

5 Capital accumulation

Breaking the dualism of 'economics' and 'politics'

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Political economy attempts to tie together the quest for power with the pursuit of plenty. But things which need to be linked are assumed separate to begin with, and indeed, the distinction between power and well-being is a fundamental tenet of modern social thinking. The origin of this duality goes back to the emergence of industrial capitalism during the latter half of the eighteenth century. Classical political economists, siding with the rising bourgeoisie against the *ancien régime*, promoted a novel idea: the 'free market'. Their purpose was to separate civil society from the institutions of family, community and state in which it was previously embedded (Polanyi 1944). According to Adam Smith, free markets operated as an 'invisible hand', a mechanism which he claimed automatically allocated resources to their most efficient use. But in order to be effective, the invisible hand had to be left alone. The call for *laissez-faire* was therefore a call for the *depoliticization* of production and well-being.

And so from Smith onward, it became increasingly customary to separate human actions into two distinct spheres, 'vertical' and 'horizontal'. The vertical dimension revolves around power, authority, command, manipulation and dissonance. Academically, it belongs to the realm of politics. The horizontal axis centres around well-being, free choice, exchange and equilibrium – the academic preoccupation of economists. The consequence of this duality was to make modern political economy an impossible patchwork: its practitioners try to re-marry power and well-being, but having accepted them as distinct-spheres of activity to begin with, the marriage is inherently shaky.

A principal casualty of this separation is the theory of capital. Academic departmentalization placed it firmly in the hands of economists, leaving political scientists, sociologists and anthropologists with practically no say. The result was emphasis on material considerations and all but complete neglect of power. This did not clear the water, though, for despite having monopolized the concept of capital, economists were still unable to decide what it meant. While all agreed that capital was monetary wealth, figuring out what made it grow proved much harder. In general, economists tried to make the accumulation of monetary wealth a consequence of production, but as the latter grew in complexity the link became difficult to pin down. Moreover, having dispensed with the study of power to begin with, economists were unable to use it as a possible solution for

their riddle. There were exceptions, of course, the most noted of which was Karl Marx. As a political economist, Marx tried from the very outset to integrate, not separate power and production. Yet for all its insight, his synthesis remained vulnerable. He insisted on building the concept of capital squarely on the productive labour process, which in turn meant that the broader institutions of power, however prominent in his historical narratives, remained secondary in his *analytical* abstractions.

Although there is an undeniable connection between capital and production, the link is neither simple, nor sufficient as a basis for a theory of capital. Some Marxists, particularly those associated with the social structures of accumulation and regulation schools, have attempted to augment the material concept of capital with cultural and political 'variables' (for instance, Aglietta 1979, Kotz *et al.* 1994, and Dunford, Chapter 10 in this volume). This, though, does not get to the root of the problem. The solution is not to 'add' power, but to integrate it into the very definition of capital. Capital must be understood as incorporating both power and productivity.

Such broader definition could prove important for international political economy. Specifically, it can help us re-interpret state and capital not as separate entities standing against each other, but rather as partly overlapping institutions with intimately intertwined histories. From this perspective, the gradual ascent of global capitalism reflects the changing relationship – both contradictory and reinforcing – between state power anchored in sovereignty and capitalist power rooted in ownership.

This chapter paints the background for such a proposal, outlining the main problems of capital theory, key issues which need to be resolved, and the way in which an alternative concept of capital may affect the future evolution of IPE. Briefly, existing theories of capital can be classified into three groups, based on their relationship to production. The neoclassical paradigm makes output a function of *factor inputs* (the amount of the different factors of production – labour, raw materials and capital goods – used to produce that output). Capital, perceived as one of these factors, is counted in its own technical units. Marxists view production as a socio-material transformation in which capital changes its skin from money, to commodities, to more money. The engine of this transformation is the *labour* process, in which living labour power is converted into 'dead labour' embedded in commodities. Capital, growing directly from this process, is measured in labour time. For the institutionalists, production is a complex *societal* process, whose qualitative intricacies cannot be easily deciphered, let alone quantified. In this latter framework, capital is neither a productive input nor a material output, but rather a symbolic pecuniary crystallization of the power controlling the process. Seen in that way, capital can be measured only in differential terms, relative to other capitals. Conceptually, neoclassical and Marxist theories are built from the bottom up, deriving accumulation from the underlying process of production. The institutionalist view, on the other hand, is constructed from the top down, with production subjugated to accumulation. The troubled history of capital theory suggests that bottom-up explanations are

logically vulnerable if not impossible. The top-down view, although largely unexplored, is unlikely to face the same problems. Indeed, by focusing directly on power and on the way it shapes societal reproduction, this route not only bypasses the intractable 'input-output structure' of industry, but also offers a way of integrating politics into our very conceptualization of capital.

The material basis of capital

Despite their pivotal significance, the definition of capital and the meaning of accumulation have remained unsettled (Schumpeter 1954: 322–327, 625–645; Braudel 1982: 232–249). Historically, the principal contention stemmed from trying to marry two different perceptions of capital: one as an income generating fund, or 'financial wealth', the other as a stock of physical instruments, or 'capital goods' (Pasinetti and Scazzieri 1987). The central question has been whether and in what way 'capital goods' are productive, and how their productivity affects their overall magnitude as 'capital' (Hennings 1987). Mainstream economics has generally tried to show that capital goods were indeed productive, and that this 'positive' attribute is what made capital as a 'fund' valuable.

The marriage did not work well, partly due to a large age difference: the concept of 'capital' predates that of 'capital goods' by a few thousand years, suggesting their overlap is not that self-evident. The older partner, capital, comes from the Latin *caput*, a word whose origin goes back to the Fertile Crescent. In both Rome and Mesopotamia capital had a similar, unambiguous economic meaning: it was a monetary magnitude. There was no relation to produced 'means of production'. Indeed, *caput* meant 'head', which fits well with another Babylonian invention, the human 'work day' (Bickerman 1972: 58, 63; Schumpeter 1954: 322–323).

The younger partner, 'capital goods', was born millennia later, roughly together with capitalism. The growing significance of mechanized instruments captured the attention of pre-classical writers, but initially they referred to these mostly as 'stocks' (Barbon 1690; Hume 1752). The Physiocrats were the first to give 'capital' a productive role, and it was only with Quesnay and Turgot during the latter half of the eighteenth century, that the association between 'capitals' (as monetary advances) and mechanized production started to take shape (Hennings 1987).

Attempts to link capital and capital goods began in earnest with the classical writers, and from Adam Smith onward the productive attributes of capital have finally assumed centre-stage. The classical economists did not have a complete theory of capital, however. They tended to treat the amalgamate of 'capital goods' as a 'fund' or 'advance', whose principal role was to 'assist' the original factors of production – labour and land. Although the general view was that capital goods were valuable due to their productivity, no attempt was made to quantify their 'amount'. The link between capital goods and capital was therefore left unspecified. In hindsight, the principal obstacle was that the classicists still viewed capital goods as a 'secondary' input, and in that sense *qualitatively*

different from the original 'primary' inputs. This proved no more than a temporary roadblock, however.

Taking the classical lead but without its associated inhibitions, the neoclassicists followed Lauderdale (1804), making capital goods a fully 'independent' factor of production, on a par with labour and land. Their view of capital, articulated since the latter part of the nineteenth century by writers such as Wicksteed, Marshall, Menger and primarily Clark, emphasised the *distinct* productivity of capital goods, elevating them from mere accessories to requisites. In his book *The Distribution of Wealth* (1899), Clark used this newly-found symmetry among the factors of production to offer an alternative theory of distribution. The theory stipulated a direct mathematical link between income and production, based on two principal assertions. One was that output was a function of quantifiable 'factors of production', each with its own distinct productive contribution. This assumed that labour, land and capital were observable and measurable (so for instance, we can see that production uses 20, 10 and 15 units of each factor, respectively); that the way these factors interacted with one another in production was similarly straightforward (so we know exactly what factors enter the production process and how they affect all others factors); and that we can associate definite portions of the output with each of the factors (for instance, labour contributed 40 per cent, land 15 and capital goods 45). The second assertion was that the income of these factors was proportionate to their contributions, and more precisely, to their marginal contributions (so that the wage rate is equal to the productive contribution of the last worker added to production, the rent is equal to the contribution of the last hector of land, and the profit rate is equivalent to the contribution of the last unit of capital).

Formulated at a critical historical junction, the new theory provided a powerful justification as well as explanation. The need for such a theory became apparent during the latter part of the nineteenth century, when the emergence of US 'big business' accelerated the centralization of capital, raised profit margins and heightened income inequality, much along the lines anticipated by Karl Marx. These new circumstances made earlier profit theories – for instance those based on 'abstinence' (Senior 1872), or on 'waiting' (Marshall 1920, first published in 1890) – look hopelessly irrelevant. According to these earlier theories, capitalists who invested their money were abstaining from current consumption, and therefore had to be remunerated for the time they waited until their investment matured. Yet by the end of the nineteenth century, the huge incomes of corporate magnates such as Rockefeller or Morgan enabled them to consume conspicuously regardless of how much they invested. Moreover, when these magnates chose to be frugal, the reason was usually power, not delayed consumption. Clearly, there was a pressing need for a more robust ideology, and this is where Clark's theory of marginal productivity came into the picture.

Contrary to the Marxist claim, Clark insisted that capital was not in the least parasitic: much like labour, it too received its own marginal productivity, an income which was therefore essential for the growth process. The marginal productivity theory enabled neoclassicists to finally remove their classical

shackles. The classicists, whether radical or liberal, were interested primarily in well-being and distribution. Production was merely a means toward those higher ends. Clark helped reverse this order, making distribution a corollary of production. And indeed, since the turn of the century, attention gradually shifted from the causes of income inequality to its ramifications, a subject economists felt could be safely delegated to sociologists and political scientists. With so much going for it, the marginal productivity theory was rapidly endorsed by professional economists and, of course, by their 'captains of finance'. Rockefeller, who donated \$45 million to the University of Chicago where Clark taught, later stated 'it was the best investment I ever made' (Collier and Horowitz 1976: 50).

Some very unsettling questions

Clark's logical foundations, though, were hardly solid. One central problem, identified already by Wicksell (1935: 149), was the 'quantity' of capital. In the real world, capital was usually associated with numerous capital goods. Unlike labour and land, however, these were *heterogeneous*, and therefore could not be aggregated in terms of their own 'natural' units.¹ The only way to 'add' a machine producing aircraft parts to one making shoes, to another making biscuits, is by summing their values measured in *money*. The money value of any capital good – that is, the amount investors are willing to pay for it – is the present value of its expected future profit (computed by discounting this profit by the prevailing rate of interest, so $Value = Expected\ profit / Rate\ of\ interest$). Now, as long as our purpose is merely to measure the money value of capital, this method is hardly problematic, and is indeed used regularly by investors around the world. The difficulty begins when we interpret such value as equivalent to the 'physical' quantity of capital. To see why, suppose that the rate of interest is 5 per cent, and that a given machine is expected to yield \$1 million in profit year after year. Based on the principle of present value, the machine should be worth \$20 million (= \$1 million / 0.05). But what if expected profit were to go up to \$1.2 million? The present value should rise to \$24 million (= \$1.2 million / 0.05), but that would imply that the very same machine can have more than one quantity! Clark's productivity theory of distribution was therefore based on a *circular* notion of capital: the magnitude of profit was explained by the marginal productivity of a given quantity of capital, but that quantity was itself a function of profit, which the theory was supposed to explain in the first place! Another, perhaps more substantive 'social' challenge to the concept of physical capital came from Veblen, to which we turn later. Yet, for almost half a century Clark's theory remained resilient, and it was only during the 1950s that the early criticism against it began to echo.

The first shots were fired by Robinson (1953–4) and Champenowne (1953–4), followed by the publication of Sraffa's seminal work *The Production of Commodities by Means of Commodities* (1960). Sraffa showed unequivocally that the 'quantity of capital' was a fiction, and that productive contributions could not be measured without prior knowledge of prices and distribution (which the theory

was supposed to explain). Now, because capital goods were heterogeneous, neoclassicists were never able to *directly* aggregate them into capital. This aggregate could none the less be 'quantified', they argued, if only indirectly, by looking at the rate of interest. The logic was simple: the higher the rate of interest, the more expensive capital becomes relative to labour, and hence the less of it will be employed relative to labour. According to this view, the 'capital intensity' of any productive process, defined as the ratio between the quantity of capital and the quantity of labour, should be negatively related to the rate of interest: the higher the rate of interest, the lower the intensity of capital. Of course, the relationship must be *unique*, with each 'capital intensity' associated with one and only one rate of interest. Otherwise, we end with the same capital having more than one 'quantity'. But then that is exactly what Sraffa found ...

His famous 'reswitching' examples demonstrated that, contrary to neoclassical theory, 'capital intensity' need not have a one-to-one relationship with the rate of interest. For instance, consider an economy with two technologies: process *X* which is capital intensive and process *Y* which is labour intensive (i.e., less capital intensive). A rise in the rate of interest makes capital expensive relative to labour, and according to neoclassical theory should cause capitalists to shift production from *X* to *Y*. As Sraffa showed, however, if the rate of interest goes on rising, it is entirely possible – indeed most likely – that process *Y* will once again become the more costly, causing capitalists to 'reswitch' back to *X*. This creates a logical contradiction, since if we accept the rate of interest as a proxy for capital intensity, *X* appears to be both capital intensive (at a low rate of interest) and labour intensive (at a high rate of interest). In other words, the same assortment of capital goods represents *different* 'quantities' of capital The result of Sraffa's work was not only to leave profit in search of explanation, but also to rob capital goods, the basis of so much theorizing, of any fixed magnitude.

These writings marked the beginning of the famous 'Cambridge Controversy', a heated debate between Cambridge, England, where Robinson and Sraffa taught, and Cambridge, Massachusetts in the USA, the home of many neoclassical economists (the controversy is summarized in Harcourt 1969, 1972). Eventually, the neoclassicists, led by towering figures such as Nobel Laureate Paul Samuelson, conceded there was a problem, offering to treat Clark's neoclassical definition of capital not literally, but as a 'parable' (Samuelson 1962). A few years later, Ferguson, another leading neoclassicist, admitted that because neoclassical theory depended on 'the "thing" called capital' (1969: 251), accepting that theory in light of the Cambridge Controversy was therefore a 'matter of faith' (1969: xvii–xviii).

Yet faith was hardly enough. The fact that capital did not have a fixed 'physical' quantity set off a logical chain reaction with devastating consequences for neoclassical theory. It began by destroying the notion of a production function which, as noted above, required that all inputs, including capital, have measurable quantities. This in turn nullified the neoclassical supply function, which was built on the basis of such production function. And with the supply function gone, the notion of equilibrium – the intersection between supply and demand –

was similarly made irrelevant. The implication was nothing short of dramatic, for without equilibrium, neoclassical economics failed its two basic tasks of explaining prices and quantities.

Clearly, this was no laughing matter. For neoclassical theory to hold, the belief that capital was a *material* thing, a well-defined physical quantity with its own intrinsic productivity, had to be retained at all cost. The first and most common solution was to gloss the problem over, or ignore it altogether, and as Robinson (1971) predicted and Hodgson (1997) confirmed, so far this seems to be working. Indeed, most economics textbooks (including Samuelson's!) continue to 'measure' capital as if the Cambridge Controversy never happened. A more subtle method was to argue that the problem of quantifying capital, however serious in principle, was of limited importance in practice (Ferguson 1969). Given the abstract nature of neoclassical theory, though, resting its defence on relevance is hardly persuasive. The third and probably most significant response was to embrace disaggregate general equilibrium models. These latter models try to describe – analytically, that is – every aspect of the economic system, down to the smallest detail. The production function in such models separately specifies each individual input, so the need to aggregate capital goods into capital does not arise in the first place. General equilibrium models have serious theoretical and empirical weaknesses.² Their most important problem, though, comes not from what they try to explain, but from what they ignore, and that is *capital*. While the 'shell' called capital may or may not consist of individual physical inputs, its existence and social significance are hardly in doubt. By ignoring this pivotal concept, general equilibrium turns itself into a hollow formality.³

Of course, ignoring problems does not solve them. This is evident most vividly in empirical neoclassical studies, where production functions are used to explain changes in output. The results of such studies are usually highly disappointing, in that only part of the output – and often only a small part – is explained by the 'observed' inputs, leaving a sizeable 'residual' hanging in the air. As we elaborate later in this chapter, one possible reason for this failure is that production is a holistic process, and hence cannot be made a 'function' of individual inputs in the first place. Neoclassical economists reject this possibility. Instead, they prefer to circumvent the problem by separating inputs into two categories – those which can be observed, namely labour, land and capital, and those which cannot, lumped together as technology. This by-pass, suggested by Marshall (1920) and popularized by Galbraith (1958, 1967), enables mainstream economists to argue that the output 'residual' of empirical production functions is not a theoretical embarrassment, but simply a 'measure of our ignorance'. The problem, they say, is that we do not know how to 'measure' technology. Had we known, and had we incorporated the 'quantity' of technology into the production function, the 'residual' would have most surely disappeared. Unfortunately, this argument is only too convenient in that it can never be verified! Theories that claim to explain reality should be tested on how well they do so – the smaller their 'error' the more convincing the theory. Here, however, the problem is not the theory but the facts, so the error does not matter ...⁴

Neoclassical theory remains an edifice built on foundations of sand. The most questionable of these foundations is the notion that capital is a measurable entity, denominated in some 'physical' units and possessing its own intrinsic productivity. In fact, capital fulfils none of these requirements. The result is that the theory is unable to convincingly explain not only the structure of prices and production, but also the distribution of income which supposedly results from such structure.

The Marxist entanglement

Throughout *Das Kapital* there is no 'analytical' definition of capital, perhaps for a good reason. In contrast to classical theory, Marx saw capital not as a 'thing', but as a comprehensive social relation whose description was intertwined with its explanation. The context of capital included the production process, the division of labour, technological progress and, above all, the institutional and power arrangements shaping the collective consciousness. According to Wright (1977: 198), the notion that capital accumulation involves merely the tangible augmentation of machinery, buildings, raw materials and alike is alien to Marxist thinking. Instead, he maintains, 'capital accumulation must be understood as the reproduction of capitalist social relations on an ever-expanding scale through the conversion of surplus value into new constant and variable capital'. Emphasising this aspect of Marx's writing, Shaikh (1990: 73) similarly reiterates that 'capital is not a thing, but rather a definite set of social relations', and that in order to understand it, 'one must therefore decipher its character as a social relation'.

Marx started with three fundamental principles. The first was that human history was driven largely by a struggle over economic surplus. The second was that production and redistribution were inseparable: surplus presupposed a class society, whereas classes meant a struggle over how this surplus was created and who was going to get it. The third principle was that, regardless of its particular form, surplus was always generated through the labour process. The analysis of every class society therefore had to begin with the underlying process of production. This latter conviction created the infamous 'materialistic' bias underlying Marx's theory of accumulation.

The consequence of this bias was over-preoccupation with contents, less attention to form. The content of capitalism is the technological fusion of workers and instruments through an ever expanding process of production and consumption. The form of capitalism is capitalist control, that is, the manipulation of human beings via the abstract accumulation of ownership titles. Marx repeatedly emphasized the interdependence of the two; he nevertheless failed to integrate this interdependence into his *analytical* framework of accumulation. When it came to describing accumulation in *abstract* terms, his attention was focused almost solely on production, leaving the dynamics of power practically ignored. The result was that although Marx saw accumulation as an antagonistic social process, in the end his analysis got entangled in the same 'materialistic' trap confounding the neoclassicists.

The main difficulty, known as the 'Transformation Problem', arose in converting production values (conceptualized in labour time) into market prices (measured in dollars and cents). The conversion proceeded in two steps: one from labour values to production prices (which would prevail under hypothetical conditions of competition), and the other from production prices to market prices (as observed in our 'imperfect' reality). Both steps were mired in controversy. In the first stage, Marx's value equation required the equalization of three ratios across the economy: the rate of profit (ratio of surplus value to the sum of constant and variable capital), the rate of exploitation (ratio of surplus value to variable capital) and the organic composition of capital (ratio of constant to variable capital). Competitive forces were thought to equalize the first two, but there was no comparable force to equalize the third.⁵ The logical result was production prices which generally deviated (albeit predictably) from labour values. Starting from Marx himself, the history of Marxian economics is marked by attempts to resolve this problem while retaining the 'materialistic' assumption which created it in the first place. The inevitable consequence was to blur the meaning of accumulation, which in turn placed the entire labour theory of value in doubt.

Until the 1950s, discussion of the Transformation Problem was largely confined to Marxist circles. But then external attacks began to mount. In 1957, Samuelson showed that, mathematically at least, the Transformation Problem was simply a 'complicating detour'. Marx stipulated a two-stage analytical process, moving from the conditions of production, to values, to prices of productions. In fact, argued Samuelson, the process required only one step, without any intermediate resort to values. 'Marxolaters, to use Shaw's term,' he suggested triumphantly, 'should heed the basic economic precept, valid in all societies, cut your losses' and dump the labour theory of value (1957: 891-892, cited in Howard and King 1992: 242).

And then came Sraffa's *Production of Commodities by Means of Commodities*. As noted earlier, the immediate casualty was neoclassical capital theory, but that was just the beginning. Based on Sraffa's framework, it became apparent that Marxist theory too was vulnerable to inherent contradictions, going far beyond Samuelson's redundancies. As Steedman (1975, 1977) and others have shown, the value-price transformation was not only a complicating detour, but generally an *impossible* detour. Once the analysis moves from elementary to joint production processes – that is, to processes in which multiple inputs jointly produce multiple outputs – labour contents could be indeterminate, nil, even negative! Needless to say, numerous attempts were made to resolve these inconsistencies, but such solutions came at the cost of complicated formulas and restricting assumptions, further undermining the theory's overall appeal.

In our view, the Marxist entanglement and neoclassical débâcle share the same root, in that they both try to measure accumulation *solely* on the basis of production. Marx (1867: 114) insightfully made the magnitude of value an expression of the 'portion of the total labour-time of society required to produce it'. His troubles began when, in line with the classical political economists before him, he too tried to build this total *from the bottom up* – that is, on the basis of indi-

vidual labour inputs. In this, Marx not only assumed that production contained the code of distribution and accumulation (which the post-Sraffa controversy put into question), but also that the production processes, including that of 'labour power', could be *objectively* identified in functional, quantitative terms. As it turned out, this was impossible not only in practice, but also in principle.

Interestingly, Marx was remarkably prophetic in anticipating the demise of his own labour theory of value, and for this very reason. His insight is worth quoting at some length:

As large-scale industry advances, the creation of real wealth depends less on the labour time and quantity of labour expended than on the power of the instrumentalities set in motion during the labour time Human labour then no longer appears enclosed in the process of production – man rather relates himself to the process of production as supervisor and regulator He stands outside of the process of production instead of being the principal agent in the process of production. In this transformation, the great pillar of production and wealth is no longer the immediate labour performed by man himself, nor his labour time, but the appropriation of his own universal productivity, i.e., *his knowledge and his mastery of nature through his societal existence* – in one word, the development of the *societal individual* As soon as human labour, in its immediate form, has ceased to be the great source of wealth, labour time will cease, and must of necessity cease to be the measure of wealth, and the exchange value must of necessity cease to be the measure of use value The mode of production which rests on the exchange value thus collapses.

(*Grundrisse der Kritik der politischen Ökonomie*: 592f., trans. from the German by Marcuse 1964: 35–6, emphases added)

This intriguing idea is typical of Marx's search for inherent contradictions: the very development of the forces of production was set to undermine capitalism. In a complex socio-technological setting, he argued, the direct relationship between labour inputs and final prices was bound to break down. When that happens, price setting becomes increasingly arbitrary, capitalists lose their moral conviction, and with their sense of hegemony seriously undermined, their system can no longer be sustained. Marx was of course proven wrong in believing that the demise of his own theory would bring capitalism down. Perhaps, contrary to his conviction, labour values were not a pre-requisite for a functioning capitalism in the first place. His insight into the societal nature of production, however, and into the insurmountable problems this created for political economy, was prescient.

The difficulty is simple: if production cannot be mapped from the bottom up, neither can distribution and accumulation. Clearly something is missing from the story of capital, and that something is power. This neglect of power, perhaps more than anything else, is the reason why production-based theories of capitalism run into the wall. Indeed, even if we ignore the first phase of the Transformation Problem, there remains the second step of transforming prices

of production into final market prices. The main difficulty here is the necessity of perfect competition (Howard and King 1992: 282; Sweezy 1942: 270–274). Specifically, firms and workers must be ‘price takers’ (unable to individually affect prices and wages), otherwise market prices need not be proportionate to production prices. Moreover, capital and labour must be able to move freely between industries, since this is the process by which the rates of profit and exploitation equalize across the economy.

Yet these conditions of perfect competition do not exist in reality. Indeed, one could argue that such competition is alien to the very idea of a class society. If instead of competition we recognize the myriad of restrictive institutions such as monopolies and oligopolies, redistribution by government, dual labour markets, core and periphery interactions and so on, labour values become practically useless for the study of prices and accumulation. In fact, under non-competitive conditions, with the wage rate deviating from the worker’s ‘socially necessary’ cost of reproduction, the value of labour power itself – the basic input in all production processes – is already ‘contaminated’ by power relations. (Paradoxically, Marx was the first to predict these deviations from competition, particularly the process of capital centralization and the growth of state power, although he did not explore their detrimental implications for his own labour theory of value.)

The problem of all production-based theories of accumulation – be they neoclassicist or Marxist – is well reflected in their inability to clearly define *what is being accumulated*. The implicit assumption is that accumulation could somehow be measured in *material* terms. In the neoclassical world, where the goal is ‘well-being’, capital is presumably reducible to some units of pleasure, or ‘utils’ as the neoclassicists fondly call them. Marxists see the capitalist as driven by the circular goal of accumulation for the sake of accumulation, a principle best understood in terms of power. Their analytical category of capital, however, is measured in terms of ‘dead labour’, and therefore remains overly entangled in the material intricacies of production.

Institutionalist critique and reconstruction⁶

Is there a solution? Does this solution involve the recognition of power as a central axis of analysis? And if so, can power be put into the very definition of capital? The answer requires that we re-examine the fundamental relationship between production and distribution. Most economists, while recognizing the growing complexity of production, refuse to accept its implications for distribution which they continue to link to productivity. The earliest and most notable exception was Thorstein Veblen, whose writing coincided with the emergence of large-scale industry and big business in the USA (cf. 1898, 1899, 1904, 1908a, 1908b, 1908c, 1908d, 1909, 1923). In contrast to the neoclassicists who built their theory on *factor* productivity, and to the Marxists who rested it on *labour* productivity, Veblen began where Marx ended, emphasizing *societal* productivity.

A theory of mature capitalism, argued Veblen, must begin from the viewpoint of its principal actor, the businessman. The emergence of large-scale production

since the latter part of the nineteenth century, he maintained, has removed capitalists from the immediate realm of production, turning them into 'absentee owners'. Contrary to the earlier 'captain of industry' who both owned and supervised production, the modern businessman was a 'captain of finance', an absentee owner whose activities and interests focused not on production but on the investment of funds. For the absentee investor, capital is finance and *only* finance. It represents neither tangible means of production, nor intangible knowledge, but rather the present value of expected future profit. The key to accumulation lies in what makes such profit grow, and according to Veblen this has to do not with production, but with the *control* of production. From this perspective, capital incorporates power as well as productivity.

Veblen's starting point was a fundamental distinction between 'industry' and 'business'. By industry he meant the *entire* societal process of production. This process comprised the whole fabric of human knowledge, including the sciences, technology and the underlying cultural traits which together – and *only together* – made human endeavour productive. Veblen rejected at the outset not only the notion of factor productivity entertained by the neoclassicists (which indeed no one has thus far been able to observe), but also the very existence of individual factors of production. Productivity, he argued, was an attribute of society as a whole, a feature of 'industry at large'. Machines, raw materials or human muscles were productive only as repositories of societal knowledge. Without such knowledge, they were merely non-economic objects.

The most important implication was that distribution was necessarily political in the wider sense of the term. Since individual factors of production did not exist to begin with, they could not possibly be used to explain the income of different social groups. The secret of distribution lay *outside* industry. And indeed, under capitalism, industry was controlled by 'business', which for Veblen comprised the institution of absentee ownership and the political context in which such ownership was embedded. The goal of business was profit, an undifferentiated claim on the income generated by industry at large. But since business and industry were distinct spheres to begin with, such profit could be secured only insofar as the former limited, or threatened to limit, the free functioning of the latter:

Plainly, ownership would be nothing better than an idle gesture without this legal right of sabotage. Without the power of discretionary idleness, without the right to keep the work out of the hands of the workmen and the product out of the market, *investment and business enterprise would cease*. This is the larger meaning of the Security of Property.

(Veblen 1923: 66–67, italics added)

The essential contrast, then, is between an industrial realm whose functioning depends on integration, coordination and cooperation, and a business sphere which thrives on antagonistic power. It is the control of the former by the latter which determines, albeit pervertedly, how income is distributed.

From a Veblenian perspective, profit (including interest) is a nonlinear function of production. This is illustrated in Figure 5.1, which depicts the utilization of industrial capacity on the horizontal axis against the capital share of income on the vertical axis. Up to a point, the two go together. After that point, the relationship turns negative. The reason is easy to see by looking at extremes. If industry came to a complete standstill, profit would be nil (bottom left point in Figure 5.1). But profit would also be zero if industry always and everywhere operated at full socio-technological capacity (bottom right point). The reason is that under this latter scenario, industrial considerations rather than business decisions would be paramount, production would no longer need the consent of owners, and these would then be unable to extract their tribute profit.

In a capitalist society, 'business as usual' means oscillating between these two hypothetical extremes, with absentee owners limiting industrial activity to a greater or lesser extent. This limitation is what Veblen called 'sabotage'. When business sabotage becomes excessive, pushing output toward the zero mark, the result is recession and low profit. When sabotage grows too loose, industry expands toward its societal potential, but that too is not good for business, since loss of control means 'glut' and falling profit. For owners of capital, the ideal condition, indicated by the shaded arc in Figure 5.1, lies somewhere in the middle, with high profits being earned in return for letting industry operate, though *only at less than full potential*. Achieving this 'optimal' point requires

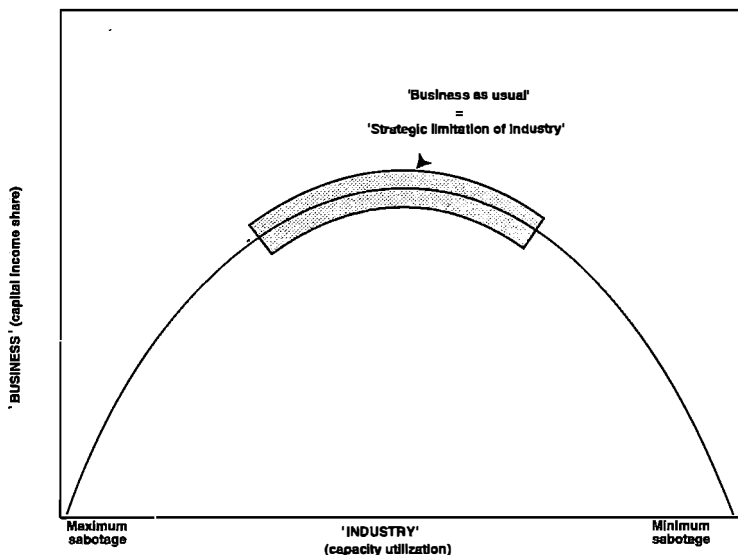


Figure 5.1 Business and industry

Goldilocks tactics, neither 'too warm' nor 'too cold'. In the sardonic language of Veblen, it calls for the *strategic* limitation of industry through a 'conscious withdrawal of efficiency'.

This theoretical relationship receives an astounding empirical confirmation from the recent history of the USA, depicted in Figure 5.2. The chart contrasts 'business', measured by the income share of capital on the vertical axis, with 'industry', measured by the rate of unemployment on the horizontal axis (inverted). The data clearly show the negative effect on business of *both* 'excessive' industrial sabotage until the early 1940s, as well as of 'insufficient' sabotage during WWII. 'Business as usual' was restored only after the war, with growing industrial limitations helping capitalists move up and to the left on the chart, toward their 'optimal' income share.

The nature, methods and implications of such limitations are inherently political. Indeed, as capitalism matures, business enterprise comes to incorporate not only private ownership and market exchange, but also larger parts of the legal, customary and ideological codes of conduct, as well as of the institutions and organizations which, taken together, comprise what we call the 'state'. Business limitations rely heavily on tactics such as the manipulation of 'wants', collusion, the erection of entry barriers, or the threat of dumping, but these are only part of a wider picture. Under modern capitalism, the control of industry also

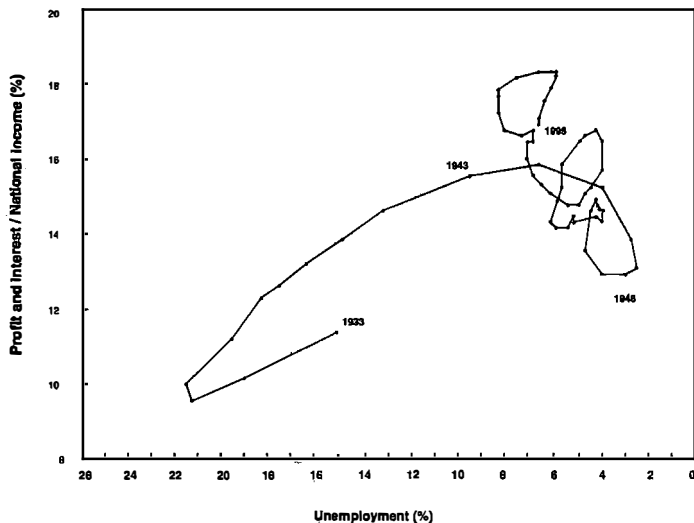


Figure 5.2 Business and industry in the USA

Source: US Department of Commerce.

Note: Series are expressed as 5-year moving averages

involves – indeed necessitates – a wider set of institutions and actions such as government policies, legal protection for property rights, education and conditioning, policing, bilateral and multilateral international institutions, and the occasional use of military force, to name only a few. Capital, understood as the power to control societal production for business ends, *cannot exist outside this wider political context.*

The institution of absentee ownership, and the notion that profit and accumulation derive from business limiting industry, suggest that all capital is *intrinsically* unproductive. This view contrasts sharply with Marx's 'fraction' taxonomy, which differentiates productive from unproductive capitals. According to Marx, capital accumulates through a circulation scheme, $M-C-P-P^*-C^*-M^*[\text{JN1}]$, where financial capital (money M), turns into commercial capital (commodities C), to be made into industrial capital (work in progress, or productive capital P), producing more industrial capital (P^*), converted again into commercial capital (more commodities C^*) and finally into financial capital (more money M^*). Although the circulation of capital is a single process, during the nineteenth century, each 'cycle' (namely, $M-M$, $C-C$ and $P-P$) appeared dominated by a different group, or fraction of the capitalist class. Of these, the industrial fraction was deemed productive, the 'engine' of value and surplus value. The financial and commercial fractions, on the other hand, were seen as largely unproductive, deriving their profit through an intra-capitalist redistributive struggle. There are two serious problems with this view.

The first, theoretical problem, concerns the very link between circulation and accumulation. Marx's circulation scheme describes accumulation in *backward-looking* terms. Profit is earned as a *consequence* of production, making accumulation the *end* of the process, to be measured in units of 'dead labour'. Absentee ownership reversed this order, turning accumulation into a *forward-looking* process. The value of a corporation, measured by its capitalization on the bond and stock markets, reflects not its past profit and interest, but what it is expected to earn in the *future*. This means that accumulation takes place before, not after production.⁷ The forward-looking nature of the process is highly significant, since it severs the link between accumulation and circulation. Contrary to Marx's scheme, the corporation's capital in fact never gets into 'circulation' in the first place. Indeed, being merely a symbolic valuation, a present value of future earnings, it *cannot* be circulated. What gets circulated are the resources the firm has at its disposal – money, raw materials, semi-finished goods and depreciated machinery and structures – but the value of these resources is generally unrelated to the corporation's outstanding capitalization. This creates a problem, for with capital delinked from circulation, how could its fractions, embedded as they are in such circulation, be identified?

The second problem is historical. It arises because absentee ownership enables even small investors to achieve extensive diversification, which in turn makes the various 'fractions' difficult to pin down. For example, how are we to classify conglomerates such as General Electric, DaimlerChrysler, or Philip Morris, which operate in hundreds of different sectors across the entire spectrum from finance, through raw materials, to trade, production, entertainment, advertising

and distribution? Moreover, diversification has practically broken the functional connection between profit, which is reported by *business firms*, and industrial classification which is based on the *type of production* (US Department of Commerce 1986: xiv). The result is that the very meaning of 'industrial', 'commercial' and 'financial' profit is no longer clear. For instance, in the national accounts, 'manufacturing' profits denote the earnings of firms whose largest *single* line of business, measured in sales, is manufacturing. But if, as often is the case, manufacturing represents only a small part of such sales, the result is that the bulk of 'manufacturing profit' in fact comes from lines of activity *other than manufacturing!* And the problem does not go away even if we limit ourselves to an individual firm. The difficulty here is due to non-arm's-length, intra-firm transactions and 'transfer pricing'. For example, if GE Capital subsidizes GE's jet-engine division by supplying it with cheap credit, the result is to lower profit in the former and raise in the latter, without any change in production and sales. All of this suggests that the fraction view cannot be treated as a universal feature of capitalism. It may have been useful during the pre-diversification phase, but is no longer adequate for the era of absentee ownership and conglomeration.

All capital, including that which is formally associated with 'production', is inherently unproductive. From an institutionalist perspective, the very classification of capitals along lines of industrial activity, even in the absence of diversification and forward-looking capitalization, is misconceived. Production is always a *societal* activity, carried through the *integrated* realm of industry. General Motors does not produce cars. It *controls* the production of cars. But then so do firms such as Mitsubishi Trading and Deutsche Bank. Through different forms of *power*, each company controls key aspects of the production of *cars*, which in turn enable it to command part of the total *societal* profit. The way to differentiate between firms, therefore, is not on the narrow basis of production, but along broader lines of power.

Understood as a power institution, capital could be likened to a 'mega-machine', somewhat along the lines suggested by Lewis Mumford (1967, 1970). Tracing the long historical link between technology and power, Mumford argued that early machines were made not of physical matter, but of humans. In the great deltas of Egypt, Mesopotamia, China and India, the first feats of mechanization were achieved through the formation of giant *social* organizations. The visible output of those early mega-machines were massive public works, such as palaces, citadels, canals, and pyramids. These, though, were largely means to an end. As Orwell put it, 'The object of power is power' (1949: 267), and indeed, according to Mumford, the true purpose of the ruling king and priests was the very assembly, operation and control of the *mega-machine itself*.

Extending this concept to the contemporary business world, we can argue that the earlier elite association of kingship and priesthood has now been replaced by a coalition of capitalists and state officials, overseeing a new mega-machine named capital. The visible 'output' of this new mega-machine is profit, but that is merely a code of power. What is being accumulated is neither future utility nor dead labour, but *abstract power claims on the entire process of social reproduction*.

Although driven by a similar quest for power, capital is qualitatively different from the ancient mega-machine. Older forms of power, for instance those institutionalized through bureaucracy, gender or race, are usually uni-dimensional and relatively inflexible. Capital, in contrast, is multi-dimensional and highly supple. There are four main reasons for this.

First, the process of commodification, when extended to capital, makes power itself vendible. Given that buying and selling capital is the very essence of investment, the result is not only to 'normalize' the expansion of power, but also to remove all intrinsic barriers on such expansion short of a world monopoly.

Second, in contrast to other, socially unique codes of power, profit is measured in common monetary units and carries more or less the same power prerogatives all over the world. This universality makes the geographical expansion of capital power far easier than that of other, more unique forms of power.

Third, the focus on profit enables power to expand indirectly as well as directly. The ancient mega-machine was a relatively well-defined organization. Power was exercised over the organization itself and was therefore 'labour augmenting': to have more of it meant to have a larger organization. The capitalist mega-machine is much broader. It consists not of the corporation, but of the entire scope of capitalistic production. Capitalists struggle to control portions of this totality, with their success measured in terms of profit. Like their earlier counterparts, they could do so directly by making their corporate organization bigger in terms of employees. But they can also do it indirectly, by raising their profit per 'unit of organization', or profit per employee. In contrast to the ancient kings, therefore, capitalists could become 'lean and mean', expanding their power through smaller, 'labour-saving' organizations.

Finally and perhaps most importantly, *any form of power which systematically affects the future flow of profit is automatically capitalized* (non-systematic effects are usually ignored by investors). In this way, male domination reducing the wages of women, environmental policies lowering the legal penalty for pollution, the use of military force affecting the price of raw materials, the impact of television on labour docility, the pacifying of indigenous populations through religious missionary, and so on, all have an impact on the flow of profit. Once 'systematized', they become facets of capital.

Absentee owners exert their power over society. They measure it, however, *relatively to other owners*. Under modern conditions, capitalists are driven not to maximize profit, but to 'beat the average' and exceed the normal rate of return. This *differential* drive suggests a way to embed both production and power within the concept of accumulation (Nitzan 1998). In a nutshell, command over profit, and hence capitalization, represent business power to limit societal production. Differential capitalization, the ratio of one's own capitalization to the average capitalization, therefore represents the relative social power of an owner. Finally, the rate of differential accumulation, the extent to which one's own capitalization expands faster than the average rate of capitalization, measures the change in capitalist power. Achieving differential accumulation implies particular power to limit social production.

This differential nature of capitalist power is anchored in the need for exclusion. In non-capitalist systems, exclusion is usually embedded in relatively rigid customs, such as those preventing serfs from growing into kings, slaves from turning into masters, and untouchables from becoming Brahmins. Capitalism does not have similar customs. Commodification makes upward mobility possible, and in principle there is nothing to prevent a son of a wandering vendor of quack medicine from assembling the Standard Oil of New Jersey, or a university dropout from starting Microsoft. This, though, does not imply that capitalism has done away with exclusion. Far from it. Indeed, for John D. Rockefeller and William Gates to have acquired their own power, others had to give it up. Because of the constant threat of 'equal opportunity', such exclusion requires relentless formation and reformation of 'distributional coalitions', somewhat along the lines articulated by Olson (1965, 1982). The difference therefore is largely one of form: whereas in other power systems, exclusion is largely *static*, built into the social code and resulting in relatively stable groupings, under capitalism it must be *dynamically* recreated, through ever-shifting alliances.

The upshot is that the accumulation of capital in general depends on the accumulation of capital at the centre. It is 'dominant capital', the large coalitions of big business and state institutions at the core of the process, which are crucial. The periphery of capital, the many capitals outside the core, are in fact a constant threat to the viability of capitalist development as a whole. Subject to the strong centrifugal forces of competition, their behaviour is forever undermining the collusive essence of business 'sabotage', without which accumulation is impossible. Only to the extent that dominant capital is able to retain and augment its *exclusive* power against these other lesser capitals (existing or potential), keeping them 'out of the loop', can the capitalisation process be sustained.

The institutionalist perspective allows us to see capital as a strategic concept whose essence is not production, but *power over production*. From this viewpoint, accumulation involves two inter-related processes. One is the progressive commodification of social relationships, centred around the commodification of power itself in the form of capital. In this sense, capital is a *quantification of power*. The result not only makes capital the most flexible, dynamic and efficient form of power, but also enables it to incorporate other forms of power. The historical ascent of capital is manifested in the emergence of the 'normal rate of return' as a principal regulator of social relations. The belief that capital has, and should have, a 'natural' pace of expansion, now dominates the decisions not only of business people, but increasingly also of state officials and international institutions. The ups and downs of this rate affect the flow of private capital and public funds, the employment or unemployment of resources, and the good or ill fate of entire nations. How this 'normal rate of return' comes into being, the way it spreads around the world, the reason for its fluctuations, and the impact it has on the lives of billions are perhaps some of the more important political-economic questions of our time.

Part of the answer is undoubtedly routed in the second process of accumulation, namely the centralization of corporate power. An orderly flow of profit is

contingent on the strategic limitation of industry by business, a process which was first normalized by the giant corporation, and which has since been sustained by ever more complex corporate alliances, backed by state institutions, organizations and policies. The 'normality' of profit in general, therefore, reflects the extent to which dominant capital has been able to consolidate, sustain and enhance its differential power to control and shape the process of societal reproduction for its own advantage.

Finally, it should be noted that capital is a ruling-class ideology *par excellence*. Its differential essence is inherently antagonistic, serving those who own it largely by undermining those who do not. Indeed, even proponents of this ideology, from Adam Smith onwards, admit that the engine is the quest for profit, and that the bettering of human lives is merely an assumed consequence. Yet any ideology emphasizing prowess and control can never be truly universal. A theory of capital can tell us volumes about society as seen from above, but relatively little on the view from below. It can certainly not form a basis for universal emancipation. The current hegemony of capitalism is therefore necessarily partial, and in no way does it mark the beginning of the 'end of history'.

Bringing capital into IPE

How does all of this bear on international political economy? So far, much of the IPE literature has centred around the state. With the exception of a few writers, such as Cox (1987), Gill and Law (1989) and van der Pijl (1984, 1998), the general sentiment, echoed by Underhill in a recent IPE reader, is that 'Understanding the state is in a way *the* problem of international political economy' (1994: 34–35, original italics). The purpose of IPE is usually expressed along two dimensions – to integrate politics and economics and to link the international with the domestic. These two dimensions, so it is argued, converge in the state, the principal theatre where the clash of human agency and social structure generates historical change.

The institutionalist view opens an alternative route. Instead of associating states with 'politics' and capital with 'economics', it allows us to recognize both state and capital as power structures towering over the organization of societal production. Moreover, these two institutions do not simply stand against each other, but are rather intertwined in an evolving symbiosis. Historically, capital emerged from within the state, eventually growing to transcend it (transnational corporations such as DaimlerChrysler or BP-Amoco are not only larger than some developed economies, but can no longer be associated with a particular 'parent' state). That has not made the state irrelevant, though. Indeed, capitalist power is impossible unless embedded in the wider political context created by states. From an institutionalist perspective, therefore, the central question of IPE should focus not on the state *per se*, but more specifically on the development of capital as an increasingly central moment of the state. Such 'capital-centred' IPE can evolve along numerous trajectories. The following briefly outlines several research agendas worth pursuing.⁸

The corporation

How does capital power get 'packaged' through legal incorporation? Why is it internalized and how is it quantified? What are the boundaries of 'dominant capital'? In what ways can dominant capital grow differentially, that is, relative to the average? Can we identify qualitatively different paths, or 'regimes of differential accumulation'? What are the broader political-economic causes and consequences of each such regime? For instance, how do such regimes relate to the formal political process, the pace of economic growth, or inflation? How and why does capital, an association of individual owners, 'spread' progressively from the corporation itself, through the industry, to the sector, to the nation-state, and now to the entire world? Is this progressive breakdown of 'barriers' necessary for the viability of dominant capital, and if so, what will happen once dominant capital becomes truly transnational with no further barrier to transcend?

The state

Against the ascent of capital, what are we to make of the state? How has its relationship with capital changed? How and to what extent do state and capital 'overlap'? How has their 'symbiosis' changed over time? For instance, could we see the state as being initially a 'cocoon' for capital, which is gradually shed off, or turned into a supporting limb? If the impact of a given state policy – for instance the effect on profit of military spending or intellectual property rights – can be capitalized, what does that imply for the locus of power? How do we decide where this power resides? What aspects of capital power, if any, can exist without the support of state institution? Is the state necessary for accumulation?

IPE

How has the multiplicity of states, with the associated layers of differential power, affected the formation and accumulation of transnational corporations? Could a global state play a similar role? What does this imply for the future of the nation-state and the inter-state system? In what way has the ascent of transnational firms shaped the structure and behaviour of states? Is there any discernible historical pattern here, and could it be theorized? Does the power essence of capital necessitate *both* universalization (globalization) and interconnectedness (and thus separate states)? How has the changing interaction of capital and state power affected the formation of elites and dominant ideologies?

Contradictions, ideology and hegemony

What are the points of conflict between the needs of capital to limit societal reproduction, and its position as a dominant ideology? How could capitalist ideology reconcile the conflicting drive for power by the few with the pursuit of Lakshmi by the many? Can an ideology of commodification and private prop-

erty become universal in its own right? What additional, non-capitalist ingredients are necessary to build a hegemonic bloc around what neo-Gramscians call the 'transnational capitalist class'? How can these extra-capitalist factors be sustained against capital's limitless quest for power? Can a truly transnational class exist in the absence of a global state? Does the emergence of such class mark the coming of a global state, and could this state paradoxically become the beginning of the end of capital?

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Notes

- 1 Although labour and land are not homogeneous either, their heterogeneity is fundamentally different from that of capital goods. The quality of labour could be moulded through education, whereas land could be improved through cultivation. Capital goods, on the other hand, are not at all supple. Once made, they can rarely be converted for tasks other than those for which they were originally designed.
- 2 First, the production theatre becomes infinitely complex, making identification and quantification impossible. Second, without aggregation some input complementarity is inevitable, so the corresponding marginal products cannot be derived, even on paper. Third, because rationality and utility maximization alone do not guarantee downward-sloping excess demand functions, general equilibrium models need not be 'stable' (Rizvi 1994). And fourth, the theory is inherently static, and hence can say little on the dynamic essence of accumulation.
- 3 Aware of the inherent circularity of 'tangible' marginalism, the 'Austrian' economists sought to circumvent the problem altogether by substituting *time* for capital goods. Following Jevons (1871), who formulated his production function with time as an input, writers such as Böhm-Bawerk (1891), Wicksell (1935), and later Hicks (1973), reinterpreted capital goods as 'stages' of a temporal production process. Capital was counted in units of the 'average period of production', itself a combination of original inputs and the time pattern of their employment. In general, it was believed that 'roundabout' processes (which are longer, more mechanized and indirect) were more productive, and that lengthening the average period of production was therefore tantamount to raising its 'capital intensity'. The Austrian theory had two main drawbacks. First, its emphasis on original inputs – to the exclusion of tangible capital goods – was dangerously close to the classicists and to Marx, something the neoclassicists were more than eager to avoid. Second, its focus, including its link to the time preferences of consumers, remained exclusively materialistic. It tried to establish a positive relationship between an aggregate quantity of capital on the one hand, and productivity/utility on the other. Its route was therefore not that different from Clark's, and indeed it too fell into the 'reswitching' trap (see Hunt 1992, ch. 16).
- 4 Consider two hypothetical production functions, with physical inputs augmented by technology: (1) $Q = 2N + 3L + 5K + T$ and (2) $Q = 4N + 2L + 10K + T$, where Q denotes output, N labour, L land, K capital, and T 'technology'. Now, suppose Q is 100, N is 10, L is 5 and K is 4. The implication is that T must be 45 in function (1) and 10 in function (2). Yet, since technology cannot be 'measured', we would never know which function is correct, so both can safely claim validity....

- 5 The basic value equation is $\text{Value} = c + v + s$, with c being the value of constant capital, v the value of variable capital and s denoting surplus value. The rate of profit is given by $\pi = s / (c + v)$, the rate of exploitation by $\epsilon = s / v$ and the organic composition of capital by $\theta = c / v$. Dividing both sides of the rate of profit equation by v we get $\pi = (s / v) / (c / v + 1) = (\epsilon) / (\theta + 1)$. Clearly, if π and ϵ are equalized across the economy, so must θ .
- 6 This section draws partly on Nitzan (1998).
- 7 'Robber Barons' such as Cornelius Vanderbilt and Jay Gould were often accused of 'watering' or 'diluting' their companies by issuing stocks whose value far exceeded their tangible property. But in so doing, they were in fact 'the innovators of modern corporate tactics: the capitalization according to *earnings* rather than in ratio to actual assets' (Josephson 1934: 72, original emphasis).
- 8 Some of these ideas are developed theoretically and empirically in Bichler and Nitzan (1996a and 1996b, 1999), Nitzan (1992, 1998, 1999) and Nitzan and Bichler (1995, 1996, 1997).