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Ecological Economics of the Green New Deal

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The concept of a “green new deal” has recently achieved some political traction, but its exact content and policy feasibility is subject to considerable uncertainty. Aspects of what is referred to as a “green new deal” have been discussed by ecological economists for some time. In this discussion, there remains a tension between concepts of “green growth” and limits to growth or degrowth. Major stated goals of a green new deal include:

- Transformation to a low-carbon economy including renewable energy sources and energy efficiency;
- Protection and restoration of forests and wetlands;
- Sustainable farming and soil restoration;
- Expanding employment in renewable energy, energy efficiency, infrastructure investment, ecological resilience, and water management, among other areas

There is a theoretical basis for this program. A “green Keynesian” approach combines a radical Keynesian analysis with ecological priorities such as drastic carbon emissions reduction. This approach delinks traditional economic growth, largely based on fossil energy and resource input-intensive techniques, from employment creation and expanding well-being. In part this is a technological issue of employing “green”, renewable, and resilient technological options, and in part it represents a shift in consumption from energy-intensive to energy-conserving and service-oriented forms of consumption.

The combination of changes on the supply and demand sides enables, for example, large scale reduction in carbon emissions through “lowering the ceiling” of to-

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tal energy consumption while “raising the floor” of renewable energy supply. This provides an alternative to the assertion by proponents of “degrowth” that only radical reductions in consumption and economic growth can achieve ecological balance.

Despite this potential, popular presentations of the “green new deal” suffer from excessively broad aspirational rhetoric, making it difficult to discern which of the stated goals are feasible. The Congressional resolution proposes a ten-year time frame – insufficient to achieve many of the more ambitious goals. It is also vague on the question of costs as well as budget and deficit implications. But an application of green Keynesian analysis can offer some insight into how a green new deal can achieve both economic and ecological goals subject to both physical/ecological and economic constraints.

1. Keynesian Economics, the original New Deal, and recent Keynesian revival

The original New Deal under Franklin Roosevelt was not a direct application of Keynesian theory. Its origins were more as a pragmatic response to high unemployment, but its fundamental principles were consistent with the then-revolutionary theories by which Keynes justified the need for government intervention in a depressed economy. Important aspects of the theory were the direct effect of government employment and government spending, and the indirect, or multiplier, effects leading to additional economic activity and employment creation. Interestingly, the original New Deal had a significant “green” aspect. Programs such as the Civilian Conservation Corps provided employment in natural resource and conservation areas including erosion and flood control, forest protection and planting, and streambed protection, and agricultural extension programs sought to promote crop rotation and soil restoration.¹

The basic insight of Keynesian economics was that a social investment function was required in a market system. As Keynes emphasized in the “Concluding Notes” to the *General Theory of Employment, Interest, and Money*, “the outstanding faults of the society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes.”² Environmental issues were not central to Keynes’ original theory, but are an obvious example of the shortcomings of an unregulated market system. Thus it was quite logical, as the architects of the New Deal looked for opportunities to promote employment through social investment, for natural resource conservation to be one of the areas of focus.

The fiscal crisis of 2008 lent renewed attention to Keynesian theory and policy. In particular, the Obama stimulus program of 2009-10 followed a well-established Keynesian pattern. It also had an environmental component. In part the stimulus package was directed towards traditional types of spending such as highway maintenance, but a significant portion (about \$71 billion) was specifically oriented towards “green” investments, together with another \$20 billion in “green” tax incentives.³

The history of economic theory and policy thus shows a significant overlap between Keynesian economics and environmental concerns.⁴ This offers a good basis for current Green New Deal proposals. But environmental issues today, especially but not only climate change, are much more pressing than in the past, meaning that a modern version of the New Deal needs to find its theoretical foundation not only in updated Keynesian analysis, but also in a broader ecological economics perspective.

2. Ecological Economics and a Green New Deal

Ecological economics, as distinct from mainstream environmental economics, is based on a specific and powerful insight: the economy, as a subsystem of the planetary ecological system, is fundamentally limited by the physical realities of that planetary system. This has always been true, but it was possible to neglect the implications of this basic truth so long as human economic activity was at a relatively low level relative to planetary capacity—allowing economic theorists to take what Herman Daly has referred to as an “empty world” rather than a “full world” perspective. In Keynes’ time, this was basically still true. Although there was significant evidence of environmental degradation, giving rise to the resource and conservation concerns mentioned in connection with the New Deal, the overall pressures of global population and economic activity were far less than today.

Since about 1950, there have been staggering increases in global population, energy use, and carbon emissions—more than threefold for global population and more than six fold for energy use and carbon emissions. While the most obvious and widely known result of this is the current climate crisis, parallel crises have emerged in terms of other resources, including water resources, forests and wetlands, agricultural soils, ocean pollution, fisheries decline, and biodiversity loss. Even with optimistic forecasts of population stabilization, these consumption-generated pressures on the global ecosystem can be reliably forecast to increase further during the twenty-first century.

This broader perspective implies that a more drastic change will be required in the nature of economic production than was envisioned in the original Keynesian perspective. Keynes assumed that the goal of government policy was to promote full employment and economic growth. While he speculated about an eventual end to standard economic growth in his essay on “Economic Possibilities for Our Grandchildren,”⁵ this was not an immediate concern in an era of mass unemployment, nor was it a concern for the policymakers who applied Keynesian economics on a broad scale following World War II. The ecological economics perspective, in contrast, implies that an extraordinary reorientation will be required as the period of steady economic growth, characteristic of the past 200 years and especially of the last 75 years, necessarily comes up against firm ecological limits.

Does this mean an end to economic growth? I have noted elsewhere that:

There is an extensive debate on the possibility of achieving “absolute decoupling” reducing overall resource inputs, specifically carbon-based fuels, while “growing” the economy. Advocates of “degrowth” argue that absolute decoupling is unlikely to be possible, meaning that consumption must be reduced if carbon reduction targets are to be achieved. But regardless of whether we anticipate only “relative decoupling” – reducing the carbon intensity of the economy – or absolute decoupling, some form of green Keynesian policies will be essential to redirect economic activity away from a carbon-intensive path.⁶

A Green New Deal, then, has to envision an economic transition at least as sweeping as that of the original Keynesian revolution, and likely more so. It is notable that the full impact of Keynesian policies were only felt with the onset of World War II—a massive transformation of national and global economies. If we take into account the full implications of the ecological economic perspective, the next stage of economic development will necessarily reflect an even greater realignment of economic production—but in a quite different direction.

3. Fundamental Goals of a Green New Deal

The first goal of a Green New Deal (GND) is an energy transformation to a low-carbon economy. The GND proposal by Data for Progress calls for 100% renewable electricity by 2035, and zero net emissions for energy by 2050. This implies an energy mix that is either zero-emission or 100% carbon capture. Related goals include 100% net-zero building energy standards by 2030, overall dramatic increases in efficiency standards for appliances, lighting, and equipment, 100% zero-emission passenger vehicles by 2030, 100% fossil-fuel free transportation by 2050, and reducing methane leakage 50% by 2030.⁷

An important, and neglected, element of climate policy is the management of forests, wetlands, and soils. GND goals cited by Data for Progress include the preservation of existing forests and reforestation of 400 million acres of public and private land by 2035. Wetland preservation and restoration is another critical component. Wetlands are extremely efficient at carbon storage, and wetland loss is a significant cause of increased carbon emissions.⁸ Agriculture is a major contributor to carbon and methane emissions, as well as to pesticide and fertilizer pollution degrading waterways and oceans, but sustainable agricultural practices promoting healthy soils have the potential to turn the agricultural sector into a major net carbon sink.⁹

A third major focus for a GND is infrastructure investment. In addition to infrastructure investment related to the low-carbon energy transition, major investment is urgently needed in water, sewage, transportation, and waste management. A single example gives a sense of the scope of the issue. New Jersey’s largest lake, Lake Hopatcong, has recently been closed to recreational uses due to a major bloom of toxic blue-green algae – a problem that affects many inland and coastal waters. The causes include climate change, leading to more

intense rainfall, and “older sewer and stormwater systems that have been overwhelmed by fast-moving storms. . . . the Environmental Protection Agency has put the cost of upgrading New Jersey’s stormwater system at \$16 billion.”¹⁰ A price tag of \$16 billion, for one major problem in one state, strongly suggests many hundreds of billions in needed infrastructure investment nationwide.

4. Specific Policies to Achieve Green New Deal Goals

Policies to achieve GND goals can be roughly divided into three areas:

- (1) Redirection of existing economic activity and investment. These policies could include carbon taxes, elimination of “perverse” subsidies for carbon emissions and resource extraction, subsidies for renewable energy or sustainable agricultural and forestry practices, establishing strong fuel and building efficiency standards, renewable energy portfolio standards, and stronger environmental regulation
- (2) New public investment in water and sewer infrastructure, energy transition, public transit, research and development of new renewable technologies and battery storage, electrical grid integration and modernization, public trust funds for community resilience and land protection programs.
- (3) Employment creation programs, overlapping with (2) but also including human resource areas such as health, education, and community services.

5. Budget Implications of a Green New Deal

The goals of the GND are extremely ambitious, but do not necessarily involve high economic costs in all cases. Many environmental problems arise from the exploitation of “free” or low-priced natural resources. Putting a proper price on these resources can be consistent with both good economic theory and sound ecological principles, and generally implies a shift in economic techniques and activities rather than an absolute cost. In some cases, greater efficiency in resource use can save money as well as reduce ecosystem impact.

While proper pricing of resources can generate significant revenue streams, carbon taxes and other resource taxes are generally regressive. A portion of the revenue stream associated with them therefore needs to be channeled into individual per capita rebates (which have the effect of changing the net tax impact from regressive to progressive or at least proportional), or into social investment that primarily benefits lower-income individuals and families, such as health care and education.

To the extent that necessary infrastructure investment is not covered by remaining carbon tax revenues, it will need to be funded out of general government budgets. According to standard Keynesian theory, at times of severe recession government deficits are acceptable

and indeed necessary to counter a deficiency of private investment. But at times of relatively high employment, budget deficits should be reduced or eliminated. In the U.S., this implies at a minimum reversing most of the 2017 tax cuts, especially those for upper-income individuals, and closing loopholes such as the infamous carried interest provision (the 2017 tax package did little or nothing to close major loopholes). Another option is a financial transaction or “Tobin” tax, set at a very low rate but with significant revenue potential due to the high volume of financial transactions.

Opponents of a GND will argue that its implementation will be enormously costly and require government takeover of major economic functions. Unwise GND advocacy, including unrealistic goals and “add-ons” such as the concept of guaranteed jobs, have lent credibility to these critics. But in fact, implementation of a GND can be flexible and not necessarily involve high costs.

GND investment policies can both promote employment and advance a transition to a more environmentally sustainable economy at relatively low cost in terms of national budgets and GDP. For example, the Obama administration stimulus program included \$5 billion for weatherization programs. A major nationwide program for building energy efficiency retrofit could easily be ten times as large. The stimulus program temporarily quadrupled U.S. spending on energy research and development, to about \$12 billion; a permanent increase of this magnitude would have enormous long-term benefits in promoting a transition to efficiency and renewables. In the context of a Federal budget of over \$4 trillion, these are not very large amounts. A “greener” economic view, taking into account ecological benefits, implies that the policies required to promote a massive transition to renewables and greater energy efficiency could be considered a net benefit, not a net cost.

As noted above, infrastructure investment will ultimately involve much larger amounts. Some of these may require dedicated revenue sources at the state or local level; for example, in the New Jersey example mentioned above, a possible solution involves “stormwater utilities”, which are a mechanism for localities to charge fees to property owners based on how much stormwater runoff they generate.

An important issue in assessing costs is the standard economic principle of increasing marginal cost. This implies that the initial costs are the lowest, and indeed in the case of greenhouse gas abatement costs a major study by McKinsey & Company found that the costs of abating up to about a third of total emissions were negative – implying that for these abatement programs, especially increasing energy efficiency, economic advantages outweighed costs even without considering environmental gains. The second third involved relatively low cost, less than \$20 per ton of CO₂ equivalent. On a global scale, the total cost of reducing 2030 emissions by 35% compared to 1990 levels, or 70% compared with business-as-usual levels, would be less than 1% of global GDP.¹¹

It would thus be a major mistake to reject the GND based on an inflated estimate of its total potential cost. Unfortunately some of its early advocacy has encouraged just that perception: that it involves trillions of dollars in new spending. Many GND policies, as noted above, would require minimal spending and deliver net benefits in terms of employment and environmental advances. In terms of carbon reduction, the higher costs would potentially come later: 30% reduction would be cheap, 100% could be expensive. By trumpeting a 100% goal within the unrealistically short period of ten years, the advocates have done the program a disservice. If initiated with an emphasis on energy efficiency, low-cost renewables, and employment generation, it would demonstrate employment and environmental benefits, and could be ramped up over time. A Green Keynesian analysis suggests that the overall effects would be beneficial, even though some greater tax revenues and spending would eventually be involved.

Endnotes

¹ Merrill, Perry H. 1981. *Roosevelt's Forest Army, A History of the Civilian Conservation Corps*.

² Keynes, John Maynard. 1936. *The General theory of Employment, Interest, and Money*.

³ See "U.S. Economic Stimulus Package includes Billions for Energy and Environment," http://environment.about.com/od/environmentallawpolicy/a/econ_stimulus.htm. Specific provisions included energy efficiency in government facilities (\$8.7 billion); smart-grid infrastructure investment (\$11 billion); energy and conservation grants to state and local governments (\$6.3 billion); weatherization assistance (\$5 billion); energy efficiency and renewable energy research (\$2.5 billion); grants for advanced battery manufacturing (\$2 billion); loan guarantees for wind and solar projects (\$6 billion); public transit and high-speed rail (\$17.7 billion); environmental cleanup (\$14.6 billion); environmental research (\$6.6 billion).

⁴ Harris, Jonathan M. 2013. 'Green Keynesianism: Beyond Standard Growth Paradigms', in R. B. Richardson (ed.), *Building a Green Economy: Perspectives from Ecological Economics*, East Lansing, Michigan: Michigan State University Press.

⁵ Keynes, John Maynard Keynes. 2009. "Economic Possibilities for Our Grandchildren," *Essays in Persuasion*. Classic House Books, New York [original publication 1930].

⁶ Harris, Jonathan M. 2019. *Responding to Economic and Ecological Deficit*, Tufts University Global Development and Environment Institute Working Paper No. 19-01, April.

⁷ Greg Carlock and Emily Mangan. 2018. "A Green New Deal: A Progressive Vision for Environmental Sustainability and Economic Stability," <http://www.dataforprogress.org>.

⁸William Moomaw, Susan Masino, and Edward Faison. 2019. "Intact Forests in the United States; Proforestation Mitigates Climate Change and Serves the Greater Good," *Frontiers in Forests and Global Change*, June; C.M. Finlayson et al. 2019. "The Second Warning to Humanity - Providing a Context for Wetland Management and Policy," *Wetlands*, February 2019.

⁹Anne-Marie Codur and Josephine Watson. 2018. "Climate Smart or Regenerative Agriculture? Defining Climate Policies based on Soil Health," Tufts University Global Development and Environment Institute, GDAE Climate Policy Brief #9, April 2018.

¹⁰Anne Barnard. 2019. "Algae Bloom Fouls N.J.'s Largest Lake," *New York Times*, August 5.

¹¹McKinsey and Company, 2009 and 2013, *Pathways to a Low-Carbon Economy*, <https://www.mckinsey.com/business-functions/sustainability/our-insights/pathways-to-a-low-carbon-economy>

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