The Triple Crisis: A Modern Monetary Theory Response

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Abstract
Fears of an emerging Triple Crisis, that is, debt and financial chaos, environmental degradation and income inequality have (re)ignited international debate regarding the design and implementation of a more sustainable growth model. Participants in the debate do implicitly acknowledge the failings of the current market-based approach. Lagarde (2012) now asserts that economic, environmental and social objectives should be distinct aspects of a single vision, but the nature of the interactions between the financial and real economy, economic and environmental issues, and higher income and developing economies must be clearly articulated for a coherent model to be developed.

In this paper we argue that the Triple Crisis can be largely attributed to the global imposition of neo-liberal principles which have undermined the role of government in promoting the public purpose. Drawing on Modern Monetary Theory, we outline the problematic nature of financial and real interactions in the neo-liberal model which conflict with the achievement of sustained full employment. We then present the Job Guarantee as a crucial instrument for dealing with the emerging Triple Crisis by, first, arguing that the policy freedoms enjoyed by sovereign economies (e.g. UK, USA, Japan) provide them with the financial capacity to run a Job Guarantee which can directly address the unevenness and persistence of labour underutilisation, and rising poverty and wage inequality. Second, the Job Guarantee can directly and indirectly address environmental degradation. We also explore multilateral strategies to address global income inequality.

Keywords: Triple Crisis, Modern Monetary Theory, sustainable development

JEL codes: I38, J20, Q01, Q56

1. Introduction

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The resolution of the so-called *Triple Crisis,* that is debt and financial chaos, poverty and income inequality, and environmental degradation, presents a significant international policy challenge. While fears of an interlocking global economic, social and environmental crisis had emerged by the late 1980s, the 2012 *United Nations Conference on Sustainable Development* has reignited international debate regarding the design and implementation of a more sustainable growth model. The expiration of the Millennium Development Goals in 2015 adds additional impetus for a new development agenda.

Participants at the 2012 Conference expressed their deep concern with the levels of extreme poverty, and high levels of unemployment and underemployment.[2] Meanwhile, the Earth's ecosystems are faced with major challenges including climate change, land and forest degradation, and biodiversity loss. Policymakers concluded that 'poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production, and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development' (UN 2012:1).

Advocates of Modern Monetary Theory (MMT) argue that full employment (and price stability) is also a central objective of our economic and social development. Yet the persistently high rates of unemployment and underemployment since the neo-classical counterrevolution of the 1970s have been exacerbated by the impact of the Global Financial Crisis (GFC), with global unemployment rising by approximately 28 million. Falling participation rates indicate that 39 million people have given up searching for work, and approximately 870 million working women and men are unable to earn enough to lift themselves and their families above the $US2 a day poverty line (ILO 2014). Jobs are viewed as an urgent global concern, and are widely recognised as an effective means to eradicate poverty (UN 2012).

While full employment can ease underutilisation, poverty and income inequality, it may not satisfy conditions for environmental sustainability. Participants in the debate do implicitly acknowledge the failings of the current market-based approach to environmental sustainability which is divorced from the biophysical conditions for sustainability. Rather, the development agenda needs to the sensitive to the assimilative capacities of our ecosystems which is acknowledged within the notion of ecological sustainability (Forstater 2003).

The policy challenge is to achieve full employment (and price stability) and reduced income inequality while restoring and maintaining the healthy functioning of the Earth's ecosystems. A comprehensive policy program is required which is likely to engender a significant structural and technological transformation within the local, and across the global economy. But the interdependencies among the economic, social and environmental dimensions of sustainable development must be clearly articulated within a coherent theoretical framework (Lagarde 2012).

In this paper we (i) unpack the nature and causes of the Triple Crisis, arguing that the prevailing market-based (neo-liberal) approach has undermined full employment,

2 Eradicating poverty is considered to be 'the greatest global challenge facing the world today and an indispensable requirement for sustainable development' (UN 2012:1).

environmental sustainability and global income equality; (ii) develop an integrated conceptual framework which combines the principles of MMT, the Minskian treatment of real and financial interactions, and notions of ecological sustainability to understand and mediate the interrelating dimensions of the Triple Crisis; and, (iii) draw on this conceptual framework to derive a number of key policy recommendations. Some concluding remarks complete the paper.

2. The Triple Crisis: Failure of the market-based approach

2.1 Full employment abandoned

The McCracken Report in 1977 helped to shape the neo-liberal vision. It had been commissioned by the OECD, following the inflation breakout initiated by the oil price shocks of the early 1970s and the subsequent stagflation and accumulation crisis. The Report argued that demand management should be used to fight supply-side inflation, despite its origins, and that government regulation be reduced via supply-side reforms. The Report contributed to the OECD's shift towards more market oriented policies which followed the policy shift already underway in macroeconomics, led by Friedman and Phelps. The IMF's policy reorientation was also profoundly affected by Friedman's work. The Chilean 'experiment' orchestrated by economists heavily influenced by Friedman's monetarist views, advocated privatisation and the exploitation of natural resources, while promoting inward foreign direct investment (FDI), free trade and export-led growth (Harvey 2007). These polices informed the decision making of the Thatcher and Reagan administrations and underpinned the subsequent Washington Consensus (Sharpe and Watts 2012).

Duménil and Lévy (2001) argue that neo-liberalism was seen as a means of restoring class power in the light of the declining share of national income accruing to the richest and the increased (political) threat associated with left-wing parties gaining widespread support in the post-war period until the 1970s (Harvey 2007).

The Washington Consensus evolved as a development model devised by the IMF, World Bank and US Treasury. '[The] standard economic objectives of growth, low inflation, a viable balance of payments, and an equitable income distribution' motivate its policy design (Williamson 1990).

The neo-liberal model was based on (i) macroeconomic policy geared to inflation control through monetary policy and 'sound' public finance; (ii) an emphasis on the operation of market mechanisms, through the implementation of privatisation, deregulation and other structural reforms, given the strong belief that an economy dominated by private sector activities was the most efficient[3]; and (iii) full global integration, namely trade openness and unconstrained financial flows.

The OECD *Jobs Study*, which was commissioned by OECD member states to explain their persistently high unemployment in the early 1990s, reinforced the emerging neo-liberal framework. The report advocated the removal of the institutional fetters allegedly inhibiting

3 Unemployment is considered either voluntary or the outcome of these imperfections, which is captured by the NAIRU.

the operation of markets, in particular labour markets, via broad supply-side reform (LaJeunesse et al. 2006). Unemployment was seen as mainly structural, so it was considered to be in part an individual, rather than a systemic problem. The report advocated greater wage price flexibility; reform of employment security provisions; introduction of active labour market policies; and reform of unemployment and related benefit systems and their interaction with the tax system (OECD 1994). The imperatives for sound public finance and price stability were also reasserted.

Since the Jobs Study, there have been many critical empirical studies of its supply side reform agenda (see Watts, 2010a for a summary). While OECD (2006) made concessions about the effectiveness of some supply side reforms, and now recognises two successful policy models—neo-liberal and Nordic—the OECD continues to encourage the adoption of the former rather than the latter (Watt 2006; Watts et al. 2014).

Sharpe and Watts (2012) document the ambiguity of policy advice provided by the OECD and IMF during the evolution of the GFC. Prior to the GFC, the IMF had expressed concern about the conduct of fiscal policy due to long lead-lag times, general operational constraints, and its link with the political process. Monetary policy ostensibly geared to the achievement of low and stable inflation was favoured. The inflation objective tended to override concerns about the level of economic activity, *per se*, because low inflation was regarded as the most effective means for reducing the output gap (Blanchard et al. 2010). Policy implementation has been shaped by both the IMF and OECD but their advice to individual countries usually takes the form of broad principles rather than being contextualized (Watts 2010a).

By around 2009, there was little scope for further interest rate cuts to address the major real shock which had impacted on both sovereign and non-sovereign economies.[4] Also these cuts had been largely ineffective. Consequently the ECB and the major inter-governmental organisations (e.g. IMF, OECD and World Bank) then started advocating fiscal stimulus measures (see Sharpe and Watts 2012). Following a deep recession, the rise in unemployment would be partially translated into higher structural unemployment and lower potential output via hysteresis effects, but these 'hysteresis effects are asymmetric in the sense that they tend to raise the NAIRU when unemployment rises, but do not lower the NAIRU when unemployment falls' (OECD 2009:230). Thus, according to the OECD fiscal stimulus should only be short-term, with unemployment more effectively addressed in the longer-term by further structural reform (Sharpe and Watts 2012).

In 2010, the IMF had admitted that it was in error with respect to the importance of counter-cyclical fiscal policy (Blanchard et al. 2010), but by 2011, stimulus measures had been wound back in most countries on the advice of the OECD and IMF. Austerity measures were advocated due to the deteriorating deficit-debt dynamics with no distinction being made between sovereign and non-sovereign countries. Also front-loading these measures

4 In a sovereign economy, the consolidated government sector (Treasury and Central Bank) issues a fiat, non-convertible currency and operates with a flexible exchange rate (e.g. Australia, US, UK and Japan). A flexible exchange rate regime allows for *discretion* regarding foreign exchange interventions (i.e. monetary independence). As the *issuer* of currency, government within sovereign economies can always meet national currency denominated obligations. Thus, national governments are not constrained by an *ex-ante* or inter-temporal budget constraint (see Watts and Sharpe 2013).

was advocated, which was subsequently reviewed in light of the devastating impact on growth and employment (see IMF 2010).

Reinhart and Rogoff (2010) had claimed that the median real per capita GDP growth rate in advanced economies falls when gross public debt reaches a critical threshold share of GDP, which would reinforce the austerity agenda. However Herndon et al. (2013) convincingly rebutted these claims. Isolating a one-way causal relationship between the level of debt and the growth rate is difficult, because causation also runs from slower growth to rising debt. Thus empirical estimates should be treated cautiously (OECD 2011). Sharpe (2013) found that separating sovereign and non-sovereign economies yielded major differences in debt and interest rate and debt and growth dynamics, which accords with MMT principles.

The IMF (2014) continues to view its mission as achieving stability in the international economic system. However its structural adjustment loans are usually accompanied by harsh neo-liberal policy constraints on recipient countries, including the peripheral Eurozone countries. These include the promotion of export-led growth, privatisation and deregulation (Mitchell 2011). On any balanced assessment, these measures have failed.[5]

In conclusion, the IMF, World Bank and the OECD were instrumental in devising and implementing the neo-liberal policy framework. Their policy advice during the GFC reveals, at best, a confused and inconsistent macroeconomic perspective. Their reluctance to promote fiscal policy to achieve sustained full employment, despite the relative impotence of monetary policy, indicates major policy failings in terms of (i) a naïve belief in the effectiveness of automatic stabilisers and market mechanisms, rather than recognising that capitalism is inherently demand constrained (Forstater 2003); (ii) a view that it is imperative for countries to achieve budget surpluses to achieve sustainable rates of economic growth; and (iii) a refusal to differentiate between sovereign and non-sovereign countries. Their policy framework has failed to achieve sustained full employment, which requires that all adults who wish to engage in paid work at current wages and conditions can do so (see Sharpe and Watts 2012; Juniper et al. 2014; Watts et al. 2014 and references therein).

2.2 Environmental sustainability

The neo-liberal proclivity to replace traditional Pigovian taxes and subsidies with quasi-market mechanisms has been undermined by the macroeconomic features of the neo-liberal regime, which lowers effective demand and rates of accumulation on a global scale, while increasing financial fragility. In combination, fiscal conservatism and real wage repression, contribute to a reduction in the rate of environmental investment and innovation. Accordingly, we argue that environmental policies must be integrated with policies designed to promote full employment.

Forstater (2003) embraced an approach to environmental sustainability similar to that advocated by Pearce and Turner (1990) and adopted by the United Nations.[6] Forstater

5 The IMF's role in addressing currency crises in Mexico and East Asia was highly problematic (Mitchell 2013).

6 Some Post Keynesians, including Burkett (1999), Foster (2000), and Foster and Clark (2009), work within a Classical Political Economy framework based on the distinction between use-value and exchange value. Others support the position of Herman E. Daly (1990), who follows Georgescu-Roegen in arguing for the replacement of exchange-values with shadow prices reflecting energetic considerations (i.e. prices that capture the

argues that the traditional market-based approaches to environmental problems based on the maximisation calculus fail, because the limits imposed by biophysical states are unlikely to be captured in the conceptualisation of the problem. The social costs and affected parties are assumed to be identifiable, and the costs and benefits to be measurable in monetary terms. A social optimum is derived in terms of pollution (or depletion achieved via taxes and fees or through bargaining and assigning property rights), which is based on narrowly defined preferences, productivity, and profitability. Qualitative differences between different costs and benefits reflecting the environmental consequences are not captured. So Forstater (2003:391) concludes that 'there is no necessary relation between the optimal levels of pollution and resource depletion and the biophysical conditions for a sustainable economy.'

A Keynesian perspective places emphasis on the role of fundamental uncertainty and animal spirits in the determination of investment activity. While uncertainties abound due to externalities such as the volatile weather events arising from global warming and vacillations in implementation of policy, the effects of which can be described in familiar Keynesian terms, they are compounded by the high levels of fragility resulting from neo-liberal policies. When uncertainty aversion increases, in response, this undermines less tangible and longer-term forms of investment in areas that include research and development, training, and organisational change. A high proportion of environmental investment falls into this category, so that environmental innovation and improvements in environmental management practices and capabilities will be disadvantaged (Juniper 2007). This policy-induced case, where uncertainty over prospective returns on investment imposes non-legal hurdles to activities—such as the mitigation of industrial pollution, innovations in recycling and disassembly, and raising the efficiency of scarce and non-renewable resources—must be clearly distinguished from the case of epistemic uncertainty associated with the precautionary principle, which justifies the erection of legal hurdles to undesirable activities that might result in environmental damage (e.g. coal seam gas extraction close to arterial deposits of water).

2.3 Global income inequality

The world is now more unequal than at any other point since World War II with income inequality increasing both within and across countries (UN 2013). From a developmental perspective we argue that the neo-liberal consensus has aggravated income inequality on both a national and a global scale by enforcing 'race to the bottom' policies.

Trends and impact

From 1990 to 2010, household income inequality (Gini index) increased among high-income and low- and middle-income countries, including large developing economies such as China, India and Indonesia, by 9 and 11 percent respectively. Developing economies, Europe and Commonwealth of Independent States (ECIS), and Asia and the Pacific experienced the largest increase in income inequality (Gini index), reporting increases of 35 percent and 13 percent respectively. Further, these increases have been most acute among developing

opportunity cost of transforming high-order entropy with low-order heat energy), but see critiques by Burkett (2003) and Schwartzman (1996). Far more research has been conducted into the way that existing exchange-values can be deployed in the shadow-pricing of environmental bads.

economies which have pursued intense growth strategies, shifting them into higher per capita gross national income (GNI) classifications (UN 2013).

GDP per capita has more than doubled in real terms since 1990 among low- and middle-income economies. However, most of the population would find it difficult to reconcile aggregate income growth with growth in their incomes given that the share of gross income of the richest 1 percent has increased since, at least, the 1980s (particularly within OECD economies).[7]

Figure 1. Income share of the top 1 percent of earners

Data source: Alvaredo et al. (2014)

Figure 1 depicts the share of the top 1 percent of income earners among selected OECD economies from 1920 to 2012. Income inequality has increased far more in the USA than other OECD countries, with the richest 1 percent more than doubling their share of pre-tax income since 1980, reaching about 20 percent in 2012. Data from other Anglo-Saxon countries (e.g. UK and Ireland), Nordic economies and developing countries reveal that growing income inequality is most prevalent among Anglo-Saxon economies.

Piketty's recent book, *Capital in the Twenty-first Century* (2014), offers a deeper historical perspective which has promoted more international debate regarding income inequality. Piketty finds that the GDP growth rate fell below the rate of return to capital at the end of the 20th Century. This suggests that the wealth distribution will become increasingly unequal, mainly because the top percentile derives more of its income from non-wage sources.[8]

From a human rights perspective, these trends are very worrying. While equality signifies fairness and promotes moral virtues of dignity, respect and non-discrimination, inequality undermines the most basic human rights and principles of social justice and also threatens global economic, social and political development (UN 2013).

The theoretical argument that high or increasing inequality among developing economies is inevitable in the early phase of development, based on the *Kuznets hypothesis*, lacks empirical support (see, for example, Chen and Ravallion 2012). Rather, empirical evidence indicates that high or rising inequality has a negative effect on the rate of growth or the length of growth spells (see, for example, Ostry et al. 2014), and slows poverty reduction (ADB 2012).

Nissanke and Thorbecke (2006, cited in UN 2013:42), argue that 'high initial inequality leads to rent-seeking, social tensions, political instability, a poor median voter, imperfect capital markets and a small share of gross national income (GNI) to the middle class, all of which lead to lower investment, higher taxation and lower economic growth'.

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7 The top 1 percent of the global population also own approximately 40 percent of the world's assets, and the bottom 50 percent owns less than 1 percent (UN 2013).

8 Piketty has his detractors. James Galbraith (2014) faults Piketty for using 'an empirical measure that is unrelated to productive physical capital and whose dollar value depends, in part, on the return on capital'.

Social impacts of inequality can include unemployment, violence, crime, humiliation, and deterioration of human capital and social exclusion (UN 2013; see also Kaya and Keba 2011). Further, '[p]ersistent inequality between different segments of a population can entrench the discriminatory practices and cultural biases that fuel social exclusion' (UN 2013:7). Wilkinson and Pickett (2010) clearly demonstrate that lower income inequality can alleviate a host of health and social problems. High or rising inequality can distort political decision-making processes (see, for example, Kaya and Keba 2011), and Nel (2008) empirically links inequality to democratic participation, corruption and civil conflict (see also Ortiz and Cummins 2011).

Finally, there is a strong association between income inequality and inequalities in health, education and nutrition. Evidence suggests that reducing income inequality is central to reducing other inequalities and enhancing opportunities (see UN 2013).

Local and global drivers

The functional distribution of income, between capital and labour, has significant implications for reducing income inequality. A larger labour share is associated with reduced income inequality (Daudey and Garcia-Penalosa 2007). However, data reveal a significant shift in the functional distribution of income from labour to capital since the 1970s. ILO (2013) and Stockhammer (2013) show that the average labour share declined from 75 to 65 percent of national income from 1970 to 2010 among 16 developed economies. Similarly, the average labour share among 16 developing and emerging economies (including China) declined from 62 to 58 percent of GDP from the early 1990s up to the GFC.

The decline in the labour share, which indicates that wage growth lags behind productivity growth, has strong links to financialisation (Lee and Jayadev 2005; ILO 2011; Stockhammer 2013), trade globalisation (Harrison 2002) and technological change (Bassanini and Manfredi 2012). Of these, ILO (2013) show that financialisation has had the most adverse effect on the labour income share among both developed and developing economies since 1990.

Exchange rate policy and fiscal and monetary policy have contributed to the decline in the labour share. The acceptance of Washington Consensus policies, which are often enforced via IMF structural adjustment programs, has led to policies that have been geared to price stability, usually at the expense of growth and job creation.

Monetary policy in pursuit of low inflation often results in high interest rates, particularly among developing economies which increases unemployment and deepens income inequality (Cornia 2012). '[E]vidence shows that rising unemployment causes the bottom of the earnings distribution to fall off relative to the median' (Ortiz and Cummins 2011:43; see also Heathcote et al. 2010). ILO (2013) finds that increased unemployment reduces labour's income share, via downward pressure on wages and weakening workers' bargaining power.

High interest rates also encourage large (speculative) capital inflows. Developing economies are often encouraged to maintain fixed exchange rates (to reduce volatility) which are prone to trade shocks and speculative attacks (e.g. Asian Financial Crisis), precipitating currency crises and devaluations which disproportionately affect low-wage earners via declines in real wages.

Fiscal policy has been geared to deficit reduction rather than promoting development and redistribution. Cuts to public infrastructure and social expenditures have negative effects on growth and poverty reduction (UNESCAP 2013). Reductions in the welfare state, measured by government consumption expenditure, reduce the labour income share among both developed and developing economies (see ILO 2013; Stockhammer 2013).

Meanwhile governments, particularly those in developing economies, have reduced trade taxes to encourage globalisation and lowered corporate and income taxes to stimulate private sector activity (UN 2013). The lower tax revenue further reinforces deficit reduction strategies. The GFC has exacerbated this vicious cycle as automatic budget stabilisers work to prevent recession. Income disparities between richer and poorer regions have widened since the advent of the GFC, and are likely to be intensified by reductions in international aid due to fiscal consolidation (The Economist 2011).

3. Understanding the Triple Crisis: An integrated conceptual framework

In this section we argue that MMT in concert with Minskian crisis theory provides us with profound insights about the relationship between the real and financial sectors of the economy and hence the means for ameliorating the inherent tendency of a market economy to experience crisis. In addition, the implementation of a Job Guarantee (Employer of Last Resort) provides the basis for addressing the challenges of persistent unemployment, income inequality and environmental degradation. This supports the view that an integrated suite of policies, underpinned by a coherent theoretical framework, is required.

3.1 Real and financial interactions in the context of crisis

Mainstream analysts rarely address the question of interactions between the financial and real sectors of the economy, because their models typically focus on equilibrium within financial markets in isolation from the real sector.[9] When such interactions are included, the favoured approach superimposes models of asset pricing on an underlying real business cycle model which acts as the autonomous and insulated driver of the dividend process (see Brock 1983).

In contrast, research informed by network analysis has argued that global networks of ownership and control (structured through direct investment in productive assets) have served to concentrate and heighten risk and financial fragility (Stiglitz 2010; Vitali et al. 2011). For their part, MMT advocates argue that neo-liberal policies of fiscal withdrawal force the non-government sector into deficit and destroy real wealth in the form of net financial assets, thus aggravating financial fragility.

9 For example, recent studies have applied biological modelling of complex predator-prey relationships to the analysis of trading activity in financial markets (Haldane and May 2011). The discovery by ecologists that an increase in the number of predators and prey within a given ecosystem could result in more extreme variations in population levels, carries over to financial markets, in which increasing asset-price volatility derives from market redundancy or ‘over-completeness’.

The adverse impact on real effective demand caused by real wage repression can be temporarily offset by higher consumption spending that is induced by wealth effects and financed by rising levels of (household) debt. Rising wealth has occurred through unsustainable increases in asset prices (primarily concentrated in the stock market and housing sector during the GFC).

Interactions between real and financial sectors were also cogently described by Hyman Minsky. His early work (Minsky 1975), which was influenced by *Keynes's Treatise* and the *General Theory*, focused on fluctuations in effective demand that were largely driven by the influence of uncertainty over investment. In turn, the level of uncertainty was conditioned by financial fragility. Within the corporate sector an increasing reliance on external sources of finance, a loss of diversification, and a concomitant deferment of (PV) payback times leads to increasing borrowers' and lenders' risk and adversely affects the capitalization ratio (converting expected net cash inflows into the demand price per unit of capital). All of these influences lower the rate of investment. Minsky followed Keynes in emphasizing the importance of Fisherian debt-deflation and the role of asset-price booms and busts; tracing how they each accounted for fluctuations in the components and overall level of effective demand.

In his later work on the *Financial Instability Hypothesis*, Minsky (1985) introduced his celebrated distinction between hedge, speculative and Ponzi financial positions, which was relevant to all domestic private sector agents; banks, households and firms. Fragility was conceived as a shift in the admixture of positions towards the Ponzi end of the continuum, for a given term structure or liquidity preference profile.

Minsky intended to publish a book describing the global transformation of Keynesian Welfare State Capitalism into what he called Money Manager Capitalism, which was characterised by a dramatic change in nature and role of financial sector (see Wray 2009). The shift from Keynesian full employment policies to a neo-liberal policy regime reflected the rapid growth of pools of managed funds. Minsky also described the way in which the entire system of underwriting was undermined by a severing of links between those providing or guaranteeing finance and those engaged in primary expenditure. This rupture, which led to the wholesale erosion of underwriting mechanisms, was induced by the growth of securitization (CDOs), the proliferation of credit default swaps (CDSs) and other forms of insurance for securitised assets, and the increasingly compromised role of ratings agencies.

3.2 Ecological sustainability

This section draws on Forstater (2003) and outlines the conditions that must hold for biophysical sustainability (BS). If the stock of waste arising from production, say using renewable resources, accumulates, then, over space, waste must be recycled or reused, otherwise the assimilative capacities (ACs) of the corresponding environments will be rapidly exhausted.

On the other hand, if AC imposes a constraint on the annual flow of say waste water or air pollution, then the sink function of the ecosphere, can be represented by the constraint W

A, where *W* is a vector of flows of different types of waste defined by location, and *A* is a vector of the corresponding ACs.

For renewable resources, the rate of utilization must be less than or equal to the maximum sustainable yield. Thus, maintenance of the source function of the ecosphere for stock renewable resources is u_{SR} y_{SR}, where u is rate of utilization or harvest, y is the yield or rate of renewal and SR denotes stock renewable resources.[10]

These constraints highlight the fact that '[t]he technological structure of production must be transformed from exhaustible to renewable resource-based technologies' (Forstater 2003:388). In addition, technological innovation achieving higher productivity/efficiency of all resources is needed. Therefore, higher regeneration rates are required along with better resource extraction techniques, improved pollution abatement, higher ACs, and the cultivation of renewable resource stocks (Lawn 2001; Forstater 2003). In addition, maximum recycling is needed (reuse, reduce, and repair). Also the level and composition of economic activity must avoid deleterious thermal effects and preserve biodiversity. Ecosystem rehabilitation and conservation is the basis for a sustainable system.

However satisfying the BS conditions does not guarantee that the necessary material provisioning will occur, that is sufficient production of goods and services. Further the composition of these goods and the means by which they are produced are subject to ecological constraints. Thus both ecological and economic conditions must be satisfied for system viability.

The spatial patterns of non-renewable and renewable resource depletion, the quantities and qualities of emissions, biodiversity loss, soil erosion, etc. all must be addressed in order to meet the biophysical conditions for a sustainable economy. The comprehensive policy program must include instruments, ranging from direct regulation to taxes, fees, and subsidies, transferable permits and quota licenses. These strategies will have to address the technological structure of production and the composition of both production and consumption (Forstater 2003).

3.3 Achieving full employment

In Section 2.1 we noted the shortcomings of neo-liberal policy for the achievement of sustained full employment. On the other hand, (Post) Keynesians generally advocate an unspecified amount of aggregate demand stimulus (pump-priming) to achieve full employment. Even when public investment is supplemented by training to improve job matching, production bottlenecks and other structural rigidities will emerge before full employment which will result in unemployment, inflation, and sluggish growth (Lowe 1976; Forstater 2003). This is a consequence of the spatial unevenness and persistence of underemployment and unemployment. Unemployment must be understood as a product of both technological change (structural unemployment) and deficient demand (Forstater 2003).

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10 This condition can be modified given the presence of a known stock of non-renewable resources, which imposes a constraint on the intertemporal pattern of use.

Post Keynesians recognise the distributional constraints associated with pump-priming (see, for example, Arestis and Sawyer 2012). Since public and private sector workers are paid prevailing market wages, there is no counter-inflation sanction in the presence of a full employment pledge by government (Mitchell and Wray 2005). The effectiveness of an incomes policy to address these inherent wage and price pressures (Arestis and Sawyer 2013) requires a convincing justification. Pump-priming also causes a more inequitable income distribution because it typically favours rentier incomes, profits and high wage workers, and fails to 'trickle-down' to address low-wage employment or structural unemployment of low-skilled workers (Tcherneva 2011; ILO 2014). Pump-priming can suffer lags in implementation too which may destabilise the economy (Friedman 1948).

Forstater (2003) notes that the industrial reserve army of labour (IRA), which is reproduced during capital accumulation, is functional to capitalism in that it holds down wages (and thus inflation), thereby disciplining workers. The IRA also provides a pool of workers, albeit with little work experience, for firms when the economy expands. Firms maintain excess capacity in order to enable a quick response to changes in market demand. This is inconsistent with sustained full employment of workers at market wages.

Even if Keynesian aggregate demand management could achieve full employment, it would be environmentally destructive because the process of capitalist competition is unaffected (Forstater 2003; Tcherneva 2009). In short, private costs remain central to decision making, whereas social costs arising from the creation of externalities are ignored. Households may also adopt 'consumption patterns, lifestyles and household organisation that have wider social and environmental implications' (Forstater 2003:387). Firm and household decisions may have cumulative consequences.

Some products, occupations, skills, technologies, and firms and industries will become obsolete. These structural and technological transformations will worsen the usual structural change problem, which is not addressed by Keynesian aggregate demand management (Forstater 2003). Thus a full employment strategy must also allow for structural flexibility.

While Keynes' approach to full employment is often framed in terms of closing Okun's output gap, the issue is deficient demand for labour. 'Keynes specifically endorsed labor-demand targeting policies in the form of direct job creation for the unemployed that would be implemented irrespective of the phase of the business cycle' (Tcherneva 2012:58).[11] The Job Guarantee (Employer of Last Resort) is a contemporary approach to sustained full employment which is consistent with Keynes' recommendations.

MMT advocates, including Mitchell (1998), Wray (1998) and Forstater (1998) argue that, by exploiting the policy freedoms of a sovereign economy, a Job Guarantee (JG) offers the best option for sustained full employment and price stability. We briefly summarise the key properties of a JG, drawing on Juniper et al. (2014).

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11 We do not consider a Basic Income (BI) scheme to be a viable solution to either income insecurity or environment degradation. See Mitchell and Watts (2004) and Tcherneva (2009) for a critique of the BI scheme.

The JG offers a job at a fixed money wage (including a benefit package) to any individual ready, willing and able to work. JG employees can undertake up to say 35 hours of work per week or less if preferred, so job creation is perfectly calibrated to the degree of labour underutilisation. The buffer stock of JG jobs expands (declines) when private sector activity declines (expands). A smooth transfer of labour between sectors occurs, because (i) JG workers are paid the minimum wage (the numéraire) to avoid upsetting the private sector wage structure; and (ii) JG workers are job ready which reduces hiring and on-the-job training costs and skill atrophy, and hence the *hysteretic inertia* embodied in the long-term unemployed. Thus the JG addresses the uneven spread and persistent nature of labour underutilisation and minimises the personal/social costs, from unemployment or reduced work hours. Private sector employers paying minimum wages are likely to face greater competition for workers which may promote job restructuring and higher productivity.

Policy lags can be largely eliminated through the rapid creation of employment opportunities through a national organisation with local offices, which are informed about unmet social needs.[12] JG programs can be designed to make little use of capital- equipment for which demand might be expected to increase during the transition (Forstater 2003; Tcherneva 2009). Also, it would be unnecessary to 'subsidise' vulnerable firms when JG opportunities are readily available.

The JG has an inbuilt anti-inflationary framework because wage-differentials serve to discipline the inflationary process. In contrast to the unemployed, JG workers are a credible threat to current private sector employees. Thus employers are more likely to resist inflationary wage demands from current employees. If inflation does exceed the government's announced target, tighter macroeconomic policy would lead to workers being displaced from the inflating private sector to the fixed price JG sector which imposes a sanction, in the form of income loss. The ability of government to control these wage differentials, through both the adoption of solidaristic incomes policies and the setting of a minimum/liveable wage, thus provides a superior mechanism for the control of inflation.[13]

With its focus on direct employment creation in the spirit of Keynes, the JG is not an aggregate demand policy (Mitchell and Wray 2005).[14] It also has the flexibility to address structural change. ILO (2014) maintain that 'full and productive employment and decent work for all, including women and young people, is the most effective route out of poverty' and should be an explicit objective of the post-2015 development agenda.

4. Addressing the Triple Crisis

4.1 Job Guarantee

Notwithstanding the achievement of sustained full employment, a Job Guarantee can also address rising poverty and wage inequality, which in many countries, including the USA, is

12 For example, in Australia, Centrelink delivers a range of payments and services to citizens, including job seekers and old age pensioners. With a comprehensive network of local offices, it is well suited to support the implementation of a JG.

13 Juniper et al. (2014) address the post-Keynesian critiques of the JG.

14 'GDP growth is a consequence of, not a pre-condition for full employment' (Tcherneva 2009:196).

associated with both the lack of jobs, but also the growth of the working poor, which reflects a punitive welfare system for those who are not working, forcing them to take poorly paid jobs. The latter is exacerbated by the infrequent adjustment of state and federal minimum wages. On the other hand, Australia has a minimum wage which is more than double the level of unemployment benefit for a single person and is subject to an annual review.[15]

ILO (2014) notes some benefits of job creation for sustainable development, since a more stable and predictable income stream for the household (i) enables future planning; (ii) supports investment in the children's schooling; and (iii) facilitates access to health and credit services.

The JG directly expands employment opportunities, particularly for the most marginalised members of the working age population (e.g. youth, elderly). Less comprehensive employment guarantee schemes have proven highly successful, such as India's rural employment guarantee scheme (see Zepeda et al. 2012). Since its launch in 2006, this program has been associated with 'increasing rural wages, reducing distress migration, improving infrastructure, reducing unemployment and underemployment, encouraging agricultural productivity and reducing malnutrition' (UN 2013:234, Box 7.2).

Since JG employment is not based on private profitability, employment generation can be designed to promote the broader goal of social efficiency rather than just full employment and price stability (Forstater 2003). This can include direct environmental improvement, such as the rehabilitation of riverbanks but also alternative forms of employment for workers currently engaged in resource depleting activities, such as logging old growth forests and mining in environmentally sensitive areas.

Whereas the location of firms is based on the private cost-benefit calculus, the location of JG activities can contribute to sustainability by ensuring that local ACs are not threatened, and by minimising family disruption caused by long commutes. Hence, local needs can alleviate the compulsory nature of the JG since participants are not necessarily forced to relocate.

If the scale or composition of the private sector, even with ecological tax reform (see below) and other regulations, is inconsistent with BS conditions, then a larger JG sector, with its significant flexibility and use of appropriate technology, and a smaller private sector, may be appropriate. So society must find the right balance between private sector (and normal public sector) activity and JG activity. Further, since the appropriate sectoral balance for sustainability is likely to change over time, the JG will help to alleviate the economic and social dislocations. Of course, traditional fiscal and monetary policies can be used alongside the JG program (see below).

4.2 Ecological tax reform

15 Ian McDonald of Melbourne University proposed that Australian minimum wages be adjusted at 4 per cent per year, representing productivity growth of 1.5 per cent and an allowance for inflation of 2.5 per cent which lies midway within the RBA's target range of 2-3 per cent. This simple rule adds certainty to the wages system (Watts 2010b).

Ecological tax reform can be introduced to reshape market incentives to promote environmental objectives (Forstater 2003). Taxes levied on harmful goods ('bads') or undesirable technologies and behaviours are not designed to generate revenue. If appropriately designed, a tax yielding zero revenue is a successful policy. Likewise, tax credits or subsidies can promote desirable behaviour.

Ecological tax reform should be founded on a shift from taxes on income, employment and innovation and subsidies for non-renewable and renewable resource extraction and even polluting technologies, towards taxes on resource depletion and pollution. Tax credits and subsidies (and complementary changes in regulations) should be introduced to promote research and development in alternative energy sources, efficient energy use technologies and recycling (Forstater 2003:395).

Forstater (2003) argues that land and building taxes may be adopted to satisfy the need for a base tax to maintain demand for the currency (i.e. chartalism). He does not rule out taxing high incomes, but to achieve redistribution rather than revenue generation.

Depletion quotas could also be considered. Forstater (2003) maintains that quotas can be an effective means of achieving both sustainable resource use and emissions levels consistent with the environment's AC. Moreover, resource depletion is easier to monitor and control than pollution. Quotas are superior to taxes on natural resources because (i) it is virtually impossible to set tax rates to achieve a target level of resource utilisation; and (ii) taxes may only change the pattern of resource depletion, which may or may not be more sustainable (Forstater 2003).

Notwithstanding depletion quotas, Forstater (2003) argues that pollution taxes would still be necessary and, in contrast to emission caps, have the benefit of maintaining the incentive to reduce pollution. A weakness of taxing pollution is that it does not guarantee that emissions will be reduced to a level that is consistent with AC. So again a cap and trade scheme is appropriate. Local and global ACs must be considered, so most permits will be tradable only within a certain area.

Taxes and regulations also must be applied to materials, such as pesticides and fertilizers, to prevent soil erosion and biodiversity loss. Controls on land clearance will also need to be applied. Tax breaks and subsidies can be used to encourage fencing off and managing native vegetation (Lawn 2001). Taxes can also be used to influence the consumption of goods that harm the environment, especially luxuries.

Tax breaks and subsidies can be used to promote the locational redistribution of industry. In an industrial ecology park, several firms are located in geographical proximity. Here, the waste and other residual by-products of one firm are used as inputs by others in an attempt to close the loop in production and waste cycles.

4.3 Other strategies to reduce income inequality

Reducing income inequalities requires growth and development strategies which ensure that the benefits are disproportionately enjoyed by low-income households. Here we explore some strategies which can be used in conjunction with a Job Guarantee to reduce income inequality both within and across economies. Governments must take a central role in establishing and implementing a more inclusive development agenda which requires expanding employment opportunities, strengthening redistributive measures and labour market policies, and regulating trade and financial globalisation.

Employment and labour market policies

Institutional arrangements must be modified to ensure that individual agents gain more bargaining power. In part, this can be achieved by establishing a form of strategic coordination between governments and firms (especially SMEs) that is more participatory and less centralised, while being supported through bureau services providing access to public funds.

Small and medium enterprises (SMEs) tend to be labour-intensive and are responsible for a large share of employment within both developed and developing economies. However, access to capital is widely identified as a key barrier to start-up and expansion of SMEs. Government-backed (concessional) loans can be provided to promote expansion, but also encourage start-up in strategically important sectors (ADB 2009; UN 2013).

Moreover, government can encourage expansion of SMEs via investment in research and development, sharing information on advances in production and training methods, technologies and products thereby promoting development and reducing direct cost incurred by SMEs. Government can also assist SMEs with building networks with larger corporations such that SMEs are integrated in the production process, perhaps as providers of inputs (e.g. Malaysia, see Kawanabe 1995).

Labour market policies are important to reduce income inequality. UN (2013) argues that improving and enforcing minimum wage policies can have significant effects on reducing income inequality (e.g. Latin America). The Job Guarantee would be accompanied by an effective minimum wage policy to improve the distribution of income and the well-being of low-wage workers.

Collective bargaining is also associated with reduced wage inequality and improvements in the distribution of income, since it establishes a standard rate for comparable work, and reduces discrimination against women, and wage gaps between occupations. In a study of both developed and developing economies, Hayter and Weiberg (2011) show that unionised sectors experience less wage inequality than non-unionised sectors.

Redistributive policies

The use of active fiscal policy is essential to reducing income inequality. Government must abandon the notion of sound finance and instead pursue functional finance. That is, government spending, lending, borrowing, taxing, buying, and selling should be judged only by the *effects* they have on the economy and society. Hence, narrow macroeconomic objectives such as deficit reduction must be abandoned.

Expenditure-based redistributive measures may encompass, for example, infrastructure investment, social protection programs and consumer subsidies. Public investment in infrastructure may include telecommunications, transport, and water supply and energy networks. This infrastructure is particularly important within rural areas to increase agricultural productivity, boosting the incomes of rural households.

Social protection incorporates social insurance (e.g. health insurance and pension programs) and social assistance programs (e.g. targeted cash and in kind transfers). There would be reduced emphasis on the latter if a comprehensive Job Guarantee program were in place at a liveable wage. Further a JG could incorporate a broader social protection package which includes subsidised or free access to essential goods and services related to health, education and nutrition.

Consumer subsidies, particularly food subsidies, can be a useful strategy to reduce inequality. For example, government can fix the price of a basic good, purchase and distribute the good at a reduced price (or free), or distribute a fixed amount of money to be used on a specific basic good (see Coady et al. 2004). This policy may be particularly important among developing economies where food expenses represent a large proportion of household budgets.

Tax-based redistributive measures can be highly effective however it is important that tax policy is informed by the principles of functional finance. That is, the purpose of taxation is to influence economic behaviour not to generate revenue. Strategies to minimise tax evasion and broaden the tax base should be devised and conducted with the objective of enhancing redistribution.

Since the 1980s, tax reforms in most OECD economies have reduced top personal income tax rates and other rates affecting the highest income earners, intensifying income inequalities (see OECD 2014). Income taxes need to be more progressive, perhaps by increasing marginal tax rates or by increasing the number of tax brackets. However, gains to progressivity can be undermined by generous exemptions and deductions which benefit high income earners, including capital gain exemptions, lower taxation of non-wage income, and medical and education deductions. Such exemptions and deductions should be reduced or abolished and all remuneration, including bonuses and stock options, should be taxed as ordinary income (OECD 2014).

Typically regressive taxes, such as GST or VAT, can be made more progressive by taxing goods and services consumed by the 'rich' (e.g. luxury goods) and the 'poor' (e.g. basic foods) at different rates (UN 2013). Land taxes may also be considered to discourage land from being a speculative commodity, shifting the primary basis for land acquisition to its use-value (Forstater 2003).

Trade and financial policies

Trade and financial globalisation have been identified as key drivers of global income inequality. For developing economies, liberalisation strategies promoting direct investment and competitive trade have typically coincided with reduced wages and labour standards and lower tax rates. Moreover, under a fixed exchange rate regime, highly volatile capital flows generate currency crises and recession.

Exchange rate policy should combine flexible exchange rate regimes with capital controls, while allowing other discretionary central bank interventions. Harrison (2002) shows that capital controls lead to an increased labour share, and so, lower income inequality.

Again, it is important that capital controls, such as a financial transaction tax (or Tobin tax), are designed to discourage/encourage certain transactions, rather than necessarily taxing financial instruments or trade activities that will generate large revenues (cf. Europe's proposed Financial Transaction Tax). For example, commodity price speculation particularly on food and energy should be discouraged.

In his submission to the recent *Mirlees Taxation Inquiry*, Piketty (2010) recommends a uniform approach to the taxation of wealth across Europe and America as a means of ameliorating growing income inequality. Critics of this proposal, such as Unger (2007), complain that retrospective taxes and transfers may not be sufficient to redress whatever inequalities result from market forces. Indeed, a global wealth tax may be useful but must be supplemented by a host of other interventions, such as those previously mentioned.[16]

Better macro-prudential regulation should accompany capital controls to mitigate systemic risk. In a recent paper on Minsky's approach to macro-prudential regulation Kregel (2014) points to the need to move beyond a concern with the idiosyncratic characteristics of individual financial institutions to one focusing on nature of interactions between these institutions and the financial and economic system as a whole. Hence, an approach to regulation that is more sensitive to the potential of agents both to adapt and to innovate in a more radical fashion, as opposed to merely responding to the contingencies of the last financial crisis.

5. Conclusion

Capitalist economies are characterised by persistent unemployment, increased income inequality and environmental degradation. Traditional policies are severely limited in their ability to address these interlocking dimensions of the Triple Crisis.

An integrated conceptual framework, however, which combines the principles of Modern Monetary Theory, the Minskian treatment of real and financial interactions, and ecological sustainability can make a major contribution to understanding and mediating the interrelated dimensions of the Triple Crisis. Further, the conceptual framework can be used to derive a number of key policy recommendations.

We have argued that a Job Guarantee approach to full employment in concert with ecological tax reform can address the tenets of the Triple Crisis by reducing poverty, income inequality and environmental degradation.

16 See Galbraith (2014) for a deeper critique of Piketty's capital-theoretic arguments.

The Job Guarantee should also be coupled with other strategies to reduce income inequality within and across countries. These policies must ensure that the benefits are disproportionately enjoyed by low-income households, which generally involve enhancing employment opportunities, strengthening redistributive measures and labour market policies, and regulating trade and financial globalisation. Government has a central policymaking role in establishing and implementing this inclusive and ecologically sustainable development agenda.

References

ADB (2009) *Key Indicators for Asia and the Pacific 2009*, Asian Development Bank: Manila.

ADB (2012) *Asian Development Outlook 2012: Confronting Rising Income Inequality in Asia*, Asian Development Bank: Manila.

Alvaredo, F., Atkinson, T., Piketty, T. and Saez, E. (2014) *The World Top Incomes Database*, available: http://topincomes.g-mond.parisschoolofeconomics.eu/#Database.

Arestis, P. and Sawyer, M. (2012) The 'new economics' and policies for financial stability, *International Review of Applied Economics* 26(2): 147-160.

Arestis, P. and Sawyer, M. (2013) Moving from inflation targeting to prices and incomes policy, *Panoeconomicus* 60(1): 1-17.

Bessanini, A. and Manfredi, T. (2012) Capital's grabbing hand? A cross-country/cross-industry analysis of the decline of the labour share, *OECD* working paper, 133.

Blanchard, O.J., Dell'Ariccia, G. and Mauro, P. (2010) Rethinking macroeconomic policy, *IMF* staff position note, 3.

Brock, W. (1983) Asset prices in a production economy, in McCall, J.J. (ed.) *Economics of Information and Uncertainty*, 1-43, The University of Chicago Press: Chicago, IL.

Burkett, P. (1999) *Marx and Nature*, St. Martin's Press: New York.

Burkett, P. (2003) The value problem in ecological economics: Lessons from the physiocrats and Marx, *Organization & Environment* 16: 137-167.

Chen, S. and Ravallion, M. (2012) *An Update to the World Bank's Estimates of Consumption and Poverty in the Developing World*, World Bank: Washington, DC.

Coady, D., Grosh, M. and Hoddinott, J. (2004) *Targeting of Transfers in Developing Countries: Review of Lessons and Experience*, World Bank and the International Food Policy Research Institute: Washington, DC.

Cornia, G.A. (2012) The new structuralist macroeconomics and income inequality, *Università degli Studi di Firenze*, Dipartimento di Scienze Economiche working paper, 25.

Daly, H.E. (1990) *Beyond Growth: The Economics of Sustainable Development*, Beacon Press: Boston, MA.

Daudey, E. and Garcia-Penalosa, C. (2007) The personal and the factor distributions of Income in a cross-section of countries, *Journal of Development Studies* 43(5): 812-829.

Duménil, G. and Lévy, D. (2001) Costs and benefits of neo-liberalism: A class analysis, *Review of International Political Economy* 8(4): 578-607.

Forstater, M. (1998) Flexible full employment: Structural implications of discretionary public sector employment, *Journal of Economic Issues* 32(2): 557-563.

Forstater, M. (2003) Public employment and environmental sustainability, *Journal of Post Keynesian Economics* 25(3): 385-406.

Foster, J.B. (2000) *Marx's Ecology*, Monthly Review Press: New York.

Foster, J.B. (2009) The paradox of wealth: Capitalism and ecological destruction, *Monthly Review* 61(6): 1-18.

Foster, J.B. and Clark, B. (2009) The paradox of wealth: Capitalism and ecological destruction, *Monthly Review* 61(6): 1-18.

Friedman, M. (1948) A monetary and fiscal framework for economic stability, *American Economic Review* 38(2): 245-264.

Galbraith, J.K. (2014) Kapital for the twenty-first century? *Dissent*, Spring, available: http://www.dissentmagazine.org/article/kapital-for-the-twenty-first-century.

Haldane, A.G. and May, R.M. (2011) Systemic risk in banking ecosystems, *Nature*, 469: 351-355.

Harrison, A. (2002) Has globalization eroded labor's share? Some cross country evidence, *mimeo*, National Bureau of Economic Research, Cambridge, MA.

Harvey, D. (2007) Neoliberalism as creative destruction, *Annals of the American Academy of Political and Social Science* 610: 22-44.

Hayter, S. and Weinberg, B. (2011) Minding the gap: Collective bargaining and wage inequality, in Hayter, S. (ed.) *The Role of Collective Bargaining in the Global Economy*, Edward Elgar: Cheltenham.

Heathcote, J., Perri, F. and Violante, G. (2010) Inequality in times of crisis: Lessons from the past and a first look at the current recession, *VoxEU.org*, 2 February.

Herndon, T., Ash, M. and Pollin, R. (2013) Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff, *Political Economy Research Institute* working paper, 322.

ILO (2011) *World of Work Report 2011: Income Inequalities in the Age of Financial Globalization*, International Labour Organization: Geneva.

ILO (2013) *Global Wage Report 2012/13: Wage and Equitable Growth*, International Labour Organization: Geneva.

ILO (2014) Jobs and livelihoods in the post-2015 development agenda: Meaningful ways to set targets and monitor progress, *ILO Concept Note*, 2. International Labour Organization: Geneva.

IMF (2010) *Fiscal Monitor: Fiscal Exit: From Strategy to Implementation*, International Monetary Fund: Washington, D.C.

IMF (2014) *Our Work*, International Monetary Fund: Washington, D.C. available: http://www.imf.org/external/about/ourwork.htm.

Juniper, J. (2007) Environmental investment and valuation: a Keynesian (and Freudian) perspective, *International Journal of Environment, Workplace and Employment* 3(3/4): 230-247.

Juniper, J., Sharpe, T.P. and Watts, M.J. (2014) Modern Monetary Theory: Contributions and critics, *mimeo*, The University of Newcastle, Australia.

Kawanabe (1995) Current state and problems of development of supporting industries in Malaysia—focusing on the vendor development program, *The Waseda Commercial Review*, 325.

Kaya, A. and Keba, A. (2011) Why global inequality matters: Derivative global egalitarianism, *Journal of International Political Theory* 7(2): 140-164.

Kregel, J. (2014) Minsky and dynamic macroprudential regulation, *The Levy Economics Institute* public policy brief, 131.

Lagarde, C. (2012) *Back To Rio—The Road to a Sustainable Economic Future*, speech by the Managing Director, International Monetary Fund, June 12, Washington D.C.

LaJeunesse, R., Mitchell, W.F. and Watts, M.J. (2006) Economics and industrial relations: debunking the myths, in Teicher, J., Lambert, R. and O'Rourke, A.H. (eds.) *Workchoices: The New Industrial Relations Agenda*, Pearson Education: Camberwell.

Lawn, P.A. (2001) *Toward Sustainable Development,* Lewis Publishers: Boca Raton, FL.

Lee, K. and Jayadev, A. (2005) Capital account liberalization, growth and the labor share of income: Reviewing and extending the cross-country evidence, in Epstein, G. (ed.) *Capital Flight and Capital Controls in Developing Countries*, Edward Elgar: Cheltenham.

Lowe, A. (1976) *The Path of Economic Growth,* Cambridge University Press: Cambridge.

McCracken, P.W., et al. (1977) *Towards Full Employment and Price Stability*, Paris: OECD Publications.

Minsky, H.P. (1975) *John Maynard Keynes*, Columbia University Press: New York.

Minsky, H.P. (1985) The Financial Instability Hypothesis: A restatement, in Arestis, P. and Skouras, T. (eds.) *Post-Keynesian Economic Theory: A Challenge to Neo-Classical Economics*, Wheatsheaf Books: Sussex.

Mitchell, W.F. (1998) The buffer stock employment model and the NAIRU: The path to full employment, *Journal of Economic Issues* 32(2): 547-555.

Mitchell, W.F. (2011) I agree with a mainstream economist, *Billy Blog*, 15 July.

Mitchell, W.F. (2013) Currency sovereignty is what matters, *Billy Blog*, 22 October.

Mitchell, W.F. and Watts, M.J. (2004) A comparison of the macroeconomic consequences of basic income and job guarantee schemes, *Rutgers Journal of Law and Urban Policy* 2(1): 1-24.

Mitchell, W.F. and Wray, L.R. (2005) In defence of the employer of last resort, *Journal of Economic Issues* 39(1): 235-245.

Nel, P. (2008) *The Politics of Economic Inequality in Developing Countries*, Palgrave-Macmillan: New York.

Nissanke, M. and Thorbecke, E. (2006) Channels and policy debate in the globalization–inequality–poverty nexus, *World Development* 34(8): 1338-1360.

OECD (1994) *The OECD Jobs Study*: *Facts, Analysis, Strategies*, OECD Publications: Paris.

OECD (2006) *Employment Outlook: Boosting Jobs and Incomes*, OECD Publications: Paris.

OECD (2009) Beyond the crisis: Medium term challenges relating to potential output, unemployment and fiscal positions, *OECD Economic Outlook,* Chapter 4, OECD Publications: Paris.

OECD (2011) Medium and long-term developments: Challenges and risks, *OECD Economic Outlook*, Chapter 4, OECD Publications: Paris.

OECD (2014) Focus on top incomes and taxation in OECD countries: Was the crisis a game changer? *Directorate for Employment, Labour and Social Affairs*, May.

Ortiz, I and Cummins, M. (2011) Global inequality: Beyond the bottom billion – A rapid review of income distribution in 141 countries, *UNICEF Social and Economic Policy* working paper, April.

Ostry, J.D., Berg, A. and Tsangarides, C.G. (2014) Redistribution, inequality, and growth, *IMF Staff Discussion Note*, 2.

Pearce, D.W. and Turner, R.K. (1990) *Economics of Natural Resources and the Environment*, Johns Hopkins University Press: Baltimore, Maryland.

Piketty, T. (2010) Wealth taxation in the 21st century: a personal view, in *Dimensions of Tax Design: The Mirrlees Review*, Institute for Fiscal Studies: London; Oxford University Press: Oxford.

Piketty, T. (2014) *Capital in the Twenty-first Century* (trans. Arthur Goldhammer), Belknap/Harvard University Press: Cambridge, MA.

Reinhart, C.M. and Rogoff, K.S. (2010) Growth in a time of debt, *American Economic Review* 100(2): 573-578.

Schwartzman, D. (1996) Solar communism, *Science & Society*, 60(3): 307-331.

Sharpe, T.P. (2013) Institutional arrangements and public debt threshold limits, *International Review of Applied Economics* 27(6): 707-728.

Sharpe, T.P. and Watts, M.J. (2012) Policy advice in crisis: how inter-governmental organisations have responded to the GFC, *Journal of Australian Political Economy* 69: 103-133.

Stiglitz J.E. (2010) Risk and global economic architecture: Why full financial integration may be undesirable, *National Bureau of Economic Research* working paper, 15718

Stockhammer, E. (2013) Why have wage shares fallen? A panel analysis of the determinants of functional income distribution, *Conditions of Work and Employment Series*, 35, International Labour Organization: Geneva.

Tcherneva, P.R. (2009) Evaluating the economic and environmental viability of Basic Incomes and Job Guarantees, in Lawn, P. (ed.) *Environment and Employment: A Reconciliation*, Routledge: London.

Tcherneva, P.R. (2011) Fiscal policy: Why aggregate demand management fails and what to do about it, *The Levy Economics Institute* working paper, 650.

Tcherneva, P.R. (2012) Permanent on-the-spot job creation—the missing Keynes plan for full employment and economic transformation, *Review of Social Economy* 70(1): 57-80.

The Economist (2011) Internal affairs: The gap between many rich and poor regions widened because of the recession, *The Economist*, 10 March.

UN (2012) *The Future We Want*, United Nations Conference on Sustainable Development 20-22 June: Rio de Janeiro.

UN (2013) *Humanity Divided: Confronting Inequality in Developing Countries*, United Nations Development Programme: New York.

UNESCAP (2013) Forward-looking macroeconomic policies for inclusive and sustainable development, *Economic and Social Survey of Asia and the Pacific*, United Nations Economic and Social Commission for Asia and the Pacific: Bangkok.

Unger, R.M. (2007) *Free Trade Reimagined: The World Division of Labor and the Method of Economics,* Princeton University Press: Princeton, NJ.

Vitali, S., Glattfelder, J.B. and Battiston, S. (2011) The network of global corporate control, *PLoS ONE* 6(10): 1-6.

Watt, A. (2006) Assessing the reassessment of the OECD jobs strategy: Eppursimuove? *European Economic and Employment Policy Brief*, 2.

Watts, M.J. (2010a) The role of the OECD in the design of macroeconomic and labour market policy: Reflections of a heterodox economist, *Centre of Full Employment and Equity* working paper, 2.

Watts, M.J. (2010b) How should minimum wages be set in Australia? *Journal of Industrial Relations* 52(2): 131-149.

Watts, M.J. and Sharpe, T.P. (2013) Immutable laws of debt dynamics, *Journal of Post Keynesian Economics* 36(1): 59-84.

Watts, M.J., Sharpe, T.P. and Juniper, J. (2014) Reformation or exodus: Assessing the future of the Euro, *The Economic and Labour Relations Review*, forthcoming.

Wilkinson, R. and Pickett, K. (2010) *The Spirit Level: Why More Equal Societies Almost Always Do Better*, Penguin: London.

Williamson, J. (1990) What Washington means by policy reform, in: Williamson J. (ed.) *Latin American Adjustment: How Much Has Happened?* Institute for International Economics: Washington, D.C.

Wray, L.R. (1998) *Understanding Modern Money*, Edward Elgar: Cheltenham.

Wray, L.R. (2009) The rise and fall of money manager capitalism: a Minskian approach, *Cambridge Journal of Economics* 33: 807-828.

Zepeda, E., MacDonald, S., Panda, M. and Kumar, G. (2012) *Employing India: Guaranteeing Jobs for the Rural Poor: An Assessment of India's MGNREGA Public Works Programme*, Carnegie Endowment for International Peace and United Nations Development Programme: New York.