

Revisiting Marx's Theory of Crisis During the Covid-19 Pandemic

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ABSTRACT: The Covid-19 pandemic has caused millions of deaths and the most devastating economic crisis since the Great Depression. Although it seems clear and straightforward to regard the current capitalist crisis as the direct result of external destructive factors, this interpretation does not touch on the internal essence of the capitalist mode of production, nor can it explain the recurrence of crises throughout the history of capitalism. By contrast, this paper analyses the three dimensions, possibility, necessity and reality, of Marx's theory of crisis, demonstrates that capital accumulation is an internally contradictory process and that the process has been accelerated by time-space compression, and argues that the current economic crisis is the result of the virus passing through accelerated capital accumulation rather than the virus by itself. This analysis demonstrates that 'severity' serves as a crucial fourth dimension of crisis theory.

KEYWORDS: Crisis Theory, The Covid-19 Pandemic, Marxism

Introduction

In the 14th century, the Black Death first broke out in Central Asia and spread to the continent of Europe through the expansion of the Mongol Empire and the prosperous Silk Road trade-route. This long-lasting and far-reaching pandemic not only resulted in a large reduction in the population of Western Europe but also paved the way to the crisis of the feudal mode of production and the rise of the capitalist mode of production. However, six centuries later, when the capitalist world was satisfied with its great progress in economic development, public health and medical science, the new coronavirus has dealt the capitalist mode of production a head-on blow. "COVID-19 caused a global recession whose

depth was surpassed only by the two World Wars and the Great Depression over the past century and a half. ... In all, the global economy is estimated to have contracted 4.3 percent in 2020." (World Bank 2021, 3). The Nobel laureate economist, Joseph E. Stiglitz, pronounced that "in many ways it's far worse than 2008" (Goodman 2020).

Nevertheless, what we have to clarify is whether the crisis caused by COVID-19 has some particularity, which will in turn cause some structural change within the capitalist mode of production, or whether it is, so to speak, just another economic recession. If the former is the case, what is the relationship between a virus and the crisis of a mode of production

in human society? If the latter appertains, what will be the future of capitalism? Will it be, as Goldman Sachs has predicted, that current share values provide an opportunity to slowly add to the risk levels of a portfolio? For those who may be sitting on excess cash and have staying power, with the right strategic asset allocation, this is the time to start incrementally adding to S&P equities (Mossavar-Rahmani *et al.* 2020); or will we witness, in Marxist terms, a sudden and immediate collapse?

In order to address these questions, this article interrogates crisis theory from a Marxist perspective. Concurring with Bukharin (1972, 264), the paper sees that “capitalist society is a ‘unity of contradictions.’ The process of movement of capitalist society is a process of the continual reproduction of the capitalist contradictions.” In agreement with Habermas (1992, 30), the paper considers that the capitalist economic crisis is “‘a system crisis’ marked by ‘dialectical contradiction’ that ‘comes to pass *in terms of* structurally insoluble system contradictions or steering problems.” However, the paper takes an approach that is much closer to Marx’s original formulations and argues that the theory of crisis should be understood as a part of historical-geographical materialism. In other words, although the crisis is indeed triggered by Covid-19, it is the internal contradiction of the capitalist production process and its various manifestations that determine the possibility, necessity, reality and severity of the crisis. Indeed, that everything stopped because the Covid-19 virus attacked only illustrates the fragility of the contradictory capitalist mode of production. The crisis is thus essentially not “Covidian” but capitalist. The intention of this paper is thus not to explain the “Covid crisis” from a Marxist perspective but to offer a new critique of the capitalist mode of production in the Covid-19 pandemic. Moreover, although the programme of vaccination, including booster vaccines, and the appearance of specific medicines will surely alleviate the pangs to which the capitalist mode of production has been subjected, it will at same time exacerbate the spatial inequalities of the capitalist global system and thus deepen the contradictions.

Theories of Capitalist Crisis

A World Bank (2020, xiii) report stated that the “COVID-19 recession is the first since 1870 to be triggered solely by a pandemic.” This view is very much in line with that of many mainstream economists. From their perspective, “it can be argued that in principle crises need never occur; that they do in fact occur may then be attributed to factors which are external to the normal functioning of capitalist reproduction” (Shaikh 1978a, 220). Sunspots, climatic changes, crop failures, and human activities such as war and revolutions are variously conceived as factors responsible for breaking the normal economic cycle. For example, W. Stanley Jevons (1878, 334) argued that the “cause [of a crisis] can only be found in some great and wide-spread meteorological influence recurring at like periods.” In this way, the World Bank’s report is just adding the deadly virus pandemic to the long list of external factors contributing to capitalist crises.

Although it seems clear and straightforward to regard capitalist crises as the direct result of external destructive factors, this interpretation does not touch on the internal essence of the capitalist mode of production, nor can it explain the recurrence of crises throughout the history of capitalism. In consequence, “theories trying to explore the economic crisis from the endogenous factors of capitalist economy emerged. Keynes and Neo-Keynesianism’s cycle theory belongs to this kind of explanation” (Wang and Cheng 2018, 1). Keynes believed that, as a result of changes in human psychological conditions, it was perfectly possible for the aggregate demand for consumption and investment to be insufficient or suboptimal, resulting in “involuntary unemployment.” The market mechanism itself has no inbuilt capacity to keep the economy in a balanced state of supply and demand with full employment (cf. Liu 2010, 178). When the market fails to operate by itself and the state fails to implement effective intervention policies, economic crisis can arise. After World War II, a form of liberalism based on Keynesian theory came to be embedded in developed capitalist states, serving to promote the rapid recovery and growth of the economy (Harvey 2007, 10–11).

Nonetheless, “by the end of 1960s, embedded liberalism began to break down, both internationally and within domestic economies.... Unemployment and inflation were both surging everywhere, ushering in a global phase of ‘stagflation’ that lasted throughout much of the 1970s” (Harvey 2007, 12). Under such circumstances, Keynesian policies, especially fiscal policy and government intervention in the economy, are considered to be no longer effective in stimulating economic development and maintaining the economic and class status of capitalists. As a result of discontent arising from the crisis of capital accumulation, social movements became widespread. A conspiracy of capitalists desperate to rescind government ‘interference’ and quash the powers of trade unions, in favour of a neoliberal doctrine that emphasized individual freedom and the inviolability of private property, is an expected result of this economic and historical circumstance (Harvey 2007, 14–15). “Individual freedom of choice is seen as the fundamental basis of human welfare, with market relations understood as the institution that allows individual choice to drive the economy. The state, by contrast, is seen as an enemy of individual liberty” (Kotz 2015, 11). In this theory, from the perspective of this neoliberalist political economy, the crisis is generated by extensive government intervention in the market.

Both neoliberalist and Keynesian economic theories discuss the economic crisis, or at least “economic fluctuation” (given that some economists deny that there is a crisis tendency in the capitalist mode of production) and the capitalist reproduction cycle, on the premise of not changing the existing market economic institution, which is based on capitalist private ownership of means of production, and restrict themselves to offering policy suggestions to manage the economic cycle and periodic crises (Wang and Cheng 2018, 2). In other words, mainstream economists hold that crisis or “fluctuation” is an abnormal moment of capitalist reproduction. By contrast, Marxists maintain that policies that are implemented to tackle capitalist crises “serve only to postpone the crisis, at the price of intensifying it” (Clarke 1994, 31). For Marxists, “crises are essential

to the reproduction of capitalism” (Harvey 2014, ix). Crisis must be regarded as “the real concentration and forcible adjustment of all contradictions of bourgeois economy” (Marx 1989, 140). However, Marx did not elaborate a “final presentation of his theory of crisis.... Instead, there are various approaches to explain crises” (Heinrich 2013, 15). Among these approaches, theories of overproduction, underconsumption, disproportion, and the falling rate of profit are the most influential. The remainder of this section will consider each of these in turn to explore how a Marxist crisis theory could contribute to the analysis of the current crisis.

Although Karl Kautsky’s theory of crisis is labelled as proto-Keynesian in that it regards crisis as a normal phase in the economic cycle (cf. Clarke 1994, 27), Kautsky argued that overproduction and disproportion lead to crisis. He stated that “the great modern crises which convulse the world’s markets arise from overproduction, which, in its turn, arises from the planlessness that inevitably characterizes our system of commodity production” (Kautsky 2000). This ‘planlessness’ appears as the asymmetry of the total production of society. “The total production of society is not carried on in a systematic way; on the contrary, it is left to each producer to estimate for himself the demand there may be for the goods which he produces” (Kautsky 2000). Later, Kautsky added that the asymmetry appears in not only production and consumption but also different branches of production, “because within a specific zone the capitalist mode of production tends to develop much more quickly in the industrial than in the agricultural sector” (Kautsky 1970, 41).

“Kautsky’s belief in a secular tendency to overproduction as the basis of a general economic crisis” (Clarke 1994, 29) is the main target at which Eduard Bernstein took aim. Bernstein argued that “the secular tendency to overproduction and crisis was countered by” such factors as “the growth of the domestic market,” “the opening of foreign markets,” “the rise of joint-stock companies and the formation of cartels,” “the modern credit system” (Clarke 1994, 29), and the expansion in food production (Bernstein 1993, 96). Therefore, for Bernstein, a “general crisis” will only

come into being as a result of “unforeseen external events,” citing an absence of reasons to believe “that such a crisis is imminent” (Bernstein 1993, 96). This position was generally seen as revisionist, including by Rosa Luxemburg: “Bernstein began his revision of the social democracy by abandoning the theory of capitalist collapse. The latter ... is the cornerstone of scientific socialism. Rejecting it, Bernstein also rejects the whole doctrine of socialism” (Luxemburg 2008, 96).

Luxemburg criticized Bernstein’s betrayal of the working class and historical materialism adeptly: “the phenomena that are said by Bernstein to be the means of capitalist adaptation” – diverse developments such as cartels, the credit system, trade unions, etc., all of which attenuate the contradictions of capitalism and allow capitalism’s continued functioning – are simultaneously held to be “the preconditions and even in part the germs” of socialism, to the extent that they express the “social character of production” (Luxemburg 2008, 46). Bernstein’s argument is, however, contradictory, Luxemburg points out, in that precisely these “same factors render superfluous ... the transformation of this socialized production into socialist production” (Luxemburg 2008, 46) since the transformation from capitalism to socialism, in Bernstein’s eyes, is autonomous. Moreover, they “appear ... as a determined phase of capitalist development, which in the last analysis aggravates the anarchy of the capitalist world and expresses and ripens its internal contradictions” (Luxemburg 2008, 51).

Luxemburg’s own views, however, are not beyond criticism. They essentially appeal to underconsumption – “a general lack of sufficient effective demand to soak up the growth in output that capitalism generates” (Harvey 2003, 138) – to explain the causation of crisis, a view (hardly unique to Luxemburg) that has itself been roundly criticized. On the one hand, Luxemburg held that underconsumption arises “because workers are exploited and by definition receive much less value to spend than they produce, and capitalists are at least in part obliged to reinvest rather than to consume” (Harvey 2003, 138). On the other hand, she argued that the contradiction between productivity and exchange will inevita-

bly lead to crisis because the world market cannot expand without limit and productivity is constantly improving (Luxemburg 2008, 53). It is unsurprising that Luxemburg’s underconsumptionism should be echoed in Paul Sweezy’s emphasis on the role of the market as a critical factor in the transformation of modes of production. There is, in Sweezy’s (1946, 183) opinion, “an inherent tendency for the growth in consumption to fall behind the growth in the output of consumption goods”, which “may express itself in crises or in stagnation, or in both.” Michal Kalecki criticised Luxemburg’s approach. He argued that exports to the non-capitalist external market are offset by imports, which absorb purchasing power in the capitalist market (Kalecki 1991, 456). Bleaney (1976, 187) denied that Luxemburg is an underconsumptionist theorist. He, however, pointed out, that there is a fundamental mistake in underconsumption theories since they “consistently underestimate the role of investment expenditure” (Bleaney 1976, 209). The force of Bleaney’s critique has been lent enormous credibility by the process of capitalist urbanization, especially since World War II. This is the essence of contemporary Marxist geographical and spatial analysis such as that supplied by Henri Lefebvre and David Harvey. Although massive infrastructure construction postpones rather than eliminates crisis, it can indeed absorb surplus capital.

One of the most influential counterarguments to underconsumptionism is disproportionality theory, represented by Tugan-Baranowsky and thence Rudolf Hilferding (cf. Shaikh 1978a, 228; Wang and Cheng 2018, 4). Hilferding (1981, 241) argued that the term underconsumption “has no sense in economics except to indicate that society is consuming less than it has produced,” which would not happen if production were to carry on proportionally. Likewise, as Clarke (1994, 34) elucidates, “the conclusion which Tugan drew was that capital would not face any barriers to the realization of its expanded product, provided only that the appropriate proportional relations between the various branches of production were maintained.” Although Tugan-Baranowsky (2000, 86) admitted that underconsumption is “an obstacle for the realization of social production”, he thought that it is “the

lack of proportionality” that ultimately caused this underconsumption. This is because “total demand for commodities is independent of the ultimate total volume of social consumption” (Miliotis and Sotirpoulos 2007, 232). In other words, overproduction could be absorbed by the expanding demand of the means of production sector rather than consumption by the immiserated proletariat. Therefore, Tugan-Baranowsky’s explanation of Marx’s theory of crisis adopted a Keynesian approach, “according to which a constantly increasing investment demand may always compensate for the lacking demand for consumer goods” (Miliotis and Sotiropoulos, 2007, 227; Vouldis, Michaelides and Miliotis 2011, 440). In this way, from the perspective of disproportionality theory, the reason for crises is the anarchy of capitalism while the ways of eliminating crises is “the parliamentary path to State control” (Shaikh 1978a, 228). However,

crises of this kind, arising exclusively from the disproportionalities of the system, are only an expression of the anarchy of capitalism and not of the exploitative character of the relations of production that underlie this anarchy; they are resolved, therefore, by the redistribution of surplus value, without the production of additional surplus value. (Mattick 1974)

Another counterargument to the underconsumption thesis became popular in the 1970s. Its proponents insisted that “at the very centre of Marx’s account of the crisis-prone nature of capitalism stands what he called ‘the law of the tendency of the rate of profit to fall’” (Harman 1999, 16). For Dobb (1946, 108), for instance, it seemed “clear that Marx regarded this falling profit-rate tendency as an important underlying cause of periodic crises, as well as a factor shaping the long term trend: as a fundamental reason why a process of accumulation and expansion would be self-defeating in its effects, and hence would inevitably suffer a relapse.” This fall in the rate of profit “is caused not by a fall in aggregate demand, but rests, instead, on two different mechanisms: (a) the rising organic composition of capital ... and; (b) the profit squeeze” (Basu 2017, 7) – to which we may add a third, (c) a labour-force

deficit. Scholars tend to pay more attention to the impact of advanced capital on the profit rate, but in fact the profit rate is also related to the rate of surplus value. When a worker’s ability to provide surplus labour falls, for example, when he catches COVID-19, the profit rate decreases as the rate of surplus value decreases.

The earliest and the most common explanation of the theory of falling profit rate held that the main reason for this tendency is the rise in the organic composition of capital, a viewpoint presented by Henryk Grossmann. “Grossmann’s approach gave the Marxian law a mechanistic, determinist interpretation” (Miliotis 1994, 189). He initially accepted Tugan-Baranowsky’s argument that, “if only the proportions laid down by the formula as to the distribution of accumulated capital were observed, accumulation could be infinitely prolonged without crises” (Grossmann 1922). However, he later “abandoned this argument in favor of an account based on Marx’s law of the tendency of the rate of profit to fall” (Kuhn 1995, 176). He distinguished four conditions that influence the number of years until “the absolute crisis”: 1) the level of the organic composition (“The higher this is the smaller the number of years”); 2) the rate of accumulation of constant capital (again, a higher rate accelerates the onset of crisis); 3) the rate of accumulation of variable capital (“whose impact is ... ambivalent”); whilst 4) the level of the rate of surplus value has a “defusing impact,” such that a higher rate postpones the onset of crisis (Grossmann 1992, 98).

Some variation on the theme of a falling rate of profit or idea of a ‘profit squeeze’ had become the main alternative to underconsumptionist theories by the last quarter of the twentieth century (Weeks 1979, 259). This school of thought has its origins in Dobb’s (1946) work, which held that “it is rising wages which ultimately cause crises; a rising organic composition appears in this analysis as an offsetting factor to an already falling rate of profit, not as a cause of the fall itself” (Shaikh 1978b, 246). For Dobb, when the organic composition is fixed, the demand for labour will increase wages. High wages will make capitalists seek out machinery to replace labour, which will

increase the organic composition. This conception of the profit squeeze was well developed in the 1970s by Glyn and Sutcliffe (1972), who argued that organized trade unions in Britain had increased the bargaining power of the working-class, resulting in wage growth outpacing productivity growth. However, as a result of international competition, it is impossible for the capitalist to pass on the increased wage cost by increasing product price, which results in the company's profit-margin being squeezed (Wang and Cheng 2018, 7). Erik Olin Wright summarized the essential argument of the profit squeeze thus:

The relative share of the national income going to workers and to capitalists is almost entirely a consequence of their relative strengths in the class struggle. There is therefore no intrinsic reason for wage struggles to be limited, even in the long run, to demands that real wages rise as rapidly as productivity. To the extent that the working class develops a strong enough labor movement to win wage increases in excess of productivity increases, there will be a tendency for the rate of profits to fall (to be "squeezed" by rising wage bills). Such a decline in profits results in a corresponding decline in investments and thus in even slower increases in productivity. The end result is economic crisis. (Wright 1999, 127–128)

Following in the footsteps of Kozo Uno (1953), Makoto Itoh rebutted profit-squeeze theory, arguing:

If the power of the trade unions to squeeze the rate of profit through class struggle is generalized into the basic factor causing crisis ... it may become difficult to explain the cyclical and acute character of crisis. This basic principle of cyclical crisis should be clarified on the empirical basis of the mid-nineteenth century, when trade unions were not yet generally established (Itoh 1980, 133–134).

To conclude, although all these accounts clearly owe something to Marx and often claim to be a faithful rendering of his ideas, they typically (or tend to) emphasize whatever they think is the most important factor, while other factors are relegated to having only a secondary role. Accordingly, Marxist crisis theory

is fragmented. Perhaps this is because Marx's crisis theory is too scattered, or because Marxists adopt different strategies facing different accumulation structures in different periods, or simply because different authors' subjective understanding of Marx's original work varies – but, whatever the case may be, there is virtually no consensus on what Marx's crisis theory actually entails. Therefore,

for a long time, the discipline of economics could not solve the problem of crisis because economists only looked for the cause of the crisis from a particular field of social economy – production, exchange or distribution. The crisis is generated on the basis of the overall social and economic phenomena, so the crisis cannot be limited to a specific area of the social economy. (Tugan-Baranovsky 1989, 682)

In consequence, we are better advised to consider Marx's own writings carefully.

Marx's Theory of Crisis

Although Marx himself did not have time to systematically elaborate his theory of crisis, there are reasons to believe that the theory of crisis plays a particularly important role in his understanding of the operation of capital and the capitalist mode of production. Marx (1973, 108) regarded crisis, in conjunction with the world market, as one of five sections of his political economy. As we know, Marx's *Capital* is the explanation of the law of operation of the capitalist mode of production. Thus, a Marxist theory of crisis should abandon the insufficiently dialectical character of accounts of the declining profit rate, insufficient consumption, overproduction and disproportion, and analyse the cause of crisis phenomena in the overall process of the capitalist mode of production. From this perspective, the causes of crisis in Marx's theory have three dimensions: possibility, necessity, and reality.

The first premise in considering why crisis is possible is to recognize that capital is a constantly moving process. Marx (1968, 503) stated that "the crisis is precisely the phase of disturbance and interruption of the process of reproduction." Since the

crisis represents the interruption of the process, the normal reproduction of either a single capitalist firm or capitalist social production as a whole is therefore a process. “Value is here the active factor in [this] process, in which, while constantly assuming the form in turn of money and commodities, it at the same time changes in magnitude, differentiates itself by throwing off surplus value from itself; the original value, in other words, expands spontaneously” (Marx 1996, 165). “Value therefore now becomes value in process, money in process, and, as such capital” (Marx 1996, 166). Value alternately takes the form of money and commodity, which means that whether it is expressed as $M-C-M'$ or $C-M-C'$, it must go through two moments of buying and selling. Only by buying variable capital, including living labour, and constant capital such as raw materials and machinery, can more value be produced. At the same time, only after this kind of value is put back on the market can the capitalist really obtain (realize) his part of the value.

Marx believed that the possibility of crisis came from commodity exchange mediated by money. Unlike barter, commodity exchange urges capitalists first to exchange their goods for money, and then use the money to buy materials for reproduction. This dichotomy of purchase and sale arouses what Keynes termed ‘liquidity preference.’

At a given moment, the supply of all commodities can be greater than the demand for all commodities, since the demand for the general commodity, money, exchange-value, is greater than the demand for all particular commodities, in other words the motive to turn the commodity into money, to realise its exchange-value, prevails over the motive to transform the commodity again into use-value. (Marx 1968, 505)

At the same time, in this further development of the separation of buying and selling, “the appearance of the two equivalents, commodities and money, at the two poles of the process of sale, has ceased to be simultaneous” (Marx 1996, 146). At this time, money not only functions as a means of circulation but also as “a measure of value in the determination

of the price of the commodity sold” (Marx 1996, 146). Moreover, the “imaginary or ideal money” (Marx 1996, 105) usually establishes the relationship between claims and debts between buyers and sellers through securities, to perform the function of a means of payment. In this way, the buyer can obtain the required good first and then pay the money. The seller can again purchase the raw materials needed for reproduction from other capitalists through the securities. However, in a crisis, if a capitalist in the payment process fails to sell his goods to consumers to obtain money, the disruption of the capital circulation process will interrupt the turnover of all capitalists exchanging through the same securities at the same time. Thus, the “possibility of crisis is ... demonstrated, and further developed, by the disjunction between the (direct) process of production and the process of circulation” (Marx 1968, 507). In short, the possibility of crisis is embodied in “the metamorphosis of the commodity itself, the falling asunder of purchase and sale” and “the function of money as a means of payment” (Marx 1968, 510). However, the possibility of crisis does not explain the uniqueness of crisis under the capitalist mode of production, which differs from other modes of production; nor does it explain the cause of the crisis: if there is merely a possibility rather than a necessity, the occurrence of the crisis is accidental.

Marx believed that the capitalist mode of production makes crisis not just possible but inevitable.

The contradictions inherent in the movement of capitalist society impress themselves upon the practical bourgeois most strikingly in the changes of the periodic cycle, through which modern industry runs, and whose crowning point is the universal crisis. (Marx 1996, 20)

From the perspective of dialectics, “the fundamental cause of the development of a thing is not external but internal; it lies in the contradictoriness within the thing” (Mao 1965, 313). In general, Marx (1998, 248) thought that the contradiction of the capitalist mode of production involves, on the one hand, “a tendency towards absolute development of the productive forces, regardless of the value and

surplus value it contains, and regardless of the social conditions under which capitalist production takes place; while on the other hand, its aim is to preserve the value of the existing capital and promote its self-expansion to the highest limit.” Therefore, on one side of the contradiction is a growth in productivity accompanied by the continuous development of the division of labour and continuous improvement of the instruments of production; on the other is the increasing poverty of the proletariat, which has become relative surplus population under the mode of production due to the extraction of surplus value being the basis of the preservation and self-expansion of capital. As distinct from Engels’ deployment of the concept of the ‘anarchy of production’ in *Anti-Dühring* and the falling rate of profit in editing Marx’s manuscript of the third volume of *Capital* to explain capitalist crises, Marx explained the inevitability of the crisis as being caused by the contradictory movement of the forces of production and relations of production under the capitalist mode of production at the most abstract level.

But the problem is that this overly abstract explanation tends to slide towards either Messianism or Revisionism. It is still necessary to explain the reality of crisis, that is, “why the phases of the process come into such conflict that their inner unity can only assert itself through a crisis” (Marx 1968, 502). Contemporary Marxists have conceived explanations centred on the historical-geographical specificities of different capitalist modes of production by embedding economic accumulation into particular social structures. David M. Kotz (2010, 364) adheres to this social structure of accumulation theory and has argued that, “in individual capitalist countries and in global capitalism as a whole, a sequence of relatively durable institutional structures can be identified, each lasting for several decades” (Kotz 2010, 364). Similarly, Bob Jessop (2000, 327), in his articulation of a “doubly heterodox regulationist viewpoint,” stated that “specific accumulation regimes and modes of regulation are typically constructed within specific social spaces and spatio-temporal matrices.”¹ Because the contradiction between capitalist forces of produc-

tion and relations of production will have different manifestations at different stages of production based on different actual conditions, it forms the real cause of crises, such as a falling rate of profit, disproportion, underconsumption, and overproduction.

Engels and Lenin both interpreted this contradiction as the conflict between socialized production and capitalist appropriation. Engels and Lenin correctly described the main features of capitalist contradiction, but in a one-sided way. Although the improvement of the instruments of production, division and cooperation of labour all promote the development of the forces of production, the expansion of division and cooperation is a change in the scope of the relations of production. On the one hand, division and cooperation qua relations of production rely on the level of development of the forces of production. “With the introduction of machinery the division of labour inside society has increased, the task of the worker inside the workshop has been simplified, capital has been concentrated, the human being has been further dismembered” (Marx 1976, 188). On the other hand, their role in promoting productivity is the effect of relations of production. Marx held that the “division of labour and private property are, after all, identical expressions: in the one the same thing is affirmed with reference to activity as is affirmed in the other with reference to the product of the activity” (Marx and Engels 1975, 46). Meanwhile, social production itself is synonymous with the division of labour and collaboration. “The need for exchange and for the transformation of the product into a pure exchange value progresses in step with the division of labour, i.e. with the increasingly social character of production” (Marx 1973, 146).

Therefore, socialized production and capitalist appropriation are twin contradictory aspects of capitalist relations of production. This means that, on the one hand, with the expansion of the division of labour and exchange, the labour process itself transforms private labour into social labour, and, on the other hand, the products of this social labour are privately owned by the capitalists. Therefore, the production process manifests itself as a single capital turnover controlled by the capitalist in a particular enterprise and the

1 For the difference between social structure of accumulation theory and regulation theory, see Kotz, 1994, pp. 85–97.

exchange of the capitalist's products in society as a whole that is beyond the control of any individual capitalist. Since the capitalist can only control and organize his own production, he does not know the exact situation of enterprises competing with him in society. Therefore, "the contradiction between socialized production and capitalistic appropriation now presents itself as an antagonism between the organization of production in the individual workshop, and the anarchy of production in society generally" (Engels 1987, 260–261).

This opposition between the organization of production in individual factories and the anarchy in the capitalist mode of production as a whole implies the first reality of the capitalist crisis: the disproportion in different sectors (Tugan-Baranovsky 1982, 288–289). What makes Marx's conception of disproportion different from Tugan-Baranovsky and others is that Marx thought disproportionality is one of the appearances of capitalist contradiction. In other words, Marx regarded the disproportion and anarchy as the internal character of capitalism which caused an abnormal equilibrium process.

By contrast, "Tugan sees equilibrium as the norm and crises a deviation from it, albeit recurring and periodical" (Besomi 2006, 147). Due to the development of the forces of production and the expansion of the division of labour, capitalist production is increasingly divided into departments. Since production is anarchic in the entire capitalist system and the output of various production sectors is constantly disproportional, Marx believes that the process of compulsory balancing of this disproportion leads to crisis. "Under capitalist production the proportionality of the individual branches of production springs as a continual process from disproportionality, because the cohesion of the aggregate production imposes itself as a blind law upon the agents of production, and not as a law which, being understood and hence controlled by their common mind, brings the production process under their joint control" (Marx 1998, 255–256). This is effectively the point Hilferding (1981, 256) seizes upon in stating that "the proportional relations between the capital goods and the consumer goods industries as a whole must also prevail in each separate branch of production. ... A crisis can

occur even in the case of simple reproduction if the proportions are violated."

A crisis may be explained not only as "the result of a disproportion of production in various branches of the economy and as a result of a disproportion between the consumption of the capitalists and their accumulation," but also with respect to "the consuming power of the non-producing classes" (Marx 1998, 482–483). The improvement of the instrument of production or the adoption of machines not only enabled medieval craftsmen to be replaced by more replaceable wage labour but also promoted the replacement of workers by machines. On the other hand, the worker depends on the production system of modern mechanical industry and the capitalist who survives by extracting the worker's surplus value. Under such conditions, wage labourers' consuming power is restricted. First, as the productivity of means of subsistence improves, the socially necessary labour to produce these necessities will decrease and the real wages of workers will also decrease. Second, due to the substitution of machines for workers, more and more workers have become relatively surplus. Third, "for an extraordinarily large number of branches of production – all those that do not supply articles for direct consumption – the mass of those who participate in production are entirely excluded from the purchase of their own products" (Marx, 1863/1968, 518). "The under-consumption of the masses is therefore also a prerequisite condition of crises, and plays in them a role which has long been recognised"; "the under-consumption of the masses ... is not a new phenomenon. It has existed as long as there have been exploiting and exploited classes" (Engels 1987, 272). On the one hand, underconsumption causes crisis under the capitalist mode of production as determined by the mode of extraction of surplus value. On the other hand, it needs to be connected with overproduction. "It is the unconditional development of the productive forces and therefore mass production on the basis of a mass of producers who are confined within the bounds of the necessary means of subsistence on the one hand and, on the other, the barrier set up by the capitalists' profit, which [forms] the basis of modern over-production" (Marx 1968, 528). Therefore, the overproduction of

capital and commodities and the insufficiency of labour's consumption capacity, as the realistic manifestation of contradiction between productive force and production relation, provides the possibility for capitalist crises.

Not only is there a real manifestation of contradiction between forces and relations of production and within the relations of production, but the contradictory development of productive forces also has its real manifestation. The "limitations of the capitalist mode of production come to the surface," Marx (1998, 257) says, "in that the development of the productive power of labour creates out of the falling rate of profit a law which at a certain point comes into antagonistic conflict with this development and must be overcome constantly through crises." Marx had a clear account of the falling rate of profit:

It is a law of capitalist production that its development is attended by a relative decrease of variable in relation to constant capital, and consequently to the total capital set in motion. This continual relative decrease of the variable capital vis-à-vis the constant, and consequently the total capital, is identical with the progressively higher organic composition of the social capital in its average. (Marx 1998, 210).

Therefore, the organic composition of capital, c/v , also rises with increases in productivity, while, on the premise that the rate of surplus value remains unchanged, the profit rate $p=m/c+v$ will decrease accordingly. What needs to be clarified is that some versions of the theory of the falling rate of profit describe this tendency as the result of the rise of technical composition (Lebowitz 2009, 134). However, in Marx's view, the organic composition and technical composition of capital have subtle differences (see Table 1).

When Marx discusses the rising organic composition of capital and the falling rate of profit, he presupposes that the rate of surplus value remains unchanged. As long as the rate of surplus value remains unchanged, the technical composition does have the same tendency as the organic composition and the opposite tendency to the profit rate. However, when the increase in organic composition is fixed, as the increase in the rate of surplus value expands, the increase in technical composition will gradually decrease until it is less than the original technical composition. Therefore, the varying of technical composition and organic composition are not exactly the same. At the same time, the tendency of technical composition cannot determine the change of profit

Constant Capital: c	Variable Capital: v	Surplus Value: s	Organic Composition: c/v	Rate of Surplus value: s/v	Technical Composition: c/v+s	Profit Rate: s/c+v
300	100	100	3.00	100.00%	1.50	25.00%
500	150	150	3.33	100.00%	1.67	23.08%
500	250	250	2.00	100.00%	1.00	33.33%
500	150	250	3.33	166.67%	1.25	38.46%
500	250	150	2.00	60.00%	1.25	20.00%
500	150	140	3.33	93.33%	1.72	21.54%
500	150	180	3.33	120.00%	1.52	27.69%
500	150	190	3.33	126.67%	1.47	29.23%
600	150	180	4.00	120.00%	1.82	24.00%

Table 1 The Varying of Profit Rate in Relation to the Organic and the Technical Composition of Capital and the Rate of Surplus Value. Source: The Author.

rate since it is affected by the two variables of organic composition and rate of surplus value. The effect of the increase or decrease of technical composition compared with the initial ratio on the tendency of the profit rate is arbitrary. The varying direction of the rate of profit depends on the ratio of the change in the organic composition and the rate of surplus value when the rate of surplus value is no longer unchanged. Therefore, when discussing the falling rate of profit, the technical composition and the organic composition cannot be used as synonyms.

The question is, if the decline in the profit rate is an inevitable result of the increase in productivity, does the decline of the profit rate necessarily lead to crisis? Marx thought that the crisis caused by the contradiction between the forces and relations of production is an abstract necessity, but the decline in profitability as a real trend may not always be apparent as a result of certain countervailing influences: there are “some counteracting influences at work, which cross and annul the effect of the general law, and which give it merely the characteristic of a tendency” (Marx 1998, 230). These factors include the increasing intensity of exploitation, depression of wages below the value of labour-power, cheapening of elements of constant capital, relative overpopulation, foreign trade and the increase of stock capital. Therefore, only when capital's aforementioned means of maintaining profitability fails does the downward trend of the rate of profit become a realistic possibility.

The Contemporary Capitalist Mode of Production and Its Crisis

After experiencing a huge recession caused by the pandemic, the world economy began to show an overall but internally uneven recovery in the first quarter of 2021. Using Marx's crisis theory to examine this process requires two issues to be addressed. One is the correlation between the recession caused by the pandemic and the capitalist system, and the other is the contradiction and unsustainability of this recovery, namely the reason why this economic growth still contains the possibility of crisis. The World Bank is right to say that this economic crisis

is triggered by the pandemic. COVID-19 is indeed a cause of the current crisis as a factor external to capitalism, comparable to the meteorological influence cited by Jevons. However, the virus per se could not cause a global economic crisis. The pandemic is the result of the virus passing through the accelerated capitalist mode of production and its world system. David Harvey stated that

for Marx, economic instability and crises are primarily produced by the ever-present contradictions between different ‘moments’ within the economic system. External shocks can and do occur, of course. ... But it is internal blockages at any point in the circulation of capital ... that directly spawn crises of accumulation, resulting in sometimes massive devaluations of capital. (Harvey 2020, 113)

The dichotomy of purchase and sale mediated by money and securities provided the possibility of the crisis while the lack of demand due to unemployment, reduction of wages and lockdown provided the reality, which eventually leads to a slump in the financial market, and the bankruptcy of enterprises. It is true that the stock markets, at least in the U.S., were basically back to their pre-Covid levels at the end of the second quarter of 2020. However, this revitalization is driven by the central banks' ceaseless money printing and the bond issuance of the corporate sector and government, adding to the already high stock of debt. Although all states have adopted fiscal policies to provide subsidies to labourers, this is still chicken feed compared to the loss of unemployment. As Harvey (2018) argued, value created in production is potential value, the “value is lost if there is no demand for it in the market.” Therefore, as soon as governments stop their quantitative easing policies, the financial market will face a greater possibility of crisis. Moreover, in addition to the three dimensions of crisis theory that Marx elaborated, the current capitalist mode of production and the economic recession caused by the Covid-19 pandemic confirm the fourth dimension of crisis theory: severity. In this sense, it is still a crisis within a specifically capitalist mode of production, as the particular way in which

economy and human life are determined is capitalist rather than of feudal or Asiatic, and the way in which equilibrium has been sought is very clearly capitalist, too. This is, therefore, a world capitalist economic crisis that has been caused by those triggers such as crop failures, plagues, and natural disasters, more commonly regarded as causes of pre-capitalist crises. Although the above factors did not disappear from the face of the earth after capitalism became the dominant global mode of production, they have never arisen in such a way as to present a challenge of this magnitude to the capitalist world system.

Due to the high infectivity of the virus, the relatively high fatality rate, and the lack of effective treatment and vaccine in the early stage of the pandemic, governments around the world have effectively had to attempt to prevent the spread of the disease through long-term quarantine measures to prevent the death of the population. These measures have caused the inevitable interruption of the capitalist production process. “Capital is value in motion and any pause or even slowdown in that motion for whatever reason means a loss of value” (Harvey 2017, 74). The quicker the capital accumulation process is, the more vulnerable the process is, as the contradiction in the capitalist mode of production will be realized more rapidly in a given period of time. In this way, the global extent of the impact of the crisis is related to capital’s annihilation of space with time. Moreover, when capital accelerates the spatial circulation of capital and labour through improved transportation and communication methods, the spread of viruses throughout the world is also accelerated.

The contradictions within the capitalist mode of production are certainly the fundamental cause of the economic crisis, but the motion of value and the reproduction process of capital do not happen in a vacuum. Most classic Marxist interpretations of crisis abandon the dimension of space, only describing the continual self-proliferating and self-destroying process of capital accumulation over the duration of time. The theory of imperialism represented by Rosa Luxemburg may be an exception, but this view was quickly submerged in the attack on under-consumptionism. In other words, discussion of the spatial process is separate from the social process

among classical Marxists. This dualistic tendency is also consistent with the non-Marxist mainstream views of the time. Human geography was defined as “the explanation of spatial structure by intrinsically spatial processes” while classical sociology after Durkheim is defined as “the explanation of social structures by intrinsically social processes” (Gregory and Urry, 1985, 2). Marx did not give spatiality special treatment any more than did his contemporaries and epigones. As Harvey observed, “Marx, Marshall, Weber, and Durkheim all have this in common: they prioritise time and history over space and geography and, where they treat of the latter at all, tend to view them unproblematically as the stable context or site for historical action” (Harvey, 1985, 141). Marx (1996, 251) quoted from Reports of the Inspectors of Factories for the half year when he said of the working day that “moments are the elements of profit.” By contrast, space is the barrier of value realization that capital attempts to demolish. “While capital must on one side strive to tear down every spatial barrier to intercourse, i.e. to exchange, and conquer the whole earth for its market, it strives on the other side to annihilate this space with time, i.e. to reduce to a minimum the time spent in motion from one place to another” (Marx 1973, 539).

Nonetheless, this kind of thesis, that time annihilates space, already contains a kind of time-space structure of capital and of the dialectical relationship between time and space. On the one hand, the construction of production facilities, the transportation of raw materials, the flow of labour, the production and circulation of commodities, all these events involved in the capitalist production process share a portion of time and space. The annihilation of space with time is not to eliminate space, which is an impossible task, but to accelerate the production and circulation of capital through the construction, deconstruction and reconstruction of space. In recent decades, capitalism has become more and more proficient in continuously increasing productivity, accumulating and preserving surplus value, and attenuating (if not resolving) its internal contradictions through continuous occupation, production and creative destruction of space (Lefebvre 1976, 21). On the other hand, the process of capital accumulation is wrapped in the

larger flow of time and space. From the perspective of process philosophy, every event, or process, “extends over other events, and every event is extended over by other events” (Whitehead 2015, 39). As a result, narrowing the extension of events or process can only obtain smaller events or process. The smallest limit of the event, which is abstract rather than real, is called the event-particle by Alfred North Whitehead. This kind of event-particle is an abstraction that occupies a moment in time and a certain position in space. Therefore, the epistemologically computable time and space are abstracted from the extension and duration that essentially follow the unfolding of the process. In this way, “time and space are not separate from the processes by which the physical and social worlds operate and the very relations between objects (and subjects)” (Urry 2000, 107). Not only that, but the events of the capitalist production process also change the time-space extension that subsequent events will occupy due to the changes in the forces and relations of production. As Harvey (2017, 131) states, “the circulation and accumulation of capital occurs in a specific organisation of space and time even as it simultaneously defines and redefines the time and spaces within which it moves.”

That time eliminates space not only shows that capital has a certain time-space structure, but also that time and space are variable. In an abstract sense, the annihilation of space with time is achieved through an acceleration of the pace of social processes and the speed of society as such. Bauman (2000, 9) agreed that “the very idea of speed (even more conspicuously, that of acceleration), when referring to the relationship between time and space assumes its variability.” Whitehead (2015, 123) likewise explained that “our congruence determination embraces both times and spaces in one universal system, and therefore if two arbitrary units are chosen, one for all spaces and one for all times, their ratio will be a velocity which is a fundamental property of nature expressing the fact that times and spaces are really comparable.”

People in Marx's era experienced the acceleration in their daily lives in a concrete sense. Such acceleration was the result of developments in transportation and communication, in particular. “‘Annihilation of time and space’ was the topos which the early nine-

teenth century used to describe the new situation into which the railroad placed natural space after depriving it of its hitherto absolute powers” (Schivelbusch 1986, 10). As a result of the invention of the steam engine and the improvement of communication technology, commuting, travel and cargo transportation via railways and steamships have all become possible. From human legs to horse-drawn carriages, from steam locomotives and steamships to jet airliners, traversing the same distance requires less and less time. Phileas Fogg, the protagonist in the novel by Jules Gabriel Verne, took 80 days to complete a round-the-world trip in 1872. Today, taking into account the transfer and rest issues, it would not take more than 80 hours to travel around the earth in a civil aircraft. Modes of rapid transportation such as the railway, which arose with the development of capitalist productive forces, “did not appear embedded in the space of the landscape the way coach and highway are, but seemed to strike its way through it” (Schivelbusch 1986, 37). As one contemporary commentator put it: “Space is killed by the railways, and we are left with time alone” (Heine, 1854, in Schivelbusch 1986, 37).

This sense of time-space is referred to as time-space compression by Harvey. “Time and space are compressed and fused as a consequence of transnational economic and technological developments, which produce and are dependent on the speedy transfer of goods and information” (Kaufmann, Bergman and Joye 2004, 746). In terms of the capitalist accumulation process, the acceleration is manifested in the circuit of capital. In the sphere of production, the annihilation of space with time is reflected in the decentralization of production, particularly since the 1970s. In Marx's era, production was often carried out at a fixed location, and the use of new technologies only brought about temporal changes, that is, shortened the necessary labour time for production. However, since the 1970s, capital has been able to adopt a more flexible spatial organizational form, as a consequence of the development of transportation and information technology. Due to the increase in the spatial mobility of raw materials, labour, and information, the space occupied by a production process has expanded on the one hand. On the other

hand, the distance between plots of space organized by production is reduced due to the shortening of the time of movement. “Speed up was achieved in production by organisational shifts towards vertical disintegration – sub-contracting, outsourcing, etc.” (Harvey 1989, 284). By contrast, the phase of value realization is when and where the annihilation of space by time to which Marx referred happened. “The nineteenth century’s preoccupation with the conquest and mastery of space and time had found its most general expression in the concept of circulation, which was central to the scientific social notions of the epoch” (Schivelbusch 1986, 194). The logic is very simple. If the product can be sold faster, the value produced can be realized faster, thence the capitalist can obtain the pre-invested capital and surplus value to re-invest them in the next capital circuit. Therefore, the shorter the value-realization process, the more capital turnover is completed in a year, and the more surplus value is obtained. Today, this dream of the capitalist has come true owing to the development of high-speed railways and aviation, the transition from the commodity consumption to service consumption, the purchase and sale of internet virtual products, and the abundance of financial tools. The distance between the place of production and the place of consumption is no longer a problem. Products and services can reach their markets at an unprecedented speed. In this sense, the turnover of capital has been much accelerated. It not only creates more surplus value for capitalists but also provides greater possibilities for the outbreak of a capitalist crisis.

The economic recession in 2020 seems to have passed away in 2021, at least in advanced economies due to the massive programme of vaccination, according to the IMF projection published in April 2021. However, the tendency towards crisis still lies in the world capitalist mode of production. Firstly, the recovery is remarkably uneven. States like the US, the UK, Canada, China and Israel enjoy economic recovery while smaller and poorer countries, including many in South and Southeast Asia suffering from the delta variant of Covid-19, could not secure sufficient vaccines through COVAX, due to their lesser use-value to the capitalist global system

and lower ownership of value. Although vaccines are generally regarded as common wealth and shared by all humanity, the companies that owned the vaccines listed by the WHO for emergency use are based in the world’s major economies. They either make profits by selling vaccines, or gain political benefits through neo-imperialist means of vaccine diplomacy. This uneven economic recovery and pandemic mitigation will have a counter-effect on the success of major economies, including but not limited to the endless emergence of new variants that may cause immune escape and other infections that may erupt in the future in underdeveloped countries. India, despite having experienced two decades of economic boom and becoming the sixth largest economy in the world, is swallowing the bitter fruit yielded by its dense population, huge gap between rich and poor and fragile public health management system. The delta variant not only hindered the economic recovery of India projected in the first quarter of 2021 but also affected the whole of South and Southeast Asia. Secondly, the economic recovery of advanced economies is unsustainable. The economic recession caused by the Covid-19 pandemic has occurred in the context of an already contradictory capitalist mode of production. “Average profitability was already very low before the pandemic, and in some countries, it was the lowest level since the end of the Second World War” (Roberts 2021b); a consequence of the capitalist economy having been largely financialized and rentierised. “Over the past few decades, several analysts have observed a relative shift in capital accumulation strategies, from the primacy of production of surplus value by expanded reproduction ... toward increased foregrounding of the circulation of money and profit through non-productive forms of value appropriation” (Andreucci *et al.* 2017, 1). In this sense, the so-called increased wage of the labourer is snatched back through energy and credit card bills, mortgage payments or housing rent, while a large portion of surplus value produced in the production sector is taken away in the form of debt interest, dividends and land rent. During the pandemic, the shift from actual social interaction to online interaction enhanced the power of Internet giants such

as Google, Amazon and Microsoft (cf. Pirone 2021, 2), who can use their monopoly on cyberspace and intellectual properties to obtain more rent than ever before. Therefore, the tendencies of the falling rate of profit and underconsumption have been underlying factors in the current capitalist mode of production that will emerge at some point in the future. Under such circumstances, it is not surprising that

the money injections by the Federal Reserve and other central banks, mainly achieved by 'printing money' and purchasing huge quantities of government and corporate bonds, as well as making loans and grants, have ended up, on the whole, not in the hands of businesses and households to spend, but in the deposits of banks and other financial institutions. (Roberts 2021a)

Massive reconstruction of infrastructure by government may mitigate the tendency toward crisis. However, this demands a particularly strong government, something along the lines of the Roosevelt administration, which is impossible in the near future, with the possible exception of far-right neo-fascist authorities, due to the 40-year development of neoliberalism. Neoliberalism has created an unprecedentedly active market and 'negative government,' which is only active in terms of assisting the normal operation of the market: such negative government is the culprit responsible for the severity of the crisis globally. As Richard Wolf stated in conversation with Lyon-Callo (2020, 573), "even in a capitalist country, if you have a culture that says the government isn't some kind of fundamental evil, ... it can come in and make the compensation for capitalism's failure." Besides, the failure of capitalist governments to deal with the pandemic before vaccines are proved effective has revealed itself to be ineffective in dealing with the crisis of economy and public health. Herd immunity, a Malthusian response to COVID-19, appeared to have been adopted by the Trump administration in the US, after the UK's initial moves in this direction were aborted. This anarchistic attitude to dealing with the epidemic is mainly reflected in the lack of rigorous implementation of

isolation measures and weak detection.² An age-old principle can be invoked to slow down the spread of unknown infectious diseases today. In 1976, Dr Jean-Francois Ruppel recommended to residents of the Ebola outbreak area the local experience of dealing with smallpox for many years. "Whenever there was an epidemic of smallpox, people who were suspected of having the disease, and their young children, were placed in a hut that was constructed outside the village. The hut was stocked with a supply of water and food, while any physical contact with the victims was forbidden" (Preston 2019, 198). In 1976, this method effectively prevented Ebola from spreading as widely as it did in 2014. In relation to COVID-19, after the panic of the first few weeks, China quickly established two new hospitals in Wuhan and coordinated existing hospital beds to treat critically ill patients, establishing further field hospitals by using stadiums, convention centres, and other places to treat mildly ill patients, rather than leaving the infected people at home to accelerate community and family transmission. These measures quickly and effectively reversed the epidemic in Wuhan and even the country as a whole. The ancient rule relies on large-scale testing today, because the symptoms of some infected people are not obvious, and they are easily confused with the symptoms of influenza and other diseases. In some countries, the application for testing requires that the symptoms have been severe to some extent, and even those who are detected as infected are still released to return home. In this sense whether the governments could slow down capital circulation and create more distance between bodies and commodities is critical to saving not only lives but also the capitalist system. Reopening the capitalist economy before the crisis could be controlled is like taking drugs. Moreover, the abandoned proletariat should not forget Marx's words that the capitalist state is the instrument of class domination, which will be overturned by communist revolution. In this sense, no matter whether

² At the time of writing, the original strain and the delta variant prevail. Their transmissibility and pathogenicity are significantly different from the Omicron variant, requiring more stringent measures.

the government economic stimulus works or not, the hallucination generated by the temporary recovery of the stock market and employment rate will probably be followed by either a chronic recession or a sudden strike by the revolution of the abandoned proletariat.

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References

- Andreucci, Diego, Melissa García-Lamarca, Jonah Wedekind and Erik Swyngedouw. 2017. "Value grabbing: A political ecology of rent." *Capitalism Nature Socialism* 28(3): 28-47.
- Basu, Deepankar. 2017. *A Unified Marxist Approach to Accumulation and Crisis in Capitalist Economies*. University of Massachusetts Amherst.
- Bauman, Zygmunt. 2000. *Liquid Modernity*. Cambridge, UK: Polity Press.
- Besomi, Daniele. 2006. "Marxism Gone Mad: Tugan-Baranovsky on Crises, Their Possibility and Their Periodicity." *Review of Political Economy* 18(02): 147-171.
- Bernstein, Eduard. 1993. *The Preconditions of Socialism*. Cambridge: Cambridge University Press.
- Bleaney, M.F. 1976. *Underconsumption Theories: A History and Critical Analysis*. Surrey: The Gresham Press.
- Bukharin, N. I. 1972. Imperialism and the accumulation of capital. In Tarback, K. J. (Ed.). *The Accumulation of Capital – An anti-critique*. New York, NY: Monthly Review Press.
- Clarke, Simon. 1990. "The Marxist Theory of Overaccumulation and Crisis." *Science & Society* 54(4): 442-467.
- Clarke, Simon. 1994. *Marx's Theory of Crisis*. New York, NY: St. Martin's Press.
- Dobb, Maurice. 1946. *Political Economy and Capitalism: Some Essays in Economic Tradition*. London: George Routledge & Sons Ltd.
- Engels, Frederick. 1987. "Anti-Dühring." In *Marx Engels Collected Works*: Vol. 25. New York, NY: International Publishers.
- Engels, Frederick. 1989. "Socialism: Utopian and Scientific." In *Marx Engels Collected Works*: Vol. 24. New York, NY: International Publishers.
- Glyn, Andrew and Robert B. Sutcliffe. 1972. *British Capitalism, Workers and the Profit Squeeze*. Harmondsworth: Penguin.
- Goodman, Peter S. 2020. "Markets Plunge. Economies Stall. Panic Spreads. It All Feels Very 2008." *The New York Times*: <https://www.nytimes.com/2020/03/13/business/coronavirus-global-economy.html>
- Gregory, Derek and John Urry. 1985. "Introduction." In *Social Relations and Spatial Structures*, edited by Derek Gregory and John Urry. London: Macmillan.
- Grossmann, Henryk. 1922. "The Theory of Economic Crises." On Marxists Internet Archive: <https://www.marxists.org/archive/grossman/1922/crises/index.htm>
- Grossmann, Henryk. 1992. *The Law of Accumulation and Breakdown of the Capitalist System: Being Also a Theory of Crises*. London: Pluto Press.
- Habermas, Jürgen. 1992. *Legitimation Crisis*. Cambridge, UK: Polity Press.
- Harman, Chris. 1999. *Explaining the Crisis: A Marxist Re-appraisal*. London: Bookmarks Publications Ltd.
- Harvey, David. 1985. "The Geopolitics of Capitalism." In *Social Relations and Spatial Structures*, edited by Derek Gregory and John Urry. London: Macmillan.
- Harvey, David. 1989. *The Condition of Postmodernity: An Enquiry Into the Origins of Cultural Change*. Cambridge, MA: Blackwell.
- Harvey, David. 2003. *The New Imperialism*. New York, NY: Oxford University Press.
- Harvey, David. 2007. *A Brief History of Neoliberalism*. New York, NY: Oxford University Press.
- Harvey, David. 2014. *Seventeen Contradictions and the End of Capitalism*. New York, NY: Oxford University Press.
- Harvey, David. 2017. *Marx, Capital and the Madness of Economic Reason*. New York, NY: Oxford University Press.
- Harvey, David. 2018. The Misunderstandings of Michael Roberts. Michael Roberts blog: <https://thenextrecession.wordpress.com/2018/04/02/marxs-law-of-value-a-debate-between-david-harvey-and-michael-roberts/>
- Harvey, David. 2020. "Value in Motion." *New Left Review* 126: 99-116.
- Heinrich, Michael. 2013. "Crisis Theory, The Law of the Tendency of the Profit Rate To Fall, and Marx's Studies in the 1870s." *Monthly Review*, 64(11): 15-31.

- Hilferding, Rudolf. 1981. *Finance Capital: A Study of the Latest Phase of Capitalist Development*. London: Routledge & Kegan Paul.
- Itoh, Makoto. 1980. *Value and Crisis: Essays on Marxian Economics in Japan*. New York: Monthly Review Press.
- Jessop, Bob. 2000. "The Crisis of the National Spatio-Temporal Fix and the Tendential Ecological Dominance of Globalizing Capitalism." *International Journal of Urban and Regional Research* 24(2): 323-360.
- Jevons, W. Stanley. 1876. The periodicity of commercial crises, and its physical explanation. *Journal of the Statistical and Social Inquiry Society of Ireland* 7: 334-342.
- Kalecki, Michal. 1991. The problem of effective demand with Tugan-Baranovsky and Rosa Luxemburg. In *Collected Works of Michal Kalecki*, edited by J. Osiatyński. Oxford: Clarendon Press.
- Kaufmann, Vincent, Manfred Max Bergman and Dominique Joy, D. 2004. "Motility: Mobility as Capital." *International Journal of Urban and Regional Research* 28: 745-756.
- Kautsky, Karl. 1970. "Ultra-imperialism." *New Left Review* 1970(59): 41-46.
- Kautsky, Karl. 2000. "The Class Struggle." Marxists Internet Archive: <https://www.marxists.org/archive/kautsky/1892/erfurt/ch03.htm>.
- Kotz, David M. 1994. "The Regulation Theory and the Social Structure Of Accumulation Approach. In *Social Structures of Accumulation: The Political Economy of Growth and Crisis*, edited by D. Kotz, T. McDonough and M. Reich. 85-97.
- Kotz, David M. 2010. "The Final Conflict: What Can Cause a System-Threatening Crisis of Capitalism?" *Science & Society* 74(3): 362-379.
- Kotz, David M. 2015. *The rise and fall of neoliberal capitalism*. Cambridge, MA: Harvard University Press.
- Kuhn, Rick. 1995. "Capitalism's Collapse: Henryk Grossmann's Marxism." *Science & Society* 59(2): 174-192.
- Lebowitz, Michael A. 2009. *Following Marx: Method, critique and crisis*. Leiden: Brill.
- Lefebvre, Henri. 1976. *The Survival of Capitalism: Reproduction of the relations of production*. New York, NY: St. Martin's Press.
- Liu, R. 2010. 马克思危机理论与凯恩斯危机理论的比较研究及其对中国的启示 [Comparison between Marx and Keynes' theories of crisis and their significance to China]. *马克思主义与现实*. 2010(2): 176-179.
- Luxemburg, Rosa. 2008. "Reform or Revolution." In *The Essential Rosa Luxemburg*, edited by H. Scott. Chicago, IL: Haymarket Books.
- Lyon-Callo, Vin. 2020. "COVID and Capitalism: A Conversation with Richard Wolff." *Rethinking Marxism* 32(4): 570-588.
- Mao Tse Tung. 1965. "On Contradiction." In *Selected Works of Mao Tse-Tung*: Volume 1. Pergamon Press.
- Marx, Karl. 1968. *Theories of Surplus Value*: Part 2. Moscow: Progress Publishers.
- Marx, Karl. 1973. *Grundrisse: Foundations of the critique of political economy*. New York, NY: Random House.
- Marx, Karl. 1975. "The German Ideology." In *Marx Engels Collected Works*: Vol. 5. New York, NY: International Publishers.
- Marx, Karl. 1976. The Poverty of Philosophy. In *Marx Engels Collected Works*: Vol. 6. New York, NY: International Publishers.
- Marx, Karl. 1989. "Economic Manuscript of 1961-63." In *Marx Engels Collected Works*: Vol. 32. New York, NY: International Publishers.
- Marx, Karl. 1996. Capital: Vol. 1. In *Marx Engels Collected Works*: Vol. 35. New York, NY: International Publishers.
- Marx, Karl. 1998. Capital: Vol. 3. In *Marx Engels Collected Works*: Vol. 37. New York, NY: International Publishers.
- Mattick, Paul. 1974. Economic crisis and crisis theory. On Marxists Internet Archive: <https://www.marxists.org/archive/mattick-paul/1974/crisis/ch03.htm>.
- Milios, John. 1994. "Marx's Theory and the Historic Marxist Controversy on Economic Crisis (1900-1937)." *Science & Society* 58(2): 175-194.
- Milios, John and Dimitris Sotiropoulos. 2007. "Tugan-Baranovsky and Effective Demand." *Science & Society* 71(2): 227-242.
- Mossavar-Rahmani, Sharmin *et al.* 2020. "ISG Insight: From Room to Grow to Room to Fall." Goldman Sachs website: <https://www.goldmansachs.com/insights/pages/from-room-to-grow-to-room-to-fall.html>
- Pirone, Maurilio. 2021. "Pandemic transition: Techno-politics and social reproduction struggles." *Human Geography* 14(2). <https://doi.org/10.1177/19427786211019191>.
- Preston, Richard. 2019. *Crisis in the red zone: The story of the deadliest Ebola outbreak in history, and of the outbreaks to come*. New York, NY: Random House.
- Roberts, Michael. 2021a. "Inflation and financial risk." Michael Roberts blog: <https://thenextrecession.wordpress.com/2021/05/09/inflation-and-financial-risk/>

Roberts, Michael. 2021b. "Some notes on the world economy now." Michael Roberts blog: <https://thenextrecession.wordpress.com/2021/05/14/some-notes-on-the-world-economy-now/>

Schivelbusch, Wolfgang. 1986. *The railway journey: The industrialization and perception of time and space*. Berkeley, CA: University of California Press.

Shaikh, Anwar. 1978a. "An introduction to the history of crisis theories." In *US Capitalism in Crisis*. Union for Radical Political Economics, 219-241.

Shaikh, Anwar. 1978b. "Political Economy and Capitalism: Notes on Dobb's Theory of Crisis." *Cambridge Journal of Economics* 2(2): 233-251.

Sweezy, Paul M. 1946. *The theory of capitalist development*. London: Dennis Dobson Limited.

World Bank. 2020. *Global Economic Prospects: June 2020*. Washington, DC: World Bank Group.

World Bank. 2021. *Global Economic Prospects: January 2021*. Washington, DC: World Bank Group.

Tugan-Baranovsky, Mikhail I. 1982. 周期性工业危机 [The Industrial Crises in England]. Beijing: Commercial Press.

Tugan-Baranovsky, Mikhail I. 1989. 政治经济学原理 (下册) [Foundations of Political Economy]. Beijing: Commercial Press.

Tugan-Baranovsky, Mikhail I. 2000. "Marx's Theory of Crises." In *Value, Capitalist Dynamics and Money*, edited by Paul Zarembka. Research in Political Economy, vol. 18: 81-110. Emerald Publishing Limited.

Uno, Kōzō. 1953. *Kyōkouron (Theory of Crisis)*. Tokyo: Iwanami-Shoten.

Vouldis, Angelos, Panayotis Michaelides and John Milios. 2011. "Emil Lederer and the Schumpeter–Hilferding–Tugan-Baranovsky Nexus." *Review of Political Economy* 23(3): 439-460.

Urry, John. 2000. *Sociology beyond societies: Mobilities for the twenty first century*. London: Routledge.

Wang, Z. and E. Cheng. 2018. 马克思主义经济危机理论体系的构成与发展 [The constitution and development of Marxist economic crisis theory system]. *经济纵横*, 2018(3): 1-11.

Weeks, John. 1979. "The Process of Accumulation and the 'Profit-Squeeze' Hypothesis." *Science & Society* 43(3): 259-280.

Whitehead, Alfred North. 2015. *The Concept of Nature*. Cambridge, UK: Cambridge University Press.

Wright, Erik Olin. 1999. "Alternative Perspectives in Marxist Theory of Accumulation and Crisis." *Critical Sociology* 25(2-3): 115-142.