

## SCHUMPETER ON UNEMPLOYMENT

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The cause which leads to practically very striking unemployment is, essentially and in principle, temporary. Therefore, we can only explain transitory unemployment - and mainly as a frictional phenomenon - but not other kinds of unemployment. This result is not sufficient, but it is not without value. It doubtlessly explains a good deal of the phenomenon of unemployment, in my opinion its better half.

(Schumpeter [1911] 2002, p. 120)

It follows from our model that, basically, cyclical unemployment *is* technological unemployment ... It further follows that, like profits, technological unemployment is ephemeral. It might, nevertheless, be ever present, but, as in the case of profits, every individual source of it in the industrial organism tends to exhaust itself, while new ones emerge periodically. In the same sense as profits, moreover, it may be called frictional, since instantaneous adaptation of the system would kill it at birth.

(Schumpeter 1939, pp. 515-16)

### 1 Introduction

Until fairly recently it was a common procedure to classify unemployment as seasonal, frictional, cyclical and structural. The distinctions referred to different causes and duration of unemployment that coexist in varying degrees. With the breakthrough of dynamic general equilibrium modelling, unemployment has been reduced, in macroeconomic theory at least, to a purely frictional phenomenon. Looking back as far as the first half of the 20th Century, one might be tempted to say: It's all in Schumpeter! In his theory of economic development Joseph A. Schumpeter explained cyclical, structural and other types of unemployment as effects of one and the same cause, namely creative destruction. This led him to define unemployment in all its manifestations largely as a frictional phenomenon.<sup>1</sup>

However, while Schumpeter's theory of creative destruction is widely known, little attention has been paid to his views on unemployment. The sparse literature that connects Schumpeterian theory with unemployment has developed in three rounds. The first round was started by Lange in his review of Schumpeter (1939). Lange (1941, pp. 192-93) criticized that Schumpeter, in contrast with Keynes (1936), lacked a theory that relates employment changes to economic fluctuations. This criticism was largely accepted at the time, but sparked off defensive

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<sup>1</sup> Seasonal unemployment is an exception to the extent that it follows from creative destruction by nature, not by entrepreneurs.

reactions Bension (1943), Stolper (1943) and Fels (1952), as well as Clemence and Doody (1950, ch. 8). Bension and Fels attempted to remedy the alleged shortcoming in Schumpeter's business cycle model by grafting a Keynesian-type saving-investment apparatus upon it. Stolper claimed that Schumpeter's theory of unemployment is implicit in the latter's proposition that the economy will converge to full-employment equilibrium unless wages are not flexible. Clemence and Doody argued that employment changes cannot be the primary datum in Schumpeter's framework because it is based on the assumption of shifting production functions that continuously destroy the link between employment and output.

After a long interval, the discussion of Schumpeter's approach to unemployment was resumed in the early 1980s, motivated by his centenary and by the renewed interest in technological unemployment as a byproduct of long waves in economic development. After discussing the critical treatment of Ricardo's machinery problem in Schumpeter ([1926] 1934, ch. 6; 1954, part III, ch. 6), Kalmbach and Kurz (1986, p. 91) concluded that Schumpeter was unable to give satisfactory explanations of the effects of the introduction of labour-saving methods on employment and real wages and that he "wanted to escape a discussion" about the repercussion of technological progress on the economic system. Hammond (1984, pp. 66-68) suggested that the fact that Schumpeter ([1942] 1952, ch. 5) approved of unemployment relief implies that he interpreted unemployment as "involuntary" phenomenon, but Hammond did not substantiate this with an examination of Schumpeter's other writings on unemployment. Freeman, Clark and Soete (1982) wrote that, although Schumpeter's theory of innovation-driven business cycles helps to explain the increasing unemployment of the 1980s, "Schumpeter had relatively little to say about unemployment and wages" (p. 21). In their view, Schumpeter (1939) explained the higher levels of unemployment typical of the Kondratieff downswings with the general demand deficiencies that are associated with low profitability and investment, and not with changes in the rates of job creation and destruction associated with a particular level of investment. Later on, in a survey about employment and technical change Petit (1995, p. 370) stated that Schumpeter made major contributions to economic theory in the 1930s, but that "these did not directly address the whole issue of technological change and employment".

The literature in the two first rounds was thus largely critical of (if at all acquainted with) Schumpeter's view that unemployment is a friction which occurs in the process of creative destruction, when production factors are reallocated from contracting to expanding units. Yet much of the current literature on growth and employment conforms with this view, influenced by the Neo-Schumpeterian approach which has been developed since the early 1990s, with significant contributions by Aghion, Howitt (1994, 1998), Caballero and Hammour (1994, 1996), Pissarides (1990), Postel-Vinay (2002), Francois and Lloyd-Ellis (2003, 2005), and Caballero (2007). Combining endogenous-growth theory in the spirit of Romer (1986) with search and matching in the labour market à la Pissarides (1990), the Neo-Schumpeterian approach puts the emphasis on quality-improving innovations that make old products and old firms obsolete. The implications of such creative destruction for labour market dynamics are derived from the view that match formation and dissolution requires time and resources.

While Schumpeter's ideas about growth and innovation have been a source of inspiration for the new paradigm, modern authors rarely, if ever, refer to Schumpeter's discussion of unemployment issues. The only passages often mentioned are Schumpeter's ([1942] 1952, p. 83) concept of "creative destruction" (see e.g. Francois and Lloyd-Ellis 2003, p. 530), and his related remark about depressions and cyclical unemployment as "the means to reconstruct each time the economic system on a more efficient plan" (Schumpeter [1934] 1951, p. 113; see e.g. Howitt

1994, p. 765). Postel-Vinay's (2002, p. 738, n. 2) assertion that Schumpeter did not specifically connect the notion of creative destruction to the unemployment problem is just as illustrative of the limits of the modern reception of Schumpeter as Howitt's (1994, p. 768) brief history of the notion of technological unemployment that refers to Ricardo (1821) and Wicksell ([1901] 1934), but not to Schumpeter.

Time seems ripe to reassess Schumpeter's approach to unemployment. The present paper provides, for the first time in the literature, a comprehensive investigation of the evolution of Schumpeter's interpretation of unemployment phenomena. In the next section we show that Schumpeter's concern with unemployment was often part of his overall discussion of the welfare effects of economic development. Section 3 examines Schumpeter's theory of unemployment as displayed particularly in chapter 9, section D of his 1939 book and in a 1927 German article on controversies about unemployment benefits, the only two pieces written by him with "(un)employment" in the title. Schumpeter's reflections about the policy implications of his unemployment views are discussed in section 4. That section also addresses Schumpeter's interpretation of the role of wage rigidities, which are of marginal relevance to his core model of economic fluctuations but become important under particular circumstances. Section 5 summarizes the different types of unemployment in Schumpeter's taxonomy and compares Schumpeter's views systematically with those of the Neo-Schumpeterians. Section 6 concludes.

## 2 Technological Progress and Welfare

### *The Theory of Economic Development*

The starting-point for studying the evolution of Schumpeter's unemployment theory is chapter 7 of the first (1911) edition of his classic book. That chapter was omitted from the second (1926) German edition, on which the 1934 English translation was based. It became known in the literature as "the lost chapter" (Shionoya 1997), and was eventually translated into English in 2002. It included a section about "an important special case", discussing the implications of labour-saving technical change for the trend of employment and real wages along the path of economic development (Schumpeter [1911] 2002, pp. 117-20). Although chapter 6 of the 1911 edition was about "The nature of economic crises", it barely mentioned unemployment. In the second edition Schumpeter changed the title of chapter 6 to "Der Zyklus der Konjunktur" ("The business cycle") and revised it extensively. Of particular interest is the new section 5 (Schumpeter [1926] 1934, pp. 241-51), which inquires how "the process of depression runs its course in a state of nearly complete lack of development; the process of depression as a fulfiller; the different categories of economic agents in the depression; the real wage in prosperity and depression".<sup>2</sup> Those last two subsections evolved from the 1911 "special case" section, together with another section (Schumpeter [1911] 2002, pp. 109-17), titled "The effect of development on the different economic agents". Their subject is the same, that is, the theoretical investigation of the effects of "economic development" on the welfare of economic agents, particularly workers.

Schumpeter ([1911] 2002, pp. 111-12; [1926] 1934, pp. 232, 248) argued that the new demand of entrepreneurs for means of production in the upswing brings about higher demand for labour and money wages. However, because of the rising price level, workers "often do not gain a whole lot" in the prosperity phase ([1911] 2002, p. 114). In the downswing, when the new

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2 This is described in the detailed table of contents of the 1926 edition, which is excluded from the 1934 translation.

products become available, prices fall and the entrepreneurial profit of the previous boom is, according to his pure model without unemployment, transformed into higher real incomes of the primary factors labour and land ([1911] 2002, pp. 114-15; [1926] 1934, p. 249). Such an increase in both real wage rates and the aggregate real wage bill of workers is “much more important than the rise in their money incomes in the period of upswing” ([1911] 2002, p. 115). Schumpeter observed that his conclusion about the positive long-run effects of technical progress on real income agreed with the prevailing opinion among economists: “It is widely accepted that the basic fact which explains the influence of development on wages and rents is the following: Through the influence of development labour and land will produce more goods than before. Hence, in the long-run all permanent achievements of developments either increase wages or rents” ([1911] 2002, pp. 116-17).<sup>3</sup>

There is, however, a relevant exception to that result, as Schumpeter ([1911] 2002, p. 117) pointed out in his discussion of the “important special case”. The new companies that carry out the “reorganization of the economy towards efficiency” can either be designed to cut production costs through a more effective organization, or they can produce new means of production “which have a saving effect”. In both cases, the first impact is an increase in the demand for primary factors to produce the new goods, but in the latter case this is followed by a reduction in the demand for labour and land when the new means of production are applied to production and “compete” with the primary factors. As stressed by Schumpeter (p. 118), the crucial point is not the technical reduction of costs *per se*, but the decline of the demand for labour and land caused by it. That was exactly the problem discussed by Ricardo (1821) in his path-breaking chapter “On Machinery”.

#### *The Machinery Problem*

The machinery problem had attracted Schumpeter’s attention even before writing his *Theory of Economic Development*. Already in his first book, which dealt with economics largely from a static equilibrium standpoint, Schumpeter (1908, pp. 516-18) claimed that the use of the “variation method” should take the analysis of the effects of technical progress further than Ricardo’s original analysis and the inconclusive controversy that followed it. He argued that the matter must be treated as part of the field of “dynamics”, since “a main cause of the inconclusiveness of the controversy is certainly the failure to distinguish between the ‘immediate’ and the ‘indirect’ effects, between the short and long periods” (p. 517). Schumpeter (1908) did not, however, explain how exactly comparative statics could improve on the classical treatment of the machinery problem. In 1911 he would bring into the picture the role of wage changes as an equilibrating mechanism, but it would be only after the publication of Hicks (1932) that matters became clear to Schumpeter, as discussed below.

Schumpeter ([1911] 2002, p. 118) started his analysis of the machinery problem in chapter 7 by stating that the effect of the introduction of labour-saving methods in a particular industry depends on the elasticity of the supply and demand curves for that good. “We saw that any decline of the rate of interest necessarily brings new entrepreneurs into action. This necessarily makes new combinations possible, and leads to their realization. For the same reason, a decline in the prices of the original means of production must have a similar effect. Here the

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3 See Boianovsky and Hagemann (2005, p. 90, n. 5) for evidence that Marshall, Clark, Cassel and Walras believed that higher real wages would accompany the increase in output brought about by technical progress. Wicksell was the sole exception in the neoclassical period.

decline [in the demand for primary factors] finds its effective break – it cannot go further” (p. 119). This “dynamic” marginalist argument implies that the fall in real wages increases the profitability of old labour-intensive technology and leads to the reabsorption of displaced workers, as first elaborated by Wicksell in his 1901 *Lectures*. Schumpeter neither referred to Wicksell nor realized the full implications of the 1911 “counterweight” argument.<sup>4</sup> Yet his conclusions are similar to Wicksell’s in that “the freed workers would push towards bringing the wage down, but would have to find employment at the lower wage” (pp. 119-20). Labour-saving innovations may reduce real wages permanently, but the fall in employment can be temporary only.

In the later editions, Schumpeter ([1926] 1934, pp. 250-51) came back to the machinery problem in the new chapter 6, now mixing two different kinds of argument: the compensation view, based on Say’s law, and the marginalist perspective based on wage changes. According to Schumpeter, the reduction of labour demand due to mechanization cannot be permanent, because “the expenditure of that part of entrepreneurial profit which is not annihilated by the fall in prices necessarily more than prevents any lasting shrinkage” (p. 251). He immediately qualified that statement by pointing out that there is only one way economic development can permanently reduce labour demand: “If in the new combinations it shifts the relative marginal significance of labour and land which obtained in the old productive combinations sufficiently to the disadvantage of labour”. This will cause a permanent fall of the absolute amount and share of labor in aggregate income, but not in the employment level.

Although Schumpeter did not mention Wicksell in that connection, he would later refer to Hicks’s (1932, ch. 6) marginalist analysis of the distribution effects of technical change, which was explicitly based on Wicksell. As observed by Schumpeter (1939, pp. 80, 574), a labour-saving innovation – in Hicks’s sense of an increase in the marginal productivity of capital relative to labour at a given capital-labour ratio – tends to lower real wages and the wage share, but its effect on the wage bill depends on the elasticity of substitution between labour and capital. This is different from Schumpeter’s inconclusive attempts, in both editions of the *Theory of Economic Development*, to apply marginal analysis to the machinery problem. “We therefore meet again the problem of machinery and labour... But we meet it now in its fundamental aspect, for technological unemployment is but a special and, moreover, as we have seen, a temporary form of the effect of technological improvement on the wage bill” (*ibidem*). Schumpeter’s enthusiasm for Hicks’s framework is even more evident in the section about “distributive shares and technological advances” in the *History of Economic Analysis*, where he wrote that the 19th century controversy about the machinery problem, in the form of arguments pro and con compensation, is “dead and buried” and “vanished from scene as a better technique filtered into general use” (1954, p. 684; see also [1942] 1952, p. 36).

### *The Downswing of the Cycle*

Apart from the machinery problem, there was, according to Schumpeter ([1911] 2002, p. 120; [1926] 1934, pp. 249-50), another factor that should be taken into account in evaluating the welfare effects of economic development: the downswing of the business cycle.

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<sup>4</sup> Wicksell’s *Lectures* were originally published in Swedish. Volume I was translated into German in 1913 and into English in 1934 only. On Wicksell’s discussion of Ricardo’s machinery problem see Boianovsky and Hagemann (2005).

We also know of a second reason for unemployment. During times of crises, almost always workers become unemployed in the normal process of liquidation and reorganization. Yet no one doubts the temporary character of this kind of unemployment. It is often very serious. It is in practice much more important than the one mentioned before. But it is only a special case of the comprehensive effects of depression, which affects all classes of society in principally the same way, and which disappears by itself together with the depression. ([1911] 2002, p. 120)

Despite the increase of the real wage rate in the depression, real income of workers falls during that period because of temporary unemployment caused by three factors ([1926] 1934, pp. 249-50).<sup>5</sup> First, the uncertainty created by the disturbance of equilibrium and change in data in the boom makes it impossible to old and new firms alike to plan safely for the future, and therefore “upsets many firms and reduces others to idleness for a time. This must result among other things in unemployment, the essentially temporary character of which does not alter the fact that it is a great and under certain circumstances annihilating misfortune for those concerned” (see also [1910] 2005, p. 42). The second cause of unemployment is the elimination or contraction of old firms by the appearance of new and more productive firms. As Schumpeter ([1910] 2005, p. 41) pointed out, in the depression “the evaluations of the static economic agents continue to prove a failure – their returns also change; this makes a readjustment of all net assets necessary, and this readjustment expresses itself in its part in taking away from or adding to the previous assets”, with ensuing devaluation and obsolescence of old capital goods. Schumpeter’s stress on the difficulty of workers to adjust to changes in the labour market seems to have been influenced by Marx: “As far as [the primary factors] have difficulties with the transition to other uses – this is what Marx emphasized so heavily – then a phenomenon of economic friction is embedded in there” ([1911] 2002, p. 116). Finally, unemployment will also go up in the downswing because of the diminished labour demand associated with the completion of investments in new capital goods started in the boom ([1926] 1934, p. 250). This introduces into the analysis an intertemporal coordination problem, but Schumpeter did not pursue it.

#### *The Stationarity of Long-Run Unemployment*

Except for the “qualification” represented by the possibility of permanent negative effects of labour-saving innovations on real wages, Schumpeter reaffirmed the conclusion of his 1911 chapter 7, arguing that the unemployment of the cyclical downswing is part of the “temporary reactions” which overshadow the economic nature of depression as a process of “diffusion of the achievements of the boom over the whole economic system through the mechanism of the struggle for equilibrium” ([1926] 1934, p. 251). The long-run rate of unemployment is stationary, a prediction that, according to Schumpeter, had been confirmed by data (Schumpeter [1942] 1952, p. 69; see also 1939, p. 516). The series mentioned by Schumpeter can be found as chart XX of his 1939 *Business Cycles* (p. 512). He would later claim that the stationarity of long-run unemployment is also a feature of the series up to 1929 (Schumpeter [1946] 1951, p. 200), which led him to stress once again the positive welfare effects of economic development: “[T]he capitalist process has always absorbed, *at increasing real wage rates*, not only the

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<sup>5</sup> Lange (1941, p. 193) criticized Schumpeter’s (1939) “pure model” of the business cycle for stating that output falls in the boom and goes up in the recession, and suggested that the explanation for the observed fall of output in recessions is the fluctuation of employment. However, this is precisely Schumpeter’s argument in chapter 6 of his [1926] 1934 book.

unemployment it generated but also the increasing population” (*ibidem*, italics in the original).

### 3 Frictions, Disequilibrium and the Normal Rate of Unemployment

#### *Schumpeter's Taxonomy*

It is obvious from the opening quotation of this paper that the early Schumpeter considered his purely frictional explanation of unemployment to be incomplete, as “the phenomenon of unemployment with the means of pure theory, *i.e.* from the essence of the economic mechanism, cannot be explained without an unexplained remainder” ([1911] 2002, p. 119). Over time this caution would give way to a more integrated view in which Schumpeter would use a wide notion of frictions as the base of a new taxonomy of unemployment.

In order to understand the variety of factors that affect the unemployment time series, Schumpeter (1939, ch. 9, section D) introduced a new taxonomy. Although his classification of unemployment can be seen as a critical reaction to Keynes's (1936, ch. 2) better-known division into frictional, voluntary and involuntary unemployment, Schumpeter's purpose was mainly empirical. According to Schumpeter (1939, pp. 511-17), the phenomena should be grouped into two broad sets: (i) unemployment in the “neighborhoods of equilibrium”, called “normal unemployment”; and (ii) unemployment that is characteristic of economic fluctuations in disequilibrium, subdivided into “disturbance unemployment” (caused by factors external to the firm), and “technological unemployment” (arising from disturbances by innovation within the system).<sup>6</sup>

The phrase “normal unemployment” had been used earlier by Hicks (1932, ch. 3) to describe forms of unemployment that do not represent excess supply in the labor market and that therefore do not put downward pressure on the wage rate. Schumpeter was probably influenced by Hicks, but the meaning is not the same. Schumpeter (1939, p. 511) defined normal unemployment as “the unemployment that would at any point exist if the system had already reached the neighborhood of equilibrium toward which it is tending”. It comprises seasonal unemployment, unemployability, change of residence, occupation or job, and “imperfections of competition or of equilibrium”. Disequilibrium unemployment may be “supernormal” (above equilibrium) or “subnormal” (below equilibrium). The rate of normal unemployment is not an independent quantity that could be added to separate segments of unemployment, but the “percentage of workers unemployed which would exist in the absence of disturbances of equilibrium” (p. 513), *i.e.* the rate observed when the business cycle is passing through the neighbourhood of equilibrium.<sup>7</sup>

Another category that Schumpeter sometimes included into normal unemployment is “vicarious unemployment”. He defined it as the unemployment that in imperfect competition “takes the place of adaptation of wages” to the rate of normal unemployment that would be achieved under perfect competitive conditions (p. 513), assuming that the new data last throughout the period in question. A case in point is Schumpeter's (1939, pp. 838-42) interpretation of output fluctuations in the US economy in the 1920s. The business cycle was not generated or affected by an excessively high wage level, since (within limits) a wage level that

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<sup>6</sup> Schumpeter's 1939 taxonomy did not make an impact on the literature, possibly because it was just a short section in a book of 1095 pages. Clemence and Doody (1950, p. 59) called it a “highly suggestive analysis” but did not explain why.

<sup>7</sup> As an example Schumpeter selected the year 1897, when unemployment in England was at 3.3 per cent.

persists through a decade “becomes a datum to which the system will in general adapt itself without changing its mode of working”. One of the forms of adaptation is the replacement of labor by capital, with ensuing unemployment but relatively steady output.

The kind of unemployment that is essentially associated with business cycles is, according to Schumpeter (pp. 514-15), related to technical progress. He used the phrase “technological unemployment” in his *Business Cycles* (1939) to describe not only the displacement of workers by machinery (as in [1926] 1934, p. 250), but all employment effects of labour reallocation induced by creative destruction through innovations – *i.e.* by changes in the production functions and by the replacement of old by new firms. It is the priority of this broad concept of technological unemployment that sets Schumpeter apart from the rest of the economic literature:

Few, if any, economists realize the one major point that the writer wishes to make. They have a habit of distinguishing between, and contrasting, cyclical and technological unemployment. But it follows from our model that, basically, cyclical unemployment *is* technological unemployment. Technological unemployment... is of the essence of our process and, linking up as it does with innovation, is cyclical by nature.

(1939, p. 515; italics in the original; see also [1926] 1934, p. 250)

### *Frictions and Imperfections*

Also in contrast with much of the contemporaneous literature, Schumpeter associated the notion of frictions not just with normal unemployment (as Hicks 1932 had done). He also applied it to cyclical “technological unemployment”, which emerges because the adaptation of the system to a new equilibrium is not instantaneous (1939, pp. 515-16; cf. [1926] 1934, p. 238).<sup>8</sup> The word “friction” is interpreted not only in the sense of time-consuming job search (as in [1926] 1934, p. 250), but in the wider meaning of lags in the convergence to equilibrium. The lags are caused by costs incident to change of occupation or shift from the production of one sort or quality of commodity to another, by transactions costs, resistance to price changes, long-term contracts, or by the difficulty of “persuading oneself or other people to act” (1939, p. 50).

While Schumpeter (1911, ch. 7) had suggested that frictions could account for only part of the observed unemployment, he thus gradually moved to the position that economic frictions provided an explanation for most, if not all, of it. This is clear from his rejection of Keynes’s indictment that “classical” economists knew of no unemployment other than frictional (Keynes 1936, ch. 2).

We are free, of course, to define the concept of frictional unemployment so widely as to include technological unemployment and also the other types of unemployment that were recognised – mainly: unemployment from imperfections of competition; unemployment from monetary causes; and unemployment from business fluctuations, whatever their cause – but then the indictment loses its force

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<sup>8</sup> The first economist to incorporate frictions into the analysis of economic systems was Pareto (1897). In his attempt to build a formal business cycle model, he compared them to the role of inertia in mechanics; see Boianovsky and Tarascio (1998). Bennion (1943, pp. 346-47) realized that Schumpeter’s notion of frictions was not the traditional one. However, his interpretation of the word “frictional” in the key passage on p. 515 of the *Business Cycles* – as the time interval before investment reaches its full employment level – is a distorting effort to interpret Schumpeter in Keynesian terms.



for, *thus* defined, friction is no longer an *obviously* inadequate explanation of the observed facts of unemployment. (1954, p. 944, n. 57; italics in the original)

Schumpeter ([1911] 2002, p. 119, n. 20) had mentioned Beveridge (1909) as a standard reference. While Beveridge indeed was the first in the English literature to emphasize the pivotal role of frictions in the labour market (Boianovsky and Trautwein 2003, pp. 390-91), he did not, however, claim that frictions could explain (nearly) all unemployment.<sup>9</sup> Schumpeter's counterattack may thus be understood as a defence of his own approach against Keynes's concept of "un(der)employment equilibrium". Schumpeter's own concept of "normal unemployment" as an equilibrium phenomenon differs from Keynes's, even if partly motivated by the latter's *General Theory* (1936). It was based on "imperfections of both competition and equilibrium" and implied that "full employment ceases to be a property of equilibrium states" (Schumpeter 1939, p. 161). Apart from the frictions mentioned above, such "imperfections" refer to imperfect competition in goods markets. The presence of monopolistic competition and nominal price rigidity means that the economy has a tendency to move into equilibrium with excess capacity and unemployment (pp. 66-67).

Along similar lines, Schumpeter (1926/27) had argued that "rationalization" of the productive process (in the sense of a combination of substitution of machinery for labour and "Taylorization") could cause not just temporary, but permanent unemployment, if the assumption of free competition was replaced by "quasi-monopolistic" market structures. In terms of the 1939 framework this could be expressed as an increase of the normal rate of unemployment. However, from the point of view of the dynamic process typical of depressions associated with widespread falling demand, observed short-run price rigidity in the cyclical downswing is stabilizing, because of its positive effects on the financial strength of firms and hence by avoiding "chaos in their markets".<sup>10</sup>

Whereas Schumpeter conceived of a two-phase cycle formed by "prosperity" (departure from equilibrium) and "recession" (return to equilibrium) in his first approximation (1939, ch. 4.A), he further moved (ch. 4.B) to a four-phase cycle divided into prosperity, recession, depression and recovery. In the two-phase cycle the system does not fall below normal, in contrast with the overshooting of equilibrium when passing from recession to depression in the four-phase cycle. Schumpeter's unemployment taxonomy applies better to the four-phase cycle. During the depression phase employment will decline at a decreasing rate until recovery point is reached (1939, p. 209).

According to Schumpeter (1939, p. 518; 1952, p. 283) the main reason why Keynes and other economists had separated cyclical from technological unemployment was their focus on the Kitchin cycles of 40 months' length, instead of taking into account the Juglar cycles of 9 years' length and especially the "Kondratieff long-waves" that span six decades. In Keynes's case, this is explained by his short-run assumption of given production methods. Schumpeter (1939, pp.

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<sup>9</sup> Darity (1981-82) argues that Beveridge (1909) treated all unemployment as essentially frictional. However, Beveridge (1907, pp. 68, 71; 1909, chs. iv - v) made clear that frictions are relevant only in the case of unemployment associated with sectoral fluctuations of output that cause intersectoral movements of labor. Hence, for Beveridge, frictions are essential to understand what he called the "irreducible minimum of unemployment", not the aggregate behavior of unemployment in the time series.

<sup>10</sup> As put by Schumpeter ([1942] 1952, p. 95), "perfect and universal flexibility of prices might in depression further unstabilize the system, instead of stabilizing it" (cf. Blanchard and Fischer 1989).

516-18) claimed that a close examination of the unemployment time series for the period before the First World War reveals a stable normal rate of unemployment, together with supernormal unemployment in the depression phase of the second Kondratieff and the presence of an unemployment peak every nine years, reflecting the “clusters of innovation” typical of the Juglar cycle.

#### **4 Wages, Unemployment Benefit, and Policy**

##### *Wages and Unemployment*

The influence of departures of the wage rate from its full-employment equilibrium level on labour demand and employment was first discussed by Schumpeter in his 1916/17 article about the theory of distribution (pp. 78-80). He introduced a distinction between small variations/short periods on one side, and large variations/long periods on the other. In the latter case a higher wage rate will induce a different optimal combination of production factors which increases the capital-labor ratio, that is, a mechanization of the productive process. The mechanization may lead to a larger optimal output and to an upward shift of the demand for capital. The increase in the production of capital goods will induce a “secondary demand” for labor, which restores part of the original employment level. It is possible that the demand for labor regains its earlier level (or even exceeds it), as “very easily, at such a reorganization of production as is involved in a mechanization of the production process, completely new possibilities emerge that nobody had ever thought of earlier and that further reorganization of the production follows” (p. 79). This differs from the short-run effect of small wage increases, which tend to bring about cuts in production and, therefore, in the demand for both capital and labour.

The distinction between the short-run and long-run effects of wage changes (or resistance to change) was carried over to *Business Cycles* e.g. in Schumpeter’s notion of vicarious unemployment discussed above. “Depression unemployment”, on the other hand, is not decided by wage rigidity. The dominant factor in the determination of employment in short-run situations of deep economic depression is the downward shift of the firms’ demand curves for labour, caused by cyclical shifts in the demand curves for goods. Furthermore, the labour demand curves tend to become less elastic in the process of shifting down. Hence, the short-run influence of changes in wage rates is not important in Schumpeter’s framework (see 1939, p. 839, n. 1). In the particular case of the American labour market in the years following the 1929 crisis, “it is not only likely that actual [wage] reductions failed, for the time being, to call forth additional demand for labour... and that greater reductions would have still more completely failed to do so, but there must also have been cases in which reductions of rates simply resulted in a decrease of total output and employment” (pp. 953-54). That conclusion does not apply after the economy passes the lower turning point and enters the prosperity phase of the cycle. Higher wage rates will then contribute to mechanization and prevent a faster increase of employment, as long as there is supernormal unemployment (p. 954).

Although Schumpeter kept elements of the distinction between short-run and long-run effects of wage changes that he had introduced in 1916/17, the indeterminacies of that article were gone by the time he delivered the Lowell lectures. In the new chapter 28 added to the second edition of *Capitalism, Socialism and Democracy*, Schumpeter ([1942] 1952, p. 386) wrote that the labour (and other “anticapitalist”) policies which prevailed in the USA “reduce employment below its otherwise possible level by putting an abnormal premium on everybody’s employing as little labour as possible – they induce a sort of ‘flight from labour’”. Schumpeter clearly referred to the long-run substitution of capital for workers induced by high labour costs –

a process intensified by “cheap money” policy, as pointed out in the Lowell lecture ([1941] 1991, p. 369).

### *Unemployment Benefits*

Despite his criticism of “labour policies”, Schumpeter was in favor of unemployment relief as the best way to counteract the effects of the business cycle on workers’ welfare. Having described cyclical technological unemployment as “frictional”, Schumpeter (1939, p. 516) was at pains to stress that this definition did not indicate any intention to “minimize the importance of the phenomenon or the sufferings it inflicts”. He argued nevertheless that the primary interest of workers is in the effects of innovation on their long-run aggregate income “and not in the incident variations of employment, which is but an element of the mechanism that produces the changes of the former and can be separately handled by public policy”. Schumpeter did not indicate at the time what exactly he meant by “public policy”, but it is clear from his other writings that he aimed at the protection of workers from the effects of temporary unemployment, though not generally by way of anti-cyclical stabilization policy.

The real tragedy is not unemployment *per se*, but unemployment plus the impossibility of providing adequately for the unemployed *without impairing the conditions of further economic development*: for obviously the suffering and degradation ... which we associate with unemployment, though not the waste of productive resources, would be largely eliminated and unemployment would lose practically all its terror if the private life of the unemployed were not seriously affected by their unemployment. ([1942] 1952, p. 70; italics in the original)

Some years earlier, Schumpeter (1926/27) had defended unemployment relief in a comment on the debate between Cassel, Lederer and others about its influence on German unemployment in the crisis of 1925/26. Cassel (1926) had argued that technical change (“rationalization”) would generally bring about temporary unemployment associated with frictions; lack of economic mobility, caused by the “monopolistic policy of trade unions” and by government measures for the relief of the unemployed, was the only possible source of permanent unemployment.<sup>11</sup> Cassel’s claim was based on the idea that general overproduction is impossible, reducing unemployment to a temporary phenomenon connected with the reallocation of workers between different sectors. “From which it follows that the cause of a *more than temporary* unemployment can be found only in circumstances that prevent workers from such adjustments” (Schumpeter 1926/27, p. 155; italics in the original). Schumpeter did not reject Cassel’s invocation of Say’s law. “It has been attempted innumerable times for more than hundred years to refute this argument [against general overproduction]. However, if understood properly, it is irrefutable... But the way from this insight to its practical application is just as long as the way from a pure theorem of mechanics to the construction of a bridge...” (*ibidem*).<sup>12</sup> The problem with Cassel’s proposition rested elsewhere, namely in his assumption of free competition in the *goods* market. Persistent unemployment in Germany at the time was, according to Schumpeter, caused by the dominance of imperfectly competitive firms that made

<sup>11</sup> See Boianovsky and Trautwein (2003) for Cassel’s interpretation of unemployment in general.

<sup>12</sup> Schumpeter emphasized on many occasions (see e.g. his 1931 Tokyo lecture; and 1954, pp. 615-25) that Say’s law is one of the main building blocks of business cycle theory, since it prevents the wrong turn taken by underconsumption theories. However, unlike Cassel, Schumpeter did not regard frictional unemployment as a corollary of Say’s law.

the temporary unemployment effects of labor-saving innovations permanent (see also Stolper 1994, p. 45; McCraw 2007, pp. 175-76).

From this follows... that Professor Cassel's argument does not apply, at any rate, to the German system of unemployment benefits. Because, if the monopoloid price and sales policies are the true cause of persistent unemployment, while we cannot abstain from the monopoloid forms of organization, the support of the unemployed is just as indispensable an element of our economic order as unemployment itself ... This is the reason, but the *only* reason, why under present circumstances the problem of unemployment can only be solved in a planned economy – not necessarily a state-led one, though. (1926/27, pp. 159-60; italics in the original)

Imperfectly competitive structures play an important role in accelerating the pace of technical progress, an argument he would elaborate in detail in his discussion of “creative destruction” in chapters 7 and 8 of the 1942 book. In his 1926/27 German article Schumpeter, in contrast with the discussion in *Capitalism, Socialism and Democracy* (1942) and his 1946 encyclopaedia entry about capitalism (reproduced 1951), restricted his defence of unemployment benefit to “permanent” unemployment. His later argument in favour of unemployment relief did not exclude the perverse incentive effects of the kind stressed by Cassel, but assumed that they could be minimized by proper management of the unemployment insurance system.

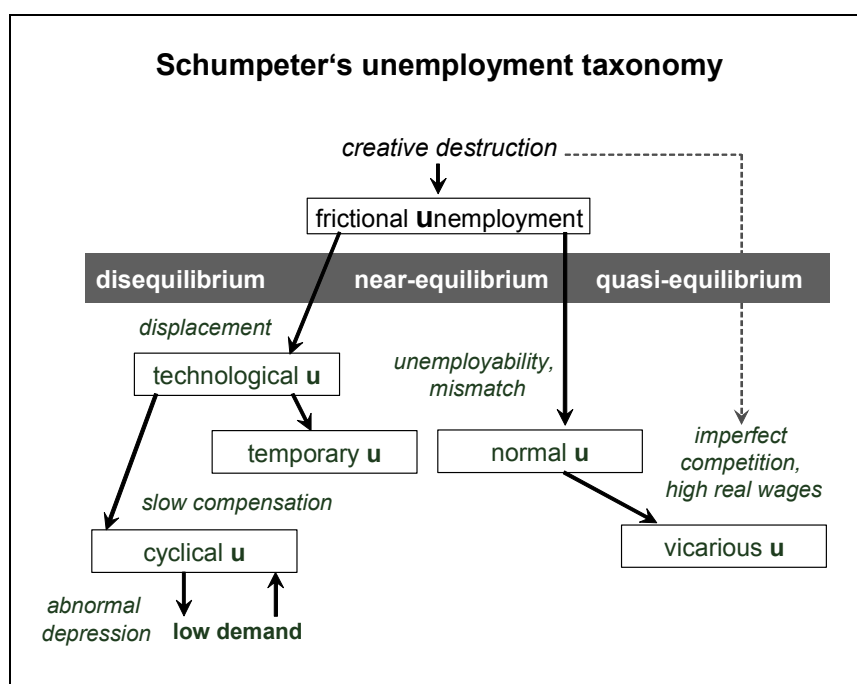
#### *Macroeconomic Policy*

Although Schumpeter paid relatively more attention to counteracting the effects of unemployment than attacking its causes, there was scope for macroeconomic policy in his framework. The topic of the last section of chapter 6 of the second 1926 edition of *The Theory of Economic Development* is the “prophylaxis and therapy” of economic crises. While depressions, by destroying “these existences which are irretrievably associated with the hopeless unadapted” ([1926] 1934, p. 253), are in principle a necessary feature of the economic development process, abnormal depressions that overshoot equilibrium and increase unemployment beyond what is “necessary” ([1925] 1994, p. 120) should be avoided. Such overshooting is caused by the uncertainty that prevails in the downswing, with ensuing “precautionary measures taken on all sides”, perishing of “much of what is healthy and vigorous”, and “temporary restrictions of production” (*ibidem*). The same idea may be found in Schumpeter's ([1942] 1952, p. 90) remark that the disorganization of the industry caused by the rapid change of data in the creative destruction process may inflict “functionless losses” and “avoidable unemployment”. Economic policy should not try to conserve “obsolescent industries indefinitely”, but instead try to “avoid their coming down with a crash” and attempt to “turn a rout, which may become a center of cumulative depressive effects, into orderly retreat” (*ibidem*).

The losses and destruction which accompany the abnormal course of events are *really* meaningless and functionless. Justification of the various proposals for a prophylaxis and therapy of crises chiefly rests with them. The other sound starting point for remedial policy is the fact that even the normal – still more the abnormal – depression implicates individuals who have nothing to do with the cause and the meaning of the cycle, above all the workers.

([1926] 1934, p. 253; italics in the original)

Among the measures suggested by Schumpeter were the postponement of public construction projects to periods of depression, and a credit policy that discriminates between businesses made obsolete by the boom and those threatened by abnormal depression. The same point of view can be found in Schumpeter's oft cited contribution to the 1934 Harvard volume on *The Economics of the Recovery Program*. Schumpeter ([1934] 1951, p. 115) had no doubts that relief was "imperative on moral and social grounds" and important to stabilize demand, but was critical of remedies, such as expansionary credit policy, that could prevent the necessary adjustment to economic change. The upshot was that "futile as it is to hope for miraculous cures, it is exactly wrong to believe that the evils of depression are all of them inevitable and that the only sound policy consists of doing nothing" (p. 117). Even under the assumption that much work of reorganization and adaptation is done in the depression and that the latter will find its "natural end", one should not, according to Schumpeter (1939, p. 155), just "let things take their course". It is worth noting that Schumpeter (1926/27, p. 158) argued for public spending as a way to get the economy over a "dead point" already in the 1920s, even before its popularization in the 1930s. It is clear enough that Schumpeter's conception of economic policy in the depression was more sophisticated than the pure "liquidationist" view that is frequently associated with him (see De Long 1990; Caballero 2007, p. 192).



## 5 Schumpeter and the Neo-Schumpeterians on Unemployment

### *Creative Destruction as General Cause*

Our investigation of Schumpeter's views on unemployment shows that, contrary to widespread

opinion, Schumpeter had a rather sophisticated understanding of how different types of unemployment could develop from one and the same cause, namely creative destruction. Our figure (above) displays the systemic relations between the different types of unemployment in Schumpeter's taxonomy, as explained in the previous sections. His interpretation of unemployment as an essentially frictional phenomenon is a by-product of his approach to the long-run and short-run effects of technical progress. The starting point was his study of the consequences of the introduction of labour-saving innovations – the famous machinery problem formulated by Ricardo and carefully discussed by Marx, Wicksell and Hicks. This is hardly surprising, since it was in the machinery chapter that Ricardo ([1821] 1951, p. 387, top) advanced the Schumpeterian theme of the temporary profit captured by the entrepreneur who introduces the innovation into the system (see Schumpeter 1954, p. 646; Morishima 1992, pp. 43-44). It may look paradoxical that, having rejected the explanation of unemployment by permanent displacement effects of new machinery, Schumpeter would focus on technological unemployment as the main dimension of unemployment in capitalism. However, this apparent paradox is easily solved once Schumpeter's account of the reallocation process in the business cycle is taken into account.

The dismissal or neglect of Schumpeter's approach to unemployment in the economic literature of the 1940s and 1950s was founded on the notion that unemployment could not be explained by frictions. A case in point was Alexander Gourvitch ([1940] 1966, pp. 188-90) who, in his classic book, criticized Schumpeter's notion that technological unemployment is "ephemeral", on the grounds that it depended on Schumpeter's unproven assumption that the system eventually converges to normal equilibrium unemployment. The view on Schumpeter changed dramatically in the early 1990s, when his concept of creative destruction became central not just to the microeconomic analysis of competition (as it had been for some time), but to the macroeconomics of the labour market as well.

#### *Similarities and Differences between Schumpeter and the Neo-Schumpeterians*

Our illustration of the systemic relations in Schumpeter's taxonomy of unemployment (in the figure above) helps to highlight important similarities and differences between Schumpeter's views and models of frictional unemployment in the Neo-Schumpeterian literature. As indicated above and explained below, there is a terminological correspondence between Schumpeter's approach and Neo-Schumpeterian writings in terms of close links between creative destruction and frictional unemployment. Yet, to our knowledge, there is no single approach in the modern literature that captures all of Schumpeter's subdivisions of frictional unemployment. This may be the price to pay for a substantial change in methodology. Schumpeter's views were based on purely verbal reasoning about complex relationships between statics and dynamics in economic analysis. That dichotomy helped him nevertheless to distinguish rather clearly between the disequilibrium phenomena of technological and cyclical unemployment on the one hand, and the equilibrium phenomena of normal and vicarious unemployment on the other. Neo-Schumpeterian models discuss unemployment generally in a dynamic general equilibrium setting. However, keeping such models tractable requires a reduction of complexity that does not, at present, seem to allow for taking into account all of aspects of frictional unemployment addressed by Schumpeter.

Yet modern modeling techniques do also help to substantiate as well as modify Schumpeter's intuitive insights. A case in point is Schumpeter's assertion of the stationarity of long-run unemployment (see section 2). Schumpeter's unemployment series ([1946] 1951, p.

200) have been extended up to 1990 by Layard, Nickell and Jackman (1991, pp. 3-5). Like Schumpeter, they conclude that unemployment is untrended over the very long term. Such empirical evidence has led some authors to regard the absence of long-run effects of the level of productivity on the steady-state (or “natural”) rate of unemployment as one of the conditions that any unemployment model should satisfy (Blanchard and Katz 1997, p. 56). It should be pointed out, however, that Schumpeter did not categorically exclude the possibility that productivity growth may affect unemployment in the long-run, especially if it comes along with imperfect competition. For him it was an empirical question, and there is a yet no consensus about the sign of the long-term correlation between unemployment and productivity (or GDP) growth, although zero correlation is often found (see e.g. Mortensen 2005).

From a purely theoretical perspective, the relation between productivity growth and unemployment has been approached in two different ways in recent literature, depending on the assumption about the character of technical progress. Under the assumption of disembodied technology, faster technological progress leads to more job creation in the steady state through the “capitalization” effect: since the costs of job creation are paid initially, faster technological progress means a lower effective discount rate on future profits and hence higher present value for profits (Pissarides 1990, ch. 2). If variations in the rate of job destruction are mostly high-frequency (that is, they can be assumed to be constant across business cycles), the effect of faster growth in the disembodied case is to increase job creation and reduce unemployment. In the alternative vintage approach, the new technology is assumed to be embodied only in the capital at workplaces with newly created jobs. The notion that new technology cannot be adopted in existing jobs and that its introduction requires the creation of new jobs with new capital goods is close to Schumpeter’s approach. It implies that technical progress entails a transition of workers to unemployment and search for a job in the new firms. Therefore, faster technical progress brings about more labor reallocation and – because of frictions inherent to the working of the labor market – higher unemployment caused by lower job creation and higher job destruction flows. This effect of technical progress on unemployment is, with reference to Schumpeter, called “creative destruction” effect (Aghion and Howitt 1994, 1998, ch. 4; see also Mortensen and Pissarides 1999; Pissarides 2000, ch. 3, and Postel-Vinay 2002).

It is worth noting that modern models of creative destruction do not challenge the neoclassical view of Wicksell and Hicks, also adopted by Schumpeter, that the introduction of labor-saving methods has no long-term effects on unemployment. As pointed out by Howitt (1994, p. 768), the mainstream view focuses upon the effect of a single technological innovation, or the introduction of a “general purpose technology”, not on the effects of an increase in the rate of technological progress.<sup>13</sup> Even if the workers displaced by a single innovation eventually find new jobs, “the faster the pace of job-destroying innovations the greater will be the flow into unemployment in any given situation, and therefore the greater will be the steady-state rate of unemployment”. Schumpeter was aware that the effects of a *constant* rate of technological progress on the *level* of long-run unemployment would be permanent: “[T]echnological unemployment, even if essentially temporary so far as the effects of any individual act of mechanization is concerned, may evidently become a permanent phenomenon through being

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<sup>13</sup> Francois and Lloyd Ellis (2003, 2005) deviate from this view to model the emergence of high-frequency cycles from the optimal clustering of innovations in a framework of entrepreneurial “animal spirits”. Their framework appears to be open to endogenous explanations of variations in the rate of technological progress, but does not deal with variations in the *steady-state* rate.

incessantly recreated” (Schumpeter 1954, p. 944; see also the second quotation that opens this paper). However, except for a brief elliptic passage in the “lost chapter” of 1911, he did not discuss the effects of a *faster* rate of technological progress on long-run unemployment (that is, he did not compare different steady states).

In the short-term perspective, the Neo-Schumpeterian literature has paid special attention to Schumpeter’s emphasis on the importance of recessions as a “spring cleaning” that paves the way for further economic development. Caballero and Hammour (1994, 1996, 2005) have argued that, contrary to Schumpeter’s claim, the pace of the restructuring process may fall rather than rise during contractions because of impediments to creative destruction. Incomplete contracting between labor and capital can disrupt the synchronization between job creation and destruction during recessions and make unemployment higher than optimum. However, Schumpeter was hardly oblivious to the fact that unemployment can reach levels higher than its “right” amount in the depression (even though contractual relations were not in his focus).

## 6 Final remarks

The core of Schumpeter’s views on unemployment is his notion of frictional unemployment caused by the introduction of innovations in the economy. In chapter 7 of the first edition of *The Theory of Economic Development* Schumpeter identified that notion as the component of unemployment phenomena that could be explained by pure economic theory. Schumpeter kept that insight in his later work, but enlarged the basic framework by suggesting in the *Business Cycles* a new taxonomy including also forms of unemployment associated with wage push, imperfect competition and short-run downward shifts of the (new and old) firms’ demand curves for labor in the deep depression. Surely, as sometimes remarked by Schumpeter, all kinds of unemployment may be called frictional if one adopts a widely enough definition of “frictions”. However, only technological unemployment is essentially related to the “creative destruction” process envisaged by Schumpeter. Interestingly enough, in his controversy with Cassel it was the latter who adopted the view that passive labor market policies - by creating rigidities that affect negatively the ability of the labor market to adjust to technology shocks - were the main factor behind the persistently high unemployment rate in Europe in the 1920s. Later on, Schumpeter did emphasize labor market policies as a main contributing factor to high unemployment rates in the US in the mid and late 1930s, but his focus was not on their perverse effect on labor supply (as in Cassel), but on their negative impact on the profit expectations of entrepreneurs.

Even though Schumpeter’s views on unemployment as friction are remarkably coherent and rich in structure, one may see some apparent loose ends. There is, for example, an inconsistency between his life-long insistence on the general validity of Say’s law and his accounts of abnormal depressions, in which aggregate demand for goods and labor falls far below supply in a cumulative process - in Schumpeter’s defense, one could argue that his point was about the fragility of simple “over-production” theories of the underconsumption type. In the same vein, the corresponding notion of “depression unemployment” does not easily fit the purely frictional model, although it can be seen as part of the asset readjustment process prompted by technological change. There is also an inconsistency between his insistence on the absence of an upward trend in unemployment and his pattern prediction of increasingly “quasi-monopoloid structures” in the course of economic development, as these would produce a tendency toward higher rates of normal unemployment in equilibrium.

Yet the absence of an upward trend in unemployment can be defended with reference to



Schumpeter's theory of creative destruction. In his *Capitalism, Socialism and Democracy* ([1942] 1952, chs. 5-8), Schumpeter developed the notion that monopolistic competition may increase the rate of growth through the intensity of creative destruction that he considered to be higher than in atomistic competition, in contrast with his earlier works (see Scherer 1992). He came to reject the orthodox view (partially supported in his 1939 book) that the level of output and employment over time is lower under monopolistic competition than in perfect competition ([1952] 1942, pp. 80, 82). Furthermore, he argued that short-run price rigidities may help to mitigate the cyclical fluctuations of employment and output. This resembles in fact some old and new Keynesian views, though derived from a completely different framework of analysis. The richness of arguments about the unemployment effects of creative destruction shows that there is still a lot to rediscover and reconstruct for Neo-Schumpeterian theory.

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