THE DORIAN FISHER MEMORIAL PRIZE

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1 ECONOMIC GROWTH

What exactly is economic growth, and why do some parts of the world grow more rapidly than others?

Sometime before 1989, a Soviet apparatchik in charge of bread production in St Petersburg asked the British economist Paul Seabright, "Who's in charge of London's bread supply?" To the surprise of the Soviet, Seabright replied, "Nobody."

Indeed, there was no one to coordinate the bakers, machinists, electricity suppliers, or the distributors. What was performed by the central planning system of the Soviet Union, was performed by the market economy of the United Kingdom.

One of the founding fathers of economics, Alfred Marshall, famously advised, "Every short statement about economics is misleading." Indeed, defining an economy, or economics for that matter, proves to be an onerous task. However, as Seabright's conversation with the Soviet alluded to, we can define an economy in terms of its outcomes. It directs scarce resources towards the satisfaction of needs and wants – from the wheat fields of Bedfordshire, to the family dinner table in London.

From such a foundation, defining economic growth seems almost second-nature. If the economy controls the allocation of scarce resources for the production of goods and services; economic growth is but the *increase in the total market value of final goods and services produced within a country's border, in a given period of time.*

Over the years, economic growth has become the poster-child of a successful economy, because it most directly translates into higher per capita income and welfare. As the economy grows, businesses become more profitable, they pay employees higher wages and/or hire more employees, thereby reducing unemployment. Moreover, the government earns more from direct and indirect tax, which it can then invest into infrastructure, social welfare, and education. In theory, 4% economic growth means that you and I would be 4% better off. And that pays great political dividends for the ruling party.

It comes as no surprise to economists, that not all nations are equally prosperous. A British worker will earn more in a year than an Eritrean will in their entire career. Over the years, however, economists have attempted to apply facile explanations to what is, in essence, a deeply complex quandary.

Jeffrey Sachs has suggested that the root of growth disparity lies in geography. However, this would not explain the disparity between Nogales, Arizona and Nogales, Sonora. These two towns are but a few feet apart, and separated by nothing but a wall. Yet Nogales, Arizona is three times richer than Nogales, Sonora. The problem lies elsewhere.

What about culture? Max Weber suggested that some cultures were more productive than others. This, too, could not explain the difference between East and West Germany – two nations that shared a largely common culture.

British economist Lionel Robbins proposed that inequality existed because rulers didn't know how to make their country rich. Such an argument is equally inconclusive. Politicians, subject to the endless revolving door of lobbyists and special interest groups, usually undertake policies that enrich themselves, or keep themselves in power. It's not that they don't understand "good" economics – it's just that they simply aren't willing to pursue it because it isn't in their best interest. In the 1980s, the Chinese Premier Deng Xiaoping decisively defeated the hardliners of the Communist Party and subsequently launched progressive, free-market economic policies. He hadn't come across a sudden "revelation" on economic theory, rather, he was now able to secure his legacy without political impediment. Today, his legacy is that of an economic revolution.

Only in the 1950s would the Latin American Structuralist school suggest an alternative explanation: the disparity of growth performance lies in the incentives created by political and economic institutions. Are profits subject to expropriation? Can the government uphold property rights and trademark laws? Does the state hold a monopoly of violence? Does taxation discourage investment? Answering these questions alludes to the grander picture. To determine why some nations grow faster than others, we must examine their history and institutions.

To an ancient economist from 1500 years ago, it would appear that Europe would be the last possible place for a potential Industrial Revolution. China and the Arab world boasted far superior scientific and technological achievements, and India was endowed with enormous natural wealth and human skills. However, what would ultimately favour Western Europe was its weak aristocracy. Feudalism in Britain began to disintegrate after the 1381 Peasants' Revolt

– as the elites did not have the pre-requisite organization or power to prohibit the encroachment by the proletariat. Democratic pluralism was ultimately solidified following the Glorious Revolution of 1688.

Across the rest of the world, incomes remained highly unequally distributed. In 1800s Manchu China, a population of 400 million supported two percent of the population which consumed a quarter of national output. In fact, the vast majority of the population in China, Mesopotamia, and India hovered slightly above levels of subsistence. Europe, on the other hand, had risen far beyond the threshold of survival as lower inequalities allowed for an environment that kept predation in check on behalf of organized groups and the state. By curtailing the power of the aristocracy, Europe had unwittingly created an economic environment and structure that encouraged productive investment and economic growth. Imperialism arose from rapid developments in techniques and weapons of warfare, and the European powers quickly began to colonize every corner of the world.

Institutions are at the heart of Europe's growth from the 17th to the 19th centuries. But does this explain the world today? The economic and political institutions of the UK are certainly more inclusive than those in Libya, yet in 2018 the former had a growth rate of just 1.4%, whereas the latter boasted a growth rate of 17.9%. What is at play here? Here we must look towards the marginal product of capital.

Consider a farmer who is contemplating the purchase of tractors. The first tractor he purchases will be the most useful. Perhaps he needs a second tractor in case the first one breaks down. Perhaps he also needs to buy a third tractor in case the second one breaks down. Each additional unit of capital provides diminishing returns.

Libya has been devastated by civil war, and has a low level of pre-existing capital. From this low base, additional capital injection is highly productive. For this very reason, nations with very little to start off with tend to grow rapidly, as seen in the post-war development of Germany, Japan, and South Korea. Indeed, many of the fastest growing nations today are not those with exemplary institutions; rather, they are those that have faced adversity: Rwanda, Bangladesh, Cambodia, Vietnam, and Eritrea.

As an empirical science, economics must be exhaustive. And capital productivity alone does not paint the entire picture. Whilst developing nations may grow quickly at first, the Solow-Swan model projects all nations to reach a steady state of zero growth, where levels of investment equal levels of capital depreciation [Appendix I]. At this economic frontier, the so-

called “cutting edge” – the only way to achieve further growth is through innovation. This shifts the entire production function upwards, and moves the steady state level rightward. Indeed, without continuous innovation, a nation will once again face the steady state. British patents and trademarks per capita have fallen dramatically over the past few decades – which alludes to the possibility that we may be stuck in a steady state ourselves.

We began with a definition: economic growth is the *increase in the total market value of final goods and services produced within a country’s border, in a given period of time.* We have now arrived at the conclusion that growth rates have a “speed limit” dictated by institutions, the marginal product of capital, and innovation. In theory, one day – all growth will be driven by innovation. That is, so long as innovation is boundless. Will we one day live in a future where growth is a thing of the past?

2 RATIONALITY

What does the concept of rationality mean in economics?

Imagine that you're walking down the street, and you come across a man burning a crisp £50 note. Is he rational? Economics has an answer – *maybe.* Perhaps he hates the Queen, or the note is counterfeit, or it's for a street performance. In these cases, his decision would be perfectly rational – as it is in his best interest, under a certain set of circumstances, to burn the note.

In 1776, from the generalist melting pot of Enlightenment intellectualism, emerged one of the most recognizable term in economics: Adam Smith's "Invisible Hand." It operated on the principle that this unseen "hand" would incessantly prod us to act in line with what was best for society. By pursuing our own interest, the public good is inadvertently upheld.

In economics, pursuing our own interest amounts to maximising our expected utility. For instance, at this very moment, I am faced with a choice. I could either continue working on this essay, or stop and watch Netflix. Whilst watching Netflix might provide short-term gratification; the longer-term benefits of winning the essay competition outweigh the utility I would gain from Netflix. Equally, you have made the choice to sit at your desk and mark this essay, and in the process, you have foregone some alternative. Rationality *assumes that the action you are currently undertaking maximises your utility*. Arsenal aims to score more goals than its opposition; TFL wants to provide commuters with mobility; Oxford University wants to educate students and produce research papers, etc.

Utility is not objectively measurable and requires the adoption of the perspectives of other social sciences such as sociology, anthropology, and psychology. Different agents may have different motivations: an executive may choose to retire early if they feel the benefits of retired family life outweighs the utility from their salary. Equally, agents may differ with regards to their aversion to risk: a hedge fund will choose to take on more risk in its investment than an individual will take on a fund designated for their children's university education. In fact, almost all decisions are subjective – even those that may seem second nature. Whilst staying

alive may maximize your utility, would staying alive maximize the utility of a terminally-ill patient experiencing great pain?

Economists today have several contentions with Adam Smith's "Invisible Hand" – ultimately giving rise to the field of behavioural economics. Firstly, they argue that the notion of a callous "homo economicus", who is an individual with an infinite ability to make rational decisions, is erroneous. We are emotional, easily distracted, and have our own biases - thus our behaviour is difficult to model. Secondly, they argue that agents acting in their own interests do not always line up with what is best for society. In 2008, Alan Greenspan of the Federal Reserve (once hailed as the "greatest banker" who ever lived) confessed he was "shocked" that the markets did not operate according to his experience – and that he had "made a mistake in presuming that the self-interest of organizations, specifically banks and others, was such that they were best capable of protecting their own shareholders."

Rationality assumes that you are currently maximising your utility. But that's all it is: an assumption. All models are wrong, including rationality, as the only perfect model is reality. The assumption of rationality keeps economics flexible, so there is nothing wrong with being wrong!

3 Economics in Secondary Education

Identify an area of economics that you think should be given more attention in the A-Level or IB syllabus, and say why this is so.

Economics is not just about money, or production, or demand and supply. Fundamentally, it is a science of society – one that assesses our actions, reactions, and interactions with each other. History, the study of the past and the record of all previous experience, provides us with the empirical data of how society works. It is the base upon which a theory survives, or is broken. Consequently, economic history enables us to answer some of the most important questions in economics today: Why are we richer than our ancestors? Why is one country richer than other countries? How could a small island off the coast of France conquer a quarter of the world?

As a science, economics is subject to paradigm shifts. As Friedrich Hayek observed: science progresses steadily, overthrowing bad theories and replacing them with better ones. For instance, as we now understand, germs are not spread through odours. We also understand that the Malthusian Trap was overthrown by the Industrial Revolution and the huge increase in agricultural productivity.

The secondary education syllabus instils a sense of rigidity, purveying 18th-century economic models as infallible and all-encompassing. It is this very rigidity that led some economists to believe that austerity measures in 2010 would be expansionary. Economic history avoids this "one-size-fits-all" approach, and encourages students to consider the wider context and why a model may be appropriate in certain times, but inappropriate in others.

Studying economic history would most certainly make economics a more enjoyable subject, as students realise that past experiences can model current real-world phenomena. For instance, the Mundell-Fleming policy trilemma (built on the IS-LM model) frames capital market

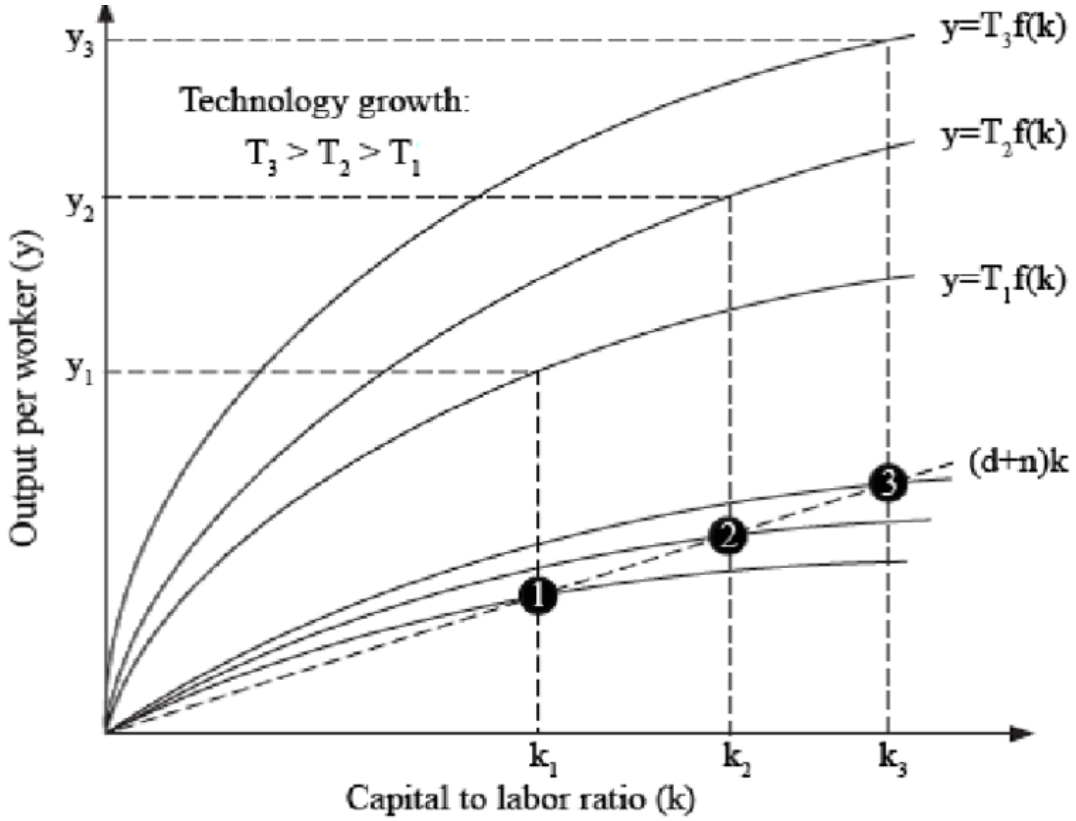
integration over the last 150 years; the Heckscher-Ohlin theory (built on the Ricardian theory of comparative advantage) discusses the pattern of international trade in the late 19th century; and the Domar Serfdom Model (built on Klyuchevsky's study of 16th century Russia), considers the causes of agricultural serfdom in historical societies. These models, all built on hypotheses from centuries earlier, help explain economic quandaries today. For instance, economics students today are told that Eastern Europe is poorer than Western Europe principally because of communism. This explanation does not even begin to scratch the surface. In fact, the answer lies in 14th and 15th century feudal Europe: whilst Britain faced the Peasants' Revolt, effectively ending feudalism and providing incentives for agricultural productivity; the Russian elites were more powerful – and thus feudalism persisted there for centuries to follow. This explains why Eastern Europe resorted to communism many centuries later. But without a rigorous education in economic history, students would be easily fooled into believing that the problem only arose several decades ago.

Economies periodically shift in the same way that genes mutate. Theories are subject to the gale of creative destruction. Thus, there is no reason to leave our students behind in the 19th century. Understanding historical patterns is as important in the economic context as it is in the genetic.

4 APPENDICES

APPENDIX 1 SOLOW MODEL DEPICTING TECHNOLOGICAL GROWTH 12

APPENDIX 1



Originally, the economy has reached the steady state at point 1. Following technology growth, the production function f(k) is transformed upwards. As investment is just a fraction of total production, the investment curve is transformed by the same factor – with depreciation of capital unchanging. This moves the steady state to point 2. Similar technology growth would move the steady state to point 3.