

SECTORAL STRUCTURE, ACTIVITY SPECIFICITY, AND DEINDUSTRIALISATION: A MARXIAN ANALYSIS

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1. INTRODUCTION

Economic activity is classified according to sector in national accounts (with sectors referring to mining, manufacturing, and so on). Over and above being a way of classifying economic activities, in certain heterodox economics traditions – notably the structuralist and Kaldorian traditions – sectoral structure is thought to matter for growth. Sectoral structure is, however, not integral to Marxian economics, which tends to analyse economic activity in dimensions other than sectors. It is not clear *a priori* to what extent and in what ways sectoral structure matters in a Marxian schema. This paper thus investigates the meaning and implications of sectoral structure and the sector specificity of growth from a Marxian theoretical perspective, and thence how to think through changes in sectoral structure.

The analysis seeks to clarify and elaborate some theoretical issues concerning the meaning of sectoral structure and the classification of different types of sectoral activities in a Marxian schema. Particular attention is given to the meaning of the ‘service sector’ in Marxian terms. Services is of interest given the stylised fact of a shift from manufacturing to services in most middle- and especially upper-income economies, because it is generally the largest sector of an economy, and because of the significant differences between a Marxian and a non-Marxian approach to this sector. We also develop an analysis of what might be considered ‘special’ about manufacturing from a Marxian perspective. While this brings out some commonalities between Kaldorian and Marxian approaches, the analysis of activity-specificity developed here differs from the sector-based approaches found in the non-Marxian heterodox literature. A Marxian approach to the activity-specificity of growth is advanced. The paper applies Marxian tools of analysis and the conceptual approach proposed here to a

contemporary economic phenomenon, deindustrialisation. It also contributes to the existing literature on sectoral structure and deindustrialisation with insights developed using Marxian tools of analysis, which arguably allow for a richer and more nuanced understanding of deindustrialisation than a purely sector-based approach.

The analysis relies heavily on the three volumes of *Capital*, and also on *Theories of Surplus Value*, *Grundrisse*, *The German Ideology* and several other of Marx's works. Much of the analysis is based on a close (and essentially Classical Marxian) reading of the texts, including some exegetical interpretation.¹

Section 2 develops a Marxian approach to sectoral structure, setting out how different types of activities could be located in a Marxian schema based on the location and role of the activity in the circuit of capital. In section 3 we focus on manufacturing and what could be considered 'special' about manufacturing from a Marxian perspective. Drawing closely on Marx's writing on industrialisation and capitalist development, we construct a two-dimensional conception of the specificity of manufacturing. We build on this to develop a broader Marxian approach to activity-specificity, in section 4. This lays the basis for a discussion in section 5 of the activity-specificity of growth. In section 6 we discuss one specific type of change in sectoral structure, namely deindustrialisation, focussing on distinguishing between different forms of deindustrialisation and considering possible implications for growth. Section 7 concludes.

2. SECTORAL STRUCTURE

2.1 Introduction

National accounts measure the total value added in a given period. The conception of what is included in output is neither neutral nor universal. The standard measures used have varied across countries and across time, being adapted not only with structural economic changes but also with changing ideological and analytical approaches to what 'counts'. For instance, the former eastern bloc countries previously used the Material Product System (MPS) of

¹ When citing Marx's texts, we indicate the original date of publication, since this is relevant to their interpretation. The page numbers cited, however, refer to currently available versions. Marx's works are listed in the References under both dates.

national accounting and reported National Material Product (NMP) instead of GDP, but after the transition to capitalism they switched to using the ‘conventional’ system of national accounts. The records of the United Nations System of National Accounts Expert Group reflect ongoing debates about the ‘boundaries’ of production, as well as around a host of other issues such as the valuation of output, the precise distinction between goods and services; and so on (United Nations, 1989).

The sectoral categories of national accounts are not the units of analysis of Marxian analysis. In order to analyse specificity and the implications of sectoral change from a Marxian perspective, we need to deconstruct what exactly ‘sectors’ mean and to reconstruct the classification of activities using Marxian tools of analysis. In this section we elaborate a Marxian approach to sectoral structure, based on Marx’s own approach. This lays the foundations for a Marxian analysis of sectoral change.

We preface our analysis of sectors by briefly reflecting on two pertinent issues of methodology: a difference between Marxian and non-Marxian approaches to classifying activities; and the question of prices and values.

A crucial methodological and epistemological difference between bourgeois economics and Marxian economics is that, in the latter, an activity cannot be classified simply by ‘inspection’. This difference is especially relevant to the project of developing a Marxian analysis of sectoral structure. In bourgeois economics, the typological method is primarily phenomenological: observing an activity generally allows for a determination as to which sector it falls within. The classification of an activity within a Marxian schema, by contrast, is contingent on the underlying social form of the activity. The fundamental issues in analysing an activity relate less to what a person is ‘doing’ in an observable way, and more to generally unobservable characteristics such as the relationship of the activity to the production and realization of surplus-value. Moreover, from a Marxian perspective a commodity is classified not according to its physical characteristics, but rather according to the way in which it was produced and, in some senses, to its purpose. (The latter refers to the classification of commodities into Departments I and II, which is not of direct relevance to our analysis). Marxian economic categories thus have a fundamentally different epistemological basis from

bourgeois economic classifications as used in national accounting, in mainstream economics, and also in non-Marxian heterodox economics.

It is also worth pointing out here that Marxian analysis is generally constructed in value categories whereas contemporary bourgeois economics is based on price categories. Theoretically and empirically, price and value measures do not necessarily or generally coincide (especially in the short- to medium-run). Any empirical work utilising Marxian concepts confronts the basic problem that economic data is generally not available in value terms. Many Marxian-inspired empirical studies nevertheless utilise price-based data to measure Marxian concepts, presumably because of the lack of data in anything but price terms. Other studies have attempted to utilise price-based data to calculate Marxian value categories.² The price/value issue is not a direct problem for this paper, given that this analysis is theoretical in nature, but it would need to be dealt with were this theorisation to be drawn on for empirical analysis.

2.2 Relationship of an activity to the production of surplus-value

We now develop a Marxian approach to sectoral structure. We begin by setting out some principles of the approach, in terms of the centrality of surplus-value production and the relevance of this to classifying activities, the nature of commodities, and productive versus unproductive labour. This lays the basis for the subsequent analysis of specific sectors.

The fundamental question from a Marxian perspective in classifying an activity is its relationship to the production, realization, appropriation, and distribution of surplus-value. Indeed, the economic process in capitalism with which Marx is centrally concerned is the production and appropriation of surplus-value.

Surplus-value is not produced in either non-capitalist modes of production or in non-market activities (although surplus labour may be performed). Surplus-value is produced in some but not all capitalistic activities, a distinction discussed at some length below. We focus on the analysis and categorisation of capitalist activities, and unless otherwise indicated, all activities and commodities being discussed here are assumed to be capitalistic.

² See for example Shaikh and Tonak, 1994.

The typology and characterisation of activities derives from their location in the circuit of capital, which is the essential analytical framework of Marxian economics. The fundamental concepts that Marx introduces into political economy are set out largely with reference to the circuit of capital, and it encapsulates the basic logic of how the capitalist economy operates.

In terms of the circuit of productive capital $M - C \left\{ \begin{smallmatrix} LP \\ MP \end{smallmatrix} \right\} .P \dots C' - M'$, value is expanded in the commodity production process P , specifically through the contribution of labour power LP . Hence the produced commodity C' has greater value than the commodities C used in the production process. It is specifically in the commodity production process P that value is added and surplus-value is generated.

The first axis along which activities can be classified is therefore between those in which surplus-value is generated (i.e. in which value increases), which is the stage P , and activities in the other parts of the circuit of capital, $M - C$ and $C' - M'$. Any further distinctions between different types of surplus-value-producing processes, or different types of non-surplus-value-producing processes, are secondary to this primary distinction between P and activities in the rest of the circuit of capital.³

It is thus in the (capitalist) production of *commodities* specifically that surplus-value is generated (and it is realized once the commodities are sold). Activities can be classified in terms of whether or not they produce commodities. At this point we therefore reflect on the nature of a commodity, with specific attention to certain sector-related issues that will become important in the subsequent Marxian analysis of sectors.

Commodities have use-value (that is, they satisfy some form of human wants, whether 'natural' or socially constructed) as well as exchange-value, and are produced for exchange rather than for own use. The condition that they must be produced means that they must embody human labour.

In our interpretation of Marx – and this is critical to our analysis of sectors – commodities are not limited to physical goods, and similarly 'production' is not limited to the physical production of a tangible object. When Marx writes about commodities it might appear as

³ Note that we are not privileging or asserting any ontological primacy to any particular stage of the circuit of capital, but are demarcating activities according to their location and role in the circuit of capital.

though he generally had in mind physical objects, as the examples which he uses in his exposition and numerical illustrations are usually of objects such as cotton. But his theoretical analysis indicates that commodities are not limited to physical objects. Labour power, albeit a unique type of commodity, is an example of a commodity that is not a tangible physical object.

The physical properties of something neither qualify it to be a commodity nor exclude it from the realm of commodities. As Marx writes, ‘the commodity form, and the value-relation of the products of labour within which it appears, have absolutely no connection with the physical nature of the commodity and the material [*dinglich*] relations arising out of this’ (Marx, 1867b, p165). Recall our earlier remarks concerning Marx’s methodological and epistemological approach: an activity or a product of an activity cannot necessarily be characterised or classified on the basis of observation.

In this respect Marx’s approach differs from the physicalist approach of earlier classical economists such as Smith, Malthus, and Ricardo; who equated production with the production of physical goods and defined productive labour in terms of the labour involved in the production of such goods. This definition both includes activities that would be excluded from a Marxian definition (e.g., non-commodity goods) and excludes activities that would be included (e.g., commodity services).

The nature of commodities, and specifically Marx’s non-physicalist approach to defining a commodity, is an important issue with implications for our classification of activities in a Marxian schema. Were commodities to be limited to physical objects, this would exclude services from the realm of commodity production. Indeed, Smith’s conflation of the goods/services and productive/unproductive labour dichotomies led him to view the services sector as a drain on accumulation and growth.

For Marx, productive labour is wage labour engaged in the production of surplus-value, through the transformative activity of production. In other words, for labour to be productive it must create or transform use-values, thereby generating surplus-value, and the labour-power must be exchanged against capital. Unproductive labour, by contrast, produces neither value nor surplus-value. Unproductive workers are remunerated out of a ‘fund’ which ultimately derives from the surplus-value originally generated by productive workers and

appropriated by the capitalists who employ them, and part of which is transferred to the employer of the unproductive worker. (Even if this is the same capitalist, these are distinct processes.)

Labour that increases the surplus-value at the disposal of a capitalist merely by transferring surplus-value from elsewhere, without increasing the overall sum of value or amount of surplus-value, is unproductive. Unproductive labour does not expand capital, even though it may be ‘useful’. A component of unproductive labour might nevertheless be considered as ‘surplus’, in the sense that the labour can result in additional surplus for the capitalist in excess of the wages paid. However, this surplus labour is ‘sterile’ in the sense that it does not produce surplus-value, unlike surplus labour engaged in the production of commodities.

While surplus-value is generated only through productive labour, both productive and unproductive labour may be (and typically are) engaged in surplus-value-producing activities. That is, the fact that an activity produces commodities and generates surplus-value does not mean that all labour engaged in the activity is productive. The productivity or otherwise of the labour depends on the particular relationship of that specific labour with the production and appropriation of surplus-value. All labour engaged in non-surplus-value-producing activities is unproductive, as discussed previously, even though such activities may well facilitate, support, or increase the realization of surplus-value elsewhere.

Labour is thus defined as productive or unproductive in terms of whether or not it produces surplus-value, with the distinction being unrelated to the eventual use to be made of the commodity. That the productive or unproductive character of labour cannot be discerned from the nature of its product is brought out in the following excerpt:

neither the special kind of labour nor the external form of its product necessarily make it “productive” or “unproductive”. The same labour can be productive when I buy it as a capitalist, as a producer, in order to create more value, and unproductive when I buy it as a consumer, a spender of revenue, in order to consume its use-value, no matter whether this use-value perishes with the activity of the labour-power itself or materialises and fixes itself in an object. (Marx, 1861, pp.160-1).

This passage – which comes in the context of Marx’s critique of Smith’s physicalist approach to defining commodities, production, and the productivity or unproductivity of labour – also brings us back to Marx’s non-physicalist conception of a commodity, and the relevance of

this to the classification of labour. The issue is whether a commodity is produced, with the material or non-material character of a commodity being produced having no bearing on whether the labour engaged in its production is productive or unproductive. We may infer from this that even a service commodity, in which the ‘use-value perishes with the activity of the labour-power itself’, can be productive if this labour power is purchased by a capitalist for the purpose of expanding value, just as in the case of a tangible manufactured commodity in which case the labour power ‘materialises and fixes itself in an object’.

The point that productive labour can be engaged in either manufacturing or services is also made explicitly and rather colourfully in Marx’s explanation that a productive worker can produce either teaching services or sausages: ‘If we may take an example from outside the sphere of material production, a schoolmaster is a productive worker when, in addition to belabouring the heads of his pupils, he works himself into the ground to enrich the owner of the school. That the latter has laid out his capital in a teaching factory, instead of in a sausage factory, makes no difference to the relation’ (Marx, 1867b, p.644).

We now discuss each of manufacturing, services, and the primary sectors in terms of their role in the circuit of capital, in order to map these activities within a Marxist framework.

2.3 Manufacturing

All capitalistic manufacturing activities produce commodities and surplus-value.⁴ We will thus not devote much discussion to manufacturing at this point, and in section 3 we examine manufacturing in much more detail. At this stage we are merely classifying activities in terms of their location in the circuit of capital, in order to understand sectoral structure from a Marxian perspective.

No surplus-value would be generated in non-capitalist manufacturing activities (as with all non-capitalist activities). Two such forms can be noted here. The first is where goods are manufactured not for exchange purposes and hence the goods are not commodities. A case of this is where goods are manufactured for own use, for example clothes are sewn at home to

⁴ Hypothetically, any commodity could be produced and sold without generating positive surplus-value were labour power to be remunerated at its value, or were the commodity to be produced at a loss, and it would also be possible for something possessing no use-value to be manufactured. These cases would, however, be unsustainable and would not be systematically found in reality.

be worn by the person who sews them or family members, or to be given away as a gift. Another case would be where manufacturing is carried out by the state on a not-for-profit basis (for example, if goods were manufactured to be distributed for free). A second type would be manufacturing carried out on a feudal or slave basis. No surplus-value is produced in this type of activity, even if surplus labour were performed. None of these cases are found on any significant scale in a typical modern capitalist economy.

*2.4 'Services': A *mélange* of disparate activities*

The classification of the 'services' sector is more complex than in the case of manufacturing, and the heterogeneity of activities included in services is especially striking when considered from a Marxian perspective. The services sector includes activities with completely different relationships to the production, realisation, appropriation, and distribution of surplus-value. In addition to spanning both capitalistic and non-capitalistic activities, services include both commodity-producing and circulatory activities. What is common to services is arguably less important, from a Marxian perspective, than the differences among the various types of service activities.

Marx does not devote much attention to 'services' as such. Several reasons might be suggested to explain this. Theoretically, 'services' is not a particularly meaningful or useful category within a Marxian analytical framework. Empirically, during Marx's time services comprised a relatively small proportion of total economic activity, a very different situation from today where they account for most of employment and GDP in most countries of the world. Furthermore, there was a much lower degree of outsourcing of services to specialised service providers than is currently the case, as these activities were typically undertaken in-house (e.g., in a manufacturing firm) rather than falling within a distinct services sector. In addition, personal services accounted for a higher proportion of total services during Marx's time than is the case today, and these personal services were typically conducted on a non-capitalist basis.

When Marx speaks of 'services' he is generally referring to particular types of non-capitalistic services which were predominant at the time of his writing. He discusses circulatory services at some length, and also deals with transport and storage, but does not

discuss commodity-producing services specifically (apart from his general discussion of the production of commodities).

Given the absence of a comprehensive analysis of services as such in Marx, for our purposes it is necessary to bring together his analysis of various types of services as well as extending his analysis where appropriate. *Grundrisse* probably contains the most extensive discussion on personal services in Marx's work. Circulatory services are most thoroughly dealt with in *Capital*, which also provides the most comprehensive overall framework for analysing capitalism.

We discuss services here in the separate categories of commodity-producing services; circulatory services; productive transport and storage; and non-capitalistic services.

Capitalist commodity-producing services

As discussed earlier, the commodity produced in the *P* stage of the circuit of capital need not be a physical object, it may also be a service (provided the service meets the criteria of a commodity as discussed earlier). For example, a haircut performed in a hairdressing salon for a paying customer by a hairdresser employed by the owner of the salon is a commodity, and in the 'production' of the haircut surplus-value is generated through the productive labour of the hairdresser. Marx characterises commodity-producing services as 'types of work that are consumed as services and not in products separable from the worker and hence not capable of existing as commodities independently of him, but which are yet capable of being directly exploited in *capitalist* terms' (Marx, 1867b, p.1044; emphasis in original).

In elucidating the differences between productive and unproductive labour, Marx notes as instances of productive labour a writer who turns out work for his publisher in factory style, a singer employed by an entrepreneur, and a schoolmaster who works for wages in a profit-making institution. These are all examples of surplus-value-producing services. While Marx does note the existence of capitalist commodity-producing services, he regards these services as being 'of microscopic significance when compared with the mass of capitalist production' and concludes therefore that 'they may be entirely neglected' (ibid, pp.1044-5).

There seems to be some inconsistency in Marx's treatment of commodity-producing capitalist services, as he mixes important conceptual distinctions with observations about the conjunctural empirical significance of these activities. Although Marx recognises these activities as involving productive labour and producing surplus-value, he opts to neglect them and lump them together with unproductive wage-labour. This derives from his observations concerning the small scale of these activities at that time, rather than from theoretical precision or coherence.

Even if Marx's approach was justifiable at that time on the grounds of the then 'microscopic significance' of these activities, this would not hold true in modern economies. We thus follow Marx's theoretical approach rather than his empirically-based 'shortcut' categorisation. The approach taken here is also consistent with the earlier discussion on the nature of a commodity and Marx's rejection of physicalist notions of a commodity, as well as with the distinctions between productive and unproductive labour.

The key characteristic of services commodities that distinguishes them from manufactured commodities is that the production and consumption of services commodities generally cannot viably be separated in time, and in most cases in space as well. The labour power embodied in a service commodity remains present in the commodity itself, typically in a recognisable form, as opposed to manufacturing where the labour power (along with the means of production) is embodied in the commodity in a transformed form. That is, the labour power commodity is typically inseparable from the produced commodity. The labour power embodied in a services commodity remains living labour, and not dead labour as in the case of manufactured commodities.⁵ Although the production of a service commodity still

⁵ There are some 'intermediate' commodities, and exceptions and ambiguous cases, for which production and consumption can be separated in time and space to a limited extent, and/or for which labour power embodied in the commodity is not 'visible' in its original form in the commodity itself. For example, a meal pre-prepared in a restaurant might only be sold and consumed at a later time, and the labour power of the kitchen workers in the commodity may be indistinguishable from the means of production embodied in it. Such a process might actually be more akin to manufacturing than to services. Indeed, the preparation of the same meal by a food manufacturing company to be retailed in a supermarket would be counted as manufacturing. These are grey areas not only in terms of the Marxian typology being developed here but also in mainstream economics and in the practice of national accounting.

conforms to the basic circuit of capital, P and C' are essentially 'compressed' in time (and usually also space) into what is effectively a single stage.⁶

Circulatory services

Circulatory activities include both 'pre-production' activities such as bringing together inputs in a form suitable for entering into the production process, and 'post-production' activities associated with the realization and distribution of surplus-value. These activities thus facilitate the transformation of capital between its various forms – productive capital, money capital, and commodity capital. Circulatory services do not transform commodities or add any value.

Marx explains the nature of costs of circulation as follows:

Costs of circulation, which originate in a mere change of form of value, in circulation, ideally considered, do not enter into the value of commodities. The parts of capital expended as such are merely deductions from the productively expended capital so far as the capitalist is concerned. (Marx, 1885, p.139).

No surplus-value is produced in circulatory services and all labour engaged in them is unproductive. However, these activities may facilitate the realization of surplus-value by industrial capital or increase the velocity of circulation. In exchange for this, circulatory services are funded out of surplus-value generated elsewhere.

The general law is *that all costs of circulation which arise only from changes in the forms of commodities do not add to their value*. They are merely expenses incurred in the realisation of the value or in its conversion from one form into another. The capital spent to meet these costs (including the labour under its control) belongs among the *faux frais* of capitalist production. They must be replaced from the surplus-product and constitute, as far as the entire capitalist class is concerned, a deduction from the surplus-value or surplus-product, just as the time the labourer needs for the purchase of his means of subsistence is lost time. (ibid, p.152; emphasis in original).

Insofar as circulatory activities might superficially appear to 'transform' a commodity or its use-value, this is only in terms of its ownership (i.e., the circulation of titles to the use-value) but not a commodity's use-value. Service activities in the circulatory sphere may raise the

⁶ This bears some similarity with the circuit of capital that Marx sets out for transport (to be discussed below). In the case of service commodities, however, there is still the commodity stage C' and payment is actually rendered against this even if it is practically inseparable from P , whereas with transport where there is no C' moment.

price of a commodity above its underlying value, creating a façade of value-creation, but without actually creating any new value. For instance, marketing activities may allow a higher price to be realized in the sale of these commodities than would otherwise be the case, but do not themselves transform the commodities in a value-creating process.

Productive transport and storage

In addition to the pure or genuine circulation costs discussed above, Marx identifies two additional types of costs of circulation: transport costs and costs of storage. As already discussed, pure circulation costs facilitate the transformation of value into or between its money and commodity forms, without any new value being added or any surplus-value being generated. In the case of productive transport the value of commodities increases as new surplus-value is created, while storage preserves the value that has already been created and which would otherwise diminish.

Marx deals with the nature of transportation and its role in the circuit of capital in the second volume of *Capital*. The *raison d'être* of the transport sector is that 'the use-value of things is materialised only in their consumption, and their consumption may necessitate a change of location of these things, hence may require an additional process of production, in the transport industry.' (Marx, 1885, p.153).

Marx sets out a specific formula of the circuit of capital applying to the transport industry, $M - C \left\{ \begin{smallmatrix} LP \\ MP \end{smallmatrix} \right\} \dots P - M'$, where M' represents the converted form of the useful effect created during the process of production. He notes that 'it is the process of production itself that is paid for and consumed, not a product separate and distinct from it' (ibid, p.54). A distinctive feature of transport is thus that the 'useful effect' of transport is inseparable from the productive process, with no separate commodity being produced:

...what the transport industry sells is change of location. The useful effect is inseparably connected with the process of transportation, i.e., the productive process of the transport industry. Men and goods travel together with the means of transportation, and this travelling, this locomotion, constitutes the process of production effected by these means. The useful effect can be consumed only during this process of production. It does not exist as a utility different from this process, a use-thing which does not function as an article of commerce, does not circulate as a commodity, until after it has been produced. (ibid.)

For Marx, transport of commodities is a productive process in which surplus-value is generated, as ‘the productive capital invested in this industry imparts value to the transported products, partly by transferring value through the labour performed in transport’ (ibid). Transport of commodities prior to their sale, although nominally part of the circulatory phase, is thus actually a continuation of production in the sphere of circulation. ‘The transport industry forms on the one hand an independent branch of production and thus a separate sphere of investment of productive capital. On the other hand its distinguishing feature is that it appears as a continuation of a process of production *within* the process of circulation and *for* the process of circulation.’ (ibid, p.155; emphasis in original). Provided that transport is part of the productive process of commodities, the value of the transport contributes additional value to the commodities.

Marx also deals with storage in Volume 2 of *Capital*, although his treatment of it is complex and perhaps not entirely conclusive. On the one hand, storage costs share the same character as standard costs of circulation in that they are necessitated merely by ‘the particular social form of the production process (i.e., are due only to the fact that the product is brought forth as a commodity and must therefore undergo the transformation into money)’ (ibid, p.142). But on the other hand, storage costs differ from the pure/genuine costs of circulation in that their purpose ‘is not a change in the form of the value, but the preservation of the value existing in the commodity as a product, a utility, and which cannot be preserved in any other way than by preserving the product, the use-value, itself’ (ibid, p.142).

The following passage brings out this dual character of storage activities. Storage is unproductive in that it needs to be funded out of the surplus-value generated elsewhere, yet it does enter into the value of the commodities being stored:

[the costs of storage] enter to a certain extent into the value of commodities, i.e., they increase the prices of commodities. At all events the capital and labour-power which serve the need of preserving and storing the commodity-supply are withdrawn from the direct process of production. On the other hand the capitals thus employed, including labour-power as a constituent of capital, must be replaced out of the social product. Their expenditure has therefore the effect of diminishing the productive power of labour, so that a greater amount of capital and labour is required to obtain a particular useful effect. They are *unproductive costs*. (ibid, pp.141-2; emphasis in original).

Unlike transport, with storage ‘the use-value [of the commodity] is neither raised nor increased here; on the contrary, it diminishes’ (ibid, p.142) and no new surplus-value is created. However, the value already created is preserved as far as possible in that the attenuation of the commodity’s use-value is minimised through the storage process. Despite the fact that value does not increase through storage, ‘new labour, materialised and living, is added’ (ibid). Storage is a special case in that productive labour is engaged in it and surplus-value is generated, but the value of the commodity being stored does not increase:

Inasmuch as labour-processes are necessary in this stage, they add to the cost of the raw material, etc., but are productive labour and produce surplus-value, because a part of this labour, like of all other wage-labour, is not paid for. The normal interruptions of the entire process of production, the intermissions during which the productive capital does not function, create neither value nor surplus-value. (ibid, p.125).

In addition to the aspect of storage of commodities between the points of production and sale, storage plays a further role in the continuity and seamless flow of the circuit of capital in terms of the storage of means of production. Part of productive capital is latent as it is held ready for production, and this is itself a precondition for the uninterrupted flow of the productive process. In this sense storage, like transport, might be considered as moments in an extended productive process; yet unlike in production no commodities are produced and in the case of storage no new surplus-value is generated.

Marx’s approach to storage is based on the premise that the value of commodities does not rise through storage, but rather that the diminution of their value is less when they are stored than would otherwise be the case. An interesting issue that arises in the current period is whether there are cases in which the value of commodities can actually increase through storage, in ways which would not have been possible in Marx’s time. For instance, technology now allows for certain types of fresh produce to be cold stored over extended periods and sold at a higher price than would initially have been the case, or may even allow for the realization of the surplus value-embodied in the commodities when this might not otherwise have been the case (e.g., because of excess supply in a particular season). This could be considered analogous to the productive aspect of transport, in the sense that the transformation of commodities in space that is facilitated by productive transport creates surplus-value and similarly the transformation of commodities in time that is facilitated by certain types of storage could be considered productive of surplus-value.

Non-capitalistic services

As with any other sector, services can also be provided on a non-capitalistic basis. This category tends to be much more significant in the case of services than for any other sector (with an exception of agriculture in some developing countries). These services may be circulatory or may deliver use-values. But the distinguishing feature of these services is that they are provided against revenue rather than against capital.

Workers engaged in non-capitalistic services are unproductive. In the case where personal services are provided directly by an individual rather than by a worker employed in a service-providing capitalist firm, the individual does not generate surplus-value and is paid by the purchaser of the service in a simple flow of revenue. In meeting the needs of the purchaser of his services the worker depletes rather than expands the mass of surplus-value. The money laid out to pay for the service is revenue, not capital.

One of the major categories of non-capitalistic services is unpaid household labour.⁷ A second empirically significant category of non-capitalist services are public services such as education or healthcare that are provided by the state (or other institutions) on a not-for-profit basis. A third major type of non-capitalistic services are those in which an individual is paid in exchange for performing a personal service, without being employed in a capitalistic enterprise. For example, a domestic servant hired directly by a household without any capitalist intermediary. This third category – which we term here ‘personal services’⁸ – is the central focus of Marx’s treatment of services, as will be discussed below. All of these activities create use-values but no surplus-value, and none of the labour engaged in them is productive.

Grundrisse contains a relatively extensive discussion of services, focussing on personal services that are provided on a non-capitalist basis. This category was a significant component of total services during Marx’s time. Marx states that ‘the exchange of objectified labour for living labour does not yet constitute either capital on one side or wage labour on

⁷ We do not analyse unpaid household labour here, but for Marxian analyses of household labour see, for instance, Collins and Gimenez (1990), Gardiner (1975), Malos (1995), Gerstein (1973), Menon (1982), Meulenbelt (1978), and Seccombe (1974).

⁸ This does not have the same meaning as ‘personal services’ in national accounts. Here, personal services refer to services exchanged against revenue rather than against capital.

the other. The entire class of so-called *services* from the bootblack up to the king falls into this category' (Marx, 1857, p.465; emphasis in original).

Marx discusses personal services as part of 'the relation of simple circulation', which in this context is essentially the purchase of personal services which are rendered on a non-capitalist basis. Marx states clearly that 'labour as mere performance of services for the satisfaction of immediate needs has nothing whatever to do with capital, since that is not capital's concern.' (ibid, p.272). He illustrates this with an example of a woodcutter hired as an individual to provide a personal service to a capitalist in his capacity as a consumer:

If a capitalist hires a woodcutter to chop wood to roast his mutton over, then not only does the wood-cutter relate to the capitalist, but also the capitalist to the wood-cutter, in the relation of simple exchange. The woodcutter gives him his service, a use value, which does not increase capital; rather, capital consumes itself in it; and the capitalist gives him another commodity for it in the form of money. (ibid, p.272).

He generalises such a relationship to all services 'from whore to pope' which are purchased for their use-value and are exchanged against revenue rather than capital (ibid). No capital is laid out, no surplus-value is generated, and all labour engaged in such services is unproductive. Marx castigates as 'horse-piss' the arguments from bourgeois economists that regard any labour that in some way indirectly contributes to surplus-value as being productive.

Where the services are purchased for the fulfilment of a personal need and not for the purposes of generating surplus-value, what is relevant for the purchaser is the use-value that is delivered directly by the service. No new value is generated in the commission of the service. The use-value is merely consumed as the service itself is consumed, with no surplus-value remaining behind. (ibid, p.466).

Personal services may superficially involve the same types of activities as certain commodity-producing services. However, they are remunerated out of revenue rather than from capital laid out in a capitalist circuit of capital in order to generate surplus-value. This applies to all personal services that are exchanged for revenue:

In the bourgeois society itself, all exchange of personal services for revenue – including labour for personal consumption, cooking sewing., garden work etc., up to and including all of the unproductive classes, civil servants, physicians, lawyers, scholars etc. – belongs under this rubric, within this category [of exchange of services not for capital but for revenue]. All menial servants

etc. by means of their services – often coerced – all these workers, from the least to the highest, obtain for themselves a share of the surplus product, of the capitalist’s *revenue*.’ (ibid, p.468; emphasis in original).

This discussion of personal services in *Grundrisse* pertains only to personal services provided on a non-capitalist basis, where an individual exchanges his or her services directly for revenue. It does not apply to the case in which a capitalist lays out capital to employ wage labourers who provide personal services for which the capitalist is paid and appropriates surplus-value. The latter form of activity would be a capitalist commodity-producing service, as discussed earlier. For instance, Marx’s discussion of personal services would apply to a maid employed directly by a household, but would not apply to someone employed by a domestic service agency that bills the household and pays the wages of the maid (even if the two maids perform identical physical tasks). A service commodity is produced and surplus-value generated in the latter case but not in the former.

2.5 *Agriculture and mining*

Agriculture (and here we include forestry and fishing) and mining are grouped as the ‘primary sectors’ in national accounting. Marx refers to them together as ‘the extractive industries’.⁹ While there are differences between agriculture and mining, we discuss them together here as the characteristics germane to this analysis are shared. In Marx’s treatment of agriculture he notes that the analysis also applies to mining since ‘the laws are the same for both’¹⁰ (Marx, 1894, p.615).

Marx distinguishes between means of production that incorporate labour power and hence which have value, and wholly unprocessed natural resources in their natural state, which contain no value. No labour power is embodied in natural resources in their (pre-production) raw form, and hence they are not commodities and have no value. They may well be useful, but any use-value that they possess does not arise out of labour: ‘a thing can be a use-value without being a value. This is the case whenever its utility to man is not mediated through labour. Air, virgin soil, natural meadows, unplanted forests, etc. fall into this category’

⁹ Marx does have some separate discussion of ‘precious metals’, but this applies specifically to metals (gold and silver) that serve as a form of money.

¹⁰ Referring here to the laws of capital and of political economy.

(Marx, 1867b, p.131). Elsewhere Marx mentions ‘the productively exploited nature-given materials – the soil, the seas, ores, forests, etc. – which do not constitute elements of capital-value’ (Marx, 1894, p.359). Not being products of human labour, these goods transfer no value to the product. They help to create use-value but not exchange-value.¹¹

Gold, oil, and other resources below the surface of the earth are thus not commodities. They are, however, transformed into commodities by the time that they are brought above the surface of the earth. Surplus-value is generated in the process of bringing them to the surface and in any processing of the resources. The value of these commodities derives only from the labour-power embodied in them and the value transferred by machinery and other means of production.

Insofar as agriculture and mining involve the input of waged labour and produce goods that are exchanged on the market, these goods are thus commodities and surplus-value is generated in their production. This would characterise most capitalist mining and agriculture in modern economies.

In manufacturing, the means of production are themselves commodities, in that they are products of previously performed human labour. Mining and to a lesser extent agriculture utilise in their production processes natural resources that are not commodities. Marx distinguishes natural resources from raw materials, which do include human labour.

If, on the other hand, the object of labour has, so to speak, been filtered through previous labour, we call it raw material. For example, ore already extracted and ready for washing. All raw material is an object of labour [*Arbeitsgegenstand*], but not every object of labour is raw material; *the object of labour counts as raw material only when it has already undergone some alteration by means of labour.*’ (ibid, pp.284-5; emphasis added).

Note that Marx denotes as ‘raw material’ objects which already incorporate human labour and which have been transformed in some way by human labour, as distinct from what would generally be referred to as raw materials.

The distinction between raw materials and unprocessed pure natural resources is important in characterising what we might term ‘pure extractive activities’. As is clarified in the following

¹¹ In this respect Marx refers to ‘all those means of production supplied by nature without human assistance, such as land, wind, water, metals in the form of ore, and timber in virgin forests’ (Marx, 1867b, p.312).

passage, agricultural activities which utilise, for example, seeds, crops, or livestock, do use raw materials. Agricultural inputs such as planted crops or bred livestock are themselves commodities that embody previous human labour.

With the exception of the extractive industries, such as mining, hunting, fishing (and agriculture, but only in so far as it starts by breaking up virgin soil), where the material for labour is provided directly by nature, all branches of industry deal with raw material, i.e. an object of labour which has already been filtered through labour, which is itself already a product of labour. An example is seed in agriculture. Animals and plants which we are accustomed to consider as products of nature, may be, in their present form, not only products of, say, last year's labour, but the result of a gradual transformation continued through many generations under human control, and through the agency of human labour. (ibid, p.288).

In modern agriculture, apart from specific cases such as the felling of unplanted trees and the fishing of non-farmed fish, the 'base material' of agricultural products are themselves raw materials (e.g., seeds or livestock) which themselves already embody human labour. We might suggest that a fundamental distinction between agriculture and manufacturing lies in the fact that agriculture relies on living organisms (plants or animals) and that these organisms form the basis of commodities (in the case of commodity-producing agriculture). In manufacturing all transformation is ultimately based on the application of human labour (in its living or dead forms), whereas in agriculture the transformation, or at least an element thereof, derives from the growth of living organisms.

Furthermore, although it is not a definitional difference, agriculture typically involves contributions from natural elements such as the sun, rain, and wind, which generally do not play a direct role in manufacturing. A further typical difference lies in the centrality of land in the agricultural production process, whereas for manufacturing land merely provides a space in which the production is located. In the case of mining, the essential defining feature is that the basic 'input' is below the earth (or bound up with the earth) and is not a raw material. As we will discuss later, these distinguishing characteristics of agriculture and of mining have implications for the activity-specificity of growth.

This taxonomy of activities raises questions as to the precise demarcation between mining and manufacturing, or agriculture and manufacturing. Indeed, even in national accounting this is by no means clear – for example, where the distinction lies between agriculture and agro-processing, or between mining and subsectors of elementary manufacturing such as

‘basic metals’. In a strict sense only those activities actually involved in bringing substances above the surface of the earth should be classified as mining. Other activities which may take place at or near a mine – such as sorting or washing of ores, or even the most elementary processing – could most accurately be classified as manufacturing, since they utilise raw materials which already embody human labour. Indeed, there are no clear qualitative grounds for delineating such processes from subsequent stages of manufacturing.¹² The exact delineation between mining and manufacturing is also an issue in the classification of activities in national accounts.

A separate category of mining and agriculture is that performed on a non-capitalist basis. As with other sectors, this can be either in non-capitalist modes of production, or on a non-market basis. Subsistence agriculture accounts for a large share of agriculture in many developing countries. As with other non-capitalist activities, the labour engaged in these subsistence activities is unproductive and no surplus-value is generated.

2.6 Summary presentation of ‘sectoral structure’

We have discussed each of manufacturing, services, agriculture, and mining in terms of a Marxian circuit of capital, specifically in terms of the relationships to capital and to surplus-value production. Our reconfiguration of sectoral structure in Marxian terms can be simply summarised in Figure 1. This maps activities between the conventional sectors of national accounting and non-Marxian economics, and the Marxian categories discussed here. The three columns separate economic activities according to the three main sectors of national accounting: manufacturing, the primary sectors of mining and agriculture, and services. Horizontally activities are separated initially on the basis of whether or not surplus-value is created in them, with activities that do not create surplus-value being further subdivided according to whether or not they are capitalistic.

Activities in all cells may include unproductive labour. Only cells 1-4 include productive labour. Surplus labour may be performed in all cells (provided that labour is waged).

¹² Although it can be noted that these immediate post-mining beneficiation activities generally involve the processing of a mineral into an increasingly pure and concentrated form. Such processes, despite being transformative, do not generally transform one commodity into a fundamentally different one, as is typical in manufacturing.

Both of the ‘capitalistic’ rows of the table – including those in which surplus-value is created and those in which there is no creation of surplus-value – encompass activities that are carried out on a ‘for profit’ basis. The non-capitalistic row includes activities that are carried out ‘for income’ (such as petty commodity production in which commodities are exchanged against revenue rather than against capital), as well as ‘for direct use’ activities (such as household manufacturing or services).

The ‘non-capitalist’ row of the tables could be subdivided into different categories of non-capitalist activities. One of these is economic activities carried out in modes of production other than capitalism, such as slavery or feudalism. A second category of non-capitalist activities are those that are not market-based, where goods or services are not produced for exchange. This could include goods produced for own use, unpaid household labour, and public services provided in a non-exchange way.

Almost all manufacturing activities are in practice carried out on a capitalistic basis in most modern economies, and produce both commodities and surplus-value. Non-capitalistic manufacturing (cell 8) would in reality thus tend to be of negligible empirical significance in a modern market economy. It would include minor activities such as manufacture for personal use and manufacturing carried out by state organs on a not-for-profit basis for distribution on a non-exchange basis. At a systemic level there are no capitalistic manufacturing activities in which surplus-value is not created, hence cell 5 is empty. Although manufacturing is disaggregated here according to whether or not surplus-value is produced, virtually all of manufacturing would fall in cell 1 in a typical modern market economy.

The primary sectors, mining and agriculture, span both capitalistic and non-capitalistic activities. Almost all mining is in practice carried out on a capitalistic basis (cell 2) in modern market economies. Agriculture is more mixed, with non-capitalistic subsistence farming (located in cell 9) comprising a significant proportion of agriculture and even of the economy as a whole in many low-income countries. Theoretically cell 9 would also include activities such as state farms or mines run on a non-profit basis producing goods for distribution not through markets, but such activities are generally non-existent or negligible in modern market economies.

The non-capitalistic part of services (cell 10) tends to account for a large part of all non-capitalistic activities as well as a large part of all services. These services would include public services (insofar as these are provided on a not-for-profit non-market basis), reproductive labour, other uncompensated services, and what we have termed personal services. Capitalistic services (spanning cells 3, 4, and 7) are divided into those that produce surplus-value and those that do not.

Fig. 1: Mapping sectors in a Marxian typology

TYPE \ SECTOR		Manufacturing	Mining and Agriculture	Services
Productive of surplus-value	Capitalistic	1. Capitalist production of manufacturing commodities	2. Capitalist production of mining and agricultural commodities	3. Capitalist production of services commodities 4. Productive transport and storage
	Non-capitalistic	8. Non-capitalistic manufacturing	9. Non-capitalistic mining and agriculture	10. Non-capitalist services (circulatory and non-circulatory)
Not productive of surplus-value	Capitalistic	5. -	6. -	7. Capitalistic circulatory services
	Non-capitalistic			

Notes: i) - denotes empty cell.

ii) Storage is included as productive of surplus-value although it preserves surplus-value that would otherwise be lost, as opposed to generating new surplus-value.

iii) Shaded areas denote non-negligible parts of a typical modern economy. Cell 9 is shaded as subsistence agriculture accounts for a significant part of the economies of many low-income countries and some middle-income countries, although it would typically be very small in upper-income countries and some middle-income countries.

3. A 'SPECIAL ROLE' FOR MANUFACTURING?

Manufacturing is regarded in much of the non-Marxian heterodox economics literature – notably in the Kaldorian and structuralist approaches – as having a special role to play in the growth process. We now analyse manufacturing in terms of whether there is anything special about manufacturing from a Marxian perspective. This leads into the subsequent discussion of the activity-specificity of growth.

In Marx's analysis of the development of capitalism, he uses the term 'manufacture' (*manufaktur*) to refer to manufacturing not as a sector as in current usage, but rather as a stage in between simple co-operation/handicrafts and modern machine industry. For heuristic purposes, Marx's narrow meaning of manufacturing as a historical stage in between simple co-operation of modern machine industry will be denoted in this paper using Marx's original term of *manufaktur*, to distinguish it from manufacturing more broadly. What we are interested in here is not the specificity of *manufaktur* as a stage in the development of manufacturing, but rather manufacturing as a whole in the current sense; this Marx generally refers to (sometimes with the inclusion of mining) as industry.

We begin by reflecting on Marx's historical account of the emergence and development of manufacturing and the implications of this for the advancement of capitalism. We then draw out what Marx seems to have regarded as the special characteristics of manufacturing, and the relevance of these characteristics for the dynamism of capitalism. We show that the precursors of a number of the ideas in non-Marxian heterodox economics concerning the special properties of manufacturing may actually be found in Marx's work (particularly in the first volume of *Capital*). We conclude this section by arguing that Marx's insights regarding manufacturing can be conceptualised in two dimensions, one sectoral and another which may be shorthanded as 'technological-organisational'.

3.1 The development of manufacturing and the progress of capitalism

Handicraft (*handwerksindustrie*), simple co-operation, *manufaktur*, and modern machine industry are not an entirely teleological series of categories, in that these 'modes' can and do exist simultaneously. Nonetheless, Marx conceives of them as essentially sequenced in terms of historical development, with the prominence of one mode being supplanted by the next. The scale, complexity, division of labour, and technological advancement increases with the progression between these stages.

The development of modern machine industry is central to Marx's understanding of the advancement of capitalism, and also of the dynamism and revolutionising forces that capitalism brings. To the extent that Marx regards capitalism as a progressive historical force, this progressivity is strongly associated with the development of modern machine industry.

The advancement of manufacturing undermines pre-capitalist or non-capitalist modes of production, through various channels. Technological progress and the increasing cost of constant capital requirements for competitive survival that are associated with the rise of manufacturing make it increasingly difficult for individual workers (especially without access to finance) to afford the means of production required for engaging in the ancient mode of production. This pushes them towards selling their labour power to a capitalist. Furthermore, the narrowing of skills in manufacturing, due to division of labour and specialisation, make it particularly difficult for a manufacturing worker to leave wage employment and take up the ancient mode of production, even in the same line of activity. Economies of scale in manufacturing also undermine the ancient mode of production in manufacturing and support the development of capitalist manufacturing, as well as increasing the concentration of ownership and control.

In *The German Ideology* Marx emphasises in dramatic terms the historical role of big industry in transforming not only on the economy but virtually all aspects of society:

By universal competition it forced all individuals to strain their energy to the utmost. It destroyed as far as possible ideology, religion, morality, etc., and where it could not do this, made them into a palpable lie. It produced world history for the first time...It made natural science subservient to capital and took from the division of labour the last semblance of its natural character...In the place of naturally grown towns it created the modern, large industrial cities which have sprung up overnight. Wherever it penetrated, it destroyed the crafts and all earlier stages of industry. It completed the victory of the commercial town over the countryside... (Marx, 1845, pp.56-7).

An important transformative quality of large industry is the shift to the production of not only use-values but of exchange-values, and this is critical to the development of capitalism. There is a dialectical relationship between the expansion of large-scale manufacturing and the advancement of capitalism. The development of large-scale manufacturing commodity production would not be feasible under pre-capitalist relations of production, yet the development of manufacturing undermines those relations and facilitates the rise of capitalism.

Competition is a central force in Marx's account of the development of capitalism as well as in the ongoing dynamic character of capitalism. There is in turn a relationship between competition and mechanisation. Manufacturing is integral to mechanisation, in terms of the rise of the manufacturing sector itself as well as the role of manufacturing in the

mechanisation of the rest of the economy. Competition both drives and is spurred on by mechanisation.

While competition...constantly pursues him with its law of the cost of production and turns against himself every weapon that he forges against his rivals, the capitalist continually seeks to get the best of competition by restlessly introducing further subdivision of labour and new machines which, though more expensive, enable him to produce more cheaply, instead of waiting until the new machines shall have been rendered obsolete by competition. (ibid, p.44).

Competition accelerates the division of labour and the application of machinery. The relationships between mechanisation, competition, and the development of capitalism give particular importance to the development of manufacturing, given that it is manufacturing that is the basis of mechanisation.

Overall, Marx attributes a historically progressive role to manufacturing – a conception on which Lenin subsequently builds.¹³ In the era in which Marx wrote, these progressive qualities of industry were juxtaposed to agriculture and to handicrafts, and to a limited extent to the services activities of the time. Marx sees a definite relationship between the development of manufacturing and the development of capitalism.¹⁴ This relationship is not merely one of historical correlation, but one dialectically conceived of in terms of mutual causality.

Big industry, with ‘its first premise [being] the automatic system’ (ibid, p.57), is also recognised as central in transforming class relations. It consolidated the capitalist class and introduced relative homogeneity in class relations across countries, so developing for the first time an international capitalist class. Marx discusses the effects of the development of big industry on class formation internationally in *The German Ideology*:

[The development of big industry] produced a mass of productive forces, for which private [property] became just as much a fetter as the guild had been for manufacture and the small, rural workshop for the developing craft...Generally speaking, big industry created everywhere the same relations between the classes of society, and thus destroyed the peculiar individuality of the various nationalities. And finally, while the bourgeoisie of each nation still retained separate national interests, big industry created a class, which in all nations has the same interest and with which nationality is already dead; a class which is really rid of all the old world and at the same time stands pitted against it. (ibid, p.57).

¹³ See for instance Lenin (1899).

¹⁴ In his Preface to the First Edition of Volume 1 of *Capital*, for instance, Marx states that ‘the country that is more developed industrially only shows, to the less developed, the image of its own future’ (Marx, 1867b, p.91).

The development of big industry transforms the nature of work for the proletarian, with increased division of labour and mechanisation both intensifying alienation. In *The Communist Manifesto*, Marx and Engels describe how ‘owing to the extensive use of machinery and to division of labour, the work of the proletarians has lost all individual character, and, consequently, all charm for the workman. He becomes an appendage of the machine...’ (Marx and Engels, 1848, p.227). The rate of exploitation also increases with the advancement of big industry. Even ‘the workers excluded from big industry are placed by it in a still worse situation than the workers in big industry itself’ (Marx, 1845, p.58).

The development of big industry consolidates a proletariat and sharpens the contradictions of wage labour. In class struggle, ‘the proletarians created by big industry assume leadership of [the class movement of the proletariat] and carry the whole mass along with them’ (ibid, p.58).

The historical role of big industry is not only in terms of the development of capitalism, but also in terms of bringing the contradictions of capitalism to the fore. Marx suggests that the development of big industry lays the basis for the abolition of private property, by engendering and intensifying the contradictions between the forces and relations of production:

private property [is] a necessity for certain industrial stages. In *industrie extractive* private property still coincides with labour; in small industry and agriculture up till now property is the necessary consequence of the existing instruments of production; in big industry the contradiction between the instrument of production and private property appears for the first time and is the product of big industry; moreover, big industry must be highly developed to produce this contradiction. And thus only with big industry does the abolition of private property become possible. (ibid, p.81).

The role of modern machine industry in not only facilitating the development of capitalism but in laying the foundations for its ultimate demise is also brought out clearly in these famous words from *The Communist Manifesto*:

The advance of industry, whose involuntary promoter is the bourgeoisie, replaces the isolation of the labourers, due to competition, by the revolutionary combination, due to association. The development of Modern Industry, therefore, cuts from under its feet the very foundation on which the bourgeoisie produces and appropriates products. What the bourgeoisie therefore produces, above all, are its own grave-diggers. (Marx and Engels, 1848, p.233).

3.2 *The special characteristics of manufacturing for accumulation and growth*

The antecedents of many of the ideas about the special features of manufacturing and cumulative causation, developed later in the Kaldorian literature, can actually be traced to Marx (as well as to some extent to Smith). Kaldor does not cite Marx with reference to these issues, although he does briefly refer to Marx's ideas in other areas (notably the distribution between wages and profits). It is known that some of Marx's ideas concerning manufacturing came to Kaldor through Allyn Young (who taught Kaldor at the London School of Economics in the late 1920s). It is possible that Kaldor himself read Marx's ideas on manufacturing, but he does not explicitly refer to Marx in this regard.¹⁵ The important 'progressive' features of manufacturing identified by Marx include: division of labour; socialisation of labour; mechanisation; increasing returns to scale; learning-by-doing; and overall, superior potential for cumulative productivity increases. These types of attributes are central to the view in the Kaldorian tradition about the special role of manufacturing in the growth process. In this section we draw out the insights that can be found in Marx concerning specific qualities of manufacturing. We quote extensively from Marx here because of the exegetical element in this discussion.

It is significant that the section of *Capital* devoted to the production of relative surplus-value – Part IV of Volume 1, spanning close to 200 pages – deals with 'sectoral' issues and specifically with manufacturing. In discussing relative surplus-value, this section of *Capital* covers topics such as the division of labour in manufacturing; the value transferred by machinery to the product; different branches and stages of manufacturing; and so on. Before even considering the substance of Marx's arguments, it is apparent from even a perusal of the table of contents of *Capital* that Marx's ideas concerning the production of relative surplus-value are not 'sector-neutral', and moreover that there is something especially relevant about manufacturing. As will be discussed further in section 5, the production of relative surplus-value is in turn central to accumulation and growth.

Marx builds on Smith's exposition of the progressive role of the division of labour, arguing that this is advanced through manufacturing in particular. Division of labour is critical for specialisation, which in turn facilitates increasing productivity and hence higher rates of

¹⁵ For studies of Kaldor's work, see Thirlwall (1987), Targetti (1992), Harcourt (2001), and King (2009).

surplus-value. Marx notes that ‘manufacture is characterised by the differentiation of the instruments of labour – a differentiation whereby tools of a given sort acquire fixed shapes, adapted to each particular application – and by the specialisation of these instruments, which allows full play to each special tool only in the hands of a specific kind of worker.’ (Marx, 1867b, p.460).

What is particularly important in the development of manufacturing in capitalism is the combination of division of labour and specialisation with the increasing socialisation of labour. Marx discusses the rise in concentration and cooperation in production with the progressions from handicrafts to *manufaktur* to large-scale machine industry. In modern machine industry, the division of labour between workers found in earlier stages of manufacturing becomes division of labour between machines. The synergy between division of labour, specialisation, and socialisation of labour in manufacturing, and the progressive force emanating from this synergy, is expressed well in the following passage:

manufacture, once introduced, develops in [the workers] new powers that are by nature fitted only for limited and special functions. The collective worker now possesses all the qualities necessary for production in an equal degree of excellence, and expends them in the most economical way by exclusively employing all his organs, individualised in particular workers or groups of workers, in performing their special functions. The one-sidedness and even the deficiencies of the specialised individual worker become perfections when he is part of the collective worker. The habit of doing only one thing converts him into an organ which operates with the certainty of a force of nature, while his connection with the whole mechanism compels him to work with the regularity of a machine. (ibid, p.469).

Marx sees co-operation and socialisation of labour as central to increasing returns of scale. Co-operation and socialisation of labour reach new heights in manufacturing, and this facilitates a high degree of increasing returns. Marx’s eloquent exposition of co-operation-induced increasing returns to scale is worth quoting at some length:

Just as the offensive power of a squadron or cavalry of an infantry regiment, is essentially different from the offensive or defensive powers of the individual soldiers taken separately, so the sum total of the mechanical forces exerted by isolated workers differs from the social force that is developed when many hands co-operate in the same undivided operation...Not only do we have here an increase in the productive power of the individual, by means of co-operation, but the creation of a new productive power, which is intrinsically a collective one. Apart from the new power that arises from the fusion of many forces into a single force, mere social contact begets in most industries a rivalry and a stimulation of the ‘animal spirits’, which heightens the efficiency of each individual worker. This is why a dozen people working together will produce far more, in

their collective working day of 144 hours than twelve isolated men each working for 12 hours, and far more than one man who works 12 days in succession. (ibid, pp.443-4).

Note in the above passage Marx's use the term 'animal spirits', an idea usually associated with Keynes rather than with Marx.¹⁶ The incitement of 'animal spirits' is one of the channels he identifies through which increasing scale of production and co-operation can increase labour productivity.

In the following important passage Marx elaborates on the various mechanisms through which co-operation and socialisation of labour in manufacturing increase productivity and facilitate increasing returns to scale. These channels include the reorganisation of production in a way that raises productivity; what we might term 'joined-up' production; economising the means of production needed for any given level of output; homogenisation of labour; and the invocation of 'animal spirits' in way that increases workers' productivity:

The combined working day produces a greater quantity of use-values than an equal sum of isolated working days, and consequently diminishes the labour-time necessary for the production of a given useful effect. Whether the combined working day, in a given case, acquires this increased productivity because it heightens the mechanical force of labour, or extends its sphere of action over a greater space, or contracts the field of production relatively to the scale of production, or at the crucial moment sets large masses of labour to work, or excites rivalry between individuals and raises their animal spirits, or impresses on the similar operations carried on by a number of men the stamp of continuity and many-sidedness, or performs different operations simultaneously, or economizes the means of production by use in common, or lends to individual labour the character of average social labour – whichever of these is the cause of the increase, the special productive power of the combined working day is, under all circumstances, the social productive power of labour, or the productive power of social labour. This power arises from co-operation itself. When the worker co-operates in a planned way with others, he strips off the fetters of his individuality, and develops the capabilities of his species. (ibid, p.447).

The concept of 'learning-by-doing' is probably most strongly associated with Arrow, with Young, and with the Kaldorian tradition. Learning-by-doing is regarded in the heterodox literature as being especially strong in manufacturing (relative to other sectors), and this is one of the characteristics of manufacturing that accords it a special role in the economic growth process. The conception of learning-by-doing and its particular importance in

¹⁶ Even in the German original Marx refers to 'Erregung der Lebensgeister (animal spirits)'. The German could be translated as 'life spirits', and it is Marx who adds the English term 'animal spirits'. (Marx, 1867a, p.324). This is not the only place in which Marx uses this term; see, for instance, the long extract from page 447 cited below. It was not Marx who coined the term, as it was already in classical usage, but Marx may have been the first to use it in this specific context.

manufacturing was developed at an early stage by Marx. In the passage below he discusses learning-by-doing (without using that phrase) in manufacturing and the importance of this for increasing productivity in manufacturing:

[In manufacture], in comparison with the independent handicraft, more is produced in less time, or in other words the productivity of labour is increased. Moreover, once this partial labour is established as the exclusive function of one person, the methods it employs become perfected. The worker's continued repetition of the same narrowly defined act and the concentration of his attention on it teach him by experience how to attain the desired effect with the minimum of exertion. But since there are always several generations of workers living at one time, and working together at the manufacture of a given article, the technical skill, the tricks of the trade thus acquired, become established, and are accumulated and handed down. Manufacture, in fact, produces the skill of the specialized worker by reproducing and systematically driving to an extreme within the workshop the naturally developed differentiation which it found ready to hand in society. (ibid, pp.458-9).

Marx's argument here is important in establishing the importance of learning-by-doing not only at the level of an individual worker, whose productivity is increased by repeated performance of the same task in a manufacturing process, but also at the level of the labour force as a whole. This is a critical aspect of learning-by-doing in terms of manufacturing as an engine of growth: the accumulation and dissemination across the workforce of productivity-enhancing skills. It is also important to dynamic economies of scale, not just at the factory or enterprise level but at the sectoral level as well.

Marx's conception of learning-by-doing is closely tied in with the division of labour as well as with the socialisation of labour in manufacturing. The division of labour allows for the development of skills through specialisation of workers in particular tasks. The socialisation of labour allows for these skills to be built up over time not just for an individual worker but for the manufacturing workforce more generally, through the passing on of skills which have been built up through experience.

Marx's insights into learning-by-doing in manufacturing, and specifically into the accumulation and reproduction of these skills, might also suggest the endogeneity of productivity growth in manufacturing to the rate of output growth in manufacturing (which is formalised as Verdoorn's Law, also known as Kaldor's Second Law). In Volume 3 of *Capital* Marx also emphasises the relationship between the scale of production and learning-by-doing and associated innovations in the productive process. He discusses the productivity

improvements that are enabled by the concentration of the means of production and the ‘social nature of labour’ facilitated by the ‘accumulation and co-operation of labourers’. Marx argues in this respect that ‘the continual improvements, which are here possible and necessary, are due solely to the social experience and observation ensured and made possible by the production of aggregate labour on a large scale.’ (Marx, 1894, p.79). This brings out the social nature of learning-by-doing and the endogeneity of this to the scale of production, thus pointing to increasing returns to scale and to the endogeneity of productivity to scale.

Marx also discusses how learning-by-doing combined with division of labour leads to the standardisation of labour and production processes, which are important in the development of manufacturing:

The labour-time necessary to attain the desired effect in each partial process [of manufacturing] is learnt by experience, and the mechanism of manufacture, taken as a whole, is based on the assumption that a given result will be obtained in a given time. It is only on this assumption that the various supplementary processes can proceed uninterruptedly, simultaneously, and side by side. It is clear that the direct mutual interdependence of the different pieces of work, and therefore of the workers, compels each one of them to spend on his work no more than the necessary time. This creates a continuity, a uniformity, an order, and even an intensity of labour, quite different from that found in an independent handicraft or even in simple co-operation. (Marx, 1867b, pp.464-5).

Whereas in other sectors this standardisation is in general enforced externally by competitive pressures, in manufacturing it is the internal technical conditions of production that are critical in the reduction and standardisation of labour time to the socially necessary labour time of any given commodity:

The rule that the labour-time expended on a commodity should not exceed the amount socially necessary to produce it is one that appears, in the production of commodities in general, to be enforced from outside by the action of competition: to put it superficially, each single producer is obliged to sell his commodity at its market price. In manufacture, on the contrary, the provision of a given quantity of the product in a given period of labour is a technical law of the process of production itself. (ibid, pp.464-5).

Mechanisation is naturally linked to the manufacturing sector, and Marx conceives of increasing mechanisation as being integrally tied in with the development of capitalism. Not only is manufacturing necessary for mechanisation in any sector of the economy,¹⁷ but Marx also argues that mechanisation finds expression in manufacturing more than in any other type

¹⁷ Although manufactured inputs can of course be imported.

of activity. Science and technological advances are increasingly important in the progression from handicrafts to *manufaktur* to modern machine industry. He identifies technological progress in manufacturing as important in allowing for the overcoming of human limitations in increasing productivity.

Mechanisation is pushed forward in capitalism by the drive to continually expand the production and appropriation of surplus-value. Mechanisation is dialectically related to both the division of labour and to the development of capitalism. Mechanisation and capitalist development each feed into the other, as do mechanisation and the division of labour. Although Marx does not use the terminology of cumulative causation, the logic of this is clearly evident in his dialectical treatment of the relationships between mechanisation, division of labour, accumulation, and capitalist development.

The importance of mechanisation implies something for manufacturing, since it is in the manufacturing sector that machines are produced (although not necessarily the domestic manufacturing sector). Technological progress is embodied in new capital goods, and the fact that these goods are produced in the manufacturing sector gives manufacturing a particular role in overall technological advancement. While machinery can be imported, this would need to be paid for with exports of other goods. Furthermore, the importing of machinery means that a country foregoes some of the benefits associated with the diffusion and development of technology. There is thus a close relationship between the increased mechanisation of the economy as a whole – which Marx relates closely to increasing division of labour, specialisation, returns to scale, and so on – and the development of the manufacturing sector specifically. Similarly for technological progress: the development of manufacturing is crucial for technological progress in other sectors given that new technological innovations (other than those relating purely to the organisation of production) need to be embodied in manufactured instruments or machines and hence arise directly or indirectly from manufacturing.

Labour productivity is central to Marx's ideas on technological progress and accumulation. Whereas a lengthening of the working day increases absolute surplus-value, increasing labour productivity increases relative surplus-value. Marx argues in *Capital* that both relative and absolute surplus-value increase with the development from handicrafts to *manufaktur* and

even more so with the progression to modern machine industry. Manufacturing is characterised not only by generally higher labour productivity relative to other sectors of the economy, but also by relatively unlimited potential for ongoing productivity increases, and this is of central importance for accumulation and growth. For instance, Marx notes that even ‘early in the period of manufacture, the principle of lessening the labour-time necessary for the production of commodities was consciously formulated and expressed’ (ibid, p.467).

Marx clearly links the division of labour in manufacturing and the increases in labour productivity to increases in the rate of surplus-value. For instance, having discussed how increasing division of labour and specialisation either obviates the need for apprenticeship in the case of unskilled workers or diminishes the costs in the case of skilled workers, Marx states clearly that:

the relative devaluation of labour-power caused by the disappearance or reduction of the expenses of apprenticeship directly implies a higher degree of valorisation of capital; for everything that shortens the necessary labour-time required for the reproduction of labour-power, extends the domain of surplus labour. (ibid, p.470).

Marx draws attention to the particular importance of manufacturing in the relationship between the increasing productivity of labour (and hence of increasing the rate of relative surplus-value) and the development of the means of production. In this context we can also note the dialectic between increasing labour productivity and the development of the means of production, which he sees as each being both a cause and consequence of the other:

The consequence of the division of labour (under manufacture) and the application of machinery is that more raw material is worked up in the same time, and, therefore a greater mass of raw material and auxiliary substances enters into the labour process. That is the consequence of the increasing productivity of labour. On the other hand, the mass of machinery, beasts of burden, mineral manures, drain pipes, etc., is a condition of the increasing productivity of labour...But whether condition or consequence, the growing extent of the means of production, as compared with the labour-power incorporated with them, is an expression of the growing productivity of labour. (ibid, p.773).

In *Grundrisse* Marx identifies the extraordinary productivity of labour and scope for productivity increases in big industry, and of the particular importance of technological advances in this regard:

to the extent that large industry develops, the creation of real wealth comes to depend less on labour time and on the amount of labour employed than on the power of agencies set in motion during labour time, whose “powerful effectiveness” is itself in turn out of all proportion to the

direct labour time spent on their production, but depends rather on the general state of science and on the progress of technology, or the application of this science to production. (The development of this science, especially natural science, and all others with the latter, is itself in turn related to the development of material production.) ... Real wealth manifests itself, rather – and large industry reveals this – in the monstrous disproportion between the labour time applied, and its product, as well as in the qualitative imbalance between labour, reduced to a pure abstraction, and the power of the production process it superintends. (Marx, 1857, pp.704-5).

The above passage elucidates the relatively unlimited potential for productivity increases in big industry and the implications of this for accumulation. The development of big industry and the technological progress therein completely transforms the relationship between ‘inputs’ and ‘output’, such that wealth creation can accelerate without commensurate increases in labour. This renders big industry especially important in the accumulation process and in the development of the productive forces.

The dialectical nature of Marx’s exposition arguably contains an implicit notion of cumulative causation. An idea of cumulative causation is eloquently brought out in the following passage from *Wage-labour and Capital*:

we thus see how the method of production and the means of production are constantly enlarged, revolutionised, how *division of labour necessarily draws after it greater division of labour, the employment of machinery greater employment of machinery, work upon a larger scale work upon a still greater scale.* (Marx, 1849, p.43; emphasis in original).

Furthermore, division of labour, the development of capitalism, technical progress, and rising productivity of labour feed off and into themselves and each other. This conceptualisation implies potential for hysteresis, where an economy that is on a path of mechanisation, technical progress, growth in manufacturing, and high rates of accumulation and economic growth, is inclined to continue along such a path, or conversely an economy might be stuck in underdevelopment. The development of manufacturing is integral to this.

The features of manufacturing discussed above tend to support higher rates of surplus-value. Furthermore, the scale at which manufacturing is typically organised and the concentration of ownership mean that the mass of surplus-value at the disposal of a capitalist will be relatively high. This is crucial for accumulation.

Insofar as Marx considers capitalism to be a progressive historical force, the progressive characteristics of capitalism thus tend to be particularly strongly associated with

manufacturing. These progressive characteristics are in part related to the potential of manufacturing (relative to other sectors) to generate surplus-value, facilitate accumulation, and support economic growth; and in part to the implications for the structure and ideological orientation of the working class. Having said this, however, it should be borne in mind that these views are probably in part related to the historical context in which Marx was writing, which predated the development of heavy mining, niches of relatively standardised services or hi-tech services, and so forth.

It is characteristics of manufacturing such as the replicability of manufacturing commodities and production processes, the fact that it is viable to separate production and consumption in time and space, advanced division of labour and specialisation, socialisation of labour, and high levels of mechanisation and relatively unlimited scope for further mechanisation, that facilitate properties such as learning-by-doing and increasing returns to scale. The key issue around the specificity of manufacturing is that there tends, at a general sectoral level, to be greater scope for cumulative productivity increases than in other sectors. This leads into a broader discussion of activity-specificity.

4. ACTIVITY-SPECIFICITY

The special properties and increasing ‘progressivity’ which Marx identifies in the progression from simple co-operation to *manufaktur* to large-scale machine industry are to some extent specific to manufacturing relative to other sectors. This progressivity is also to some extent a function of features such as increasing scale of production, increasingly advanced technology, and increasingly sophisticated organisation of production that come with each of these ‘stages’.

We thus draw out two dimensions of the activity-specificity of growth from a Marxian perspective, and refer to these as the sectoral and technological-organisational dimensions. The technological-organisational dimension refers to the way in which an activity is organised and carried out, in terms of characteristics such as scale, division of labour, the extent and nature of deployment of machinery and technology, and so on.

If comparing, for instance, the manufacture of hand-made furniture in a small workshop with a large-scale agricultural plantation, the relative progressivity of these two activities (in the

sense of potential for sustained and cumulative productivity increases) cannot be conclusively determined *a priori*. In terms of the sectoral dimension, the first of these activities is in manufacturing and the second in agriculture. Yet in terms of the technological-organisational dimension, the second activity is likely to have greater scope for division of labour, technological advances, economies of scale, and labour-saving productivity gains.

While there are certainly some non-manufacturing activities which have a higher degree of technological-organisational progressivity than some manufacturing activities, the characteristics of manufacturing that distinguish it from other sectors of the economy tend to be relatively conducive to greater technological-organisational advancement. Our interpretation of Marx's analysis suggests that these two aspects of activity-specificity – sectoral and technological-organisational dimensions – are not independent. Despite significant variance within non-manufacturing surplus-value-producing activities in terms of scope for cumulative productivity increases, certain of the intrinsic features that typologically distinguish them from manufacturing ultimately constrain their potential in this regard.

It is surely not coincidental that Marx discusses the handicrafts – *manufaktur* – large-scale machine industry progression specifically in terms of the manufacturing sector. There is no equivalent progression set out with respect to non-manufacturing activities. Indeed, as noted earlier, this entire discussion of manufacturing in *Capital* is located in the section on the production of relative surplus-value.

Volume 1 of *Capital* does include an extremely brief chapter on 'Large-scale Industry and Agriculture', in which Marx discusses the revolutionary effects of large-scale industry in agriculture. He describes how 'a conscious, technological application of science replaces the previously highly irrational and slothful traditional way of working' (Marx, 1867b, p.637) and how the capitalist mode of production 'creates the material conditions for a new and higher synthesis, a union of agriculture and manufacture...' (ibid). Marx's concern in this discussion, however, is not with any progressive effects that might emanate from the increasing application of modern machine industry and capitalist production in agriculture. He explicitly views this as a destructive force which will be ruinous for the long-term fertility of the soil and potential of the soil as a source of future wealth. (ibid, p.638).

The scope for cumulative productivity increases varies for different agricultural commodities, for example being comparatively low in tobacco and high in sugar production. However, at a general sectoral level it tends to be low relative to manufacturing.

The scope for productivity improvements in agriculture is primarily limited by the centrality of land as a factor of production (as distinct from land being essentially a physical space for production in the case of manufacturing). Expanding the scale of agriculture generally entails the use of land with lower physical productivity per unit cost than the land already in agricultural use. This poses a problem in terms of increasing returns to scale and the scope for cumulative increases in productivity.

In addition, the potential for productivity increases in agriculture is limited by dependence on the growth processes of crops and animals, which can be accelerated only up to a point. The seasonality of most agriculture negatively affects overall capacity utilisation and the potential for cumulative productivity increases. In addition, the relative perishability of agricultural commodities has implications for the production process and for the potential for stockpiling output.

Mining shares some properties of manufacturing – at least relative to agriculture – in terms of characteristics such as of mechanisation, potential for stockpiling of commodities, and non-seasonality. However, the scope for labour-saving development and scalability tends to be constrained by the physical and geological aspects of the process of extracting minerals from below the surface of the earth, and the very direct tying of the activity to a specific area of land. For instance, although the products of mining are generally highly standardised, the standardisation of the production process is constrained by the variance in the earth (e.g., rock formations) from which the minerals are brought extracted. This differs from the degree of standardisation possible in a factory. Moreover, as the scale of mining increases – either in an individual mine or in aggregate – the minerals generally become increasingly inaccessible (or accessible at increasing costs), which mitigates against increasing returns to scale.

There are also pertinent differences between mining and manufacturing that have implications for the patterns of industrial organisation in these sectors. The endowment of mineral resources is fixed (even though it is unlikely to be fully known, and even if the resources which it is economically viable to extract changes over time). In addition, the

owner of a mine or mining rights typically has exclusive access to the mineral resource and hence has a right of exclusion (even if this right is qualified in particular legal regimes). In manufacturing, by contrast, a current or potential competitor is in principle not prevented from setting up a rival operation, and similarly a country can attempt to move into a certain line of manufacturing (aside from where patents apply, and even factoring in demand constraints). These differences can give rise to different patterns of industrial organisation and pricing behaviour in the manufacturing and mining sectors. There might generally be a higher probability of a competitive environment in manufacturing, although there is significant intra-sectoral variation in this regard. This is important because, as discussed earlier, Marx sees competition as an important dynamic which contributes to technological progress.

In the case of service commodities, certain intrinsic attributes are also germane to a Marxian analysis of accumulation and growth. The unity of production and consumption, and the associated inalienability of the commodity in time and generally also in space, tends to limit the potential for technological-organisational progressivity. Services commodities cannot be stored, and this precludes them from being produced in advance utilising full production capacity and stockpiled pending sale, as in the case of manufactured commodities. Instead, the rate of production of service commodities is entirely dictated by demand at a particular time (and for many service commodities which entail a direct interaction with the consumer, place as well¹⁸).

This characteristic of service commodities – inseparability of production and consumption in time and typically in space too – also tends to limit opportunities for scale. In manufacturing there are no necessary limits on the size of a plant or scale of production, as the commodities manufactured can be transported to the location of effective demand. For service commodities, in contrast, production must be limited by the scale of demand at a particular time and in many cases in a particular locality as well. For example, a restaurant may have to operate at a lower scale than would be optimal, by virtue of the demand available at that locality. This constrains the potential for increasing returns to scale.

¹⁸ For certain service commodities, in which the provider and consumer of the services need not be in the same physical space but can be connected electronically (such as call-centres located internationally), the constraint of space is less absolute. However, the parties still need to be in spaces that are appropriately pre-connected.

Another characteristic of service commodities relevant to the scope for technological-organisational progressivity is that service commodities do not typically lend themselves to standardisation and replicability to the same extent as manufactured commodities. Recall Marx's argument (discussed in section 3.2) that the standardisation of labour and of production processes are generally enforced by competitive pressures, whereas in the special case of manufacturing the internal technical conditions of production lead to 'endogenous' standardisation. With services commodities, the inseparability of production and consumption and the 'interactive' element in the production/consumption moment mean that they generally cannot be as standardised and as replicable as in the case of manufactured commodities. This also has negative implications for the potential for increasing returns to scale.

In many commodity-producing services the labour component is in a sense the quality being sought after by the purchaser of the service, and this also constrains the potential for cumulative productivity increases.¹⁹ 'Personal attention' is considered a desirable aspect of some services, with 'quality' even being adjudged as varying positively with the labour-intensity of the activity and hence negatively with labour productivity. For example, in private education a low pupil-teacher ratio is considered desirable in its own right. Not only is the potential for capital-labour substitution limited (even with technological advances and teaching aids), but such substitution might be perceived as a deterioration in quality and could result in a fall in price. Similarly with other commodity-producing services such as personal services or private healthcare. This limits the potential for increasing labour productivity.²⁰

Manufacturing is fundamentally different in this regard, since the labour-intensity or labour productivity of a commodity is neither visible to the purchaser of the commodity nor of direct interest to the consumer as an explicit dimension of quality. This characteristic of service commodities is critical to our argument that service commodity-producing-activities have less 'progressive' characteristics than do manufacturing commodity-producing-activities, and

¹⁹ A point made by Baumol (1967).

²⁰ We should note that the 'high labour-intensity' quality of services pertains specifically to those functions directly involved in the production of the commodity and interfacing with the consumer; there is certainly scope for productivity increases in those processes not directly involved or visible in the production/consumption moment (although much of the employment engaged in such processes would not be productive labour).

specifically less scope for cumulative productivity increases. To the extent that labour productivity is inversely related with ‘quality’ for certain services commodities, this limits the possibilities for sustained increases in productivity.

While there is considerable heterogeneity among commodity-producing services, their relatively low potential for productivity improvements is to some extent intrinsic to what defines them as ‘services’, for the various reasons discussed above. In particular, the inseparability in time (and for most commodity-producing services space as well) of the production and consumption of these commodities limits the potential for variable-capital-saving technological changes.²¹

Overall, we would thus argue that primary and services commodity-producing activities will each tend to have relatively lower potential for cumulative and sustained productivity growth than would manufacturing commodity-producing activities. It can be noted that there have been significant increases in productivity in commodity-producing mining, agricultural, and service activities over time, and these activities do generally have capacity for technological advances and increasing mechanisation, division of labour and specialisation, and so on. Nevertheless, it is the very characteristics that define these activities and distinguish them from commodity-producing manufacturing that overall tend to limit their scope for cumulative productivity gains, as compared to manufacturing in general. As will be discussed in the next section, the scope for cumulative productivity increases is important to the growth-enhancing potential of an activity.

5. GROWTH

5.1 Introduction

We now consider particular aspects of the economic growth process from a Marxian perspective. The focus is on exploring the relationship between activity-specificity (as discussed in the previous section) and growth outcomes.

²¹ It can be noted, however, that technological advances are mitigating the spatial and temporal inseparability of the production and consumption of services in certain instances, such as internet shopping and call centres.

Marx deals extensively and in a profound way with the dynamism of capitalism and potential threats to this dynamism, but growth itself was not his principal concern. Marx does not, at least in our view, develop a comprehensive and consolidated ‘growth theory’ or discuss in a cohesive manner the factors that determine a country’s overall rate of growth.

There is a corpus of literature on growth models in the Marxian or Neo-Marxian traditions, to which contributions include those of Laibman (1977, 1981, 1987); Marglin (1984); Krelle (1971); Roemer (1978); Brody (1970); Dutt (1991, 1992); Sato (1985); Harris (1972); Sardoni (1981); Sherman (1971); Lianos (1979); Morishima (1969, 1973); and Nell (1973). These tend to focus on modelling particular dimensions of Marx’s ideas or suggesting Marxian-style closures of macroeconomic models.

The appropriateness and value of a purportedly comprehensive and deterministic Marxian growth model could, in our view, be questionable in the light of the inherent contingency in Marx’s method and ontological approach. The disequilibrium that is characteristic of Marx’s economics and the ubiquity of countervailing forces and tendencies arguably problematise the mathematical modelling of these ideas. This is further complicated by the fact that some of the important factors and forces which affect growth outcomes are unobservable.

This section is not intended to develop a comprehensive Marxian growth theory. The concern here is specifically with exploring the impact of changes in sectoral structure on accumulation and growth. In the ontological stance taken here – which we believe to be consistent with Marx’s own, and differing fundamentally from mainstream economics as well as from some of the heterodox economics literature – it is not possible to definitively theorise *a priori* the ultimate effects of a change in sectoral structure on the rates of accumulation or growth. We thus do not intend to argue that a decline in the share of manufacturing would necessarily reduce accumulation or growth. We explore the channels through which a change in sectoral structure might affect accumulation and growth, but recognise that the importance of these channels would be contingent on the specific features of an economy at a particular time and on the precise nature of the change in sectoral structure. Furthermore, any effects discussed here might be outweighed by other countervailing forces. While we discuss a particular chain of causality from a change in sectoral structure to growth, every link in this chain is contingent and is subject to other (possibly countervailing) effects. These could

include factors such as the organic composition of capital, the relative size of the reserve army of labour, cycles, the balance between Departments I and II, the distribution between wages and profits, and so on; all of which would affect growth outcomes.

The basic argument to be made here is that accumulation is a central determinant of growth; that the rate of surplus-value (specifically the rate of relative surplus-value) is important to the rate of accumulation; that it is through cumulative productivity increases that the rate of relative surplus-value can increase on a sustained basis; that there is an activity-specificity in the scope for these cumulative productivity increases; and that there are both sectoral and technological-organisational dimensions to this activity-specificity. This chain of causality thus links sector and other dimensions of activity-specificity to growth. We now go through the stages of this argument, using evidence from Marx's writings to support each of the links.

5.2 Accumulation and growth

Accumulation refers to the employment of surplus-value as capital, or its reconversion into capital (Marx, 1867b, p.734). From a Marxian perspective the rate of accumulation is fundamental to the growth rate. Accumulation is the basis of expanded reproduction, in that the reconversion of surplus-value into capital allows for the reproduction of the circuit of capital on an expanded scale. Not only is accumulation fundamental to growth, but there is a relationship between the rate of accumulation and the rate of growth. Yet this relationship is neither linear nor even monotonic.²²

Some of Marx's ideas on the growth process are brought out well in the following important passage from his chapter in *Capital* on 'The General Law of Capitalist Accumulation'. Marx describes how technological advancement in the production process enables the rapid recapitalisation of surplus product into new means of production, and how accumulation facilitates the expansion of production.

With accumulation, and the development of the productivity of labour that accompanies it, capital's power of sudden expansion also grows; it grows, not merely because the elasticity of the capital already functioning increases, not merely because the absolute wealth of society expands..., not merely because credit, under every special stimulus, at once places an unusual part of this

²² For instance, factors such as the distribution between wages and profits may have opposite effects on the rate of accumulation and on other determinants of the growth rate.

wealth at the disposal of production in the form of additional capital; it grows also because the technical conditions of the production process— machinery, means of transport, etc. – themselves now make possible a very rapid transformation of masses of surplus product into additional means of production. The mass of social wealth, overflowing with the advance of accumulation and capable of being transformed into additional capital, thrusts itself frantically into old branches of production, whose market suddenly expands, or into newly formed branches, such as railways, etc., which now become necessary as a result of the further development of the old branches. (Marx, 1867b, pp.784-5).

We can read a concept of cumulative causation as implicit in Marx's approach to the relationship between accumulation and economic growth, as evident in this passage:

Every accumulation becomes the means of new accumulation. With the increasing mass of wealth which functions as capital, accumulation increases the concentration of that wealth in the hands of individual capitalists, and thereby widens the basis of production on a large scale and extends the specific capitalist methods of production. The growth of the social capital is accomplished through the growth of many individual capitals. (ibid, p.776).

There is a strong 'Darwinian' element in the Marxian growth process, particularly in the relationship between accumulation and growth. Accumulation by an individual capitalist allows that capitalist to benefit from lower costs of production, given the embodiment of technological progress in new capital goods and given increasing returns to scale. A process of cumulative causation is operative here in that any accumulation which allows an individual capitalist to edge ahead in their share of total capital stock facilitates additional increases in their share. Other capitalists would be competitively disadvantaged unless they also capitalise an adequate portion of surplus-value. The potential disadvantage derives not only from their having a diminishing share of the total capital stock simply by virtue of their competitors having expanded their stock disproportionately, but also by the devaluation of the existing capital stock because of the embodiment of technology in capital, and this is heightened in the presence of increasing returns to scale. This illustrates the dialectical dynamic between mechanisation/technological advancement and competition in the capitalist growth process.

These dynamics of the Marxian growth process are further brought out in the passage below. An individual capitalist's accumulation contributes to aggregate accumulation, while simultaneously aggregate accumulation forces the individual capitalist to accumulate in order to survive. Furthermore, accumulation and competition feed into each other.

Accumulation, or production on an extended scale, which appears as a means for constantly more extended production of surplus-value – hence for the enrichment of the capitalist, as his personal

aim – and is comprised in the general tendency of capitalist production, becomes later, however,...by virtue of its development, a necessity for every individual capitalist. The constant augmentation of his capital becomes a condition of its preservation. (Marx, 1885, p.81).

Unlike non-capitalist modes of production, in capitalism there is a set of imperatives, associated with competition in particular, that compel capitalists to produce and moreover to expand and increase productivity, in order to survive.²³

Indeed, the dynamism of capitalism (relative to pre-capitalist modes of production) lies in the virtuous circle in which the surplus-value produced is the basis for expanding the scale of production through accumulation, which in turn leads to the production of even more surplus-value. This brings us to the relationship between surplus-value and accumulation.

5.3 Surplus-value and accumulation

Marx identifies surplus-value as ‘the formative element of accumulation’ (Marx, 1867b, p.775). There are in fact two sources of accumulation: the surplus value of an individual capitalist when directly recapitalised, and credit (which in turn ultimately derives from surplus-value initially appropriated by another capitalist). The production of surplus-value and the capitalisation of a portion of this surplus-value are fundamental to growth.

More specifically, the rate of surplus-value production is of direct importance to the rate of accumulation. Surplus-value is split into two portions, the one consumed by the capitalist as revenue and the other accumulated (that is, employed as capital and reinvested in the production process). Marx states clearly that ‘other things being equal, the ratio of these parts determines the magnitude of the accumulation’ (ibid, p.738). In the following passage Marx also explicitly links the production of surplus-value and accumulation in his analysis of growth:

The entire character of the advanced capitalist production is determined by the self-expansion of the advanced capital-value, that is to say, in the first instance by the production of as much

²³ Discussing the effects of competition, and what we might term cumulative causation in the growth process, Marx expresses the compulsion on capitalists in the following dramatic terms: ‘This is the law that continually throws capitalist production out of its old ruts and compels capital to strain ever more the productive forces of labor *for the very reason* that it has already strained them – the law that grants it no respite, and constantly shouts in its ear: March! March!’ (Marx, 1848, p.43, emphasis in original).

surplus-value as possible; in the second place however...by the production of capital, hence by the transformation of surplus-value into capital. (Marx, 1885, p.81).

The rate of surplus-value production is thus fundamental to the rate of accumulation, and hence to the rate of economic growth.

There are two categories of surplus-value: absolute and relative. Absolute surplus-value is increased by increasing the length of the working day. This is inevitably bounded: by the fixed number of hours in a day; by the minimum number of those hours required for the maintenance and reproduction of labour; and by the physical limits of human labour. The scope for increasing absolute surplus-value is therefore limited (at least, the rate of absolute surplus-value, or surplus-value per worker).

Relative surplus-value is increased by reducing the proportion of the working day that is spent in necessary labour. The scope for increasing relative surplus-value is less bounded, and this is pivotal to the dynamism of capitalism. The drive to produce relative surplus-value ‘completely revolutionises the technical processes of labour and the groupings into which society is divided.’ (Marx, 1867b, p.645). Marx argues that the effectivity of the capitalist mode of production in producing relative surplus-value depends on continual revolution in the methods of production in industry.

5.4 Productivity and surplus-value

Relative surplus-value can be increased by increasing either the normal intensity of labour or the productivity of labour. Whereas there are physical limits to increasing the normal intensity of labour, potential increases in the productivity of labour are relatively unlimited and are the most fertile source of increasing relative surplus-value (and surplus-value in general) on a sustainable basis.

By labour productivity Marx refers ‘the same quantity of labour [yielding], in a given time, a greater or a smaller quantity of the product, depending on the degree of development attained by the conditions of production’ (ibid, p.655). Marx defines an increase in the productivity of labour as ‘an alteration in the labour process of such a kind as to shorten the labour-time socially necessary for the production of a commodity, and to endow a given quantity of labour with the power of producing a greater quantity of use-value’ (ibid, p.431).

The productivity of labour directly affects the rate of surplus-value and hence the rate of accumulation. Marx notes in Volume 3 of *Capital* that ‘the reproduction and accumulation of capital...depend more on the productivity than on the amount of labour employed’ (Marx, 1894, p.83). More specifically, Marx argues in Volume 1 that ‘a variation in the productivity of labour, its increase or diminution, causes...surplus-value [to move] in the same direction’ (Marx, 1867b, p.656) and further on that ‘the value of the labour-power cannot fall, and consequently surplus-value cannot rise, without a rise in the productivity of labour’ (ibid, p.657). He also makes it clear that the economising of labour by increasing its productivity is aimed not at reducing the working day, but rather at reducing the necessary labour time for producing a given quantity of commodities, thereby increasing relative surplus-value.

The following passage from *Grundrisse*, while dealing with the use of machinery, highlights the relationship between labour-saving productivity increases and the increasing of relative surplus-value:

It is sometimes said about machinery...that it *saves labour*; however, ...the mere *saving* of labour is not the characteristic thing; for, with the help of machinery, human labour performs actions and creates things which without it would be absolutely impossible of accomplishment. The latter concerns the use-value of machinery. What is characteristic is the *saving* of necessary labour and the creating of *surplus labour*. The higher productivity of labour is expressed in the fact that capital has to buy a smaller amount of necessary labour in order to create the same value and a greater quantity of use-values, or that less necessary labour creates the same exchange value, realizes more material and a greater mass of use-values. (Marx, 1857, p.389; emphasis in original).

There is a dialectical relationship between increasing labour productivity and the development of the means of production, which are each a cause and consequence of the other. This is elucidated in the following quotation from *Capital*:

the level of social productivity of labour is expressed in the relative extent of the means of production that one worker, during a given time, with the same degree of intensity of labour-power, turns into products. The mass of means of production with which he functions in this way increases with the productivity of his labour. But those means of production play a double role. The increase of some is a consequence, that of the others is a condition, of the increasing productivity of labour. (Marx, 1867b, p.773).

More broadly, it is not just the level of productivity in a certain activity that is germane to growth. It is also, and in fact more importantly, the scope for ongoing and cumulative productivity increases in that activity. Even if the current level of productivity in an activity

were relatively high, if it were close to the maximum productivity that could potentially be reached in that activity there would be little scope for the continual increases in the rate of surplus-value which are necessary for sustainable growth. Other types of activities lend themselves to increases in productivity which are not only ongoing but which are also cumulative and have comparatively unlimited scope.

In summing up, our approach is brought out well in the following important passage, which explicitly links increases in productivity to increases in the production of surplus-value to accumulation, and thence to growth itself.

all methods for raising the social productivity of labour...are at the same time methods for the increased production of surplus-value or surplus product, which is in its turn the formative element of accumulation. They are, therefore, also methods for the production of capital by capital, or methods for its accelerated accumulation. The continual re-conversion of surplus-value into capital now appears in the shape of the increasing magnitude of the capital that enters into the production process. This is in turn the basis of an extended scale of production, of the methods for raising the productivity of labour that accompany it, and of an accelerated production of surplus-value. (ibid, pp.775-6).

We have argued that the level of productivity in an activity and the scope for cumulative and sustained productivity increases are central to the rate of relative surplus-value production; that the rate of surplus-value production (specifically relative surplus-value production) is fundamental to the rate of accumulation; and that the rate of accumulation is fundamental to the rate of growth. In section 4 we discussed the sectoral and technological-organisational characteristics of activities that are germane to cumulative productivity increases. A case was made that there is a degree of correlation between these dimensions, and specifically that the characteristics of manufacturing tend, as a broad generalisation, to be particularly conducive to cumulative productivity increases. This is suggestive of some degree of sectoral specificity of growth, when comparing manufacturing with surplus-value-producing activities in other sectors.

5.5 Non-surplus-value-producing activities and growth

The foregoing discussion of the relationships between surplus-value and accumulation and between accumulation and growth is not intended to privilege surplus-value-producing

activities. There are many dimensions of an activity that are germane to growth, of which one (a rather fundamental one) is whether or not it directly generates surplus-value.

There are a wide variety of economic activities that do not produce surplus-value, as discussed in section 2. These activities have complex and diverse relationships to the growth process. We can distinguish between two major categories of non-surplus-value-producing activities in this respect: circulatory services, and activities that stand outside of the circuit of capital.

Circulatory activities are essential for expanded reproduction, in terms of *inter alia* the realization of surplus-value (or realization at higher rates than would otherwise be the case) and in the expansion of production through the extension of credit. In return for such roles, a portion of the surplus-value generated through the commodity production process must be diverted to circulatory capital. Insofar as such transfers of surplus-value increase the rate of surplus-value (obtaining in surplus-value-producing activities) on an ongoing basis, the aggregate rate and mass of surplus-value ultimately available for accumulation may actually increase even though part of surplus-value is diverted to circulatory activities rather than being recapitalised.

For any given structure of the economy, the scope for productivity improvements in circulatory services is likely to be relevant to the rates of accumulation and growth. *Ceteris paribus*, the less surplus-value that needs to be ‘diverted’ to circulatory services in order for them to fulfil their roles in the circuit of capital, the more surplus-value can potentially be recapitalised. Productivity improvements in circulatory services that increase the velocity of circulation will tend to increase the rate of accumulation, although these channels are indirect and highly mediated. For instance, these effects would be contingent on relative rates of profit on different forms of capital, and the extent to which the gains from productivity improvements in circulatory services are retained by the owners of capital in those activities.

Other non-surplus-value-producing activities stand outside of the circuit of capital. Even so, certain non-surplus-value producing activities may provide the necessary conditions for the production or realization of surplus-value. For instance, public services such as health and education play a role in the maintenance and reproduction of labour power. Guard labour of various sorts may provide the social stability or political conditions for the production and

appropriation of surplus-value. Unpaid household labour plays a role in the reproduction of labour power. Other types of non-surplus-value-producing activities, such as personal services, might not contribute clearly to creating the necessary conditions for the production and appropriation of surplus-value, but are essentially transfers of revenue.

Although non-surplus-producing activities do not create surplus-value, this in itself does not imply that a decrease in the share of these activities in an economy would necessarily have a positive effect on growth. For instance, a decline in the share of the economy accounted for by public education and healthcare provision could actually reduce growth, depending on the characteristics and constraints faced by a particular economy at a particular time.

In other cases, even though a non-surplus-value producing activity might contribute to surplus-value production in some tenuous way, it might not be essential or at least not at its current level. In our approach there is no assumption that the existing shares of activities are optimal, nor that the mere existence of an activity implies its necessity for growth.

To the extent that non-surplus-producing activities are necessary to the productive circuit of capital, this necessity is in some cases an outcome of the capitalist mode of production, or of specific social, economic, or political characteristics of the regime of accumulation. This can be illustrated with the examples of advertising and of guard labour.

While advertising does play a role in the reproduction and expansion of capital, the revenue spent on these activities detracts from productive activities.²⁴ The diversion of a portion of surplus-value to advertising may well be absolutely necessary for the survival of an individual capitalist.²⁵ Yet this does not mean that the actual portion of aggregate surplus-value spent on advertising is ‘optimal’ for growth.

Even at an aggregate level, reducing advertising expenditure would not necessarily increase growth. The net effects are ambiguous and conjuncturally contingent. In a particular regime of accumulation, a reduction in advertising might harm growth were it to reduce particular types

²⁴ This does not refer to the production of commodities for advertising purposes, which would be a productive activity as with other commodity production.

²⁵ As Ben Fine argues, ‘the net effect of competitive advertising may be to leave market shares unimpaired, just as the effect of competitive accumulation may not change profit shares. Nevertheless the need to advertise becomes a coercive force exerted on capitalists independently of their will as soon as advertising becomes historically established’ (Fine, 1989, p.32).

of consumption in a demand-constrained economy, even though the advertising expenditure itself is arguably ‘wasteful’ and might not be necessary (or certainly not to the same extent) in a non-capitalist system.

We can also consider guard labour. The employment of security guards by a factory might be necessary to protect the capital of the factory and to ensure smooth production. Expenditure on this type of guard labour is in one sense a ‘drain’ on surplus-value, but this need not imply that a reduction in such expenditure would increase the rate of surplus-value, either at firm or aggregate level. What is important to note is that the level of guard labour that is ‘optimal’ in terms of growth is entirely contingent on the characteristics of a particular society and economy. To generalise, the less guard labour that is ‘optimal’ for growth in a certain conjuncture, the lower is the necessary diversion of surplus-value to finance these activities, and the better it would be likely to be for growth.

Unlike advertising and guard labour, retail and financial circulatory service activities are examples of activities which would still be required on a significant scale under different types of capitalist formations or even in non-capitalist systems. However, this does not mean that the size of these activities in any given conjuncture is optimal from a growth perspective. For instance, the trend towards financialisation in the advanced capitalist countries does not necessarily indicate that the ‘optimal’ share (for growth) of financial circulatory activities has grown.

Some non-surplus-value-producing activities would thus not be necessary in a non-capitalist system or even under a different accumulation regime, while other such activities would not be necessary on the same scale. These activities may play important roles (albeit to different degrees) at present. But the degree of this necessity is contingent, fluid, and subject to specific social political, and economic relations. Were these activities not necessary, or at least not at the same scale, there would *ceteris paribus* be greater surplus-value available for accumulation.

It cannot be said with any certainty that a shift from surplus-value-producing to non-surplus-value-producing activities would necessarily reduce growth. In a particular conjuncture it is possible that a relative increase in particular non-surplus-value-producing activities could increase the aggregate rate of surplus-value production, and/or of accumulation and growth,

for instance by mitigating problems of realisation or by accelerating the velocity of circulation. However, the argument here is that the greater the proportion of non-surplus-value-producing activities required at a particular conjuncture, then in general the higher the rate of surplus-value production in surplus-value-producing activities would need to be in order to reach and maintain any given rate of growth.

Even simple reproduction would be unsustainable without the regeneration of constant capital lost through depreciation and moral decay as well as for the reproduction of variable capital. For expanded reproduction and accumulation, there must be continued new injections of surplus-value into the economy. There are limits to the extent to which non-surplus-value-producing activities can raise the aggregate rate of surplus-value by addressing problems of realisation, increasing the velocity of circulation, and so on. There must be a point at which the rate of surplus-value can only be increased through increasing the rate of surplus-value production in activities that actually create surplus-value. Whether any economies are ever likely to approach this point is another matter. However, one might speculate that the potential for non-surplus-value-producing activities to raise growth could well be diminishing after a more 'realistic' point, and that this point may already have been passed in some economies.

5.6 Summing up: the activity-specificity of growth

Our analysis suggests two aspects of the activity-specificity of growth. First, an activity's position in the aggregate economy and specifically in the circuit of capital, in terms of whether or not surplus-value is produced in the activity. Second, the specific characteristics of surplus-value-producing activities that are relevant to accumulation and growth. We have argued earlier that two dimensions of this specificity are the sectoral and technological-organisational characteristics of an activity. These dimensions are relevant to the rate of surplus-value production and specifically to the rate of production of relative surplus-value.

This activity-specificity of growth has direct implications for the relationship between a country's sectoral structure (and changes therein) and the rate of growth. Sectors vary in terms of whether or not surplus-value is produced as well as in terms of technological-organisational characteristics.

We have argued that the characteristics of manufacturing generally tend to be particularly conducive to relatively unbounded increases in relative surplus-value. While there are certainly non-manufacturing surplus-value-producing activities which are highly progressive in terms of the potential for cumulative productivity increases, at the level of sectors as a whole we have argued that from a Marxian perspective there is indeed something ‘special’ about manufacturing. Even so, the determination of growth outcomes is highly complex and contingent, and the effects of any change in sectoral structure cannot be determined *a priori*. Not only is the correlation between sectoral and technological-organisational characteristics only partial, but furthermore there are a variety of other factors which would affect growth outcomes. This suggests that, from a Marxian perspective, the effects of something like a relative decline in manufacturing on growth is more complex and less predictable than from a Kaldorian approach. In the next section we extend our analysis of activity specificity to consider deindustrialisation from a Marxian perspective.

6. DEINDUSTRIALISATION

6.1 Introduction

In the Introduction to this dissertation we introduced the debate on deindustrialisation, which has been taken up principally in the (non-Marxian) heterodox literature. The basic concern about deindustrialisation in the Kaldorian-type literature, deriving from the view that manufacturing has special characteristics which accord it a special role as an engine of growth, is that a relative decline in manufacturing is likely to depress long-run growth. Deindustrialisation generally refers to a fall in the share of manufacturing in the economy, typically in terms of employment. A distinction is made between absolute deindustrialisation, in terms of levels, and relative deindustrialisation, in terms of shares. In the existing literature, deindustrialisation is generally taken in the relative sense, and this is also the focus of our discussion although we do refer to absolute deindustrialisation as well.

The existing literature on deindustrialisation is based on sectors as defined and measured in national accounts. The special qualities attributed to manufacturing in Kaldorian-type approaches are assumed to apply to manufacturing as a whole, at least relative to other sectors. There is typically little focus on the consistency of these special properties across the

heterogeneous subsectors of manufacturing, nor to their prevalence in other sectors (or subsectors).

A sector-based analysis is clearly limited from a Marxian perspective, since sectors are not the basic categories of analysis and the qualities of activities relevant to growth do not necessarily coincide with sectoral boundaries. This is not to suggest that the existing literature does not distinguish at all between different types of deindustrialisation (for instance, a distinction is made between positive and negative deindustrialisation, as discussed previously). Nevertheless, reliance on the sectoral categories of national accounts leads to what might be considered a sort of ‘sector fundamentalism’.

In our view, a Marxian approach both enables and requires a more critical distinction between different forms of deindustrialisation than is found in the existing literature. Discriminating between different types of deindustrialisation is particularly important given the significant heterogeneity within sectors, especially in terms of the characteristics germane to a Marxian analysis. For instance, the services sector includes both commodity-producing and non-commodity-producing activities, and a shift from manufacturing to services could be very different according to which of these categories of services the shift is towards. ‘Deindustrialisation’ in the sense of the existing literature actually characterises different phenomena, with quite different causes and implications.

This section develops a basic analytical framework for thinking through deindustrialisation in Marxian terms. We have already touched on the growth implications of structural changes in section 5, and here we bring the analysis together with a focus on deindustrialisation.

We could draw closely on Marx’s texts in elaborating Marxian approaches to sectoral structure and to activity-specificity. This is not possible in analysing deindustrialisation, as Marx does not deal with deindustrialisation at all. Manufacturing was on the ascendancy during Marx’s time, and it would be about a century before deindustrialisation become widespread among high-income countries and later among a number of middle-income countries as well.

We propose an approach that distinguishes between two forms of (relative) deindustrialisation. First, a relative decline in manufacturing and a relative increase in non-

surplus-value-producing non-manufacturing activities. An example of this would be a relative decline in commodity-producing manufacturing and a relative increase in circulatory services. Second, a shift in the composition of surplus-value-producing activities away from manufacturing. This refers to a situation in which the share of surplus-value-producing manufacturing declines and the share of surplus-value-producing mining, agriculture, or services increases.

It was observed earlier (in section 2.3) that non-surplus-value-producing manufacturing – such as the manufacturing of goods for personal use – is a negligible part of a modern market economy, and although it is included for theoretical completeness this category can be abstracted from. With this simplification, we can reframe the definitions of the two forms of deindustrialisation as follows. What we term Form I deindustrialisation refers to a *relative decline in manufacturing and a relative increase in non-surplus-value-producing activities*. Form II deindustrialisation refers to a *relative shift from manufacturing to other types of surplus-value-producing activities*.

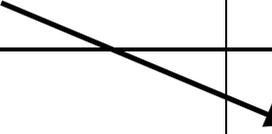
To express this in another way, the share of manufacturing is simply the mathematical product of the share of surplus-value-creating activities in the economy and the share of manufacturing in all surplus-value-creating activities.²⁶ A fall in either of these shares would, *ceteris paribus*, reduce the share of manufacturing in the economy. That is, a decline in the share of manufacturing would be associated with a fall in the share of surplus-value-creating activities in the economy, or with a decline in the share of manufacturing in all surplus-value-creating activities, or with a combination of the two. These are essentially the two forms of deindustrialisation considered here.

This approach to deindustrialisation can be summarised in Figure 2.²⁷

²⁶ With the abstraction referred to above, that as an approximation of reality in a typical modern market-based economy all manufacturing is surplus-value-producing.

²⁷ This is based on a slightly simplified version of Figure 1, which summarised our analysis of sectoral structure and its intersection with Marxian categories. Figure 2 omits the subdivision of non-surplus-value-producing activities into those that are capitalistic and those that are non-capitalistic as this is not directly relevant to our analysis of deindustrialisation. Note that this representation is based on the simplifying assumption that all manufacturing is surplus-value-producing, since non-surplus-value-producing manufacturing is negligible in typical modern market economies, as discussed earlier.

Fig. 2: Two forms of deindustrialisation

Type \ Sector	Manufacturing	Mining & Agriculture	Services
Productive of surplus-value	FORM II DEINDUSTRIALISATION: <i>a shift from manufacturing to other surplus-value-producing activities</i>		
Not productive of surplus-value	 FORM I DEINDUSTRIALISATION: <i>a shift from manufacturing to non-surplus-value-producing activities</i>		

Note that here we are dealing here primarily with relative deindustrialisation, and therefore refer to shifts in the shares of different types of activities. This does not imply full capacity utilisation or full employment, or that an absolute decline in manufacturing production would be substituted by a commensurate increase in other activities.

These two forms of deindustrialisation are not mutually exclusive in terms of actual processes of deindustrialisation, which may well involve both dimensions (and it is for this reason that we refer to them as ‘forms’ rather than ‘types’ of deindustrialisation). Even so, the conceptual distinction between these two processes is important, as they are likely to have different causes and consequences.

This distinction underlines an important difference between the non-Marxian heterodox literature and the Marxian approach developed here. The latter demands a probing beyond epiphenomenal changes in the sectoral structure of an economy, which would be readily apparent from basic national accounting data. As will be elaborated below, a shift from surplus-value-producing manufacturing to non-surplus-value-producing activities is fundamentally different to a shift from surplus-value-producing manufacturing to surplus-value-producing non-manufacturing activities. This distinction could not be made without Marxian tools and categories of analysis.

We now discuss each of these two forms of deindustrialisation in a more detail.

6.2 Form I deindustrialisation: A shift from manufacturing to non-surplus-value-producing activities

In this first form of deindustrialisation, manufacturing declines as a share of total economic activities, with a commensurate increase in the share (and, provided there is positive economic growth, also an increase in the level) of non-surplus-value-producing activities. The latter could include, for instance, services provided on a non-market basis by the state, circulatory activities, or subsistence agriculture.

An example of Form I deindustrialisation would be a relative decline in (commodity-producing) manufacturing and a relative increase in financial services. Indeed, financialisation is a prominent type of Form I deindustrialisation observed today. In broad terms, this refers to the rising importance of the financial sector in the economy. This form of deindustrialisation might be thought of as a weakening or subordination of the circuit of productive capital *vis-à-vis* the circuit of money capital. Financialisation has been increasingly prevalent in advanced capitalist economies over recent decades.²⁸

In open economies, Form I deindustrialisation can be associated with the breaking up of a single circuit of capital between countries. Instead of the entire circuit taking place domestically, it might be split across different countries such that surplus-value-producing activities are located in one country and circulatory activities of the same circuit of capital in another. For example, Form I deindustrialisation could take the form of the *P* stage of a manufacturing circuit of capital shifting abroad while the *M – C* and/or the *C' – M'* stages remain behind. This type of deindustrialisation has been observed in developed countries (and more recently in middle-income countries as well) where manufacturing production is relocated to lower-cost countries while the other parts of the same circuit of capital (such as finance and retail) remain behind.

In terms of the likely effects of Form I deindustrialisation, although it might be thought that a fall in the share of surplus-value-producing activities could reduce the economy-wide rate of surplus-value, the overall effects would be somewhat more complex. Consider for example a decline in the share of manufacturing and an increase in the share of circulatory finance

²⁸ For recent studies of financialisation see for instance Crotty (2005), Epstein (2005), Stockhammer (2004), Orhangazi (2008), and Krippner (2005).

activities. A decline in the share of surplus-value-producing manufacturing activities might be expected to reduce the economy-wide rate of surplus-value and therefore negatively affect accumulation. However, the overall effect would be contingent on other dynamics, given the role of certain non-surplus-value-producing activities in the circuit of capital, including in the realization of surplus-value and in potentially raising the velocity of circulation. For instance, were growth in circulatory finance activities to facilitate an expansion in the scale of reproduction through the extension of credit to industry, or to enable an acceleration in the velocity of circulation, this might outweigh the decline in the share of surplus-value-producing activities and result in an increase in the rate and mass of surplus-value.

The potential effects of Form I deindustrialisation on accumulation and growth are further complicated in an open economy. In a changing international division of labour, the production of surplus-value is shifted between countries, as discussed earlier. The surplus-value required for accumulation and growth need not be domestically produced if it can be 'imported'. For instance, if US-based multinationals shift production offshore to a location where they can pay lower wages, but repatriate the dividends to the US, surplus-value will be flowing into the US even if such a shift contributes to deindustrialisation there.

In another example, a country that exports financial services will appropriate – through interest payments and fees and charges – surplus-value generated through commodity production elsewhere.²⁹ In this sense a country could avoid the negative effects that deindustrialisation might be expected to have on accumulation and growth. The viability of this is contingent on the evolution of terms of trade, specifically the exchange ratios of manufactured commodities with non-commodities being traded. These terms of trade would be influenced by both market and non-market factors. The actual exchange ratio of two items at any conjuncture need not and in fact generally would not coincide with their underlying exchange-values. Were terms of trade to increasingly favour certain non-commodity services, this type of deindustrialisation could potentially improve not only the balance of payments but also the amount of surplus-value ultimately available domestically, despite a fall in the domestic generation of surplus-value.

²⁹ These financial services may also increase the rate of surplus-value in the country to which they are being exported, through the types of mechanisms discussed elsewhere in this paper.

A country can deindustrialise while increasing its rates of accumulation and growth, but it would need to access surplus-value that ultimately originates in the production of commodities somewhere. High profits can be made on commodity exchange or financial lending (especially where ‘unequal exchange’ is sustained, through political or other means), but these can only be a transfer between capitalists and cannot create any new value. These profits can fuel growth in the short term, for example through a retail or financial boom, but this is unlikely to be sustainable without the injection of additional surplus-value.

Furthermore, if there are indeed cumulative productivity gains in manufacturing to a greater extent than in other activities, then this would also have implications for the long-term feasibility of a growth path in which domestic production of surplus-value declines as a consequence of Form I deindustrialisation while surplus-value is ‘imported’ through the exchange of non-commodity goods and services.

We might suggest that Form I deindustrialisation on a global scale could negatively affect overall rates of accumulation and growth, since this would on aggregate preclude Form I deindustrialisation in national economies being compensated for by the ‘importing’ of surplus-value generated elsewhere. These projected effects of global Form I deindustrialisation on accumulation and growth might be countered by the extraction of a higher rate of surplus-value on remaining commodity-production by squeezing wages. However, there are limits to this, in terms of subsistence wage levels and in terms of the balance of class forces, as well as in terms of the level and structure of effective demand necessary for the realization of surplus-value.

6.3 Form II deindustrialisation: A shift from manufacturing to other surplus-value-producing activities

Form II deindustrialisation refers to a decline in the share of manufacturing in surplus-value-producing activities. Within Form II deindustrialisation we can further distinguish between, on the one hand, a shift from manufacturing to primary commodities (agricultural and mining) and, on the other, a shift from manufacturing to service commodities. An example of the former would be manufacturing activities relocating abroad with the country’s economy becoming ‘re-centred’ around surplus-value-producing primary activities. (Traditional) Dutch Disease could also be a type of Form II deindustrialisation. Examples in terms of a shift

towards service commodities could be growth in capitalist commodity-producing service activities such as restaurants, hair salons, firms providing cleaning services, and so on, relative to manufacturing.

Form II deindustrialisation thus involves a shift in the sectoral composition of surplus-value-producing activities, and in all probability a shift in the technological-organisational composition of surplus-value-producing activities as well. The implications of this can be analysed in terms of our earlier discussion of these two dimensions of the activity-specificity of growth. The effects of a shift in the composition of surplus-value-producing activities are contingent on the characteristics of the relatively shrinking and growing activities. We have argued that there is some relationship between sector and the technological-organisational characteristics amongst surplus-value-producing activities. This suggests that Form II deindustrialisation would have implications for the overall ‘progressive’ content of surplus-value-producing activities. Specifically, we have made a case that manufacturing tends as a broad generalisation to have particular progressive characteristics, in terms of the potential for cumulative productivity increases. This could suggest that a decline in the share of manufacturing in surplus-value-producing activities might have negative effects on the rate of surplus-value and thence on accumulation and on growth, especially in the long term.

Such outcomes are, however, highly contingent, and two particular aspects of this contingency need to be emphasised. First, as discussed in section 5 on growth, every link in the causal chain from the scope for cumulative productivity increases to growth is contingent and is subject to influences other than those dealt with here. Second, while we have argued that there is some relationship between the sectoral and technological-organisational characteristics of surplus-value-producing activities, there is considerable intra-sectoral heterogeneity in terms of technological-organisational characteristics. For instance, a case of Form II deindustrialisation in which a manufacturing activity with low levels of specialisation, limited returns to scale, little scope for learning-by-doing, low technological content, and so on is replaced by a commodity-producing services activity with the opposite characteristics, could well have positive implications for accumulation and growth.

Nonetheless, the ‘non-orthogonality’ of the two vectors of activity-specificity – sector and technological-organisational characteristics – would suggest that a decline in manufacturing

as a share of surplus-value-producing activities would generally tend to coincide with a decline in the technological-organisational progressivity of those activities. We have discussed previously (see section 4) the specific characteristics intrinsic to each of agriculture, mining, and services commodity production that limit the scope for sustained cumulative productivity increases, as compared to manufacturing. This suggests that, in the absence of countervailing forces, a decline in the share of manufacturing in surplus-value-producing activities would tend to negatively affect the overall scope for cumulative productivity increases among these activities, and this would be expected to negatively affect the overall rate of surplus-value over time and hence long-term accumulation and growth.³⁰

7. CONCLUSIONS

Marx presented a devastating critique of capitalism, in terms of the institutionalised theft of surplus-value produced by workers and appropriated by capitalists, the alienation and abysmal working and living conditions of the proletariat, and the ultimately irresolvable internal contradictions inherent to capitalism. Yet he was keenly aware of the progressive aspects of capitalism as a revolutionary historical force, not only in terms of class formation and consciousness and in bringing socialism nearer but also in terms of the unprecedented development of the forces of production which it enabled. Marx develops a brilliant analysis of the relationships between the development of capitalism, industrialisation, and the unprecedented growth take-off that he was living through. He analyses the dynamism of capitalism, identifying the specific features of the capitalist mode of production that enable

³⁰ Note that varying conclusions about the likely effects of Form I and II deindustrialisation on growth could arise from different combinations of, on the one hand, the initial analysis of in which activities surplus-value is produced, and on the other hand, the degree of ontological determinism. In this paper we have started from a classical Marxian approach to the issue of where in the circuit of capital surplus-value is created, to develop a new conceptualisation of activity-specificity; combined with a non-deterministic ontological approach that recognises the complexity of causal relationships, we have discussed the ways in which different forms of deindustrialisation could affect growth. A cruder initial analysis, privileging activities in which surplus-value is directly created, and combined with an essentialist ontological stance, could lead to more definitive conclusions, especially about negative effects of Form I deindustrialisation on growth. In contrast, a ‘revisionist’ initial analysis concerning which activities create surplus-value – for instance, an approach that regards all activities which in any way contribute to the creation of surplus-value as productive – then irrespective of the degree of ontological determinism, no conclusions could be drawn about the effects of deindustrialisation on growth as this could be entirely contingent on the characteristics of the relatively increasing and decreasing activities.

(and compel) accumulation on an expanded scale and the development of the forces of production at rates unmatched in pre-capitalist modes of production.

Sectors are not the units of analysis in Marxian economics. What is most fundamental to a Marxian classification of economic activities is the relationship of an activity to the production, realization, and appropriation of surplus-value. This relationship can be understood in terms of an activity's location in the circuit of capital, and specifically as to whether or not surplus-value is directly produced in the activity. Marxian and non-Marxian typological approaches also differ epistemologically, in the sense that in a Marxian approach an activity cannot necessarily be classified simply by observing it, given that the relevant characteristics of the activity are typically not phenomenologically apparent.

In order to analyse sectoral structure and sectoral specificity from a Marxian perspective, we went through each of the manufacturing, services, agricultural, and mining sectors in Marxian terms. The difference between a Marxian and a non-Marxian approach to classifying activities comes through particularly strongly in the case of services, as this sector includes completely different types of activities in Marxian terms. This difference also means that the analysis of a shift in sectoral structure towards services is more complex in a Marxian approach than in a sector-based approach.

While Marxian economics is not based on sectors, this does not mean that sectors are irrelevant to a Marxian approach. There is some relationship between sectors and the characteristics of activities that are important in Marxian terms, especially in terms of growth implications. In particular, we drew out from Marx's writings an analysis of the specificity of manufacturing. According to this interpretation, the precursors of a number of the ideas about the specialness of manufacturing that are associated with the Kaldorian tradition can actually be found in Marx. These include increasing returns to scale, learning-by-doing, technological advancement, division and socialisation of labour, and the endogeneity of productivity to scale. It is significant that the part of *Capital* on relative surplus-value actually deals with manufacturing and the scope for productivity improvements in manufacturing. This in itself points to something specific and interesting about manufacturing. Furthermore, a concept of cumulative causation is implicit in Marx's conceptualisation of dialectical relationships between mechanisation, competition, division of labour, accumulation, and capitalist

development, as he describes how these feed into themselves and each other. Marx's view of the economically and socially transformative role of industrialisation is to some extent historically specific, but it also derives from the particular characteristics of manufacturing relative to other sectors.

To the extent that we can read Marx as perceiving something 'special' about manufacturing, this differs from the sector-based Kaldorian and structuralist approaches. While the progressive qualities of manufacturing that Marx discusses are to some extent relative to other sectors of the economy, these qualities are to some extent also associated with the development of manufacturing from handicrafts to *manufaktur* to modern machine industry. What is 'special' is not purely a sectoral issue, but is also related to the way production is organised and carried out, scale, the technological content of production and so on. We have referred to these aspects as the technological-organisational dimension of activity-specificity.

The degree of technological-organisational development of activities varies intra-sectorally. Mining or agriculture (or at least certain subsectors thereof) can be conducted on a large scale using high-skilled labour and sophisticated technology, especially in current times. Certain services subsectors can similarly be at the frontier of technological-organisational advancement. However, we have argued that certain innate characteristics that are specific to each of mining, agriculture, and services will tend – on balance for the sectors overall when compared to manufacturing as a whole – to limit the degree of technological-organisational advancement. In agriculture, the relevant characteristics include the centrality of land as a basic factor of production, which has implications *inter alia* in terms of returns to scale; dependence on the growth rates of plants and animals; seasonality; and the implications of commodity perishability for scale and for capacity utilisation. Mining essentially involves extracting minerals from below the surface of the earth, and this characteristic has various implications for the potential for cumulative productivity increases. These include the attachment to a specific piece of land; the difficulties of standardising production processes; the fact that accessibility generally worsens as scale increases, which undermines the potential for returns to scale; and the effects of the right of exclusion to a mineral resource and of the limited supply of mineral resources on competition. In the case of service commodities, their distinguishing attribute of the inseparability of production and consumption tends to limit the scope for technological-organisational advancement. Service

commodities cannot be stored, and this has crucial implications for capacity utilisation and for the scale of production. The degrees of standardisation and replicability are generally lower for service commodities than for manufacturing commodities, which can reduce the potential for increasing returns to scale. An important feature which is fairly distinctive to service commodities is that ‘personal attention’ is an explicitly valued quality of the commodity, and this restricts the scope for capital-labour substitution and for increasing labour productivity in general.

We have thus argued that there are two relevant dimensions of activity-specificity for growth: sectoral and technological-organisational dimensions, and moreover that there is some relationship between these two. The very characteristics of a (surplus-value-producing) activity that define it as being in one or other sector of the economy have implications for the degree of technological-organisational advancement. While there is clearly scope for significant productivity increases in commodity-producing services, agriculture, and mining, as well as substantial heterogeneity within each of these sectors, at a generalised sectoral level the distinguishing characteristics of these activities can limit the extent of possible cumulative productivity increases relative to manufacturing. This implies that change in the sectoral composition of an economy will not be growth-neutral. Any changes in the technological-organisational character of activities are also expected to have growth implications.

Growth outcomes are far less determinate in the type of Marxian approach taken here than in mainstream economics. In our view, the methodological and ontological problems of mainstream economics – shared by some of heterodox economics as well – include excessive essentialism and determinism. In this analysis we have avoided arguing that, for example, a relative decline in manufacturing would necessarily negatively affect growth, as would be expected in the Kaldorian or structuralist literature. According to the ontological approach of this paper, growth outcomes are the overdetermined (in an Althusserian sense) product of a multiplicity of complex forces.

A particular aspect of growth dealt with here is its activity-specificity, in terms of the relationship between productivity and growth. The argument is that accumulation is central to the Marxian growth process (although it is not the only determinant of growth and there is

also not a simple relationship between the rates of accumulation and of economic growth). The production of surplus-value is in turn at the core of accumulation, with the rate of surplus-value a key determinant of the rate of accumulation. In particular, it is the rate of production of relative surplus-value that is fundamental to sustained accumulation. Increases in the rate of relative surplus-value production in any given activity on an ongoing basis depend on the scope for cumulative productivity improvements in that activity. We have argued that the potential for cumulative productivity improvements varies across activities, along sectoral and technological-organisational dimensions, and that manufacturing in general tends to have superior potential for sustained and cumulative productivity increases.

This could suggest that – through this particular channel – a relative decline in manufacturing could affect growth and especially the sustainability of growth. The heterodox literature on deindustrialisation, which follows in the Kaldorian tradition, is inclined to be more definitive about the likely effects of a relative decline in manufacturing on growth. That literature focuses on sectoral shares, and while there are some distinctions made these are not the distinctions enabled through Marxian analytical categories. We build on our earlier analyses of sectoral structure in Marxian terms and of the activity-specificity of growth to distinguish between different types of deindustrialisation.

Manufacturing could decline relative to non-surplus-value-producing activities. This we term Form I deindustrialisation. Financialisation could be understood as a type of Form I deindustrialisation. A country could also experience Form I deindustrialisation where the production moment in a manufacturing circuit of capital relocates abroad (typically to a country with lower production costs or less regulated labour markets) while the other moments in the same circuit stay behind.

The effects of Form I deindustrialisation would be complex and *a priori* indeterminate. The potentially negative effects of a relative decline in surplus-value-producing activities could be outweighed by a relative increase in non-surplus-value-producing activities insofar as the latter increase the velocity of circulation, ameliorate problems of realization, or facilitate an increase in the scale of production. Some types of non-surplus-value-producing activities would absorb a portion of surplus-value without making an equivalent indirect contribution to the overall rate of surplus-value, while others could make indirect (and unquantifiable)

contributions to the stability and continuity of expanded reproduction. The extent to which non-surplus-value-producing activities are ‘required’ is itself to some extent an outcome of the mode of production and the particular regime of accumulation.

Manufacturing could also decline relative to other surplus-value-producing activities, and we refer to this type of change as Form II deindustrialisation. Empirically, it would appear that in upper-income countries that have experienced something akin to Form II deindustrialisation, this aspect of the shift has been primarily towards commodity-producing services, whereas in middle-income countries it has also been towards commodity-producing mining and/or agriculture.

If indeed there is an activity-specificity of growth in terms of not only technological-organisational but also sectoral characteristics, then a shift in the sectoral composition of surplus-value-producing activities as in Form II deindustrialisation would not be growth-neutral. In particular, to the extent that manufacturing generally tends to have greater scope for cumulative and sustained productivity increases than do surplus-value-producing activities in other sectors, Form II deindustrialisation could have negative implications for accumulation and growth (via the effects of productivity increases on relative surplus-value production and in turn on accumulation and hence on growth).

This distinction between Forms I and II deindustrialisation is facilitated by Marxian tools of analysis. These two forms of deindustrialisation are likely to have different causes and consequences (although they could occur simultaneously in practice). Although our analysis of deindustrialisation is purely theoretical, it provides a framework for studying actual experiences.

With a more deterministic ontological stance, the Marxian analysis of sectoral structure and of activity-specificity developed here could be taken to imply more definitive conclusions about the projected effects of deindustrialisation on growth. While we have developed an argument about how a relative decline in manufacturing could negatively affect growth, we have explicitly recognised the possibility of other factors leading to different outcomes at every link of this causal chain. In our view, deindustrialisation – even if sustained over a long period – could occur alongside rapid growth. However, this would depend on the processes identified here being outweighed by countervailing factors or forces.

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