

The role of labor in a socio-ecological transition: Combining post-Keynesian and ecological economics perspectives

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Abstract

This article investigates the role of labor in post-Keynesian economics and proposes an integration with Ecological Macroeconomics. Although Post-Keynesians have to date not engaged extensively with environmental limits, there is an increasing interest to model policy proposals by ecological economists. While ecological and post-Keynesian economists share many ways of conceptualizing labor that are distinct from the mainstream, it is unclear how these feed into modeling, since post-Keynesians model labor as a residual, and not as a policy variable per se. In fact, post-Keynesians have traditionally focused on targeting employment via targeting aggregate goods demand, rather than targeting it directly. This paper argues that by complementing this demand-side view with post-Keynesian perspectives on labor supply, one can arrive at a post-Keynesian labor theory that offers entry points for ecological theorizing.

Keywords: Post-Keynesian economics, Ecological economics, labor theory, economic growth, climate change, unemployment, bargaining power

JEL codes: D33, E12, E24, O40

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1. Introduction

In recent years, post-Keynesian economics (PKE) and ecological economics have been brought closer together in the emerging field of Ecological Macroeconomics (Rezai/Stagl 2016). While both PKE and ecological economics share common interests, one area in which there is still a wide gap is the treatment of (paid) labor. In the context of this gap, we argue that there is a case to be made for a more explicit post-Keynesian engagement with labor economics. While the case can be made tenuously on post-Keynesian grounds, it is even more important in the light of climate change and biophysical limits.

Ecological economists deal with economic questions arising in the context of environmental degradation and climate breakdown. As opposed to *environmental* economists, they argue that the environmental crises we are facing are an outcome of core dynamics of capitalism (e.g. the drive for profit, see Hinton 2020, or for rents, see Stratford 2020), and that the tools which proved successful in creating the problems are insufficient in resolving them. From this perspective, many elements of the current economic system would have to undergo substantial reform. One of the core areas of such ecological economics theorizing concerns wage labor¹ (Barca 2017). Ecological economists propose a restructuring of wage labor dynamics, e.g. through decoupling of labor and income via Basic Income, Basic Services, or similar policy measures, or through proposals of work-sharing (see e.g. Dengler/Strunk 2018, Kallis et al. 2013, Knight et al. 2013). Thereby, the labor market features prominently in policy proposals of ecological economists, with the core assumption that fundamentally reforming the institution of wage labor in the economy will (directly or indirectly) lead to decreased levels of consumption and production within planetary boundaries while at the same time, at least potentially, contributing to a higher quality of life. For Post-Keynesian Economics to shift its focus on the issue of climate change and biophysical limits, it needs to engage with these discussions in conceptualizing and modeling labor.

On a conceptual level, ecological and post-Keynesian economists both reject the neoclassical notion of treating labor like any other 'normal good' in a Walrasian market. However, post-Keynesianism does not have a unified theory of the labor market, nor treats the labor market as a prime locus of policy making. Labor itself, of course, is addressed regularly, as post-Keynesians care about issues such as structural unemployment or the functional distribution between labor and capital. Yet, their demand-side focus leaves the labor *market* as a residual in the macroeconomic system. Whereas neoclassicals, when tackling unemployment, treat labor markets just like any other market which can be characterized using preferences, endowments, and technology, post-Keynesians commonly see a clear hierarchy of the goods market over the labor market, which motivates their call for a stimulation of product demand as a means of lowering unemployment. Even though employment and the wage as a macroeconomic price thus play important roles in post-Keynesian economics – especially considering that Keynes' analysis of involuntary unemployment was one of the main insights of his *General Theory* – labor processes *per se* remain under-researched. Since post-Keynesian models do not treat labor prominently as a variable for policy intervention, however, ecological economists, when analyzing the labor market, have sometimes resorted to using neoclassical models (see

¹ Many ecological economists assume that the overall amount of labor (defined in terms of human energy expended) will rise once we can no longer rely on cheap and dense energy sources such as fossil fuels. Nevertheless, ecological economists usually do not argue that we should hence increase overall levels of *wage* labor. Labor may rise while *wage* labor decreases e.g. via shifting more activities toward collectivized but informal sectors. Moreover, the decrease in energy use, which would result in lower labor productivity and consequently need higher amounts of labor to achieve stable levels of output, may be compensated by *falling* levels of output.

Hardt/O'Neill 2017 for an overview). While the exchange between post-Keynesianism and ecological economics is increasing, e.g. with the greater use of SFC system-dynamics models in ecological economics (Dafermos et al. 2018, Jackson 2020), those models do not study policy interventions *per se*, particularly not in the labor market.

This article aims to address this gap by showing that there is a range of post-Keynesian perspectives that might constitute the building blocks of a post-Keynesian labor theory, which can serve as entry points of ecological perspectives in post-Keynesian debates and vice versa. We proceed by developing in section 2 the ecological economics perspective on the core relevance of labor markets in a socio-ecological transition. Given this relevance, and given the fact that ecological economists usually draw from either neoclassical or post-Keynesian models in their macroeconomic analysis, we then turn to the question of the role of labor markets in post-Keynesian thinking. Section 3 starts by recognizing that although post-Keynesian economics does not have a unified theory of the labor market, there are relevant elements of post-Keynesian thinking on labor markets, which we review in detail. Section 4 brings together the ecological economics literature in section 2 with the post-Keynesian thinking in section 3 and shows how an ecological economic focus on labor policies would conceptually relate to various elements of post-Keynesian thinking on labor. Section 5 summarizes and concludes.

2. Ecological Economists on the role of labor markets in a socio-ecological transition

Post-Keynesian scholarship increasingly engages with environmental topics such as climate change or environmental degradation and should draw on ecological economics for inspiration and expertise. For many ecological economists, labor markets and policy are seen as essential in achieving systemic sustainability. Some ecological economists go so far as to discuss specific wage work policies as “the single silver bullet” (Weiss/Cattaneo 2017: 227) for achieving a socio-ecological transformation. Even though most ecological economists would discuss a significantly wider range of factors than just wage work, questions around work² do occupy a central position in the ecological economics discourse. At the core of this discussion is the ecological economists' critical perspective on the presumably virtuous cycle of technological change and economic expansion, which we briefly summarize here as an example of the kind of debates PKE needs to engage with more strongly.

Technological change leads to gains in labor productivity, which can be used to translate the same amount of work into a higher amount of economic output. On the flipside, of course, this is not only a potential but in fact a social necessity if we want to prevent structural job losses (Antal/van den Bergh 2013, Rezai et al. 2013, Scricciu et al. 2013). Failing to translate productivity gains into output growth would obviously lead to higher unemployment. Macroeconomic analyses of the energy-employment nexus, e.g. Taylor (2009) or Jackson and Victor (2011), utilize the following identity, with e being employment, P_L labor productivity, and h working hours:

² Ecological Economics includes a host of literature conceptualizing work in different ways which are not discussed in this section, but should be mentioned briefly: for example, it includes considerations of unwaged care work and subsistence production, it questions both the conventional definition as well as the modern culture of ‘work’, and it engages with the literature around post-work. Some of these issues will appear in section 4, when we pay more attention to specific labor *policies* within ecological economics (and especially within the degrowth discourse), where e.g. decommodified labor plays a role.

$$e = \frac{GDP}{P_L * h}$$

If employment is to be constant while labor productivity increases, then either GDP has to rise or working hours have to decline. In fact, Keynes (1930) proposed in 'The Economic Possibilities for Our Grandchildren' that by 2030 we would have made use of labor productivity gains to such an amount that we would only work 15 hours a week. Historically, however, the rise of labor productivity fed only partly into working hours decline, and mainly into rising output, consumption levels, and resource use.

The interpretation of the virtuous cycle between labor productivity growth and economic expansion may differ radically when one adds an environmental constraint, however. Ecological economist perspectives on output growth range from critical questioning whether, on an empirical level, high growth rates are compatible with strong environmental policies (e.g. Kallis 2017) toward an outward normative rejection of 'growth fetishism' (e.g. Spash 2015). Empirically, energy use is closely linked with labor productivity, as an increase in output per worker (labor productivity) entails a rise in energy use per worker (Taylor 2009, Semieniuk 2016). Historically, the increase in energy use to increase labor productivity was powered by fossil fuels. Decarbonizing and limiting energy use, which is often seen as a key mechanism for fighting climate change, risk also limiting labor productivity growth (e.g. Warr/Ayres 2012, Semieniuk et al 2021). Hence, many ecological economists argue for altering the cycle of labor productivity and output growth.

However, ecological economists also understand that the self-reinforcing dynamic between labor productivity and output growth is not only a feature of capitalism but also a social necessity in the current economic order. If the economy does not grow fast enough to offset labor productivity gains, then unemployment results. Jackson and Victor (2011) call this the 'productivity trap'. It is seen as one of the capitalist dynamics that elsewhere in the ecological economics literature has been called a 'growth imperative' (e.g. Richters/Siemoneit 2018) and captured vividly in the formulation of 'doughnut economics' (Raworth 2017).

While ecological perspectives on labor (with a focus on *policy* solutions) are picked up in greater detail in section 4, the crucial point here is to realize the following: Ecological economists, like post-Keynesians, care a great deal about the relationship between consumption growth and employment, but argue that planetary boundaries put a limit to the political strategy of stimulating consumption demand for stable employment. Climate breakdown demands a socio-ecological transformation which calls for, among many other things, new ways of organizing labor – but what precisely that implies is subject to debate. For these debates, it would be useful to rely on the theoretical frameworks of heterodox economics, rather than to retreat to neoclassical perspectives of the labor market. Ecological Macroeconomics does make use of the post-Keynesian model apparatus (Rezai/Stagl 2016, Taylor et al. 2016). If this apparatus was enriched with more detailed accounts on labor, which would allow post-Keynesians more easily to trace supply-side developments like labor productivity growth, then, we argue, both ecological and post-Keynesian economics could highly benefit from a mutual cross-fertilization of ideas.

3. Post-Keynesian perspectives on labor

Interestingly, a unified theory of labor in Post-Keynesian theory does not exist. While some argue that this is simply due to historical contingencies (Pressman, 2011), others have provided a substantive argument against a post-Keynesian labor theory. King (2002), for example, reflects on his unsuccessful attempt to establish a Post Keynesian labor theory in the 1990s. He states that he recognized that

serious difficulties in undertaking such an endeavor lay in the very nature of post-Keynesian theory: “The raw material of labour economics is predominantly ‘micro’, while Post Keynesian theory is essentially macroeconomic” (King 2002: 68). In fact, for post-Keynesian economists, the labor market is not a market, at least not in the Walrasian sense (e.g. King 2015: 52, Lavoie 2014: 275). While in neoclassical labor economics, factors of labor supply and demand determine the labor market outcomes, the logic in post-Keynesian theory is reversed: Demand is derived demand, which results from aggregate demand in the goods market – and the level of labor demand determines the level of employment.³ For this reason, the labor market is usually modeled as a residual in short-run macroeconomic growth models and holds the least important position in the hierarchy of markets in post-Keynesian macroeconomic analysis. Labor supply, in contrast, is either not explicitly modeled, since it is assumed that in a system that operates below full capacity labor will always be available, or, in a reverse ‘Say’s Law’ type of argument, it is assumed that demand will create its own supply. Per model set-up, then, labor market outcomes are explained by macroeconomics, and there is no specific role for a distinctly post-Keynesian theory of labor ‘markets’. The substantive argument against a post-Keynesian labor theory would then be that labor economics would, at least in an orthodox framing, be microeconomics, but microeconomic issues do not play a central part – at least in the explanation of labor outcomes – in post-Keynesian theory.

However, in the following, we provide a systematic review of post-Keynesian literature that does deal with matters around labor markets, focusing on those elements we see as especially fruitful for an integration with ecological economics. In such a post-Keynesian theory of the labor market, demand and supply are explained separately by virtue of the labor market not being a real (Walrasian) ‘market’ (King 2015: 52, Lavoie 2014: 275), where we cannot rely on price mechanisms to determine the supply and demand of labor. This is rather straightforward for labor demand, since labor demand is derived demand that is macroeconomically determined on the goods market. Yet, if we do not fully assume ‘Say’s Law’ in reverse (and not all post-Keynesian economists do, see e.g. Skott 2017: 348), then something might have to be said about labor supply as well. Importantly, however, post-Keynesians assume that in different institutional set-ups, demand and supply regimes will relate to each other in different ways – and hence a third element of a post-Keynesian labor theory would focus on various demand-supply interactions. If prices do not *a priori* coordinate the interaction between supply and demand, then we need to trace out various other ways in which supply and demand interact *a posteriori*. The question thus becomes how their interrelation is coordinated given the lack of an effective, market-clearing price mechanism.

From this, three building blocks of a labor theory emerge: determination of labor demand, determination of labor supply, and demand-supply interactions, which are, as mentioned above, context-dependent and institutionally embedded. Table 1 shows both the elements and related principles that describe the core dynamics for each of the three building blocks of a post-Keynesian theory of the labor market.

³ In some sense, neoclassical labor demand is also derived demand, as an increase in a firm’s product demand will cause its labor demand curve to shift to the right. The difference is that neoclassical labor demand is derived from the production function (or at least simultaneously with the production function), thus already assuming full capacities. Product demand plays no role in determining the level of production. While in the neoclassical model, the shift in the demand curve will lead to higher employment levels, these employment levels are still determined at the demand-supply equilibrium, while the post-Keynesian model, not assuming market-clearing on the labor market, sees employment as directly derived from labor demand which in turn is directly derived from product demand.

Table 1: Elements and principles of a Post-Keynesian labor theory

Elements	Principles
Determination of labor demand	P1: Principle of Involuntary Unemployment from Lack of Effective Demand
Determination of labor supply	P2: Principle of (Vital or Social) Necessity to Work
Demand-supply interactions	P3: Principle of Hobbesian Production P4: Principle of Mediating Policies

Importantly, the elements do not stand next to each other in a purely complementary manner, but there are logical relations between them: we argue that principle 3 – Hobbesian employment relations or Hobbesian production, for example, arises precisely because of the dynamics described in principles 1 and 2 (involuntary unemployment and necessity to work). As we will show, the principles play a relevant role in telling a coherent narrative of the labor market – one in which we eventually integrate ecological perspectives (see section 4). In the remainder of this chapter, we will inspect the three building blocks in turn, for each outlining the principle(s) that characterize the dynamics of this specific element of a post-Keynesian theory of labor.

3.1 Determination of labor demand

P1: The Principle of Involuntary Unemployment from Lack of Effective Demand

Any distinctly post-Keynesian labor theory must start with the core tenet of post-Keynesianism: the principle of effective demand. Mainstream labor theory holds that employment levels are determined on the labor market via the interaction of labor supply and labor demand, with involuntary unemployment resulting only due to frictions and other market imperfections. In post-Keynesian theory, in contrast, labor demand is derived demand determined by effective demand in the goods market. The consequence is that underutilization of labor resources is possible with inadequate demand – explaining the occurrence of involuntary unemployment. King (2002: 84) notes: “Unemployment is simply the difference between the level of employment and the aggregate supply of labour, which may [...] safely be regarded as invariant in the short run with respect to the real wage”. In other words, changes in wages do not have a short-run effect on employment level, and (nominal) wage-setting itself is an institutionally determined process (see e.g. Weintraub 1963). Wages are not set via equilibrating market forces of supply and demand. The consequence is that, in a post-Keynesian model set-up, wage flexibility and labor market deregulation – the go-to policy solutions of mainstream macroeconomists if unemployment is high – will not help with tackling lack of employment, and may in fact have destabilizing effects. Instead, aggregate goods demand is the primary predictor of labor demand.

As post-Keynesians have consistently pointed out, this aggregate goods demand (and economic growth) can be wage-led or profit-led, i.e. demand and growth may fall or rise with an increase in the profit rate (Bhaduri/Marglin 1990, Dutt 1984, Taylor 1985). This shows the relevance of the functional distribution between wages and profits for the overall behavior of the economy. Unlike mainstream, supply-side approaches, then, post-Keynesian theories assume that goods demand determines

growth in the *long run*. While the neoclassical New Keynesian theory, for example, concedes that demand shocks have an impact in the short run (and must be reacted to with short-run monetary and fiscal policy), they would see the long-run determination of economic growth on the supply side, where the NAIRU determines the level of growth and employment that is compatible with stable inflation rates (e.g. Sawyer 2002). The hierarchy of the markets is thus reversed: for post-Keynesians, the long run focus is placed primarily on goods demand (and thus rates of capacity utilization), from which labor demand is directly derived. While there are a host of nuanced discussions within PKE on the determinants of aggregate goods demand, and thus also the dynamics of labor demand, the remainder of this paper primarily stresses that, in the post-Keynesian explanation, a lack of effective demand can account for structural involuntary unemployment – the first principle of a post-Keynesian labor theory.

3.2 Determination of labor supply

P2: The principle of the (vital or social) necessity to work

While labor demand is hence determined by macroeconomics, namely through dynamics on the goods market, the question of labor supply is a microeconomic question. Principle 2 provides the behavioral explanation for the theoretical building block conceptualizing labor supply (see table 1). The argument here is essentially the following: in modern economies, the provisioning of basic needs is largely undertaken via exchanging income for goods and services on the market. For most people, income is derived from wages – as expressed in the post-Keynesian assumption that workers consume out of wages. Hence, in order to survive and meet their basic needs, people *have to* work at least a certain amount of hours making work an economic necessity (see e.g. Eichner 1979, Robinson 1937).

This is in stark contrast to the orthodox framing, where labor supply decisions are seen as a choice between leisure and income. There, falling wages decrease the opportunity costs of leisure and hence substitution away from the ‘good’ income toward the ‘good’ leisure should occur – this is called the substitution effect. In the light of the necessity to consume at least a basic amount of goods to survive, however, the assumption of a free choice is seen as empirically too flawed by post-Keynesian scholars to use as an approximation of reality. Post-Keynesians hence give precedence to the income effect. This idea is already present in Robinson (1937), who argues that a reduction in real wages often makes workers work more rather than less – to keep up a certain living standard under falling real wages, people would be inclined to increase their hours to safeguard their livelihoods.

It is notable that there are links to post-Keynesian consumer choice theory, since “labor offer decisions are forcibly linked to consumption decisions” (Fernández-Huerga et al. 2017: 578). This is especially true because post-Keynesians assume that consumption is driven by lexicographic preferences, i.e. preferences that are hierarchically ordered, and a minimum of consumption in certain categories of goods (food, shelter, clothing) is non-negotiable. Thus, up to a certain level of consumption, and under the current, largely commodified, system of provisioning, labor supply is not a choice but a *vital* necessity. What, however, happens above this threshold? Do people turn toward optimization in their labor supply decisions? A post-Keynesian labor market theory would likely not think so. Instead, human behavior is assumed to be driven by two mechanisms accepted in post-Keynesian theory with important ramifications for labor theorizing: *satisficing* and *emulation*.

Regarding satisficing, one may point out that the principle of the vital necessity of work initially assumes that people choose how many hours to work, even though below a certain threshold they could not choose *whether* to work. As Lavoie (2014: 317) and others point out, this is not a realistic

assumption - workers usually face 'take-it-or-leave-it' offers (King 2002: 75). Rather than optimizing under such a condition, then, individuals are assumed to follow satisficing behavior in which hierarchical needs are fulfilled in their lexicographic order. Talking about needs, however, implies a substantively different perspective than talking about preferences. As Fernández-Huerta et al. (2017: 578) point out: "[T]he satisfaction of different needs is not comparable from one to another—at least not quantitatively—nor is it potentially substitutable, because they involve differing purposes and so distinct values". Labor supply decisions, then, are not about balancing a uni-dimensional preference decision between leisure and income, but about 'packages' of job attributes of which the wage rate is only one. These packages are deeply embedded in certain norms and institutional conventions that structure the institution of wage work.

The strategy of satisficing for various non-comparable goals already makes modeling of labor supply decisions more complex, but an additional layer of complexity is added when we consider that needs, wants and goals are not independent of one's past experience as well as of one's environment – this is where emulation comes into play (see e.g. Eichner 1979, Keynes 1936, King 2002, Robinson 1937). The idea that individual decision-making – in any situation – depends on emulation, habits and social norms is one of the key notions distinguishing post-Keynesian from neoclassical economics (Pressman 2011: 512), so it should come to no surprise that post-Keynesian scholars point out that this carries important ramifications for labor supply decisions. Lavoie (2014: 317), for example, notes that "[t]he supply of labour thus depends, both at the individual level and in the aggregate, on the perceived wage rate of the reference group and on the past standard of living". Note that this may also affect decisions on whether to supply labor at all: emulation may account for the discouragement of workers if they feel that income and overall job prospects fall short of some perception of social norms.

Taken together, both satisficing and emulation account for work being not only a *vital* necessity, but often also a *social* necessity. All in all, labor supply decisions are thus not taken freely by atomistic individuals as the utility-maximizing combination of income and leisure but are deeply entrenched in the two types of necessities. On the one hand, there is a vital necessity to work, since in a market-based provisioning system, a wage is the core way to sustenance, and the more commodified the system, the stronger this wage dependence. On the other hand, there is also a social necessity to work, which is shaped by the institutions that allow for satisficing behavior, by emulating peers, and by the behaviors of firms and employers themselves. We might not be able to clearly formalize a labor supply curve from these conceptualizations (though see e.g. Altman 2001, Prasch 2000, Sharif 2003 for attempts to do so), but they do give us an idea of what is relevant when thinking about labor supply from a post-Keynesian perspective.

3.3 Labor supply-demand interactions

P3 and P4: The principles of Hobbesian employment relations and mediating policies

Post-Keynesians have a range of perspectives on how labor supply and demand interact that may be called the principle of Hobbesian employment relations: Employment relations in post-Keynesian theory are described as a "Hobbesian rather than a Walrasian phenomenon, so that the employment contract is a power relationship, not just a set of mutually beneficial exchanges" (King 2015: 54). Only under full employment might we have a situation similar to a perfectly competitive market, as in any other case, workers have strong incentives to cling to their jobs, rather than immediately responding to wage changes. Neoclassical literature partly recognizes this around their discussions of monopsony power (e.g. Manning 2003), but while monopsony power in the mainstream story is mainly explained

by market frictions, a post-Keynesian explanation of monopsony power (as first proposed by Robinson 1933) would in addition draw on the interaction of post-Keynesian-specific accounts of labor supply and demand. Kalecki (1943), for example, already noted that unemployment has the social function of preserving discipline at the workplace, as worker power would rise with full employment. Post-Keynesians have also pointed out that the length of the working day is the outcome of a bargaining struggle between employer and employee, mediated by the power distribution and the institutional environment (e.g. Eichner 1979, Robinson 1937, Spencer 2006). Similarly, wage-setting is described not by a process of market-clearing, but by conflictual claims over target real wages of workers and capitalists starting with the seminal contributions of Rowthorn (1977) and Dutt (1984). Kaleckian mark-up pricing, where capitalists set a mark-up over labor unit costs, is assumed to drive price-setting behavior (affecting real wages), while workers try to increase real wages by bargaining over nominal wages. Conflicting claims over wages by capitalists and workers (and thus the dynamics of the functional income distribution) in fact drive inflation, making inflation a phenomenon related to distribution, rather than being primarily a monetary phenomenon. As Arestis and Sawyer (2005) point out, supply-side factors that do impact the inflationary process arise from capacity constraints, rather than from labor market dynamics.

When considering power imbalances in the labor market, post-Keynesians thus often focus on models such as conflict inflation or bargaining power, without explicitly bringing in a labor supply curve. Yet, we would argue that a post-Keynesian labor theory can give a fuller picture of power imbalances precisely by elaborating further on the *interaction* between labor supply and demand. Since aggregate demand determines labor demand, we frequently observe structural *involuntary* unemployment (demand side). Most people, however, *have to work* in order to survive (supply side) – it is not just involuntary because they ‘would prefer to work’, but in many cases because they need to work to survive. The combination of these two facts is not an exhaustive, but already a sufficient explanation for the occurrence of power imbalances between workers and employers.

This perspective would moreover account for a fourth principle of the labor market accounting for supply demand interactions: If power is a function of both the occurrence of involuntary unemployment (derived from the principle of aggregate demand) *and* of the (vital or social) necessity to work (derived from the post-Keynesian discussion on labor supply), then the institutional and policy background that shapes these two issues can mitigate or even further exacerbate the position of power of firms vis-à-vis workers. So far, post-Keynesian literature has focused more on the demand side, as policies to stimulate demand and thus increase employment will lead to a tighter labor market and thus more worker power. But one may also consider the effect of mediating policies on the left-hand side: Welfare regimes, for example, have an impact on the necessity to work – moving it potentially from the sphere of vital necessity to merely social necessity, and thus changing the extent to which involuntarily unemployed are subjected to the power of employers. King (2019: 311) makes an argument linking such institutional factors to macroeconomic outcomes. He illustrates that there is a range of obstacles to wage-led growth that are currently not discussed in the post-Keynesian literature, such as the decline of trade unions, the decline of the welfare state, and deregulation of the labor market. The principle that policies mediate the effect of aggregate demand as well as of the extent to which wage labor is a vital and social necessity, thus, is another justification to “take the microeconomics of the labour market more seriously” (King 2019: 308) – for its effects on *both* macro- and on microeconomic levels.

All in all, to summarize the elements discussed in section 3: Post-Keynesians argue that due to aggregate demand dynamics, involuntary unemployment exists (principle 1). Moreover, since Robinson, post-Keynesians have argued that for most people, wage work is an economic necessity

rather than a choice (principle 2). Therefore, labor supply cannot be meaningfully modeled solely in terms of wage ‘preferences’, and instead, the employment contract is better conceptualized as a power relationship (principle 3). The terms of bargaining power, however, are shaped by institutions and policies (principle 4) that may affect either involuntary unemployment (via demand stimulation) or the (vital or social) consequences of unemployment, by mitigating or deepening wage work dependence. A schematic representation of these links is represented in figure 1 below.

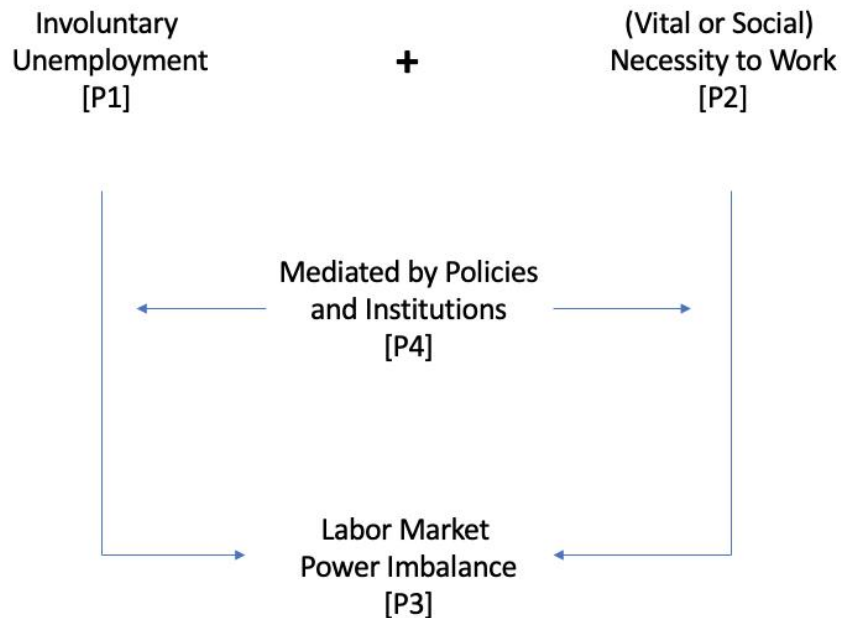


Figure 1: Interplay between principles [1] to [4]. Own depiction.

4. Integrating post-Keynesian and ecological perspectives

In section 2, we argued that the dynamics around employment, growth and climate are relevant for ecological macroeconomics. The foregoing section therefore compiled a post-Keynesian vision of the labor market, which we argue can and should be integrated more strongly in ecological macroeconomic theorizing. This section thus sets out to bring together the post-Keynesian story of the labor market, as summarized in figure 1, and the ecological economics focus on labor policies sketched in section 2.

As stated above, post-Keynesians so far have focused more on the left-hand side of figure 1: on involuntary unemployment, rather than on decreasing wage work dependence as such. Ecological (macro)economists, on the other hand, propose that the virtuous cycle of technological change and economic growth turns into a vicious cycle if one considers the damaging effects economic growth has on the environment. To disrupt this cycle, a range of alternative suggestions are proposed, among which we find e.g. the call to reduce working hours, thereby channeling labor productivity gains into a reduction of wage work with constant output, rather than in an increase in consumption and production; or even halting or reversing labor productivity growth by shifting production into less energy- and more labor-intensive sectors (Jackson/Victor 2011). Concrete policy interventions, rather than theoretical modeling of economic dynamics, are thus often the starting point for ecological economists discussing socio-ecological transitions. In terms of policies relating to employment, a (non-

exhaustive) list of policy targets that are frequently discussed, based on a synthesis of Cosme et al. (2017), Kallis et al. (2020), and Parrique (2019), would include:

1. Create jobs in sectors and industries that we do want to see grow in our economies, even if aggregate growth should stagnate or potentially even decline
2. To deal with the consequences of stagnating or declining growth, existing employment should be shared more equally
3. Generally, people should have to rely less on wage work for survival, decreasing the *vital* necessity of wage work by decommodifying labor
4. Moreover, a value change is called for to decrease the *social* necessity to work in order to allow people to ‘step outside the circle’ (Frayne 2016) of wage work and market consumption, allowing for a greater role of unpaid labor and needs-satisfaction provided by commons rather than primarily by markets

These goals are then channeled into a range of policies (see e.g. Kallis et al. 2020), such as a Green New Deal (GND), a Work-Time-Reduction or Work-Sharing scheme (WTR/WS) or a Job Guarantee program (JG) addressing the first two targets, and policies such as a Universal Basic Income or Universal Basic Services (UBI/UBS) and a remunicipalization and strengthening of local commons as ways to address the latter two targets.

In figure 2, we now connect these policies to the post-Keynesian narrative of labor markets outlined in the previous section. These policies, we argue, do align with the post-Keynesian story on labor markets as represented in figure 1, if we understand GND, WTR/WS and JG as tackling facets of involuntary unemployment (principle 1), and UBI/UBS as well as remunicipalization processes as impacting the (vital or social) necessity of wage work (principle 2), as they decrease workers’ dependence on a market wage. Integrating these policies in figure 1 on the respective side of each principle yields figure 2.

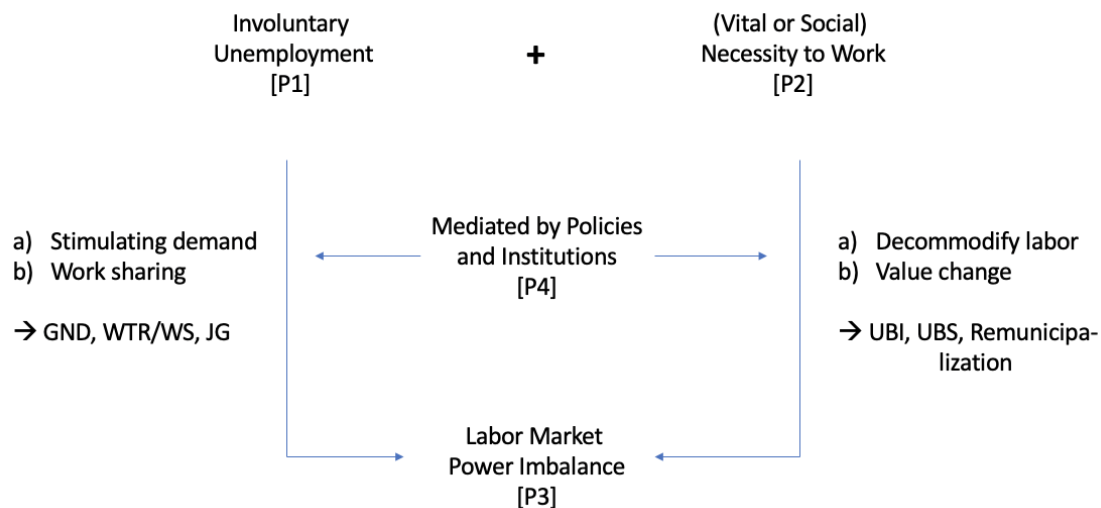


Figure 2: Entry points of ecological policy-making in the post-Keynesian theory of the labor market. Own depiction.

Reflecting on figure 2, we can draw three preliminary conclusions. Firstly, there are a range of policies discussed by ecological economists that are already part of the post-Keynesian research program, and that get increasingly more attention: the left-hand side of figure 5. Post-Keynesians increasingly discuss matters such as the Green New Deal (Pollin 2019) or job guarantee programs (Tcherneva

2020). On the issue of work-sharing, post-Keynesian economists Sawyer and Spencer (2010) argue in favor of a reduction in average work hours as a means of achieving full employment and other economic, social, and environmental goals. At first sight, there is thus a clear locus for integration of post-Keynesian and ecological perspectives once the post-Keynesian theory of the labor market frames involuntary unemployment as one of the core problems labor policies have to address, and demands that those policies focus not only on stimulating (any type of) goods demand, but focus on demand for green goods and services (such as green energy), or tackle employment directly, rather than tackling primarily demand. Hence policies tackling involuntary unemployment offer an interesting entry point of ecological perspectives into post-Keynesian economics.

Secondly, however, these policies do tend to be treated somewhat differently by ecological and post-Keynesian economists, and going forward, it is useful for ecological macroeconomists to be aware of the differences on the level of policy evaluation. In fact, the core distinction between ecological and post-Keynesian thought might be not so much the conceptualization of wage work itself, but rather the assumed relation between work (and desired labor policies) and economic growth, coupled with diverging perspectives on economic growth itself. Post-Keynesians, for example, might point out that legal work-time reduction may end up *stimulating* growth and energy demand (via the potential feedback effects of a subsequent increase in the employment rate, see Rezai et al. 2013: 73) rather than seeing it as a prime strategy to keep employment stable in times of falling growth rates. While post-Keynesians assume that a GND might bring about a ‘win-win-win’ strategy of benefiting climate, employment and growth, ecological macroeconomists tend to argue that such a ‘win-win-win’ scenario will not be possible (D’Alessandro et al. 2020) – especially since we are already now starting to experience what it is like to be on the losing side of climate breakdown. For that reason, some ecological economists call for a Green New Deal without aggregate growth (Mastini et al. 2021). While certain sectors (such as green energy) will need strong investments and growth, overall material throughput needs to decline, and as ecological economists point out, decarbonizing the economy is highly unlikely under current rates of decoupling if societies continue to perpetually expand their consumption and production levels (Haberl et al. 2020, Hickel/Kallis 2020, Schandl et al. 2016, Vadén et al. 2020, Ward et al. 2016). This is a perspective that has not yet been taken into account much in the post-Keynesian literature, and especially in post-Keynesian contributions around labor and labor market policies.

Lastly, we argue that despite there being ample starting points for a post-Keynesian perspective on the right-hand side issues of figure 2 – the consequences of wage work being a vital and social necessity for most households today – this has not been a focus of discussion for post-Keynesians up to this point. Nonetheless, this might yield interesting perspectives for both post-Keynesians and ecological economists. While ecological economists have so far mainly focused on conceptual debates of what e.g. a UBI or a UBS *might* achieve in terms of decreasing growth dependence and hence allowing for more sustainable ways of social provisioning, it is by no means clear whether the stipulated decrease in growth dependence actually takes place if we consider macroeconomic effects through a post-Keynesian lens. Ecological economists, for example, tend to assume that UBI, UBS and a strengthening of local commons and public infrastructure can decrease personal reliance on wage work and decrease consumption- and energy-intensive patterns of needs fulfillment (e.g. if households shop on global markets rather than accessing locally grown produce). If, however, a strengthening of public infrastructures includes a heavy reliance on state financing, then this might create stronger growth dependencies at a different level of the economy – at the state level rather than households, in this case. These macro interactions are something that post-Keynesians have much stronger tools of analysis for than ecological economists do. A third conclusion would hence be that linking post-Keynesian perspectives on the (vital and social) necessity to work with issues around

climate change and aggregate growth has not yet been explored much but might offer an interesting future research pathway.

5. Conclusion

As post-Keynesians have taken up environmental issues to a greater extent, ecological economists have started to engage with post-Keynesian macroeconomic modeling. While much progress has been made, the important question remained how to model wage labor in a way that does justice to core tenets of ecological economics, such as limits to growth. In this article, we tried to show a way forward by arranging post-Keynesian literature on wage labor in a way that tells a conceptual post-Keynesian story of labor markets which does offer a relevant entry point for ecological economics. We did so by collecting and arranging post-Keynesian literature on labor issues by three elements: labor demand, labor supply, and demand-supply interactions. Out of those elements four principles emerged, which offer an explanation of power hierarchies on the labor market: (P1) the principle of involuntary unemployment due to a lack of aggregate demand combined with (P2) the principle of the (vital or social) necessity to work account for (P3) the principle of Hobbesian employment relations, i.e. that the interactions on the labor 'market' (between employers and employees) are fundamentally shaped by the strengths of the joint effects of both involuntary employment and necessity to work. And the strengths of these effects, according to principle 4, hinge on the institutional and policy context.

When therefore shifting our attention to the question of policies, we were able to see that many of the core policies discussed in the ecological economics literature on employment fit quite nicely in the post-Keynesian story of the labor market that we tried to construct. The final target, of course, may be different – ecological economists do not in the first instance tend to care so much about hierarchies in bargaining power between workers and firms *unless* they are a source of socio-ecological injustice and damage. We leave for future research the question whether greater power for labor as opposed to capital would lead to a less growth-dependent, more environmentally sound fabric of the economy. According to ecological economics theorizing it certainly would. In the last instance, thus, the relation between functional distributions between labor and capital that post-Keynesians care so much about may be another core integration point that ecological economists care about too – although post-Keynesians' interest is in stable long-term growth, whereas ecological economists' interest is in reducing environmentally harmful, single-minded focus on economic growth.

6. References

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