

# **The Effects of Taxes on Economic Growth**

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## Introduction

### *Abstract*

The potential effects of altering tax rates is a topic frequently found at the center of economic policy-making. There are several arguments that are commonly used to support a lowered tax rate. One argument is that by increasing the after-tax wage, labor supply should increase accordingly. Similarly, lowered tax rates will also positively affect human capital accumulation and entrepreneurship. Savings and investment are also predicted to increase as a result of shrinking tax rates. Clearly these are all positive outcomes for the growth of a country. However, these outcomes are offset by the increased deficit and resulting reduction in national savings. The decrease in national savings means that national investment falls as well, which leads directly to lower future income. Additionally, a negative effect for the citizens of the country in question may be that income becomes increasingly unequal across different classes. The total effect of tax cuts on economic growth is determined by how much larger the aforementioned positive effects are than the negative effects.

This paper aims to examine the actual effect of taxes on labor supply, human capital accumulation, savings, investment, and entrepreneurship. The negative effects on economic growth of increasing the budget deficit will also be examined in full. In addition, there will be a discussion of at what cost tax rates would be reduced in the first place – several proposed strategies involve broadening the tax base by reducing or eliminating tax expenditures. However, it is possible that these tax expenditures, which have positive social impacts, lead to

more growth than a potential reduction in tax rate. Finally, we will use the Bush tax cuts of 2001 as a case study of lowered tax rates, and draw conclusions about the overall effectiveness of these tax cuts.

### ***Summary***

Economic growth is the term for steady growth in the production of the economy. It is a state that is much obviously much sought after, as growth in a country's economy is crucial for future success. Tax cuts have been cited as a way to potentially increase economic growth. The idea is that when an individual's after-tax income increases, they are more likely to do productive things with their money – buy more, save more, get an education, start a business, etc.

Specifically, tax cuts are expected to increase labor force participation, entrepreneurship, savings and investment, and human capital accumulation. If these four areas are benefitted by a tax cut, the economy is well on its way to future growth. However, it is found that small and uncertain relationships, if any, exist between tax rate reductions and these four outcomes.

However, there are some potential pitfalls associated with tax cuts – if they are financed improperly, there can be an increase in the deficit, which spells trouble either in the form of increased interest rates or decreased future investment income. Additionally, a poorly designed tax cut can increase income inequality, which is best avoided for a variety of reasons. While the relationships between tax cuts and the potential benefits are tenuous, it is clear that the potential ramifications are not easily avoided.

In order to avoid an increase in the deficit, it is necessary to fund a tax cut. Government officials often cite tax base broadening as a potential source of financing. Tax base broadening

would, in this case, consist of the elimination or reduction of tax expenditures. However, these expenditures serve their own economic and social purposes, and their elimination might potentially hinder any possible resulting economic growth. Therefore, it is important to take a hard look at what could actually be eliminated without economic implications.

The most recent major tax cut was the EGTRRA, also known as the Bush tax cuts of 2001. These tax cuts, of course, had in mind all of the possible benefits and economic growth potential mentioned above. Theoretically, they should have also kept in mind the possible problems regarding increased deficit and income inequality. As a final case study in the paper, the Bush tax cuts will be examined and judged in terms of their ability to meet the expectations and avoid the complications. Unfortunately, they don't score very well – and perhaps that can be taken as a general statement about the unpredictability of an economic move as major as a tax cut. Is it worthwhile if the outcomes are so uncertain?

## **Expansionary Fiscal Policy and Aggregate Demand**

In a basic macroeconomics course, tax cuts are first presented as a form of expansionary fiscal policy. This form of fiscal policy is expected to raise aggregate demand for goods and services by increasing the disposable income of households, which should (in theory) be accompanied by households spending more on consumption.<sup>1</sup> Because a shift in aggregate demand may potentially increase GDP, increasing aggregate demand could be considered a crucial part of improving the forecast for economic growth. If expansionary fiscal policy through tax cuts can deliver what it promises, it would clearly be in the interest of policymakers to use

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<sup>1</sup> Library of Economics and Liberty. (2008). *Fiscal Policy*. Retrieved from: <http://www.econlib.org/library/Enc/FiscalPolicy.html>

such policy to increase economic stabilization, especially in times of recession in order to restore output to a normal level.<sup>2</sup> In this section, we will attempt to surmise whether fiscal policy actually has as clear an effect on aggregate demand in practice as it does in the macroeconomic textbooks.

First, it is necessary to distinguish between automatic and discretionary changes in spending and taxes. Automatic stabilizers are built into the tax system, and include such things as lowered tax revenue and increased unemployment compensation when overall employment decreases.<sup>3</sup> Discretionary fiscal policies are more intentional, and this is the realm that tax cuts fall into. However, it is important to note, despite the fact that automatic stabilizers will not be discussed at length in this paper, that automatic stabilizers should by no means be ignored or downplayed. According to Taylor, the automatic stabilizers have been much larger in the economy between 1960 and 2000 than the role of discretionary fiscal policy.<sup>4</sup> This suggests that the well-designed system already in place might partially reduce the need for discretionary fiscal policies, such as tax cuts, in the first place.

Additionally, there are some grave problems in the tax cut-aggregate demand relationship that have been noted in recent literature. First, it has been suggested that expansionary fiscal policy is both slow and impermanent. One overwhelming problem is the amount of time that expansionary fiscal policy of any kind, but especially tax cuts, take to implement. "Inside lag" is the name for the amount of time between when fiscal policy is

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<sup>2</sup> Library of Economics and Liberty.

<sup>3</sup> Taylor, J. B. (2000). Reassessing Discretionary Fiscal Policy. *The Journal of Economic Perspectives*, 14(3), 26.

<sup>4</sup> Taylor, p. 34.

needed and when it is implemented. Such a lag could be avoided if economists could forecast perfectly, but because expansionary fiscal policy is harmful when not called for, such bold moves based on forecasting are typically avoided<sup>5</sup> In addition, once the expansionary fiscal policy finally takes place, it is transient. The shift in the aggregate demand curve would bring about changes in inflation, and the real GDP line would return to its prior level before long.<sup>6</sup> This is primarily due to the fact that in the long run, output is determined not by demand, but by the supply factors of production – therefore a “natural rate” of output will always be in place in the long run, and inflation will adjust accordingly.<sup>7</sup> Additionally, once these hurdles have been overcome, it is unclear that expansionary fiscal policy will have the AD curve-shifting effects that are present in economic theory. In a 2001 survey regarding the Bush Tax Cuts, only 22% of responders claimed that they had already or would be spending their income tax rebate.<sup>8</sup> Because households knew that the tax cuts would be lasting at least ten years at the time of the survey, the long-term nature of their increased income would suggest, theoretically, that the spending rate would be quite close to one.<sup>9</sup> Accordingly, when the spending rate is so low, one would expect (and correctly so) that the overall effect on aggregate demand would be quite small.<sup>10</sup> Because the spending rate was instead so close to zero, it appears that the theory behind the tax cut-aggregate demand relationship cannot quite be trusted. Another clear sign to that point is the fact that other countries often have different experiences with expansionary fiscal policy than one might expect – for example, some European countries have experienced

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<sup>5</sup> Library of Economics and Liberty.

<sup>6</sup> Taylor, p. 25-6.

<sup>7</sup> Library of Economics and Liberty.

<sup>8</sup> Shapiro, M. D., & Slemrod, J. (2001). *Consumer response to tax rebates*. National Bureau of Economic Research, 30.

<sup>9</sup> Shapiro & Slemrod, p. 30.

<sup>10</sup> Shapiro & Slemrod, p. 33.

increased GDP following contractionary fiscal policy, and in Japan, several bouts of expansionary fiscal policy had no meaningful effect.<sup>11</sup> Therefore the relationship between tax cuts and increased aggregate demand seems tenuous at best.

A concept that is closely related to fiscal policy is that of monetary policy. Although not strictly in the scope of this paper, it is important to mention from the start that tax cuts are not the only option to increase economic growth. Monetary policy avoids several of the downfalls associated with fiscal policy, such as implementation lags, political constraints, and irreversibility.<sup>12</sup> Because the Fed is further off of the general public's radar than the president, monetary policy can be reversed in a matter of months.<sup>13</sup> The reversal (or even the predetermined natural conclusion) of expansionary fiscal policy is much harder to implement – consider the recent talks about the “fiscal cliff.” There is clear evidence that monetary policy has been doing quite well in keeping aggregate demand close to potential GDP, because it is one of the Fed's inflation objectives.<sup>14</sup> It has also been shown that fiscal policy may actually make it more difficult to execute monetary policy, and this is an outcome that would be best avoided as it is quite clear that monetary policy a fine job of achieving economic goals on its own.<sup>15</sup> In fact, it would appear that one of the only things that fiscal policy has over monetary policy is that politicians can appear to be doing something, even if that something is not particularly useful, in a time of economic need (such as a recession).

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<sup>11</sup> Taylor, J. B. (2000). Reassessing Discretionary Fiscal Policy. *The Journal of Economic Perspectives*, 14(3), 28.

<sup>12</sup> Taylor, p. 28.

<sup>13</sup> Taylor, p. 27.

<sup>14</sup> Taylor, p. 34.

<sup>15</sup> Taylor, p. 35.

In conclusion, it may make the most sense for expansionary fiscal policy to be a tool used to help with longer-term issues. Due to its lag time and questionable effects on aggregate demand, it is probably not the best option when it comes to short-term economic problems.<sup>16</sup> However, if fiscal policy is changed with long-term goals in mind, those goals are far more likely to be reached. However, for the remainder of the paper, we will assume that expansionary fiscal policy has been put into place in the form of a tax cut, and examine other possible positive and negative outcomes aside from the effect on aggregate demand.

## Potential Benefits of Tax Rate Reduction

### *Labor*

The growth rate of the effective labor force is a crucially important component in the calculation of economic growth. Effective labor force includes things such as labor force participation and hours, occupational choice, and acquisition of skills and training.<sup>17</sup> The idea is that a reduction in taxes will effectively increase wages, which will in theory result in an increased incentive to work. However, the response to such an incentive varies from person-to-person. “The key issue is how effort reacts to incentives. However, effort can be adjusted on many different margins: people can change their hours of work per week or per year, whether they work at all or not and the amount of effort they put into working.”<sup>18</sup> Because an adjustment in hours is measurable, this is primarily what is used in studies to determine reactions to a tax reduction. However, effort can also be a response to a wage incentive, and

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<sup>16</sup> Taylor, p. 35.

<sup>17</sup> Engen, E. & Skinner, J. (1996). Taxation and Economic Growth. *National Tax Journal*, 49(4), 618-9.

<sup>18</sup> Meghir, C., & Phillips, D. (2008). *Labour supply and taxation*. London: Inst. for Fiscal Studies, 2.



this is especially true in the case of more highly skilled workers. Those at a full time, salaried job may not necessarily adjust the number of hours they work, but rather increase their productivity or creativity within that time period.<sup>19</sup> This is especially problematic in the studies involving the affluent. In a progressive tax system such as that in the US, the wealthiest citizens are the ones most affected by changes in tax policy. Therefore, we would expect their response to a tax reduction to be stronger than that of their peers. Instead, we find that it is negligible.<sup>20</sup> However, despite these difficulties in quantifying labor force responses to tax reduction, it is a well-studied area of economics. I will be presenting labor force responses in three groups: men, women, and families.

The labor force responses of men to tax or wage incentives is found to be quite low. In a review of prior studies, Meghir and Phillips concluded that “it would be a fair description to say that male hours adjustment to changes in marginal wages is very low indeed and can be almost ignored.”<sup>21</sup> Additionally, Triest, who used a technique of running the same data with different econometric specifications, found that “the labor supply of prime aged married men is relatively invariant to the net wage and virtual income. The results are remarkably similar across the various specifications considered.”<sup>22</sup> This has quite a bit to do with the fact that, as mentioned above, it is difficult to measure the responses of those who work full time. It is

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<sup>19</sup> Meghir & Phillips, p. 2.

<sup>20</sup> Moffitt, R. A. & Wilhelm, M. (2000). Taxation and the Labor Supply Decisions of the Affluent. In J. B. Slemrod (Ed.), *Does Atlas Shrug?: The Economic Consequences of Taxing the Rich* (pp. 194-234). New York: Russell Sage Foundation.

<sup>21</sup> Meghir & Phillips, p. 29.

<sup>22</sup> Triest, R. K. (1990). The Effect of Income Taxation on the Labor Supply in the United States. *The Journal of Human Resources*, 25(3), 512.

found that in many countries, men primarily work full time. Although there is some variability in hours worked, it is not enough to reach any ground-breaking conclusions.

The labor force responses of women to tax or wage incentives is far more interesting. Most of the literature focuses primarily on married women. One of the important issues facing married women are the fixed cost of work. Mothers that choose to work face child care costs, which can be sky-high. In addition, working requires transportation costs (the cost of gas, or even the cost of an entire second car), clothes to wear to work, and money to eat lunch out during the day.<sup>23</sup> Therefore, the question is often whether to work, rather than how much to work. If a married woman is going to choose to work, she will work enough hours to make it worth her while. This has been referred to as “reservation hours.”<sup>24</sup> Because for women, participation itself is as important as the number of hours actually worked, we find one thing to be true:

“The estimated impact of taxation on the labor supply of married women depends critically on the method used to estimate the labor supply function. When a censored estimator is used, the net wage elasticities are...[larger]. However, when a truncated estimator is used (conditioning on hours being greater than zero), the estimated wage elasticities are much smaller.”<sup>25</sup>

In Triest’s paper, the truncated data set does not include observations where the number of hours worked is zero. The censored data set does include those values. “By ignoring fixed costs

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<sup>23</sup> CNN Money. (2012, April 20). *Moms: ‘I can’t afford to work’*. Retrieved from <http://money.cnn.com/2012/04/18/pf/moms-work/index.htm>.

<sup>24</sup> Cogan, J. F. (1981). Fixed Costs and Labor Supply. *Econometrica*, 49(4), 945-64.

<sup>25</sup> Triest, R. K. (1990). The Effect of Income Taxation on the Labor Supply in the United States. *The Journal of Human Resources*, 25(3), 513.

one is forcing the model to explain hours and participation changes in the same way, biasing upwards the effect of wages on hours”<sup>26</sup> However, although the censored estimator may have found an inflated elasticity, the labor force participation choice cannot be entirely ignored.

One particular study that does take fixed costs into account properly is *Estimating Labor Supply Responses Using Tax Reforms*. This study finds that wage rates are most elastic for women with young children – those with children aged 0-2 have a wage elasticity of .21, and those with children aged 2-5 have a wage elasticity of .37. However, the wage elasticity for all other married women was closer to .13.<sup>27</sup> This implies a relatively low responsiveness to marginal changes in wage incentives, further enforcing the idea that those with small children face a higher fixed cost of work, and are therefore more sensitive wage changes.

Although it is not difficult to study the labor force responses of men and women individually, the responsiveness of a family-unit proves more difficult. Until recently, the methods used to describe a family were very clunky. For example, “in the so-called unitary approach, the household, as a whole, is considered as the elementary decision unit; in particular, it is characterized by a unique utility function that is maximized under a budget constraint. However this approach has been severely criticized both on theoretical and empirical grounds.”<sup>28</sup> The reason for such criticism is that a typical family does not simply seek to increase the utility of the total family – each person in the family is preoccupied with his or her own utility. In his paper, Donni utilizes a family structure that allows the male and female

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<sup>26</sup> Meghir, C., & Phillips, D. (2008). *Labour supply and taxation*. London: Inst. for Fiscal Studies, 25.

<sup>27</sup> Blundell, R., Duncan, A. & Meghir, C. (1998). Estimating Labor Supply Responses Using Tax Reforms. *Econometrica*, 66(4), 846.

<sup>28</sup> Donni, O. (2003). Collective Household Labor Supply: Nonparticipation and Income Taxation. *Journal of Public Economics*, 87(5-6), 1181.

figures to have their own consumption and their own choices. Because such methods are recent, we are unable to confidently determine the response of a family unit to a reduction in taxes.<sup>29</sup> However, Donni does explain reservation wages for each of the two parties – in other words, how the wage rate of the male and the wage rate of the female interact to determine, which, if either, of the two of them will work. (This graph can be seen in the appendix.) He interprets the convex reservation wages in the following way:

“When the wife (husband) does not work, an increase in her (his) market wage is expected to have a negative effect on the bargaining power of the husband (wife): the income share of the latter declines. Since leisure is a normal good, the husband (wife) is then encouraged to participate to the labor market: his (her) reservation wage declines. When the wife (husband) works, the increase in the wife’s wage (husband’s wage) has also a positive effect on the labor earnings of the household as a whole which may compensate the decline in the bargaining power of the husband: his (her) income share is expected to rise at some point.”<sup>30</sup>

This idea that spouses will not work if their potential wage is far below that out of their significant other is in line with logic and observation. Those whose spouses earn a lot will not be motivated to work, as is the case of married women with high-earning husbands.

A couple of closing remarks about labor force: there are many hidden factors at play. These so-called lurking variables can overstate or even negate the calculated effect of a change in wage. “Take someone who has a low preference for work and therefore works for few hours.

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<sup>29</sup>Meghir, C., & Phillips, D. (2008). *Labour supply and taxation*. London: Inst. for Fiscal Studies, 30.

<sup>30</sup>Donni, p. 10.

This person is also likely to have invested less in human capital accumulation and is thus likely to have a low pre-tax wage. This causes a spurious positive correlation between hours and wages leading to an impression that incentives and hence taxes may matter more than they actually do.”<sup>31</sup> In this case, the person in question generally lacks ambition, but an empirical study would suggest that they don’t work because they don’t get paid enough. On the other hand, those that have a strong preference for work will work no matter what – as such, they will better themselves through human capital accumulation and earn more money, which is subject to higher taxes. So for this group of people, the relationship between hours worked and incurred taxes is actually negative.<sup>32</sup> Therefore, be sure to take any observations about the relationship between labor force and tax reduction with a grain of salt – as in all statistical analyses, it is important to remember that correlation (of any kind) does not imply causation.

### ***Savings and Investment***

As explained in a speech by Governor Gramlich, the national saving rate can basically be thought of as the portion of national income being used to build up the country.<sup>33</sup> That’s not a very good sign, considering that as of the year 2010, our national saving rate was at -3.1% of GNI.<sup>34</sup> It is important to understand the components that go into national savings, and the implications of such a low national savings rate. Using economic identities, we know that

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<sup>31</sup> Meghir, C., & Phillips, D. (2008). *Labour supply and taxation*. London: Inst. for Fiscal Studies, 23.

<sup>32</sup> Meghir & Phillips, p. 23.

<sup>33</sup> Gramlich, Governor E. M. “The Importance of Raising National Saving.” Benjamin Rush Lecture, Dickinson College. Carlisle, Pennsylvania. 2 March 2005. Retrieved from <http://www.federalreserve.gov/boarddocs/speeches/2005/20050302/default.htm>.

<sup>34</sup> The World Bank. (2013). *Adjusted savings: net national savings (% of GNI)*. Retrieved from [http://data.worldbank.org/indicator/NY.ADJ.NNAT.GN.ZS?order=wbapi\\_data\\_value\\_2010+wbapi\\_data\\_value+wbapi\\_data\\_value-last&sort=asc](http://data.worldbank.org/indicator/NY.ADJ.NNAT.GN.ZS?order=wbapi_data_value_2010+wbapi_data_value+wbapi_data_value-last&sort=asc).

national saving is made up of three components: personal (household) saving, business saving (corporate retained earnings), and public saving, which consists of government surpluses if they exist – this number is typically negative.<sup>35</sup> Together, personal and business saving make up what is referred to as private saving. Additionally, national saving is equal to the sum of domestic and foreign investment (as national saving is used to finance such investments).<sup>36</sup> This is an important equality, as investment of either kind translates into future capital income. Obviously, the inflow of capital income is important as far as future economic growth, so the importance of such investment cannot be overstated.

A low national savings rate is alarming because it implies that the government deficit is barely being outweighed by private savings. It also implies that we are borrowing nearly as much as we are investing. “When national saving rates are this low, the nation suffers from some combination of low investment and high borrowing. The former is bad from the standpoint of future productivity, the latter is likely not sustainable. Neither situation is desirable.”<sup>37</sup> It’s not surprising that private savings can barely keep up with the public deficit – it was found that one in five families does not save at all.<sup>38</sup> But why aren’t individuals choosing to save their money? The fall in personal savings is frequently attributed to three sources: an increase transfer income, such as welfare, which is typically not saved, an increase in household wealth, and the general aging of the population (those over 65 are expected to consume rather

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<sup>35</sup> Hungerford, T. (2007). Savings Incentives: What May Work, What May Not. In Lampeer, C. O. (Ed.), *American Economics and Politics, Volume 1* (pp. 67). New York: Nova Science Publishers, Inc.

<sup>36</sup> Gale, W. G. & Orszag, P. R. (2003). Fiscal Policy and Economic Growth: A Simple Framework. *Tax Notes*, 760.

<sup>37</sup> Gramlich, Governor E. M. “The Importance of Raising National Saving.” Benjamin Rush Lecture, Dickinson College. Carlisle, Pennsylvania. 2 March 2005. Retrieved from <http://www.federalreserve.gov/boarddocs/speeches/2005/20050302/default.htm>.

<sup>38</sup> Hungerford, T. (2007). Savings Incentives: What May Work, What May Not. In Lampeer, C. O. (Ed.), *American Economics and Politics, Volume 1* (pp. 70). New York: Nova Science Publishers, Inc.

than save).<sup>39</sup> But whatever the reason, it is clear that an increase in savings and investment is critical to get the country's economy in a better situation for the future. Much research has been done to determine if this can be achieved through tax reform.

A tax rate reduction will increase the amount of after-tax income that one has at their disposal. In a simplified economy, an individual has two basic choices of what to do with their income – spend it on immediate consumption, or save it for the future. As is typical in microeconomics, there are two effects at play: the substitution and income effect. An increase in income creates a preference for future rather than immediate consumption – this is the substitution effect. But on the other hand, if an individual has a particular savings target, it becomes easier to reach, so they might save a smaller portion than previously – this is the income effect.<sup>40</sup> The sum of these two effects determines the magnitude of the change in savings as a result of tax reform. Of course, tax reform comes at a cost – lowering taxes means further decreasing private savings, which means the overall effect on national savings could very well be negative.<sup>41</sup> Of course, if households were fully rational, their choice would be clear. They would recognize that nothing lasts forever – a reduction in taxes today increases future tax liability. As a result, they would choose to save the entire tax cut to benefit themselves and their descendants in the future.<sup>42</sup> This would of course result in the increase in personal and national savings that was exactly the intention of the reform. As one might guess, however,

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<sup>39</sup> Hungerford, p. 68.

<sup>40</sup> Gravelle, J. G. & Marples, D. J. (2011). Tax Rates and Economic Growth. Congressional Research Service, 3.

<sup>41</sup> Hungerford, T. L. (2012). Taxes and the Economy: An Economic Analysis of the Top Tax Rates Since 1945. *Congressional Research Service*, 6.

<sup>42</sup> Gale, W. G. & Orszag, P. R. (2003). Fiscal Policy and Economic Growth: A Simple Framework. *Tax Notes*, 760.

individuals do not always act as economic models might predict that they will. At this point, it is useful to invoke the theories of behavioral models: “Unlike the traditional economic model for saving, behavioral models stress that individuals can and do make choices that are unfavorable to themselves. These models emphasize the role of inertia, the lack of self-control, and the limits of human intellectual capabilities.”<sup>43</sup> Inertia is resistance to change in a state of rest – numerous studies have been done that find that, when workers don’t have to choose to participate in a 401(k) plan, but rather have to request not to participate, a much larger number will begin to save.<sup>44</sup> The other two explanations are more self-evident – humans are intellectually limited, and can’t be expected to have perfect self-control, or perfect understanding of the current circumstances. So there are several barriers between tax rate reduction and the intended resulting change in national saving.

As discussed in the introduction, national savings is the sum of domestic and foreign investment. Although often talked about together, investment is has a clearer connection to the future well-being of the country, as investment translates directly into future capital income. A “reduction in investment reduces the capital stock owned by Americans, and therefore reduces the flow of future capital income. Either the domestic capital stock is reduced (if the reduction in national saving crowds out private domestic investment) or the nation is forced to mortgage its future capital income by borrowing from abroad (if the reduction in national saving generates a decline in net foreign investment). In either case,

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<sup>43</sup> Hungerford, T. (2007). Savings Incentives: What May Work, What May Not. In Lampeer, C. O. (Ed.), *American Economics and Politics, Volume 1* (pp. 73). New York: Nova Science Publishers, Inc.

<sup>44</sup> Madrian, B. C. & Shea, D. F. (2001). The Power of Suggestion: Intertia in 401(k) Participation and Savings Behavior. *Quarterly Journal of Economics*, 116(4), 1149-87.



future national income is lower than it otherwise would have been.”<sup>45</sup> In both cases – reduced domestic stock or excessive foreign borrowing – the country is being set up for a more dismal future than what may have been if investment were higher. Therefore, the effect of tax rate reduction on investments is essential to discuss. Taxes that are too high can discourage the investment rate in a variety of ways: through high statutory taxes on income, through too-high capital gains taxes, or through low depreciation stipends.<sup>46</sup> All of the aforementioned taxes and other economic components have to be kept low in order to boost the investment rate. Capital gains tax is especially associated with investment. Even if a reduction in these taxes is not possible, it is imperative that any future tax reform does not negatively affect the country’s investment rate.

### ***Human Capital Accumulation***

Human capital accumulation describes the amassing of a skill set that can be used by a worker to increase productivity in their job. Examples of human capital accumulation might include the acquisition of a formal education, on-the-job training, or other particular skills that someone might learn to increase their effectiveness in the workforce without increasing their hours, per se. The accumulation of human capital can be modeled in an clear and effective way – as a production function, wherein useful knowledge is the output, and “his own abilities, innate or acquired, the quality of co-operating inputs, the constraints and opportunities offered by the institutional setup-all determine the "technology"<sup>47</sup> that determines the shape of the

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<sup>45</sup> Gale, W. G. & Orszag, P. R. (2003). Fiscal Policy and Economic Growth: A Simple Framework. *Tax Notes*, 760.

<sup>46</sup>Engen, E. & Skinner, J. (1996). Taxation and Economic Growth. *National Tax Journal*, 49(4), 618-9.

<sup>47</sup> Ben-Porath, Y. (1967). The Production of Human Capital and the Life Cycle of Earnings. *Journal of Political Economy*, 75(4), 352.

production function. The relevant prices of such production determine how much human capital will be produced, and how much it will cost. The aforementioned prices not only include things such as tuition, but also the opportunity cost of increasing human capital – the amount of money that one could have been making in the labor force. The wage tax will become important in explaining why workers might choose to increase their human capital, or why they might not.

A brief side note: In a discussion of human capital accumulation, it is first important to make a distinction between the two types of human capital: specific and general. General human capital defines a skill set that can be taken to a variety of jobs, whereas specific human capital can only be utilized in a particular job. Specific human capital is much more complicated to model economically, and also very difficult to use in a tax discussion. If the firm chooses to pay for the specific training of the individual, an increase in business taxes might limit the amount of human capital that the firm is willing to provide its workers with.<sup>48</sup> Including yet another form of taxes in a human accumulation discussion is quite cumbersome, so for the sake of this paper, only general human capital will be discussed.

One of the important concepts when discussing human capital accumulation is the idea of time. As one might expect, the majority of self-betterment is taken on by the youngest individuals that would potentially find themselves in the work force. For example, it's rather uncommon to see persons over thirty in a college or university environment. One of the main reasons for this is that the young have a longer period over which they can receive returns on

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<sup>48</sup> Davies, J. & Whalley, J. (1991). Taxes and Capital Formation: How Important is Human Capital? In Bernheim, B. D. & Shoven, J. B. (Eds.), *National Saving and Economic Performance* (pp. 166). Chicago: University of Chicago Press.

their investment.<sup>49</sup> However, this forward-thinking attitude is slightly offset by human nature and a need for present utility. “Human capital investment bears utility costs today, but the benefits do not appear until next period and agents discount future consumption.”<sup>50</sup> So although the young are often seen increasing their human capital, the amassing of it is not nearly as inelastic as one might expect. After all, it is understandable to want present utility, especially if one is unsure of how their education or training will positively affect them in the future. This is why it is important to keep the cost of human capital fairly low. Because the principle input in human capital accumulation is time, the primary cost is forgone wages – what one could have been making if one was not working. Taxation on this wage essentially decreases the cost of the human capital, but it also reduces the potential future return. Therefore, one might naturally expect that labor income taxation has no significant effect on human capital accumulation, as both the cost and potential return are reduced by the same proportion.<sup>51</sup> In order to show that the effect is not simply negative, we must move away from a discussion of time and instead look at other potential human capital accumulation costs.

As anyone who has attempted to raise their human capital can attest, the forgone wages are not the only thing to be taken into account, although they are the only thing that can be explained in a simple economic model. “Direct educational expenditures on books, computers and traveling are important examples of non-verifiable investments in human capital. Moreover, costs of effort while enrolled in education, such as studying hard, sacrificing

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<sup>49</sup> Ben-Porath, Y. (1967). The Production of Human Capital and the Life Cycle of Earnings. *Journal of Political Economy*, 75(4), 352.

<sup>50</sup> Kapicka, M. (2003). Optimal Income Taxation and Human Capital Accumulation. *University of Chicago*, 32.

<sup>51</sup> Trostel, P. A. (1993). The Effect of Taxation on Human Capital. *Journal of Political Economy*, 101(2), 328.

leisure activities, preparing exams, are important immaterial costs that the government cannot verify easily.”<sup>52</sup> Clearly, there are other current costs at play besides the forgone wages, even if those costs are immeasurable even to the individual (such as the loss of leisure activities – not quantifiable, but certainly felt). Therefore, although an income tax appears to have little effect on human capital decisions, that is quite misleading. An income tax essentially reduces the potential return on human capital while doing nothing to reduce the non-verifiable costs that are also incurred. Current costs and future returns should not be thought of as a comparison, because clearly those who invest in themselves are projected to make more in the future. It should instead be thought of as a proportion – when taxation occurs, the total cost is being reduced by less than the total return, so the accumulation of human capital is discouraged.<sup>53</sup> Clearly, the more income taxes rise, the worse this effect is. Therefore, we can conclude that from the perspective of wage taxes, a reduction in taxes would have a positive effect on the decisions of workers to accumulate human capital.

### ***Entrepreneurship***

Entrepreneurs are important for inciting economic growth in a country. They can directly lead to technological advancement in their field.<sup>54</sup> Entrepreneurs can also create jobs, create profit for their shareholders, or be innovative in a way that leads to spillover into similar firms. Because of the high risk associated with an entrepreneurial endeavor, intuitively, high

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<sup>52</sup> Jacobs, B. & Bovenberg, A. L. (2010). Human capital and optimal positive taxation of capital income. *International Tax and Public Finance*, 17(5), 455.

<sup>53</sup> Trostel, p. 328.

<sup>54</sup> Gurley-Chavez, T. & Bruce, D. (2009). Do Tax Rate Cuts Encourage Entrepreneurial Entry? *U.S. Small Business Administration*, 3.

taxes might discourage such risk because less of the potential reward can be pocketed.<sup>55</sup>

Although many people might have the potential and innovative spirit to start their own business, high taxes may discourage those that are less inclined. According to one frustrated businessman, "As an entrepreneur, I experience first hand the horrors of our tax system. It has grown into a monstrous predator that kills incentives, swallows time, and chokes the hopes and dreams of many. We have abandoned several job-creating business concepts due to the tax complexities that would arise."<sup>56</sup> Because nearly everyone has this spark of economic spirit, this can have a grave effect on the economy.<sup>57</sup> Clearly, such a stunt to economic growth would not be desirable, which is why the effect on taxes on entrepreneurship is so extensively studied and considered to be so important.

Unfortunately, even the basic outline of our country's tax system can serve to limit entrepreneurial growth. Because of the progressivity of the tax system, entrepreneurs incur minimal taxes when their ideas fail to take off and they incur losses. On the other hand, those that succeed may find themselves in a much higher marginal tax bracket, which means that the incentives to turn significant profit are greatly reduced.<sup>58</sup> These effects of the marginal income tax rate are so severe that extensive effects on entrepreneurship have been measured in previous research. For example, Gentry and Hubbard found that "The Omnibus Budget Reconciliation Act of 1993, which raised the top marginal individual income tax rate, was estimated to have reduced the probability of entry into self-employment for upper-middle-

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<sup>55</sup> Burman, L. E. "The Future of Individual Tax Rates: Effects on Economic Growth and Distribution." Senate Committee on Finance. Washington D. C. 14 July, 2010. Retrieved from [http://www.taxpolicycenter.org/UploadedPDF/901361\\_burman\\_future\\_rates.pdf](http://www.taxpolicycenter.org/UploadedPDF/901361_burman_future_rates.pdf), 9.

<sup>56</sup> Engen, E. & Skinner, J. (1996). Taxation and Economic Growth. *National Tax Journal*, 49(4), 622.

<sup>57</sup> Gurley-Chavez & Bruce, p. 3.

<sup>58</sup> Cullen, J. B. & Gordon, R. H. (2007). Taxes and entrepreneurial risk-taking: Theory and evidence for the U.S. *Journal of Public Economics*, 91, 1480.

income households by as much as 20 percent.”<sup>59</sup> Clearly, in terms of the tax system's effect on entrepreneurship, the country starts out at a vast disadvantage simply due to the nature of the tax system's progressivity. Because entrepreneurial firms are less likely to enter the market from the start, it becomes increasingly more important that optimal tax strategies are used to encourage them as much as possible.

First, it is important when discussing the effects of taxes on entrepreneurship to understand the differences between the taxes faced by wage-and-salary workers and entrepreneurs. This difference in taxes can have a significant effect on how individuals will choose to earn their income. "Tax rates potentially affect decisions about whether to enter into the entrepreneurial sector or remain in the wage-and-salary sector because the tax system treats entrepreneurial income differently than wage-and-salary income."<sup>60</sup> This difference primarily arises from the fact that in the case of wage-and-salary workers, an employer is present that is responsible for withholding taxes for the employee. On the other hand, entrepreneurs withhold their own taxes, which can lead to issues with voluntary compliance.<sup>61</sup> Because entrepreneurs have more opportunity to evade their taxes, they can misreport their income to mislead the government about how much they actually owe. This is only one example of how their taxes can differ from traditional wage-and-salary workers. In addition, many expenses incurred by an entrepreneur are tax-deductible, but also useable in real life.<sup>62</sup>

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<sup>59</sup> Gentry, W. M. & Hubbard, R. G. (2005). "Success Taxes," Entrepreneurial Entry, and Innovation. In Jaffe, A. B., Lerner, J. & Stern, S. (Eds.), *Innovation Policy and the Economy* (pp. 88). Cambridge, Massachusetts: The MIT Press.

<sup>60</sup> Gurley-Chavez, T. & Bruce, D. (2009). Do Tax Rate Cuts Encourage Entrepreneurial Entry? *U.S. Small Business Administration*, 3.

<sup>61</sup> Bruce, D. (2000). Effects of the United States tax system on transitions into self-employment. *Labour Economics*, 7, 546.

<sup>62</sup> Bruce, p. 546.

For example, a self-starter might find cause to buy a car for their business, but also be able to use it in everyday life. Such a car could be tax deductible for an entrepreneur, whereas a wage-and-salary worker would have to pay tax on their vehicle. In addition, there are other types of taxes that may benefit entrepreneurs over wage-and-salary workers. Capital gains, which are generally less heavily taxed than income, provide an outlet for entrepreneurs to save even more on their taxes. Because an entrepreneur can file many of their labor returns as capital gains with ease, they can take advantage of this lowered rate.<sup>63</sup> All of these effects essentially serve to make the tax rate potentially far lower for an entrepreneur than for their wage-and-salary counterparts. However, there are other things to consider – traditional work offers a steady income, unlike entrepreneurial work. Additionally, there are clearly more fringe benefits to be found in the world of wage-and-salary employees.<sup>64</sup> All of this is to make the point that the taxes faced by the general population and entrepreneurs cannot be treated equally.

Due to the reasons stated above, it has been shown that entrepreneurs have significant tax benefits. However, if the income tax rate were lowered, what would be the incentive to utilize entrepreneurship as a means to either lessen taxes or evade them altogether? Intuitively, it would seem that the incentive would be greatly reduced as the potential benefit was diminished. Research has shown that that is indeed the case – when we only examine the personal income tax rate, it is found that the relationship between taxes and entrepreneurship is positive. Cullen and Gordon summed it up as follows: “Such a tax cut reduces the taxes saved from deducting business losses, while profits frequently remain taxed at the corporate tax rate.

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<sup>63</sup> Gentry, W. M. & Hubbard, R. G. (2005). “Success Taxes,” Entrepreneurial Entry, and Innovation. In Jaffe, A. B., Lerner, J. & Stern, S. (Eds.), *Innovation Policy and the Economy* (pp. 92). Cambridge, Massachusetts: The MIT Press.

<sup>64</sup> Nelson, S. C. (2008). Tax Policy and Sole Proprietorships: A Closer Look. *National Tax Journal*, 61(3), 427.

As a result, risk taking is discouraged. In addition...a lower personal tax rate implies less risk sharing with the government, in itself making entrepreneurial risk taking less attractive to risk-averse individuals. The potential tax savings from going into business simply to reclassify earnings as corporate rather than personal income for tax purposes also falls when personal tax rates fall”<sup>65</sup> Simply stated, less potential benefits from a tax perspective mean that fewer people will make the additional effort to be a self-starter. Cullen and Gordon even found a quantitative value for the positive effect of taxes on entrepreneurship, claiming that a 5% cut in personal tax rates would reduce entrepreneurial risk taking by 40%.<sup>66</sup> This is a large elasticity, so such a surprising positive correlation is particularly disturbing. However, personal income tax rates are only part of the picture.

As stated previously, the taxes faced by entrepreneurs and wage-and-salary workers vary dramatically, not only in their magnitude, but in their makeup. Although entrepreneurs pay income taxes, they are also affected by capital gains and corporate taxes. Gurley-Chavez and Bruce, in treating the wages faced by each group as different variables, found that although a decrease in marginal tax rate of a wage worker would decrease the likelihood of entry into the entrepreneurial sector, a decrease in marginal tax rates across the board would actually increase the likelihood of entry.<sup>67</sup> Of course, because of the two conflicting effects, it is hard to predict the magnitude of the increase in entrepreneurship. However, this is the intended result of a tax cut, so it is comforting to know that the effect is not entirely opposite of what was conjectured. A study of sole proprietors by Nelson led to the conclusion that higher marginal

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<sup>65</sup> Cullen, J. B. & Gordon, R. H. (2007). Taxes and entrepreneurial risk-taking: Theory and evidence for the U.S. *Journal of Public Economics*, 91, 1501.

<sup>66</sup> Cullen & Gordon, p. 1501.

<sup>67</sup> Gurley-Chavez, T. & Bruce, D. (2009). Do Tax Rate Cuts Encourage Entrepreneurial Entry? *U.S. Small Business Administration*, 27.



tax rates for sole proprietors would have three main effects: reduced investments, reduced labor (either less was hired or they were paid less), and discouraged growth of the small business.<sup>68</sup> So clearly the correlation is negative, as would be intended by policy-makers. However, because of the positive relationship found when only looking at personal income taxes, we can assume that the resulting entry into the entrepreneurial sector as the result of a tax cut is limited. As such, the effect may not be large enough to make such a tax cut worthwhile from an entrepreneurial perspective.

Some final considerations: Not all entrepreneurs are created equal. There are entrepreneurs that are quite innovative, and they will of course bring about the greatest change to the economy from a growth perspective. On the other hand, there are entrepreneurs that have relatively safe ideas that will likely succeed, but may not generate as much growth. Most research treats these widely varying groups as a single type of person, when in fact that may not be the case. An open question in the research is whether the entrepreneurs that are discouraged by high taxes are those that are particularly innovative, or those that have particularly safe ideas.<sup>69</sup> Additionally, different entrepreneurs may work for a varying number of hours. There are those that have wage-and-salary jobs and a sole-proprietorship on the side. However, there are also those whose full time profession is their small business. These are also often treated as one type of group, which can be somewhat misleading. Gurley-Chavez and Bruce found that “full time” entrepreneurs were far more responsive to changes in the tax

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<sup>68</sup> Nelson, S. C. (2008). Tax Policy and Sole Proprietorships: A Closer Look. *National Tax Journal*, 61(3), 427.

<sup>69</sup> Gentry, W. M. & Hubbard, R. G. (2005). “Success Taxes,” Entrepreneurial Entry, and Innovation. In Jaffe, A. B., Lerner, J. & Stern, S. (Eds.), *Innovation Policy and the Economy* (pp. 89). Cambridge, Massachusetts: The MIT Press.

rate.<sup>70</sup> This is important because the “full time” entrepreneurs will intuitively have more potential for hiring, for technological breakthroughs, and for innovative spillover – all of the elements that make entrepreneurships good for growth. Although general entrepreneurial group research is helpful in seeing overall patterns, in the future it would be nice if the subgroups and nuances contained in such a diverse group were fully explored. In that way, we could examine the effect of taxes on those entrepreneurs that have the greatest effect on the growth of the economy.

## Potential Disadvantages of Tax Rate Reduction

### ***Deficit***

Any decrease in tax rates must be matched by a corresponding decrease in government spending. In government cannot reduce their spending to the same degree, an alternate source of funding must be found. Typically, a tax reduction would be offset by a decrease in the budget surplus, or in the case of the United States, an increase in the deficit. This increase in the deficit is problematic for various reasons. If the deficit increases, several things can happen in order to offset it. Either public saving will rise to fill in the gap, domestic investment will decline, or net foreign investment will decline.<sup>71</sup> As we discussed in the section on savings and investment, it is nearly an impossibility for private savings to rise up to meet the funding needs of the tax reduction. Therefore, a deficit increase will always be offset by a decrease in investment, which has a dramatic effect on the future income of the country.

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<sup>70</sup>Gurley-Chavez, T. & Bruce, D. (2009). Do Tax Rate Cuts Encourage Entrepreneurial Entry? *U.S. Small Business Administration*, 31.

<sup>71</sup>Elmendorf, D. W. & Mankiw, N. G. (1999). Government Debt. In Taylor, J. B. & Woodford, M. (Eds.), *Handbook of Macroeconomics*. (pp. 1630). San Diego: Elsevier, Inc.

Obviously, reduced future income will lead to decreased economic growth, so this is a state of events that is best avoided.

How can it be known that public savings will not increase to meet the needs of the increasing deficit? As discussed in a previous section, if households were fully rational and took the well-being of their descendants into account, any money gained as a result of a tax rate decrease would be saved. Those households, if perfectly rational, would understand that an increase in income today will probably result in a matching decrease sometime in the future.<sup>72</sup> However, it has been shown in numerous studies that households are not perfectly rational, exactly as one might expect.<sup>73</sup> Therefore, personal savings do not increase to avoid growing the budget deficit, and since national savings is equal to national investment, the future investments of the country are affected.

When national saving is reduced as a result of an increased deficit, investment can be affected in two ways. Either domestic investment can fall, or net foreign investment can fall. Bear in mind that net foreign investment might be negative, which would imply a situation wherein more foreign parties invest in the United States than the other way around. So a decrease in net foreign investment could be thought of as an increase in the amount being borrowed from foreign investors. Each type of investment, direct and foreign, will have a different effect on future economic growth. "Reduced domestic investment over a period of time will result in a smaller domestic capital stock, which in turn implies lower output and

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<sup>72</sup> Gale, W. G. & Orszag, P. R. (2003). Fiscal Policy and Economic Growth: A Simple Framework. *Tax Notes*, 760.

<sup>73</sup> Bernheim, B. D. (1987). Ricardian Equivalence: An Evaluation of Theory and Evidence. *NBER Working Paper Series*.

income. With less capital available, the marginal product of capital will be higher, raising the interest rate and the return earned by each unit of capital.”<sup>74</sup> A reduction in domestic investment affects the future economy primarily through the lack of future capital stock. A lack of capital stock can severely limit economic growth. Similarly, reduced net foreign investment can either mean that less capital stock is gained from investment abroad, or that more capital stock is owed as a result of the investments in the country by foreign parties.<sup>75</sup> In either case, future capital stock is once again reduced as a result.

As was briefly mentioned above, when there is less domestic investment, interest rates may rise in order to serve as an incentive for those that might be enticed to invest.<sup>76</sup> This relationship between debt and interest rates is often cited as the most important and dangerous effect of a large deficit. Increased interest rates serve to slow down an entire economy by limiting the borrowing power of individuals and companies. This in turn results in less spending, which will hinder potential future growth in the economy. So it would appear that if interest rates could be kept low, there would be no effect on the economy of an increased deficit. However, regardless of whether interest rates rise, the economic future of the country is severely hindered. In order to bring the savings and investment equality back into balance without increasing interest rates, a good deal of investments would have to be sold. Then the deficit increase would be offset by an increase in current capital inflows.<sup>77</sup> However, those capital inflows come at a cost – the sale of investments that would have generated future

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<sup>74</sup> Elmendorf, D. W. & Mankiw, N. G. (1999). Government Debt. In Taylor, J. B. & Woodford, M. (Eds.), *Handbook of Macroeconomics*. (pp. 1630). San Diego: Elsevier, Inc.

<sup>75</sup> Elmendorf & Mankiw, p. 1630.

<sup>76</sup> Gale, W. G. & Orszag, P. R. (2003). Fiscal Policy and Economic Growth: A Simple Framework. *Tax Notes*, 760.

<sup>77</sup> Gale & Orszag, p. 760.

income. So even in that case, the economy's growth is hindered. Another option is that a country might want to offset its increased interest rates with expansionary policy in order to bring them back down. However, the resulting inflation will leave the interest rates largely unchanged in the long-run, even if they are nominally the same as before.<sup>78</sup> This is important because the argument has historically been made that a deficit increase only has a negative effect if interest rates are affected. We have just shown here that this is not the case – any increase in deficit will absolutely lower future economic growth unless it is entirely offset by private saving.

A few final closing thoughts: First, economic equalities aside, a deficit increase can simply serve to make a country *look* bad internationally, and those effects cannot be underestimated. If confidence in the United States is undermined by its questionable fiscal policy, the dollar might collapse in foreign exchange markets which would have a dangerous effect on the economy as a whole.<sup>79</sup> As foreign investors lose confidence in dollar-denominated assets, they would reject US investments in the future, and the dollar would depreciate sharply.<sup>80</sup> Such a lack of international confidence could spell disaster for a country that relies so heavily on foreign investment. It is better not to even mention the effect that such an international crisis would have on the future economic growth of the country. Second, a steady increase in the deficit can simply lead to a different mindset in policymakers and in the public.

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<sup>78</sup> Elmendorf, D. W. & Mankiw, N. G. (1999). Government Debt. In Taylor, J. B. & Woodford, M. (Eds.), *Handbook of Macroeconomics*. (pp. 1631). San Diego: Elsevier, Inc.

<sup>79</sup> Peterson Institute for International Economics. (May 2001). *The International Implications of Paying Down the Debt*. Retrieved from <http://www.iie.com/publications/pb/pb.cfm?ResearchID=75>.

<sup>80</sup> Elmendorf, D. W. & Mankiw, N. G. (1999). Government Debt. In Taylor, J. B. & Woodford, M. (Eds.), *Handbook of Macroeconomics*. (pp. 1634). San Diego: Elsevier, Inc.

Government borrowing serves to reduce the discipline that should be in place in regards to the budget. When additional spending occurs without a matching increase in revenue, over time, less importance is placed on whether the additional spending is actually necessary.<sup>81</sup> Such a mindset is dangerous to get into, as the deficit may spiral out of control. Such a spiral would only increase the negative effects of the deficit outlined above, and would therefore be quite dangerous.

### ***Income Inequality***

Income inequality is the phenomenon that occurs when, simply speaking, the rich get richer and the poor get poorer within a society. There are a variety of reasons why income inequality is best avoided, which we will get into in the following section. Income inequality is not a certainty of tax rate reduction, like the deficit – instead, it is something that can occur when the tax rate reduction is designed without keeping income inequality explicitly in mind. “Research suggests that changes in tax policy do not have much impact on the longer-term trend or rate of change in inequality, but can have a one-time effect on the level of income inequality”<sup>82</sup> Due to this potential one-time effect on the progressivity of the tax rate, income inequality requires a certain amount of thought to avoid. As we will now see, that added thought is worth the effort.

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<sup>81</sup> Elmendorf & Mankiw, p. 1633.

<sup>82</sup> Hungerford, T. L. (2011). Changes in the Distribution of Income Among Tax Filers Between 1996 and 2006: The Role of Labor Income, Capital Income, and Tax Policy. *Congressional Research Service*, 2.

Why is income inequality considered a problem? There are three main reasons – poverty is increased, well-being is reduced, and social cohesion is reduced.<sup>83</sup> There have even been links made to negative impacts on an individual's health as a result of income inequality.<sup>84</sup> It is not only the poor that benefit from redistribution of income – the non-poor can be positively affected as well. In fact, it has been conjectured that it may in many cases be in the best interest of the non-poor to redistribute the wealth more evenly. Redistribution can be characterized as a public good for various reasons – perhaps the middle and high income classes benefit from knowing that the poor have enough income, they may profit from a reduction in crime, or they may enjoy knowing that they have a safety net in the case that they themselves become poor.<sup>85</sup> For all of these reasons, it is clearly in everyone's best interest to reduce inequality as much as possible and redistribute the wealth in an effective way through taxes.

Our progressive tax system in the United States is designed to reduce after-tax income inequality as compared to pre-tax earnings. Interestingly, however, the system is not entirely progressive. Although the federal individual income tax is graduated, that is not necessarily an indication of an entirely graduated system. The actual tax burden can vary widely between tax filers in each category.<sup>86</sup> For example, Social Security and Medicare constitute a 15.3% tax rate on wages and salaries. However, this is only up to a particular maximum taxable limit.

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<sup>83</sup> Gravelle, J. G. & Marples, D. J. (2011). Tax Rates and Economic Growth. *Congressional Research Service*, 10-1.

<sup>84</sup> Gravelle & Marples, p. 10-1.

<sup>85</sup> Gravelle, J. G. & Shevdov, M. (2004). Distribution of the Tax Burden Across Individuals: An Overview. *Congressional Research Service*, 5.

<sup>86</sup> Hungerford, T. L. (2011). Changes in the Distribution of Income Among Tax Filers Between 1996 and 2006: The Role of Labor Income, Capital Income, and Tax Policy. *Congressional Research Service*, 5-6.

Therefore, the tax system is slightly progressive for the lower 80% of the population, but becomes regressive for the highest 20% (because only part of their income is taxed beyond the limit).<sup>87</sup> As of 2013, this maximum taxable limit is \$113,700.<sup>88</sup> That means that those who earn above that amount experience a regressive tax system in terms of Social Security and Medicare.

One big part of the difference in tax responsibilities at different earning levels is the presence of a significant amount of capital gains. Those at the upper end of the income spectrum are obtaining larger and larger portions of their income through capital gains and dividends since the mid-1990s.<sup>89</sup> This is quite significant due to the fact that capital gains and dividends are taxed much less severely. In fact, that tax has been shrinking – capital gains were taxed less in 2006 than they were in 1996, a result of the 2003 tax cuts.<sup>90</sup> This serves as an important reminder that even if the income tax system remains progressive, the other types of taxes can also have an effect on overall income inequality.

In conclusion, it is always important to keep income inequality in mind when designing a tax system, or revamping one that is already in place. If one wishes to reduce tax rates overall, it is true that the progressive system will ensure that taxes are better distributed after taxes than before them. However, it is important to pay attention to the fact that they should be better distributed after a new tax system than under the old one – it is important not to increase income inequality simply as a result of an oversight.

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<sup>87</sup> Hungerford, p. 5-6.

<sup>88</sup> Social Security Administration. (2013, Feb. 6). *Social Security and Medicare tax rates; maximum taxable earning*. Retrieved from [http://ssa-custhelp.ssa.gov/app/answers/detail/a\\_id/240/~social-security-and-medicare-tax-rates%3B-maximum-taxable-earnings](http://ssa-custhelp.ssa.gov/app/answers/detail/a_id/240/~social-security-and-medicare-tax-rates%3B-maximum-taxable-earnings).

<sup>89</sup> Hungerford, T. L. (2012). Taxes and the Economy: An Economic Analysis of the Top Tax Rates Since 1945. *Congressional Research Service*, 14.

<sup>90</sup> Hungerford, T. L. (2011). Changes in the Distribution of Income Among Tax Filers Between 1996 and 2006: The Role of Labor Income, Capital Income, and Tax Policy. *Congressional Research Service*, 12.



## Tax Expenditures

As shown previously, it is certainly not in the best interest of the country to increase the deficit in order to fund a decrease in taxes for its citizens. Instead, many policymakers have introduced the idea of broadening the tax base in order to finance such a dramatic change. One way to broaden the tax base is to eliminate or reduce certain tax expenditures. A tax expenditure is essentially a policy that mandates an exemption from taxes with regard to certain expenses. This is a tempting route for policymakers to go down, as a total elimination of tax expenditures would allow all marginal tax rates to be reduced by 44 percent.<sup>91</sup> According to Burman, Geissler and Toder, “That means that the top tax rate could be cut from 35 percent to about 20 percent on a revenue-neutral basis.”<sup>92</sup> Of course eliminating tax expenditures does not come without its own set of complications. It is worthwhile to examine exactly what would be eliminated, and if it is even a good idea to eliminate it in the first place. Tax expenditures can be examined in a handful of major categories: saving and investment, consumption (which includes health, education, and charity), owner-occupied housing, and labor supply.<sup>93</sup> Although there are over 200 separate tax expenditures, 90% of their total cost comes from only the top 20.<sup>94</sup> Many of these large tax expenditures will be discussed in depth below.

A case can be made for several different tax expenditures solely because they provide incentive for the tools of economic growth explored earlier in this paper. Two examples of such

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<sup>91</sup>Burman, L. E., Geissler, C. & Toder, E. J. (2008). How Big Are Total Individual Income Tax Expenditures, and Who Benefits From Them? *The American Economic Review*, 98(2), 82.

<sup>92</sup> Burman, L., Geissler, C., & Toder, E. (2008). The Growth, Distribution, and Opportunity Cost Of Individual Income Tax Expenditures, 10.

<sup>93</sup> Gravelle, J. G., & Hungerford, T. L. (2012). The Challenge of Individual Income Tax Reform: An Economic Analysis of Tax Base Broadening. *Congressional Research Service*, 4.

<sup>94</sup> Gravelle & Hungerford, p. 5.

tools are saving and investment. It has been previously explained quite extensively why investment is important for the future economic growth of a country, so taxes should certainly not be raised on such endeavors. However, “savings and business provisions that reduce the tax on the return to capital add up to almost a third of cost of tax expenditures. If owner-occupied housing (which could also be viewed as an investment) is also included, then the share is almost half (44%).”<sup>95</sup> It could be quite challenging to eliminate this 44% of tax expenditures when it is undeniably important to entice the population to save and invest at all costs. Two particularly interesting cases of saving incentives can be found in home-ownership and retirement. As mentioned above, home-ownership can be viewed not only as a source of social well-being, but also as an investment. Home-ownership provides an automatic nest egg that increases in value with each mortgage payment. This effect can be especially important for middle-income families that do not make optimal savings choices.<sup>96</sup> Retirement is a similar case – it has been shown that tax expenditures increase retirement savings due to “mental accounting.” It has been shown that it is a simple matter to change the retirement savings patterns of employees – it has been proven that the default plan actually matters. Employees that are automatically signed up by employers are far more likely to keep up with putting money into their account.<sup>97</sup> Because employees are clearly easily swayed in terms of retirement saving, a simply up-front tax benefit to attract them to saving initially may make the difference between a lifetime of good retirement choices and not planning enough for their future.

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<sup>95</sup> Gravelle & Hungerford, p. 5.

<sup>96</sup> Gravelle, J. G., & Hungerford, T. L. (2012). The Challenge of Individual Income Tax Reform: An Economic Analysis of Tax Base Broadening. *Congressional Research Service*, 13.

<sup>97</sup> Gravelle & Hungerford, p. 9.

There are also benefits to tax expenditures that are unrelated to savings. For example, the exclusions of Social Security and Medicare, earned income credit, and child credit are specifically geared at lower income individuals. These account for approximately 11% of total revenue loss. Because they only apply to low- or moderate-income individuals, an elimination of these tax expenditures would reduce the progressivity of the tax system.<sup>98</sup> The resulting increase in income inequality would be best avoided, as previously outlined. Therefore, it is unlikely that such tax expenditures would be eliminated, as it would increase poverty in the lower classes of taxpayers. One particularly interesting component of such lower-income tax expenditures is the earned income credit. As mentioned in the first section on labor, labor force participation is vital to ensure future economic growth. It is especially difficult to get single parents to enter the labor force due to the high fixed costs of work for such individuals. The earned income credit is designed to increase labor force participation by single parents, which we have shown should be encouraged.<sup>99</sup> Therefore, the elimination of such a tax expenditure is unlikely.

Finally, there are many tax expenditures relating directly to health. Although they do not directly relate to a factor of economic growth previously mentioned, keeping one's citizens healthy is an issue of social welfare. Two such tax expenditures are the exclusion of health benefits provided by employers, and the deduction for health expenses. The exclusion of health benefits provided by employers plays a key role in dealing with market failures that result in

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<sup>98</sup> Gravelle & Hungerford, p. 15.

<sup>99</sup> Gravelle, J. G., & Hungerford, T. L. (2012). The Challenge of Individual Income Tax Reform: An Economic Analysis of Tax Base Broadening. *Congressional Research Service*, 18.

inadequate coverage among the non-elderly population.<sup>100</sup> The deduction for health expenses works differently – there is a floor, which is 10% of income as of 2013, above which out-of-pocket health costs can be processed as an itemized deduction. This tax expenditure operates under the assumption that these expenses are involuntary and as such, might limit one’s ability to pay their taxes. 10% is historically high, so it is unlikely that the floor could be raised much higher than it already is.<sup>101</sup> Therefore, it is unlikely that health tax expenditures can be eliminated as they provide an important social benefit to the general population.

The economic and social benefits of the tax expenditures aside, it would be quite difficult to reduce or eliminate them for the sole reason of popularity. “Of course, eliminating all tax expenditures is neither politically feasible nor desirable. Some advance important public policy goals in a comparatively effective manner and some (not necessarily the same ones) enjoy overwhelming bipartisan support.”<sup>102</sup> Tax expenditures are not only desirable from a government perspective – much of the general public supports these deductions even if they don’t personally benefit from them. Only 48% of survey respondents stated that they would eliminate all tax deductions in return for lowered tax rates, although only one-third of individuals are able to profit from such deductions.<sup>103</sup> It is evident that there would be significant burdens to broadening the tax base in this manner solely for the reason that it would be generally unpopular to do so.

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<sup>100</sup> Gravelle & Hungerford, p. 16.

<sup>101</sup> Gravelle & Hungerford, P. 16.

<sup>102</sup> Burman, L., Geissler, C., & Toder, E. (2008). *The Growth, Distribution, and Opportunity Cost Of Individual Income Tax Expenditures*, 10.

<sup>103</sup> Gravelle, J. G., & Hungerford, T. L. (2012). *The Challenge of Individual Income Tax Reform: An Economic Analysis of Tax Base Broadening*. *Congressional Research Service*, 28.

It is important to remember that the tax expenditures system is not always as straightforwardly beneficial as it appears. One of its main flaws is that wealthy taxpayers generally benefit more from the deductions than lower- and middle-income individuals. One of the main occurrences of this inequality can be found on the tax expenditures that deal with capital gains and dividends.<sup>104</sup> Although these pertain quite closely to saving and investment, and should therefore theoretically remain untouched, the wealthy are far more likely to have such investments and therefore their after-tax incomes are raised significantly more than lower taxpayers. This effect is so greatly regressive that as a result, the entire tax expenditure system structure is regressive.<sup>105</sup> This, of course, was never the intended result, as this might once again lead to increased income inequality. It would be worth examining whether there is a way to retain tax expenditure benefits for those with low-income, while remodeling a system that should have always been progressive in order to make it so. Perhaps such a change could come about along with tax base broadening.

## **Case Study: 2001 Bush Tax Cuts**

Now that we have examined several possible benefits and disadvantages of a tax reduction, we will examine one such attempt at tax reform that took place over 10 years ago – the 2001 Bush Tax Cuts. The actual rate changes associated with the tax cuts can be seen in the Appendix. According to George W Bush, “These are the basic ideas that guide my tax policy: lower income taxes for all, with the greatest help for those most in need. Everyone who pays

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<sup>104</sup> Burman, L. E., Geissler, C. & Toder, E. J. (2008). How Big Are Total Individual Income Tax Expenditures, and Who Benefits From Them? *The American Economic Review*, 98(2), 83.

<sup>105</sup> Burman, Geissler, Toder. The Growth, Distribution, and Opportunity Cost Of Individual Income Tax Expenditures, 11.

income taxes benefits — while the highest percentage tax cuts go to the lowest income Americans. I believe this is a formula for continuing the prosperity we've enjoyed, but also expanding it in ways we have yet to discover. It is an economics of inclusion. It is the agenda of a government that knows its limits and shows its heart.”<sup>106</sup> Although this sounds quite beneficial on the surface – tax cuts for lower income individuals would serve to reduce income inequality and recharge the economy – we will see that the results were not quite on par with such expectations. More specifically, the Economic Growth and Tax Relief Reconciliation Act (shortened to EGTRRA) reduced income tax rates, repealed the estate tax, and limited the taxation of education, children, saving and marriage.<sup>107</sup> EGTRRA reduced income tax rates by introducing the 10% tax bracket and promoted saving by reducing the tax on long term capital gains and dividends.<sup>108</sup> However, despite the good intentions and the big promises of what they would mean for economic growth, the decade following the tax cuts was the decade with the slowest average annual growth since World War II. Even if one doesn't include the Great Recession and simply looks at the years 2001 to 2007, the growth is still slower than any other period.<sup>109</sup> So clearly, the tax cuts didn't get the economic response that was expected of them. But what specifically went wrong?

First, let's consider some of the major components of economic growth that were discussed in the first section. Following a tax cut, labor is expected to increase because the

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<sup>106</sup> The White House. *The President's Agenda for Tax Relief*. Retrieved from <http://georgewbush-whitehouse.archives.gov/news/reports/taxplan.html>.

<sup>107</sup> Gale, W. G., & Potter, S. R. (2002). An Economic Evaluation of the Economic Growth and Tax Relief Reconciliation Act of 2001, 1.

<sup>108</sup> Hungerford, T. L. (2011). Changes in the Distribution of Income Among Tax Filers Between 1996 and 2006: The Role of Labor Income, Capital Income, and Tax Policy. *Congressional Research Service*, 10.

<sup>109</sup> The New York Times. (2010, Nov. 18). Were the Bush Tax Cuts Good for Growth? Retrieved from <http://economix.blogs.nytimes.com/2010/11/18/were-the-bush-tax-cuts-good-for-growth/>.

effective wage has grown. However, there is no evidence to support that the 2001 tax cuts caused anyone the labor force to increase. In fact, the labor force participation rate declined following 2001 and has yet to return to the level it was at in 2000.<sup>110</sup> It has also been shown that increased investment is an expected outcome of decreased taxes. This is a result of reduced capital gains taxes. The 2001 tax cuts did not do a good job of specifically targeting new investment, and instead reduced the capital gains taxes for all. This means that “much of their potential impact on growth is diluted by providing windfall gains to owners of existing capital”<sup>111</sup> So although investment may have increased as intended, the net effect was much smaller than it may have otherwise been if previously existing investments did not also benefit from the tax reduction. A third area where lowered taxes are expected to incite growth is in entrepreneurship. However, the rate at which start-up businesses created jobs fell during the decade following the 2001 tax cuts.<sup>112</sup> Therefore, these mechanisms of economic growth that were expected to be greatly affected by the lowered taxes experienced little to no change. On the other hand, the detriments of tax reduction were not difficult to find.

The two major potential problems with a tax cut are the increase in the deficit and increased income inequality. Both of these were a result of the EGTRRA. It was predicted before the Bush tax cuts that federal budget surpluses would gradually rise from 2.7% of GDP in 2001 to 5.3% of GDP in 2011. However, within a few years, budget deficits had been projected, in

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<sup>110</sup> The New York Times.

<sup>111</sup> Gale, W. G. & Orszag, P. R. (2004). An Economic Assessment of Tax Policy in the Bush Administration, 2001-2004. *Boston College Law Review*, 45(5), 1197.

<sup>112</sup> The New York Times. (2010, Nov. 18). Were the Bush Tax Cuts Good for Growth? Retrieved from <http://economix.blogs.nytimes.com/2010/11/18/were-the-bush-tax-cuts-good-for-growth/>.

large part because of the \$1 trillion price tag over the course of ten years.<sup>113</sup> Obviously, there were other factors during this time, but the tax cuts and their significant cost cannot be ignored. Because the deficit increase was so great, it is clear that private saving did not rise to match the reduction in public saving, as was predicted by the irrationality of households. Income inequality was negatively affected as well, and this is one of the major complaints regarding the aftermath of the tax cuts. It has been argued by many opponents of the bill that it benefited the wealthy disproportionately.<sup>114</sup> For example, Gale and Potter claim that “By any reasonable measure, the tax cut makes the tax system less progressive with respect to current income and provides particularly large benefits to households in the top 1 percent of the income distribution.”<sup>115</sup> But how could this be the case when the plan clearly outlines greater tax breaks for lower income individuals? It turns out that the tax cut system of EGTRRA was misleading – although the numbers give the appearance of a tax cut favoring lower income taxpayers, the percentage change in after-tax income shows the biggest benefits go to the very top level (the top 1%).<sup>116</sup> Whether this design was intentional or a happy accident for the top 1%, it clearly only leads to an increase in the income inequality experienced by our society. So although none of the intended tax reduction benefits appeared to come true, that both of the potential problems came to pass cannot be denied.

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<sup>113</sup> Hungerford, T. L. (2012). The 2001 and 2003 Bush Tax Cuts and Deficit Reduction. *Congressional Research Service*, 2.

<sup>114</sup> Calomiris, C. W. & Hassett, K. A. (2002). Marginal Tax Rate Cuts and the Public Tax Debate. *National Tax Journal*, 55(1), 119.

<sup>115</sup> Gale, W. G., & Potter, S. R. (2002). An Economic Evaluation of the Economic Growth and Tax Relief Reconciliation Act of 2001, 2.

<sup>116</sup> Gravelle, J. G. & Shevdov, M. (2004). Distribution of the Tax Burden Across Individuals: An Overview. *Congressional Research Service*, 24.



## Conclusion

A tax cut is a form of expansionary fiscal policy that is meant to shift the aggregate demand curve and therefore positively affect GDP and economic growth for a country. There will potentially be signs that economic growth is occurring in the form of increases in labor, savings, investment, human capital accumulation, and entrepreneurship. Increases in these components of the economy signify that more profitable times are ahead for a country. However, a seemingly inevitable side effect of tax cuts is an increased deficit, and amplified income inequality also seems hard to avoid. For example, following the 2001 tax cuts, there were no positive effects seen in labor force participation and entrepreneurship, but the deficit did increase quite a bit. Additionally, it seems extremely challenging to finance tax cuts without increasing the deficit – broadening the tax base by eliminating or reducing tax expenditures is more complicated than it seems on the surface.

My conclusion is that when it comes to tax cuts, it is sure that there will be negative effects on the economy via the deficit increase and possibly income inequality, but the positive effects are far from certain. As we saw in the first section, there may be alternatives to discretionary fiscal policy such as tax cuts – for example, automatic stabilizers work with the economy and require no thought or action. Monetary policy is also a viable option, and can be implemented and revoked far more quickly and easily. I believe that tax cuts are only considered in many cases because they are so flashy and make a politician look good. It is my opinion that in the future, choices should be made that most benefit the entire economy rather than most benefiting the popularity of a single individual.

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## Appendix

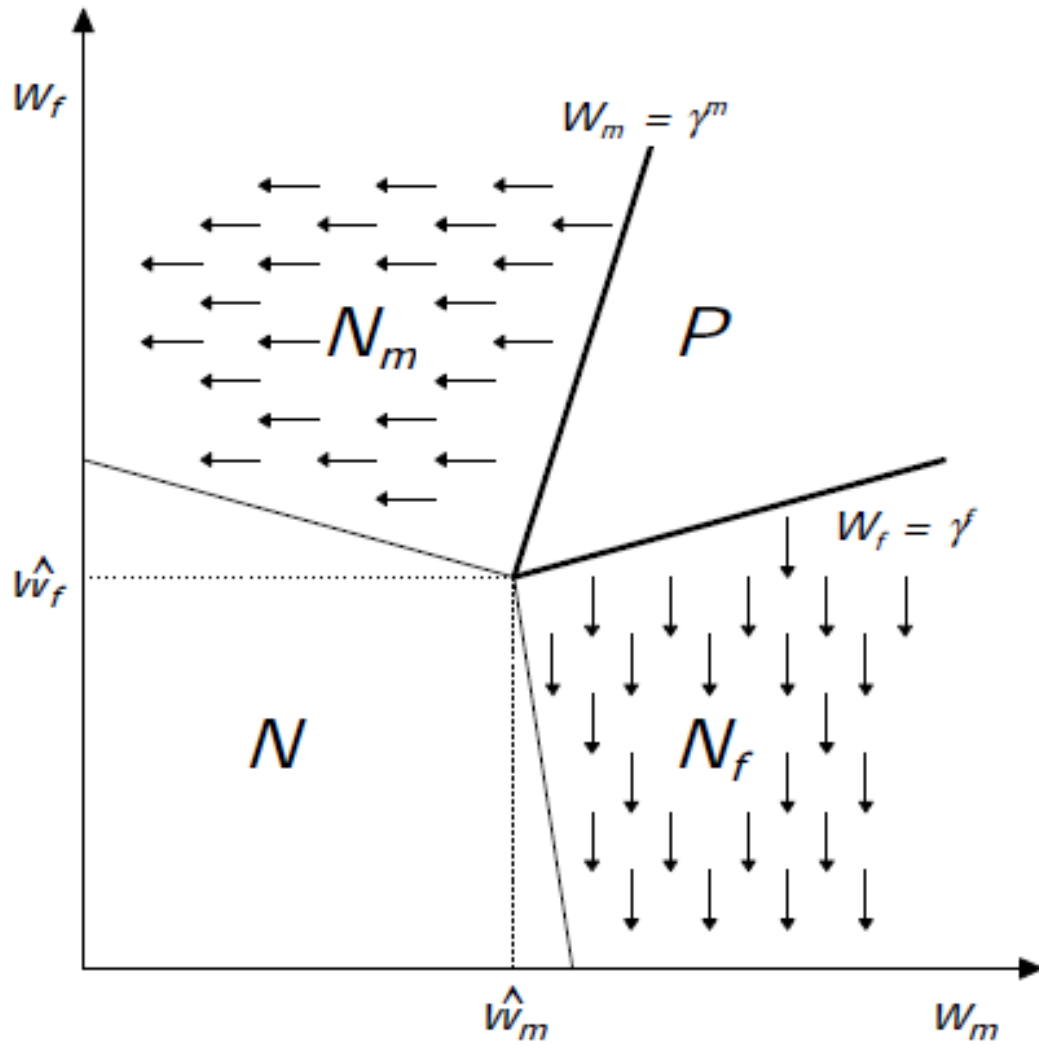


Figure 1: Participation and Non-Participation Sets

**Tax Rates by 2001 Taxable Income\***

<b>Current Code</b>			<b>Bush Plan**</b>		
<u>Single</u>			<u>Single</u>		
\$0	\$27,050	15%	\$0	\$6,000	10%
\$27,050	\$65,550	28%	\$6,000	\$27,050	15%
\$65,550	\$136,750	31%	\$27,050	\$136,750	25%
\$136,750	\$297,350	36%	\$136,750	--	33%
\$297,350	--	39.6%			
<u>Head of Household</u>			<u>Head of Household</u>		
\$0	\$36,250	15%	\$0	\$10,000	10%
\$36,250	\$93,650	28%	\$10,000	\$36,250	15%
\$93,650	\$151,650	31%	\$36,250	\$151,650	25%
\$151,650	\$297,350	36%	\$151,650	--	33%
\$297,350	--	39.6%			
<u>Married- Joint Filing</u>			<u>Married- Joint Filing</u>		
\$0	\$45,200	15%	\$0	\$12,000	10%
\$45,200	\$109,250	28%	\$12,000	\$45,200	15%
\$109,250	\$166,500	31%	\$45,200	\$166,500	25%
\$166,500	\$297,350	36%	\$166,500	--	33%
\$297,350	--	39.6%			

\* Taxable income is income less deductions and personal exemptions.

\*\*Rate schedule assumes tax plan is fully phased in.