
The world created by capitalist firms

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Abstract

The transformation of the world since the industrial revolution corresponds spatially and temporally with the emergence of the capitalist firm – in which the firm owns and controls the means of production – an institutional development. Such firms are hugely diverse, but share a combination of the need to generate profit with the ability to buy in all necessary inputs, the key limitation being managerial capacity. A firm's strength depends on the perceived promise of its initiative (*ex ante*), plus its achieved success (*ex post*) e.g. its cost structure; the gap between these is subject to radical uncertainty. A firm's ability to affect the world depends on its degree of strength. Competition between firms is an arms race, creating growth by long-term cost reduction plus new products. Alternative explanations of capitalist growth, such as invention, entrepreneurship and innovation, only apply in the context of their relation to the capitalist firm. The distinguishing feature of the capitalist real economy is that *the firm takes decisions in the light of its economic environment*. This is how quantity and price, as well as employment and investment, are set. These firm-level decisions provide micro (or meso) foundations for phenomena such as growth and unemployment at macro level.

Key words: The capitalist firm; Theory of the firm; Economic growth; Economic institutions; Micro-foundations

The economic centrality of the capitalist firm

Its historical emergence

It is now widely accepted that institutions have a major impact on economic life [Williamson 1985; North 1990; Rodrik et al 2004; Acemoglu et al 2005; Hodgson 2006]. Frequently this concept is taken to mean rules and patterns of interaction, but in addition it is sometimes extended so as to include organisations [Hodgson 2006].

However in this burgeoning literature, insufficient attention has been paid to one particular institution, in the sense of a type of organisation: the capitalist firm.¹ It can be defined by the presence of the employment relationship [Hodgson 1999], between the firm's owners and workers who are "free" in the sense that they do not own their own means of production.² But more important, the firm controls the means of production as well as owning them: it chooses the technology and indeed the product, as well as location, etc.

Capitalist firms are now so pervasive that they are an assumed part of the economy, and so have become invisible in much of the literature. They should not be invisible: their existence is not some automatic or natural phenomenon, but has a particular history. Capitalist firms were rare before the industrial revolution, then in early nineteenth century England they emerged out of the factory system.

Before the factory system was introduced on a wide scale, textile production was organised on the putting-out system: the merchant subcontracted work to "cottage" industry in people's homes, supplying raw materials and collecting finished goods. This had provided a competitive edge for the English textile industry over the guild-dominated continental system. For the merchant, it had the advantages of low cost of entry and overheads, low labour cost, and flexibility to respond to demand fluctuations. For workers it allowed freedom from work discipline, as well as the ability to balance this work with other tasks, allowing compatibility with agricultural labour. However, at a time of high product demand and labour shortage, mechanisation had clear advantages, and tended to provide higher and more uniform quality. This in itself did not provide a rationale for centralised factory production: in the wool industry, independent producers welcomed mechanisation as it benefitted them, but waged employees fought the machines that threatened their employment [Randall 1991]. Nevertheless, once the factory/machine combination was able to generate productivity growth with prices that undersold the cottage product and allowed higher wages – stick and carrot respectively – it was possible to attract workers into factories [Landes 1998]. This enabled high throughput that could meet the demand [Langlois 1996], which was then accentuated even more by the falling prices. The factory system then became unassailable, and grew

¹ There are large and important, but distinct, literatures on the theory of the firm, from an institutional viewpoint [e.g. Williamson 1985; Grossman & Hart 1986; Bainbridge 2002; Hodgson 2002; Gindis 2009], and on the economics of firm dynamics [Bartelsman & Doms 2000; Haltiwanger 2000; Grazi 2012].

² A potential problem with this definition is that non-standard forms of "employment" are now being widely used in some sectors, e.g. sub-contracting, to avoid statutory duties to employees and/or to avoid tax etc.

inexorably. The centralised control of the new factory form facilitated the adoption of new inventions as they appeared, and this ease of adoption acted as an incentive to potential inventors. The result of this self-reinforcing process was a profusion of new technologies that revolutionised production of cotton textiles.

The advantages of the new mode of organisation, which enabled someone with a potentially profitable project plus some capital to open a factory, were not confined to textiles. For example in 1836, JD Carr moved to Carlisle in north-west England from nearby Kendal, and opened a factory to produce bread by night and biscuits by day. Factory organisation allowed vertical integration, combining milling with baking, and enabled low unit costs for producing bread, together with a new product, sweetened biscuits [Forster 1998] – thus ensuring that the factory building was fully utilised. This was all possible because the new organisational form allowed the initiator, Carr, to realise his vision by raising the finance to build the purpose-designed factory, to buy the necessary equipment and raw materials, and to hire the appropriate staff.

Following pressure from the increasingly important industrialists, legal and institutional changes were adopted that enhanced the stability of the new capitalist firms, thereby facilitating their further development – another self-reinforcing process. Foremost among these was entity status [Blair 2003], which gave firms the position of a singular legal person that could trade as an entity in its own right. The implication was that the law protected firms from their own shareholders, as well as from the state and those who might sue, a phenomenon known as *entity shielding* [Hansmann *et al.* 2006]. This meant that they could have a continuing existence, relatively unthreatened as long as they continued to be solvent. It also meant that they could accumulate assets, including premises and equipment as well as less tangible items such as expertise, relationships and reputation.

Entity shielding also allowed differentiation of roles within the firm, which enabled governance to be separated from financial contribution [Blair 2003]. It is the mirror image of limited liability, which has traditionally received more attention [e.g. Micklethwait & Wooldridge 2003] but which may have played a less important (and later) role in the emergence of Britain as the dominant world power. In general, the development of entity shielding was a response to the requirements of business people in the real economy [Blair 2003; Hansmann *et al.* 2006], whereas it was rentiers who lobbied for limited liability [Ireland 2010].

Similar although not identical legal/institutional measures have been adopted in other countries, and this allowed the spread of capitalism in the sense of a real economy dominated by such capitalist firms. This is clear from the accounts of economic historians who have described the early stages of industrialisation, first in western Europe and North America, and later in other parts of the world, e.g. Japan and neighbouring parts of East Asia. In China, legal changes introduced in 1985 facilitated the decentralisation of the economy, but gave incomplete protection to foreign firms [Lewis 1997].

Following this institutional change, these countries' economies gradually became transformed. An example is the silk-weaving industry in Kiryū, Japan, which had traditionally been organised on the basis of putting-out. During the 1910s, large capitalist firms were

established, organised as joint-stock companies. The two forms coexisted for several years, with the flexibility of putting-out well adapted to the domestic market with its large variety of designs, including complicated products such as *kimono*, whereas the capitalist firms were oriented mainly to the export market with a relatively simple range of products. Both types introduced power looms. Then after the 1920 Japanese downturn, poor economic conditions gave the lower-cost capitalist firms an advantage, enabling them to extend their appeal in the domestic market [Hashino 2007; Hashino & Otsuka 2013].

Capitalist firms and the success of the economy

Such transformations of production had large-scale macroeconomic consequences in many countries. Unit costs fell dramatically, starting with the factories of the English industrial revolution in the early nineteenth century, first in cottons but then more broadly. In the American Northeast during the period 1820-1860, sector-specific productivity more than doubled in almost every sector, inputs of capital and especially of labour fell, the price index fell by about 40% and real wages rose [Sokoloff 1986]. In both countries, entity shielding played a major role, but limited liability was not important at that time.

Similarly, as the capitalist way of organising production spread across the world, productivity rose and real unit costs fell, in one manufacturing sector after another. Over time, the same real resources that could produce, say, a pair of shoes became able to produce several pairs, leading to abundance in the affected sectors. This also enabled prices to fall in real terms, making products more affordable [Cox & Alm 1997] – effectively this increased the buying power of ordinary people, even those whose own wages were not rising with increasing productivity.

However, this tendency for reduction in real unit costs and prices over time does not apply across all sectors. It is generally true of manufactured items, and of some services such as retailing. But many other services, especially those requiring personal care, are not readily amenable to reduction in working time, their main cost. Baumol has labelled this the “cost disease”: taking manufactures as the default, he notes that activities such as healthcare and live performing arts have become relatively more expensive over time [Baumol 2012]. It is in the Baumol-dynamic sectors such as manufacturing – but also e.g. retailing and capitalist agriculture – where capitalist firms produce large continuing cost reductions; in fact it is unclear that capitalist organisation has any benefits elsewhere in the economy.³ Furthermore, other important components of the economy – and of household budgets – are not produced at all, e.g. housing costs that depend heavily on the price of land, and natural-resource products such as fuel.

³ A capitalist real economy does not consist only of capitalist firms. Non-capitalist forms of production survive, in the form of self-employment and family firms. They may occupy niche positions, e.g. craft production serving the relatively well-off, or may compete with larger and more efficient capitalist firms e.g. in retailing, as with local convenience stores. Professionals, such as architects, also frequently organise themselves in non-capitalist ways, much like a producer cooperative. But it is still accurate to refer to such an economy as “capitalist”, because capitalist firms dominate production.

As buying power increased, this released disposable income for new products – radios, washing machines, cars – as well as higher quality products. This generated the transition from early/low-income “frugality” capitalism to later/higher-income consumer capitalism [Solow 2006]. Abundance and falling prices of existing products, together with new and improved products, are what lay behind the phenomenal growth that has occurred in successful capitalist economies, opening up a huge gap – the “great divergence” [Pomeranz 2000] – between them and the rest of the world. These dynamic trajectories in one economy after another stand in stark contrast to societies with pre-capitalist organisation of production, which have tended not to undergo economic growth [Clark 2005], or to experience the much slower and more limited process of Smithian growth [Kelly 1997; de Vries & van der Woude 1997].

Long-term growth that is approximately exponential, albeit with cyclical fluctuations, is then unique to successful capitalism [Baumol 2002; McCloskey 2010], and has been spatio-temporally associated with the legal and institutional changes that enable real-economy capitalist firms to exist and thrive. There is one major exception, however, because sometimes capitalism has been unsuccessful in the sense of lacking economic dynamism. This is true of, for example, much of twentieth-century Latin America. Even in such cases, the association between growth and capitalist firm success is maintained: the relatively poor performance of the economy reflects the lack of commercial success of its constituent firms. In general, the dynamism of capitalist economies depends on its real economy, and specifically on how well its capitalist firms are or are not thriving.

The capitalist firm in broader context

The state

It is important to be clear that not all the transformation of modern capitalist societies is due to the combined effects of capitalist firms, or indeed to purely economic forces. The state has played a complementary role in various ways. The English industrial revolution owed a great deal to the fiscal state, especially the navy [O’Brien 2004]. Protectionism and infrastructure construction were major state-organised features of most of the now-rich economies, including the USA, in their early stages [Chang 2003; Chang 2007]. State spending has boosted aggregate demand at difficult economic times, and introduced automatic stabilisers into the economy. Another vital state role in capitalist societies has been to improve human capital, investing in education and in health care [You & Chang 1993; Bleaney et al. 2001; Lindert 2004]. The complementary relationship is a two-way street: capitalist transformation of industrial capacity and technology has revolutionised the state, e.g. in relation to its military and surveillance activities.

More generally, the state has responded to technological changes in the economy, and has tended to act in a way that facilitated its prosperity. A paradigm case is the response of national governments to the rise of the car industry, which was to build road networks. It has also acted more proactively, as in the case of government initiatives for the development of a “people’s car”, e.g. in 1930s Germany, to try and bring about more rapid growth in a particular sector. The astonishing transformation of Meiji Japan was largely due to the forcing

role of the state, in that case with a stress on heavy industry that could reinforce military ambitions. More recently, the developmental state has been a major feature in economic growth elsewhere in East Asia [Amsden 1989; Wade 1990].

The state has had a continuing economic role in more recent times too, notably in the United States, where it has provided support for basic research and for more applied research and development, nurturing innovation. It has also acted entrepreneurially, taking on risk, and creating and shaping markets [Mazzucato 2013].

In some cases, dynamic capitalist growth has coexisted with a large state-owned sector, consisting of firms that operate like capitalist firms. This indicates that the economic consequences depend on how the institution operates, with ownership playing a secondary role. State-Owned Enterprises (SOEs) that operate according to capitalist logic have particularly characterised China since the reforms of the late 1970s, and Vietnam since the *doi moi* reforms. It is true that many commentators on the Chinese economy have remarked on the lower efficiency of SOEs [Hutton 2007; Lin et al 2008], implying that this has led to suboptimal performance. But this invites the question, if Chinese growth had not been hampered by the inefficiency of SOEs, how much more stellar might it have been?

This facilitating state role does not contradict the basic argument of this paper, that the capitalist firm has transformed the world. These two types of organisation are complementary, and often actively synergistic. The point is that the dramatic changes that have had such a major impact on economies across the world became possible with the development of the capitalist firm. The state responded either to existing firms, or to the possibilities afforded by this new method of organising production. The counterfactual to the capitalist firm is not the state, rather it is alternative productive institutions such as sole traders or firms relying on family labour, or alternatively the central planning system that operated in the USSR. The practice of analysing the state and the productive sector as if they were opposed, which is common to numerous economic traditions (and ideologies) has been a major barrier to understanding capitalism. Even the state role in regulation is not “anti-firm”, rather it favours the firms with higher standards – these firms have a vested interest in preventing a race to the bottom.

It is however true that there can be disputes over which mode of organisation is better for certain purposes, e.g. public services and infrastructure. This debate has been dominated in recent decades by an anti-state ideology based on the idea that markets and competition between *privately-owned firms* are in themselves necessarily superior in all sectors. This has led to private companies replacing state-run organisations in the provision of services, many of which continue to be state-financed, so that companies gain their profits from the taxpayer rather than from the results of their own activities. This phenomenon is not directly connected with the argument of the present paper.

In contrast with the complementary activities of firms and the state in capitalist societies, there have been attempts to create industrial economies that are entirely state-directed. In the Soviet Union, and in pre-reform China and Vietnam, there were no entities that operated like capitalist firms, their part being played by a central planning apparatus. It was possible to achieve industrialisation by these means, largely based on imitating technology developed in

the capitalist world, but only as a one-off transformation, not a continuing process of innovation and change – the dynamism that is typical of successful capitalism was absent.

The financial sector

There is a widespread consensus that the financial sector has played an important role in facilitating capitalist growth, along with the real economy. However, the details of this are far from clear. Banks existed in Europe for centuries before any capitalist growth occurred. The first stock exchange was founded in 1602 in Amsterdam, but a century later the Dutch sought foreign outlets for their capital, and the economy was in decline in absolute as well as relative terms [de Vries & van der Woude 1997; Landes 1998].

It is therefore clear that these financial innovations did not have the same transforming impact as did a real economy dominated by capitalist firms, which on these macro-historical grounds appears to have been the essential change that led to near-exponential growth. Once this had occurred, the financial sector undoubtedly contributed to the economic dynamism, by raising the investment level, e.g. in labour-saving technology, and by enhancing the efficiency of capital allocation. But it is unclear how important this was in relation to other methods of finance. There is evidence that start-ups tend to rely on local financial networks and venture “angels”, in a large variety of times and places, and that established companies tend to use retained profits for investment [Bhidé 2006; O’Sullivan 2007].

At the national level, studies of effects of financial development on the economy that have been able to avoid the problems of reverse causation and omitted variable bias have demonstrated a positive impact on growth [Luintel & Mosahid 1999; Levine et al. 2000; Calderón and Liu 2003; Aghion 2006]. However, this varies from country to country [Ang and McKibbin 2007], and is notably absent in the case of China, which only developed a modern financial system after more than two decades of growth on an unprecedented scale [Liang & Teng 2006]. In addition, there is evidence that beyond a certain point (roughly equal to GDP), the size of the financial sector becomes counterproductive [Arcand et al 2015].

Broader societal changes

In addition, modern societies have undergone profound changes that go beyond the purely economic, including fundamental demographic change, with massive falls in infant mortality and birth rates, and a rise in average life expectancy. In England, this transformation was not a direct result of prosperity due to industrialisation, nor even primarily a result of advances in medical science – rather, political and ideological changes in the late nineteenth century, together with the public health movement and local government initiatives, were more important [Szreter 2005]. Nonetheless, the affordability of measures such as sewerage construction depended on a relatively prosperous economy, as well as improved public education. Similar demographic and health changes have occurred throughout the world following industrialisation, and it is likely that prosperity has played an important role in that, even if a highly indirect one.

Other non-economic changes are more directly attributable to capitalist firms. They have altered land use, directly by industrialising, and indirectly by fostering urbanisation. They

have introduced products such as cars and fast food. By introducing labour-saving machinery, aimed at reducing costs, they have converted labour from being primarily manual to mainly sedentary. An unintended consequence is a worldwide obesity epidemic, the downside of abundance. The natural world has altered out of all recognition, with a massive reduction in biodiversity, together with global climate change following large-scale fossil fuel burning, both by industry itself and by households whose consumption levels have risen with economic growth.

A further result of the rise of capitalist firms is that some of them have developed unprecedented economic power. This has given them the opportunity to influence government policy by lobbying, political party contributions, etc. It is often said that the United States has “the best democracy that money can buy” – but this tendency is not confined to America.

How has this happened?

The rise of the capitalist firm generated a large part, even if not all, of the transformation that led to the modern world. It provides the “micro” (or meso) foundations for growth and for many of the accompanying phenomena. To explain how this occurred, my account will start by examining in a little more detail what a capitalist firm is and how it operates.

What a firm is

As previously stated, the defining features of the capitalist firm are its ownership and control of the means of production and its employment of wage labour. Also, like firms of all kinds, its existence depends on its revenue exceeding its costs, so that profitability is its central imperative. Another characteristic that is sometimes mentioned as part of the definition is that it is privately owned, but the examples already cited of China and Vietnam suggest that this is not essential to how the firm exerts its effects.

Beyond this rather sparse description, the overwhelming attribute of “the” firm is its heterogeneity: there is now abundant evidence based on micro data showing that even with the same technology, there is a two-fold range in productivity in each sector. This is correlated with wages, export success, technology usage, output growth and probability of firm survival. Input intensities also vary greatly, and the distributions of efficiency, innovativeness and indicators of profitability are highly skewed. All these characteristics are highly persistent over time [Bartelsman & Doms 2000; Grazzi 2012].

This raises the question, is there really such a thing as “the” capitalist firm – does it make any sense to treat it as a single entity, a regularity? The answer is yes, for two reasons. First, although there is huge variation between individual firms, the results of the large number of studies of these issues, as summarised in the previous paragraph, are remarkably consistent across different industries, time periods and countries (although with different patterns in low-income countries [Tybout 2000]). They are also consistent across the definition of a sector, i.e. whether three-, four- or five-digit level [Grazzi 2012]. There is therefore a high degree of consistency of behaviour at sector or macro level that provides sufficient regularity to enable analysis to be conducted.

Secondly, beyond all the diversity in size and other features, across the whole category of capitalist firms, there is a regularity of behaviour that derives from the universal central imperative to make a profit, or at least to break even, under conditions of competition. This regularity is shared by firms that are not capitalist, but they are more constrained; what is specific to *capitalist* firms is that there is no limit to their scale of operation. In contrast, petty producers, sole traders, peasant agriculture or firms based on family labour have strict intrinsic limitations. The scale of a capitalist firm is limited only by the combination of managerial capacity [Penrose 1959], and its access to resources including a workforce with particular types of skill and other types of tacit knowledge, plus equipment and other more tangible assets. The ability to buy in the appropriate range of labour and equipment is central to capitalist firms' success.⁴

The regularity that is common to capitalist firms is therefore that they have a structure that facilitates success in competition, together with the centrality of profit that gives direction to their decision making. They are unequally successful in their profitability, and in the means to achieve it, as is clear from the first regularity. This is how market structure evolves. It is frequently observed that firm size is distributed according to a power law [Gabaix 2009], probably reflecting the reproduction of advantage (otherwise known as the Matthew effect, or preferential attachment) because firms already in an advantageous position, e.g. with high profitability, have the resources to further improve their position. This is a further regularity.

How a firm operates

To make it operate, the capitalist firm depends on a combination of initiative and finance. Setting up a firm requires both initiative – an idea, a plan – and the financial backing to make it happen, which can already be available or can be obtained in the hope and expectation of future profit. Investment in an existing company is a renewal of the same combination: an initiative to improve the process and/or the product, to expand production, or at least to maintain the existing degree of success, that similarly requires financing from retained existing profits (*ex post*) or from external financing on the promise of future profits (*ex ante*).

The crucial role played by initiative implies that an essential feature of the capitalist firm is *agency*, in the sense of having the capacity to act – to make decisions – rather than being automatically destined to follow some path, e.g. an optimal one.⁵ This has been recognised to varying degrees in law in different jurisdictions, by the concept of a “legal person”.⁶ With

⁴ Because the relationships within a capitalist firm involve strangers, this mode of organisation may experience problems in cultures where trust between strangers, i.e. those outside the extended family or clan, is low [Clark and Wolcott, 2003].

⁵ The term “agency” is used here in a contrasting sense to how it appears in the context of principal-agent theory, where it denotes someone (e.g. a manager) who acts on another's behalf [e.g. Jensen and Meckling 1976]). The implication is that their behaviour is suboptimal from the owner's viewpoint, so the owner incurs costs to rectify this.

⁶ It may be possible to identify which societies have capitalist real economies, i.e. which places at which times, by establishing whether their law applies the concept of a “legal person” to firms. The spatio-temporal distribution of this legal concept could serve as an

relatively small firms, there is generally no problem in identifying where it lies. In larger and more complicated firms, however, it may be unclear. The direction of the firm tends to be set by management, and this is what generates the degree of success in the next period. On the other hand, in many cases managers are employed for this purpose, implying that there is a higher authority that could be identified with the firm as agency. In general, shareholders do not qualify, as their role is more passive. The important topic of the location of agency within differently structured firms is not pursued in the present paper.

The fact that capitalist firms can buy in the resources they need, unlike other types of firm, means that their scale of production and the size of market they can supply is in principle unlimited. Control over these means of production gives the capitalist firm the ability to alter the product and/or the productive process, e.g. by introducing new technology, or by shifting production to another country. This often involves taking over large sections of the market from other firms, or conversely having market share taken over by competitors. Capitalist competition is thus a struggle between firms that typically have unequal degrees of strength. One source of strength is the ability to produce at lower unit cost than competitors. Another is the ability to produce a superior new product or a quality improvement that finds favour in the market [Joffe 2011]. Firm size is not in itself a source of strength, rather it tends to be a reflection of previous strength. An implication is that although capitalist firms have, as a category, transformed the world, their degree of influence is very unequal. The impact of any particular firm depends on its relative strength.

This account can readily be applied to the replacement of the English putting-out system by factories, with which we started. In the putting-out system, the workers generally owned their tools. The factory system, on the other hand, was based on the firm having ownership and control over the means of production, facilitating the introduction of the new technology – and of further technical improvements as they arose. The unit costs fell rapidly as a result, and the scale of production could be expanded to meet the high and increasing demand, by buying in the inputs at the appropriate scale.

Competition between firms has the character of an arms race. This can be seen most clearly in the case of cost-based competition. Each firm attempts to reduce its unit costs, so eroding each other's advantage – but the consequence at aggregate level is that in the sector as a whole, unit costs are continually reduced over a long timescale. There are numerous means by which firms can reduce unit costs [Joffe 2011].

Between-firm competition has also a second effect: margins are squeezed, so that prices are driven down to a level that is not far above unit costs. This is how consumers' buying power is increased by capitalist production. It also means that when productivity increases, as a result of cost-reducing initiatives, the resulting increase in wages is not proportional to the productivity increase.

admittedly imperfect indicator of the presence of capitalist firms in a particular jurisdiction, for the purpose of research. This would need to take account of differential timing across countries, because in e.g. England the law was developed in response to the needs of existing business people, but elsewhere the legal changes were sometimes introduced in order to facilitate modern economic development, i.e. from above.

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Implications for existing accounts of growth

The role of invention, entrepreneurship and innovation

This paper has described the emergence of a new type of economy in the past two centuries, and the institutional change that initiated it, which continues to provide the basis for modern economies. It is clear that this institution has been restricted in its temporal distribution. For much of its first century, it had also a restricted presence spatially, starting with its development in Britain, followed by parts of Europe and by the United States and other “European offshoots”, and then spreading to other parts of the world during the late nineteenth and especially the twentieth centuries. Where the new capitalist way of organising was commercially successful, the macroeconomic consequence was growth of an unprecedented type.

The existing literature on the causes of growth is vast, and it is beyond the scope of this paper to do justice to it. I will just mention some of the key themes, and outline how they relate to this historical record. They include exogenous technological change, here summarised as “invention”; and the concepts of entrepreneurship and innovation.

Invention is not a new phenomenon. Many societies have been highly inventive, e.g. the Islamic world a thousand years ago, and Imperial China throughout the ages, but not dynamic in terms either of GDP growth or of the living standards for most of the population. It is tempting to conduct pairwise comparisons of such societies with western Europe, and to look for the causes of backwardness. This approach misses the point, because it takes Europe as the standard for comparison and then tries to see what is missing, as if the European experience were somehow natural. In contrast, the historical record shows that the non-European experience is normal – not the same thing is optimal or even good – and it is Europe that was exceptional. This exceptionality started well before the industrial revolution, but was greatly amplified by it. In other parts of the world, and earlier times, technical creativity was not translated into economic growth, and this appears to be because of institutional differences. The particular feature that invention generates strong long-term major economic growth and rise in incomes was not seen until the industrial revolution, when the capitalist firm was developed. This historical specificity has not prevented standard and well-regarded historical accounts taking invention as *the* driving force behind the emergence of industrial society, and ignoring the specificity of the capitalist context [e.g. Mokyr 2002; Lipsey et al 2003]. On the other hand, some historians, notably Chandler [1977; 1990], have highlighted the role of capitalist firms, at least certain types of capitalist firm in certain times and places. Other authors have mistaken the nature of this specificity of capitalism, e.g. equating it with “the free market” [Baumol 2002], or attributing the success of the capitalist firm to the advent of limited liability [Micklethwait & Wooldridge 2003].

The lack of an association between technical inventiveness and economic growth in non-capitalist societies is not a new historical observation. The same is true of growth and entrepreneurship, which is seen in many societies that are stagnant, even impoverished: anyone familiar with sub-Saharan Africa is aware of the large number of entrepreneurs, many

on the breadline. Entrepreneurship is necessary for survival. It is widely observed that entrepreneurs are more prevalent in low-income societies than in rich ones, and also that entrepreneurship is less prized as a career path than “a proper job” in such conditions [Banerjee & Duflo 2011]. It is not generally a path that leads either to individual or societal prosperity. These informal observations are confirmed by the annual Global Entrepreneurship Monitor [Singer et al 2014], which finds that the most entrepreneurial countries in their sample are in sub-Saharan Africa, e.g. Cameroon and Uganda, followed by Latin America and low- or middle-income Asian countries. The cross-sectional analysis finds a strong negative relationship between per capita GDP and what they term the TEA (total early-stage entrepreneurial activity) rate, which reflects the adult population prevalence rates of nascent and new businesses.⁷

Thus, invention and entrepreneurship cannot be explanations for economic growth, at least not on their own, because their spatio-temporal distributions are very different from that of dynamic economies.

The situation with innovation is somewhat different, as it is commonly defined in relation to success in commercialising a new idea, which could be seen as building a capitalist context into the definition, even if in an implicit and unacknowledged way. However, to the extent that the innovation literature focuses on the contribution of individuals, neglecting the institutional context, they are missing a large part of the story. In fact, as empirical research proceeds, the organisational context is increasingly being found to be central, encompassing not only firms but also e.g. local authorities and universities [Salge & Vera 2012], reinforcing the point that capitalist firms, the state and other organisations play complementary roles.

In the literatures on invention, entrepreneurship and innovation, the focus tends to be on the behaviour of individuals. However, their contributions need to be seen in context. First, the central imperative of the capitalist firm to make a profit, while competing with other firms in the same sector, provides a clear *direction* for the talents of inventors, entrepreneurs and innovators to follow. The rewards of success in this endeavour are great, providing a powerful *incentive* for them to find ways to achieve it, and for those with relevant talents to *become* inventors, entrepreneurs and innovators. In these three ways the capitalist firm creates the conditions that develop, motivate and channel the types of invention, entrepreneurship and innovation that power the system.

Secondly, the combination of a capitalist firm structure with invention, entrepreneurship and innovation has far-reaching consequences. The flexibility of *inputs* characteristic of capitalist firms, stemming from their control over the means of production, gives scope for the talents of inventors, entrepreneurs and innovators. The flexibility in the *size of the market* that can be supplied means that the introduction of a successful production technique or new product can lead to the expansion of production, limited only by the ability of the management team to purchase the required inputs, to coordinate the production at an increased scale, and to market

⁷ This negative relationship – the opposite of what would be predicted if economic growth were caused by entrepreneurial behaviour in this sense of new firm creation – is not seen among OECD countries, in which there is no apparent association. See figure 2.18, page 53.

the product. Success in invention, entrepreneurship and/or innovation is thereby magnified, a synergy that generates the dynamism that we see in the real economy of the capitalist system.

The conclusion must therefore be that *in the context of the capitalist firm*, prosperity and dynamism are promoted by invention, entrepreneurship and innovation – but that any or all of these features outside that context do not necessarily lead to economic growth. A corollary is that the focus of analysis should not be on invention, entrepreneurship and/or innovation as such, but rather on the way they interact with capitalist firms.

Textbook economics

The textbook description of the firm reduces its role to a mere shadow. The standard model does not distinguish a sole producer from a capitalist firm, even a very large one. The labour force only figures as part of costs. It can be argued, with some justification, that for modelling purposes it is necessary to simplify. This would be more convincing if there were a strong descriptive theory of the real-life capitalist firm, within which the model were explicitly located, so that one could see what has been omitted.

But more serious is that the firm's role in production is analysed as if it were a form of exchange. The firm's manifest role in creating new economic reality is not given prominence, with the implication that growth is seen as having to come from exogenous forces, thereby obscuring – or at least failing to explain – the inherent dynamism of the system itself. Such external forces include technical invention and/or innovation – which is odd because most growth is catch-up growth, i.e. the economic transformation is achieved by applying existing methods imported from elsewhere.

Most critically of all, textbook theory assigns a passive role to the firm. This is most extreme in the ideal type of “perfect competition”, in which the firm takes no initiative apart from setting production quantity in automatic response to market conditions, but is a more general feature of this approach. It may be that the efficiency of exchange is optimised by perfect competition, as the textbook models suggest, but this has nothing to do with the dynamism of actual capitalist real-economy firms. This approach ignores the initiating role, i.e. the *agency*, of capitalist firms as described above. I have outlined above how invention, entrepreneurship and innovation are shaped by the firm. In addition, the firm is central to many of the main topics of interest to economists. The distinguishing feature of the capitalist real economy is that *the firm takes decisions in the light of its economic environment*, in relation to setting quantity and price, as well as employment and investment, and that this has major macroeconomic consequences.

The capitalist firm as initiator

Initiation, success, and strength

By taking the initiative, the firm gains *ex ante* strength, derived from the prospect of its continuing in business, and thriving at least to the extent that it will be able to make all its payments. The degree of this *ex ante* strength depends on the perception of its potential for

success. This gives it a measure of power, in the sense of the ability to bring about change. It is thereby able to attract finance, obtain premises, enter into contracts with suppliers, etc. It can also employ workers, and in doing so it sets the basic characteristics of the newly-created jobs: the location, the range of tasks, the technology and working conditions, the wages, etc. This initiation or leadership role continues beyond hiring, and is the source of the authority relationship between employer and employee.

New firms have only this *ex ante* strength. For surviving firms, trust in the firm's ability to continue as a going concern and to thrive continues to be important. And in addition, an existing firm has a degree of *ex post* strength relative to its competitors, which depends on the extent to which it has proved able to realise its project – its degree of success., This could be by virtue of being able to produce at lower unit cost than its competitors, or because it has introduced a new or higher-quality product that has succeeded in the market [Joffe 2011]. The two together are reflected in the company valuation – for companies quoted on a stock exchange, the share price depends on perceived future prospects (*ex ante*) as well as on existing strengths (*ex post*). The gap between initiative and realisation is large, as many authors have pointed out, because of the central role of uncertainty, and because of the passage of time.

Quantity and price

The decisions on quantity and price are self-evidently made by the firm, in the light of its economic environment. In situations approximating “perfect competition”, the environment dominates, giving the firm little or no leeway. There is quite a lot of evidence on firms' price-setting, which has been collated [Lee 1999; Downward 1999]. The central feature is mark-up, the gap between price and unit cost, but there is no unique method by which this is done [Lee 1999]. It provides the profit (per unit) for the firm – as distinct from the “standard rate of return” that features in textbook models which implies a degree of uniformity that contradicts the abundant evidence on heterogeneity outlined above.

The textbook description involving marginal costs bears no relation to the reality as experienced by firms: in the 1930s, informal discussions between businessmen and Oxford academics established that the former think in completely different terms [Hall & Hitch 1939; Lee 1999]. This implies that even if the textbook account gives the correct prediction of the outcome, which is far from clear, it is completely unrealistic about the process.

Relative strength has a role in price setting: firms in a comparatively powerful position have an advantage, in being able to set prices that suit them. For example, a firm with a new product that is marketable has a degree of *ex ante* strength. A firm with an existing product that can be produced at lower unit cost has some *ex post* strength that gives it the initiative in its pricing decision, i.e. choice along a continuum from increased mark-up with maintained volume to constant mark-up but with lower price and therefore likely greater market share [Joffe 2011].

Employment

The firm's hiring decision is a second key area. As already stated, the basic characteristics of jobs are specified by the firm, including wage rates, in the light of what it perceives as likely to contribute most to long-term profitability.

This is not the conventional view in labour economics at the moment. The current canonical model describes employment as a search and matching operation, treating firms and potential workers in a symmetric fashion. Matching frictions give rise to search costs and unemployment, resulting in monopoly rents that are then shared between the parties [Pissarides 2009]. However, this predicts that cyclical volatility should apply to wages, not to employment, whereas the opposite is observed [Pissarides 2009]. (There is an obvious parallel here with the related puzzle: in capitalist economies, unemployment is frequently observed that is neither frictional nor cyclical, whereas mainstream theory predicts that market clearing should occur due to wage-undercutting by unemployed people.) It is possible for *ad hoc* modifications of the theory to generate a better fit to the data, but an alternative interpretation is that the labour "market" should not be analysed as a market in the usual sense, even one that has some special features, but rather should be examined in terms of its own empirically observed features – especially that firms have the initiating role in creating employment, and that they make the decisions on the location, number and characteristics of the jobs they create.

One promising approach starts from an orthodox viewpoint, but postulates that employers set wages, treating this as a case of monopsony (or oligopsony) [Manning 2003]. The argument is backed up by informal reasoning, that "it is very rare to see advertisements placed by workers setting down the wage at which they are prepared to work", buttressed by quotations from Smith, Marshall and others. It appears that there is no empirical work investigating this. If Manning is correct, it is the firm that takes decisions in the light of the existing constraints, e.g. what skills/experience of workers are available for what price, and in what location. The analysis of unemployment would by implication then be not in terms of a comparison of the available wage with the potential worker's reserve wage, but as the aggregate-level impact of decisions made by firms under the conditions prevailing in their economic environments.

Investment

A third focus is investment. It sets the nature and scale of production in the next period, with implications for employment, etc. It requires the same combination of initiative and finance as does setting up a firm, but with the option now of recycling retained profits. As with the employment decision, it is decided by the firm in the light of its economic environment, including potential demand for its product as well as the cost and availability of the necessary resources.

A conventional way of looking at investment has been to equate its cost with its value. The quantity of money invested, e.g. spent on new equipment, is regarded as one of the major inputs to production along with the quantity, and in some accounts also the productivity, of labour. This account fails to take account of heterogeneity in the degree of effectiveness of the investment decision, which is reflected in the heterogeneous outcomes briefly described above. In the real world, the way that investment funds are used is as important as their quantity. One immediate consequence is that firms do not all have the same rate of return on

capital, even when they are in the same sector and using the same technology. Thus, a degree of heterogeneity is generated endogenously, within the system. The degree of success in investment can be known only *ex post* for an individual decision, but may sometimes be regarded as a parameter at group level – for example as a national characteristic.

For the same reason, the accumulation of capital – traditionally seen as central to the growth both of the firm and of the economy – is merely a means to an end when seen in terms of the firm’s future. Accumulating capital only has an impact on future growth if it is then well used. However, capital accumulation does have a direct effect on firm size – and therefore at the sector level on market structure.

Real-economy investment is unlike financial-sector investment in that it involves buying products such as equipment, so is not “saving” that withdraws money from circulation. Like employment, it is another firm-based decision that has important macro consequences, because taken together the investment decisions of firms determine the aggregate production of the economy in future periods.

Conclusion

Advantages of a firm-based perspective

Mainstream theory analyses the capitalist economy as if it were a market that merely adjusts, without any concept of initiative or agency. The notion of the adjusting market is not wrong – though it needs to be adapted to deal with bubbles-prone markets such as real estate and finance – it is incomplete. It lacks a satisfactory answer to the question, “what are markets adjusting to?”. The implication is that economic life can only be altered by shocks, whereas it is evident that the actual capitalist economy has endogenous forces that generate many important phenomena. These are created largely by the heterogeneous performance of firms, and as an unintended consequence of their initiatives. Thus, adjustment is said to equalise the rate of return on capital, because capital flows into more productive uses. If this were the only force operating, there should by now be a single rate of return, except for deviations due to exogenous shocks. In contrast, there is a broad distribution (although this topic is massively under-researched [Wells 2007]), implying that there must also be a divergent force, along with the acknowledged convergent one.

The capitalist real economy is not a “market economy” – it is a hybrid. It does indeed contain markets that play indispensable roles. Trade and competition are central. But the trade and competition are *between capitalist firms*, and this feature transforms the way that the economy works. It explains why capitalist economies have their characteristic growth properties, and the role played by invention, entrepreneurship and innovation in this.

What is gained by using this firm-based approach to economic analysis? First, it has the advantage of describing the processes in the actual economy as they really occur, unlike for example the textbook account of price setting. It is an evidence-based account [Joffe 2014].

Secondly, it has the potential to provide micro (or meso) foundations for macroeconomic phenomena such as growth. In this respect, it has the decisive advantage that the macro-level evidence on the spatio-temporal distribution of modern growth corresponds with that on the prevalence of the capitalist firm. This is not true of a theory based on human nature (e.g. axioms of behaviour) that ignores institutions, which would imply that growth performance would be similar in all places and times. Nor is it true of an account that requires *external* technical change to drive the system, because the capitalist real economy clearly has inbuilt characteristics that propel it forward, unlike other systems.

Thirdly, a focus on firms has the advantage of combining an account based on productivity and profit, the firm's the degree of success on the supply side, with the availability of demand for its product. When aggregated up, this provides "micro" foundations for analysing aggregate demand. In addition, the long-term reduction of unit costs that characterises the Baumol-dynamic sectors of a successful capitalist economy generates increased buying power for consumers of the products of such sectors [Joffe 2011].

A fourth advantage is that a firm-based analysis can in principle provide an indication of the state of the real economy, in particular how successful it is in competing. This can provide a context for a macro/policy analysis; all too often, such an analysis is presented that takes no account of the state of the economy.

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