

The Job Guarantee and Transformational Degrowth

B.J. Unti

3.1 INTRODUCTION

Traditional Keynesian and Post-Keynesian policies provide useful tools for addressing many of the inherent social and economic flaws of capitalism such as involuntary unemployment, poverty and inequality. However, these policies fail to account for environmental limits. As such, the solutions they offer all rely on increasing aggregate demand, stimulating higher levels of economic growth and throughput. By contrast, a job guarantee (JG) program embodies special features that dissolve the contradiction between employment and the environment: between economic and ecological prosperity.

This chapter explores these special features and argues that the JG can be used to pursue the social and environmental aims of degrowth.¹ The first section examines Keynes's diagnosis of and solution to the problem of unemployment in terms of effective demand. It is shown that the principle of effective demand has important and paradoxical implications for economic growth and the environment. The next section builds on Marx, Veblen and Keynes's insight regarding the central role of money in

B.J. Unti (✉)

University of Missouri Kansas City, Kansas City, MO, USA

a capitalist economy. It is argued that monetary production ($M-C-M'$) is not only the root cause of unemployment but also the driving force behind the existing ecological crisis. The third section compares the JG and alternative paths to full employment in terms of their environmental implications. The final section considers how a JG program may be modified to slow down the economy while maintaining full employment.

3.2 EFFECTIVE DEMAND: THE LINK BETWEEN JOBS AND GROWTH

Keynes's (1936) theory of effective demand diagnosed the problem of involuntary unemployment in capitalist economies. According to Keynes, the volume of output and employment is determined by the sum of consumption and investment demand. Because people tend to save a portion of their income, there is a gap between consumption demand and income (output). In order to achieve full employment then, investment demand must fill the gap at the full employment level of output. However, there is no mechanism to ensure that investment demand will fill the gap because investment decisions are based on expected future profits in a world characterized by fundamental uncertainty. The normal situation for a capitalist economy is one where investment falls short of what is required to bring about full employment.

Keynes's explanation of effective demand was confined to the short-run. When Domar (1946, 1947) extended Keynes's analysis into the long-run, he found that the problem of effective demand was made worse. The reason is that the same investment needed to fill the gap between income and consumption also increases productive capacity. As the volume of output expands, following each increment of investment, so too does the absolute size of the gap between income and consumption. As the gap grows, successively more investment is needed to fill it. But each additional increment of investment only further widens the gap. Consequently, "the economy finds itself in a serious dilemma: if sufficient investment is not forthcoming today, unemployment will be here today. But if enough is invested today, still more will be required tomorrow" (Domar 1947, p. 49). Finally, as the demand gap expands, excess capacity puts downward pressure on profit expectations. The result is that just when a higher volume of investment is required, the inducement to invest is weakened.

Boulding's (1945) bathtub theorem can be used to shed light on this paradoxical result. The bathtub theorem is particularly insightful because it is stated in real (physical) terms: $A = P - C$. The rate of accumulation is equal to the rate of production minus the rate of consumption: where A is the rate of accumulation, P is the flow of production (addition to capital stock) and C is the flow of consumption (destruction of the capital stock).² Boulding uses the analogy of a bathtub to explain the model. Production represents the flow of water into the tub. Consumption represents the flow of water down the drain. The volume of water in the tub represents the capital stock, and the difference between the flow of production and consumption is the rate of accumulation.³

According to Boulding, the bathtub theorem is the “first step in understanding long-run crises of capitalism—deflationary pressures of a mature society and its intractable unemployment” (1945, p. 3). Unemployment occurs because the economy has an institutionally limited capacity to absorb the stock of accumulated assets. When the growth of the stock exceeds the level desired by capitalists, the rate of accumulation (the difference between production and consumption) must fall. This can happen in one of two ways: (1) the rate of production must decrease and (2) the rate of consumption must increase.

The first case—a decrease in production—is brought about by falling profit expectations and results in involuntary unemployment. As Boulding puts it, “in a situation where the owners of the stock pile are unwilling to increase their holdings, in the absence of an increase in consumption, employment and production must decline until the difference between production and consumption is equal the rate of accumulation which capitalists are willing to allow. This ... in a nutshell is the main Keynesian contribution to economic thought” (1945, p. 3). The alternative—an increase in consumption—is unlikely to occur unless the government intervenes which is the traditional Keynesian solution. In light of the Domar problem, ever-increasing government spending is required to maintain full employment in the long-run (Vatter and Walker 1989, 1997; Wray 2007).

Boulding's analysis helps to illuminate the paradox of effective demand precisely because it is stated in physical terms. What it demonstrates is that crises occur when the system becomes *too productive*. In other words, when we produce too much, profit expectations fall off, investment declines and the result is rising unemployment, poverty and misery. The paradox is clear: people suffer not because we do not produce enough, but

rather because we already produce too much, or alternatively, because we do not destroy (consume) output fast enough.

To avoid a crisis of involuntary unemployment in the long-run, Domar demonstrates the net investment in each period must be larger than in the previous period. But investment expands productive capacity. Therefore, to avoid becoming too productive, society must always expand production. In other words, to avoid unemployment, a capitalist economy must grow at an exponential rate. As Dillard puts it, “employment in investment activity helps to maintain demand for the consumption output of existing facilities. In order to make full use of the factories already in existence, we must always build new factories. Otherwise, in our society with its characteristic widespread inequality of income, there will not be enough money spent to keep the old factories going. If investment falls off, unemployment results” (1948, p. 8).

3.3 A COMMON CAUSE: UNEMPLOYMENT AND ECOLOGICAL CRISIS

In order to address the problems of unemployment and ecological crises, it is necessary to understand their root causes. Marx (1860), Veblen (1904) and Keynes (1936) all identified the root of the economic problem in the institution of production for a profit or more simply monetary production (Dillard 1980, 1987). This section explains how and why the causes of the current ecological crisis can be traced to the same source.

The fundamental link between unemployment and ecological crisis is overproduction.⁴ And, overproduction as noted by Marx and Keynes, in particular, is a monetary phenomenon. Classical theorists denied the possibility of overproduction on the basis of Say’s Law: supply creates its own demand. However, as Marx points out, Say’s Law only holds in the context of a barter (i.e. non-monetary) economy. In a situation where individual producers exchange commodities for commodities ($C-C'$), supply literally is demand. If money is introduced as a medium of exchange ($C-M-C'$), the identity of supply and demand is broken and the possibility of a crisis of overproduction or insufficient aggregate demand emerges (Marx 1860).

In a capitalist economy, the potential for crisis is inevitably realized because money is both the starting point and aim of production ($M-C-M'$). The purpose of production is no longer use value (C'), but rather

money profits (M'). Capitalists own the means of production and therefore control production decisions. They must be willing to throw money into circulation to hire workers and purchase raw materials if production is to take place. On the other hand, workers own nothing but their labor power and remain at the mercy of capitalists. Whether or not social needs are being met, workers cannot set production in motion. What is required is the belief on the part of capitalists that they will be able to realize profits through the future sale of output. If capitalists' expectations are grim, they can deny workers access to the means of production, and the result is involuntary unemployment.

Unemployment is the most obvious social contradiction of monetary production. In a society in which production is geared toward profits (exchange value) and not needs (use value), the satisfaction of needs becomes a curse. Indeed, in a capitalist economy, meeting needs is merely a byproduct of making money profits. And when the system is too productive, profit expectations fall off, resulting in poverty amid plenty. This explains why massive quantities of resources are channeled into the wasteful industry of need production (i.e. marketing and advertising), even as the basic needs of large portions of the population remain unmet.

It should come as no surprise that an economic system that operates without regard to human needs fares no better when it comes to respecting environmental limits. If we ask why people who want to work are denied employment, the answer is simple. It is not profitable to employ them. If we ask why the destruction of the planet continues unchecked, the answer is likewise that it is not profitable to stop. So long as production aims at the endless accumulation of money profits, the environment remains in serious peril (Blauwolf 2012; Foster 1999; Harvery 2010; Klein 2014; Kovel 2002; Magdoff and Foster 2011; Smith 2010, 2011).

So, why must a capitalist economy always grow? The answer is not that we are failing to produce enough output to meet basic human needs. For example, US GDP per capita in 2013 was over US\$53,000.⁵ Rather, the economy must grow so that capitalists can realize profits and workers can secure jobs.

The relationship between profits and employment reflects the fundamental conflict between workers and capitalists in a system of monetary production. Economic growth is not directly in the interest of the majority of the population—at least not in the industrialized North.⁶ Indeed, beyond environmental limits, growth is a threat to everyone's well-being.

For the working class, growth is desirable only indirectly insofar, as it supports the security of employment. On the other hand, growth is the *raison d'être* of the capitalist class. As Marx puts it, “Use value must therefore never be looked upon as the real aim of the capitalist; neither must the profit on any single transaction. The restless never-ending process of profit-making alone is what [capitalists] aim at” (Marx 1867, p. 130). This is the basic condition of monetary production and the key to understanding both unemployment and ecological crisis.

Although the theory of effective demand emerges from an analysis of the short-run, Keynes identifies the basic relationships between profits, employment and growth. In a monetary economy, the level of employment depends primarily on the volume of investment; investment is a function of profit expectations; and profits in the aggregate will only be realized if investment is sufficient to ensure that the economy is growing.⁷ If the economy stops growing, involuntary unemployment rises. To solve the problem of unemployment then, the government must ensure that aggregate demand is always sufficient to maintain economic growth.

Keynes's diagnosis of the problem of unemployment in terms of money paved the way for its solution. However, the environmental problems associated with monetary production remain to be addressed. Full employment if achieved through increased aggregate demand and growth will simply put more pressure on an already overtaxed planetary ecosystem.

To reexamine the theory of effective demand and the policies flowing from it in the face of environmental limits, it is useful to recall Boulding's bathtub theorem. Boulding points out *two* ways to remedy a growing divergence between production and consumption: (1) increase consumption and (2) decrease production. The first is not likely to occur in the absence of government intervention owing to falling profit expectations associated with accelerating accumulation. Thus, the Keynesian solution of government action is required to bring consumption back in line with production. In the second case—in the absence of intervention—production declines creating unemployment and possibly depression. So it seems we are stuck with a trade-off between the environmental costs of growth and the social costs of unemployment.

But have all the alternatives been exhausted? Is there no way to make use of the unique powers of government to remedy overproduction without increasing consumption? In other words, is there some way to have our cake and eat it too; with production declining and employment remaining stable?

3.4 PATHS TO FULL EMPLOYMENT

Building on the theory of effective demand and modern money theory (MMT), post-Keynesians have proposed two alternative paths to full employment. The first and most common approach relies on fiscal policy to fill the demand gap. The second approach calls for direct job creation through an employer of last resort or JG program. Neither policy was designed to address environmental concerns and indeed both promote growth. However, when compared, it is clear that the JG offers advantages over demand management policy with respect to both employment and the environment.

The demand gap approach seeks a handle on employment via the manipulation of aggregate demand. When aggregate demand in the private sector is insufficient for full employment, fiscal policy can be enacted to boost demand (Arestis and Sawyer 2003, 2004). The three essential goals of the demand gap approach are: (1) increasing aggregate demand, (2) stimulating private investment and (3) increasing productive capacity (Tcherneva 2008, p. 67). This approach suffers from two obvious weaknesses. On the employment front, it is indirect. If the goal is to increase employment, why not hire workers directly?⁸ On the environmental front, the flaw of the demand gap approach is that it aims to achieve full employment through economic growth. As Tcherneva notes, “this is a pro-investment pro-growth policy” (ibid.).

The JG approach proposed by Minsky (1968), Wray (1998) and Mitchell (1998) represents an alternative path to full employment. Rather than acting through aggregate demand to stimulate private investment, the JG achieves full employment by directly hiring workers. This offers three advantages over demand management. First, it eliminates unemployment immediately. Second, it channels government spending directly to employment. And perhaps most importantly, it can be used to influence not only the quantity but also the quality of employment.⁹

With regard to environmental goals, however, the most important advantage of the JG is that it severs the link between aggregate demand and employment. As Mitchell and Wray point out, “ELR achieves full employment without regard to the level of aggregate demand” (2005, p. 236). If employment and aggregate demand can be decoupled, then it may be possible to decouple employment from economic growth. In other words, a JG might provide a means for overcoming the existing trade-off between economic and environmental goals.

In the context of Boulding's model, a JG provides a novel solution to the problem of overproduction. Suppose a situation in which production and consumption are diverging such that profit expectations are falling. According to the demand gap approach, there are two possible outcomes: (1) falling production, rising unemployment and possibly a depression, or (2) rising consumption, increased aggregate demand and stable employment. With a JG in place, the third option is to allow production and aggregate demand to fall, while maintaining full employment, thus avoiding a depression. In this case, both the economic objective of full employment and the environmental goal of reducing output (throughput) are achieved.

A JG eliminates the negative impact of falling production on the level of employment. If JG workers earn a lower wage than private sector workers (and workers spend what they get), aggregate demand and consumption also fall. Of course, a JG as such does not necessarily serve environmental objectives. After all, it will increase employment and aggregate income, and thus it seems a JG must increase aggregate demand, output (throughput) and economic growth.¹⁰ However, owing to the special nature of JG employment, it may in fact be made consistent with falling aggregate output and income in the long-run.

In this regard, the most important feature of the JG is that it transcends the conditions of monetary production. Because JG work is not constrained by money profits, it can be channeled to all kinds of socially beneficial projects that cannot and will not be undertaken by the private sector.¹¹ This is the basis for the "green jobs" JG proposal put forward by Forstater (2003, 2004, 2005). However, green jobs represent only one of the possibilities opened up by a JG, and by itself, a green jobs' approach is not likely to bring about the required reduction in growth necessary for a sustainable economy. Another more radical potential opened up by the removal of the profit constrain is that of reducing productivity.

As proposed, a JG will hire off the bottom and "the pool [of JG labor] will tend to contain the least productive workers" (Wray 1998, p. 139). And since the object of the program is to provide jobs, JG employment should be more labor-intensive than private sector employment further reducing productivity. Rather than viewing low productivity as a bad thing, if environmental sustainability requires reduced growth, low productivity ought to be a policy goal.¹² Moreover, it is easy to see how reducing productivity is consistent with improved working conditions since the simplest ways to achieve lower productivity are slowing down the production

process, decreasing the length of the working day and replacing mechanized mass production with more humane and less alienating forms of craft labor. Finally, while reduced productivity as a policy goal may be a tough sell, it should not be forgotten that the point of a JG is to improve peoples' lives and not to increase output.¹³

As a policy objective, reducing productivity raises a serious problem: how is productivity to be measured? Reducing productivity specifically refers to increasing employment (labor time) per unit of output and/or decreasing output per unit of time. The real problem then is how to measure output. In a one-commodity world, there is no problem because a unit of output is defined. In a world of heterogeneous goods, the obvious solution is to convert all goods to money values through the use of market prices. But if money values of output are used to construct a measure of productivity, there is no guarantee that reducing productivity will achieve the underlying goal of reducing throughput because there is no reason to expect that relative prices for any *particular* pair of commodities will provide an indication of relative throughput.

The problem of measuring productivity represents the biggest theoretical obstacle to operationalizing the degrowth model presented in the next section. And while no perfect solution is clear at present, there are a variety of ways addressing the problem without necessarily solving it. To begin with, there is a strong historical correlation between GDP and throughput. This indicates that using money values to measure productivity may be a useful if imperfect solution at the aggregate level. On the other hand, when operationalizing a JG, productivity might be measured on an industry basis overcoming the problem of heterogeneous goods. For example, if JG workers produce wooden chairs that approximate similar wooden chairs produced by the private sector, a unit of output is defined. Now reducing productivity in the JG sector is a simple matter of ensuring that more labor time is required to produce a chair in the JG sector, or that over any period of time JG production results in fewer chairs produced. This can be achieved in the JG sector by (1) adopting more labor-intensive methods, (2) maintaining the same methods but slowing down production and (3) maintaining the same pace and method of production but reducing the length of the working day. The point here is that even though the problem of measuring productivity remains to be solved, it is still meaningful to talk about reducing productivity as a policy goal.

Another possibility that emerges with the elimination of the profit motive and a slowing down of production is an emphasis on *quality* and

durability over *quantity* and *marketability*. In other words, JG work can be geared toward producing the best use value as opposed to the most exchange value. Increasing the durability of output is a vital strategy for reducing rates of production and consumption because, by definition, goods of higher durability are consumed (used up) more slowly. With a falling rate of (physical) consumption, the same stock of useful goods can be maintained at a lower rate of production. As Boulding (1949) argues, confusion in economic theory centered on the concepts of income and consumption has led to the belief that welfare is increased by maximizing production and consumption, “There is a very general assumption in economics that income (or out-go) is the proper measure of economic welfare, and that the more income and out-go we have, the better. In fact almost the reverse is the case. Income consists of the value production: out-go is the value of consumption. Both income and out-go are processes involved in the maintenance of the capital stock ... it is the capital stock from which we derive satisfactions, not from additions to it (production) or subtractions from it (consumption).”¹⁴ Thus, “the objective of economic policy should not be to maximize consumption or production, but rather to minimize it, i.e. to enable us to maintain our capital stock with as little consumption or production as possible” (ibid. p.79).¹⁵

Facing environmental limits, Boulding is right about what our objectives *ought* to be. However, the logic of production for profit dictates otherwise. It is true, for instance, that a house that never depreciated would be an improvement for its owner. The problem with producing durable goods in a monetary economy is that if needs are met, unemployment increases. It is better to build houses that fall apart each year. But this is where the JG comes in. If workers are guaranteed jobs, then increased durability, which lowers throughput, does not threaten employment.

Finally, the JG offers the potential for falling aggregate demand without falling employment. Suppose a JG is in place and consequently the economy is operating at full employment. When a recession occurs, investment, output and employment in the private sector fall. However, the total volume of employment remains stable. Workers simply shift from the private to the public sector. If, as proposed by JG advocates, the JG wage is lower than the private sector wage, then aggregate demand falls as the relative size of the JG sector grows.¹⁶ And if JG work is less productive than private sector work, aggregate output also falls. The key here is that full employment is maintained during the recession even as aggregate

demand falls. And falling output is consistent with full employment so long as JG workers are less productive than private sector workers.

Thus far, it has merely been shown that falling aggregate demand and output are consistent with full employment under a JG scheme. This will occur during a recession, given the traditional JG assumptions. However, *over the cycle*, a JG may result in higher levels of aggregate demand and economic growth because the fall of demand and output during a recession is less than it would be in the absence of the JG. Assuming that during the recovery phase of the cycle the JG pool shrinks to zero, all gains in terms of reduced productivity will vanish, and output over the cycle will be higher than would be the case without a JG. Moreover, if the JG mitigates skill depreciation associated with unemployment and/or raises the productivity of workers re-entering the private sector through job training/placement, this will further stimulate economic growth.¹⁷

Yet it is highly unlikely the private sector will absorb the entire JG pool during the recovery phase of the cycle, as the private sector has a very poor track record of achieving full employment. This implies that some reduction in productivity will be retained over the cycle. However, with respect to ecological limits, the problem is that the economy will still be growing. And unless economic growth ceases to be a threat to the environment, then growth must halt.¹⁸ This begs the question of whether the JG can be used to pursue the more radical objective of degrowth.

3.5 OUTLINES OF A FULL EMPLOYMENT DEGROWTH MODEL

A two-sector model can be used to derive the minimum conditions required to eliminate growth while maintaining full employment in the context of a JG program. The basic conditions for reducing growth are: (1) the JG sector is less productive than the private sector, (2) the JG wage is lower than the private sector wage and (3) over time, JG employment must grow as a relative share of total employment. The first two conditions are part of traditional JG proposals. What is new in this case is that low and/or decreasing productivity in the JG sector becomes a policy objective. The third condition has not previously been put forward as an intended outcome of the JG.¹⁹ This condition obviously has radical implications. In short, it suggests that the path toward a sustainable economy leads away from monetary production.

Assuming these conditions are met, it is possible to demonstrate how full employment is consistent with a secular decline in output under a JG. To simplify, the following exposition ignores changes in the size of the labor force and productivity growth in the private sector. The initial implementation of the JG will cause a one-time increase in aggregate demand, output and employment (analogous to the one-off inflation likely to occur with the initiation of the JG). However, during the bust phase of the business cycle, workers will be channeled from relatively high productivity, high wage, private sector employment into low productivity, low wage, JG work. If, during the ensuing boom phase of the business cycle, a portion of the JG workers choose to remain in the public sector, then JG employment will grow as a share of total employment over the cycle. So long as some portion of the workers that newly enter the JG pool during each recession choose to stay in the pool during the subsequent recovery, each cycle provides a net addition to the JG sector equal to the net diminution of private sector employment. With JG employment growing as a relative share of total employment, the rate of growth of aggregate output and aggregate demand decline.

Nell (n.d.) provides a useful diagram to illustrate these dynamics. The vertical axis measures aggregate output (\mathcal{Y}) and the horizontal axis depicts employment (N). With a JG in place, the economy is always at full employment (N_f). Private sector employment is measured from left to right, and JG employment is measured from right to left on the horizontal axis. The bold black line indicates the difference in productivity between the two sectors. Actual output is determined by the sum of JG and private sector output. When JG employment is zero, all workers are employed in the private sector and output reaches its maximum. When private sector employment is zero, all workers are employed in the JG sector and output reaches its minimum. When all three conditions of degrowth hold, then over the cycle the economy moves down and to the left along the bold black line (Fig. 3.1).

In the framework outlined above, the rate at which the growth of output declines will depend on two factors: (1) the difference in productivity between JG and private sector employment and (2) the rate of growth of the JG sector as a share of total employment over the cycle. Thus, if we know the difference between productivity in the JG sector and the private sector, we can calculate the required rate of growth of the JG sector as a share of total employment necessary to achieve a specified decline in the

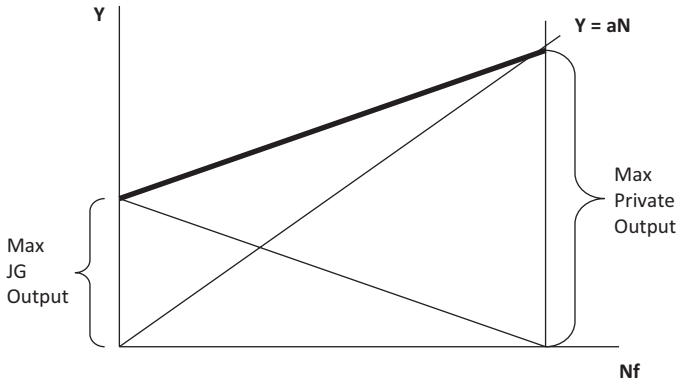


Fig. 3.1 Potential output

rate of growth of output. Or vice versa, given the rate of growth of JG employment as a share of total employment, we can calculate the required difference in productivity between the two sectors to achieve a specified rate of degrowth.

The force driving degrowth in this framework is the business cycle. The endogenous fluctuations of a capitalist economy act like a pump generating a flow of workers into and out of the JG pool. The crux of the whole argument hinges on the appropriate specification of the “valve” mechanism required to ensure that, on average, the in-flow of workers into the JG pool exceeds the out-flow of workers taking jobs in the private sector. The valve cannot be a monetary incentive since wages in the JG must be lower than private sector wages to achieve the reduction in aggregate demand required for degrowth. But because JG employment is not constrained by money profits, a multitude of non-monetary benefits may be offered to encourage workers to *choose* lower-wage jobs in the JG.

So what are examples of such non-monetary benefits? Freed from the profit constraint, a JG opens possibilities for all kinds of improvements in working conditions, hours of work and types of paid employment. How many people currently work jobs they hate, while secretly dreaming of a career in the arts—writing plays or novels, becoming a painter, dancer, actor or musician? How many parents are forced to leave their children at day care so they can pay the bills? How many would go back to school if

they had spare time or income? How many would accept a smaller salary if they could work fewer hours and still have access to health care? How many would accept a pay cut if it meant they could work from home or in their communities? How many would accept a lower wage if it meant they could engage in fulfilling work like growing food, restoring wilderness habitat, building parks or providing care to their friends and neighbors? More important than its potential for altering the quantity of employment and output, the real promise of the JG lies in its potential for transforming the quality of work. Above all, what makes the JG a powerful tool for achieving the goals of degrowth is the choice it provides individuals to opt out of monetary production.

3.6 CONCLUSION

This chapter seeks a way out of the dilemma posed by the dual crises of unemployment and environmental decline. Keynes's theory of effective demand is a useful starting point for this task because it identifies the underlying causes of both crises. In a capitalist economy, the object of production is money profits. Profits are necessary for employment, and in the aggregate, the realization of profits requires continuous growth. So long as we remain confined to a system of monetary production economy, full employment requires exponential growth, and we are stuck with the trade-off between social and ecological prosperity.

The promise of the JG is that it solves the problem of unemployment by transcending the constraints of monetary production. This opens the way not only to degrowth in terms of declining aggregate output but perhaps, more importantly, in terms of a fundamental transformation of the economy away from alienating and exploitative labor processes and toward a system in which work itself is an end and not simply a means to consumption.

NOTES

1. Degrowth is not easy to define. At its core is a rejection of economic growth as a social objective. The idea first emerged in the 1970s alongside The Club of Rome's, *Limits to Growth* (1972) and Georgescu-Roegen's, *The Entropy Law and the Economic Process* (1971). In 1972, Andre Gorz, who is credited with coining the French term for degrowth "décroissance" posed a seminal question: "Is the earth's balance, for which no-growth—or even

degrowth—of material production is a necessary condition, compatible with the survival of capitalism?” (D’Alisa et al. 2015, p. 1). Today, degrowth is an international social, political and economic movement calling on academics and activists of diverse backgrounds to radically reimagine an economic future that is not premised on economic growth. A catalyst for the movement is growing frustration with half-hearted, empty or naive proposals for “green growth,” “sustainable development” or “green capitalism.” Such win-win slogans fail to acknowledge the systemic causes of environmental decline and perpetuate the myth that we can address the issue without making fundamental changes to our way of life. By contrast, degrowth has roots in ecological realism and recognizes that any serious response to a problem driven by overuse of the planet must include a decrease in production and consumption.

While exploring ways to produce and consume less is central to degrowth, the movement is about much more than a quantitative reduction of material throughput. Degrowth recognizes that significant qualitative changes to existing forms of social and economic organization are necessary to create a future, wherein both humans and the planet can flourish. From this perspective, the necessity for change imposed by environmental limits is viewed as an opportunity to address long-standing social problems associated with capitalism including poverty, inequality, unemployment, exploitation, alienation and the erosion of community (ibid.).

2. It is important to note that Boulding’s concept of consumption is not the same as Keynes’s idea of household expenditure. Consumption in the Keynesian sense actually describes an *asset transfer* from businesses to households. Boulding uses consumption in the classical sense to describe the *destruction of assets*.
3. In terms of practical application, the bathtub theorem suffers an obvious setback. Because it is stated in physical terms, we cannot plug in actual values for P , C and A in a world of heterogeneous goods. Nonetheless, the theorem remains true as a matter of identity, and as such serves as a useful heuristic for thinking about physical stocks and flows.
4. Overproduction and underconsumption may be thought of as two sides of the same coin. Both are relative terms defined in relation to one another, and to this extent, they are interchangeable. However, there is a danger in thinking this way. While a given situation may be described by either term, the two terms point in opposing directions toward differing solutions. In an economy that produces more than enough output to meet human needs, it is misleading to describe crises in terms of underconsumption. Indeed, with respect to ecological limits, overproduction *and* overconsumption currently coexist.
5. This clearly indicates a problem of distribution, not growth. The long-standing tradition in economics of viewing growth as the remedy to all

- problems must in part be explained by a political unwillingness to seriously entertain discussion of redistribution.
6. Wilkinson and Pickett (2009) demonstrate that key indicators of mental and physical well-being are not correlated with aggregate income in the industrialized North. Degrowth advocates argue that the North needs to degrow in order to provide the ecological space for the South to grow (Kerschner 2010; Latouche 2010; O’neil 2011).
 7. Kalecki’s profit equation captures this relationship (Kalecki 1965, pp. 45–52). In a simplified economy with no government or foreign sector, assuming that workers do not save and capitalists do not consume, profits are determined by investment. Thus, to realize profits, capitalists must invest, meaning the economy must grow.
 8. In his critique of the JG, Sawyer concedes this weakness of the demand gap approach, “the attraction of ELR schemes appears to be their ability to guarantee full employment. Variations in mainline public sector jobs or taxation may aim to provide full employment, but that cannot be guaranteed through forecasting errors and implementation delays” (2003, p. 890).
 9. Degrowth advocates Alcott (2011) and Blauwof (2012), both highlight the possibility of using a JG program to alter the quality of employment and output.
 10. Compared to levels that would exist with no policies in place to mitigate the decline in production.
 11. In fact, JG workers can do anything society deems worthwhile. This might include going to school, producing works of art, planting community gardens, taking care of the elderly, raising children, habitat restoration and so on.
 12. In this context, “reducing productivity” refers to increasing employment per unit of output and/or decreasing output per unit of time. This goal stems from the assumption that in the aggregate, output is a good proxy for throughput based on the historical correlation of GDP and throughput (Jackson 2009; Kallis 2011). Obviously, reducing productivity in this sense is not desirable in all fields of production. In any field where socially useful goods and services are produced sustainably high productivity may be desirable. Additionally, high productivity may be desirable in any case where it serves to reduce the time required to complete an onerous task without necessitating an increase in output. Finally, reducing productivity does not require the abandonment of any particular technology or technique of production. It can be achieved in any existing line of production by merely reducing the pace of production or the length of the working day.
 13. Beyond a basic level, rising income is not well correlated with quality of life measures (see Layard 2005; Wilkinson and Pickett 2009; O’neil 2011).

- Indeed, Stanfield and Stanfield (1980) argue that a sustained growth in consumption can lead to a deterioration in quality of life.
14. Boulding points out that we obtain satisfaction from using *existing* goods and from *using them up*. In other words, he distinguishes between *use*, which yields satisfaction and *consumption*, which involves the destruction of some element of the capital stock. For example, we derive satisfaction from the use of a coat, but not from using up (destroying) the coat.
 15. Daly makes an analogous argument using the following identity: (service/throughput) = (service/stock) × (stock/throughput).
 “Growth” is defined as an increase in throughput holding the right-hand ratios constant. By contrast, sustainable “development” involves increasing the two right-hand ratios holding throughput constant (Daly 1996, p. 68).
 16. Assuming workers in both sectors spend what they get.
 17. Note, however, that the stimulus to growth from the job guarantee (JG) is less than that which would result from a successful demand gap policy. This follows from the fact that the demand gap approach seeks to preempt the recession such that there is no fall in output or demand. This may be unrealistic, but it is nevertheless the objective of the demand management policy.
 18. Technological optimists argue that economic growth will solve all the problems it creates and the current trajectory of the economy is toward “dematerialization” and a decoupling of GDP from throughput (for a discussion of dematerialization, see Lorek 2015). However, “expectations of win-win, sustainable growth through technological and efficiency improvements have not been fulfilled” (Schneider et al. 2010). There has been historically and there remains today a strong correlation between GDP and throughput (Jackson 2009; Kallis 2011; Lorek 2015). Even if the future is uncertain, it would be wise to opt for a precautionary approach rather than to bank on the prophesized but unrealized dematerialization of GDP.
 19. The JG was originally conceived as an elaboration of Keynes’s solution to the problem of unemployment. As such, it was designed to guarantee full employment, stabilize prices and promote economic growth. Environmental limits did not factor into its conception. The JG/Green Jobs proposal seeks to address sustainability, but its aim is limited to *minimizing the environmental effects of full employment*. The goal here is to place sustainability and employment on an equal footing.

REFERENCES

- Alcott, B. (2011). Should Degrowth Embrace the Job Guarantee? *Journal of Cleaner Production*, XXX, 1–5.
- Arestis P., & Sawyer, M. (2003). *The Case for Fiscal Policy*. Working Paper No 382, Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.

- Arestis, P., & Sawyer, M. (2004). *Re-examining Monetary and Fiscal Policies in the Twenty-First Century*. Cheltenham: Edward Elgar.
- Blauwhof, F. B. (2012). Overcoming Accumulation: Is a Capitalist Steady-State Economy Possible? *Ecological Economics*, XXX, 1–8.
- Boulding, K. (1945). The Consumption Concept in Economic Theory. *The American Economic Review*, 35(2), 1–14.
- Boulding, K. (1949). Income or Welfare. *The Review of Economic Studies*, 17(2), 77–86.
- D’Alisa, G., Demaria, F., & Kallis, G. (Eds.). (2015). *Degrowth: A Vocabulary for a New Era*. New York: Routledge.
- Daly, H. (1996). *Beyond Growth*. Boston: Beacon Press.
- Domar, E. (1946). Capital Expansion, Rate of Growth, and Employment. *Econometrica*, 14(2), 137–147.
- Domar, E. (1947). Expansion and Employment. *The American Economic Review*, 37(1), 34–55.
- Dillard, D. (1948). *The Economics of John Maynard Keynes: The Theory of a Monetary Economy*. New York: Prentice-hall.
- Dillard, D. (1980). A Monetary Theory of Production: Keynes and the Institutionalists. *Journal of Economic Issues*, 14(2), 255–273.
- Dillard, D. (1987). Money as an Institution of Capitalism. *Journal of Economic Issues*, 21(4), 1623–1647.
- Forstater, M. (2003). Public Employment and Environmental Sustainability. *Journal of Post Keynesian Economics*, 25(3), 385–406.
- Forstater, M. (2004). Green Jobs: Addressing Critical Issues Surrounding the Environment, Workplace and Employment. *International Journal of Environment, Workplace and Employment*, 1(1), 53–61.
- Forstater, M. (2005). Green Jobs: Public Service Employment and Environmental Sustainability. *Challenge*, 49(4), 58–72.
- Foster, J. B. (1999). *The Vulnerable Planet*. New York: Monthly Review Press.
- Georgescu-Roegen, N. (1971). *The Entropy Law and the Economic Process*. New York: Harvard University Press.
- Harvey, D. (2010). *The Enigma of Capital*. New York: Oxford University Press.
- Jackson, T. (2009). *Prosperity Without Growth: Economics for a Finite Planet*. London: Earthscan.
- Kallis, G. (2011). In Defence of Degrowth. *Ecological Economics*, 70(5), 873–880.
- Kalecki, M. (1965). *Theory of Economic Dynamics*. New York: Monthly Review Press.
- Kerschner, C. (2010). Economic De-growth vs. Steady-State Economy. *Journal of Cleaner Production*, 18(6), 544–551.
- Keynes, J. M. (1936[1964]). *The General Theory of Employment, Interest and Money*, San Diego: First Harvest/Harcourt Inc

- Klein, N. (2014). *This Changes Everything: Capitalism Versus the Climate*. New York: Simon and Schuster.
- Kovel, J. (2002). *The Enemy of Nature: The End of Capitalism or the End of the World?* New York: Zed Books Ltd
- Latouche, S. (2010). Degrowth. *Journal of Cleaner Production*, 18, 519–522.
- Layard, R. (2005). *Happiness; Lessons from a New Science*. London: Penguin Books.
- Lorek, S. (2015). Dematerialization. In G. D’Alisa, F. Demaria, & G. Kallis (Eds.), *Degrowth: A Vocabulary for a New Era*. New York: Routledge.
- Magdoff, F., & Foster, J. B. (2011). *What Every Environmentalist Needs to Know About Capitalism*. New York: Monthly Review Press.
- Marx, K. (1860[2000]). *Theories of Surplus Value: Books I,II, and III*. Amherst, NY: Prometheus Books.
- Marx, K. (1867[1947]). *Capital: A Critical Analysis of Capitalist Production*. New York: International Publishers.
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. (1972). *The Limits to Growth: A Report from the Club of Rome’s Project on the Predicament of Mankind*. New York: New American Library.
- Minsky, H. (1968). Effects of Shifts of Aggregate Demand upon Income Distribution. *American Journal of Agricultural Economics*, 50(2), 328–339.
- Mitchell, W. (1998). The Buffer Stock Employment Model. *Journal of Economic Issues*, 32(2), 547–555.
- Mitchell, W., & Wray, L. R. (2005). In Defense of Employer of Last Resort: A Response to Malcolm Sawyer. *Journal of Economic Issues*, 39(1), 235–244.
- Nell, E. (n.d.). *The Simple Theory of Unemployment*. Unpublished manuscript.
- O’Neill, D. W. (2011). Measuring Progress in the Degrowth Transition to a Steady State Economy. *Ecological Economics*, XXX, 1–11.
- Schneider, F., Kallis, G., & Martinez-Alier, J. (2010). Crisis or Opportunity? Economic Degrowth for Social Equity and Ecological Sustainability. *Journal of Cleaner Production*, 18, 511–518.
- Smith, R. (2010). Beyond Growth or Beyond Capitalism? *Real World Economics Review*, 53, 28–42.
- Smith, R. (2011). Green Capitalism: The God that Failed. *Real World Economics Review*, 56, 112–144.
- Stanfield, J. R., & Stanfield, J. B. (1980). Consumption in Contemporary Capitalism: The Backward Art of Living. *Journal of Economic Issues*, 14(2), 437–451.
- Tcherneva, P. (2008). *The Promise of Fiscal Policy: Full Employment, Stability, and Equity*. UMI.
- Vatter, H., & Walker, F. (1989). Why Has the United States Operated Below Potential Since World War II? *Journal of Post Keynesian Economics*, 11(3), 327–346.

- Vatter, H., & Walker, F. (1997). *The Rise of Big Government in the United States*. New York: M.E. Sharpe.
- Veblen, T. (1904[1965]). *The Theory of Business Enterprise*. New York: August M. Kelley.
- Wilkinson, R., & Pickett, K. (2009). *The Spirit Level: Why Greater Equality Makes Society Stronger*. London: Penguin.
- Wray, L. R. (1998). *Understanding Modern Money: The Key to Full Employment and Price Stability*. North Hampton, MA: Edward Elgar.
- Wray, L. R. (2007). *Demand Constraints and Big Government*. Working Paper No 488, Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.