

Secular Immiseration: On the Crisis and Future of Work

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Abstract

This article engages with Marx's mature critique of political economy and explores its relevance for understanding the crisis of work today. I consider the implications of Marx's understanding of the relationship between machinery, labour and surplus populations for contemporary debates on automation's impact on the future of work. Marx's critique allows us to grasp how the capitalist application of machinery not only subjects the employment of people to permanent insecurity but crucially how it tends to worsen it as capitalism matures. Indeed, runaway productivity growth produces a growing asynchrony between the expansion of capital and the demand for labour that secularly renders employment relations increasingly precarious and insecure. The article also considers some of the political stakes of Marx's argumentation by exploring the tension between the increasing superfluity of labour and the emancipatory potential of disposable time.

Keywords ; automation – work – surplus population – Marx –
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Note on Contributor

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*Marx already has the idea that in a false society, technology develops
wrongly.*

Horkheimer

Introduction

Late capitalism is defined by three intersecting trends that render life on the planet increasingly precarious: an unfolding ecological catastrophe, an entrenched tendency towards waning economic dynamism and a profound crisis of work. The latter is the main focus of this article. As I intend to argue, Marx's value theory helps us discern the overarching social dynamic that is responsible for intensifying precarity and insecurity in the global labour market today.

A little more than 200 years have passed since King Ludd and his army launched merciless attacks against their employers' textile factories breaking and burning the shearing frames that threatened to displace them. Ever since the luddite movement marked the beginning of an endless series of working class struggles against capitalist technologies, mainstream economic theory consistently endeavoured to disprove the fear that new technologies and workers are entangled in a zero-sum game. According to mainstream economists, despite the disruptions affecting certain sectors, technological change does not displace workers permanently. Instead, they argue, the introduction of machinery spontaneously generates significant

opportunities to reemploy workers. Temporary dislocations are but a necessary evil, eventually offset by the workings of the market.

However, the digital technologies and AI-endowed robots that are powering the Fourth Industrial Revolution (4IR) have spawned a widespread public anxiety that questions economists' faith in the employment-friendly effects of technology. Automation anxiety has been fuelled by numerous studies that point to the sorry fate that awaits many jobs. According to the most cited of them, computerisation puts 47% percent of US jobs at risk of obsolescence.¹ A widely read *New York Times* piece on the 2019 World Economic Forum also raised the alarm about business elites' concerted plans to replace their workforces with intelligent robots.² Fears of automation-led worklessness have also boosted the calls for a Universal Basic Income, with advocates including diverse figures from former US presidential candidate Andrew Yang to billionaire-entrepreneur Elon Musk.

The scale, pace and impact of the robo-apocalypse has been notoriously exaggerated.³ Nevertheless, capitalist societies of the Global North and South are still experiencing a severe crisis of work that takes the form of jobless economic booms, wage stagnation and the spread of underemployment.⁴ As relatively well-paying middle-class jobs become scarcer, new forms of hyper-precarious work proliferate.⁵ In the case of microwork for instance, large tech companies outsource digital tasks to piecework platforms where individuals have to work excessively long hours

¹ Frey and Osborne 2013.

² Roose 2019.

³ Morgan 2019.

⁴ Smith 2020; Li 2017; Benanav 2020.

⁵ Blanchflower 2019.

completing them for a meagre pay.⁶ In another telling sign of the unfolding crisis, numerous countries of the Global South suffer from premature deindustrialisation. Their populations are stuck in the informal and primary sectors with local industry failing to offer the same poverty-lifting employment opportunities as earlier waves of industrialisation.⁷ While formal job growth is faltering in urban centres, a growing number of people get stranded in the informal economies of fast-swelling slums around cities of the Global South.⁸ Insecurity and precarity are becoming the defining elements of work in the twenty-first century at accelerating rates. Even if the 4IR does not lead to mass worklessness, as Tony Smith argues ‘technological change is rapidly bringing about a serious social crisis in wage labour as a social form’.⁹

This article intervenes in debates on the crisis of work by reframing it as a moment within the continuous degradation of employment conditions propelled by capitalism’s runaway logic of productivity growth. With Marx, we can situate the current crisis of work in the long-run trajectory of capitalist development which tends to increasingly deteriorate society’s capacity to provide adequate levels of employment to its members. Crucially, this perspective does not view the crisis of work as a singular event in which an unprecedented number of jobs are simultaneously wiped out by marching robots. Rather, following Simon Clarke, this article understands *crisis* as a

⁶ Jones 2021.

⁷ Rodrik 2015.

⁸ Davis 2006.

⁹ Smith 2019, p.349.

continuous tendency 'that underlies the permanent instability of social existence under capitalism'.¹⁰

As I intend to argue, Marx's critique sheds light on both the permanent insecurity that underpins employment relations in capitalism and their secular degradation. As such Marx's understanding of technological change operates on two levels. *Firstly*, it intends to show that in advanced capitalism redundancy is the basis on which employment expands. Capitalist development involves the continuous expulsion *and* attraction of labour thereby subjecting workers to a perpetually insecure existence from which they have no escape. *Secondly*, Marx's critique suggests that the constant insecurity experienced by workers is intensified by capital's historical dynamic. Not only the labouring population is denied any form of security, but at the same time the conditions of its own reproduction become increasingly precarious as capitalism matures. The same dynamic of runaway productivity growth that expels labour from production simultaneously undermines the conditions of its reabsorption by *weakening the relative dynamism of the capitalist economy*.

I will begin with an overview of some relevant contemporary theories on automation: the compensation (4.0), malign automation and the productive exhaustion theories. The article will then focus on Marx's understanding of the machine as a social technology that perpetuates workers' economic insecurity. Subsequently, I discuss how capitalism develops against the background of waning labour attraction and intensified labour expulsion because of the productivity dynamics propelled by value.

¹⁰ Clarke 1994, p.218.

Runaway productivity growth secularly tends to weaken the conditions for redundant workers' re-integration in capitalism's productive circuit.

The final section of the essay discusses the political implications of Marx's argument and develops Horkheimer's claim that 'in a false society technology develops wrongly'.¹¹ Although technology appears as a toil-lightening instrument that increases the wealth accessible to society, its capitalist use simply reinforces the compulsion to overlabour for the sake of survival. Yet the relentless development of productivity under capitalism inadvertently generates the possibility of organising life otherwise. From the perspective of a post-capitalist society, dead labour can turn into a truly labour-saving artefact that liberates time for the pursuit of individually and socially purposeful goals.

From compensation to stagnation

Mainstream economic theory has traditionally defended the view that although new production technologies might displace certain categories of workers in the short run, they will eventually compensate these temporary dislocations with future rounds of job creation.¹² Marx termed this view the 'compensation theory'.¹³ The *compensation theory* is not a distinct theoretical body but a set of arguments that point to the existence of various spontaneous and countervailing market mechanisms that tend to offset the jobs initially lost to technological change.

¹¹ Adorno and Horkheimer 2011, p.36.

¹² Vivarelli 2014.

¹³ Marx 1976, p. 565.

The compensation theory has been defended by political economists since the 18th century. A classic compensation mechanism advanced by early political economists such as Sir James Steuart or Nassau William Senior is that by reducing the price of goods, process innovations – that is new production methods – inevitably raise the demand for them and consequently incentivise firms to expand output and employment.¹⁴ Alternatively, John Ramsay McCulloch argued that lower prices allow people to expend their freshly expanded purchasing power on entirely different goods leading to job creations in *new* production lines.¹⁵ Another mechanism occurs ‘via new investments’.¹⁶ For John Stuart Mill for instance, the increased profits and savings accrued from the application of new machinery automatically generate the funds that will sustain the pursuit of new employment-creating investments.¹⁷ A similar effect can be achieved through the emergence of new product innovations whereby completely new branches and sectors emerge where displaced workers can be absorbed.

In short, the logic of the traditional compensation theory is that the application of machinery itself generates powerful market incentives to expand production and employment thereby offsetting the disamenity experienced by workers displaced by machinery. Indeed, while certain job categories could temporarily suffer, society will not see its aggregate employment opportunities diminish. At worst, the displaced workers will have to switch occupations.

¹⁴ Dankert 1940, p.156

¹⁵ see Ishii 2018

¹⁶ Vivarelli 2014, p.125.

¹⁷ Mill 1909, p.98

Nevertheless, given the real temporary dislocations and the difficulty of workers to abruptly switch from one line of employment to another, some political economists suggested that social efforts should be mobilised to 'alleviate and repair these inevitable but transitory evils'.¹⁸ John Stuart Mill also called legislators to mitigate the occasional disruptions caused by mechanisation by slowing down its pace or providing some sort of care for those displaced.¹⁹

In the era of AI and machine learning, the compensation theory has found new defenders. The new generation of compensation theorists is particularly sceptical of apocalyptic media discourses predicting an imminent wave of technological disruption that will displace unprecedented swathes of workers. According to *compensation theory 4.0*, just like previous technological revolutions did not lead to mass worklessness in the long run, there is nothing to suggest that computing and robotic technologies will.²⁰ Automation does come with a powerful displacement effect which is however effectively checked by various tendencies and mitigating factors that offset employment losses. For instance, Willcocks advances 8 qualifiers that significantly undermine the plausibility of robo-apocalyptic predictions.²¹ In particular, his list includes two important objections: a) existing projections tend to underestimate the number of new jobs that will be created as a result of automation, and b) automation is more

¹⁸ Cairnes 1874, p.257.

¹⁹ Mill 1909, p.99.

²⁰ Lund and Manyika 2017; Autor 2015.

²¹ Willcocks 2020.

likely to involve the transformation of the tasks associated with different jobs rather than the wholesale destruction of existing occupations.²²

Crucially, compensation theory 4.0 also sheds light on the complementary effect of machinery on human labour.²³ Alarmist automation predictions often miss the fact that machines do not only eliminate certain tasks but often assist humans in performing new or existing ones. As such, an often neglected compensation mechanism is that automation may inadvertently increase the demand for skills uniquely possessed by humans.²⁴ Automation technologies generate the need for new tasks that machines or AI cannot easily replicate as they require higher intelligence skills and situational knowledge that place humans at an advantageous position.²⁵ The expansion of new tasks generates a 'reinstatement effect' that raises the demand for labour and cancels out the displacement effect initially propelled by automation.²⁶

Modern compensation theorists argue that individual workers will still have to adjust to the new technological environment of the 4IR. For compensation theory 4.0, government intervention should mediate this adaptation by combining education and social policies to ease the pain of transition. Temporary disruptions to workers' lives are inevitable and in fact government policy must be mobilised to 'ameliorate the harshest effects of dislocation'.²⁷ For instance, public retraining programs can help people upgrade their skills and more easily transition to the new jobs created by

²² Willcocks 2020, pp.289-290.

²³ Skidelsky 2020, p.20.

²⁴ Willcocks 2020, p.292.

²⁵ Autor 2015, p.11.

²⁶ Acemoglu and Restrepo 2017.

²⁷ Mokyr et al. 2015, p.47.

digital technologies.²⁸ This call to action can be traced back to earlier compensation theorists who, as already suggested, also deemed occasional state interventions necessary to smooth out the workforce's adaptation. Despite the centuries that separate them, compensation theorists of the AI era demonstrate significant continuity with those that Marx grappled with in his work.

A second strand of the literature, the *malign automation* view, argues that the application of new machineries can reach a tipping point where the demand for labour will stagnate or decline. This literature also has a long lineage that can be traced back to at least David Ricardo. Ricardo famously revised his thoughts in the chapter on machinery in the third edition of *Principles of Political Economy* and acknowledged its potentially harmful effects on labour. Where he previously argued that technological change would equally benefit the condition of all social classes, his revisions now suggested that 'the substitution of machinery for human labour, is often very injurious to the interests of the class of labourers'.²⁹ In fact, Ricardo argued that in certain cases employers' profits could keep growing after the implementation of new machines without being followed up by equivalent increases in job-creating investments.³⁰ Such fears are therefore not new and have recurrently made their appearance in economic discourse whenever new technologies or recessions raised doubts about the economy's capacity to even out job destructions with job creations. Similar concerns resurfaced during the Great Depression for instance. Keynes

²⁸ Pissarides 2011.

²⁹ Ricardo 1911, p.264.

³⁰ Ricardo 1911, p.266.

characteristically pointed to the emergence of a 'new disease... technological unemployment' as new technologies outpaced the rate at which the economy could 'find new uses for labour'.³¹ In other words, this literature points not simply to the short-term harms experienced by workers in the process of mechanisation, but to the prolonged and secular impact that new technologies can have on the demand for labour if left to the market's spontaneous workings.

Today, the malign automation view highlights the unique character of the unfolding 4IR. In its modern guise, this literature contains a more mainstream branch that is mostly concerned with the palliative measures needed to adapt society to the coming technological Armageddon³² as well as a more radical branch that sees the 4IR as an opportunity to move beyond capitalism.³³ According to such commentators *this time, this wave* of technological change is in fact different and more disastrous for people's employment. It is not only manual and routine work that is threatened by the robotic and digital technologies of the 4IR. They also threaten cognitive work that has traditionally been 'the exclusive province of humans'.³⁴ Traditional compensation mechanisms that might have been at play in the past, are impaired by the sheer pace and scale of contemporary technological change which destroys jobs at a much faster rate than they are created. Ultimately, the future can take a dystopian character unless humanity takes radical social measures to prevent the social pain that the unfettered destruction of jobs will bring about. Such measures range from

³¹ Keynes 1930, p.364.

³² Brynjolfsson and McAfee, 2014; Ford, 2015.

³³ Mason 2015; Srnicek and Williams 2015.

³⁴ Makridakis 2017, p.47.

implementing a UBI to mitigate the mass decimation of jobs,³⁵ to the redistribution of wealth, all the way to demands to slowing down automation through, for instance, tax incentives to hire labour instead of machines.³⁶

A third strand of the literature, the *productive exhaustion* account, has shifted attention from the nature of modern technologies themselves, to the global macroeconomic climate in which they are implemented. In doing so it has offered a much more grounded assessment of the current crisis of work.³⁷ For instance, Benanav suggests that the main trend in post-industrial employment patterns is not technologically-induced mass unemployment but widespread underemployment resulting from chronic economic stagnation.³⁸ According to this view, the current crisis of work has its roots in the 1970s when the global economy experienced a crisis from which it never fully recovered. As overcapacities built up and profitability fell in the manufacturing sector, output levels dropped and the sector employed a decreasing fraction of the available workforce. Manufacturing – traditionally considered as the growth engine of the national economy – ceased to perform its developmental role dragging countries down a path of slow growth. This ‘long downturn’ was interrupted only by short and debt-sustained booms, themselves quickly ended by busts and followed by feeble, jobless recoveries.³⁹ As output growth decelerates, too few jobs are ultimately created to compensate for technologically-induced job losses.

³⁵ Stern and Kravitz 2016.

³⁶ Estlund 2018.

³⁷ Benanav 2020; Pitts and Dinnerstein, 2021; Smith, 2020; Jones 2021.

³⁸ Benanav 2020.

³⁹ Brenner 2006.

With the ‘dilapidation of the industrial growth engine’, workers sought ‘refuge’ in the service sector where the mechanisms of underemployment fully unfold.⁴⁰ In the labour-intensive service sector productivity gains are relatively lower and activities are less conducive to mechanisation. Given the absence of high productivity levels, services can be cheapened only by compressing wages which constitute a relatively large cost for employers. As such the service sector experiences a pattern of growth that is fundamentally different to that of manufacturing as companies can expand demand for their services mainly by containing wages, intensifying work or employing workers on flexible and insecure contracts.⁴¹ Chronic manufacturing overcapacities and an abundant cheap labour force have combined to diminish firms’ incentives to invest in relatively expensive new technologies encouraging them instead to rely on practices of underemployment and labour intensification.

According to the productive exhaustion argument, rather than the once-and-for-all elimination of jobs, the reality of the post-industrial economy is a continuous nightmare for the majority of the working population: an abundant proletariat endlessly competing for scarce and temporary jobs that offer neither decent pay nor security. While this article shares the conclusions of the productive exhaustion argument, it proposes to ground the tendency towards stagnation and low labour demand in a *wider theoretical framework that seeks to capture the directional dynamic of capitalist production*. This article situates the current moment within the

⁴⁰ Benanav 2020, p. 60; see also Smith 2020, pp. 114-128.

⁴¹ Benanav 2020, 59-60.

longer-run unfolding of the capitalist economy's developmental arc.⁴² As I intend to argue, runaway productivity growth both accelerates the redundancy of workers *and* undermines the capacity to productively re-employ them by inadvertently weakening the relative dynamism of the economy. Indeed, it is important to note that economic stagnation is not the opposite of productivity growth but its logical outcome.⁴³ Low labour demand, is not simply the outcome of an inadequate macroeconomic conjuncture but more fundamentally a tendency inscribed within the logic of capitalist growth itself.

Perpetual insecurity

As argued earlier, mainstream economic thinking views the social pain spread by the application of new production processes as a mere 'temporary inconvenience'⁴⁴: periods of change at first provoke painful social dislocations that are quickly offset by the creation of new jobs elsewhere, the cheapening of goods and increases in living standards. According to such thinking, the temporary restructuring of employment is only a small price to pay in view of the long-run benefits brought about by new technologies. Marx offered a powerful critique of the compensation theory of classical political economists, arguing that rather than a series of temporary inconveniences, the condition of the working classes' reproduction is instead defined by a form of *perpetual* instability.

⁴² See also Clover 2018.

⁴³ Moraitis and Copley 2021.

⁴⁴ Marx, 1976, p.557.

In Chapter XV, Section 3 of *Capital Volume I*, Marx begins his critique of machinery by showing that what is a temporary disruption from the perspective of economic theory, is a process that leaves lasting social scars within the affected communities. Once machinery replaces workers within a production line, it spreads pauperism, unemployment and intensified exploitation. However, Marx's critique goes subsequently much further than simply enumerating the social ills accompanying the introduction of machinery. What it suggests is that *instability, precarity and insecurity are the modes in which wage-labour is experienced by the class of workers as a whole*. Waged work is not defined by a norm of stability and economic security that is then occasionally and temporarily disrupted by waves of technology-led job displacement that eventually compel workers to simply switch career paths. Instead, perpetual instability is what defines waged-work once large-scale industry becomes the dominant form of production. Process innovations are in fact 'always on the point of making him [the worker] superfluous.'⁴⁵

In the *Economic Manuscripts of 1861-1863*, Marx explains with great precision how workers' redundancy is an inescapable aspect of machine-based production. The main distinction that Marx draws between large-scale industry and modes of augmenting productivity that precede the introduction of machinery (e.g. simple cooperation and the division of labour) is that only in the former does 'the *rendering* of the *workers superfluous* emerge as an *explicit and conscious tendency*'.⁴⁶ While

⁴⁵ Marx 1976, p.562.

⁴⁶ Marx 1994, p.25, emphasis in original.

previous forms of organising production raised productivity by either increasing the efficiency of the existing workforce or by actually expanding it, machine-led production augments productivity precisely by expelling workers from production.⁴⁷ Workers caught in the grip of advanced capitalism, are constantly on the brink of redundancy. In modern industry, technological change acquires a runaway form that continually upsets the prevailing technical division of labour and alters the labour needs of different sectors. The inconvenience for workers is not transitory, it is perpetual.

Wherever it is introduced, machinery reduces the time required to produce a given sum of commodities precisely by diminishing the absolute number of workers previously required. For instance, as Marx emphatically notes, the reduction in the workforce will not be spontaneously compensated by the creation of equivalent or more jobs in the machine-making industry. If this was the case then 'the product of the machine would be as dear, or dearer, than the product of the manual labour' since the cost of the machine would be at least equivalent to the wages paid to the original workers.⁴⁸ There would be no incentives for firms to invest in new machinery in the first place.

The introduction of new machines is thus inevitably accompanied by 'the annihilation, for a constantly fluctuating section of workers, of their only commodity – *labour capacity* – which is posited as superfluous by machinery'.⁴⁹ At different points in time, new machines will displace different sections of the working class, yet it is precisely because the groups made

⁴⁷ Marx 1994, pp.26-27.

⁴⁸ Marx 1976, p.570.

⁴⁹ Marx 1994, p.28, emphasis in original.

redundant are 'constantly fluctuating' that security is stripped away from workers' existence.⁵⁰ What might be temporary for some is a permanent threat to the whole labouring class. *To be a wage labourer is to be replaceable, expendable and permanently insecure.*

Marx's analysis of the machinery reveals the two-sided character of technological development under capitalism. It simultaneously involves the unprecedented development of social productivity, as well as the endless destitution of individuals.⁵¹ In capitalism, technical progress is inseparable from indigence. As poignantly described in *Chapter XV*, the historical emergence of machine-based production involved the unprecedented development of productive forces *as well as* the complete immiseration of handicraft workers unable to keep up with the productive levels of large-scale industry. The introduction of the sewing machine in the clothing industry or the power loom in the textiles sector, condemned those converted from 'busy workers into paupers' to a life of 'chronic misery'.⁵² In the inverted world of capital, 'death from starvation' spread in tandem 'with the extension of machine sewing'.⁵³ From birth, the machinery is stamped with a twofold character: it is a *technical* artefact augmenting industrial productivity and a *social* technology that assists capital's quest for increased profitability by making workers redundant.

In pauperising *en masse* those populations not yet subsumed under capitalist production, the industrial revolution foreshadowed the state of things to come: with the rise of modern industry the working class becomes

⁵⁰ Marx 1994, p.28.

⁵¹ Postone 1993, p.35.

⁵² Marx 1976, pp.575fn, 557.

⁵³ Marx 1976, p.601.

permanently subject to the fluctuations and vagaries of machined-led productivity growth. Machine-led production turns what was a unique historical event into a recurring reality of advanced capitalist production. Since advanced capitalism is founded on the constant modernisation of the production tool, what is considered by political economists as a “temporary” effect is really permanent’.⁵⁴ Destitution and redundancy come to define machine-based production once it becomes socially dominant.⁵⁵

Under advanced capitalism, the jobs displaced by machinery can only be recuperated if there is an absolute extension of production. As Marx suggests, while

qualitative change in machine production continually removes workers from factories...the purely *quantitative extension* of the factories absorbs not only the men thrown out of work but also fresh contingents of workers.⁵⁶

Job losses due to mechanisation could eventually be offset if more of these highly mechanised factories are built until the glut in the labour market disappears. It is however not sufficient that investment grows; there must be a ‘proportionally much more rapid growth in the amount of capital invested in factories’ if employment levels are to be restored to their previous levels.⁵⁷

Yet the process of reabsorption is complicated and interrupted by the violent ups and downs of the market. Indeed, Marx notes, it is in the erratic

⁵⁴ Marx 1976, p.558.

⁵⁵ Marx 1976, p.583.

⁵⁶ Marx 1976, p.583, emphasis added.

⁵⁷ Marx 1976, p.583.

fluctuations of the business cycle that the permanent instability of employment relations becomes most evident. At first, improvements in productivity create the conditions for expanding employment by cheapening goods, allowing demand to grow and consequently incentivising businesses to expand output. Progressively, this 'feverish' expansion of production meets the limits of the market and gives way to 'overproduction, crisis and stagnation' thereby holding back the pursuit of job-creating investments.⁵⁸ Employment levels are subject to the violent fluctuations of the industrial cycle and as such, 'uncertainty and instability...becomes a *normal* state of affairs' for workers.⁵⁹

Overall, for Marx, capital both repels and attracts the worker. Ceaseless market competition for increased labour productivity produces an instable business cycle where the conditions for expanding employment turn out to be the source of labour displacement. The tragedy for workers is precisely that their fortune is determined by processes lying completely beyond their control. The ebbs and flows of the industrial cycle determine the employment and redundancy of workers and ultimately their capacity to put food on the table. Their lot hangs on economic movements that they cannot directly influence and whose erratic fluctuations eliminate any form of guarantee and stability from their existence. For the wage-labourer, uncertainty is the only guarantee. Marx ultimately inverts the maxim of compensation theory: economic security is a temporary effect of accumulation while displacement is permanent.

⁵⁸ Marx 1976, p.580.

⁵⁹ Marx 1976, p.582, emphasis added.

The value-form of destitution

In Chapter XV Marx consistently points to the permanently unstable character of employment relations under capitalism, yet, in Chapter XXV of *Capital* on the general law of accumulation, he also draws attention to the secular dynamic that underpins this instability. Over time, as one industrial cycle succeeds the other, the size of the surplus population tends to swell because the job losses accompanying qualitative technical change outweigh the employment-raising effects of quantitative extension. The working class experiences the insecurity of the labour market at an increasing frequency and duration as capital struggles to accumulate fast enough to guarantee adequate levels of labour demand. This secular dynamic is rooted in the logic of the value-form and crystallises in the changing value relations between variable (i.e. labour power) and constant (i.e. means of production and raw material) capital.

In a now classic piece titled *Misery and Debt* that appeared in the second issue of Endnotes, the authors aptly defend the secular character of Marx's general law. In their words: 'product innovations have to emerge at an accelerated rate to absorb the surplus thrown off by process innovations', yet at the same time 'an acceleration of product innovation itself gives rise to an acceleration of process innovation'.⁶⁰ They effectively highlight the peculiar character of capitalist growth where increased labour displacement

⁶⁰ Endnotes and Benanav 2010, p.49.

is accompanied by inadequate levels of quantitative extension or product innovations. The authors attribute this dysfunctional pattern of development to the permanent employment-displacing effects of all new technologies applied in production. As they suggest, the ‘secret’ behind Marx’s general law of accumulation is that ‘*labour-saving technologies tend to generalise, both within and across lines*’.⁶¹ My argument here confirms the Endnotes position, but also seeks to advance the conversation by emphasising more the value relations at the root of redundancy in order to subsequently defend the ‘secular’ crisis argument against its critics (see section on *Capital Directionality*). The value-form of labour’s products not only spurs a process of runaway labour-displacing technological change, but also hinders the future growth of capital. There is in other words, a tendency towards *waning relative dynamism* that manifests capital’s growing difficulty to reach the rates of expansion required to keep the absolute demand for labour growing or even stable.

As Marx establishes it, the value of given commodities is determined by socially necessary labour time – the labour time required on average for their production. Individual firms will introduce new technologies in the workplace only as long as it gives them a palpable advantage in competition. The technologically more advanced firms can reduce the individual value of their commodities below their social average yet still realise a higher-than-average profit by selling them above their individual value. Once the use of a new machine is generalised across a sector, socially necessary labour time falls and ‘the value of the machine-produced

⁶¹ Endnotes 2010, p.31, emphasis in original.

commodity regulates the social value of all commodities of the same kind'.⁶² To avoid ruination, all producers must therefore meet their sector's productivity standards and produce according to the rhythms dictated by the new industrial technology. Since such technologies are introduced to reduce production costs, the exchange value of the newly introduced machinery will be less than 'the value of the number of labour capacities whose employment is made unnecessary by machinery'.⁶³ Machinery thus permanently replaces a part of the labour-power previously employed. Each portion of capital will employ a fraction of its former labour force since the capital previously exclusively invested in labour power will now be exchanged for machinery, raw materials and energy. As this process is replicated across the economy, the organic composition of total social capital – that is the ratio of the value of constant to variable capital when it reflects technical changes in production – inevitably grows. With each new level of social productivity 'a smaller amount of labour sets in motion a greater amount of capital'.⁶⁴

In other words, as Marx suggests, the long run tendency of capitalist development is indeed to diminish the share of variable capital relative to total capital. This adversely impacts labour demand since productivity growth tends to produce a growing chasm between the size of the total capital invested and the size of the workforce that powers it. Labour demand, which is a function of the variable component of capital, tends to decline as social productivity grows and living labour is replaced by

⁶² Marx 1976, p.531.

⁶³ Marx 1988, p.323.

⁶⁴ Marx 1994, p.15.

machinery. As Marx suggests, 'the demand for labour...falls relatively to the magnitude of the total capital, and at an accelerated rate as this magnitude increases.'⁶⁵ Accumulation expands the total social capital but *does not result in equivalent increases in the demand for labour* since it induces a simultaneous decline in the variable share of capital. As succinctly put by Marx in the French edition of *Capital*: 'the lower the relative magnitude of variable capital already is, the faster must be the rate at which total capital accumulates'.⁶⁶

Consequently, *the growth of capital and the demand for labour move at different cadences* as the latter grows at proportionally slower rates with each expansion of total capital. Their movement becomes increasingly asynchronous as social productivity grows. To ensure an absolute growth in the labour employed, capital must constantly redouble the speed at which it expands and grow at a higher rate than the rate at which variable capital declines.⁶⁷ Since each new addition in total capital will be more constant-capital-intensive, proportionately greater and greater amounts of capital must be mobilised to generate just as much labour demand as a smaller magnitude of capital did before. But since new waves of capital accumulation also bring about powerful productivity-enhancing transformations in production, they also tend to diminish capital's relative needs in labour power thereby intensifying the competition for jobs among those recently made redundant but also new labour market entrants.⁶⁸

Accumulation continuously expels labour from production through the rising

⁶⁵ Marx 1976, p.781.

⁶⁶ Marx 1989, p. 552, my translation.

⁶⁷ Marx 1989, p.550, my translation.

⁶⁸ Marx 1976, p.782, 793.

organic composition of capital, but capital's ability to absorb additional workers is also reduced at each stage of its development.⁶⁹

As some authors have already pointed out, Marx's additions in the corresponding chapter on the general law of accumulation in the 1875 French edition of *Capital* articulate even more clearly the secular difficulty in re-absorbing redundant workers.⁷⁰ There he suggests, the mechanism by which quantitative extension compensates for qualitative change operates 'in the midst of shake ups and in conditions that become increasingly difficult to fulfil'.⁷¹ Indeed, Marx describes various developments whose employment effect can counteract the rising organic composition of capital including: the employment effects induced by the expansion of labour-intensive sectors adjacent to mechanised industries, the development of new branches of production and economic booms. He subsequently goes to show that the efficacy of each of these factors tends to wear off over time: adjacent industries eventually become more capital-intensive and absorb less labour, new branches of industry too become mechanised or subject to centralisation, while economic booms tend to end sooner since industrial markets become more quickly subject to crises of overproduction as productivity augments.⁷² In other words, the intervals of quantitative extension necessary to counterbalance technical changes in production become briefer and less effective allowing a more frequent accumulation of redundant workers and shorter window periods in which this dismissed

⁶⁹ Cleaver, 2019, p.453.

⁷⁰ Clarke, 1994; Graßmann 2018.

⁷¹ Marx 1989, p.551, my translation.

⁷² Marx 1989, pp.552-553

workforce can be re-absorbed.⁷³ The secular impact of technical change on the demand for labour is aptly described by Marx: 'as it progresses, capital accumulation redoubles the intensity of the forces that tend to diminish the relative size of variable capital and weakens those that tend to augment its absolute magnitude'.⁷⁴

Crucially, the overarching trend towards greater levels of labour superfluity does not exclude the possibility that labour shortages and wage hikes can temporarily appear in different economic sectors. For instance, the recovery from the Covid-19 recession witnessed important shortages in retail, hospitality and food services. Similarly, skill shortages (e.g. STEM skills) might also emerge as a result of technological transitions and the growth of new sectors. Yet Marx presents such fluctuations in wages as 'local oscillations' that must not be confused with the 'laws that regulate the general movement of wages, or the ratio between the working class...and the total social capital'.⁷⁵ In other words, such fluctuations do not alter the organic composition of capital, but merely reflect the changing sectoral structure of the economy. The supply and demand mechanisms of the labour market regulate the distribution of workers across the division of labour, but the aggregate quantities of labour power needed for the profitable reproduction of social capital are determined by its organic composition.

In sum, the compensatory effect of quantitative extension tends to wear off over time since after each qualitative alteration in the organic

⁷³ Marx 1989, p.553

⁷⁴ Marx 1989, p.553, my translation

⁷⁵ Marx 1976, pp.791-792.

composition of capital, accumulation must expand at unprecedented levels just to retain the same absolute levels of employment as before. Value propels a dynamic of runaway productivity growth that, with continuous certainty, diminishes the relative amount of labour power needed in production while inadvertently rendering increasingly precarious the conditions necessary for the re-absorption of those made redundant.

Waning dynamism

In addition to constantly exceeding its past performance and accumulating at ever- faster rates, capital must also defy its own tendency towards waning relative dynamism if mass worklessness is to be avoided. Over time, the dynamism of capital accumulation tends to decelerate relative to the levels necessary to ensure sustained growth in the demand for labour. The notion of a waning relative dynamism does not suggest that capitalism is declining as such, but that the standards needed to reproduce past levels of prosperity are increasingly higher and more difficult to reach.⁷⁶

Aaron Benanav's work offers a persuasive account of the relationship between global economic stagnation and stubbornly low levels of labour demand. Benanav draws on Brenner's work which locates the sources of contemporary stagnation in the persistent overcapacities plaguing the manufacturing sector since the 1970s. However, 'to complete the account [Brenner's] and render it theoretically consistent', Benanav argues,

⁷⁶ Moraitis 2021.

Baumol's service sector economics are necessary.⁷⁷ As Baumol argues the productivity differentials between manufacturing and services generate a secular tendency whereby the latter tend to get more expensive over time relative to manufactured goods. As a result, for Benanav, most of the national income generated will be spent on services rather than industrial goods thereby weakening industry's capacity to act as an engine of growth. However, I would argue that the demand shift itself is underpinned by a dynamic that cannot be explained through Baumol's framework alone. Rather it is the tension between value and use-value highlighted by Marx that offers a better way of 'completing' the theory of capitalism's generalised slowdown. This tension is rooted in the basic social forms of capitalism and cannot be remedied by shaking out the overcapacities of manufacturing or increasing the productivity of services but may only be temporarily deferred.

To understand this tension, it is important to distinguish between two different conceptions of productivity. In the first, productivity is measured in terms of the monetary output generated per unit time and is the conventional measure among economists. In the second, the one Marx adopts and relevant for my argument, productivity constitutes a measure of the use-values produced per unit time.⁷⁸ With each rise in social productivity (in the latter sense) the same amount of value as before is now spread across a larger number of commodities. The growth of productivity produces an irreversibly growing disjuncture between the use-values produced and the

⁷⁷ Benanav 2023, p.71.

⁷⁸ As Lohoff and Nübold (2023) point out this contrast is not sufficiently problematised in Benanav's account. For an elucidating discussion of the tension between the two forms of productivity measurements see Smith 2020, pp.84-87.

value they represent: each hour of social labour generates more and more use-values but does not become more productive in value terms.

This dynamic complicates the valorisation of capital both from the supply and demand side. On the one hand, the development of productivity cheapens goods and, in the long run, squeezes the profits contained per unit of material wealth. Firms are subsequently compelled to inundate the market with an ever-growing amount of goods just to remain as profitable as they used to be. On the other hand, as Marx puts it, 'in proportion to the growing volume of products, the difficulty of utilising the labour time contained in them also grows, because the demands made on consumption rise.'⁷⁹ The physical consumption of goods must also continuously accelerate since the value of the same shopping basket tends to fall in the long run. In other words, though the production of commodities must continuously accelerate, it is increasingly unlikely to be met by levels of demand sufficient to ensure rising profitability.

Capitalist development is thus underpinned by a tendency towards overproduction as the drive to increase profitability disregards the market's limits.⁸⁰ Within individual sectors, this tendency appears in the form of intensified competition for limited market shares. The pressure of competition weighs increasingly heavier on individual firms which might either quit the market altogether or more likely hang on, attempt to maintain their margins by cutting costs and thereby exacerbate the sector's overcapacities. Alternatively, investors might move their capital in relatively

⁷⁹ Marx 1973, p.422.

⁸⁰ Clarke 1990/1991, p.454.

more profitable sectors, but in doing so they risk generating new overcapacities there. The same dynamic of runaway productivity growth that propels capital's dynamism results in a spiral of overproduction and falling profitability that ultimately disincentivises the pursuit of new investments. Waning dynamism is thus the inadvertent consequence of the system's in-built pressure to continuously raise productivity to ever-higher levels.

As global competition intensifies, larger capitals gain a palpable advantage in the battle to cheapen commodities. As such the tendency towards what Marx calls the centralisation of capital intensifies. With centralisation strategies, existing masses of capital are combined to achieve economies of scale and productivity increases without the expenditure of additional capital and hence without expanding the workforce. Yet at the same time centralisation 'speeds up those revolutions in the technical composition of capital' which tend to diminish 'the relative demand for labour.'⁸¹ By significantly raising entry barriers in their sectors, centralising firms generate enormous economies of scale but reduce competition 'at the cost of removing the source of capitalist dynamism'.⁸² Marx's analysis of centralisation highlights that in a context of intensified price competition, firms might seek to secure their profitability in ways that inadvertently entrenches the tendency towards stagnation and low labour demand.

While centralisation remains relevant, today the profitability of many large firms may no longer rely on winning the battle to cheapen commodities but on escaping ruinous price competition altogether. Falling returns,

⁸¹ Marx 1976, p.780.

⁸² Clarke 1994, p.242.

intensified competition and overcapacities incentivise firms to engage in *defensive or rent-extracting strategies* that seek to insulate them from the pressures of price competition by instead ‘cornering scarce assets in order to drive up their price’.⁸³ Many large firms today rely significantly on strategies of product differentiation and/or on Intellectual Property Rights (IPR) to secure growing revenue streams. Such strategies ‘create scarcity and/or difference to limit the impact of price sensitivity’.⁸⁴ For instance, by capitalising on intangible assets – such as brands, trademarks and patents – lead firms in global value chains can ‘capture’ a larger share of total profits simply by extracting monopoly rents.⁸⁵ They enjoy exclusive rights over the sale of specific products or services thereby insulating their market shares and profits from competitors. But such strategies do not eliminate price competition altogether. Firms enjoying monopoly rents outsource much of the (price-sensitive) production process to supplier firms typically located in the Global South which fiercely compete to secure contracts with them.⁸⁶

Such defensive strategies become indeed increasingly prevalent in our globally stagnating economy. As Schwartz shows the most profitable firms in today’s global economy are those that are able to capitalise on intellectual property rights and extract rents from other firms and users.⁸⁷ Pharmaceuticals, software companies and consumer brands are able to reap the lion’s share of total profits while capital-intensive manufacturing firms and labour-intensive sectors have seen their profit shares significantly

⁸³ Moreno Zacarés 2021, pp.48-49.

⁸⁴ Baglioni, Campling and Hanlon, p.12.

⁸⁵ Baglioni 2020, 2021.

⁸⁶ Kumar 2020.

⁸⁷ Schwartz 2021.

decline in the past decades. Despite their high profitability, IPR-based firms lack incentives to expand investment and employment, while those firms that must invest in order to compete lack the funds to do so and instead rely on a low-paid and precarious workforce to get by.⁸⁸ By reducing the incentive to invest, rent-extracting strategies amplify economic deceleration and undermine the effort to compensate productivity-led job losses through the extension of accumulation.

In his analysis of national innovations systems, Tony Smith aptly observes that the profits of frontier firms get eroded much more quickly today as their competitors are able to swiftly emulate their products thanks to the massive research capacities at their disposal.⁸⁹ The period between the introduction of a new product or process innovation in one firm and the emergence of global overcapacities tends to shrink. New sectors that could otherwise become the drivers of new rounds of growth become saturated at accelerating rates.⁹⁰ In such context, the system of intellectual property rights allows firms to extend the period during which their products remain unrivalled and yield higher-than-average profits.⁹¹ The proliferation of rent-extracting strategies can therefore be seen as a symptom of the growing difficulty to valorise capital the more productivity augments. As capitalism matures ‘there is a growing mass of surplus value to be realised, embodied in an even more rapidly growing mass of commodities’.⁹² The relentless drive to augment productivity creates an increasingly competitive

⁸⁸ Schwartz 2020: 10.

⁸⁹ Smith 2017.

⁹⁰ Smith 2015.

⁹¹ Smith 2017, p.286-287.

⁹² Clarke 1994, p.169.

environment conducive to frequent disruptions, overcapacities and intensified competition. In such context, those firms that can, will seek to secure profitability by other means, including through investments in intangible assets, from IPRs to financial titles.

Countervailing trends and policies can intervene to mitigate the tendency towards overaccumulation and revive economic dynamism. The development of new branches of production, the spatial expansion of capital and geographical restructuring of accumulation – Harvey's spatial fix – or the shakeout of less productive firms from oversupplied markets can potentially clear the way for a new cycle of growth. Similarly, state-led programs of industrial expansion or fiscal stimuli can spur new rounds of growth too. Yet such countertendencies operate in a context where the overarching tendency towards stagnation becomes more difficult to resist. Over time, capitalist growth tends to compress the business cycle leading towards shorter periods of economic booms and longer slumps. As Marx puts it: 'we must infer from the laws of capitalist production... that the duration of cycles becomes gradually shorter'.⁹³ In other words, according to the argument developed here, waning dynamism has a cumulative character whereby past productivity gains weigh increasingly heavier on the present and render the return of sustained growth increasingly elusive.

In sum, the same dynamic of runaway productivity growth that expels labour from production also contributes to the waning relative dynamism of the economy. Capital as a whole must expand at an accelerating pace to just keep employment levels steady. Yet accumulation generates powerful

⁹³ Marx 1989, p.557.

tendencies that drag capital's rate of expansion below the levels necessary to keep the absolute demand for labour growing at the same rate as it used to.

Secular immiseration

Over time, the growing asynchrony between labour demand and capital accumulation tends to exacerbate the size of the surplus population. For Marx, this surplus population refers to the sum of labour capacities that ceases to be necessary for the valorisation of capital and thus becomes superfluous.⁹⁴ With the growth in the organic composition of total capital, the global supply of labour appears to be disproportionately large relative to the needs of valorisation. The formation of a relative surplus population is not only a cyclical phenomenon that brings down the price of labour thereby acting as a lever of new rounds of capital accumulation. It is fundamentally a *secular* tendency that is continuously accentuated by the development of the social productivity of labour.⁹⁵

As Marx suggests, behind every free labourer lies a 'virtual pauper'.⁹⁶ Indeed, the historical *and* logical precondition for the emergence of the proletariat is that people are pauperised, dispossessed and denied direct access to the means of subsistence.⁹⁷ They can survive by becoming waged workers but only to the extent that they are needed for capital's valorisation. Through the application of machinery, a given portion of capital

⁹⁴ Marx 1973, p.608.

⁹⁵ Arzuaga 2019.

⁹⁶ Marx 1973, p.604.

⁹⁷ Denning 2010.

can be valorised with fewer and fewer workers. As production is increasingly automated and workers become relatively too numerous to be re-absorbed through quantitative extension, they become increasingly exposed to the threat of superfluity. Productivity grows, and along with it the amount of real wealth society can produce. Nevertheless, the insecurity of workers intensifies and 'the chances of [their] pauperism increase' at the same time.⁹⁸ The growth in the surplus population denotes nothing more than the accelerated return of people to their original capitalist condition: bare human material without access to the means needed to reproduce itself.

The production of a surplus population is a process whose intensity grows with the development of capitalism. In capitalism's infancy, changes in the organic composition did not bear the same consequences on labour demand, Marx argues.⁹⁹ Indeed, technical progress was relatively slower while quantitative extension – notably the expansion of colonial markets – could more comfortably recuperate job losses and keep labour demand roughly in par with capital accumulation.¹⁰⁰ It is only gradually that the asynchrony between labour demand and accumulation becomes a determining factor in the creation of a secularly growing surplus population.

At the same time, secular immiseration is of course resisted. Labour struggles, for instance, can successfully push governments into developing social welfare policies to ease labour market insecurity. Yet as already argued, the same dynamic that depresses the demand for labour also undermines economic dynamism. In turn, waning dynamism exacerbates

⁹⁸ Marx 1973, p.604.

⁹⁹ Marx 1976, p.785.

¹⁰⁰ Marx 1989, p.555.

the distributive dilemmas facing states. In a context of stagnation and intensified international competition, states are increasingly pressured to direct resources towards the resumption of private investment (through for instance tax breaks, direct subsidies, the promotion of national champions) rather than on expansive welfare programmes. As a result, states often seek to restructure welfare provisions to push the unemployed back in the labour market. Similarly, they pursue policies of flexibilization that facilitate firing and hiring and tend to erode the labour rights previously enforced to protect workers from labour market insecurity. Through such policies, states facilitate the spread of various forms of underemployment and precarity and plays an active role in 'rationing' superfluity across larger layers of the population.

Crucially, the surplus population should not be understood as a sociological category to classify individuals according to their concrete characteristics.¹⁰¹ Rather, the surplus population is a social relation.¹⁰² Much like the category of class itself, surplus population is a social relation that structures the lives of individuals in bourgeois society in highly uneven manners.¹⁰³ It denotes the superfluity of human life relative to the needs of accumulation. As Hadass Weiss suggests, the human redundancy produced by capitalist accumulation 'need not be embodied in any single individual' as it rather 'spreads across the entire social body'.¹⁰⁴ Human superfluity cuts through all proletarians and manifests itself as the

¹⁰¹ see Bonefeld 2014, pp.102-106.

¹⁰² see also Soederberg 2014.

¹⁰³ Gunn 1987.

¹⁰⁴ Weiss 2021, p. 152

superfluity of 'portions of everyone's life-cycle'.¹⁰⁵ With the spread of underemployment, in the form of piecework, zero-hour contracts and precarious jobs, more people risk becoming vectors of greater degrees of superfluity for longer periods of their lives.

The surplus population is therefore not a 'static' empirical category. It is produced by a dynamic process of 'surplusification' that affects the social whole, but impacts individuals or communities across and within countries in highly uneven and variegated ways.¹⁰⁶ In many countries of the Global South surplusification appears as a breaking down of the traditional conception of development as a transition from agriculture to industry.¹⁰⁷ The growing difficulty of industry to act as a lever of development in many countries of the Global South exemplifies well how waning dynamism and technological development intersect. Indeed, even if local industries manage to enter oversupplied manufacturing markets, they have to be so capital-intensive and technologically advanced in order to compete, that their contribution to job creation tends to be very thin.¹⁰⁸ The breakdown of the development paradigm instead compels many individuals to survive in the 'non-capitalist segments of the informal economy mostly through unwaged work'.¹⁰⁹ Surplusification in much of the Global South is experienced as a violent dispossession of the rural population without however a corresponding boom in industrial jobs to absorb it as in earlier waves of industrialisation.

¹⁰⁵ Ibid.

¹⁰⁶ Shaw and Waterstone 2021: 1788; Bernards and Soederberg 2021.

¹⁰⁷ Li 2010.

¹⁰⁸ Diao et al. 2021.

¹⁰⁹ Kesar et al. 2022, p.1260.

Finally, it is important to confront the tendency towards labour superfluity against another megatrend that is shaping global labour market dynamics, namely global workforce ageing. The share of the population aged 65 and over is expected to grow significantly in the coming decades and as a result more and more people will leave the workforce. Will workforce ageing reverse the trend from labour superfluity to labour scarcity? Schematically, the encounter between workforce ageing and labour superfluity can play out in two broad ways. In the first scenario – already unfolding in Japan – workforce ageing further exacerbates wage stagnation and economic slowdown.¹¹⁰ The smaller size of the workforce brings down potential growth rates. In addition, labour shortages and poor demand prospects discourage firms from expanding investment. As growth rates slow down, the result is stronger distributive tensions since fewer resources must now be distributed between the workforce and a growing number of dependents. States face budgetary pressures to economise on pension and healthcare spending and seek to push the elderly back into the labour market for as long as possible. In the second, more optimistic scenario, the smaller size of the workforce is compensated by an extraordinary boost in labour productivity (in the monetary sense) which counteracts the fall in GDP per capita. In fact, existing research suggests that often firms respond to ageing through accelerated automation in order to reduce the share of labour costs or simply confront the scarcity of workers for certain tasks.¹¹¹ Although the complex interaction between labour market

¹¹⁰ Bodnár and Nerlich, 2022.

¹¹¹ Acemoglu and Restrepo, 2022.

dynamics and workforce ageing cannot be dealt in further detail here, none of the scenarios – generalised slowdown in growth and accelerated technological change – seems to resist the tendency toward labour superfluity; they simply feed into it via different channels.

Capital Directionality

Within the Marxist literature, some commentators have shed doubts as to whether capitalist development is necessarily accompanied by a secular tendency towards a growing surplus population. Mau for instance argues that ‘Marx relies on questionable assumptions’ and that this tendency cannot be established on solid theoretical grounds.¹¹² For Mau, the cyclical (re)production of a surplus population is precisely the way by which capital asserts its impersonal economic power upon individuals regardless of any secular tendencies.¹¹³ Heinrich furthermore argues that in the long run, the reserve army would grow only ‘when the redundancy effect of the rise in productivity outbalances the employment effect of accumulation’ which cannot be possibly known in advance.¹¹⁴ Both authors reach similar conclusions as they suggest that the secular growth of the surplus population cannot be established with exact theoretical precision since the relationship between productivity-led job losses and accumulation-led job growth remains indeterminate.

¹¹² Mau 2021, p.20.

¹¹³ Mau 2023, Ch.13.

¹¹⁴ Heinrich 2012, p.126.

Objections such as the above are symptomatic of a wider tension within the Marxist tradition between accounts that see capitalism as driven by a form of directionality, heading towards more intense crises and possibly breakdown and non-directional accounts that share an understanding of crisis as a recurrent or cyclical phenomenon through which capital reasserts its dominance. According to Thomas and Reuten this tension is present in Marx's thought itself. Marx, they argue, initially espoused a secular theory of crisis in the *Grundrisse* while in his later work he subsequently developed a cyclical one where crisis, far from threatening capitalism with collapse, serves as a means of temporarily resolving its inner contradictions and ensuring its future durability.¹¹⁵

More recently, this theoretical tension resurfaced in the debates between Heinrich and proponents of the *Wertkritik* tradition such as Kurz.¹¹⁶ For the latter, capitalism begun its inexorable march toward its final crisis in the 1970s.¹¹⁷ The microelectronics revolution expelled massive amounts of productive labour from production and as a result led to a decline in the 'absolute amount of value, and therefore of surplus-value,' generated in the economy.¹¹⁸ Ever since, capitalism has been artificially kept alive thanks to the massive extension of credit. Unable to generate sufficient amounts of surplus value in production, capital must borrow resources from the future to accumulate. Yet labour, the source of capital's valorisation, has been displaced to such an extent that capitalism will perpetually and increasingly rely on a fragile and crash-prone financial system to defer its own collapse.

¹¹⁵ Thomas and Reuten 2013.

¹¹⁶ For an insightful overview of and intervention in this debate see Janzen 2022.

¹¹⁷ Heinrich 2021; Kurz 2011.

¹¹⁸ Jappe 2014, p.31.

Instead, for Heinrich, crises, surplus populations and financial bubbles are normal aspects of the functioning of capitalism, not signs of its terminal crisis. The end of the post-war boom signalled a return to the 'barbarous' normality of capital that characterised most of its history in most parts of the world.¹¹⁹ Furthermore, Heinrich argues, the *Werkkritik* argument cannot be defended theoretically. The expulsion of labour through new technologies does not necessarily erode profits. Productivity growth also enhances the rate of surplus value while also cheapening constant capital meaning, according to Heinrich, that there is no tendency towards declining levels of valorisation.¹²⁰

What is missing from Heinrich, however, is an account of capitalism's directionality. Arguing that capitalist development is characterised by directionality, is not the same as arguing that it inevitably heads towards collapse. Directionality refers to the pattern of capitalism's growth based on accelerating and quasi-irreversible increases in productivity which in turn bring about 'accelerating transformations of technical processes, of the social and detail division of labour and, more generally, of social life'.¹²¹ These increases in productivity in turn complicate the further accumulation of capital. Production, at the level of society as a whole, becomes more capital intensive, more centralised and quicker to reach the limits of the market. In sum, as capital matures, periods of prosperity and growing labour demand become more difficult to sustain for long. Yet the implication is not that capitalism's final crisis is already underway, but that capitalism's

¹¹⁹ Heinrich 2021.

¹²⁰ Heinrich 2021.

¹²¹ Postone 2004, p.63.

secular tendencies become more difficult to resist. The argument that I have sought to develop here neither shares the non-directionality of Heinrich nor fully espouses the 'final crisis' theory of Kurz. Instead, it shares Postone's view that the trajectory of the capitalist civilisation resembles that of an 'asymptotic curve' where capitalism increasingly flirts with the limits of its reproduction without actually reaching them.¹²²

The production of a secularly growing surplus population is symptomatic of this 'asymptotic' trajectory: it renders people's reproduction through the labour market increasingly uncertain and precarious without ever abolishing the necessity to labour for capital's sake. As already argued, there is indeed both expulsion and attraction of workers. As such, Heinrich is correct to note there is always the possibility that further accumulation will recuperate job losses resulting from changes in the organic composition.¹²³ Yet the tendency for a growing surplus population is not advanced by Marx as a teleological prediction that seeks to establish with mathematical precision the growth of national unemployment rates. In fact, Marx describes the production of surplus a population as an irregular and bumpy process unfolding through bouts of growth and stagnation which tend to blur the line between the occasionally employed and the chronically unemployed. In doing so, Marx seeks to outline the increasingly frequent and intensifying risk of destitution that individuals face as social productivity increases. The argument sketched out does not exclude the possibility that accumulation can compensate job losses even at the most advanced stages

¹²² Postone 2016, p.504.

¹²³ Heinrich 2012, p.126.

of capitalist production. Yet it emphasises that this possibility becomes increasingly slim with time given the sheer scale of the expansion necessary just to maintain existing employment levels. The conditions for labour attraction become increasingly uncertain, feeble and inadequate as capitalism matures.

In practice, this trend suggests that extraordinary policy interventions are needed to modify the declining trajectory of accumulation and somewhat mitigate secular immiseration. In Western economies, even the weak job growth rates of the post-2008 recovery were sustained by unprecedented liquidity injections that led to – until recently – historically low borrowing rates. Central banks' loose monetary policies have enabled the multiplication of so-called zombie firms. These are firms that do not make sufficient profits to service their debt let alone expand and instead rely on the continuous existence of low interest rates to get by. Cheap credit, therefore, holds back a massive devaluation of capital that could push unemployment to Depression-era levels. In doing so, states inadvertently lock-in conditions of low dynamism, since, in principle, devaluation could spur a fresh cycle of accumulation. Yet the longer accumulation is supported by credit, the more politically impossible becomes a future devaluation 'the manifestation of which will be ever the more severe'¹²⁴

The contemporary revival of state-led industrial policies can also be interpreted as symptoms of the global economy's entrenched stagnation.¹²⁵ As Alami and Dixon document, the growth of 'muscular forms of statism'

¹²⁴ Bonefeld 1996, p.200.

¹²⁵ Merchant 2023.

manifests in the spread of techno-industrial policies, state-owned enterprises or sovereign wealth funds.¹²⁶ These forms of state activism become increasingly mobilised to further profitable accumulation in the context of late capitalism's tendency towards secular stagnation and intensified competition for access to the higher-ends of global value chains.¹²⁷ In the US for instance, such forms of statism have taken the form of ambitious industrial programs, such as the Inflation Reduction Act and the CHIPS act, which seek to boost the clean energy technology and semiconductor sectors through generous tax credits and state subsidies. Yet commentators already point out, that even in the context of such unprecedented industrial strategies the levels manufacturing jobs created are unimpressive.¹²⁸

Contemporary industrial policy and Quantitative Easing constitute different forms of intervention that express the same underlying reality: that of an economy struggling to deliver some growth in a self-sustained manner and without extraordinary policy efforts.

Accumulating disposable time

For Marx, the same historical dynamic that produces ever-greater levels of human superfluity, also grounds the possibility of organising life otherwise. Indeed, Marx notes a fundamental contradiction between the capitalist use

¹²⁶ Alami and Dixon 2021

¹²⁷ *ibid.*

¹²⁸ Poitiers 2023

of machinery and the possibility of harnessing past productivity gains to liberate people from the burden of 'proletarian labor'.¹²⁹ Compensation theorists completely obfuscate this possibility according to Marx.¹³⁰ As he mockingly notes while in principle a machine is a labour-saving artefact, instead of liberating people from 'drudgery' it actually 'creates new forms of it'.¹³¹ Productivity growth reduces the labour time necessary to produce the means of subsistence, yet people are still compelled to overlabour for the sake of survival. In capitalist society technology indeed develops wrongly as Horkheimer notes.

Productivity growth under capitalism is enabled by the growing preponderance of dead or past labour within the production process, that is work 'already done and stored up for future use'.¹³² The more intensely science and technology is applied in production, the more the contribution of past labour to the total value of the product grows at the expense of direct labour time. Moishe Postone powerfully describes the developmental dynamic by which growing productivity renders the expenditure of labour time increasingly unnecessary as an 'accumulation of historical time'.¹³³ From the perspective of an alternative social order, historical time could constitute the springboard from which humanity liberates itself from the socially imposed necessity to overlabour. Though for individuals living in capitalism historical time is effectively a source of destitution, it could be collectively experienced as an increase in 'disposable time...for all' in a

¹²⁹ Postone 1993, p.28.

¹³⁰ Marx 1994, p.31.

¹³¹ Marx 1994, p.31.

¹³² Hagglund 2019, p.223.

¹³³ Postone 1993, p.344.

postcapitalist society.¹³⁴ The increased surplus labour extracted by capital for the purpose of valorisation represents at the same time an accumulation of potentially disposable time that an emancipated community could mobilise for socially useful goals. Indeed, as Walker argues disposable time is simultaneously 'an element of the explosive contradiction of capitalist accumulation and the prize of emancipation from capitalism.'¹³⁵

For some contemporary post-work theorists, the prize of emancipation is more precisely a world without work where society's technoscientific capacities have created a world of abundance, automated most onerous productive activities and augmented the free time available for everyone to pursue their passions.¹³⁶ In these strands of post-work thinking, free time and abundance depend on the accelerated growth of productive forces.¹³⁷ They tend to view emancipation as 'a technological threshold to be crossed'.¹³⁸ Yet dead labour is not only the 'locus of emancipation' but also the source of environmental destruction and social domination. Historical time is currently crystallised in the concrete form of oppressive technologies that accelerate the pace of work, surveil individuals and degrade nature. To humanise our mode of living in a post-capitalist society we may in fact need to rewind much of that historical time and undo the damage caused by past labour.

The emancipatory potential of dead labour does not lie in the quantitative extension of productive forces or the social repurposing of the

¹³⁴ Marx 1973, p.708.

¹³⁵ Walker 2021, p.83.

¹³⁶ Srnicek and Williams 2015; Bastani 2019; Mason 2015

¹³⁷ For a critique see Saito 2022.

¹³⁸ Benanav 2020, p.89.

exact same technological infrastructure that dominates us under capitalism. Its emancipatory potential can only be realised through a qualitative inversion of the relationship between social individuals and their creative powers. In capitalism, workers become 'dead labour's conscious organs' who work according to the heteronomous rhythms dictated by machinery. To overcome this 'rule of the object over the human, of dead labour over living', social individuals must appropriate the accumulated experience, creativity and knowledge of society and use them to fulfil their consciously formulated needs. Marcuse describes the immanent possibility of such rupture as 'the extension of the realm of possible freedom to the realm of necessity'.¹³⁹ Thanks to the growing role of science and society's technical capacities, productive activity can become subject to the 'free play of the mind' and 'imagination'. The extension of the realm of freedom goes much further than 'the reduction of the working day' and points towards the qualitative transformation of 'socially necessary work' itself.¹⁴⁰

In other words, the reappropriation of past labour does not mean that a post-capitalist society would bring about a more rationalised, efficient and 'perfected labour economy'.¹⁴¹ If communism is 'the negation of existing social relations', then it would also negate the 'reduction of life-time to labour-time' by turning what was previously alienated labour into the 'time of human purposes'.¹⁴² A society that thrives on disposable time is one where the productive activity of individuals is not reduced to the pure expenditure of labour time abstracted from any content and devoid of any

¹³⁹ Marcuse 1969, p.23

¹⁴⁰ Marcuse 1969, pp.23-24

¹⁴¹ Bonefeld 2023, p.141.

¹⁴² Bonefeld 2012, pp.449-450

intended purpose. As Martin Hägglund powerfully suggests in *This Life*, it is a society whose members can ask the 'question of what they ought to do with their time'.¹⁴³ As such, disposable time is not only a quantity of spare time over working time. Disposable time involves an altogether qualitatively different experience of time. Disposable time is the time that freely associated individuals voluntarily invest in activities they deem meaningful. It is the time during which individuals can direct their creative activity towards the realisation of freely chosen and intended purposes.

Conclusion – Marx in the automation age

'Is this time different?' This is the principal question contemporary automation commentators keep asking. Is the unfolding wave of robotics and AI technologies going to obliterate large swathes of human work thus rendering a great share of the working population redundant? Or are we witnessing yet another episode of technophobia nurtured by persistent economic stagnation?

The argument sketched out in this article suggests that this time is both similar and different to previous capitalist periods. There is continuity in so far as the technologies of the 4IR, just like previous technological innovations under capitalism, are de facto instruments for rendering workers redundant. As technologies expel workers, their chances of re-employment fluctuate with the health and vigour of the business cycle. On the other hand, there is also change. As I argued, capitalist development is not simply

¹⁴³ Hägglund 2019.

structured by the cyclicity of the business cycle which at first expands employment opportunities and subsequently pushes people back to the unemployment office until the next round of growth. Rather, capitalist development exhibits a directional dynamic. It manifests an increasing inability to sustainably re-absorb those made redundant by technological change as it matures.

My argument therefore sought to abstract from the specific character of the technologies of the 4IR in order to discern the overarching social dynamic that underpins labour-technology relations in capitalism. In doing so, I sought to recast the current crisis of work as a moment within capital's secular tendency to render people's capacity to reproduce themselves through waged work increasingly precarious. The crisis of work today is not a momentary storm. It is a moment in the permanently aggravating uncertainty that characterises the living conditions of those who depend on the wage to survive.

Marx's analysis of the secular production of a surplus population conveys the image of a society that must permanently, and at accelerating rates, battle against the growing obsolescence of its members' lives. More investment, more credit and more state efforts are needed just to maintain labour demand at steady levels. As capitalism matures, the demand for labour and the growth of capital get irreversibly out of sync. The circumstances and policy efforts needed to raise labour demand to higher levels become 'increasingly exceptional'.¹⁴⁴

¹⁴⁴ Clarke 1994, p.256.

The implications of Marx's critique against the compensation theorists of his era are still relevant for the critique of compensation 4.0. Marx's approach allows us to completely reframe the question of the future of work today. By viewing the compensation of temporary redundancies through future job creations as a blessing, compensation theorists legitimise a form of social existence that is premised on permanent uncertainty and insecurity. Yet as capitalism matures, compensation becomes a losing proposition too, as capitalism matures. For Marx '*les dés sont pipés*' – capital's dices are loaded.¹⁴⁵ The growing discrepancy between the demand for labour and the growth of capital questions the viability of wage labour as a mode of social integration. The more it matures the more capitalism's social forms turn into anachronistic categories inadvertently outgrown by capitalism's ceaseless compulsion to augment labour productivity.

For the majority of the population, salvation does not and cannot depend on the economy's capacity to constantly generate higher levels of employment. The insecurity ingrained in the labour market cannot be overcome through more jobs, better jobs, or even simply fewer working hours. The source of individuals' destitution is their own social activity which takes the form of an 'alien power that dominates and exploits' them.¹⁴⁶ Reclaiming control over our own collective powers and means of subsistence, could lay the foundations of an emancipated society. In such society, individuals thrive on disposable time; the time society has won back from capital, the time former proletarians spent on alienated purposes but

¹⁴⁵ Marx 1976, p.793, emphasis in original.

¹⁴⁶ Marx 1976, p.716.

can now dedicate to the pursuit of common aims and the development of their own aspirations. The quest for disposable time does not mean that all necessary and onerous activities disappear. In the words of Pierre Canjuers and Guy Debord, the liberation from proletarian labour 'does not mean that overnight all productive activities will become in themselves passionately interesting. But to work toward making them so...will in any case be the minimum passion of a free society.'¹⁴⁷ This is a modest yet necessary vision in light of the social and environmental damage caused by a history of accumulation.

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¹⁴⁷Canjuers and Debord 2006, p.391.

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