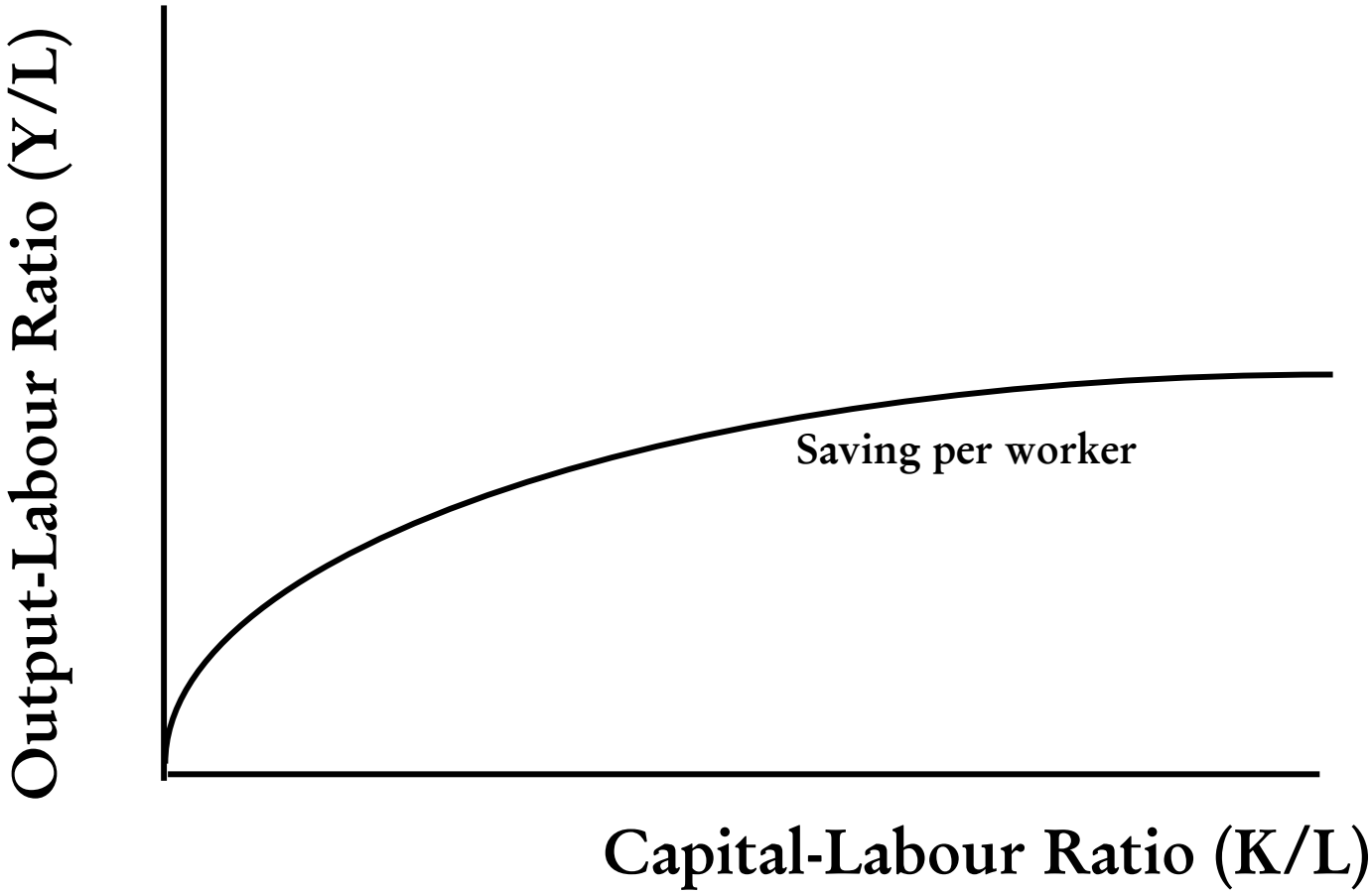
Source: Madison (1991) and OECD

Note: Labour Productivity is defined as GDP per man-hour

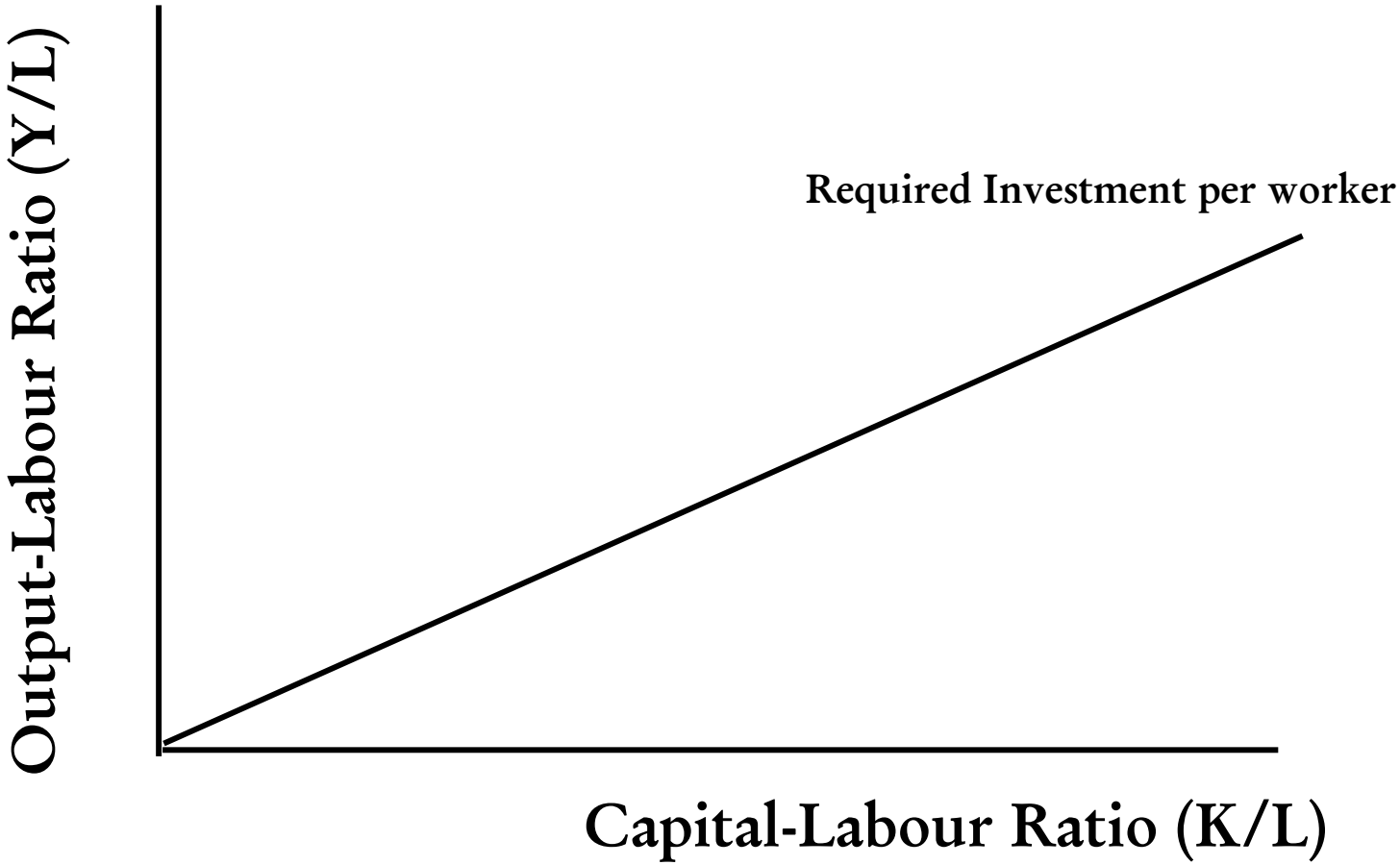
diminishing returns



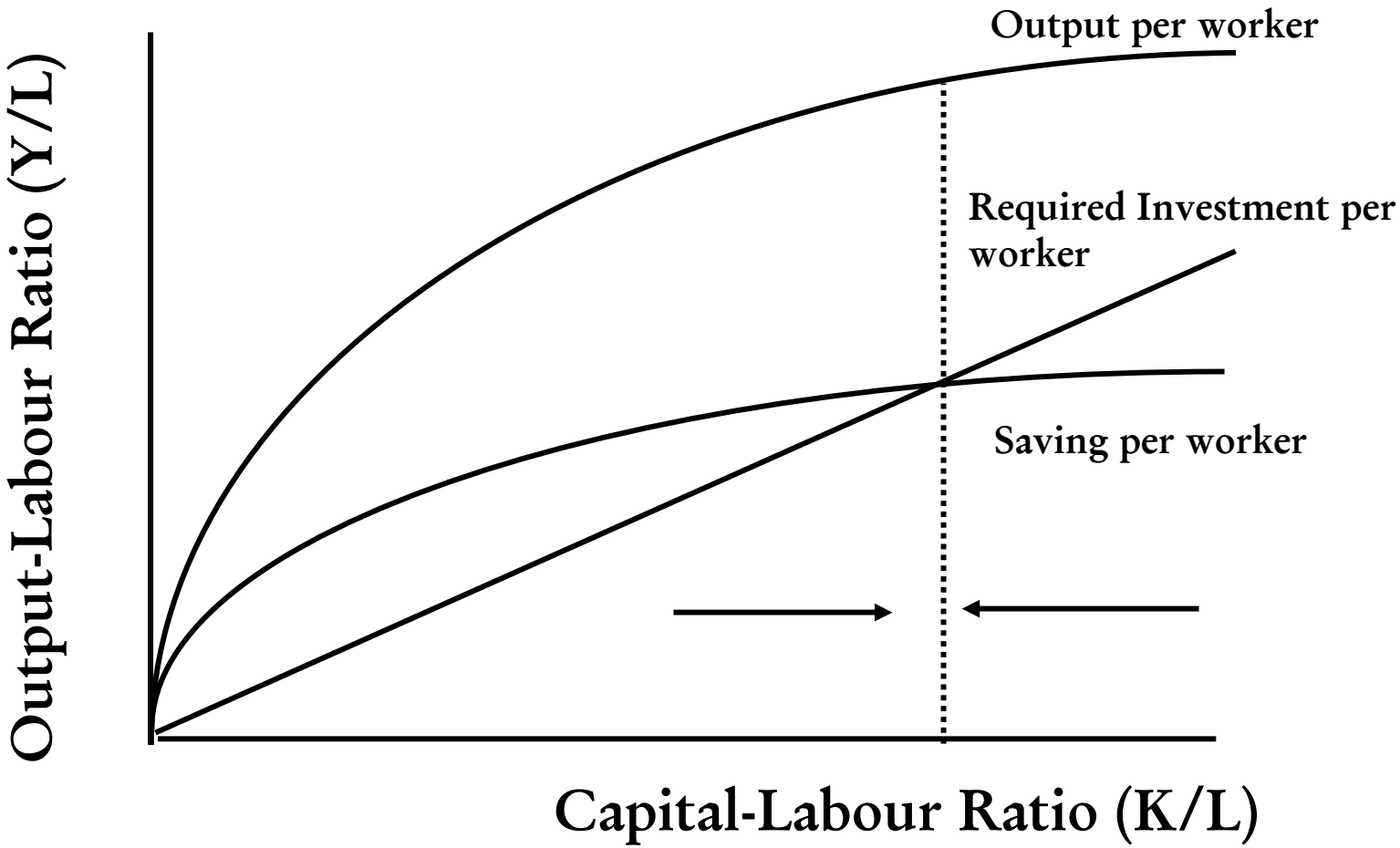
...saving a constant fraction of income...



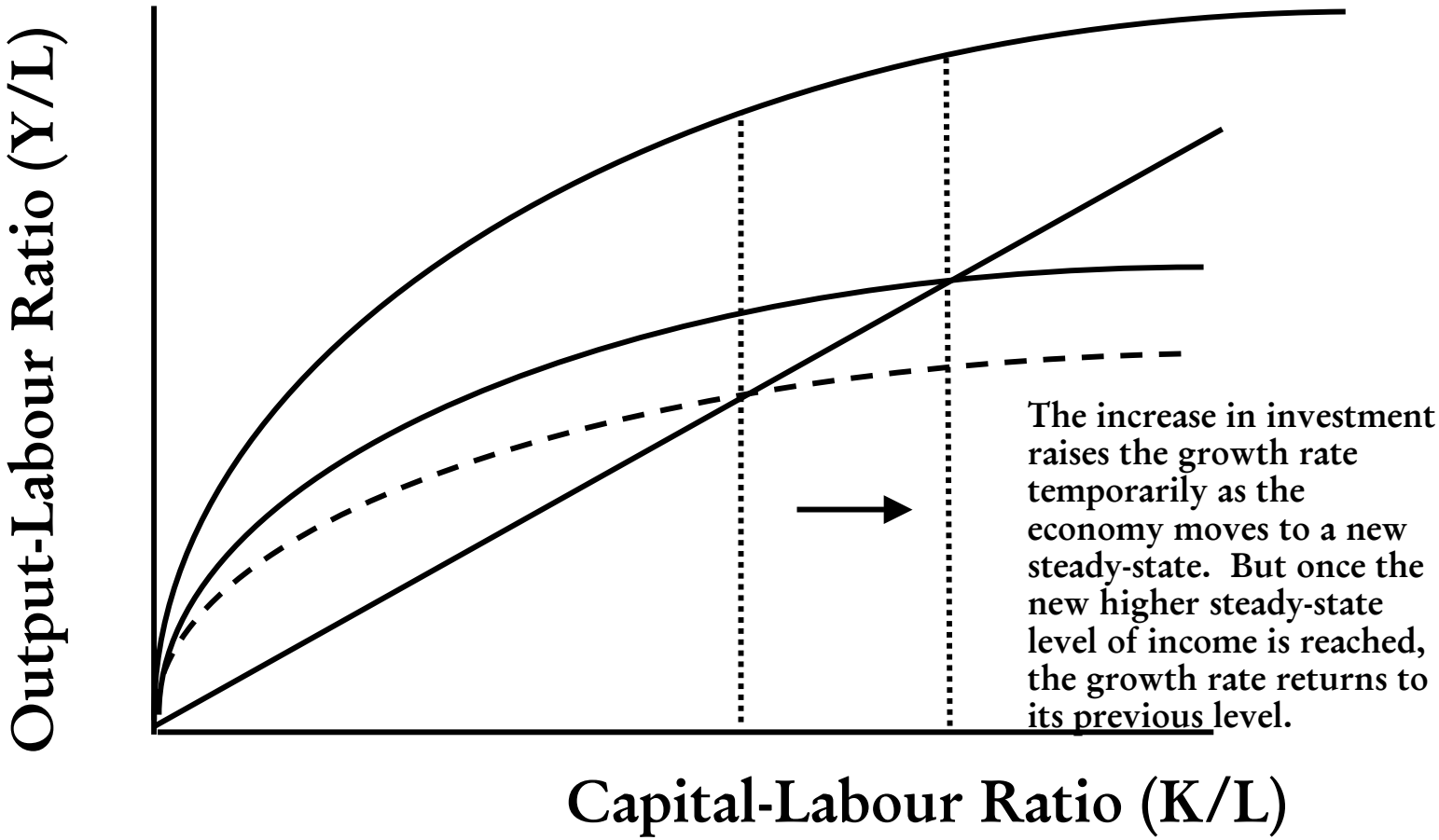
...and a constant depreciation rate



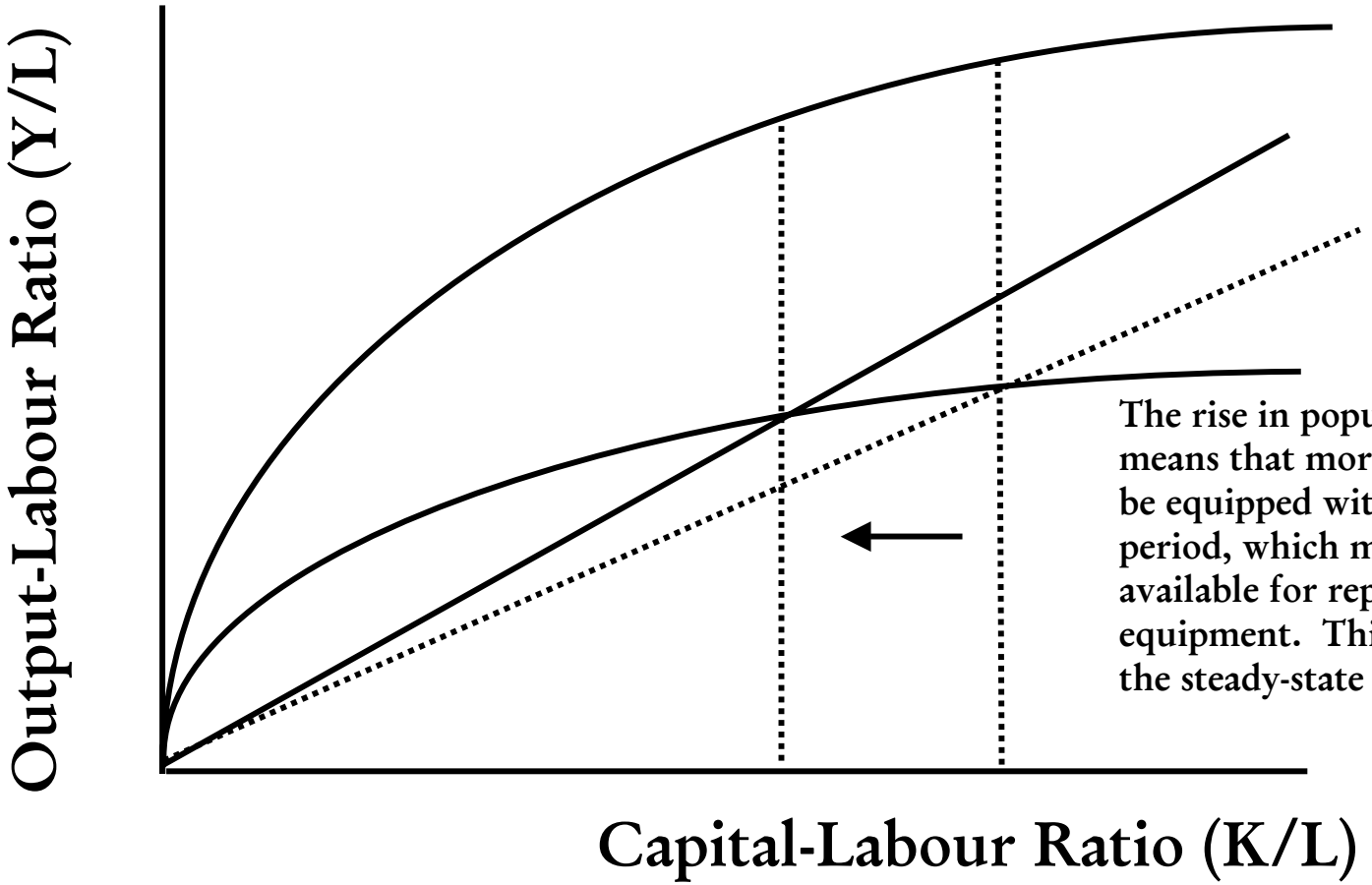
...the Solow model



a rise in the saving rate

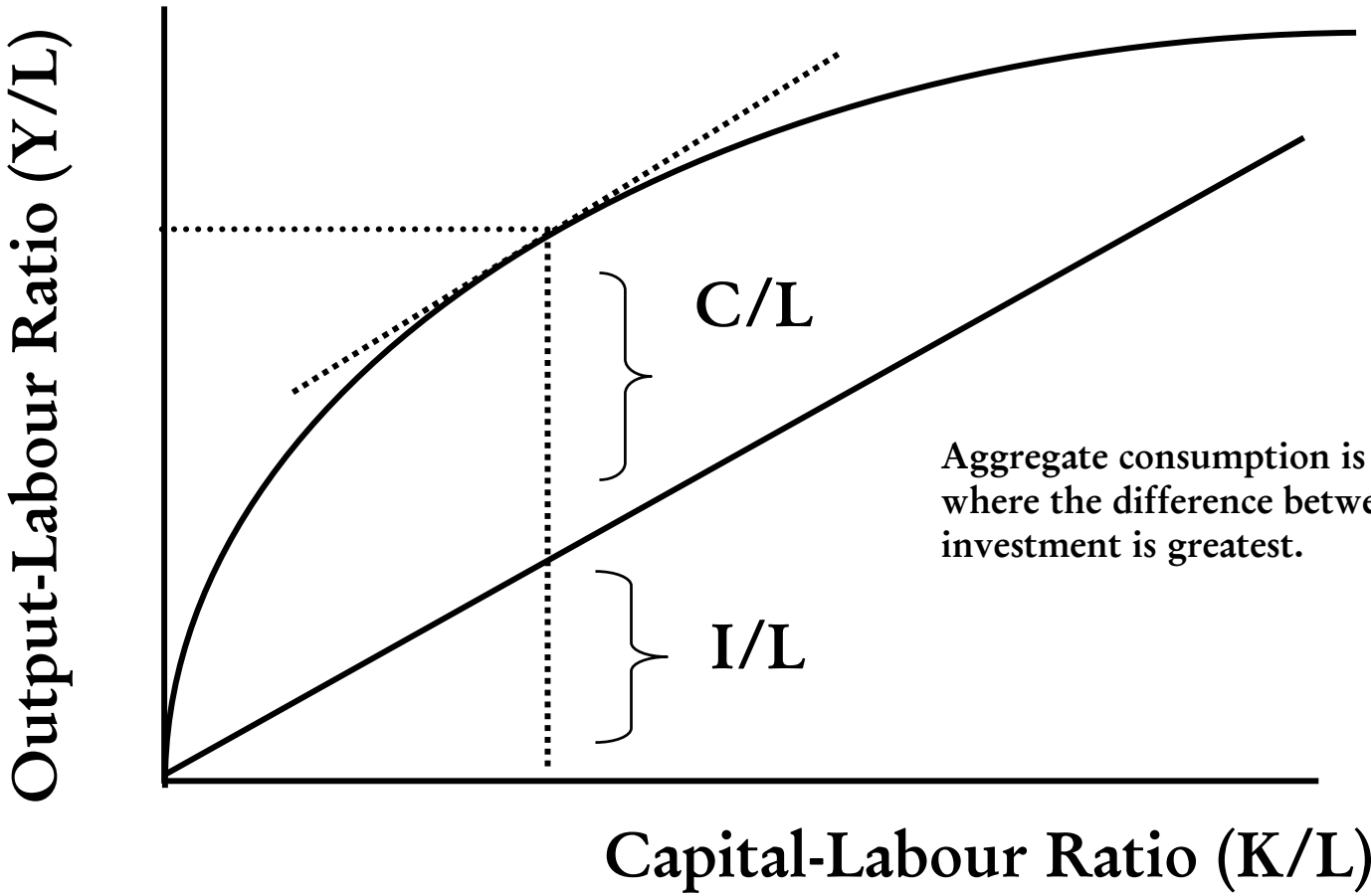


faster population growth



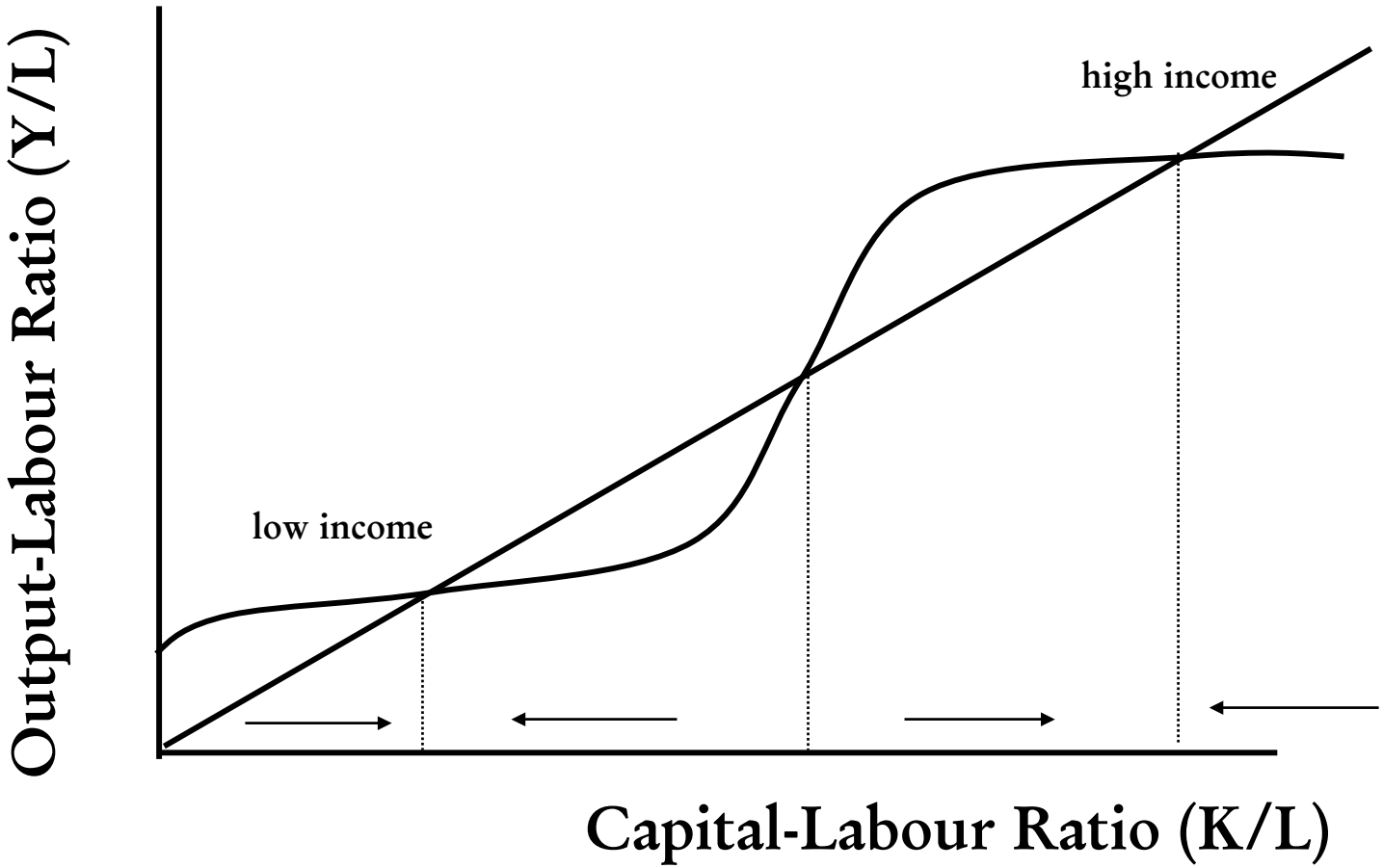
The rise in population growth means that more workers need to be equipped with capital each time period, which means that less is available for replacing depreciated equipment. This leads to a fall in the steady-state level of capital.

the golden rule



Aggregate consumption is maximized where the difference between output and investment is greatest.

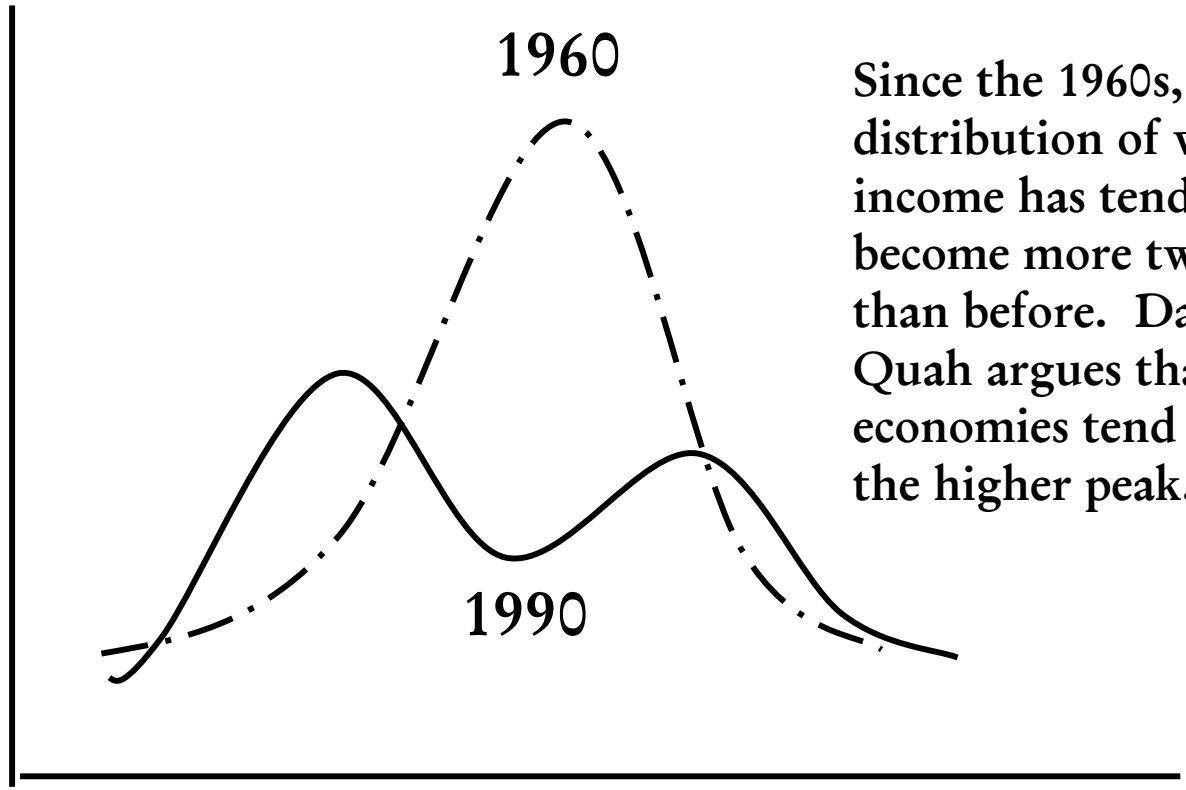
the poverty trap



Galton's fallacy

- If we find that poor countries tend to grow faster than rich ones does that mean that all countries will eventually have the same incomes?
- In 1903, Francis Galton found that sons of tall men tended to be taller than average but not quite so tall as their fathers. Does this mean that everyone will end up the same height?
- The idea that it does is called Galton's fallacy.
- In fact, high performance (i.e. high initial income) often represents luck as well as skill. After the luck disappears, only the skill remains. While this skill will keep income higher than average, income will not reach its previous heady heights.
- Another way to think about this, is that although convergence pressures will tend to compress the income distribution, randomness will tend to expand it. The distribution is therefore in equilibrium when these two forces exactly offset one another.

twin peaks



Since the 1960s, the distribution of world log income has tended to become more twin-peaked than before. Danny Quah argues that open economies tend to be in the higher peak.

the sources of economic growth

- Growth of output = weighted growth of inputs + growth of total factor productivity
- Growth of labour productivity = weighted growth of capital per worker + growth of total factor productivity
- Growth of inputs
  - Capital and labour
  - Materials and energy
- Growth of total factor productivity
  - Higher quality products
  - New products
  - Better ways to use existing inputs

productivity growth in the business sector

	TFP Growth			Labour Productivity Growth		
	1960-73	1973-79	1979-97	1960-73	1973-79	1979-97
OECD	2.9	0.6	0.9	4.6	1.7	1.7
EU	3.4	1.2	1.1	5.4	2.5	1.8
USA	1.9	0.1	0.7	2.6	0.3	2.2
Japan	4.9	0.7	0.9	8.4	2.8	2.3
Germany	2.6	1.8	1.2	4.5	3.1	2.2
France	3.7	1.6	1.3	5.3	2.9	2.2
Italy	4.4	2.0	1.1	6.4	2.8	2.0
UK	2.6	0.5	1.1	4.1	1.6	2.0

Source: ***Economics of the OECD 2000 exam paper data table 2.***

Note: Growth of total factor productivity = Growth of output minus weighted growth of inputs

total factor productivity

- A typical worker in US or Switzerland is 20 to 30 times more productive than a worker in Haiti or Nigeria.
- Between-country differences much greater than within-country differences.
- Some of this can be explained by natural resources, oil.
- Some can be explained by physical capital, but investment rates surprisingly similar across countries.
- Nor can human capital explain differences, unless investments in intangibles much bigger than we think.
- Therefore, differences in technology must matter.
- What are the barriers to efficient adoption and use of technologies across the world?

high productivity countries

- Institutions that favour production over diversion;
- Low rate of government consumption (i.e. not investment or transfers);
- Open to international trade;
- Well-educated workforce;
- Private ownership and good quality institutions;
- International language;
- Temperate latitude far from equator.

ideas and growth

- Research (both formal and informal) leads to the development of new goods and better goods.
- 'As for the Arts of Delight and Ornament, they are best promoted by the greatest number of emulators. And it is more likely that one ingenious curious man may rather be found among 4 million than among 400 persons....' William Petty (1682).
- Does this mean that the larger the world population, the faster the rate of growth (a growth effect of scale)?
- Or that the larger the world population, the greater the world income (a levels effect of scale)?

summary

- Unemployment and business cycles are important in explaining short and medium run growh, but play almost no rôle in the long-run: in the long-run, national output is determined by supply.
- In the long-run, the main source of rising living standards is rising output per worker.
- Rising output per worker is due to the accumulation of capital (both human and physical) and technological progress.

syndicate topics

- What is the effect of increased investment on the growth of output and the level of output?
- Should we expect large countries to grow faster than small ones?
- Why are some countries rich and others poor?
- Why do firms do R&D and what is the effect on other firms?
- What is the effect of industrial structure on innovation?