Examining the Green New Deal and its Effects on the American Economy

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Introduction

The Green New Deal is a massive program of investments in clean-energy jobs and infrastructure that aims not only to reduce greenhouse gas emissions, but also address economic issues such as economic inequality and unemployment. It calls for direct public investments into clean technology and infrastructure funded by taxes on the extremely wealthy. It also must use a mix of policy tools to reach its goals, as using solely market-based policy can be ineffective and inefficient. The Green New Deal will transform the United States economy and transition industry and infrastructure to a more sustainable future through direct investments, taxes and subsidies, and regulation.

Currently, the Green New Deal is a rough resolution put forth by Sen. Ed Markey (D-MA) and Rep. Alexandria Ocasio-Cortez (D-NY) that lays out the goals, aspirations, and specifics of transitioning the U.S. economy to a more sustainable future. The term "Green New Deal" was first used by Pulitzer Prize-winner Thomas Friedman in 2007, and has since become a rallying cry for millions of progressive Americans worried about the catastrophe the planet faces if climate change remains unchecked. Many, including the Green New Deals sponsors, believe that the US must take a leading role in the fight against climate change, as it is one of the most technologically advanced nations and is responsible for a disproportionate amount of greenhouse gas emissions (Dsouza). The Green New Deal also acknowledges how historically oppressed groups -- like indigenous people, colored people, and poor people – are more likely to be affected by climate change, and asks that they be included and consulted when designing policy around climate change. The official Green New Deal resolution is somewhat loose and rough, but we can examine the economic effects of what it aims to accomplish and how.

Prior to the Green New Deal, there have been a few attempts at creating broad legislation to tackle climate change. In the late 1950s and early 1960s, Congress began to react to increasing public concern over the effect of humans on the environment. In 1970, President Nixon established the Environmental Protection Agency (EPA), whose purpose was to maintain and enforce national standards under a variety of environmental laws. The late 20th Century saw a number of energy crises, and the concept of "global warming" became a widespread topic of discussion. In 2006, former presidential nominee Al Gore released "An Inconvenient Truth," which catapulted climate change into the forefront of politics, and a series of bills and resolutions were put forth in Congress over the next decade to tackle climate change. In 2007, Congress mandated emissions reporting from large sources, and several other climate change resolutions were introduced but failed to pass both the House and Senate. Internationally, the Kyoto Protocol was adopted by 192 countries in 1997, and acknowledged that climate change was both real and caused by human actions. Many countries actually ratified the Kyoto Protocol and agreed to binding targets of carbon emissions, but the United States chose not to ratify the agreement. In 2015, the United States, along with every other country aside from Syria, adopted the Paris Agreement, which agreed to try to limit the increase in average global temperature by 2°C. Unfortunately, in 2017, President Donald Trump announced that the United States would cease participation in the Paris Agreement, citing economic concerns. President Trump's views on climate change and their effect on the economy reflect that of many Americans, but the cost of inaction is astonishingly much higher than action.

Current Economic Costs Associated with Climate Change

One of the main criticisms of the Green New Deal is the cost associated with the sweeping economic reform it proposes. However, when estimating the cost of the Green New

Deal, critics often fail to incorporate the cost of inaction. The Green New Deal will not be cheap, but its price "pales in comparison to the damage that unchecked climate change will inflict on the economy" (Karpilow). There are a multitude of factors that contribute to the cost of climate inaction. First, unchecked climate change could cause sea levels to rise between 51cm and 2m, which could lead to the displacement of up to 200 million people. For comparison, the Syrian refugee crisis only caused about 1 million Syrians to seek asylum in Europe, and this has been a huge financial burden on European countries and a source of contention politically (Bamber). At least some of these 200 million refugees would try to come to the United States, placing a huge financial burden on the economy as we try to feed and house these climate refugees. The United States could also be faced with drastic food shortages, as temperatures increase in agricultural areas and crop yields decrease. This would require more food to be imported from foreign countries, increasing the price of food for the average consumer. Finally, climate change will markedly increase both the frequency and the severity of storms, fires, and similar environmental catastrophes. The damages incurred by these catastrophes will have to be paid for through federal assistance, and a recent report "estimates that cumulatively the country will spend $23 billion responding to wildfires by the end of the century, even if greenhouse gas emissions are modestly reduced," with the Southwest bearing the majority of that cost (Hamers). All of these factors will lead to the US economy shrinking. The Fourth National Climate Assessment predicts that the US economy will shrink by as much as 10% by the end of the century if global warming continues at its current rate (Hamers). Figure 1 helps visualize the projected costs associated with climate change across the United States. The Green New Deal not only aims to limit some of these effects of climate change on the economy, but also looks to entirely overhaul the economy

to improve the situations of US citizens. The following sections will examine the tools the Green New Deal has at its disposal to achieve its goal.

Policy Tools

There are two types of regulation policymakers can implement to curb greenhouse gas emissions. The first is called command-and-control (CAC) regulation, and consists of setting stringent guidelines for firms to abide by in regards to greenhouse gas emissions. There are two types of CAC regulation: ambient and technological. Ambient CAC regulation sets the amount of pollution that can be emitted into the environment. For example, a local municipality could set a limit on the number of tons of CO_2 firms can emit annually. Technological CAC regulation either bans certain technologies that are deemed too polluting by a local government, or forces polluting firms to use a particular pollution control technology. An example of technological CAC would be banning combustion engines and forcing automakers to use electric motors in all future vehicles. CAC regulation has been successful historically (example: the EPA prior to the Trump Administration), and is the backbone of international policies like the Kyoto Protocol and the Paris Agreement. Its advantages lie in the specificity of the regulations: CAC regulations have relatively clear outcomes, and it is comparatively simple to monitor compliance. CAC regulation shines is most effective when dealing with point sources of pollution (i.e. a single factory dumping waste into a river), but struggles to address non-point sources and pollution that moves across state and country borders. It is also costly for regulators to gather information, and oftentimes regulators must collect information on emissions from the very sources that they are regulating (Anderson). Finally, polluters have very little choice on how to meet the standards set by CAC regulations, so there is little incentive to research new ways to reduce emissions.

The second tool in a climate change policymakers "toolbox" is carbon pricing. Carbon pricing consists of capturing the external costs associated with greenhouse gas emissions and internalizes them, often through a price on the amount of CO_2 emitted. This helps shift the costs associated with carbon emissions back those responsible for the emissions in the first place. Carbon pricing is an example of a market-based policy, which means the government imposes some conditions on the free market and lets the market figure itself out, rather than placing stringent guidelines backed by the force of law as in CAC regulation. There are multiple ways a government can implement carbon pricing into its economy. The first is adding a tax or fee to every unit of CO_2 emitted, known as a carbon tax. This increases the price of goods that emit CO_2 during production, causing the supply curve to shift left and the reduces the equilibrium quantity, as shown in Figure 1. The second method of carbon pricing is known as a cap-and-trade (CAT) system. In a CAT system, the government sets an upper limit, or cap, on emissions, and issues a quantity of emissions permits consistent with the established cap. Polluters must hold permits for each ton of pollution they emit. However, firms that do not need all their permits can sell their unused permits to firms that need more permits, creating a secondary market for the emission permits themselves. The main advantage of a carbon pricing system is that it allows firms to play a role in determining the most cost-effective way to reduce emissions, driving firms to research and innovate new technologies. Another advantage of a carbon pricing system is that it attempts to maintain the equimarginal principle, where the marginal cost of pollution abatement is equal across all sources (Anderson). However, the administration costs of implementing a carbon pricing system are often higher than anticipated, and firms could easily move production to states or countries that do not have carbon pricing systems in place. Finally, the mainstream economic framework sees market based solutions as just fixing market failures,

and we need to address the underlying issues with the market that cause the failures in the first place. The Green New Deal will address these failures with a combination of carbon pricing and command-and-control regulation.

The Green New Deal calls for deliberate and decisive public investments to tackle investments to tackle climate change and economic inequality. This directed investment is known as "industrial policy," and tends to be controversial among economists. Ineffective industrial policies fuel growth in only a small part of the economy, and do not become a systematic way to transform the economy. Functional and effective industrial policies are ones that change behaviors across different industries, rather than just picking a few to subsidize, affecting the entire economy (Rotman). It is important to note that the Green New Deal is not just about transitioning to renewables, but also about getting every part of the manufacturing sector to move towards a green future. Growth has both a rate and a direction, and the Green New Deal is about the direction that gets the US economy greener growth while maintaining as high of a rate as possible. The cheapest and fastest way to achieve this is to combine a moderately sized carbon tax with considerable federal spending on the development and deployment of clean technologies (Karpilow). The higher price of goods from the carbon tax will push both consumers and manufacturers away from carbon-based goods, while federal investment into research and development of clean technology will create jobs and make it easier for manufacturers to comply with the carbon pricing guidelines. Public funding has been crucial to key technological advances, from biotech to the internet, and there is no reason that public funding would not help advance the clean technology sector (Rotman).

The combination of command-and-control regulation, carbon pricing, and subsidies of clean technology will be crucial to the success of the Green New Deal. The CAC regulations will

help immediately curb the damage we are currently doing to the environment by placing strict limits on the amount of carbon manufacturers can emit. However, CAC regulation on its own does not spur enough research into new technologies or create new jobs, so relying solely on CAC regulation would lead to inefficiencies. Carbon pricing will drive both consumers and manufacturers away from carbon-based products, while incentivizing manufacturers to develop new technologies that helps them decrease carbon emissions and therefore lower the price of their good. However, market-based approaches often have their limits. They are effective at allocating resources when the required adjustments are small and the outcomes are clear and immediate, but begin to fail on larger scales. The limits of leaving large-scale planning to markets was made clear during the housing bubble and subsequent crash in 2008. The Great Recession showcased a gigantic failure of financial markets to direct investments to public uses, instead increasing the value of a single asset and jeopardizing the entire economy (Paul). Finally, subsidizing research and development into clean technology allows firms to be more productive while emitting less carbon. This research and development into clean technology would create new jobs in existing industries while simultaneously creating entirely new industries centered around manufacturing of new technology. Combining CAC regulation with carbon pricing and directed government subsidies creates a triple threat of policy that limits the amount of further damage we can do to the environment, drives both consumers and manufacturers away from carbon based products, while simultaneously creating new jobs and industries. The creation of new jobs and new industries is essential to the second half of the Green New Deal, which is centered around restructuring the economy to solve issues like economic inequality and a shrinking middle class.

Effect of the Green New Deal on the American Economy

The incentives provided by the carbon pricing and directed investments outlined in Green New Deal will increase the number of jobs in existing industries while also creating brand new industries full of jobs, as shown in Figure 2. Studies generally show that government investments in green technology boost employment possibilities, which is crucial for increasing the size of the middle class in the United States (Diep). A big move towards funding and investing in more sustainable infrastructure and renewable power would be a boon for the construction industry and other trades, where workers are typically paid less than workers in software or tech industries. Overall, green jobs are well-paying jobs: mean hourly wages for green jobs exceed the national average by 8 to 19 percent, and workers at the lower-ends of the income spectrum also tend to earn more, up to $5 to $10 an hour (Sisson). This suggests that green industries are more equitable when it comes to paying workers, which is a start to addressing the increasing gap between the super wealthy and blue-collar workers in the United States. College graduates tend to earn significantly more than workers without a college diploma. Many workers in the construction industries that would be needed to retrofit buildings and factories only have high school diplomas, and increasing the number of green jobs would allow the wages of workers with high school diplomas to catch up with their college diploma-holding counterparts.

One of the main concerns with transitioning the American economy away from fossil fuels towards clean technology is the destruction of jobs in the coal, oil, and natural gas industries. However, studies generally find that green investments create more jobs than they eliminate because there's a lot of infrastructure that needs to be built to make the economy carbon-free, while the number of fossil fuel-dependent jobs is comparatively small (Diep). In a 2014 report, economists at the University of Massachusetts-Amherst found that in order to

decrease the US's carbon emissions by 40%, the government and private companies would have to invest $200 billion a year and the government would have to collect about $200 billion a year in carbon taxes (Diep). Importantly, the economists found that approximately 1.5 million jobs would be destroyed, while approximately 4.2 million jobs would be created. The Green New Deal will render certain livelihoods obsolete, but explicitly says it will diversify local and regional economies, especially those in which the fossil fuel industry is a major source of income for a large portion of the community.

Conclusion

The Green New Deal is a series of broad policy changes that will drastically shift the United States economy away from fossil fuels. This will allow the United States to champion the global transition to a sustainable future, something that is desperately needed as the effects of climate change worsen. This transition will be achieved in part by using a series of tools available to policymakers, such as command-and-control regulation and carbon pricing to reduce the amount of greenhouse gases emitted by firms in our economy. Along with limiting greenhouse gas emissions, the Green New Deal will directly invest into public infrastructure that moves away from fossil fuels and towards renewable resources, not only increasing the number of jobs in existing industries, but also creating entirely new industries with entirely new labor demands. The main drawback of the Green New Deal is the cost associated with implementing the outlined regulations and investments, but a deficit-funded Green New Deal causing the American economy to run hot for a while and increasing the number of high-paying jobs available to the lower and middle class is a benefit rather than a cost in my opinion. Climate change is a very real threat to our planet, and the sooner we address is with the biggest of changes, the less we will feel its effects.

Figure 1

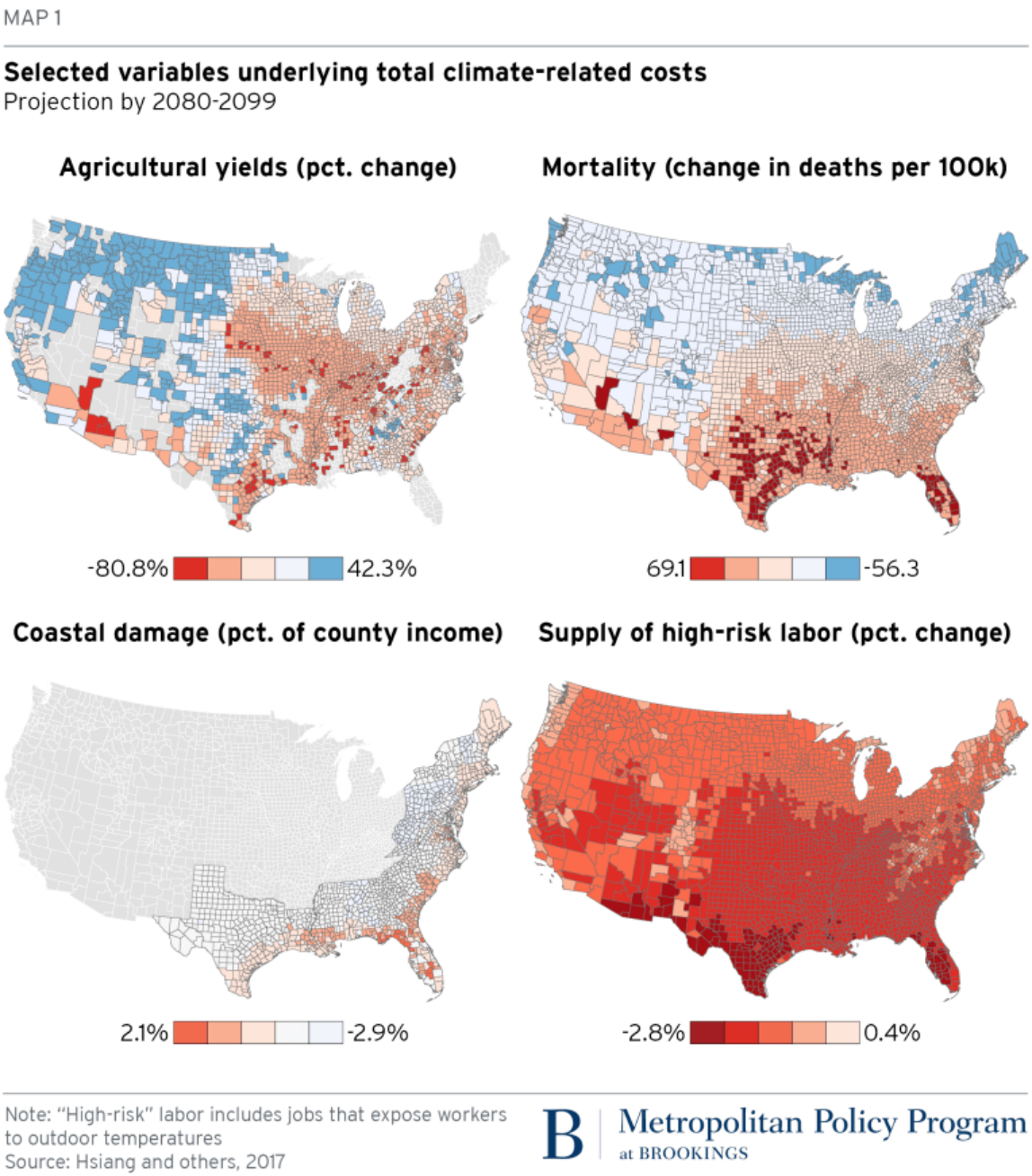

Figure 1

Figure 1 shows some of the projected costs associated with climate change in the years 2080-2099. Agricultural yields will decrease by up to 80% in some areas, while coastal damage will increase by up to 2%. It is important to note that these costs are often largest in areas that are traditionally lower income, like the Midwest and South.

Figure 2

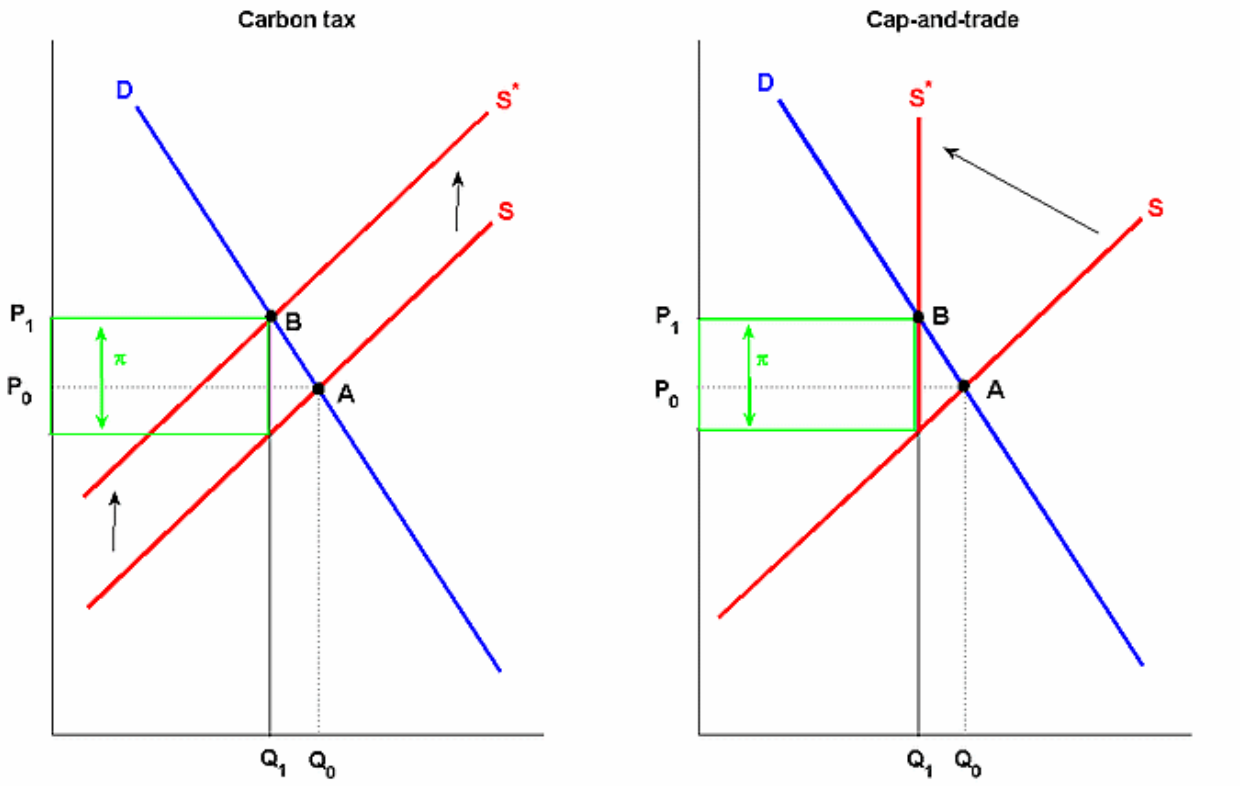

Figure 1 shows the effect of adding a carbon tax or a cap-and-trade system on goods that emit pollution during production. In the carbon tax case, the tax causes the cost of production to increase, shifting the supply curve to the left. The supply curve shift reduces the equilibrium quantity and increases the price. The same thing occurs with a cap-and-trade policy, but the supply curve shifts to be vertical as firms cannot produce goods past a certain amount of pollution emissions.

Figure 3

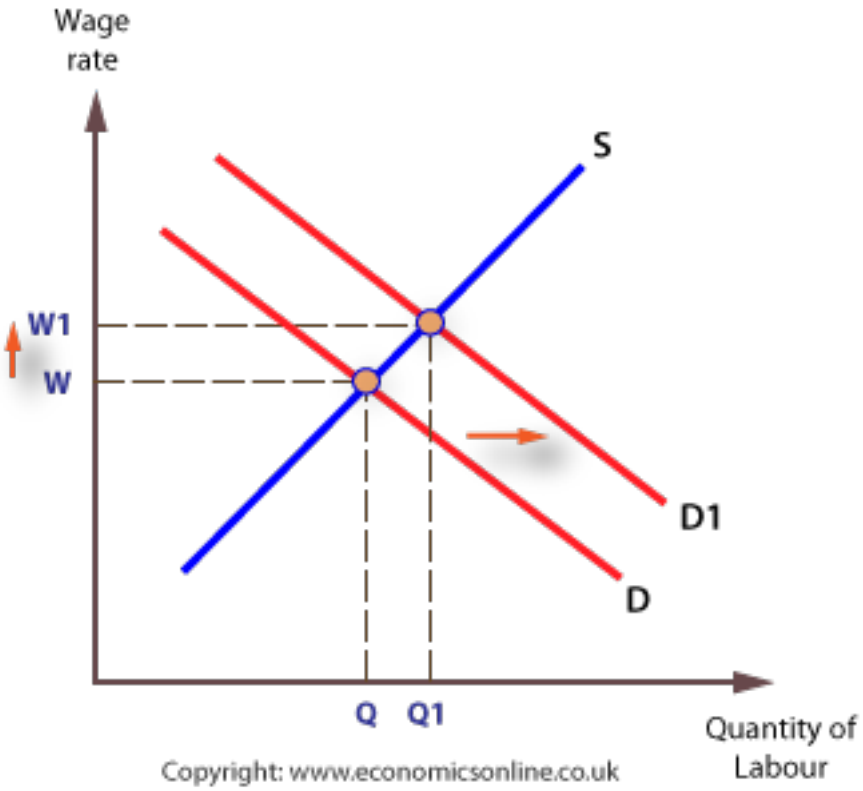

Figure 2 shows how a shift in the labor demand curve to the right causes an increase in the quantity of workers needed, along with an increase in the wage rate. The labor demand curve would shift outward like this if the government subsidized green technology and jobs.

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