

IN DEFENSE OF GROWTH AS WE KNOW IT – OR NEARLY SO

Geoffroy Dolphin

Felix, qui potuit rerum cognoscere causas – Fortunate who was able to know the causes of things (Virgil, Georgics, Book II, verse 490).

Human beings are deemed capable of intelligence and structured reasoning. Yet this has never prevented them from misinterpreting one’s theory, overstretch its conclusions and hence dismiss it on dubious grounds.

The current questioning about economic growth – and its neoclassical precepts – is a case in point. The prevailing *étiquette* seems to require the permanent criticism of the neoclassical paradigm. That criticism however is based on a profound misunderstanding of its underpinnings. First, one has unduly derived from neoclassical models that economic growth is a (physical) quantity governed by scientific laws and that it can therefore be controlled in a ‘mechanical’ way. It is not and never was. Second, neoclassical institutions are often presented as the root cause of observed systemic instability. But far from triggering that instability, its framework actually provides an explanation for it.

Nonetheless, the nature and the consequences of growth have changed, which calls for a reassessment of neoclassical institutions in light of that new reality. Hence, we are not so much in need of an alternative *to* neoclassical growth as of institutional adaptations to its changing nature and consequences.

The Master’s fallacy

We, as Human beings, like to see ourselves as *Masters* able to understand and control our environment: *Scientia potentia est*. Hence, across Ages and Civilizations, we have expressed a genuine desire to *know the causes of things*. That curiosity extended to the study of individual actions – and interactions – that are conducive to the creation of (material) wealth, i.e. to Economics. Over time, practitioners of the discipline have progressively refined society’s understanding of value creation and its long run macro dynamics, growth.¹

More than a century of research since the question was initially addressed by Solow (1956) has brought a few pieces of answer: (physical) capital, population, and technology were singled out as essential fuels for our economic engine. This list was later complemented with human and, sometimes, ‘natural’ capital. In their simplest reading, neoclassical growth models suggest that accumulation of those factors drives economic

¹Wealth is a socially constructed and defined concept. To clarify matters, we restrict our argument to material wealth.

growth. And it is indeed the case. However, the dynamics behind accumulation of each of these factors are very specific, some of which are relatively *mechanical* – e.g. physical capital, others much less so – e.g. technological change. But most readers of neoclassical economics neglect this crucial dimension. This is where neoclassical economics starts to be misinterpreted.

Indeed, if one stops short of recognizing the complexity of the dynamics of factor accumulation, neoclassical theories lend themselves too easily to support a “scientific” construction of economic growth. According to that interpretation, accumulating one additional unit of factor suffices to produce an increase in aggregate output per capita, in an almost mechanical way.² The impression is then that growth can be *mastered*. This is particularly convenient for policymakers as it introduces it as a physical object which can be easily acted upon. Consequently, like drivers behind a steering wheel, policymakers see themselves as able – and are expected to – alter the *direction* and the *pace* of growth. This is a gross over-estimate of their leverage, especially in regions where technological improvement (i.e. Total Factor Productivity) has progressively replaced physical capital accumulation as the main driver of economic growth.

Distorting Economists’ understanding of the world by disregarding the pivotal role played by technological change and reducing growth dynamics to a mechanical problem is a dangerous oversimplification. One which creates an incorrect social belief and is a dangerous fallacy. Re-thinking economic growth requires that we abandon it and leaves us with only one possible conclusion: we are only able to establish *favourable conditions* for growth, not to produce it. This is especially true as we move from physical capital accumulation to technological improvement as the primary source of growth.

Steady-state instability

The neoclassical framework initially introduced by Solow (1956) captures this transition particularly well, which is why this essay takes its insights so seriously (N. Gregory Mankiw (1992)). Moreover, Solow emphasises that the only source of growth in the long run, i.e. in a *steady state*, is technological change. We have not quite awoken to the implications of that change.

When asked about long-term growth perspectives of advanced economies, most economists – including Bank of England Governor Marc Carney – would respond that they don’t know whether sluggish growth is a temporary ill or a “new normal”. As far as I am concerned, I believe that long-term growth will endure. Indeed, if we accept technological improvement as the primary source of economic growth, then there is no reason why it should stop. Technological innovation is essentially a perpetual rearrangement of ideas which, in essence, is unlimited. It is a process falling beyond our control.

But the changing nature of economic growth also explains why it has become more erratic. Unlike capital accumulation, technological change is a random process over which one has little influence. Even though it has always been part of the neoclassic explanation, the fact that we are moving towards technological change as the main source of growth makes its characteristics more relevant than ever for the determination of overall growth patterns.

²When the said factor is physical capital, that view has often been called *capital fundamentalism*.

In other words, we have moved from relatively well understood and quantifiable sources of growth to more diffuse and much less tangible ones. Whereas it is relatively easy to stimulate economic growth by adding a billion investment in physical capital, there is a much less clear-cut relationship between \$1 billion spent on R&D programmes and the magnitude of technological improvement. It is an unconscious process associated with highly uncertain outcomes. The best – and probably most determinant so far – example is the drilling of an oil well by James Miller William in 1858 somewhere between Lake Erie and Lake Huron. Weren't it for this discovery, Humanity would have embarked on a quite different technological path. Besides, some of the later technological innovations that took place have made the system intrinsically more unstable.³ That doesn't make neoclassical economics the source of that instability.

Be that as it may, the expectation that the system we live in is a stable one becomes ever more inaccurate. Coping with the consequences of that arguably new instability requires an adaptation of our neoclassical institutions.

The institutional reconstruction of neoclassical growth

In light of some of the alleged flaws alluded to above, many have suggested that we scrap the neoclassical system altogether. But eight (long) years into the post-Crisis era a credible alternative has yet to emerge. In fact, the search for an alternative paradigm has been mostly vain and has displaced our attention from a more essential – and potentially more successful – endeavor: working out ways to cope with the changing nature of economic growth, within the paradigm itself.

So what has changed and how to respond to it? For a start, growth is now more elusive and intangible than it used to be, which requires an adaptation of the associated political narrative. The current one does simply not do the job. An adequate communication strategy should recognize its inherent uncertainty. Continuing to frame it as a tangible object is risking to jeopardize not only economic institutions but also the wider social contract and political organisation of many nations.

Secondly, technological improvement will continue unabated over the coming century and it is very likely that it will be much more *capital augmenting* than *labour augmenting*. This observation was most recently revisited by Piketty (2014). Should technology improve over time and the elasticity of substitution between capital and labour be higher than 1, the share of labour income in national income would decrease.⁴ Such a trend usually receives a glacial reception among the general public – and parts of the political spectrum. But it need not be so. Indeed, an important corollary of this observation is that individuals would eventually have more time to devote to cultural and educational activities, which echoes an argument made by Keynes (1963).

But for such corollary benefits to accrue to all members of society in some proportion,

³This had already been noted by Galbraith (1977). While acknowledging the successes of the market system, his writings denoted an acute awareness of its intrinsic instability.

⁴The elasticity of substitution between capital and labour measures the extent to which workers can be replaced by machines. As Piketty shows, if one unit of capital can be substituted for more than one unit of labour, than the return on capital falls less than proportionately to the volume of capital and the share of capital income in national income rises, mechanically decreasing the share of labour income in national income.

capital ownership (and the income thereof) must be distributed among them. No society could indeed be sustained if some individuals do not own any (or too little) capital and, at the same time, have no employment opportunity, as this would leave them with no income. Piketty's observations and Keynes' vision resonate particularly well with the situation of advanced economies. In most of them, growth has been modest since the early 2000s, turned negative after the start of the 2007-2008 crisis and recovered (too) slowly. Under such circumstances, assets accumulated in the past naturally play an increasingly significant role: those who own the capital need only to reinvest a fraction of their wealth so as to maintain their stock of capital (and hence can consume the rest) while those owning little or no capital will have little resources to save and hence miss the benefits of high capital returns.

Moreover, several of these economies have experienced a shift in the source of their wealth creation from the primary to the tertiary sector. This was accompanied by structural changes in the skill portfolio that the *average* worker ought to possess. More precisely, advanced economies turned to economic activities involving more complex systems and processes which have a higher value added but also require a highly skilled labour force. As it is often those sectors that drive the modest growth in national income and that these sectors employ few but highly paid (since highly skilled) workers, its benefits accrue to a very small fraction of the labour force. Strongly progressive capital income taxation may help correcting some of these undesirable consequences.

Lastly, the increasingly variable and unpredictable nature of technological change calls for more intergenerational and interpersonal risk-sharing. Abrupt changes in an economy's technological mix can have dramatic implications for one's employability. A classic suggestion to counter the adverse effects of such shocks is to improve the level of education of a country's labour force: skilled workers better cope with the consequences of technological changes. Such a strategy however misses two important points. First, it is illusory to believe that every single worker can become highly skilled. Second, regardless of the level of training, technological changes bear implications for individuals which are impossible to cope with in the very short run. Hence the need for intragenerational and interpersonal risk-sharing institutions.

From an intergenerational point of view, a similar argument holds. Some cohorts happened to simply be *lucky* with respect to the level of economic prosperity that they enjoyed. Benefits of such periods ought to be shared intergenerationally. While the latter can be provided by the market, the former must necessarily be provided by the state as the market is unable to handle contracts which extend to non-existent future human beings.

Those who called for – and sometimes proclaimed – the death of neoclassical economics have been, for better or worse, proven wrong. Neoclassical economics has its flaws but its most virulent critics have often failed to properly understand its lessons in the first place. Provided we can adapt its institutions to cope with the changing nature of growth, it remains our best bet to ensure prosperity for the largest number, all the way.

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