

From Marx's fragments towards a general theory of employment and the surplus population

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The fight against poverty seems to have been transformed into a fight against the poor. A point of no return is reached when a reserve army waiting to be incorporated into the labour process becomes stigmatized as a permanently redundant mass, an excessive burden that cannot be included now or in future, in economy or society. This metamorphosis is in my opinion at least, the real crisis of world capitalism' (Jan Breman, 2003, p. 13).

Introduction

The mainstream neoliberal account of the labour market, though intellectually bankrupt, is systematic and hegemonic, according to Steve Fleetwood in *Capital & Class* 89. He goes on to argue that oppositional accounts are disparate and unsystematic primarily because of the absence of a 'meta-theoretical apparatus with which to weld together [their] theoretical and empirical insights' (p. 60). This paper stands in broad agreement with Fleetwood on dominant and subaltern labour market accounts including his view that there is no existing 'systematic Marxist alternative' (p. 64). However, his presentation of a 'critical-realist socio-economic account of labour markets' as the foundation of a systematic alternative is sharply critiqued by Ben Fine in *Capital & Class* 91. In a rhetorical questioning of Fleetwood's undervaluing of Marx's and Marxist contributions, Fine asks: 'How can we even talk about labour markets without an analysis of capital and a critical application of the categories of political economy, not least that of value theory?' (p. 128). In a strong endorsement of Fine's riposte, this paper's starting-point is that Marx's political economy provides the only viable 'meta-theoretical' grounding for constructing a systematic counter-hegemonic labour market account. While this project is not progressed the mainstream's short-run wage-flexibility-driven, a-historical, market model of employment goes largely unchallenged.¹

Underlying the lack of a 'systematic Marxist alternative' is Lebowitz's important insight that Marx's legacy is one-sided because he wrote mostly on the logic of capital and did not find time to write his planned book on wage labour (Lebowitz, 1982, 1991, 1992). Marxism has reinforced this problem of

¹ Keynes' 'general theory' of employment, and elements of regulation theory (e.g. Boyer, 1988) and radical segmentation theory (e.g. Gordon, Edwards, *et al*, 1982), provide elements of a useful mid-range alternative account, but none provides a long-term, historically grounded, labour process based, general theory of employment under capitalism.

one-sidedness right to the present because, rather than taking up undeveloped aspects, focus has remained on what Marx did follow through on. This paper, in contrast, progresses one of Marx's unfinished projects by closely analysing, reworking, and building on fragments in his writing of a general long-term theory of employment that is integrated with his value theory. In so doing, the paper also progresses the building of a 'systematic Marxist alternative' to the hegemonic labour market account. Reworking Marx's fragments further encourages a greater awareness of the centrality of labour market themes to the form of the contemporary class structure and to the deepening crisis of neoliberal global capitalism. In addition, the method-driven approach of this paper inspired by Lukacs' famous argument that Marxist 'orthodoxy refers exclusively to *method*' (1971: p. 1) has led unexpectedly to a rethinking of Marxist interpretations of Marx's view of 'overpopulation'.

This paper is organised as follows. First, the skeleton of a general account of employment is built from a reworking and refocusing of Marx's labour theory of value. Particular attention is paid to the distinctions between surplus labour, surplus population and surplus value. Second, building on the first general section and drawing more directly on Marx's written fragments on employment, an account is provided of the long term dynamic of employment under capitalism. This account builds on Marx's key insight that the contradictory employment logic of capitalism alternately expels and redeploys living labour. Focus moves from a discussion of how employment spreads into new fields, sectors and departments, to a discussion of the 'surplus population' and in particular to Marx's *Capital* Vol. 1 account of the 'relative surplus population'.

Re-working and developing these neglected aspects of Marx's analysis of employment provides a missing foundation for a systematic Marxist account of the labour market that also explains and recasts central aspects of the contemporary capitalist world. In particular, a general explanatory foundation for the deepening 'Toyota-isation' of everyday life, as working time is extended and intensified (Basso, 2003), while alongside this over-employment a massive population surplus to the requirements of capitalism continues to grow especially in the developing capitalist world (Davis, 2006).² Also, new light is thrown on capitalism's 'post-industrial' tendency. In addition, Marx's account of the 'relative surplus population' in *Capital* Vol. 1 that runs against the *Communist Manifesto* prognosis of class simplification contributes to an understanding of the segmented, stratified and fragmented polarization of the contemporary global proletariat.

Third, the paper examines capitalist tendencies towards a growing surplus population that theoretically endorses the view that the growing surplus population expresses 'the real crisis of world capitalism' (Breman, 2003: p. 13).

² The works of both Basso and Davis have been important parts of this project's genesis. In particular, Davis' (2006) descriptively powerful overview of the 'informal proletariat' has provided an empirical source and theoretical challenge for this paper. Davis laid down the challenge by arguing that 'the rise of this informal proletariat is a wholly original development unforeseen by either classical Marxism or neo-liberal orthodoxy' (fly cover).

Fourth, capitalism's centrality to the impending crisis of human civilisation is linked directly with a reinterpretation of Marx's analysis of Malthus that implies the conflation of a growing 'relative surplus population' with absolute global 'overpopulation'. Further, this discussion is inextricably linked with deepening environmental problems. Finally, key implications of the preceding analysis for rethinking socialism are briefly explored.

Labour, value, surplus

Marx's value theory continues to provide a powerful foundation for on-going development and application (Aglietta, 1979; Lipietz, 1982; Foley, 1982; Dumeneil, 1983; Freeman, Kliman, & Wells, 2004). In the field of radical labour market theory and analysis, however, Marx's labour theory of value has served mainly as a background foundation of 'socio-economic' critiques of labour's commodification and alienation (Polanyi, 1944; Peck, Ch.2; also see Wennerlind, 2005). Nonetheless, this adaption of value theory to an account of employment is usefully informed by the 'values-in-process' perspective and associated value as social form current of thinking (Rubin, 1972; Lipietz, 1985; Arthur, 2001; Postone, 1996; Saad-Fihlo, 2002; Mavroudeas, 2004; McGlone and Kliman, 2004). In addition, the general direction of analysis in this paper has been inspired by Fine's exceptional view that Marx's value theory is central to a labour market focused analysis of capitalist accumulation (2007: 127; 2003; 1998).

In *Capital* Vol. 1, Marx focuses singularly on the industrial sector and one-sidedly on capital logic in his analysis of dynamic accumulation driven by productivity advances that reduce necessary labour while facilitating the growth of productive forces. In particular, Marx's focus on the exploitation of labour is examined mostly in terms of its transformation, via the social relation of exploitative appropriation and as an industrial labour process, into capital. However, this focus does not adequately account for labour's employment patterns. Especially in *Capital* Vol. 1, Marx tends to blur distinctions and assume steps that reflect his priority but mystify employment logic. This paper draws out and redirects Marx's value theory to the theme of employment as 'labour-values-in-process'. This different emphasis is considered 'in general' in this section, and is followed by a specific long-term account of employment dynamics under capitalism.

Arthur (2001) distinguishes Marxists that equate, from those that separate, labour and value. Mandel argues that '[f]or Marx labour is value' (1990: 11), while Carchedi similarly states emphatically that '[v]alue is labour' (1991: 102). In contrast, Arthur (2001: 3) emphasises the distinction between labour and value, quoting Marx's important statement that 'Human labour-power in its fluid state, or human labour, creates value, but is not itself value' (Marx, 1976: 142). Essentially, this paper accepts a dual concept of value: as created in the labour activity but as realised through a social process (Arthur, 2001; McGlone and Kliman, 2004; Mavroudeas, 2004; Rubin, 1973: 154).

A value focus on the logic of employment is based in a time calculus of living human labour. Following the social form approach, units of living labour,

regardless of their differing concrete forms, are viewed as equivalent in the sense that they are all realised as 'socially necessary labour time' defined as 'the time necessary under given social conditions for the production of a commodity' (Marx, 1976: 325). In this sense, 'a working day of given length always creates the same value' (Marx, 1976: p. 656, quoted in Postone, 1996: p. 309). This approach sidesteps the debate about whether labour has become 'abstract' in the sense that concrete *labour activities themselves* become directly equivalent under capitalism.³ This latter issue does not arise in the same way here because the primary focus is on the *employment* implications of changing socially necessary labour times.⁴ Thus, regardless of whether or not the activities themselves performed during the hours of work have all been reduced to the same abstract form does not alter the employment equivalence of all activities as expenditure of labour time.

Further, Marx posits direct value equivalence between 'socially necessary labour time' and the other main forms that labour values manifest as in the process of social reproduction. That is, the product is 'merely a congealed quantity of so many hours of labour, nothing but objectified labour' (1976: 325). And, Marx has already posited the 'value of labour-power' as equivalent to the value of the labour activity, i.e., as 'human labour power in its fluid state'. The sense of this identity is further reinforced by Marx's use of the term 'necessary labour time' to refer both to the value of labour power and the value of the labour activity itself.⁵ In summary, a logical identity of values in process is posited. Thus, living human labour realised as the value of socially necessary labour time = the product as the value or realisation of a quantity of congealed socially necessary labour-time = the value of labour-power realised as consumption of the product. Therefore, while labour time calculations of each form of value are based in quantities of human labour in motion, this value is only *realised* in the dynamic process of its social validation and consumption. In this second sense, although labour-time is the necessary objective basis of value it does not simply equal value, 'i.e. creates value, but is not itself value'.

Although not always explicit or consistently observed in Marx's analysis, the logical identity of values as expressed so far assumes both a simple producer society and social reproduction at a given level of productivity. In a way like the concept of equilibrium, the identity of values at a given level of productivity functions to provide a point of departure and return for

³ The substance of this debate has been about whether or not 'real subordination' reduces all labour activities to simple cycles of movement, and in turn whether or not this matters. See discussions of 'abstract labour' in McGlone and Kliman (2004) and Mavroudeas (2004) that advocate the value as social form approach.

⁴ Nonetheless, labour market analysis is integrally connected to the labour process itself, especially when one considers such matters as wages, segmentation, employment experience, and more generally the labour process strategies that reduce socially necessary labour-time in the first place.

⁵ 'In this work we have up to now used the term 'necessary labour-time' to designate the time necessary under given social conditions for the production of a commodity [labour-activity]. Henceforward we use it to designate as well the time necessary for the production of the particular commodity labour-power.' (Marx, 1976: 325)

examining the complex changes that are implied by the introduction into the analysis of productivity-driven surpluses and class relations.

It follows from the above discussion that although surplus-labour-time is necessary to surplus value, the former does not simply equal or transform into the latter. The transformation of surplus labour into surplus value is based in, rather than equivalent to the surplus labour effect of a productivity increase. Further, surplus value is only the pre-condition of, and is thus not simply equivalent to, class appropriation. However, at times, Marx tends to assume surplus labour is necessarily transformed into surplus value by making them equivalent, and in turn, by making the latter equivalent to exploitative appropriation:

It is just as important for a correct understanding of surplus value to conceive it as merely a congealed quantity of surplus labour-time, as nothing but objectified labour, as it is for a proper comprehension of value in general to conceive it as merely a congealed quantity of so many hours of labour, as nothing but objectified labour. What distinguishes the various economic formations of society –the distinction between for example a society based on slave labour and a society based on wage—labour- is the form in which this surplus labour is in each case extorted from the immediate producer, the worker. (Marx, 1976: 325)

Marx's conflation of surplus labour, surplus value, and class appropriation provides a powerful short-cut way of explaining exploitation, both in its generality and in its locus of variation. However, Marx tends to neglect other matters that are pertinent to this analysis. First, while making a theoretical distinction between 'value in general' and a specific account of capitalism, he still jumps directly from surplus labour product to its class appropriation. Surplus labour is integral to class based social relations of production, but the former is only a condition of the latter. That is, labour values in process and surplus labour in their literal objective forms are distinct from social structures of their ownership, control and distribution. Second, Marx does not discuss the methodological implications for the formal identity of values that flow from his division of the working day into necessary labour as equivalent to the value of labour-power and surplus labour as the portion of the product appropriated by non-producers. Now, the value of labour power is equivalent neither to the value of living labour or its product. Further, surplus labour performed beyond necessary labour defined as the social norm of productivity is wasted or 'unnecessary' labour rather than surplus value.

The following analysis is not in dispute at all with Marx's priority to examine surplus value as class appropriation of surplus labour. However, it stops to consider different ways in which surplus labour may be socially appropriated and the paths that living labour take once it is made surplus. It also distinguishes the value process of living labour from 'dead labour' and 'surplus population' that are formally outside the value process. These processes are examined both at a given level of productivity, and as a dynamically increasing productivity, i.e., as 'extended social reproduction'.

In a schematic reconstruction of the origin of class societies and their progress towards extended social reproduction Marx's distinction between productivity effects caused by increased total labour time, 'absolute surplus value', and ones caused by more efficient use of fixed labour time, 'relative surplus value', is illustrative. Increased total labour time of society's producers, assuming a fixed level of consumptive reproduction of the producers, creates a surplus-labour-product. If this surplus product is consumed by a non-producing idle class then the main effect is a one-off social redistribution of labour-time, rather than on-going surplus labour effects. A slightly different kind of identity between the values in process is created in which the labour activity = the product of this activity = the value of labour power + the value of idle consumption.

A 'relative' productivity increase can be understood to create surplus labour time by reducing the active labour time required to produce the same outputs or use-values. Other moments in the labour-values-in-process are correspondingly reduced because the aggregate product is still nothing but congealed active labour time, and each use-value of the increased aggregate has a decreased value, implying that at a constant standard of living, the value of labour power is reduced. How exactly this surplus labour time is realised depends on prevailing relations of production. Assuming a radical 'free association' (Marx, 1976: 171), the matter can be contingently and transparently realised in one or other combination of increased consumption of existing products, increased free-time, the spread of active labour into new product fields, and the development of productive forces. Assuming a 'degenerate' class society, most of the surplus labour time is redeployed to furnish the expanding desires of an idle ruling class. Assuming a 'productive' class society, a significant part of the surplus labour time created is redeployed in the production of new means of production and most importantly in the development of productive forces. This latter scenario is most significant for the analysis of the capitalist model of dynamic accumulation.

This dynamic process, in which living labour under the capitalist mode of production moves in and out of the value circuit, can be captured at a given level of productivity and as a dynamic of constantly increasing levels of productivity. An increase in productivity reduces labour times of all pre-existing moments of the labour-values-in-process, thus creating surplus labour-time. In the first place, this surplus labour time is a 'surplus population' that as such is outside the value-circuit (see below, Marx, 1973: 399). Under dynamic capitalist imperatives, the surplus population moves in a number of directions. For some, there is productive redeployment back into the value circuit of labour. In particular, labour can be productively redeployed as a 'reserve army' in both new and existing fields of production and as an 'active army' in new fields; and it can be deployed in the production of new means of production and, most significantly, in the development of productive forces. Unproductively, it can be consumed in 'domestic servitude' to the bourgeoisie, or it can remain permanently outside the formal value circuit in other ranks of the 'relative surplus population' including the 'lumpen-proletariat', those that have been rendered permanently unemployable, and the destitute.

The central dynamic circuit of living labour values that drives dynamic capital accumulation is increased productivity leading to the reduction of labour time, resulting in surplus labour time that is redeployed in the development of new productive forces that, in turn, increases productivity that further reduces labour time. At a given point of analysis, however, the realisation of surplus labour by its redeployment as necessary labour implies an absence of surplus labour. At this given point of full redeployment a new level of reproduction is created that implies an identity of values between socially necessary labour time (including development labour), the labour product, and the value of labour power (plus the value of non-labouring consumption).⁶ However, because capitalism cannot deploy the entirety of the surplus population, the traces of the living labour circuit that are external to it also include a group that is made permanently surplus to capital's requirements. Further, outside the value circuit of living labour, the realisation of surplus labour as 'dead labour' takes the material form of the capitalist owned accumulation of productive forces and means of consumption.

The following sections elaborate what drives this path of living labour under capitalism, and further considers the long-term implications of this dynamic social process for employment, the 'surplus population', 'overpopulation', environmental sustainability, class structure, crisis, and socialism.

The contradictory logic of employment under capitalism

Capital dominated relations of production drive social reproduction and accumulation under capitalism. However, because socially necessary labour in waged employment is the driving force of capital accumulation, capital must harness labour to its cause. The capital-labour accumulation dynamic underpins the changing structure of the capitalist class and the proletariat. A brief overview of the logic of capital, as a dynamic competition-driven process in which socially necessary labour times are changing rather than fixed, sets the stage for developing an account of the changing employment structure of the proletariat.

For the individual capitalist under the capitalist mode of production, the transformation of increased productivity into increased profit and subsequent productive investment do not follow automatically. At the outset, surplus value can only be realised by selling products in a competitive market environment. An innovating firm that has invested in new productive forces ahead of its competitors can sell more products at a price below the pre-existing socially necessary value but above its new labour time value. Individual company profits can increase as labour costs are reduced and as a greater volume of cheaper products are sold in the marketplace. The surplus capital of the innovating firm can be reinvested in the productive deployment of surplus labour, including the development of productive

⁶ Of course, aspects of the reproduction of the labouring population, especially to do with the raising of children are from the outset external to the value circuit (see Peck, Ch. 2).

forces, thus further increasing the firm's productivity. Competition between capitalist firms in the sector intensifies as other firms, in order to remain viable, adopt the new productivity principle. Competition further intensifies, implying that prices move towards their values, as increased supply begins to outpace demand. Individual capitalist profitability declines accordingly, but is countered by rationalization driven by the centralization of capital and by investment of surplus capital in productive forces.

Lower socially necessary labour activity values and correspondingly lower product prices become generalised. For labour, an increased consumer bundle of use values available at reduced exchange values implies contradictory tendencies. Retained workers will get an increasing *real wage*, but those directly expelled will experience deepening poverty. However, the presence of a relative surplus population acts to reduce the value of labour-power because intensifying labour market competition directly increases capital's power to reduce the *price of labour*. At the macro-level, surplus value is realised as viable capitalist accumulation because the value of labour power is reduced and surplus labour is redeployed both in the reserve army of labour and in the development of productive forces. Over a longer time frame, macro-tendencies to reduce the value of labour-power and to maintain or increase the size of the labour force that is redeployed in the development of productive forces together facilitate surplus value creation as dynamic accumulation.

The transformation of surplus labour into dynamic accumulation depends on sale of commodities at a profit, and on the redeployment of that profit in new investment. In labour terms, dynamic accumulation requires the generalised reduction of necessary labour, on the one hand, and the redeployment of surplus population in the development of productive forces, on the other. Thus, dynamic capital accumulation is dependent both on making labour surplus and on redeploying that surplus. While outside the value circuit of capital, surplus labour as surplus population does not contribute directly to the accumulation of capital. In short, an increase in productivity can only lead to the dynamic accumulation of capital if surplus labour is redeployed as necessary labour, and the value of labour-power is generally reduced.

The paper now turns to a more detailed consideration of labour in terms of the employment consequences of this process. Such an exercise runs against the dominant emphases in Marx's writing. Nonetheless, in *Capital* Vol. 1, Marx does provide a macro-level sketch of the intervening steps between surplus labour and surplus value in his analysis of the 'relative surplus population' (1976: 781-802). However, only in *Grundrisse* does Marx argue that surplus labour is initially a surplus population expelled from the value process that 'is useless until such time as capital can utilize it' (1973: 399). Or put the other way, 'newly created surplus capital can be realized as such only by being exchanged for living labour' (p. 400). Furthermore, while in *Capital* Vol. 1 Marx argues that over the long-term capitalism will tend to move beyond absolute to relative surplus value strategies, in *Grundrisse* Marx also underlines the importance of 'increasing the labouring population' if capital is to realise surplus labour as dynamic accumulation.

Marx sums up these contradictory tendencies:

Capital can only create surplus labour by setting *necessary labour* in motion. ... It is therefore equally a tendency of capital to increase the labouring population, as well as constantly posit a part of it as surplus population – population which is useless until such time as capital can utilize it. (Marx, 1973: 399)

In *Theories of Surplus Value*, Vol. 2, Marx, drawing on Ricardo, follows a similar logic wherein he argues that:

one tendency [to employ as little labour as possible] throws the labourers on to the streets and makes a part of the population redundant, the other [to employ the largest number of workers] absorbs them again and extends wage labour absolutely ... (Marx, 1969: 573)

The historically unique dynamism of the capitalist mode of production stems from its capacity to redeploy a significant proportion of surplus labour into the development of productive forces that is the source of further surplus labour. Marx argues in *Capital* Vol. 1, that this productive exploitation of labour leads to dynamic material accumulation in which labour becomes increasingly dependent on and subordinated to fixed capital (dead labour) as a growing alien power, and capitalist norms of productivity becomes the increasingly all-encompassing expression of social life as capitalism spreads globally into every social activity outpacing all previous methods of production. Key to capitalism's contemporary global supremacy is that relative to previous modes of production and regardless of the model of development, a large part of surplus labour under capitalism is channeled into the on-going development of productive forces.

This contradictory logic is subject to both moderation and accentuation according to the politically contingent effect of differing modes of regulation. The Fordist model of development, understood as a concession to labour's resistance and counter-organization, and as a solution to capitalism's overproduction tendencies, channeled productivity increases into wages rising across the proletariat. Also during this time in particular, labour was able to enlist the state's regulatory support in moderating the tendency of capital to maximize working hours, and in providing socialized assistance in the reproduction of labour-power and the population in general. Though still existing, the reserve army of labour was minimized. In sum, the social democratic tendency provides alternative rationalities of productivity and social reproduction that enable labour-capital positive-sum effects under a more humanized form of capitalism. However, under the contemporary neoliberal model of development, a more unfettered capitalism has led to the re-emergence of the logic of absolute surplus value, the redrawing of the boundaries between a (contracting) active and (expanding) reserve army of labour, and the growth of a surplus population, and at the other pole, an increase in wealth and power of certain strata of knowledge workers and the capitalist class.

Marx's basic narrative of employment logic under capitalism indicates that underlying such mid-range interventions is a contradictory pattern of employment. On the one hand, capital deploys strategies that reduce necessary labour by applying economies of movement, minimizing idle moments in the working day, and replacing living with dead labour. On the other hand, capitalists deploy strategies that increase working time by extending the working day and by pursuing proletarianisation of the entire population. This contradictory logic of accumulation under capitalism drives capital to continually push in opposite directions: to reduce necessary labour time to a minimum while simultaneously pushing to maximise necessary labour time expended by increasing both the total labouring population and their hours of work. Emphasis here is first on redeployment of labour and second, on the 'surplus population'.

Stages and sectors in the spread of the differentiated proletariat

A Marxian account of the shifts and patterns of employment under capitalism over the long-run goes beyond the mainstream post-industrial narrative of a technology-driven progression of employment from agriculture to industry to service. The process of the creation and redeployment of surplus labour as a consequence of the capitalist form of the industrialization of social activities shifts employment in two contradictory directions: towards knowledge work, on the one hand and on the other, towards a relative surplus population. Examination of this shift builds on parts of Marx's analysis that go beyond his single sector focus on industry.

The application of the machine system as 'real subordination', i.e. capitalist industrialization, intensifies the surplus labour effect across all sectors of production, but in a way that, in the first place, shifts employment away from agriculture to industry.⁷ As Marx states:

As soon as capitalist production takes possession of agriculture, and in proportion to the extent to which it does so, the demand for a working population falls absolutely, while the accumulation of the capital employed in agriculture advances, without this repulsion being compensated for by a greater attraction of workers, as is the case in non-agricultural industries. (*Capital*, Vol. 1: 795-6)

Generalization of the mechanization of agriculture as an effect of competition reduces socially necessary labour. Mechanization also encourages increased farm sizes to achieve scale economies necessary to the valorization of fixed capital, and competition leads at some point to increasing centralization of land ownership. Unlike industry and especially the 'immaterial' economy, opportunities for the subsequent 'attraction' of workers into the agricultural sector are limited by the immediate finite constraints of the material land. The continuing industrialization of agriculture makes labour redundant as a result of reduction in necessary agricultural labour, but it also implies investment in agricultural productive forces including machines and fertilizers, and new industrialized agricultural products

⁷ See Marx, *Capital* Vol. 1, Ch. 27, for his analysis of the agricultural surplus labour pre-conditions of the industrial revolution.

generally. Thus, the shift in employment is not simply from agricultural based employment to industry based employment, but integrally involves redeployment from agricultural production to the production and development of agricultural productive forces. At the same time, whether for deployment in agriculture, industry, or service, the driving force of development is the on-going industrialization of productive forces.

The surplus population created by the redundancy of most of the agricultural workforce provided the base for the rise of the industrial proletariat. A surplus rural population is thrown off the land, losing its previous means of existence, and moves towards the towns and cities with nothing to sell but its labour-power. The absence of any neat equivalence between positions abolished and positions created defines the terrain of the surplus population. However, the absolute decline in rural/ agricultural employment and the large scale shift towards the industrial sector involves an employment shift towards the service sector as well. This happens in two senses: as increased employment in the development of productive forces, and as a redeployment of a portion of the surplus population in 'domestic servitude' employed by the middle class of knowledge workers, entrepreneurs, and other members of the bourgeoisie (Marx, 1976: 397; 1973: 796).

In general, necessary labour declines with increasing investment in fixed capital that increases productivity. At a certain point, competition intensifies as demand begins to become saturated. Production is centralized, economies of scale are maximized, and the 'fallible element' (living labour) is reduced absolutely. A cycle of development is created whereby necessary labour continues to decline in direct proportion to the redeployment of labour in the development of productive forces that becomes absolute at a certain point. At the same time, surplus capital seeks out surplus labour, and investment in new fields of production occurs. As the fields of production multiply and diversify the same logic is repeated as surplus capital and surplus labour move restlessly into new fields of production.

Over time, this process represents the spread of labour into a multiplying number of capitalist enterprises across a diversifying number of product fields and including 'immaterial' products. This on-going diversification of production combined with the on-going development of productive forces implies an innovation focus to competition. Increasing amounts of labour become employed in innovation as knowledge workers/ symbolic analysts/ software engineers/ human resource managers/ engineers, etc, and key aspects of the production process itself also become more 'abstract' and 'knowledge intensified' (Hodgson, 1999; Zuboff, 1988). Mechanization and automation of production combined with the on-going development of productive forces and new product lines implies a shift in employment away from the material to the immaterial economy, from manual labour to mental labour, and towards the knowledge intensification of labour.

This Marxian account of sector shifts in employment draws out the process in terms of the redeployment of surplus labour created by the on-going productivity effects of investment in new productive forces. The 'post-industrial' effect is inherent in the process of capitalist industrialization from the

outset, even though an absolute shift of employment towards the immaterial economy is more recent. The spreading of employment from the material economy to innovation continues to be driven by the on-going industrialization and development of productive forces of all sectors. At the same time, the growth in mental labour corresponds with a growth in relative surplus population that also includes a shift towards 'service'.

The relative surplus population

The post-industrial theorists' promise that the development of productive forces will lead to increased free-time for everyone is only a contingent possibility premised on the abolition, or at least the radical diminishing in effect, of the capitalist mode of production (Gorz, 1982; 1999). Under capitalist social relations, the 'freeing up' of labour robs redundant workers of their means of subsistence and throws them 'on the streets', and there many of them remain, permanently surplus to capital's requirements. In *Capital* Vol. 1, (pp. 781-802), and in tension with the *Communist Manifesto* class simplification prognosis, Marx divides the proletariat into an active army of labour and a relative surplus population, sub-divides the latter into a reserve army, that comprises 'the floating, the latent and the stagnant' (794), and residual sediments that include paupers and the lumpen-proletariat. In sum, Marx outlines key dimensions of the proletariat's stratification that vary its essential life-situation across labour process, employment, wages, and security criteria. He further complicates his class simplification prognosis by differentiating the proletariat not only as bearers of different structures, but also as individuals with different physiological characteristics, including gender, age, and health (physical and mental) criteria that may move between, or become stuck in specific strata. In this account, Marx provides a seminal analysis of the process of the segmentation of the labouring population under conditions of capitalist development though he does not fully cognise the labour market segmentation theorists' insight that each labour market segment operates according to its own rules.⁸

Rather than leading to the general reduction of working hours, increases in productivity under capitalism throw some workers into the surplus population while retaining an active army and sections of the reserve army that are 'overworked' (Marx, 1976: 789). Capital's interest is to employ fewer workers for longer hours rather than more workers for shorter hours. Less constant capital is required (*Ibid*: 788) and the temporary surplus population of the reserve army provides capital with a ready and flexible source of labour that can put surplus capital to work in a changing and expanding range of activities (1976: 784, 789). Capital expels people from production as a result of advances in large scale industry and agriculture, and the decay of branches of handicraft and manufacture. Marx makes distinctions between the 'latent reserve' population of rural dwellers that are soon to be made redundant but have access to the basic means of subsistence, and young men who are relatively mobile or 'floating', and the 'stagnant' population that appears as

⁸ The segmentation theorists, in general, do not seem to have recognised Marx's segmentation analysis. Nonetheless, radical feminist analysis has widely adopted the concept of the 'reserve army of labour', though not as part of a general Marxist orientation. Interestingly, Fine (2007) brings in segmentation as a central element of a Marxist account of the labour market.

a residual category. Subsequently, capital redeploys such people in precarious, special, less developed, irregular areas of work such as in new developing industries, and in the 'domestic industry' of servant labour (*Ibid*: 796, 794). In sum, the diversity and dynamism of different branches of industry at different stages of development imply the constant deploying, expelling and redeploying of the proletariat in ways that facilitate its differentiation and stratification across numerous criteria.

The relative size of the reserve army is the lever that regulates and stratifies the price of labour (*Ibid*: 790, 792). Labour made redundant by capital is caught up in a desperate competition for remaining scraps of irregular work, thus forcing wages down below the 'average normal level of the working class' (*Ibid*: 796) which in turn increases the demand for this labour and encourages longer working hours. Capital also exploits natural differences in the population in ways that enable capital to hire a greater mass of labour at a lower price (*Ibid*: 788). Young males are deployed as floating workers in developing industry, while others in the stagnant population are deployed into 'special branches of capitalist exploitation' including domestic service. In addition, orphans and children are recruited from the sphere of pauperism into such positions. Marx also argues that the capital-driven process that makes labour redundant and in correspondence with the deskilling of the labour process in large-scale industry, 'progressively replaces skilled workers by less-skilled, mature labour-power by immature, male by female, that of adults by that of young children' (*Op Cit*).

Stratification of the proletariat's circumstances also occurs as a changing division between the reserve army of labour and the 'lowest sediment of the relative surplus population' (*Ibid*: 797) that dwells without any waged work outside or on the margins of the reserve army. This lowest sediment consists of groups such as 'those able to work' and 'orphans and paupers' that alternately are absorbed into, and repelled from, the reserve army according to the rhythms of capital expansion and contraction. Beneath these groups are, firstly, those either not able to work, including the 'demoralized, the ragged...', 'people who have lived beyond the worker's average life-span', 'the mutilated, the sickly, the widows'. Secondly, there is the 'actual lumpen-proletariat' that includes 'vagabonds, criminals, prostitutes ...' (*Op Cit*).

The relative size of each of these groups changes as an effect of the movement of individuals between the groups that in turn is primarily dependent on the overall state of capital accumulation. As capital expands, the active army of labour expands and the reserve army declines correspondingly. As the reserve army declines, so too does the size of the surplus population outside of the reserve army. Alternatively, as capital contracts, the reverse pattern will be promoted.

Marx emphasises the interaction between the underlying pattern of employment driven by capital accumulation, capital's expansion/contraction cycle, and the surface-effects of the laws of supply and demand that lower wages and stratify the relative surplus population. However, he does not consider properly the stratification of the 'working class' or 'active labour army'. In particular, while recognizing that the effect of the over-

supply of labour, as manifest in the relative surplus population, is to drive wages down; he stops short of considering how the reverse tendency will occur for those strata of the proletariat who are likely to be in under-supply. He does not consider the possibility of a continuing hierarchy of skills in the industrialised labour process. Further, he does not consider the effect of the transfer of surplus labour from production to the development of productive forces. Assuming market laws exploited by capital to its own advantage, knowledge workers will be stratified according to the logic of competition into more and less valuable, i.e. scarce, repositories of knowledge.

Marx concludes this section of *Capital* Vol. 1 with a now famous polemic about how the logic of capital accumulation creates polarization of the class structure as accumulation of wealth at one pole and absolute misery at the other, with workers and their families dragged 'beneath the wheels of the juggernaut of capital' (*Ibid*, 799). Now the lowest sediments of the surplus population stand in for the proletariat as a whole. Furthermore, Marx does not draw out the other more problematic inverse of his analysis. That is, surplus labour deployed into the development of productive forces will be characterised by ascending scarcity and thus increasing wage levels, moving from routine mental labour to intellectual labour dependent on the acquisition of complex knowledge bases. Stratification occurs both within and across the main groups, moving from knowledge workers to production workers to those further beneath in the ranks of the reserve population. Thus, polarization occurs at either end of a continuum of stratification of the proletariat itself, with high-paid knowledge workers at one pole, and paupers and lumpen-proletarians, at the other.

Marx does not draw out the problematic implications of his own account of the complex stratification of the reserve proletariat. Furthermore, when combined with the broader stratification implications of the on-going development of productive forces, the limitations of the industrialisation-driven mass-deskilling of labour thesis, and the contemporary global segmentation of the proletariat across developed and developing capitalist countries, the tidy prognosis of class simplification as first outlined in the *Communist Manifesto* is made deeply problematic (Neilson, 2007). For Marx, though his analysis of deep fault-lines in the proletariat goes against his original class prognosis, he continues in *Capital* to will our identification with his earlier thesis of class simplification.

A growing surplus population?

The above analysis identifies a rhythm of oscillation in which members of the labouring population move between and within the active and reserve armies of labour and the residual surplus population, but Marx does not dwell on an examination of the long-run tendency. In *Capital* Vol. 1, he concludes that the surplus population grows more rapidly than constant and variable capital (1976: 789). Though relevant, this argument focuses on the relation between living and dead labour and not to the relation between different forms of living labour. The key question of concern here is whether the ranks of the surplus population will grow because the reduction in necessary labour

exceeds the surplus population's redeployment? More fully, will the capitalist dynamic of surplus population driven by increasing productivity grow the ranks of the relative surplus population, defined as those without work plus those in the ranks of domestic servitude, informal work, and the lumpen-proletariat, at a rate that exceeds the growth of the active army of labour, defined as productive workers including those formally active in the reserve army plus knowledge workers? The analysis centres on factors driving the complex relation between the reduction and redeployment of necessary labour, on the one hand, and the deployment and reduction of knowledge labour, on the other hand.

Capitalist investment in knowledge labour is only viable if it maintains or increases profitability. Therefore, such investment needs to increase an organization's productivity through reducing labour expended to or lower than the socially necessary level, and relatedly, through increased sales. In pure labour-time values, though reduction of necessary labour-time requires the deployment of knowledge labour-time, the capitalist imperative is to ensure that the former reduces at a rate that exceeds the latter's deployment. Nonetheless, the periodic tendency of the rate of profit to fall is partly linked to the likelihood that such a relationship does not always apply.

'Productive' knowledge labour can be distinguished according to three major areas: productive forces development, new product development, and education. An important characteristic of knowledge labour that develops productive forces is that its results can be applied repeatedly without further expenditure of knowledge-labour-time while the resulting reduction in necessary labour-time can be permanent. For example, once invented, the wheel does not have to be invented again, but the productivity effects of the wheel in production are repeated *ad infinitum*. In this example, the permanent reduction in necessary labour-time far exceeds the labour-time applied to develop productive forces in the first place that becomes a permanent given social repository of socially stored knowledge, a special form of dead labour. Indefinitely developing productive forces may undermine this logic at some point insofar as intellectual breakthroughs become more difficult to achieve either as knowledge quests move from simpler projects, already applied to productive forces, to more and more difficult ones, and/or as material exploitation of the natural world becomes more difficult as easy-to-exploit resources get used up. As a counter-effect, larger investments of labour-time in the development of productive forces have also led to even greater reductions in necessary productive labour. For example, in the present, computerization and the movement towards robotization combined with the knowledge intensification of both engineering and production work are driving on-going reductions in socially necessary labour.

Productive knowledge applied in the development of new products is different to the extent that it does not drive a reduction in necessary labour but is a central part of the redeployment and spread of necessary labour. The constant search of surplus capital for new fields of production implies, as a simple logic of diversifying multiplication, a continuing demand for knowledge workers and production workers. However, as a result of

increasing productivity each unit of production has a declining number of workers. This process therefore represents an acceleration of the speed at which the material world is used up.

In contrast, many industrialized immaterial products including text, music, films and computer games, that use up the material world much more slowly, once created require limited socially necessary labour to be (re)produced, just press 'COPY'. The growth of knowledge labour also implies the related effect of the need for more educational labour. However, all forms of knowledge labour, like manual labour, are subject to continuing rationalization. Increasing computerization of a range of mental functions within all sectors of activity including the knowledge sector itself expels mental labour, in particular, routine and repeating mental labour. This process concentrates remaining intellectual labour into the quest for new and original development.

Capital's constant search to invest its surplus capital and increase productivity implies over time increasing investment in knowledge labour, but this logic operates within profitability constraints, and is subject to rationalization. Overall, the above analysis indicates that though labour spreads into diversifying product areas, the application of knowledge labour tends to reduce necessary labour at a rate that exceeds this redeployment. The major counter-tendency to this logic is the redeployment of the surplus population in the industrial and service reserve armies. The expulsion of necessary labourers to the surplus population makes viable absolute surplus value strategies by intensifying the loss of the means of subsistence aspect of formal subordination. Capital's power to push greater work effort is increased, and is further enhanced by increasing competition for scarce jobs, that also results in lower wages. Workers not only seek longer working hours to compensate for loss of earnings (see Basso, 2003), but other family members including children may also end up in the workforce (Marx, 1973: 399). Low wages implies the continuing viability of labour-intensive industrial work in the 'periphery', and also increases 'domestic servitude' employment opportunities in the service of high-paid knowledge workers and the bourgeoisie (see Gorz, 1994, Basso, 2003, Davis, 2006).

Further social and productive degeneration is implied because the hiring and firing power of capital in an environment where labour is being regularly drawn-in and thrown-out of employment facilitates capital's on-going shuffling of the labouring population according to its requirements. The effect is not only to intensify forms of proletarian stratification and segmentation but also to systemically filter every individual that is surplus to capital's requirements ever downwards. In the advanced capitalist countries, this process is strategically articulated with dominant social norms of legitimation especially by exploiting the perceived lack of attachment or right to formal employment of women and ethnic minorities (Offe & Hinrichs, 1985), or by directly pointing to how, through an absence of appropriate skills and attitudes, these individuals are deemed 'unfit' and as directly responsible for their situation (Bauman, 1998; Wilson, 1996; Clasen, 1997). At times of major economic crisis and transition the process is more brutal and less selective. In the contemporary developing capitalist world, for example, the rural

proletariat is being torn from an agricultural mode of existence and pushed towards an alien urban environment. Because of massive oversupply and the absence of state protections, capital can treat this surplus population as disposable and not just in the sense of 'labour market flexibility'. People can be abused, used-up and thrown away. Thus the lowest sediments systematically come to equate with a destitute and discarded surplus humanity.

The contemporary era of neoliberal-driven global capitalism has intensified the surplus population tendency. This intensification has occurred not only because the neoliberal model of development has unleashed the brutal logic of capital that had been constrained during the Fordist era, but also because this unleashing has involved a rapid globalization of capitalism's deep regulative principles implying global standards of necessary labour. International capital is carving up the world's remaining non-commercialized countryside and marginalizing the peasantry and more specifically the 'rural proletariat', amidst a deepening environmental crisis. As the surplus agricultural population flood into the cities from the countryside with nothing to sell but their labour-power, the size of the informal proletariat increases and the overpopulation crisis intensifies in the growing city slums (Davis, 2006).

The rapid industrialization of the developing world, though fundamentally similar to the first industrial revolution is also made dramatically different by the broader global context within which it occurs. The uneven development of capitalism has created a situation where the application of commercial corporate methods of capitalist production are rapidly marginalizing the world's agricultural proletariat and small-holding peasantry, and further a situation in which the urban environment into which they must move is also characterized by the existence already of high levels of capitalist automation, and thus implying limited employment opportunities in the formal proletariat.

The surplus population somehow hanging on in the countryside is estimated at between 2.5 and 3 billion people (McMichael, 2007: 187). In turn, the continuing influx of marginalized rural workers into the cities with nothing to sell but their labour-power has spawned the massive growth of what Davis calls a slum-dwelling 'informal proletariat', or what Marx described as the relative surplus population. According to UN estimates, in 2005 this population was over a billion people (cited in Davis, 2006, : 23) It is stratified into numerous layers: moving from the peripheral, sub-contracted, formal reserve army, to the informal proletariat existing in primitive industrial sweatshops and as day labourers, and in the massive growth of own-account workers, domestic servants, and beneath them in the lumpen-proletariat, and then the completely destitute (*Ibid*). Predicted population trajectories are that all future population growth will occur in an urban environment already overloaded with people living in rapidly expanding slum settlements (*Ibid*: 22).

Although the end-game of this process under capitalism has contingent and conjunctural dimensions as well as counter-tendencies, the dominant logic of the capitalist mode of production intensified by the contemporary neoliberal-driven model of development is to reduce necessary labour at a rate

radically greater than labour's productive redeployment. At the same time, the environmental crisis deepens. Although implying an increase in necessary productive labour and knowledge work as natural materials and resources become more difficult to exploit, more significant is that the environmental crisis continues to squeeze further the surplus population towards catastrophe. A reinterpretation of Marx's critique of Malthus pieces together the germ of a theory that predicts the deepening desperation of this growing surplus population will collide increasingly with the related ultimate effect of capitalist development: an absolute surplus population.

From relative to absolute surplus population

Marx's main emphasis in *Capital* Vol. 1 is capital's relative surplus value strategy which also implies a relative surplus population. In a strictly population sense, Marx's concept of absolute surplus value is also relative in that it does not imply any changes to the size of the labouring population, but only an increase in the labouring time of an existing population. Marx refers to the incorporation of women and children into the labour process that also does not alter the size of the existing population. The latter strategy is different from absolute surplus value because it is dependent not on lengthening the working day but on the multiplication of the numbers of people engaged in the working day, though in a full reproduction sense, the latter implies the former. From the standpoint of capital, the effect of both strategies is the same in that they both imply an increase in necessary labour-time expended. The argument examined here is whether or not the long-term trajectory of capitalism not only implies a growing incapacity to redeploy this surplus population, but also a tendency towards an absolute 'overpopulation'.

Marx of course rejected such an absolute logic that challenges his view of socialist transformation because he was waging a war against the mean, brutal, simplistic, bourgeois, conservative aspects of Malthus' (1970) account. For Malthus, overpopulation is a problem of the poor breeding beyond its means, and the solution is not to provide relief because it would only encourage more breeding and undermine the genetic purity and lifestyle of the middle class. Instead, the poor's rapid population growth should be solved by nature taking its course, including famine, to keep the surplus population to sustainable levels (see Foster, 2002b). More specifically, Marx criticises Malthus for 'stupidly' reducing the actually varying historical forms of overpopulation 'to a single relation, two equations, in which the natural reproduction of humanity [is] on the one side, and the natural reproduction of edible plants (or means of subsistence) [is] on the other ...' (1973: 605-6). For Marx, 'overpopulation', where the population exceeds the available necessities of life, is only *relative* to the historical conditions of a specific mode of production. While of course Marx needed to take a stand against Malthus, nonetheless in doing so he diverted himself from absolute overpopulation tendencies implied by his own historical analysis of the capitalist mode of production (Marx, 1973: 605-9).

Under capitalism, a segment of the population is made surplus because it is made redundant to capital's requirements. As such, the relative surplus

population is only 'overpopulation' relative to the logic of the capitalist mode of production that robs people of their employment and thus also of the necessities of life. At the same time, the indefinite capacity of capitalist production relations to constantly increase productivity is central to Marx's conception that a mature capitalism will create the material pre-conditions of abundance for all under socialism. However, this position reiterated in the ideology of Marxists through the generations to the present and that includes a faith in the capacity of advancing technology under appropriate social relations to sustain with abundance an indefinitely growing population (see Peterson, 1988) is not the only way to interpret the logic of Marx's argument.

In his famous statement of method in the introduction to *Grundrisse*, Marx distinguishes between the trans-historical and the historical. In this instance, the trans-historical converse to be taken from Marx's argument about the historically relative nature of over-population is that productivity provides the universal limiting determinant of population growth.⁹ Thus, the historically specific logic of the capitalist mode of production towards indefinite increases in productivity implies the basic corresponding demographic possibility: the indefinite and continuing expansion of the total population. Thus, the capitalist mode of production drives the conditions of an indefinitely increasing population dynamic in an absolute sense, while simultaneously driving a surplus population in a relative sense.

However, indefinite productivity increases combined with indefinitely increasing population imply increasing consumption of a finite material world. At some point in the dynamically growing reproduction of this relation, consumption of the material world will begin to outstrip its natural capacity to renew itself, and at some point, technological fixes are unlikely to be able to defy this basic logic. The very material conditions of life necessary to sustain an increasing population will be undermined, as dynamic accumulation begins to create problems of environmental exhaustion and imbalance. At this point a vicious cycle of decline is implied. The likelihood of this outcome is compounded radically by the environmentally wasteful and destabilizing effects of the specific imperatives, priorities and trajectory of the capitalist mode of production.

The employment logic outlined in this paper supports this dismal prognosis because the drive to redeploy surplus labour as necessary labour within extended capitalist reproduction necessarily implies a growing accumulation of capital-intensive means of production and consumption goods relative to the labouring population. That is, accumulation occurs as an increasing rate of consumption per person. This escalating consumption of the material world, intensified by capitalism's wasteful production practices and priorities, is reflected in rapidly expanding mountains of rubbish (Rogers, 2006). In

⁹ However, this is not to say that population growth is an automatic effect of productivity increases, as Marx himself points out (see Burkett, 1998, pp. 129-30). Similar to Marx's undeveloped view, contemporary demographic transition theory implies, at a particular point of economic development, a declining relation between material security and birth rates. That is, while birth rates decline amongst secure population groups in the advanced countries, birth rates are high amongst the poorer populations of the world.

addition, the depletion and ecological destabilizing of the material world is hastened and deepened by the high 'Energy Return on Energy Input' technological fixes favoured by capital (Altvater, 2006) and by the growing environmental risks of a more and more powerful science (Beck, 1992). Finally, the contemporary neoliberal global form of capitalism is driving rapid commodification and industrialisation of agriculture and manufacturing that replace economic self-sufficiency with global scale production based market dependence that imply higher energy costs in production and distribution, and increased levels of material consumption per person. Global commodity chains based in global systems of production and distribution are linked to increasing distance travelled between the points of production and consumption, and the wasteful retracing of movements of commodities in different stages of completion backwards and forwards around the globe (Dicken, 1998; Woodin and Lucas, 2004: Ch. 3; Cavanagh & Mander, 2002, pp. 28-9).

Currently expanding, wasteful and ecologically destructive material consumption reinforces the likelihood that the planet's natural capacity to renew itself and provide the basic conditions of life for an expanding population cannot be sustained indefinitely. Many argue that we have already reached a point at which consumption of the planet is outpacing and destroying, in an escalating way, its natural capacity. They point to the using up of fossil fuels, rising water and temperature levels, the depletion of natural resources including basic necessities and material conditions of life such as water, air, land, trees, rapidly declining bio-diversity, and the linked destabilization of ecosystems (e.g. Altvater, 1993, 2006; Wooding and Lucas, 2004; McMichael, 2006; Martinez-Alier, 2006). According to a recent study, using the 'ecological footprint' approach, by 1999 actual levels of human activity exceeded sustainable planetary capacity by 20%, while in 1961 human activity was only 70% of total capacity (Wackernagel, *et al.*, 2002).

As capitalism descends into deepening environmental crisis, the relative surplus population can be conveniently labelled as an 'absolute surplus population' abstractly equivalent to the portion of the total population that exceeds an environmentally sustainable level.¹⁰ Neoliberal ideology that articulates with neo-Malthusian and social Darwinist threads, can interpellate the non-surplus population to the view that the surplus population, comprising unfit, parasitic, superfluous, promiscuously irresponsible individuals, is directly causing an environmental/ population crisis on a global scale. Such convenient scapegoating of the relative surplus population corresponds with Breman's account of poor, landless, rural workers in India who are increasingly constructed as not having the right to exist (2003, p. 48). Such a view is also complemented by pentagon doctrine that links segments of this global surplus population to the rise of terrorism that justifies 'a low-intensity war of unlimited duration ...' (Davis, 2006:205). Similarly, vilification of the surplus populations in both the developed and non-developed worlds can be

¹⁰ Of course, in concrete terms this suspect adaption of the 'ecological footprint' model is flawed because consumption levels of different populations are radically different. Consumption levels are highest amongst those with lowest fertility rates, and vice versa.

aligned with various versions of racism, anti-tribalism, xenophobia, and fascism.

Rather than the cause, the surplus population is in fact the effect of the systemic logic of the capitalist mode of production that is generating economic, social, and environmental crises. As an economic crisis, a growing relative surplus population that cannot be productively re-deployed implies declining surplus value. Nonetheless, the economic viability of capitalism is not directly threatened as long as already established relative surplus value based accumulation strategies outpace sub-optimal accumulation effects created by the existence of a non-consuming, non-producing surplus population outside the circuit of capital. However, a growing surplus population robbed of its subsistence capacity, in 'ruthless Darwinian-like competition ... for the same informal scraps' (Davis, 2006: 201) and vilified by the non-surplus population, is systematically generating the conditions of a deepening social crisis of global proportions. The spectres of Darwin and Malthus feed directly into a horrific picture of the future in which capitalism systematically consolidates amongst those inside the value circuits of labour and capital, while the surplus population outside these circuits is abandoned or worse. This process corresponds with a spatial logic in which a growing population surplus to the requirements of capitalism is squeezed into a smaller and more environmentally vulnerable confinement within the growing slums of a planet whose viable space, as an effect of environmental destruction, is declining anyway.

The present trajectory of capitalism implies a step by step, rather than a big bang, descent into a global crisis of human sustainability. The rich countries, and within them the affluent and productive strata, can ring-fence the increasingly scarce resources that enable the continuation of the capitalist lifestyle (Altvater 2006, pp. 50-53), while the surplus population can be contained, with force if necessary, in the cold. Perhaps the present capitalist trajectory can modify itself or be reformed (see Buck, 2006), but a socialist-driven rupture is required if capitalism's long-term trajectory is to be altered fundamentally.

Implications for Socialism

Rather than inheriting capitalist productive forces that under socialist relations could underpin material abundance for all, the trajectory of capitalist production is bringing humanity to the abyss of global ecological crisis, implying in particular Malthusian and Darwinian-like consequences for the surplus population. Rethinking socialism in this present context is heavily constrained by an anti-utopian mission to avoid the playing-out of this future by prioritising the needs of the surplus population and the deepening environmental crisis. These priorities are linked to the growing interest in models of eco-socialism (see Panitch *et al*, 2006). The imperative of the present socialist project is to offer an environmental alternative to both neoliberals who argue that the price mechanism either spontaneously or through regulation will solve the environmental problem (see Foster, 2002, Ch.2), and to Greens who have led the way in their advocacy of energy conservation and localised production (e.g. Woodin and Lucas, 2004) but

often do not directly confront capitalism or appreciate the role of planning and coordination (see Albo, 2006). Further, the socialist project needs to develop strategies for the surplus population that avoid playing-into a range of unpalatable 'solutions' for overpopulation proposed in the mainstream (see critiques by Ward, 2008; Bernstein and Woodhouse, 2006).

Assuming key socialist pre-conditions including global democratic regulation and the global social appropriation of capital-owned productive forces and material resources, an eco-socialist model of development that addresses both environmental and population crises can be very briefly sketched. Such a first-step socialist project would be based in a globally co-ordinated framework for constructing and regulating a model of localised production. An eco-socialist model of local self-sufficient production, globally planned and coordinated, would prioritise scope and propinquity economies in order to produce locally a large variety of agricultural and manufactured goods, and would imply that town and country, production and distribution could be spatially reintegrated.¹¹

In the spirit of Marx's discussion of labour time in a free association (1976, pp. 171-2), necessary social labour times would be driven by a basic formula that evenly spreads necessary labour amongst the able population so that more people could work less rather than the reverse as occurs under capitalism. The social realisation of productivity increases would involve various possible combinations of increases in social tax, knowledge work, consumption, and free-time. Moreover, increasing free-time could also provide the basis for the promotion of secondary sector beyond the realm of necessary labour time. In this realm, a 'socially constructive sector' could fulfil the promise of the 'multi-activity' society (see Gorz, 1999; Lipietz, 1992; Beck, 2000).

The web would provide the basis of a virtual framework that could link knowledge workers globally. Such a framework could involve local-global feedback mechanisms, make productive force advances available for

¹¹ Of particular strategic interest here is how the 'flexible specialisation' model of the 1980s, especially in its socially prescriptive form, could be adapted to the project (see Hirst & Zeitlin, 1997). At its economic base, flexible specialisation which draws its primary inspiration from the 'Third Italy' projects, refers to a collection of inter-connected and cooperating production units located together in an 'industrial district' or 'association' driven by versatile multi-skilled workers that deliver efficient scope economies via small-run production of a variety of innovative products using highly flexible machine tools. Additionally, this model while retaining principles of variety and innovation directly reverses the centralisation of capitalist power and destructive competition, including the wasteful duplication of processes.

Further and following Albo's (2006) practical discussion of the limits of localism and the problems of transition, it is obvious that the principle of local production would need to be applied flexibly. Depending on the particular commodity to be produced and according to local possibilities, the degree of decentralisation and technological sophistication will vary. Also, though the accent is on localised production, it would remain the case that certain products may still have to be produced on a global scale, and further, a hierarchy of scales from national, to sub-national to the individual household is implied. Alec Nove's (1983) model of feasible socialism is relevant here.

general application across all localised units of production, and focus on the development of scope-maximising, multi-skilling labour processes and products that maximise energy conservation, minimise externalities, and that would be fuelled by environmentally-sustaining energy sources. Such a global-local model provides the core of a project that can radically reduce material consumption per person, and promote security and development in the undeveloped capitalist world that, following 'demographic transition theory', can also help to moderate population growth.

At the outset such a model would politically require the negotiation of a 'global compromise' between the peoples of the developed and developing worlds. The secure populations of the developed world would need to accept a substantial diversion of productive resources and knowledge to developing countries, and fundamental changes to the presently dominant scale logic of production and thus also changes to individual consumption patterns. For the projects of the developing world, the urgent priority is to promote the security-creating, population-restraining transfer of productive forces and knowledge.

The proposed project does not have the advantage of mainstream strategies that do not fundamentally challenge existing capitalist ways of life. However, if the movements and initiatives coming from the South are going to be complemented by a solidarity with the advantaged sectors of the world's population, then the latter in particular need to be persuaded to the view that a realistic path towards security, solidarity and sustainability for all requires a practical alternative trajectory to the present capitalist-driven descent into environmental crisis and overpopulation. Such a project is a world away from past models of socialism but it remains tied to the Marxist common-sense that the future can only be built on the opportunities afforded by the present that, in turn, put the radical contingency of politics at the centre of the socialist will to rescue humanity.

Conclusion

This paper has not focused on a critique of the dominant paradigm of the labour market that would have limited the former to the latter's defined terrain of analysis. Rather, this paper has positively built on the fragments in Marx's writing of a long-term theory of employment that have been rearticulated with his value theory based critique of capitalism. This exercise has contributed in a number of ways to the project of building a foundation for a counter-paradigm that can directly challenge mainstream neoclassical labour market economics. In particular, a long-term, historically grounded, labour-values-in-process account of contradictory employment tendencies under capitalism has been outlined.

As such, this paper contributes to the construction of a broad systematic alternative to the narrow market model of existing labour market economics. It articulates with theories of labour market segmentation, critically reworks aspects of mainstream post-industrial theory, and it outlines the long-term employment outcomes of capitalist logic. Further, it provides a broad

framework for thinking about how the reduction of necessary labour under capitalism's illogic increases both working time and the surplus population, rather than generating more free time for all. And, the paper also provides a broad framework for thinking about how capitalism as a dynamic employment process generates an intensifying inequality of social effects: between over-employment and under-employment, and between rich and poor.

This Marxian outline of general theory of employment not only makes systematic connections with existing elements of radical labour market theory, but also with central themes within and beyond existing Marxism. Labour market themes have been applied to reconsider aspects of Marxist theories of class, crisis and socialism. Further, linking long term employment tendencies with a growing surplus population has raised issues about population and environment relevant both to Marxism, and also to debates beyond Marxism. In particular, once the theme of unemployment is linked to the problem of the surplus population in a reworked Marxian account of the long term employment and population patterns of the capitalist mode of production, then dimensions for critiquing mainstream views and rethinking Marxism and socialism are opened up.

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