Modeling the Macroeconomic Effects of a Universal Basic Income

Report by Michalis Nikiforos, Marshall Steinbaum, and Gennaro Zezza

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Executive Summary

How would a massive federal spending program like a universal basic income (UBI) affect the macroeconomy? We use the Levy Institute macroeconometric model to estimate the impact of three versions of such an unconditional cash assistance program over an eight-year time horizon. Overall, we find that the economy can not only withstand large increases in federal spending, but could also grow thanks to the stimulative effects of cash transfers on the economy.

We examine three versions of unconditional cash transfers: $1,000 a month to all adults, $500 a month to all adults, and a $250 a month child allowance. For each of the three versions, we model the macroeconomic effects of these transfers using two different financing plans - increasing the federal debt, or fully funding the increased spending with increased taxes on households - and compare the effects to the Levy model's baseline growth rate forecast. Our findings include the following:

- *For all three designs, enacting a UBI and paying for it by increasing the federal debt would grow the economy.* Under the smallest spending scenario, $250 per month for each child, GDP is 0.79% larger than under the baseline forecast after eight years. According to the Levy Model, the largest cash program - $1,000 for all adults annually - expands the economy by 12.56% over the baseline after eight years. After eight years of enactment, the stimulative effects of the program dissipate and GDP growth returns to the baseline forecast, but the level of output remains permanently higher.
- *When paying for the policy by increasing taxes on households, the Levy model forecasts no effect on the economy.* In effect, it gives to households with one hand what it is takes away with the other.
- *However, when the model is adapted to include distributional effects, the economy grows, even in the tax-financed scenarios.* This occurs because the distributional model incorporates the idea that an extra dollar in the hands of lower income households leads to higher spending. In other words, the households that pay more in taxes than they receive in cash assistance have a low propensity to consume, and those that receive more in assistance than they pay in taxes have a high propensity to consume. Thus, even when the policy is tax- rather than debt-financed, there is an increase in output, employment, prices, and wages.

Levy's Keynesian model incorporates a series of assumptions based on rigorous empirical studies of the micro and macro effects of unconditional cash transfers, taxation and government net spending and borrowing (see Marinescu (2017), Mason (2017), Coibion et al (2017), and Konczal and Steinbaum (2016)). Fundamentally, the larger the size of the UBI, the larger the increase in aggregate demand and thus the larger the resulting economy is. The individual macroeconomic indicators are (qualitatively) what one would predict given an increase in aggregate demand: in addition to the increase in output, employment, labor force participation, prices, and wages all go up as well**.** Even in a deficit-financed policy, an increase in the government's liabilities is mitigated by the increase in aggregate demand.

Specifically, the Levy model assumes that the economy is not currently operating near potential output (Mason 2017) and makes two related microeconomic assumptions: (1) unconditional cash transfers do not reduce household labor supply; and (2) increasing government revenue by increasing taxes levied on households does not change household behavior. Other macroeconomic models would make different, likely less optimistic forecasts, because they would disagree with these assumptions.

Estimating the macroeconomic effects of UBI is a critical component of any policy evaluation, because what would appear to be a zero-sum transfer in static terms (money is simply transferred from some households to others) turns out to be positive sum in the macro simulation, thanks to the increase in aggregate demand and therefore in the size of the economy.

Introduction

A policy of universal, unconditional cash assistance (Universal Basic Income, or “UBI” in general terms) would substantially alleviate extreme poverty, which has been on the rise during an era in which existing unconditional transfer policies have been scaled back and repurposed, while the labor market is proving less reliable as a source of support than it once was, especially for low-wage workers.[i] But what would the impact of such a policy be on the macroeconomy?

To answer that question, we used the Levy Institute Macro-Econometric Model to estimate the impact of three versions of unconditional cash assistance over an eight-year horizon. The Levy Institute model is particularly well suited to answer this question, because of the emphasis it places on household balance sheets as a driver of macroeconomic outcomes. The whole aim of the policy is to render households more financially secure, therefore a model that incorporates the financial security of households into macroeconomic outcomes is critical to answering the question about how a UBI would affect the macroeconomy.

The Levy Institute has been constructing and updating its model for many years in order to provide factual predictions about the macroeconomy by comparing its forecasts with realized outcomes. The approach taken in this paper uses the Levy model to forecast the macroeconomy eight years into the future, holding current policies constant. This is the “baseline” forecast, for our purposes. We then perform a series of policy counterfactuals related to enacting a UBI of different sizes and target populations, and compare the eight-year prediction for the macroeconomy given the policy counterfactuals to the baseline forecast. We report the difference in key macroeconomic and labor market indicators between these counterfactuals and the baseline as the “effect” of UBI.

The Levy model is a purely macro model: it contains aggregate economic actors and treats them as individuals. For example, the “household sector” is one large household, the “corporate sector” is one large firm, and the “government” is one unitary organization that conducts both fiscal and monetary policy. This is standard in the macroeconomics literature but is not necessarily well suited to study the effect of a UBI on the macroeconomy, because a UBI inherently affects the distribution of income among households. If the distribution of income matters for macroeconomic outcomes—and there is reason to think that it does—then a policy like UBI that alters the distribution of income among households needs to be interpreted in light of a distributional model in order to forecast its macroeconomic effect. We thus modify the basic model with adjustments for heterogeneity in income taxes paid and in propensity to consume across households, both of which (we show) are relevant to forecasting the macroeconomic impact of UBI.

Our results are very clear: enacting a UBI and paying for it by increasing the federal debt would be expansionary, because it would increase aggregate demand. When the policy is first enacted, economic growth is higher than in the baseline as the economy converges to a larger size. Within eight years of enactment, growth returns to the same rate as in the baseline, with output at a permanently higher level.

The larger the size of the UBI, the larger the increase in aggregate demand and thus the larger the resulting economy is. The individual macroeconomic indicators are (qualitatively) what one would predict given an increase in aggregate demand: in addition to the increase in output, employment, labor force participation, prices, and wages all go up, as well. Since the policy is deficit financed, it increases the government’s liabilities, but because of the stimulative effect of the policy, that increase in debt is less than it would be if the policy did not increase aggregate demand.

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[i] There is a large literature on these trends. See Edin and Shaefer (2015) and Rogers (2017) for excellent introductions.

When paying for the policy by increasing taxes on households rather than paying for the policy with debt, the policy is not expansionary. In effect, it is giving to households with one hand what it is taking away with the other. There is no net effect.

When distributional implications are taken into account, the stimulative effect of the policy increases, because households that gain on net have a high propensity to consume relative to those that lose. Thus, even when the policy is tax- rather than debt-financed, there is an increase in output, employment, prices, and wages, because the households that pay more in taxes than they receive in cash assistance have a low propensity to consume, and those that receive more in assistance than they pay in taxes have a high propensity to consume. This exercise shows that estimating the macroeconomic impact of UBI is a critical component of any policy evaluation, because what would appear to be a zero-sum transfer in static terms (money is simply transferred from some households to others) turns out to be positive sum in the macro simulation due to the increase in aggregate demand and therefore in the size of the economy.

There are, of course, many macroeconomic models to use, and one that emphasizes the financial status of households, as Levy's does, will unavoidably discount other factors. The factor that other models emphasize which is not present in the Levy Model is "potential output"—that the size of the macroeconomy is theoretically limited by supply constraints, and that once these bind, the effect of further expansion in aggregate demand is primarily to increase inflation. We judge that the economy has been operating below potential for a long time now, certainly since the beginning of the financial crisis in 2007 and arguably even before that. There is an active debate over whether that underperformance has in turn caused a decline in the level of potential output, such that an attempt to achieve the level of potential output predicted for 2017–2020 pre-recession would create inflation before the economy reached that level. Given the apparent absence of inflationary pressures to date and other evidence that the economy is not supply-constrained, we take the view that it would not, or at least that there is no empirical evidence that it would.[ii] Other macroeconomic models would disagree.

There are two crucial and immediately relevant microeconomic assumptions underlying the more general contention that the economy is not currently operating near potential output. Those micro assumptions are:

1. Unconditional cash transfers do not reduce household labor supply.
2. Increasing government revenue by increasing taxes levied on households does not change household behavior.

In the discussion below, we motivate these assumptions in the empirical literature on micro and macro effects of unconditional cash transfers, taxation, and government net spending and borrowing.

This paper is organized as follows: Section 2 gives a brief overview of the Levy Macro-Econometric model, and section 3 explains how it works. Section 4 discusses how we add a distributional element to the underlying aggregate model. Section 5 presents the alternative unconditional cash scenarios. Section 6 explains how the policy is implemented over time within the model. Section 7 presents the results, and section 8 concludes with a discussion of their significance and context.

[ii] See Mason (2017) and Coibion et al (2017) for a discussion of whether potential output responds to cyclical fluctuations in aggregate demand. See Konczal and Steinbaum (2016) for evidence that the labor market is underperforming thanks to a "structural" lack of demand.

2. The Levy Macro-Economic Model

The Levy Macro-Economic model is used to examine the medium-run prospects of the U.S. economy and to simulate the effects of alternative policy options. It is Keynesian because the macroeconomic performance of the economy is driven by aggregate demand both in the short- and medium-run. Moreover, it follows the so-called Stock-Flow Consistent macroeconomic methodology, which allows for an integrated treatment of the real and financial sides of the economy; factors that do not have any role in more conventional applied macro models, like household or corporate sector debt, take center stage in our analysis.[iii] By contrast, the Levy model contains no aggregate production function, so it has no way of decomposing the causes of macro dynamics into the effect of increased factor utilization versus the effect of increased factor productivity.

The model was created in the late 1990s by Wynne Godley and was used in subsequent years to argue that the U.S. economy was on an unsustainable path and that crisis was imminent due to the increasing indebtedness of the private sector (Godley 1999). A relatively recent description of the Levy model can be found in Zezza (2009).

In the last few years—after the crisis of 2007–09—analyses based on the Levy model have argued that conventional projections for the U.S. economy (for example, those produced by the CBO or the IMF) have consistently been overoptimistic. Based on the model simulations, the strong rebound in economic growth that these projections were envisioning would require another round of increasing indebtedness on behalf of the private sector, especially for households. Something like this is not plausible, but even if it happened, it would end the same way it ended in previous crises.[iv]

The same reports have also demonstrated that the extreme inequality in income distribution was one of the main causes of the economic crisis, and is now one of the main reasons why the US economy faces the prospect of secular stagnation. Moreover, they argued in favor of a large public infrastructure program and have examined the potential impact of a sharp drop in the (currently overvalued) stock market.

3. The structure of the model

The Keynesian nature of the model means that the main driver of economic activity is aggregate demand. Demand is further decomposed into private expenditure (consumption and investment), government expenditure, and net exports.

All of these components of demand, except government expenditure, are econometrically estimated. The main drivers of consumption are the disposable income and the net wealth of the households. Generally, investment is determined by the level of economic activity. Exports are mainly a function of the GDP of the trading partners of the U.S., the relative prices between the US economy and its trading partners, and the nominal exchange rate. Finally, imports are a function of the US GDP, relative prices, and the nominal exchange rate. The index for the GDP and inflation of the US trading partners is derived using the total trade weights published by the Federal Reserve Board, and information on each individual country from international or national databases.[v] For a discussion of the process, see Dos Santos, Shaikh, and Zezza (2003).

[iii] For a recent discussion of the Stock-flow consistent approach to macroeconomic analysis see Nikiforos and Zezza (2017).

[iv] Recent analyses of the United States economy based on the Levy model include Papadimitriou, Hannsgen and Nikiforos (2013), Papadimitriou et al (2014, 2015), Papadimitriou, Nikiforos and Zezza (2016) and Nikiforos and Zezza (2017).

[v] The trade weights of the FRB are available at https://www.federalreserve.gov/releases/h10/Weights/

The behavior of the government is endogenously determined based on the level of economic activity and a series of (exogenous) policy instruments, related to the various components of government expenditure (government purchases and transfers) and revenues (tax rates, social security contributions of firms and households, etc.).

The model also includes a labor market, in which labor force participation and employment rates are a positive function of the level of economic activity. The nominal wage increases with the level of capacity utilization, which is pro-cyclical. Finally, the price level is a positive function of the unit labor cost and the price level of imported goods.

The Levy model is computed as a simultaneous nonlinear system in EViews.

4. Capturing distributional effects

The Levy model is an aggregate model and the household sector is treated as a whole. However, the introduction of a policy like a universal basic income has important distributional dimensions that need to be taken into account in our simulations if distribution affects macroeconomic dynamics. In the Levy model, it does.

For example, among the scenarios we simulate is a fiscally neutral variation of the UBI program. In an aggregate model, such a program has negligible effects because the increase in the income of the households (in aggregate) achieved through the introduction of the UBI is fully compensated by the increase in taxation of households in aggregate. This leaves their disposable income, and therefore the level of economic activity, unchanged. In reality, however, a program like this—to the extent that it is financed by the increase in the taxes of households in high-income brackets—implies a more egalitarian distribution of income. From a macroeconomic point of view, that means income gains for households with a higher propensity to consume and income losses for households with a lower propensity to consume. Therefore—and to the extent that this redistribution of income does not have other negative effects on other components of aggregate demand—even a fiscally neutral UBI has a positive effect on consumption and the level of economic activity.

To evaluate these effects, we supplement our simulations with calculations that take into account the differential propensities to consume and effective tax rates of households in different income brackets. We use information from *The Distribution of Household Income and Federal Taxes* database of the Congressional Budget Office (CBO 2016) on the distribution of income and the implicit average tax rate by income bracket.

An important piece of information that we need is the *marginal* propensity to consume of the households in the various income brackets. The overall marginal propensity to consume produced by the econometric results of our model is 0.7. However, a casual look at the data (e.g., the Consumer Expenditure Survey of the Bureau of Labor Statistics [BLS 2017]), alongside careful empirical studies, shows that the propensity to consume is lower for households at higher income brackets.[vi]

[vi] Dynan et al. (2004) estimate the saving rates for households in different income brackets. Carroll et al. (2017) estimate the relation between wealth distribution and the marginal propensity to consume and provide a review of the recent related literature.

Nevertheless, the estimates in the related literature are not suitable for direct use in our calculations, either because they have different income brackets or because they refer to the marginal propensity to consume out of wealth rather than income, or because they refer to consumption of a certain kind of goods (e.g. durables and non-durables). Moreover, the Consumer Expenditure Survey of the BLS provides information for the average but not the marginal propensity to consume as a function of income.

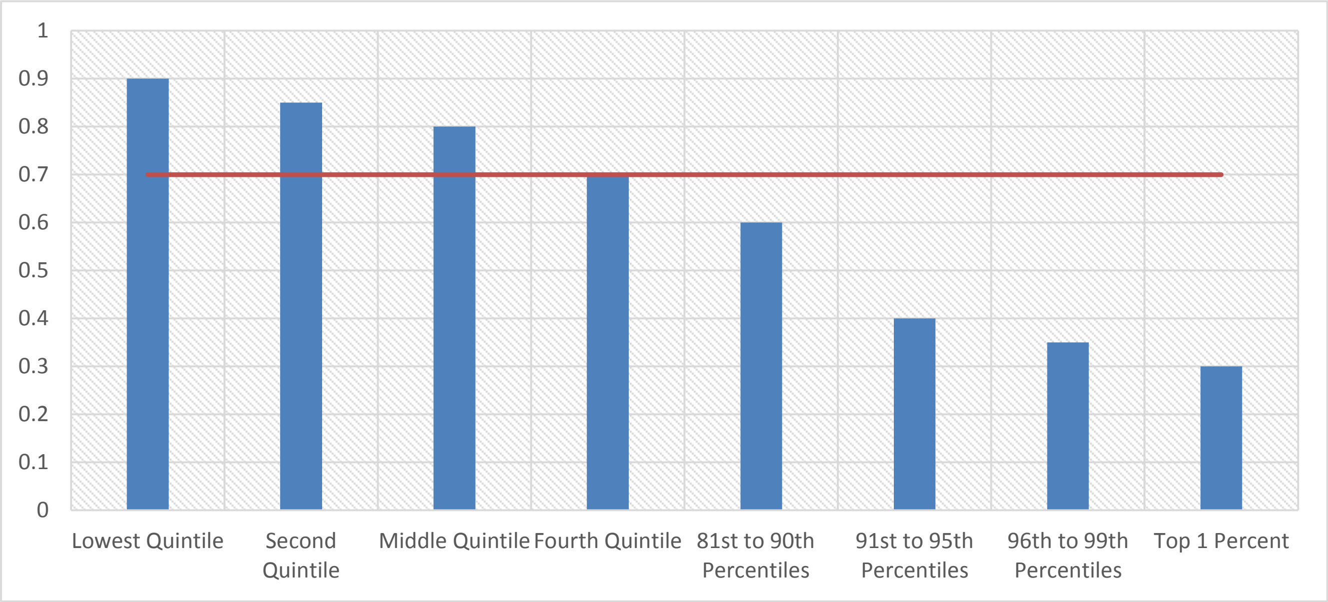


Figure 1 Assumed marginal propensities to consume for different income brackets.

Therefore, for the purposes of our paper, we construct assumptions for the marginal propensity to consume (MPC), based on the various empirical studies and the data from the Consumer Expenditure Survey. We present these MPCs for each income bracket in figure 1. The MPC for the lowest quintile is assumed to be 0.9, and it gradually decreases as we move higher in the distribution of income, reaching 0.3 for the households of the top 1 percent, generating an overall MPC of 0.7.

It goes without saying that different MPCs would give different results. In a demand-driven model, the higher the MPC of a household whose disposable income increases, the more positive the effect on consumption and income. Therefore, if we had assumed that the MPC of the households at the lowest quintile was 1—not an unreasonable assumption since their saving rate according to the Consumer Expenditure Survey is negative—the positive effects of the program would be stronger. And the estimates that we do use, all less than 1, are significantly below the most recent estimates of the MPC using changes in the government's net fiscal position estimated across both countries and regions.[vii]

[vii] See Nakamura and Steinsson (2014).

5. Three UBI proposals

We will examine three alternative proposals for the introduction of a universal basic income in the United States, namely:

1. A "child allowance" of $250/month per child under 16
2. A "base" income of $500/month for all adults
3. A "basic" income of $1000/month for all adults

As of July, 2016, the US Census Bureau estimates the total US population to be at 323 million, with the percentage of persons under 18 years at 22.9 percent.[viii] We use the civilian non-institutional population 16 and over from the BLS to obtain the number of children under 16, which is around 69.5 million.[ix] Proposal 1 would therefore have an annual cost of $208 billion. The size of this proposal is close to 1% of GDP (it is 1.1% of GDP) and can therefore also serve as a reference point.

Moreover, the above figures imply that the number of adults involved in policies 2 and 3 will be roughly 249 million, with an annual cost for proposal 2 at $1,495 billion. The cost of proposal 3 would be twice this amount, around $2,990 billion.

For each of these policies we will consider two alternative options for financing them. First, a pure government deficit-financing option, where the increase in the government transfers for the UBI leads to an equiproportional increase in the government's deficit, save for the change in the spending due to the changes in the level economy activity caused by the introduction of the program. Second, a fiscally-neutral option, where the increase in the spending is matched by an *ex ante* equal increase in the taxes paid by the households.

Moreover, for each of these six scenarios (the three deficit-financed designs and the three fiscally-neutral designs) we provide a separate simulation that takes into account the distributional effects, as they were explained in the previous section.[x]

[viii] The population statistics of the US Census Bureau can be found at https://www.census.gov/topics/population.html
[ix] The data from the BLS can be found at https://www.bls.gov/lau/rdscnp16.htm
[x] We should note that we do not attempt to model the allocation of the child benefit across households by whether they have children. If the distribution of children across households differs from the distribution of income across households, which is quite likely (children are less unequally distributed than income but more unequally distributed than an equal universal transfer), that would have an effect on the realized macroeconomic impact of a child allowance that is different than the one we forecast here.

Table 1: Change in the average tax rate by income bracket in the fully tax-funded scenarios

	Proposal 1 ("child allowance")	**Proposal 2** ($500/month/adult)	**Proposal 3** ($1000/month/adult)
Lowest Quintile	0%	0%	0%
Second Quintile	0%	0%	0%
Middle Quintile	0%	0%	11%
Fourth Quintile	0%	5%	12%
81st to 90th Percentiles	2%	11%	21%
91st to 95th Percentiles	2%	13%	23%
96th to 99th Percentiles	3%	16%	30%
Top 1 Percent	4%	26%	35%

Table 1 presents the assumed *change* in the average tax rate by income bracket, which is necessary for financing the three proposals. It is obvious that the size of the program of proposal 2 ($500 per adult), and especially of proposal 3 ($1000 per adult), is very big and therefore requires a similarly very significant increase in the taxation of the households. According to *The Distribution of Household Income and Federal Taxes* database of the CBO (2016), the total of taxes paid by households in 2013 was around $2.5 trillion. Therefore, the required tax revenues for proposal 1 is around 8.3% of this tax base; around 60% for proposal 2; and around 120% for proposal 3.

We used two criteria for apportioning the taxes to finance the necessary revenue increases across the distribution of households. First, they are egalitarian so that the rise in the tax rates increases as we move up the income distribution. In that way, we have a very significant increase in the average income of the households at the bottom of the distribution and the middle class, financed by the increase in taxation of the households at the top.[xi] Second, the ordering of the income brackets is maintained after the change in the tax rates. For example, even after the increase in the tax rates for the top 1 percent, the households of this income bracket remain (by far) the richest households of the population. This restriction places a limit on the degree of progressivity of the new taxes.

In total, we end up with twelve scenarios, which are summarized in table 2. Scenarios 1 through 6 are produced entirely with the aggregate Levy model. Scenarios 1 through 3 simulate the three policy proposals financed entirely with an increase in the government deficit. Scenarios 4 through 6 simulate the three proposals financed with an increase in taxes paid by households. (Because distributional effects are not taken into account, very little is happening in scenarios 4 to 6.) In scenarios 7 through 12, the simulations of the first six scenarios are adjusted for their distributional effects, as described above. Scenarios 7 to 9 simulate the pure, deficit-financed programs, and scenarios 9 to 12 the fiscally-neutral versions.

[xi] Even in proposal 3, the households of the fourth quintile experience a positive net change in their income despite the increase in the tax rate by 12 percentage points.

Table 2: Summary of the 12 simulated scenarios

	Deficit Spending	Fully Tax-funded	Deficit Spending +Distribution	Fully tax-funded +Distribution
Proposal 1 ("child allowance")	Sc. 1	Sc. 4	Sc. 7	Sc. 10
Proposal 2 ($500/month/adult)	Sc. 2	Sc. 5	Sc. 8	Sc. 11
Proposal 3 ($1000/month/adult)	Sc. 3	Sc. 6	Sc. 9	Sc. 12

The two sets of scenarios (deficit-financed and fully tax-funded) provide a benchmark. An actual proposal for unconditional cash income could be funded by some mix of the two, whose effects would lie somewhere in between the results we report here.

6. Implementation of simulations

In our simulations, we assume that the UBI proposals are gradually implemented over a period of four years, starting in the first quarter of 2017. Overall, the projection period of the simulations is eight years, 2017 to 2024, which gives enough time for potential lagged effects.

The twelve scenarios are simulated on top of a baseline scenario, which is constructed with reference to the latest *Budget and Economic Outlook* of the CBO (2017). The baseline simulations take CBO projections of the growth rate and fiscal stance of the government as given and identify the behavior in the private sector that is needed to produce those projections. The details on the baseline simulations can be found in Nikiforos and Zezza (2017a). For the purposes of this paper, we are not interested in the baseline simulations *per se* but in the *difference* of each of the twelve scenarios with the baseline, which will allow us to evaluate the impact of the implementation of the program in its various forms.

7. Results

The results of our simulations are summarized in table 3 and figure 2. As we mentioned above, in our simulations we assume that the program is gradually implemented over a four-year period, 2017–2020. Figure 3 shows that it then takes another one to three years for the lagged effects to materialize.

Second, it is clear in figure 3 that the implementation of the program has level but not growth effects on real GDP. In other words, the introduction of the program in the way described above changes the growth rate of the economy only temporarily. In the medium run (defined here as an eight-year period) the growth rate returns to its baseline value.

Third, as one would expect, the overall effect of the program increases with its size. Proposal 1 and its variations have the smallest effect (measured at the end of the eight-year modeling period), since the size of this program is the smallest, followed by proposal 2 and finally proposal 3.

Table 3: Differences of main macroeconomic variables compared from the baseline

	Scenario											
	1	2	3	4	5	6	7	8	9	10	11	12
Real GDP	0.79%	6.50%	12.56%	0%	0%	0%	0.84%	6.79%	13.10%	0.27%	1.65%	2.62%
Price Level	0.25%	1.96%	3.68%	0%	0%	0%	0.26%	2.02%	3.77%	0.06%	0.37%	0.56%
Nominal Wages	0.34%	2.75%	5.16%	0%	0%	0%	0.35%	2.80%	5.23%	0.06%	0.37%	0.51%
Gov. Deficit	0.54%	4.73%	9.33%	0%	0%	0%	0.52%	4.61%	9.11%	-0.08%	-0.78%	-1.39%
Employ-ment Rate	0.11%	1.08%	2.04%	0%	0%	0%	0.12%	1.12%	2.11%	0.04%	0.21%	0.31%
Labor Force	331	2,389	4,499	0	0	0	348	2,502	4,703	104	690	1,110

Note: The numbers on Real GDP, Prices, and Nominal Wages express the *percentage difference* of each variable from its value in the baseline scenario. The numbers on Government Deficit express the *difference* in government deficit as a percentage of GDP and the employment rate from their value in the baseline scenario. Labor force is in millions of workers. Unemployment rate (U3) is by definition one (or 100%) minus the employment rate, so the difference of the unemployment rate compared to the baseline scenario is simply the negative of the figures reported in the employment rate row.

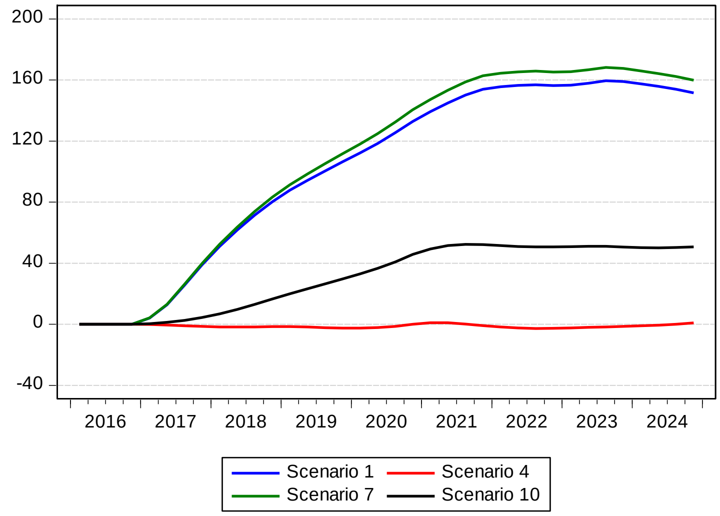
Fourth, also as one would expect, scenarios 4 to 6 have a negligible impact. The reason for this is that in the aggregate version of our simulations, the positive impact of the increase in government transfers on the disposable income of the households is completely cancelled out by the increase in taxation to fund the program.

Fifth, the deficit scenarios have a larger positive impact. Nonetheless, our simulations show that when we consider income distribution, even the deficit-neutral plans have a substantial effect.

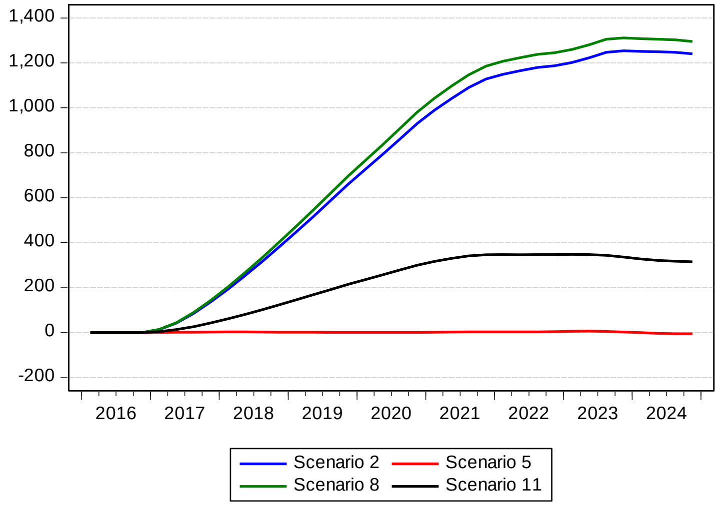
Sixth, the difference between the aggregate scenarios (scenarios 1 to 6) with the respective scenarios which take into account distributional effect (scenarios 7 to 12) is higher for the deficit-neutral scenarios (scenarios 4 to 6 vis–à–vis scenarios 10 to 12) compared to the deficit-funded scenarios (scenarios 1 to 3 vis–à–vis scenarios 7 to 9). The reason for that is that when it comes to the deficit-funded proposals, the effect of the aggregate version is based on an estimated marginal propensity to consume equal to 0.7. In these proposals when we consider the distributional effects, the difference comes from the changing MPC of the various income brackets. So, the assumed MPC of 0.9 of the first quintile tends to increase the impact of scenarios 7 to 9 compared to scenarios 1 through 3, because it is higher than the 0.7 of the aggregate model. However, the MPC of 0.3 of the top 1 percent tends to decrease it because it is lower than 0.7. Overall, and with reference to the assumed MPC presented in figure 1, we can see that the difference between scenarios 1 through 3 and their counterparts 7 through 10 comes from the first three quintiles whose MPC is higher than 0.7. The difference is reduced by the MPC of the income brackets of the top quintile which are lower than 0.7.

Figure 2: Real GDP, difference from baseline scenario (2009 $bn)

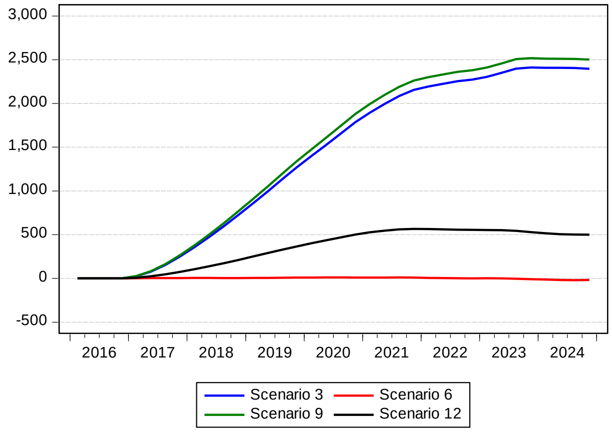
(a) Child Allowance



(b) $500 per month per adult



(a) $1,000 per month per adult



On the other hand, the significant difference in the tax-funded proposals is: i) that the aggregate scenarios produce a zero net-effect and ii) that the households with the lower propensity to consume are those whose tax rates increase the most.

As we can see in table 3, at the end of the projection period real GDP in scenarios 1 to 3, the results are 0.79%, 6.5%, and 12.56% higher compared to their value in the baseline scenario. They are slightly higher in scenarios 7 to 10. The tax-funded version of the proposals in scenarios 10 to 12 has a considerably lower, but still significant effect on real GDP.

In the years after the Great Recession, actual GDP has been deviating further and further from its pre-crisis trend (Coibion et al. 2017). Figure 3 shows that GDP in 2016 was 14% lower compared to what the CBO was forecasting ten years ago. This implies that at the moment, the US economy does not face any significant capacity constraint (Mason 2017). Our results suggest that a large-scale UBI program can help push real GDP closer to its pre-crisis trend.

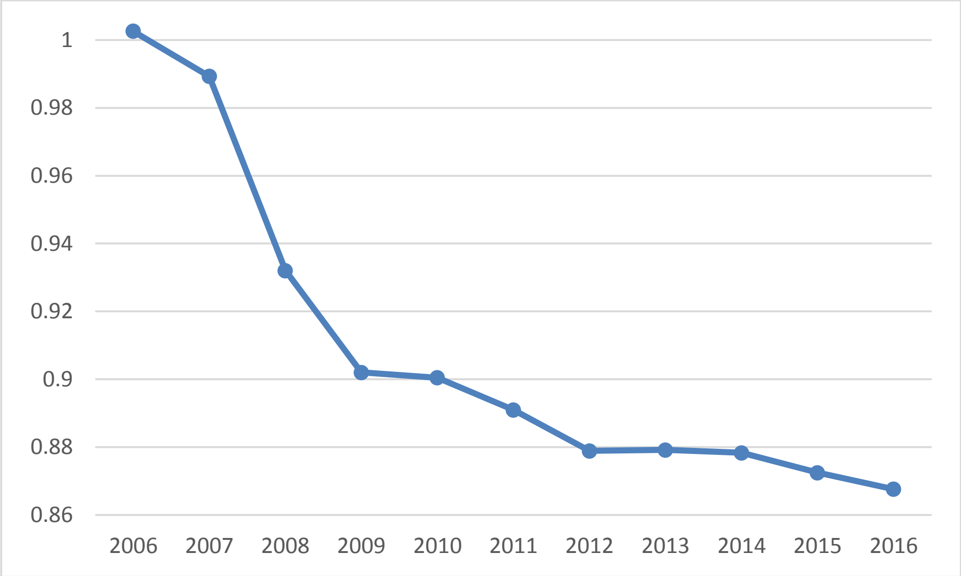


Figure 3: GDP relative to 2006 forecasts (Source Mason [2017])

The increase in the GDP is accompanied—or caused, to be more precise—by an increase in the government deficit, which in the case of deficit-financed proposals 2 and 3 is quite substantial: around 4.5% for proposal 2 and 9.1% for proposal 3. It is also worth mentioning that in scenarios 10 to 12 there is a decrease in the deficit. The reason for this is that we keep the same changes in the overall tax rate as in scenarios 4 to 6, and we then superimpose the distributional effects which lead to higher output and lower deficit from the resulting increase in tax revenues.

The increase in GDP is also accompanied by respectively higher nominal wage and price inflation. As we mentioned above, the US economy is well below its potential and therefore the degree of inflation is moderate. For example, in scenario 9, with the highest growth of real GDP (13.1% higher compared to the baseline), the price level is 3.77% higher than its baseline value at the end of our projection period. In other words, if in the baseline scenario the GDP deflator were 100, in scenario 9 it would be 103.77. This implies an annual increase in the rate of inflation of less than half a percentage point. We assume that this increase will not induce any further changes in the monetary policy of the Federal Reserve. (Under the baseline scenario, it is assumed that the FED slowly increases its base rate in the first two years of the projection period—because it has more-or-less said that that is what it is going to do.) It is also noteworthy that in all scenarios, nominal wages increase faster than prices.

Moreover, the increases in output result in a significant increase in the labor force. Under proposal 3, the labor force is around 2.5 million workers higher compared to the baseline, while in proposal 3 this number is close to 4.7 million. Even in the deficit neutral variation of the proposals in scenarios 10 to 12 there is a substantial increase in the labor force, of 194,000, 690,000 and 1.1 million workers, respectively.

Finally, the acceleration of the growth rate increases the employment rate, as well. At the end of our projection period, the employment rate is around 1.1 percent higher under the deficit-funded variations of proposal 2 and is roughly double this figure (2.1 percent) under the same variations of proposal 3. In the deficit-neutral version, the employment rate inches up by 0.2 to 0.3 percent. It is worth mentioning that because the employment rate depends mainly on the growth rate of output, the differences in the employment rate of the scenarios compared to the baseline are higher in the first six years of the simulations and then slightly fade as the growth rates converge to the growth rates of the baseline.

The fact that employment rises and wages increase faster than prices implies that increasing aggregate demand would also increase labor's share of national income, which has been trending downward since at least 2000. This is an unsurprising conclusion, but it is also at odds with many common theories about why the labor share shrank in the aftermath of the financial crisis, namely that it is due to a 'skills gap,' geographical mismatch of workers with available jobs or over-regulation of the labor or housing markets. Our simulation results point the finger at deficient aggregate demand as the root cause of the labor market's problems.

8. Concluding discussion

The reason why unconditional cash transfers to households have such an expansionary impact in the Levy model is that it assumes the size of the economy is constrained by aggregate demand (and will be for the foreseeable future) and that aggregate demand is low in large part because household income is low. The policy being modeled in this case is extremely well targeted to address the constraint that currently binds the economy. We consider this assumption to be empirically grounded, and, given the Levy model's track record of factual macroeconomic forecasts, believe it serves as a useful tool for testing the impact of policy alternatives such as unconditional cash grants to households.

Furthermore, the distributional elements of the model, heterogeneity in marginal propensity to consume and in effective tax rates across households, are both well grounded in the literature. If anything, the heterogeneity in marginal propensity to consume that we assume here is low relative to estimates from quasi-experimental variation rather than the more econometrically crude method we employ in this paper. We do assume that additional marginal taxes have no behavioral impact on labor supply, which differs from many macro models (especially those aimed at estimating the dynamic impact of changes to tax policy), but given that large changes in effective marginal tax rates seen over the last several decades have little discernible impact on labor supply, we consider this an empirically-grounded assumption.

We also assume that receiving an unconditional cash grant does not impact the labor supply decisions of households, which are not specifically modeled in our approach but would impact the level and trend of potential output if that were a binding constraint. In support of this assumption, we rely on a recent survey of the literature estimating the microeconomic behavioral impact of unconditional cash transfer programs of various sizes and experimental designs (Marinescu 2017). It is true that the size of the programs contemplated here, up to $12,000 per adult per year, is larger than anything comparable seen to date. Thus, it is reasonable to question whether the finding of zero labor supply effect in the literature Marinescu surveys would continue to hold out-of-sample. But this ties back to the assumption underlying this entire exercise: that the economy is operating far from potential output due to slack demand, and our results would look quite different were we to relax that assumption—including by assuming that increasing household income would cause households to reduce their labor supply.

This paper is not intended to be the last word on the macroeconomic impact of unconditional cash transfers to households. There are many other ways in which the policy itself could be permuted, in which its financing mechanism could be permuted, and in which the larger macroeconomy could be modeled. What we have done is taken a valued model that has done a reasonably good job of explaining macroeconomic outcomes seen to date—as a result of structural advantages that supersede other options in the form of factual assumptions about the impact of household balance sheets on the macroeconomy—and utilized it to perform a set of policy counterfactuals. Those counterfactuals deliver intuitive results. If the macroeconomy behaves in a way that's consistent with how it has in the recent past—and there's every reason to believe that's the best place to start—then enacting an unconditional cash transfer certainly wouldn't harm it, and would probably do substantial good.

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