Lisbon School of Economics & Management
Universidade de Lisboa

MINITEST E31 – Topics and Marking

Galor's model of economic growth holds that when population size and population composition (the 'wheels of change') reach a certain threshold, there is rapid technological improvements and, hence, a transition from stagnation to economic growth. This growth in turn accelerates the movement of the wheels of change. By analogy with a mathematical model that posits that small changes in a parameter lead to qualitative transformations, Galor calls this the Bifurcation Theory.

Is the emergence of the two innovations shown (Newcomen's 1712 steam engine and Arkwright's 1769 spinning machine) fully explained by increases in the two wheels of change?

Only partially. It could be argued that population size contributed to the wide availability of coal, as demographic pressure led England to find its 'underground forest.' It could also be argued that new technology could not be invented and perfected without some level of human capital.
However, the circumstances of these inventions show the limitations of the Bifurcation Theory.
Arkwright's spinning machine is explained by relative prices, especially by high wages (relative to interests). 'Population size' is contradictory to England's high wages and the country had no clear advantage in 'population composition' (French inventions were far more impressive).
Newcomen's steam engine was developed because of relative prices: high wages, low interest rates and low energy prices. 'Population size' can only indirectly account for the latter, as high wages are explained by agricultural effects specific to England and low interests by high wages (and better institutions). Also, earlier steam inventions were known throughout Europe and England's 'population composition' was not exceptionally better in the context of Europe.

Marking:

3.0 – 2.0 – answers that clearly explain circumstances and theory and link the two, without major flaw in reasoning

1.75-1.25 – answers that fail to explain either circumstances or the theory or fail to logically link the two

1.0 – 0.0 – fail to account for the circumstances or theory

Good Work,

ACM