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How to pay for the Green New Deal

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Working Paper No. 931

How to Pay for the Green New Deal*

by

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*The title mimics that of J. M. Keynes's (1940) famous book, *How to Pay for the War: A Radical Plan for the Chancellor of the Exchequer*.

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ABSTRACT

This paper follows the methodology developed by J. M. Keynes in his *How to Pay for the War* pamphlet to estimate the “costs” of the Green New Deal (GND) in terms of resource requirements. Instead of simply adding up estimates of the government spending that would be required, we assess resource availability that can be devoted to implementing GND projects. This includes mobilizing unutilized and underutilized resources, as well as shifting resources from current destructive and inefficient uses to GND projects. We argue that financial affordability cannot be an issue for the sovereign US government. Rather, the problem will be inflation if sufficient resources cannot be diverted to the GND. And if inflation is likely, we need to put in place anti-inflationary measures, such as well-targeted taxes, wage and price controls, rationing, and voluntary saving. Following Keynes, we recommend deferred consumption as our first choice should inflation pressures arise. We conclude that it is likely that the GND can be phased in without inflation, but if price pressures do appear, deferring a small amount of consumption will be sufficient to attenuate them.

KEYWORDS: Green New Deal; Keynes; How to Pay for the War; Modern Money Theory

JEL CLASSIFICATIONS: B50; E0; E2; E3; E6; H6; Q0

INTRODUCTION

Advocates of the Green New Deal (GND) strive to change the way that we approach a variety of problems facing society: climate change and destruction of our natural environment, rising inequality, and an economy that leaves too many with inadequate access to food, shelter, healthcare, and affordable education. They see these problems as linked, and so insist on tackling them with an array of programs that have hitherto been seen as disconnected: a carbon-neutral energy policy and reversing climate change; universal single-payer healthcare; student debt relief and free public college; prison reform; ending “forever wars”; increasing care for the young, sick, and old; and the job guarantee.

The advocates of Modern Money Theory (MMT) have similarly sought to change the way that public finance is viewed: the sovereign government’s finances are not like the budgeting by households and firms. Viewed from the MMT perspective, the government uses the monetary system to mobilize real resources and to move some of them to pursuit of the public purpose. Affordability is never an important question for a sovereign government—the relevant question concerns resource availability and suitability. There is thus a natural alliance between MMT and the GND. If we can identify technologically feasible projects that would achieve the GND’s goals, and if we can identify the resources to devote to these projects, then we can arrange for the financing of the programs.

Whatever the financial costs, we already have a financial system that can handle them. What is less certain is that we can mobilize the resources that will be required. This will require a combination of putting excess capacity to work and shifting already employed resources away from existing production to GND projects.

This paper provides a preliminary attempt to assess whether the United States can meet this challenge (realizing of course that a global response is needed). We will look at the main GND projects and gauge whether national resources would be sufficient to phase them in over the next decade. To do so, we assess the resource requirements and availability. Ideally, we would use a measure of real productive capacity—the ability of a resource to produce output—but as

we have heterogenous resource inputs and heterogenous outputs, this is impossible. We will have to work with dollars of spending to determine the amount of resources required for the GND, and hence the amount of resources that need to be mobilized by a combination of shifting them from other uses and moving them from unemployment (broadly defined—that is, not limited to the official measures of unemployment).

In this, we follow the method used by John Maynard Keynes in his proposal offered to the Chancellor of the Exchequer on the eve of WWII: *How to Pay for the War*. The approach is simple but also profound: total the resources available to prosecute the war while meeting the consumption needs of the population. If the available resources fall short of what is needed, the solution cannot be found in the finances. Government can always spend more to shift resources to the war effort; if consumption spending is not reduced, the result is inflation that generates a combination of “voluntary” saving and excess profits as real consumption falls. To prevent this undesirable outcome, government must reduce consumption demand by some combination of voluntary saving, taxes, deferred compensation, rationing, and wage and price controls. To be clear, the purpose of these actions is not to provide government with the financial means to “pay for” the war effort but rather to relieve pressure on scarce resources.

In recent weeks, many supporters and proponents have warned that large—perhaps confiscatory—tax hikes will be needed to “pay for” a GND. They typically warn of the high financial costs, and hence of prospective dangerously high government deficits if taxes are not raised to “pay for” the GND. In our view, these arguments are beside the point. What is required, first, is a careful accounting of the resources that can be made available and to weigh those against what will be needed. Only then should we address the question of whether taxes and other means might be needed to reduce income and private spending sufficiently to avoid inflation as the GND is phased in.

Hence, in this paper we borrow Keynes’s approach to assess resource availability and needs. We largely follow his method, which is to mostly use monetary measures (dollars in our case) as proxies for resource quantities. The estimates can provide only a very rough guide. Uncertainties remain concerning the technologies, the quantity of resources needed, the

suitability of the resources that can be made available, the political feasibility, and the capacity of our democracy to successfully face the challenges ahead. But we believe that our approach provides more guidance about the question of the GND's "affordability" than does the conventional approach that merely adds up the dollar "costs" of GND projects to obtain huge and scary numbers.

As Keynes put it, his proposal would "snatch from the exigency of war positive social improvements" (1940, iii–iv). Not only would it move the necessary resources to the war effort with a minimum amount of inflation, it would also make "an advance towards economic equality greater than any which we have made in recent times. There should be no paradox in this. The sacrifices required by war direct more urgent attention than before to sparing them where they can be least afforded." This turned out to be a prescient description of the social and economic conditions of the postwar democracies—the build-up of productive capacity (as well as the increase of the private sector's financial wealth held in the form of safe treasury bonds) provided the base for the postwar expansion that many refer to as the "Golden Era" of capitalism. The GND promises a similar outcome, as the benefits go far beyond the reversal of climate change: they can also lead to environmental sustainability, greater equality, shared prosperity, jobs for all, healthcare for all, childcare for all, and an end of the forever wars. In order to build the necessary political consensus that will be required to win this battle, we need to ensure that whatever sacrifices might be required in the decade or so over which the GND is implemented will be more than compensated for by tangible benefits.

THE BIG MEOW: CAN WE AFFORD THE COSTS OF AVOIDING ANNIHILATION?

We must approach the Green New Deal as the real MEOW—the Moral Equivalent of War. (As opposed to Jimmy Carter's baby kitten meow—his "moral equivalent of war" on inflation—that saw the inflation sparked by OPEC's price hikes as an existential threat to American democracy.) Climate change really does threaten the very existence of human life on this planet. But advocates of the GND recognize that this is not the only threat we face, as discussed in the introduction.

To be sure, some naysayers reject science; others claim we just cannot afford to mount the effort required to reverse humanity's steady march to oblivion. We will just have to settle for small, incremental change and hope for luck or divine intervention to supplement our meager efforts. Or look to colonization—of Mars?—as a way to preserve a select few representatives of the civilization of homo sapiens in a human zoo waiting for discovery by more advanced life forms that managed to avoid self-annihilation.

How can we possibly weigh the costs of failure against the financial costs of the greatest effort we could mount to give us some chance of survival? Even very small increases of average global temperatures will generate large financial and human costs (just a half of one degree of warming above today's average will increase the costs of global damages by \$54 trillion [Carter and Kaufman 2019]); as we delay action to prevent this, the costs mount rapidly, and the chances of survival diminish. It is usual in economics to discount avoided future costs (in this case, the costs of delaying action) to compare with today's costs (spending on a GND). But that makes little sense in the case of climate change. The costs of extinction of the human species—from the point of view of humans, at least—is beyond measure. Even if we calculate the costs of the GND as \$93 trillion (as one hysterical estimate puts it) over the next decade, that is puny in comparison with the discounted cost of total destruction of human life on planet Earth.

Some would quibble that we are not absolutely certain that climate change will extinguish all human life. Perhaps some humans (and other life forms) could adapt sufficiently to survive cataclysmic change. The uncertainties involved are tremendous—greater than any ever faced by humans, at least since they came out of Africa. Even with our best efforts, we might fail, but why would we not mount our best efforts? A more prudent approach is to listen to science and to map out a strategy that would provide some chance of survival even under the worst climate change scenario.

If we think about America's biggest challenge over the past century, it is reasonable to point to the combination of the Great Depression and the rise of global fascism in the 1930s. To counter those, we created the New Deal and ramped up military strength. The economic cost of lost employment and output during the 1930s was huge. The benefits of New Deal programs that

helped to get the economy back on track almost certainly exceeded the spending on those programs—but we have to admit that we cannot accurately tally up the net benefits gained because we cannot know how the economy would have recovered in the New Deal’s absence. In any event, most would agree that it was prudent to tackle the crisis rather than wait any longer—even if we cannot be sure of the net *ex post* benefits of action over inaction.

War spending plus the New Deal reforms led to an unprecedented increase in the size of the government and its deficit (government spending reached a peak of half of GDP, and the deficit reached 26 percent of GDP in 1943 [Spross 2016]). Can we compare that to the alternative, which might have been global domination by fascism, including elimination of the United States and western democracy? It was only WWII that freed the government’s budget on the necessary scale. This was justified on the basis that there was no alternative—either global subjugation to Nazis or “whatever it takes” (to borrow a phrase) spending. We chose survival. We learned that “taxes for revenue are obsolete,” as Beardsley Ruml (1946) put it. And we came out of WWII stronger and richer than ever before. Some of this was thanks to the New Deal institutions as well as the infrastructure created in the run-up to the war; some of it was due to industrial might created by the war machine; and some of it was due to the good wages and benefits on which economic growth could be sustained after the war. It is preposterous to think that we should have just surrendered in order to forego the financial cost of the war.

The task ahead of us is bigger. The stakes are higher. The future of humanity lies in the balance. Half measures will not do. It might take all our available resources—and then some—to win this battle. The experts say we have most of the technology we need. We have unused resources to put to use. We can shift others from destructive uses to be engaged in constructive endeavors. We can mobilize the population for greater effort with the promise of greater equality and a shared and sustainable prosperity. We can make a good effort. We might win.

First, we have to shake off the neoliberals who have been destroying our country and our world for more than two generations. They began in 1974 with the argument that an overspending government caused inflation and that too much regulation and coddling of unions caused unemployment and slow growth. In reality, OPEC caused both of our high inflation periods

(early and late 1970s), and the adoption of austerity to fight oil price hikes slowed growth and led to unemployment, which, together with inflation, was known as stagflation. Union-busting weakened our middle class, real wages stagnated, and we entered an era dubbed secular stagnation. Deregulation—especially of finance—led to bubble and bust cycles that redistributed income and wealth to the tippy-top while the bottom 90 percent was buried in debt.

The correct policy then—and now—was conservation and conversion to alternative energy sources. Instead, we got austerity and ramped-up dependence on climate-killing carbon. Neoliberals want to continue with the same old policies: more fiscal austerity; more reliance on markets (carbon trading—that is, using the price system to try to resolve a problem created by the price system); more half measures; and more of President Carter’s meow.

At least part of the justification for half measures is that the GND is just too expensive. Our government is already broke. We simply cannot afford survival. But MMT teaches that financial affordability is not the question; we can afford the real MEOW. We already have the financial wherewithal needed to afford whatever is technologically possible. We do not need to go hat-in-hand to rich folks to get them to pay for it. We do not have to beggar our grandkids to pay for it. We do not have to borrow from China to pay for it. We do not have to get the Fed to “print money” to pay for it. All we need to do is to remove the self-imposed constraints, the myths, and the misplaced morality; then budget for it, approve the budget, and spend. No new spending process is required. Follow the normal procedures that the Fed and Treasury have developed. That is how you pay for it.

As the great J. Fagg Foster (1981) said, “Whatever is technologically possible is financially feasible.” There is really no other reason to have a financial system. If you know how to build houses but your financial system cannot find a way to make them affordable, then you must replace that system with one that will.¹

¹ We did that with the New Deal’s creation of the self-amortizing mortgage loan and associated institutions: the Federal Housing Administration, the Federal National Mortgage Association, and the Home Owners’ Loan Corporation. Wall Street’s twenty-first century model created a financial system that put housing out of reach for average Americans. We need Jimmy Stewart.

It is possible that we will need to constrain domestic consumption in order to release resources for the GND effort in a noninflationary manner. The problem is not that we cannot financially afford the GND—government can always bid resources away from private use by paying higher prices—but spending on the GND will generate private income that can support higher bids in competition with the government for scarce resources. This is the real reason that tax hikes might be desirable: to reduce private income and thereby remove competition for resources.

REAL RESOURCES AND INFLATION (OR, AFFORDABILITY: THE MMT APPROACH)

Moving forward, the most important question concerns the resources we can make available. There is some danger of inflation, not because of the manner in which the GND will be financed, but because of potential pressure on resources. Can we constrain the inflation pressures as we implement GND projects?

The more sensible critics of MMT accept the argument that we can financially afford the GND, but insist we need to raise taxes more or less in line with spending to avoid causing inflation. They go on to assert that increasing spending without raising taxes is a particularly dangerous practice as it injects excess money into the economy that will cause inflation. For instance, Brad DeLong has argued that it is unreasonable to believe that “the US can have Swedish levels of government spending without Swedish levels of taxation.”²

This position presumes that, first, implementing the GND will lead to a large increase in the demand for resources, and, second, that raising taxes is the best way to relieve pressure on

² See Wray (2019). DeLong is wrong. American workers already pay Northern European levels of “taxation” if you use an inclusive measure: all the mandatory deductions from American paychecks (pensions and health insurance, including the Obamacare mandates, called “non-tax compulsory payments,” or NTCs) add up to a greater burden than what our rich peer countries’ workers pay. For comparison purposes, Canadian workers pay an effective “tax” rate (including NTCs) of just 11.5 percent; in Denmark they pay 26.7 percent; in Norway 32.4 percent; in Sweden 38.3 percent; and in the US a whopping 43.2 percent (Bruenig 2019). In sum, we already pay higher taxes than the Swedes; we just don’t call them taxes, even though they are as mandatory as Swedish taxes. Take-home pay of Americans is already below that of Swedes, which is obvious to anyone who travels to northern Europe to envy the standard of living we do not enjoy.

demand. We believe that those arguing for tax hikes have not carefully assessed the inflation potential of the GND. Indeed, there has been no analysis/study of the GND that looks at resource demands and savings. Those arguing for tax increases have little basis for making such claims, as they have summed the *dollar* estimates of costs of proposed GND programs and presumed this equates to additional government spending that requires taxes to “pay for” it.

As we will demonstrate, whether or not we need tax hikes depends on the net increase of demand on the nation’s resources arising from implementation of the GND’s project—and not on some scary prediction of trillions of dollars of government red ink. It is not a foregone conclusion that the net increase will be beyond our capacities. First, we have substantial unused capacity. Second, the GND will in many areas reorient resource use, cutting environmentally and socially destructive uses of resources and shifting them to better use. Third, we will, along the way, increase capacity.

If we tackle climate change as the moral equivalent of war, and if this really does take us to and beyond full employment of resources, we can adopt measures to counter inflation pressure. No one has a vested interest in high inflation, in spite of what the inflation worriers want us to believe. Knowing that that is the real danger, we can formulate a strategy to prevent it. We can work together to put all our resources into the effort without stoking inflation.

This will be difficult, but we have done it before. WWII was our first major war that was not accompanied by high inflation. That provides some guidance. In addition, Keynes’s *How to Pay for the War* provides a plan for action. So the real question is this: How can we reduce private resource use to release resources to be used in the GND efforts in order to avoid competitive bidding up of prices that results in inflation? And, more specifically, how can we move the appropriate quantity and types of resources to the GND?

WAR PLANNING AND THE GREEN NEW DEAL

We provide a first attempt to quantify the net resource demands in order to obtain some idea of the reduction of current aggregate private demand (consumption and investment) that might be required to release resources to the GND efforts—that allows us to deal with what would otherwise create an inflationary excess demand. The main contribution we want to make in this paper is the argument that in assessing economic feasibility of the GND, we need to be focused on technological know-how and resources, not on the dollar costs. By themselves, the dollar costs do not provide useful information. There is no question—at least there should be no question—about the financial feasibility of spending even \$93 trillion (the ridiculous estimate bandied about to scare the population) as the American contribution to a global mobilization to restructure our economies so that civilization might survive.

Our analysis (and the MMT approach in general) is in line with Keynes’s approach to economic planning for WWII as explained in *How to Pay for the War*. Keynes rightly believed that war planning is not a financial, but a real resource problem. The issue was not how the British government would be paying for the war, but rather whether the country could produce enough output for the war effort while leaving enough production to satisfy domestic civilian consumption (plus exports, less imports). To estimate the amount available for civilian consumption, we would need to determine the maximum current output we could produce domestically, how much we could net import, and how much we needed for the war effort.

While in normal times we operate with significant underutilization of capacity, during the war, Keynes (1940, 17) argued, we move from the “age of plenty” to the “age of scarcity,” since what is available for consumption is relatively fixed (assuming growth of output would go to the war effort). At the same time, more output produced for military purposes means more income, which, if spent on the goods available for consumption, would simply push up prices. Hence, some of the purchasing power would need to be withdrawn (through taxes or deferred consumption) to prevent inflation. Thus, Keynes rightly viewed taxes as a tool for withdrawing

demand, not paying for government spending.³ He thought taxes could be used to withdraw half of the added demand. The other half would have to come through savings, voluntary or “forced.”

Keynes thought the voluntary savings approach would only work if everyone saved enough, which could not be guaranteed. If households did not save enough, spending some of their increased income, they would simply bid up prices. As a consequence, they would consume the same amount of resources, but pay more of their nominal income for it. The business “profiteers”⁴ would get a windfall income, a portion of which they would save and a portion of which would be taxed away (so businesses would act as tax collectors for the Treasury, taking away even more of worker income than what had been already taxed).⁵ Thus, through the voluntary savings approach, saving and taxes would still withdraw demand, but on the backs of workers. If workers demanded and got higher wages, the process would simply repeat itself, with workers trying to consume more and pushing prices even higher. Wages would be constantly playing catch-up with price increases, with workers still consuming the same amount of real resources.

Keynes’s preferred solution was deferred consumption. Instead of taxing away workers’ income, which would prevent them from enjoying the fruits of their labor (and possibly reduce support for the war effort), he proposed to defer their consumption by depositing a portion of their wages in “blocked” interest-earning deposits.⁶ This solution would avoid inflation, while at the same time more evenly distribute financial wealth toward workers. Furthermore, this would

³ As Keynes (1940, 61) argued, “A Government, which has control of the banking and currency system, can always find the cash to pay for its purchases of home-produced goods.” The problem comes after the government has purchased them: “the Government’s expenditure necessarily remains in the hands of the public ... the Government having taken the goods, out of which a proportion of the income of the public has been earned, there is nothing on which this proportion of income can be spent.” And if it is spent, it will drive up prices (without increasing real consumption) — which moves that income to profits and taxes.

⁴ Keynes noted that he intends no insult in his reference to “profiteering”—the extra spending must either go to profits or taxes, given that the supply of consumer goods is fixed (Keynes 1940, 64).

⁵ As the tax rate on profits would be higher than that on wages, the “profiteers become, so to speak, tax-collectors for the Treasury” (Keynes 1940, 65).

⁶ What he describes is something like individual retirement accounts allowing early withdrawals for emergencies (loss of job, illness, support of dependents) that would amount to approximately 20 percent of wages, with the deferred rate progressive, such that lower-income workers receive a higher deferred payment in the future relative to wages. To reduce the burden on lower incomes, he would provide a progressive family allowance. He suggests it would work like the social insurance system. Below, we will recommend a proposal that would tie the deferred compensation to Social Security.

solve the problem of the slump that would likely follow the war, as workers could increase their consumption after the war at a measured pace, spending out of their deferred income.

Keynes recognized that it is not easy for a “free community” to organize for war. It would be necessary to adapt the distributive system of a free community to the limitations of war, when the size of the “cake” would be fixed. One could neither expect the rich to make all of the necessary sacrifice, nor put too much of the burden on those of low means. Simply taking income away from the rich would not free up a sufficient quantity of resources to move to the war effort—their propensity to consume is relatively low and they have the ways and means to avoid or evade taxes. But taking too much income away from those with too little of it would cause excessive suffering—especially in light of the possibility they would face rising prices on necessities.

To avoid a wage-price spiral, labor would have to agree to moderate wage demands. This would be easier to obtain if a promise were made that workers would not be permanently deprived of the benefits of working harder now. In other words, the choice facing workers is to forego increased consumption or to defer it. They should understand that the inflation tax is the most burdensome alternative—it shifts excess spending to profits generation. Instead, in return for working more now, they would be paid more later, accumulating financial wealth in the meantime.

He recommended three principles to guide war planning: (1) use deferred compensation to reward workers; (2) tax higher incomes; and (3) maintain adequate minimum standards for those with lower incomes such that they would be better off, not worse off, during the war. When the war ends, the deferred compensation would be released in installments, meant to be timed with the slump that would follow the war. The system would be “self-liquidating both in terms of real resources and of finance” (Keynes 1940, 46). As resources were withdrawn from the military sector, they could turn to civilian production, with the deferred compensation providing the income needed to purchase that output. (Keynes [1940, 48] also recommended a capital levy equal to the liability of the deferred compensation—“if public opinion still feels a

difficulty here,” he wrote—to allay fears about the public debt. It would “bring in an amount sufficient to discharge the liability in respect of Deferred Pay.”)

MOBILIZING RESOURCES FOR THE GND

Keynes also recognized that in preparation for war we can increase the level of output by employing the unemployed, underemployed, or those out of the labor force. This is as true today as it was in Keynes’s time. In the neoliberal era, we chronically operate below full employment. That is obvious in Euroland, which is probably operating 25 percent or more below full capacity. Even the US today has substantial excess capacity, in spite of claims that we have achieved full employment. Over the past quarter century, we have had to readjust our estimate for the natural rate of unemployment—the rate below which inflation is supposed to pick up—in every recovery, because inflation never arrives as unemployment falls. Most recently, in the immediate aftermath of the financial crisis, economists claimed that the natural rate of unemployment had increased to over 5 percent. Yet, the unemployment rate kept coming down, while inflation never materialized. We will not know precisely where the inflation barrier is until we ramp up aggregate demand.

Further, there is nothing “natural” about potential growth. We can raise our potential by prudent investments of our resources. Operating close to full capacity over a period will bring forth investment and more capacity—so potential output is to some degree determined by actual capacity use. For a number of years following the global financial crisis, the Congressional Budget Office had to continually adjust its estimates for potential GDP downward as depressed demand conditions discouraged investment. (Decades of subpar growth have reduced the incentive to invest in augmenting capacity, something GND spending can help reverse.) Hence, our economic potential is positively impacted by robust actual growth, or negatively impacted by subpar growth.

Through the GND, we will also shift resources to better uses and (gradually) reduce the need to devote resources to dealing with the problems created by destructive processes (dirty production

processes require us to devote resources to cleanup; high inequality forces us to devote resources to dealing with the consequences of poverty, idleness, inadequate access to preventive care and early treatment, social isolation, and crime).

However, we will need well-targeted spending to do all this without sparking inflation. There is no doubt many sectors of our economy really are at full capacity today. Others lag far behind with substantial excess capacity. The same can be said for parts of our labor force. For example, even with low unemployment rates, labor force participation rates for prime-age males have been on a long downward trajectory (since the early 1970s, when neoliberalism began to take over policy. See Dantas and Wray [2017]).

The GND will move the economy to full employment of resources. We need to be very careful to direct as much GND spending away from the sectors that are already at or beyond full employment—which tend to be the most advanced sectors, with oligopoly or monopoly pricing. Wages and prices in these sectors could rise and boost measured inflation rates. That is precisely what we want to avoid. In spite of the conventional wisdom, rising tides now raise all *yachts*—not the little dinghies. As Pavlina Tcherneva has clearly demonstrated, over the entire postwar period the share of income growth grabbed by the richest households during economic expansions has increased. Almost all the gains from growth now go to the top—with roughly 80 percent of income growth captured by the top 10 percent of the distribution (Tcherneva 2017). Where possible, we need to prioritize spending to the underutilized resources, and we need to counter the tendency for growth to disproportionately boost income and spending at the top. Where we cannot avoid competing for already employed resources, it could become necessary to use wage and price controls along with rationing.

While Keynes (1940, 51) argued that “some measure of rationing and price control should play a part in our general scheme,” he argued that these methods should be secondary to taxes and deferred compensation as a way to control inflation. Rationing impinges on consumer choice and inevitably has differential impacts across individuals. Price controls can create shortages. In any case, he argues that an effective program of deferred income will make rationing and price controls easier to implement.

To sum up, we need to obtain an inventory of the resources that can be made available to the GND projects to compare with the resources that will be required to implement the GND. This would include resources in excess supply plus those that can be released from uses that will be eliminated by adoption of the GND. This is the true “cost” of the GND, and it will allow us to get some idea of the magnitude of the reduction of aggregate demand necessary to avoid inflationary pressures. Admittedly, this is difficult, and we are only providing a first step: using gross measures of underutilized resources currently available, resources that can be shifted, and resources that will be needed by GND projects.⁷

It is interesting to take a quick look at inflation during WWII in the US and the UK, both of which adopted a variety of anti-inflation policies.

Table 1. Inflation in the US and UK (percent)

Year	US inflation rate	UK inflation rate
1939	-1.4	2.8
1940	0.7	16.8
1941	5.0	10.8
1942	10.9	7.1
1943	6.1	3.4
1944	1.7	2.7
1945	2.3	2.8
1946	8.3	3.1
1947	14.6	7.0
1948	8.1	7.7
1949	-1.2	2.8

In both countries, the early transition to a war economy generated substantial inflation, which was rapidly reduced over the next few years. Inflation again accelerated in the transition back to civilian production. By contrast, the UK’s inflation had run much higher during and immediately following WWI: 15.40 percent in 1920; 10.10 percent in 1919; 22.00 percent in 1918; 25.20 percent in 1917; 18.10 percent in 1916; 12.50 percent in 1915; and -0.30 percent in 1914. As Keynes argued, the British method of provision for WWI had consisted of “a

⁷ In this paper, we do not assess the technological feasibility of the part of the GND that is focused on reversing climate change. We will assume that the science and technology exist. We have no expertise in that area. Instead, we focus on resource availability.

sufficient degree of inflation to raise the yield of taxes and voluntary saving to the required level” to reduce the share of output going to consumption. By his calculation, the cost of living rose an average of 20–25 percent over the course of the war, with wages rising only about 10 percent per year in the first half of the war and by 30 percent in the second half. Thus, the wage hikes tended to match price hikes, but with about a one-year lag. This allowed a permanent reduction of consumption by workers that was sufficient to shift resources to the war. By contrast, both the US and the UK managed to contain inflation pressures much more successfully in WWII. (We return to this discussion at the end of the paper.)

“COSTING” THE GREEN NEW DEAL

The American Action Forum (AAF), led by the former Director of the Congressional Budget Office Douglas Holtz-Eakin, is the source of an oft-cited GND cost estimate of \$93 trillion. The authors of the report admit, “the breadth of the proposals suggests that there will be large spillovers among them, as well as macroeconomic impacts. This would imply that an ideal analysis would be to consider them simultaneously” (Holtz-Eakin et al. 2019). And although they simply do a policy-by-policy analysis for each of the components of the GND, it has not prevented the opponents of the GND from adding all the financial “costs” of the various programs and latching on to the \$93 trillion number to argue that it is wishful thinking at best and a terrible policy that will bankrupt our grandchildren at worst.

What we do here is what Holtz-Eakin and his coauthors fail to do. We consider the resource savings that will accrue from the various programs, as well as the resource costs of GND programs, to determine whether at the end of the day the GND would be affordable in terms of the available real resources. As we demonstrate, some parts of the GND are resource-creating and it is highly misleading to simply tally the projected dollar costs.

For example, we note that the highest “costs” from the estimates of the GND accrue due to the “economic agenda,” including the job guarantee (JG) and the expansion of Medicare, which together are supposed to cost between \$42 trillion and \$81 trillion. As we will show below, both

of these programs mobilize resources for the other components of the GND. As such, it makes no sense to count them as net costs to be summed to obtain a number like \$93 trillion.

To be clear, we do recognize that implementation of the GND will shift spending from the private sector to the government sector. However, unless there is an a priori reason to believe this would—by itself—be inflationary, we take the position that in the general case it makes no difference *in terms of inflation* whether the dollar spent to hire resources comes from the government or from the private sector, which is also the method used by Keynes. As Stephanie Kelton says, cash registers do not discriminate. Indeed, as we report below, there is strong evidence that at least in the healthcare sector a dollar of government spending buys more care than a dollar of private spending—so shifting toward government as the single payer would produce disinflationary pressure.

Further, in what follows we do not assume that we need to raise taxes simply because government spending rises. The position we take is that taxes should be raised to fight inflation that would result from excess demands on resources. We would not raise taxes merely to balance spending with tax revenue. If more spending does not generate inflationary pressure, we do not need to raise taxes. In any event, we argue below that tax hikes are not necessarily the best way to counteract inflationary pressures should they arise.

The JG Path to Jobs for All: And a Source of Resources for the GND

The GND endorses full employment through a JG program: a true full employment platform where anyone who wants to work has access to a paid job. The JG has always been an important part of MMT. We have long argued that running up aggregate demand to try to achieve full employment would probably cause too much inflation long before the goal of full employment was reached. Instead, MMT relies on the JG to do the heavy lifting.

The program offers a basic wage and provides a GND job to anyone willing to work. This operates like a commodity price support program, ensuring wages do not fall below the program wage without competing with the private sector to push wages higher. Private employers can

always recruit from the pool if they need workers, paying at least the (new) minimum/program wage.

While there are many JG proposals floating around, the Levy Economics Institute proposal is perhaps the most ambitious (Wray et al. 2018). Since some might not be familiar with the details and goals of the proposal, we will examine the Levy Institute’s version in some detail before proceeding to evaluate the costs of the GND. The Levy proposal includes paying \$15 per hour (consistent with the GND’s call for a national minimum wage of \$15 per hour) plus generous benefits (at 20 percent of the wage bill, including Medicare-style healthcare and free childcare), plus an amount of spending equal to 25 percent of the wage bill to cover materials costs. Thus, the JG not only provides full employment, it also ensures an effective national minimum wage of \$15 per hour—and this is accomplished whether or not this is the legal minimum.⁸

The Levy simulation of the JG puts the net annual impact on the federal government’s budget at around \$400 billion per year for the first 10 years; state budgets improve by \$53 billion annually. The boost to GDP is around \$560 billion annually, while the boost to employment is around 19 million new workers (15 million in the program, plus 4 million private sector jobs). These are high estimates, since the Levy simulation does not include likely cost reductions, such as lower spending on social programs and the penal system that would result from poverty reduction through job creation.⁹ What is important here is the possible impact on inflation, not the budgetary impact on the federal government. However, the net \$400 billion boost to federal government spending (with the caveat that the report does not attempt to calculate all savings on other government programs) means that aggregate net wages have been increased by about that amount. Since wages will be largely spent, that directly boosts aggregate spending. Including the “multiplier” impact of private job creation, we arrive at something more than half a trillion dollars of greater income and spending, much of which represents a demand for consumption goods.

⁸ Without a JG, a legal \$15 minimum wage may not be an effective minimum wage, because those who cannot obtain a job in the formal labor market will not receive that wage (they might remain unemployed or be forced to work in informal labor markets at less than the minimum).

⁹ We assumed some budgetary savings from lower Medicaid spending and reduction of the Earned Income Tax Credit—as program workers would have higher incomes that would raise them above program thresholds.

However, the impact on inflation according to the Levy report's simulation (using the Fair model) is negligible—even though it would increase employment and GDP and would raise the effective minimum wage to \$15 per hour across the country. In the most inflationary simulation, it finds that inflation would peak at just 0.74 percentage points above the baseline, and then would fall quickly to just 0.09 percentage points above the baseline by the end of the 10-year period used in our study.

While some have added the “costs” of the JG to the total GND costs, this presumes that the JG supplies no resources to the GND. While in financial terms the JG represents a cost, in real terms it is a source of resources. In particular, JG workers can be employed for many of the GND projects: infrastructure (installation of insulation and solar panels), environmental (tree planting), and care of individuals and communities. In other words, the JG is both a GND cost (it uses resources—mostly the consumption out of wages by employees) and also a source of resources for GND projects. However, its direct employment of labor resources is almost entirely of those that are not currently being used by the private sector. An important point is that we should not double count this cost as we total up the resources needed for the GND—it is both a cost and a source of resources.

In the most optimistic scenario, the JG's workforce would be entirely committed to GND projects. If we assume that three-fourths of the simulated boost to GDP (\$560 billion*0.75=\$420 billion annually) is attributed to GND employment (and assume the rest of the addition is due to increased private sector employment), we have over \$400 billion worth of GND project work performed by JG workers (equal to the net budgetary impact, which, again, is important to the extent that it stimulates additional consumption).

By design, JG projects would be able to utilize labor with below-average skills and experience (to ensure most workers could find suitable work); the jobs would also be labor-intensive so that they would not require expensive capital investment or materials. As the Levy report explains, these would include care services (care for the environment, community, and people) plus small construction and retrofitting projects (making homes more energy-efficient, for example). Clearly, these workers would not be used as skilled labor in major infrastructure projects, which

will be a core component of the GND.¹⁰ Hence, the JG workers would be used only in a subset of GND projects.

Also note that Medicare-style healthcare as well as childcare coverage is included in the Levy simulation of a JG program with 15 million employed. JG projects would include employment of JG workers in childcare provision (provided to families of JG workers and others). And our estimate of program cost includes healthcare coverage. Hence, when calculating the resources required both by childcare coverage and universal healthcare, we should avoid double-counting, since those benefits have already been included for the 15 million JG employees.

We will assume that by directing most of the JG workers to GND projects, the potential supply of resources available is 2 percent of GDP (the net budgetary costs). However, let us assume that only half of these resources are devoted to “greening” projects; the other half are devoted to what Tcherneva calls “care for community” and “care for people” projects: service projects related to senior and youth care, teacher’s helpers, neighborhood and park cleanup, artistic projects, and so on. Thus, the JG program can provide resources needed for green projects in an amount equal to 1 percent of GDP (and resources equal to another 1 percent of GDP for other care services). These would largely be in upgrading buildings and homes to improve energy efficiency, although some could be used in nontechnical maintenance of energy projects (landscape maintenance, for example).

For the purpose of totaling up resource availability and use, we will count the JG as using an amount of resources equal to 2 percent of GDP. However, we count it as supplying an amount of resources for green projects equal to 1 percent of GDP—hence, the net cost in terms of resource use is 1 percent of GDP. (We have chosen not to directly count the contribution of JG workers in “care” services as a net resource because—as discussed below—we do not include an estimate of the resource costs of the care services. Thus, we are assuming that the JG care services essentially “pay for themselves” in terms of resource use; however, the JG care workers will consume 1 percent of GDP, so they are treated as a GND resource cost.)

¹⁰ In our report (Wray et al. 2018), we discuss the importance of respecting prevailing wage legislation and avoiding competition with union labor. Further, most public infrastructure projects will continue to be undertaken through contracts with private firms—hence, would not be performed by the JG program.

We now turn to other components of the GND.

Renewable Energy and Energy Efficiency

The AAF estimates that “to transition to a power sector that has net zero emissions of greenhouse gases in 10 years would require capital investment of \$5.4 trillion by 2029” (Holtz-Eakin et al. 2019). For states without nuclear moratoriums, the renewable energy mix would be 50 percent nuclear, 50 percent wind, solar, hydro, geothermal, and battery storage; for states with moratoriums, it would be 100 percent wind, solar, and storage. Adding another \$200 billion per year (a midpoint estimate) for a net zero emissions transportation system and \$290 billion (a midpoint estimate) per year for greening the housing stock,¹¹ we would need \$1.03 trillion, or 5.3 percent of 2017 GDP annually.¹²

Recap using AAF:	Power net zero greenhouse emission	\$540B annually
	Net zero emissions transportation	\$200B annually
	Guaranteed green housing	\$290B annually
	Total	\$1,030B annually
	Percent of GDP	5.3%

Milton Ezrati, writing for *Forbes*, offers his own estimates for the various components of the GND, citing different sources (Ezrati 2019). Here we only use his estimates for “greening” projects. Based on estimates by physicist Christopher Clark, the cost of expanding renewable energy to 100 percent would be \$2 trillion over 10 years. The smart power grid would cost an additional \$400 billion over 10 years (estimate from the Electric Power Institute).¹³ Upgrading and retrofitting buildings would cost between \$2.5 trillion and \$3.9 trillion (\$3.2 trillion

¹¹ Their estimates over 10 years range from \$1.3 trillion to \$2.7 trillion for the net zero emissions transportation system and \$1.6 trillion to \$4.2 trillion for guaranteed green housing. We use midpoint estimates for both.

¹² Note that in our calculations of annual costs we do not account for inflation—what matters is resource use, not nominal cost. Since we are reducing costs to percent of GDP, we presume that annual spending on components of the GND rise in price on a pace with growth of nominal GDP. We also assume the resource use is linear, although it is likely that some projects will have greater upfront costs while other projects will be phased in later, after new infrastructure is in place.

¹³ Ezrati also includes very high estimates for greenhouse gas abatement, although it is not clear what his sources are and whether the numbers are global or for the US only. Given the lack of clarity, we are not including this in our further estimations.

midpoint estimate) over 10 years. The total cost of greening projects comes to \$5.6 trillion over 10 years (\$560 billion per year, or 2.87 percent of 2017 GDP).

Recap using <i>Forbes</i> numbers: 100% renewable energy:	\$200B per year
Smart Power Grid	\$40B per year
Upgrade/retrofitting:	\$320B per year
Total	\$560B per year
Percent of 2017 GDP	2.87%

A 2014 report from the Center for American Progress (CAP) and the Political Economy Research Institute (PERI) offers more modest reductions to greenhouse gas emissions: reducing them by about 40 percent over 20 years at a cost of about \$200 billion in annual capital expenditures (Pollin et al. 2014). Of that \$200 billion, \$110 billion would be invested in low or zero emissions renewable energy generation, while the remaining \$90 billion would go toward improving energy efficiency of residential and industrial buildings and transportation (their estimates for 20 years are as follows: \$1.75 trillion investments into energy efficiency, including improving transportation efficiency, and \$2.1 trillion investments into renewable energy). An additional \$210 billion over 20 years can be invested in increasing public bus ridership (at 75 cents per ride). Our numbers below are based on shortening the timeline from 20 to 10 years and scaling it to 100 percent greenhouse gas reductions, instead of 40 percent (costs of greater reduction would not be perfectly linear, but this could be an approximate estimate). The increased public bus ridership numbers are not scaled, only shortened to 10 years. This brings our estimate of the total to \$1,021 billion per year.

Summary of PERI numbers: Low or zero emissions renewable energy generation	\$550B
Improving building and transport energy efficiency	\$450B
Increasing public transport utilization	\$21B
Total per year	\$1,021B
Percent of 2017 GDP	5.24%

While the CAP/PERI plan relies largely on biofuels to transition to renewables, the Jacobson plan by Mark Jacobson from Stanford is for 100 percent wind, water, sun (WWS) (Jacobson et al. 2017). According to Jacobson, his plan would cost between \$10 trillion and \$15 trillion, (Cassidy 2019) or 5.13 percent to 7.7 percent of (2017) GDP per year if implemented over 10 years (midpoint estimate \$12.5 trillion over 10 years; \$1.25 trillion per year, or 6.41 percent of

2017 GDP).

Geoffrey Heal of the Columbia Business School estimates that “the US economy could reduce carbon emissions by 80 percent from 2005 levels within three decades” through capital investments of between \$3.3 trillion and \$6 trillion (Heal 2017). Scaling this to 100 percent (again keeping in mind that this is a ballpark number) would take it to \$4.1 trillion to \$7.5 trillion. If implemented within 10 years instead of three decades, this could cost \$410–\$750 billion per year, or 2.1 percent to 3.84 percent of 2017 GDP (midpoint estimate \$580 billion, or 2.97 percent of 2017 GDP).

We should keep in mind that any longer-term estimates of transition to renewable energy may be misleading because of the rapid decline of the cost of renewables. While the costs of producing coal and nuclear have gone up by 9 percent and 23 percent, respectively, the costs of solar photovoltaic and wind have decreased 88 percent and 69 percent, respectively, in the last decade (Mahajan 2018). According to a study by Energy Innovation, in 2018 renewable energy from local wind or solar was cheaper to produce than 74 percent of the coal fleet of the nation (Hill 2019). Without subsidies, already almost half of all coal projects would lose money (Carbon Tracker Initiative 2018). This number is projected to increase to almost 100 percent by 2025. If we can assume that falling costs (in the case of renewables, and rising costs in the case of nonrenewables) reflect rising efficiency of use of resources (so that it takes fewer resources to produce the same amount of energy), then resources required for the GND will fall over time.

The table below (Table 2) summarizes the costs of “greening” the economy, using averages whenever there is a range of estimates. An average of all the estimates is \$888 billion annually, or 4.55 percent of GDP, and the average of the three costliest proposals is \$1.1 trillion annually, or 5.6 percent of GDP, which is what we use in our estimates going forward.

To transition to a zero emissions system, however, we would stop all investment in the nonrenewable sector and gradually dismantle existing nonrenewable capacities. According to the Bureau of Economic Analysis, private investment in “mining exploration, shafts, and wells” was \$140.9 billion in 2018, or about 0.7 percent of 2017 GDP (BEA 2019). We estimate that

about 90 percent of that, or \$127 billion (0.65 percent of GDP), is investment in petroleum and natural gas.¹⁴ To get the net cost of “greening,” we would then need to subtract the sum of our current spending on nonrenewables from our estimates below. Furthermore, since we are already investing in renewables, that cost may need to be subtracted as well. However, since it is not clear whether the proposals below are estimating net or total costs of greening, we will err on the side of caution and will not subtract current renewable investment.

Table 2. Summary of Various “Greening” Proposals

	\$ Billion	% of 2017 GDP
Jacobson	1,250	6.41
AAF	1,030	5.3
CAP/PERI	1,021	4.98
Heal	580	2.97
Ezrati	560	2.87
Average	888	4.55
Top 3 Average	1,100	5.6
Fossil Fuel Investment	-127	-0.65
Net Cost	973	4.95

Universal Single-Payer Healthcare

The universal single-payer system, or Medicare for All (M4A), is deemed the most expensive GND program. In a recent op-ed, Paul Krugman argued that heterodoxy/MMT does not necessarily help advance the progressive cause because M4A would be inflationary without new tax revenue (Krugman 2019). However, the fact that he is analyzing whether M4A would be inflationary, rather than calculating how much it would add to the government’s deficit, demonstrates how MMT reorients the conversation away from financial and toward real resource considerations. In his critique, Krugman tries to shift the debate to what MMT has

¹⁴ While Table 5.3.5 (BEA 2019) does not provide a further breakdown between petroleum and natural gas and other mining, Table 5.4.5, “Private Fixed Investment in Structures by Type,” does. According to that table, oil and natural gas investment comprised about 93 percent of total investment in structures, while investment in other mining was less than 7 percent. We are using a 90/10 breakdown in our estimates.

been saying all along: that government spending is not about financing, but about real resource availability and consequently inflation.

Krugman concludes that M4A could potentially raise GDP by 9 percent. Since labor markets are already tight, this extra spending would be inflationary (or the Fed would have to raise the rates, which could hurt investment). He then argues that “rejecting conventional concerns about debt doesn’t actually do very much, if anything, to make paying for progressive initiatives look easier. Even if you consider debt a meaningless number, the size of the things progressives are proposing means that pursuing those initiatives without an offsetting increase in revenue would create a lot of inflationary pressure. There needs to be new revenue to achieve what progressives, myself included, want to achieve.” In the end, his analysis veers toward the need to add “new revenue,” although what he is really talking about is ways to offset the increased spending (e.g., withdrawing demand, as Keynes explained) to prevent inflation.

The reason why Krugman concludes that M4A could be inflationary is because he does not take into account the potential savings from such a system. The US healthcare system is notorious for its high costs and below par outcomes. We already spend 18 percent of GDP on healthcare, and that is projected to reach 20 percent soon. This is approximately twice as much as our peers—other rich, developed capitalist countries—with no discernably better health outcomes (and even worse on a number of measures). Our excessive spending when compared to that of our peers can be attributed to the use of for-profit insurance to pay for healthcare, higher pharmaceutical and provider costs—largely due to prohibitions on or inability to negotiate for lower prices (due to multiple payers)—and higher administrative costs (such as for billing).

Study after study has confirmed that prices and administrative costs in the US are out of line with those in the rest of the world, and especially compared with developed countries that have some type of single-payer system. In a 2003 study, Anderson et al. (2003) demonstrate that prices account for much of the higher healthcare spending in the US. Their more recent study from 2019 (Anderson, Hussey, and Petrosyan 2019) confirms the results of the earlier study, despite all the reforms that have occurred since 2003, including Obamacare. The authors conclude that the US was not then, and is still not now, devoting more real resources (hospital

beds, physicians, and nurses) to providing healthcare compared to the OECD median. Nor do Americans receive more care—in fact, by some measures they actually receive less care (fewer visits to physicians, for example). However, we are still spending more, a difference that is largely explained by higher prices. The 2019 study additionally demonstrates that the difference between prices paid in the private and public sectors has widened considerably since 2003. It is our greater dependence on private payers, rather than on government as single payer, that accounts for higher costs. Government payers actually impose discipline on the “markets.”

Papanicolas et al. (2018) reach similar conclusions. They report that per capita pharmaceutical spending in other countries ranges from \$466 to \$939, while it stands around \$1,443 in the US. Compensation of healthcare workers, such as nurses and physicians, is also higher in the US: \$218,173 for a primary care physician, compared to a range of \$86,607 to \$154,126 in other countries. This could be due to a combination of entry restrictions to the profession as well as inability or unwillingness of our private multi-payers to control costs.

It is also well known that administrative costs in the US are significantly higher than in any other developed country. For instance, governance and administration costs accounted for 8 percent of total national health expenditures in the US, compared to a range of 1 percent to 3 percent in the other countries (Papanicolas et al. 2018; see also Mueller, Hagenaars, and Morgan 2017, who calculate an OECD average of about 3 percent). Administrative costs on the provider side are estimated to be high in the US as well. For instance, over 24 percent of US hospital spending is on administration, compared to 12.9 percent in Canada (Woolhandler, Campbell, and Himmelstein 2003).

Adoption of single payer (replacing for-profit private insurers) would significantly reduce the resources devoted to our unusual way of paying for healthcare. It would eliminate the private insurance sector’s participation, reduce employers’ costs of administering healthcare plans, reduce the costs incurred by doctors and hospitals due to billing insurers as well as pursuing patients for uncovered cost, lower the costs of appealing denials, and cut costs associated with patients avoiding early treatment of diseases (because of the actual or expected out-of-pocket costs) that become chronic and expensive maladies. If M4A could control prices and lower

administrative costs, we could spend significantly less on healthcare than we do currently, while expanding coverage to everyone.

While the distribution of spending between private and public sectors would change, causing a lot of anxiety about potentially ballooning government deficits, there is nothing about government spending that necessarily makes it more inflationary than private spending—all else equal, if spending on total healthcare costs falls by 5 percent of GDP (with private sector spending falling by 10 percent of GDP and government sector spending rising by 5 percent of GDP) the net impact is deflationary. And what will matter is the overall increase of demand on resources while implementing all parts of the GND. If the healthcare savings offset increased resource use in other GND projects, then the net impact of the GND will not be inflationary. In the remainder of this section, we attempt to determine how deflationary the movement to single payer could be.

There is a range of estimates for how much M4A would cost, and consequently how much it could save or add to the nation’s spending on healthcare. Woolhandler and Himmelstein (2017) estimate high savings, around 2.28 percent of 2017 GDP, from merely reducing administrative costs. They conclude that hospitals and physicians would save \$149 billion and \$75 billion per year, respectively, while savings from lowering the insurance overhead and administration of public programs would be \$220 billion per year.

Table 3. Woolhandler and Himmelstein (2017), Annual Costs/Savings, \$billions

Lower Administrative Costs	\$224
Insurance Overhead Savings	\$220
Total Savings:	\$444 B = 2.28% of 2017 GDP

In recent testimony to Congress, Dean Baker presented savings estimates shown in Table 4. He estimates administrative savings for providers and employers of almost \$5 trillion and savings on insurance administration of about \$3.5 trillion over a decade. He projects further savings from controlling costs of care, including prescription drugs. Even with increased utilization of

10 percent, we are able to save \$13.3 trillion over 10 years, which amounts to 4.5 percent of total projected GDP for the decade.

Table 4. Dean Baker: Projected Potential Savings from Universal Medicare 2021–30, \$trillions

Savings on Administrative Costs of Insurers	-3.5
Savings on Administrative Costs of Healthcare Providers (hospitals, physicians’ offices, nursing homes, and home healthcare)	-4.4
Savings on Employer’s Administrative Costs	-0.5
Increased Utilization	2.5
Savings on Prescription Drugs	-3.3
Non-durable Medical Equipment	-0.5
Durable Medical Equipment	-1.3
Salaries of Doctors and Dentists	-2.3
Total Savings after Increased Utilization	-13.3
Total Savings % of Projected 2021–30 Total GDP	4.50%

There are other studies that estimate somewhat lower savings from single-payer insurance. Researchers at PERI predict savings of about 1.58 percent of 2017 GDP from M4A (Pollin et al. 2018). They assume an increased demand for healthcare of 12 percent from those who are currently uninsured or underinsured¹⁵ and cost reductions of 19.2 percent of health consumption expenditures due to savings on administration (9 percent), drug prices (5.9 percent), applying Medicare rates (2.8 percent), and cutting waste and fraud (1.5 percent). Physicians and hospitals will achieve about 65 percent lower administrative costs, while the cost of administering the new single-payer insurance system will be 3.5 percent of total health consumption expenditures. In sum, annual health consumption expenditures would fall to \$2.93 trillion (from \$3.24 trillion, as of 2017), saving 1.58 percent of GDP.

¹⁵ The category of underinsured includes people “for whom out-of-pocket costs, excluding premiums, over the prior 12 months are equal to 10 percent or more of household income; out-of-pocket costs, excluding premiums, are equal to 5 percent or more of household income if income is under 200 percent of the federal poverty level; or if the deductible is 5 percent or more of household income.” (Pollin et al. 2018, 27)

According to estimates from an oft-cited study by Charles Blahous (2018) from the conservative Mercatus Center, if provider reimbursement rates were lowered to Medicare rates (savings of \$314 billion), we could achieve annual savings of 0.3 percent of GDP in 2019, even with universal coverage without deductibles and copays and with added demand for healthcare (\$370 billion). A further \$70 billion and \$50 billion, respectively, could be saved on administrative costs and pharmaceutical pricing. If, however, costs were not controlled, healthcare spending would increase by 1.2 percent of GDP. Since Blahous estimates administrative and pharmaceutical pricing savings that are on the lower end of the spectrum, the majority of savings in his first scenario stem from applying Medicare rates to health services. Once that assumption is removed, it is not surprising that the net savings disappear. Blahous has long been a critic of Social Security, so it is not surprising that his estimates of the costs of M4A would hold up the high end of the range. We do not find his arguments persuasive, but note that even he finds potential savings—if costs can be controlled.

We use the savings from the studies described above to come up with our own estimates for potential savings from M4A. Our approach is different from the others in that we start by eliminating the net cost of insurance and administration (both private and public) and then add an administrative markup to total costs at the end. The net cost of insurance (private and public) is the difference between health premiums earned and benefits incurred (CMS 2017). For example, according to the Centers for Medicare and Medicaid Services, in 2017 the net cost of private health insurance was \$144 billion, meaning that the private insurance industry collected \$144 billion more than what it spent on healthcare on behalf of its customers. After calculating health consumption expenditures with all the savings, we add a 3.5 percent markup to these costs for public administration of healthcare, a number that is in line with the OECD average. Once we find the total of healthcare consumption costs after all these savings, we add another 10 percent (reducing the resource savings) for higher utilization of the healthcare system.

In Scenario 1, we use the PERI estimates (percent) for savings on pharmaceuticals and fraud and waste elimination. The estimate for savings from applying Medicare rates is the average of Blahous (\$314 billion) and PERI (\$90 billion) at \$200 billion. In Scenario 2, we combine Scenario 1 with administrative savings from Woolhandler and Himmelstein (2017), discussed

above, achieving savings of 3.67 percent.

Table 5. Summary Estimates of Healthcare Resource Savings (\$trillion, annual)

	Scenario 1	Scenario 2 (Scenario 1 + W&H Admin. Savings)
Health Consumption Expenditures ¹⁶	3.24	3.24
Insurance Administration Savings	0.27	0.22
Pharmaceutical Pricing	0.19	0.19
Applying Medicare Rates	0.20	0.20
Fraud and Waste Elimination	0.05	0.05
Admin Savings for Hospitals and Providers	0.13	0.28
Health Consumption Expenditures after Savings	2.40	2.35
Health Consumption Expenditures after Savings with 10% Increased Utilization	2.48	
Health Consumption Expenditures after Savings and Increased Utilization with Administrative Markup (3.5%)	2.73	2.59
Savings with Increased Utilization (% of 2017 GDP)	2.61	3.67

In sum, according to our estimates, M4A could save from 2.61 percent to 3.67 percent of GDP, depending on the assumptions, while providing healthcare to the whole population. We believe our assessment in Scenario 2 is a rather conservative estimate of the savings that would accrue from a M4A system. The US spends 18 percent of its GDP on healthcare, a number that is projected to grow over the next decade. The country with the next highest share of health spending on GDP is Switzerland, which spends a little over 12 percent of its GDP on healthcare. Thus, even if we lowered healthcare spending by 3.7 percent of GDP, we would still be

¹⁶ Net of public health spending.

spending more on healthcare than all of our peers (and a lot more than our neighbor, Canada, which spends 10.4 percent of its GDP on healthcare) (OECD 2019).

Some will object that the savings largely accrue to the private sector, while the government will face additional costs. This is true. We must remember, however, that the approach we take in this paper is to account for the net resource costs of a GND. Our argument is that it is the net increased demand on resources that will be inflationary. If private spending on healthcare costs falls by more than the increased spending by government, the movement to single payer will be deflationary, not inflationary.

We do recognize that resources released by the shift from private insurers to single payer may not be well suited to alternative uses (such as other GND projects). Released resources will need to be retrained, and this can take time. On the other hand, increased use of healthcare could reduce the onset of chronic disease that results from inadequate early treatment—so that an initial boost to use of healthcare services will be followed by reduced need for care as chronic disease is reduced. It will take some time for these various processes to result in all of the potential savings and attendant deflationary pressures. With universal access, with elimination of a highly inefficient private insurance system, and with greater control over costs, the movement to single payer could shrink US spending on healthcare by as much as 8 percent of GDP (bringing us in line with other rich countries at about 10 percent of GDP).

End the Forever Wars

Some advocates of the GND (including Senator Bernie Sanders) have proposed to end the “forever wars.”¹⁷ This will reduce environmental destruction and free up resources for the GND. It is hard to calculate the total amount of resources devoted to the forever wars, as so much of the defense budget is hidden in other programs. The reported spending on defense is \$716 billion, of which reported war spending is about 10 percent (say \$72 billion). However, much

¹⁷ “Congress made history recently by passing a resolution that cuts off U.S. support for Saudi-led forces in the civil war in Yemen. This is the first time since Congress originally passed the War Powers Resolution in 1973 that we have used it to call on the president to withdraw from an undeclared war... It is time for Congress to ask whether, nearly 18 years after 9/11, we really want to continue to be involved in these wars for another 18 or more. According to a recent study by the Costs of War Project at Brown University, the War on Terror will have cost American taxpayers almost \$5 trillion through Fiscal Year 2019. When taking in to account future health care obligations for veterans injured in post-9/11 wars, the bill comes closer to \$6 trillion” (Sanders and Lee 2019).

more is hidden, and this figure does not include indirect costs (e.g., treating veterans and their families). As military spending does not lead to production of output for civilian consumption, it is akin to transfer payments in terms of its inflationary impact. There is probably at least \$1 trillion of “unproductive” military spending annually. In 2008, Joseph Stiglitz projected the cost of the Iraq war alone would run about \$3 trillion; two years later, he argued that could be an underestimate (Stiglitz and Bilmes 2010).¹⁸ Senator Rand Paul claims the war on terror has cost \$6 trillion since 2001, or about \$330 billion per year (Shane 2019). Senator Sanders has put the cost at \$5 trillion already, with another trillion to be spent on healthcare for veterans over the future.

While there are great uncertainties surrounding estimates of the resources that can be saved by ending the forever wars, we will use a conservative estimate that \$210 billion of savings could be realized annually (perhaps two-thirds of the spending on the war on terror) in terms of wasted resources, or approximately 1 percent of GDP annually. We expect that the savings would be lower in the early years but would gradually rise—probably significantly above 1 percent of GDP—as the longer-term costs of caring for veterans and their families would decline over time.

Tax the Rich

While many advocate raising taxes on the rich to provide tax revenue “resources” to government, MMT does not count that as a benefit. However, income and wealth taxes on the rich can be used to reduce inequality, which can help to restore democratic governance. In addition, taxing the rich can release some resources if it reduces spending by the rich on resource-using output. Thinking from the perspective of real resource release, rather than financing, taxes such as financial turnover taxes and offshore income taxes may not be very effective in reducing spending (although they will reduce income inequality). Ironically, these kinds of taxes are often cited by GND proponents as particularly good sources of finance. But from our perspective, these would have little benefit, because they will not release many

¹⁸ They argue the opportunity costs probably add more: “For instance, many have wondered aloud whether, absent the Iraq invasion, we would still be stuck in Afghanistan. And this is not the only ‘what if’ worth contemplating. We might also ask: If not for the war in Iraq, would oil prices have risen so rapidly? Would the federal debt be so high? Would the economic crisis have been so severe?” Nine years after that update, the “forever wars” continue.

resources to be used in the GND. However, they might reduce high-speed trading and the incentives to move profits offshore—and to the degree that they are effective, tax revenues from those sources fall anyway, so cannot be counted as a financial source of revenue in any case.

Direct taxes on high incomes and wealth can reduce inequality at the top and could reduce spending. To obtain either of these advantages will require high tax rates on both wealth and income—perhaps even higher than what Representative Alexandria Ocasio-Cortez has advocated (a top marginal tax rate of 70 percent). If resource use by the rich can be reduced, that will free up resources to be used in GND projects. Instead of building a third or fourth mansion for the rich, public housing for the poor could be provided. Instead of producing (and fueling) private jets, efficient forms of mass transit could be built and operated. The potential release of resources could be significant. The political and technical barriers to imposition of sufficiently high tax rates would also be significant: the rich have the means and incentive to fight any move to raise their taxes, as well as to avoid tax payments if rates are raised.¹⁹ We will not attempt to calculate how many resources might be made available, because the uncertainty of passing tax hikes is too great.

Keynes addressed the same question in his 1940 pamphlet in a chapter titled “Can the Rich Pay for the War?” Some had argued that the rich should bear the whole cost of the war, while the working classes should be allowed to increase their consumption. Keynes demonstrated that even with very high rates of taxation of the rich, we could not get the necessary decrease in consumption to avoid inflation (he argued we would have to take 75 percent of the incomes of the “rich” and “middle class” to accomplish this).

Some have argued for a hike of payroll taxes on employers, arguing that, as healthcare is shifted to the government, firms will raise wages that fuel consumption and inflation. We doubt that employers will pass these savings along to workers. Rather, the savings will increase the income of what Keynes called the “profiteers”—generating windfall profits (with wages held steady) encouraging more stock buybacks (similar to the effect of the Trump tax cuts, which were

¹⁹ Dean Baker (2019) makes a similar argument.

supposed to boost investment but have probably just fueled more buybacks).²⁰ While this could inflate the stock market, it does not necessarily generate more demand for resources in the present, hence it will not be inflationary. Still, there is some chance that higher profits could generate inflation pressures as these are used to finance either investment or consumption. In the next section, we will outline a plan that can be used to attenuate inflation pressures arising from windfall profits created by moving healthcare spending to the federal government.

Miscellaneous Other GND Components

There are a number of other smaller programs that are sometimes included in a proposed GND. We will not do any detailed “costing” of these. Except for student debt relief, we do not know of good estimates of the resources (and hence inflationary potential) of these proposals. Most of these would enhance productivity—free public college, public infrastructure, and perhaps even care services—by more than enough to make them “pay for themselves.” It is probable that during phase-in they would use more resources than they create, even if over the long run they raise productivity by more than enough to compensate. We will count these as net neutral sources of resources, with one exception. As noted above, we assume that half the JG workers are engaged in greening projects, and thus are providers of resources. The other half work in care services that by assumption do not create resources—as they will be earning income that supports more consumption, we count these workers as net users of resources.

Care Services

Many of the JG workers will provide care services: for people, for communities, and for the environment (see Tcherneva 2018), as discussed above. It is impossible to know what the division among these types of projects will be, so it is difficult to determine if the JG alone can supply the resources needed.

We assume that 7.5 million JG workers work to care for the community and for people, as Tcherneva put it, providing care to the young, the old, and people with disabilities. While these workers would provide resources for GND projects (broadly defined), we will assume that they do not enhance national productivity (beyond the improvements to the workers, themselves, as

²⁰ See the report detailing buybacks recently released by Senator Marco Rubio’s office (Rubio 2019).

discussed below). These will not be large-scale productivity-enhancing public infrastructure projects. They will, however, improve the quality of life, which could indirectly improve productivity. For example, providing childcare would increase productivity of parents who could take full-time work and miss fewer workdays.

We count the JG as a source of resources to the GND caring projects, but we do not count them as a source of productivity growth. The JG absorbs labor that would not be otherwise employed, but beyond that does not reduce the need for resources. Care services by themselves are assumed to be net neutral in terms of resource use (employing only JG workers).²¹

Student Debt Relief, Free Public College, and On-the-Job Training in the JG

The high costs of college in the US force many students (and their families) to make a choice between foregoing higher education or borrowing large sums, often in the form of student loans. Today, there are approximately 44 million people with student loan debt that totals about \$1.4 trillion. Heavy debt loads have a variety of undesirable implications, including delinquencies and defaults (that affect credit ratings), postponement of family formation and home purchases, reduction of other forms of consumption, and forcing students to choose higher-earning occupations that they find less attractive. High costs of education result in lower GDP and employment through a variety of avenues: lower productivity of the workforce, lower consumption levels, lower tax revenues and hence lower government spending (in particular, at the state and local government level).

These effects are troubling, because the evidence is quite strong that higher education also “pays for itself” through higher output and employment, as Fullwiler et al. (2018) report.

Fullwiler, et al. (2018) have simulated the effects of student debt relief on the presumption that the federal government cancels all student loans that it holds and takes over payments on loans that are held privately. They estimate that this would boost GDP by an average of \$86 billion to \$108 billion each year (\$861 billion to \$1,083 billion over the 10-year simulation period)—about half of one percent of GDP—reduce the unemployment rate by 0.22–0.36 percent, create

²¹ Note, again, that we do count the consumption by these workers as a use of resources.

an average of 1.2 million to 1.5 million new jobs annually, and increase inflation over the baseline by 0.09–0.3 percentage points. The net budgetary effects for the federal government would be to increase the deficit by 0.29–0.37 percentage points above the baseline, while improving state budgets by 0.11 percent.

In this report, we will not attempt to assess the resources made available or the resource costs of a comprehensive GND that would provide debt relief through a one-time debt cancellation program. We believe that the net impact would be resource creation. In other words, in terms of resource cost, such a program would generate more resources than it absorbed.

For the purposes of our preliminary estimates, we assume student debt relief and free public college have no net impact, as they increase resource productivity to offset increased demand on resources (college education, homes, and family formation).

Likewise, the JG will increase the supply of labor and will improve its productivity through on-the-job training. The JG designs jobs for the workers that come into the program—it “takes workers as they are,” regardless of job experience, education, or skills. Ideally, training will be part of every job—enhancing skills on the job. Even in less-than-ideal cases, at least workers are showing up to work, proving they are willing and able to work and developing a work record that can be shared with prospective (non-JG) employers. Generally, they will be more employable than if they were unemployed, and perhaps losing skills and developing problematic behavior while out of work.

While we cannot claim that this will be true for every possible participant in JG work, it will be true on average. By our estimates, the JG will provide full-time work to 15 million potential workers who are now unemployed, out of the labor force, or forced to work only part-time when they want full-time jobs. These workers are available for jobs outside the JG and many (if not most) will become more employable as a result of their JG experience. So not only does the JG provide resources for GND projects, it can also enhance the labor supply available for non-JG

work. In that sense, it increases the productivity of potential labor resources in a manner similar to education.²²

Public Infrastructure Investment

A major part of the GND is public infrastructure investment. We need a new energy grid, a new transportation grid,²³ public housing, more and better parks and playgrounds (to direct recreation away from shopping and toward healthy living), retrofitting buildings and homes, creating walkable neighborhoods, and repairs to existing infrastructure. Again, we need to avoid double counting—much of this is already included within the scope of green energy projects and JG projects discussed above. However, a lot of the new public infrastructure investment (high-speed rail to replace air traffic and autos) will represent new costs—that is, uses of resources, not sources. And much of it will be undertaken by private contractors while paid for by governments. In some cases, those resources can be redirected from current destructive uses; in some cases, we will need to add resources.

Larry Summers has argued that infrastructure investment “pays for itself.” As he wrote,

the IMF asserts that properly designed infrastructure investment will reduce rather than increase government debt burdens. Public infrastructure investments can pay for themselves ... Infrastructure investment actually makes it possible to reduce burdens on future generations. ... The IMF finds that a dollar of investment increases output by nearly \$3. The budgetary arithmetic associated with infrastructure investment is especially attractive at a time when there are enough unused resources that greater infrastructure investment need not come at the expense of other spending. If we are entering a period of secular stagnation, unemployed resources could be available in much of the industrial world for quite some time ... (Summers 2014)

²² If workers are hired out of the JG and into private sector work, it is true that some GND projects will lose workers (somewhat tempered by new entrants to the labor force). For this reason, it is important that at least some of the JG work is “off the shelf” to absorb fluctuation of JG workers. A typical business cycle can generate a fluctuation of about 4 million workers employed at the peak and then shed at the trough. With a JG in place, that should be somewhat attenuated. JG employment might fluctuate around 3 million (between perhaps 14 million and 17 million), which should be manageable.

²³ We have already included the electricity grid, transportation grid, and retrofitting of buildings in our calculations of resource needs for the greening projects. We mention them here only as a reminder, and focus on other public infrastructure investments.

It is true that he was writing at a time when there was more slack than there is today, and resources could be even more scarce once the GND gets up to speed. Projects will need to be planned and prioritized. This is to avoid bottlenecks but also to ensure that the investments are completed on a schedule coordinated with other GND projects. For example, the new electricity grid needs to be developed in line with completion of alternative energy projects. However, other projects can be put on a shelf until resources are released.

The inflationary potential of infrastructure investment will depend on avoiding resource bottlenecks. As we discussed above, some work on infrastructure can be performed by JG workers; some can be performed by labor released from destructive uses (investments in drilling, mining, and extraction); and some can be performed by new workers, which might require strengthening of training and apprenticeship programs. Still, greater infrastructure investment will gradually “pay for itself” by gradually increasing capacity.

For these reasons, we do not include public infrastructure as a net resource user, nor as a possible source of continued inflation pressure. If it is planned and phased in, it will become a net resource creator and hence provide a disinflationary force over the longer run. But we will assume it is neither a net demander nor supplier of resources.

AN EQUITABLE STRATEGY: INTEGRATING MAYNARD AND BERNIE PLANS

We provide our estimate of the net demand on resources in the next section. We are not convinced that the GND will place so much demand on the nation’s resources that inflation should be a big worry. However, we admit that there are lots of uncertainties involved—both with regard to our very rough estimates but also with respect to the politics involved. If we had the kind of leadership that America enjoyed under President Franklin Delano Roosevelt, we would be comfortable in our claim that the GND could be implemented without necessitating taxes or other methods of reducing demand elsewhere. We would be fairly confident that destructive and wasteful applications of resources could be phased out as constructive GND projects were phased in. We would expect that a combination of voluntary savings plus

administrative controls on wage and price hikes would be sufficient. However, we recognize that after a half-century of neoliberal dismantling of the institutions of democratic governance, those hopes could be overly optimistic. President Obama taught us that the “audacity of hope” is really too audacious a foundation on which to build reform.

So in this section we will propose a policy along the lines of Keynes’s recommendations to “pay for” the “war,” assuming that inflation is a real danger. If that turns out to be true, we need a plan to reduce inflation pressures.

To reduce consumption of resources, we would need “targeted” taxes that would be effective in lowering aggregate demand. Taxes on consumption and wages are highly effective in lowering demand, but will not be politically popular, and not especially fair either, given the stagnant wages for the last 50 years. Workers have been “paying for” neoliberalism for two generations. We cannot ask them to pay more to reverse the damages done. Keynes’s recommendations were formulated on the prospects of conducting a bloody war with huge sacrifices that had to be made. Ours are made in the context of potentially significant sacrifices, but if successful would avoid tremendous loss of life and property. In terms of the challenges ahead, they are huge and the consequences could be greater than those of WWII—however, the sacrifices required to achieve success are much less.

We will assume in this section that we find that the resources released from destructive uses and mobilized are not sufficient to meet the requirements of the GND programs; thus, inflation pressures arise. It is difficult to know how large these will be. The question is how to address inflation pressures.

Note that we do assume that government will use other means to constrain prices, including cost controls in the single-payer system as well as prioritizing spending over the decade during which GND projects are phased in. We also include new taxes on high incomes and high wealth, but we do not expect those to have a significant effect on freeing resources for the GND. Hence, we need to reduce consumption demand by the less fortunate bottom 90 percent of Americans. However, this should be imposed in a progressive manner (with exemptions for the

lowest-income earners), and any reduction of consumption should only be temporary and accompanied by a clear promise of a better standard of living later.

Senator Bernie Sanders has formulated a plan to “pay for” M4A, proposing a supplemental payroll tax on employers equal to an additional 6.2 percent of payroll, plus an additional payroll tax surcharge on employees of 2.2 percent, plus an array of other progressive taxes which he has projected would raise \$1.4 trillion annually.²⁴ While we do not agree with his goal of raising revenue to “pay for” programs, we follow his lead in designing a method of reducing consumption to alleviate inflation pressure.

Many fear that if the costs of medical care are shifted to the government, that creates a large windfall for both employees and employers—who no longer have to pay health insurance premiums. They would raise their spending by the amount of those savings, causing inflation. Let us deal with the employer and employee windfall separately.

Employers would face substantially reduced labor costs. In 2017, employers paid a median of about \$13,000 in premiums per worker for an employer-based family coverage plan.²⁵ As M4A replaces private insurance plans, employers will enjoy substantial savings. It is difficult to know how employers would react to elimination of healthcare costs. If unions were strong, they might be able to induce employers to offer other kinds of benefits, or to raise wages. Some have argued that employers would oppose the movement to M4A because they use good healthcare coverage as a recruiting device, so offering other kinds of benefits would be an option. We think that in the current environment, most of the savings will be retained by employers—although some might indeed offer longer vacations, shorter workweeks, or childcare as attractive benefits.

²⁴ He includes progressive income tax rates, taxing capital gains and dividends at the same rate as income from work, limiting tax deductions for the rich, adjusting the estate tax, and savings from health tax expenditures. His total tax take is estimated at nearly \$1.4 trillion annually. We are not including the other tax changes here, nor are we adopting the tax increase to raise revenues to “pay for” Medicare for All. The purpose is to release resources—in this particular case, it is to postpone consumption by deferring income.

²⁵ In 2010, the median employer cost of healthcare was 12.8 percent of payroll (Claxton and Damico 2011). In 2017, employers paid about 70 percent of the cost of a plan for family coverage, while workers paid about 30 percent (KFF 2017).

The question is: What will firms do with the “retained” savings? Some worry they would raise wages, which would increase incomes and thus consumption. Alternatively, perhaps the savings would show up as profits to be consumed by owners or highly paid executives, to be invested in new plant and equipment, or simply to be saved and perhaps used for stock buybacks that push equities prices ever higher.

If they “spent” them, this would absorb resources, and hence our estimates of the resources released by M4A would be overstated. We think that is also highly unlikely. When oil or other input prices rise, raising firms’ costs, their spending on inputs rises and there is some pressure on inflation; when input prices fall, their spending on inputs falls. The pressure on aggregate prices is downward when costs of production fall. We suggest that the main effect of removing healthcare costs from employer costs will be deflationary, not inflationary. We believe US employers will use the savings to make their production more competitive, domestically and internationally, by lowering prices.

However, as workers’ spending on healthcare premiums falls and take-home pay rises, some portion of this can go to increased consumption. Certainly workers will use some of that for increased consumption, but they can also reduce debt and increase saving. Still, there could be some increased consumer demand and some pressure on inflation.

To allay fears of inflation, we propose to repurpose the payroll tax part of Senator Sanders’ proposal. We would impose a surcharge of 4.6 percent on the employee portion of the payroll tax. This could be applied in a progressive manner, with a lower surcharge on lower wages (and with the lowest wages exempt). The goal is not to raise funds to “pay for” benefits, but rather to defer compensation of employees—based on Keynes’s plan to “pay for” the war. In this case, the purpose of the tax is to temporarily reduce worker’s compensation. Over time, Social Security benefits would be raised to compensate workers for their sacrifice during the implementation of the GND projects that are required to reverse climate change. The “surcharge” payroll tax on workers could be phased out in the future as GND demands on resources decline and as the nation’s productive capacity increases.

As Keynes recommended, the deferred compensation (given as a boost to Social Security benefits) can be allocated in a progressive manner: with larger supplements paid to the lowest benefits, tapering down for the highest. Also, as Keynes recommended, the payroll surcharge (similar to his capital levy) would be imposed as soon as the GND begins, while the benefit supplements would be delayed until the inflation danger has passed. The surcharges paid by employees would also be phased out only after inflation pressures subside.

If we presume that these surcharges will be levied on the hospital insurance portion (HI) of taxable payroll (which, at about 45 percent of GDP, is 25 percent larger than Old-Age, Survivors, and Disability Insurance [OASDI] payroll²⁶), they would remove about \$400 billion of income annually, equal to 2 percent of GDP.²⁷ We will add this as a net source of resources to offset GND requirements.

The surcharge on payroll taxes acts like a sinking fund—not to be used to “finance” future Social Security or the expansion of Medicare spending to all, but to reduce aggregate demand now on the promise that Social Security retirement will be boosted as deferred compensation. Note that workers are generally better off with the single-payer plan, even with the tax surcharge.²⁸

WWII, INFLATION, AND THE BIG MEOW

Before turning to a summary of our conclusions, let us return to a quick comparison of the inflation potential of WWII versus the inflation danger we likely face as we phase in the GND.

As we noted above, both the US and the UK managed to keep inflation under reasonably good control in WWII. We have also compared the GND to the challenges faced in the 1930s and the

²⁶ The logic behind applying them to HI rather than to OASDI is not only that the base is larger, but also that the tax is designed to offset some of the benefits of moving to a universal single payer.

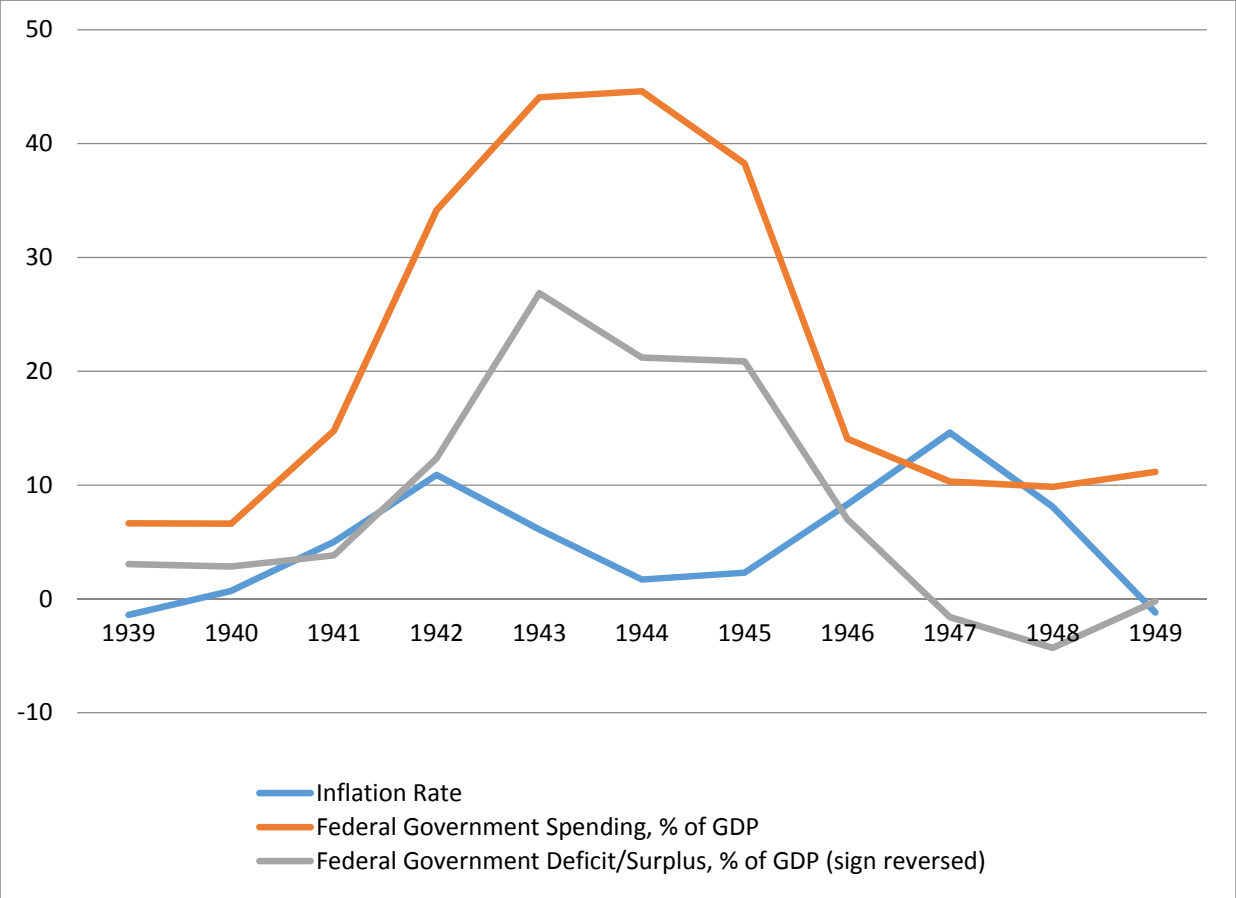
²⁷ See SSA (2018) and CMS (2018).

²⁸ The median wage is about \$32,000. The average annual premium for family coverage is over \$19,000, of which about \$13,000 is paid by the employer and \$6,000 is paid by the employee. By contrast, the payroll tax surcharge would be \$1,472 on the median worker’s wage.

1940s—challenges that were faced and overcome. In this section, we will briefly look at the inflationary pressures that were generated by the war build-up in the US. It must be remembered that the US had struggled through a decade of depression. In truth, the US had made great strides toward recovery by 1937, but then slipped back into depression as tax increases for Social Security kicked in prematurely (that is, in advance of spending on program benefits) and as FDR tried to fulfill a campaign promise to reign in the government’s deficit. However, WWII allowed the country to reverse course, as spending on the war effort rose and the deficit quickly increased.

The following graph (Figure 1) shows how government spending rose tremendously as a percent of GDP, as did the ratio of the government’s deficit to GDP.

Figure 1. Federal Government Spending, Deficit, and Inflation Rate, 1939–49



Source: BEA for government spending and deficit data; BLS for inflation data

Spending rose quickly, from well under 10 percent of GDP to nearly 50 percent of GDP by mid-decade. The deficit ratio actually rose from a few percent in 1941 to 26 percent at the peak of the war spending. Inflation increased early in the build-up for war, with the deflation of the depression years turning to inflation in the early 1940s and peaking at about 10 percent during the war. Note, however, that inflation actually fell to very low rates even as government spending and the deficit peaked—evidence that the efforts to contain inflation pressures were effective. Inflation returned during the early transition from a war economy back to production for domestic use, peaking in 1947.

While we have likened the GND challenge to that of the war, our estimates above show that the challenge is more of a “moral equivalent” of war than an equivalent in terms of production challenges. We will need to move only a small fraction of our nation’s resources to the GND to achieve its goals. However, the human and environmental costs of not making that transition are huge and perhaps ultimately more significant than those of WWII.

Is the inflationary potential of the GND greater than what we faced in WWII? Some of the more hysterical statements made by critics of MMT would have you believe we face high inflation, and possibly hyperinflation, if the GND were to be pursued along MMT lines as laid out above. We believe that is plainly silly, and the WWII experience—which required a much greater use of national resources—helps to prove the point.

Some might argue that the starting place is different, however. The shift to war production began after a decade of depression, during which unemployment was high and capacity utilization rates were low. The economy was experiencing deflation and wages had fallen substantially. People were desperate for work, and business was desperate for sales.

All of that is quite true. On the other hand, investment had been depressed for more than a decade. Facilities had been shut down. Private infrastructure had deteriorated—although it is true that the New Deal jobs program had prepared public infrastructure that would prove useful in the war effort (highways, airports, electricity generation). A huge portion of the labor force was going to be withdrawn from production to serve in the armed forces.

Where are we today? By official measures, we have full employment, but by a more expansive definition of unemployment, there are still 15 million who want a job or more hours of work. Capacity utilization remains low—approximately 10 percentage points lower than what was common in the “golden age” of capitalism, the 1960s. Investment has been relatively low, as corporations prefer to use profits for stock buybacks. Many—including Larry Summers—argue that we face secular stagnation. Many also point to supposed problems on the supply side, but Summers has argued that our problem is really a reverse Say’s law conundrum: low demand creates low supply.

In other words, the situation we face today is similar to what we faced on the eve of the war, even if the stagnation is not nearly so severe today.

It is interesting to look at estimates of potential GDP to get an idea of the economic slack that was created by the global financial crisis.

Figure 2. Estimates of Potential GDP

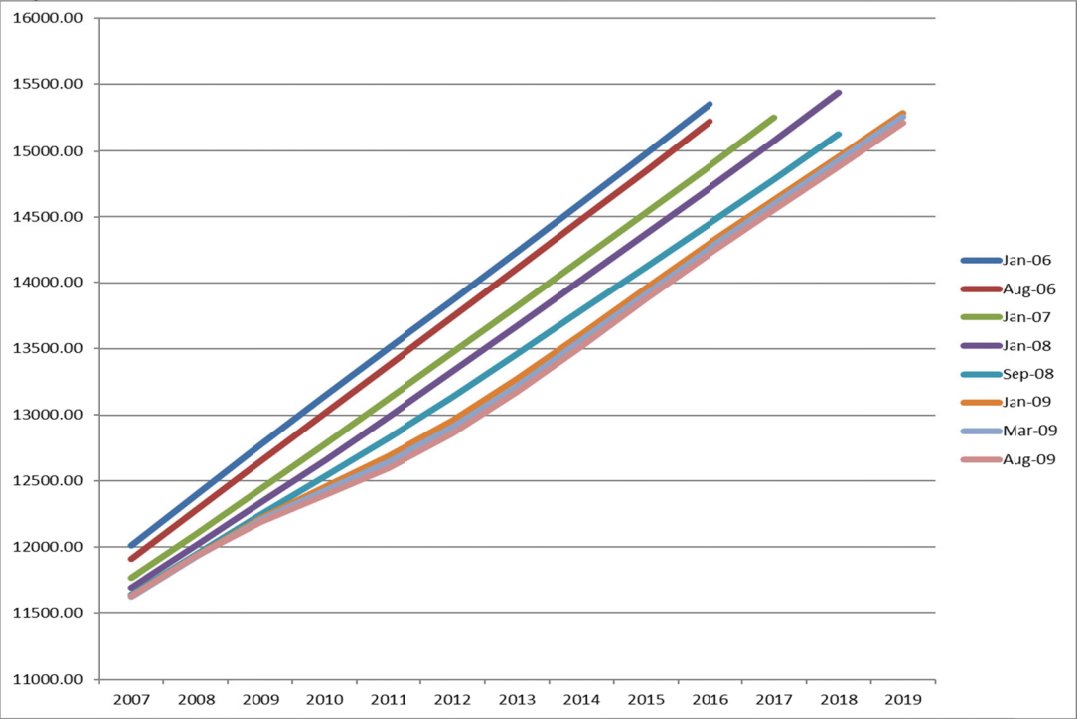
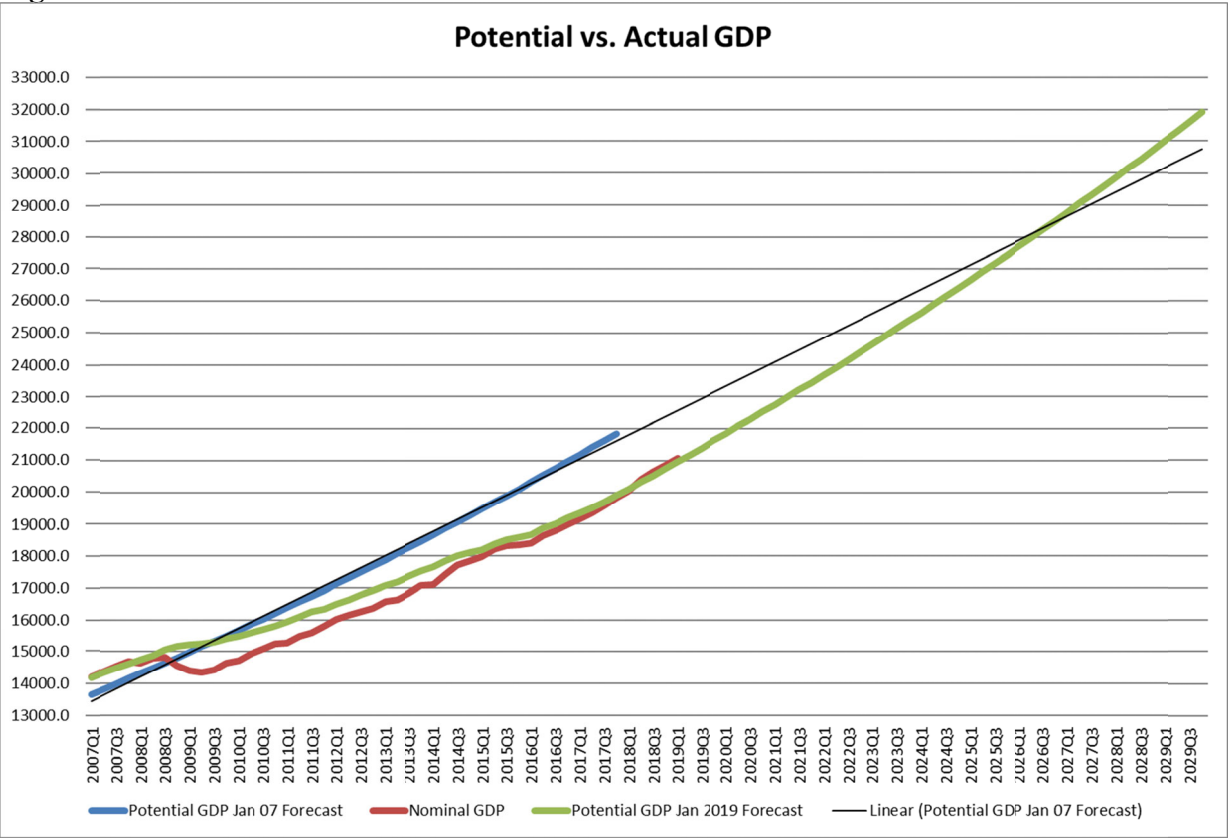


Figure 2 shows estimates of potential GDP made before and during the global financial crisis. What stands out is how large the downward shift was, and how much each subsequent projection had to be lowered to take account of actual outcomes. In January 2006, the projection was that potential output would reach \$15.4 trillion by 2016; the projection made in January 2009 had potential output reaching just \$15.3 trillion by 2019—three years later. Of course, GDP actually grew to nearly \$20 trillion by 2019—nearly \$5 trillion higher than what had been estimated as potential.

The following graph provides an update.

Figure 3. Potential versus Actual GDP



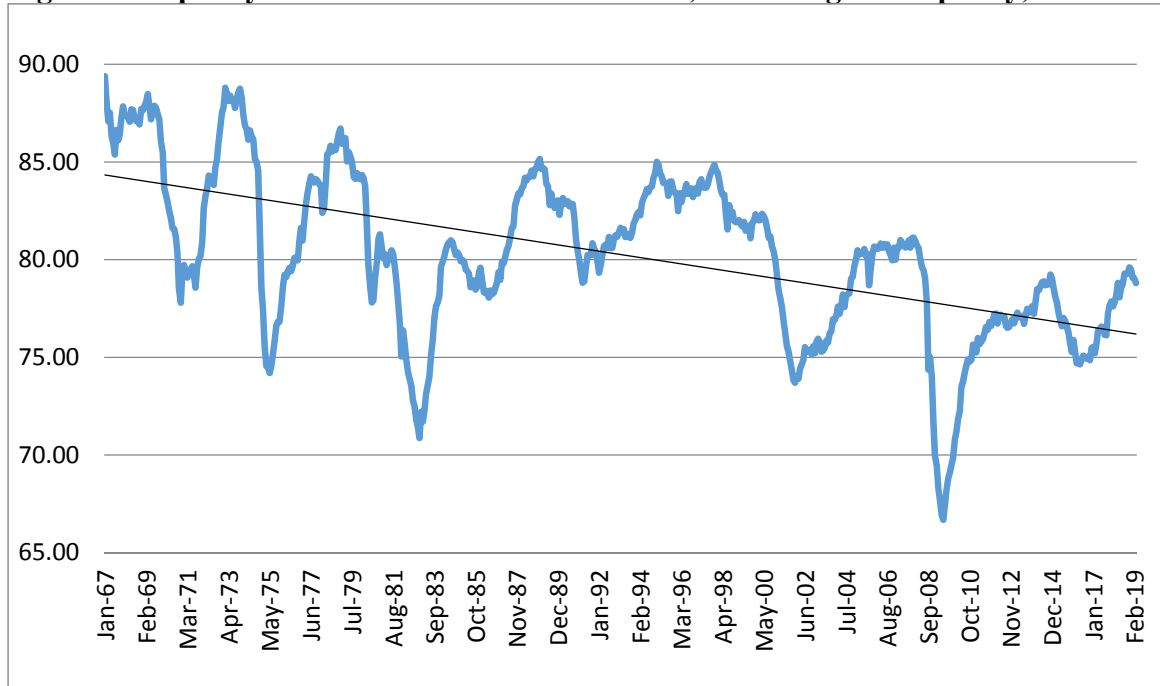
If we were to carry the 2007 estimates out to 2019 (using a straight-line projection), potential GDP would have been at about \$23 trillion, or \$2 trillion higher than the January 2019 forecast (which was approximately equal to actual GDP). The “reverse Say’s law” effect, with actual GDP depressed by lack of demand pulling down estimated GDP, is evidenced by the substantial

loss of “supply.” In terms of where we should have been if demand had been higher over the past dozen years, the “cost” in terms of annual GDP lost has been more than enough to implement a ramped up GND. On the current projection, potential GDP in 10 years would be about \$32 trillion (for some reason, a trillion dollars higher than a straight-line projection from the 2006 projection)—50 percent more than today’s potential.

Projections over long periods of time are necessarily difficult and uncertain, and as the experience during the last downturn demonstrates, those projections can shift dramatically even over short periods of time. Downturns wipe out actual GDP and also greatly reduce forecasts of potential GDP. Upturns have the opposite effect.

Finally, we can look at capacity utilization rates over the past half-century. These have the advantage that they are based on historical data, rather than projections, and provide somewhat less guesswork. However, low capacity utilization rates probably depress investment, which slows the rate of growth of productive capacity—in the same way that depressed growth will depress potential output. In any case, capacity utilization rates have declined substantially over the past half-century, from peaks of about 88 percent in the late 1960s to peaks of about 78 percent today. Obviously, there is great variation over the course of each business cycle, with lows of about 80 percent at the end of the 1960s, and as low as 70 percent in our last downturn. However, across the business cycle, the trend has been sharply downward over the past 50 years—reflecting, we think, chronically insufficient aggregate demand. We have been “living below our means” for two generations.

Figure 4. Capacity Utilization in the United States, Percentage of Capacity, 1967–2019



Source: FRED

Philip Pilkington (2019) has used capacity utilization rates to assess the inflation potential from ramping up government spending. He argues that increasing capacity utilization rates by 1 percent will increase real GDP growth by more than a quarter of one percent. In 2018, there was still about 10 percent of unused capacity (if we use late-1960s capacity utilization rates for comparison), meaning that real GDP growth could have been boosted from around 3 percent to perhaps as high as 6 percent. He concludes that in 2018 there was probably about 2.65 percent of fiscal space—in other words, government spending could have been ramped up for GND spending by an amount equal to 2.65 percent of GDP without exhausting excess capacity. Even higher spending would have been possible, albeit with some inflationary effects. As we show below, Pilkington’s estimate happens to match our estimate of the GND’s net demand on resources *without* imposing a payroll tax surcharge. Also note that he is not considering the shift of resources from current use to GND use.

Our Takeaway Is

1. First, the resource needs of the GND are relatively modest in comparison with the WWII experience.
2. Even huge wartime demands on resources do not necessarily lead to high inflation, so long as countervailing measures are taken.
3. Prevailing wisdom about potential GDP is not necessarily a good guide, and is quite ephemeral, subject to very large revisions.
4. Even today, it is likely that excess capacity is sufficient to handle the expected increased demand on resources that will result from GND spending, so long as programs are phased in at a measured pace.
5. Maintaining high demand is likely to significantly increase estimates of potential, while allowing slack conditions to persist is likely to significantly lower estimates.
6. Secular stagnation is probably not inevitable, and the GND could lead to a return to more robust growth.

RECAP AND CONCLUSIONS

What Keynes was arguing against in *How to Pay for the War* was the policy of allowing the economy to adjust to the realities of the war through an “inflation tax.” With appropriate policies, however, Keynes thought we could “snatch from the exigency of war positive social improvements” (Keynes 1940, iii). The same thing is true today: we can either be reactive and respond to the calamities created by climate change as they happen (as we already do with droughts and hurricanes), or we can use this crisis as an opening for progressive change. This is why the GND includes a wide range of social initiatives: jobs for all, ending forever wars, taxing the rich, student debt relief, free public colleges, access to child and elder care, and so on. At the same time, we need to plan for the implementation of these GND components on a pace that does not significantly raise inflation. If we do have to fight inflation, we need to ensure the battle is not waged on the backs of workers. The inflation tax permanently lowers consumption; deferred compensation only postpones it.

The following table provides resource numbers for each category: resources released, resources needed, and net increase of demand for resources.

Table 6. Summary of Net GND Resource Costs (percent of GDP)

• Greening Projects	5%
• Medicare for All	-3.7%
• Job Guarantee	1%
• Tax the Rich	0%
• End Forever Wars	-1%
• Payroll Tax Surcharge	-2%
• Miscellaneous GND Projects*	0%
Net Increase Resource Costs (with payroll tax surcharge)	-0.7%
Net Increase Resource Costs (without payroll tax surcharge)	1.3%

Notes: Source of resources is negative; use of resources is positive. *Includes student debt relief and free college, public infrastructure, and universal childcare (some of which is included in the JG resource requirement).

Our plan would be approximately net zero in terms of resource use if we impose the payroll tax surcharge. We do not believe that an increased demand equal to 1.3 percent of GDP (our projection in the absence of a payroll tax surcharge) would cause significant inflation anyway—so even without the payroll tax surcharge, we do not anticipate inflationary pressures. However, we leave that as an option, and of course the surcharge could be higher or lower as necessary. Even with the surcharge, households would be better off.

Caveats

We certainly acknowledge that some of the resources released by the fossil fuel and healthcare sectors may not be appropriate for GND projects, although a good case can be made that a lot of the workers would be able to contribute to either working in GND projects or helping with administration.

On the other hand, we have not discussed imports as a source of resources to meet higher demand. We should not rely excessively on imports of production that is needed for greening projects (solar panels, wind power equipment, and electronic transportation, etc.), at least to the

extent that other countries are mobilizing to use their resources to fight climate change themselves. However, as employment rises to boost general consumption, at least some of that will be met by imported consumer goods. This is not necessarily something to be avoided, as many nations need to export consumer products to obtain earnings they need to import green technology. This will help to attenuate inflation pressure—as it has done over the past two decades—and helps to explain why the Fair model’s simulation of the JG program—that boosted employment by 19 million, raised wages to or above \$15 per hour, and increased annual GDP by half a trillion dollars—projected almost no inflation pressure.

There are also other increases in aggregate demand that we have not estimated, such as the remaining windfall to employers and employees from healthcare premiums they are no longer going to pay. While many of the “miscellaneous” GND projects (additional public infrastructure, free public colleges, job training, childcare) will require resources, we have argued that by increasing productivity they will also supply resources—so we have assumed their resource use nets to zero. While this should be true over the long run, there could be a net demand for resources in the early years. Whether this is inflationary depends on whether they are phased in as resources are made available; that, in turn, requires careful planning.

Our main goal has been to set out a framework for analyzing the “cost” of the GND—not to promote any particular estimate of the “cost.” We hope to change the debate from “93 trillion dollars!” to careful assessment of resource needs and availability. We need an informed discussion of the best method of reducing resource use—should that become necessary—so as to free up resources for the GND. We have discussed deferred compensation as a preferred method. However, we believe that if the requirements turn out to be much larger than what we have estimated, we can also explore the other methods that were successfully used in WWII: patriotic saving (which is voluntary deferred consumption), price controls, rationing, and additional taxes. Most importantly, if taxes are to be used, they must be formulated to reduce resource use—not to “raise revenue.”

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