A Guide for Deficit Reduction in the United States Based on Historical Consolidations That Worked

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Based on Historical Consolidations That Worked

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Abstract

Most developed countries face the need for significant policy changes to balance their budgets over the long run. Yet there is significant disagreement in the literature concerning the identification and impact of successful fiscal consolidations. In this paper, we explore the impact that differing assumptions and methodologies have on conclusions, and derive bounds across specifications that can be used by policymakers in designing their own reforms. Using cyclically adjusted panel data for select OECD countries from 1970-2007, we explore how the compositions of successful and unsuccessful consolidations differ for varying definitions of success. While conclusions about the growth impact of reforms vary depending on methodology, we find that there is much less disagreement concerning composition. Specifically, we find strong evidence that expenditure cuts outweigh revenue increases in successful consolidations. We also find evidence that the type of the spending cuts is an important determinant of success, as is the type of tax increases. We use these results as a guide, and discuss specific proposals for reducing the United States' deficit that draw on the lessons from past consolidations.

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I. Introduction

Over the past several decades many developed countries have undertaken fiscal adjustments in attempts to reduce high debt levels. These countries' restructurings have encountered varying degrees of success and failure, both in causing a long-lasting reduction in debt and in having a positive impact on economic growth. The economics literature has focused on answering two main queries in this area: what aspects of fiscal consolidations produce lasting reductions in debt, and what aspects encourage macroeconomic expansion?

Much of the modern literature examining the expansionary potential of fiscal adjustments has built on the seminal contribution of Giavazzi and Pagano (1990), which provided evidence suggestive that a successful fiscal consolidation can have positive non-Keynesian effects on economic growth. Their paper—which examined fiscal consolidations in Ireland and Denmark through a case study method—posits that consolidation can produce wealth effects on consumption because of the expectation of lower future tax liabilities. This is now termed the *expectational view* of fiscal consolidations and contrasts with the Keynesian effect that a fiscal consolidation will reduce aggregate demand and GDP.

Subsequently, the expansive literature has explored both the theoretical and empirical support for the opposing views. On the theoretical side, Bertola and Drazen (1993) derive predictions in line with the *expectational view* based on a simple stochastic model of government spending. Sutherland (1997) describes how these effects are magnified by higher levels of public debt. Perotti (1999) finds that expenditure shocks have Keynesian effects at low levels of public debt and non-Keynesian effects at high levels.

In response to the theoretical models, several empirical studies were undertaken to test the expectational view. Perotti (1999) supports his model predictions from the same paper with tests on a panel of OECD countries. Giavazzi and Pagano (1996) also provide evidence that consolidations produce wealth effects by finding that large fiscal consolidations are more successful than small ones and attributing the result to a mechanism where large fiscal consolidations signal permanency and decisiveness.

Alesina and Perotti (1996) comment that "the expectation view suffers[s] from an embarrassment of riches; namely, it is consistent with too many possible empirical observations." In response to this complaint, there are several papers that question the expectational view by attributing the expansionary effects of certain fiscal consolidations to other mechanisms. For instance, Alesina and Perotti in the same paper point out that even within a Keynesian framework, a fiscal consolidation can be expansionary when it prompts accommodative monetary policy. Empirically, Hjelm (2002a), using a panel of 19 countries, finds that periods of fiscal contraction experienced lower private consumption growth, contrary to the expectational view. Also, Lambertini and Tavares (2005) find that currency devaluation prior to a fiscal consolidation increases the odds of success and the IMF (2010) attributes any expansionary effects of consolidation to interest rate cuts, currency depreciation, and increased net exports. However, several other

empirical studies find results indirectly and directly contrary to Lambertini and Tavares and the IMF: Von Hagen and Strauch (2001) find that initial lax monetary policy positively influences the decision to undertake a fiscal consolidation, but does not impact the odds of success. Von Hagen et al (2002) and Ardagna (2003) find that fiscal consolidations coupled with monetary easing or currency devaluation do not have increased odds of success, and Ardagna (2003) and Giudice et al. (2004) find no additional expansionary effects.

Outside of the debate over the expectational view, an additional channel by which fiscal consolidations can spur expansion is through effects on interest rates. High levels of debt will impose a premium on interest rates to account for inflation and default risk. Miller, Skidelsky and Weller (1990) explain theoretically how this premium reduces private-sector spending. Alesina et al (1992) study a panel of 12 OECD countries and find that default premiums exhibit non-linearity—that there are two equilibriums, one where debt is below some threshold and there is almost no worry of default, and another equilibrium where debt is beyond the threshold and a default premium develops. Correspondingly, Reinhart and Rogoff (2010) present evidence that there is only a weak relationship between debt and growth when the public debt to GDP ratio is below 90 percent.[1] However, above this threshold growth rates fall heavily.

While there is significant debate regarding the effect of fiscal consolidations on short-term economic growth, there is wide consensus from the literature that the composition of the fiscal adjustment is a major factor determining the likelihood of a lasting debt reduction. In particular, fiscal consolidations based upon expenditure cuts have tended to be more effective than tax-based consolidations based on the evidence from empirical studies. [2] Broadbent and Daly (2010) conclude,

> "In a review of every major fiscal correction in the OECD since 1975, we find that decisive budgetary adjustments that have focused on reducing government expenditure have (i) been successful in correcting fiscal imbalances; (ii) typically boosted growth; and (iii) resulted in significant bond and equity market outperformance. Tax-driven fiscal adjustments, by contrast, typically fail to correct fiscal imbalances and are damaging for growth."

Although the studies generally agree on the historical prevalence of expenditure cuts in successful consolidations, the degree of their prevalence is disputed. In several empirical papers that report the average ex-post revenue and expenditure shares of the fiscal stimulus for successful and unsuccessful consolidation, expenditure shares in successful consolidations ranged widely from 52 percent to 135 percent.[3]

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[1] As of the third quarter of 2010, the ratio of public debt to GDP in the United States was 89.5 percent according to St. Louis Federal Reserve Data. This amount is the sum of publicly-held government debt and intragovernmental debt held in federal trust funds.
[2] Such studies include Alesina and Perotti (1995, 1995a, 1996), Alesina and Ardagna (1998, 2009), Broadbent and Daly (2010), McDermott and Wescott (1996), IMF (1996, 2010), OECD(2007), Perotti (1999), von Hagen and Strauch (2001), and Zaghini (1999).
[3]Alesina and Perotti (1996) report that successful consolidations were 64 percent expenditure cuts and 37 percent revenue increases. Unsuccessful consolidations were 34 percent expenditure cuts and 66 percent revenue increases. Alesina and Ardagna (1998) report that successful consolidations were 62 percent expenditure cuts and 38 percent revenue increases. Unsuccessful consolidations were -

Beyond simply showing whether expenditure cuts or revenue increases are more effective at reducing debt, the literature also attempts to identify which components of expenditure and revenue are important. Alesina and Perotti (1995) find that cuts in transfer programs and government wage expenditures are more effective than other expenditure cuts; the subsequent literature supports these findings. In response to the 1995 paper, Alesina and Perotti (1997) and Lane and Perotti (2001) provided theoretical arguments that cutting government wage expenditures and reducing labor taxes lowers real wages in an open economy. Additionally OECD (2007) offers an explanation for the prevalence of cuts to transfer programs in successful consolidations:

> "A greater weight on cuts in social spending tended to increase the chances of success. A reason for this could be that governments more committed to achieving fiscal sustainability may also be more likely to reform politically sensitive areas. As a by-product of doing so, they may at the same time bolster the credibility of the consolidation strategy, thereby improving its chances of success."

While the tendency for spending cuts to be more effective at driving down debt levels is widely accepted, there is a great deal more controversy concerning the impact of successful consolidation on GDP growth. Although empirical studies have found many consolidations coupled with expansion, the degree to which consolidation drives rather than merely accompanies expansion is disputed. Various mechanisms have been proposed through which consolidation may spur growth, including credibility effects on interest rates and the effects outlined under the expectational view. However, the literature has identified endogeneity issues in many of these studies that may cause them to overstate expansionary effects.[4] In sum, while a consolidation might not spur an expansion, there is a consensus that spending-based consolidations produce superior economic outcomes to revenue-based consolidations. On this basis, we focus on identifying the factors that contribute to the success of a consolidation. Section II discusses the data and methodology for the empirical work in our paper. Section III explores our results. Section IV uses our results as a guide and makes specific proposals for deficit reduction in the United States. Section V concludes.

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79 percent expenditure cuts and 178 percent revenue increases. Alesina and Ardagna (2009) report that successful consolidations were 135 percent expenditure cuts and -35 percent revenue increases. Unsuccessful consolidations were 34 percent expenditure cuts and 66 percent revenue increases. Von Hagen and Strauch (2001) report that successful consolidations were 52 percent expenditure cuts and 48 percent revenue increases. Unsuccessful consolidations were 12 percent expenditure cuts and 88 percent revenue increases. Zaghini (1999) reports that successful consolidations were 77 percent expenditure cuts and 23 percent revenue increases. Unsuccessful consolidations were 2 percent expenditure cuts and 98 percent revenue increases. McDermott and Wescott (1996) found that expenditure based consolidations have a 41 percent chance of success; whereas revenue based consolidations have a 16 percent chance of success.

[4] These endogeneity issues include monetary policy, asset and commodity prices, and the occurrence of subsequent economic downturns (IMF 2010.)

II. Data and Methodology

2.1 Method and data

Our approach is to identify fiscal consolidations, determine their success, and find the average weight of each fiscal compositional component in successful and unsuccessful consolidations. In this way, we are able to judge the effect of composition on the odds of success. Our fiscal data is from the OECD Economic Outlook Database no. 84.

2.2 Identifying Fiscal Consolidations

We identify fiscal consolidations in two ways. The first follows the method outlined in Alesina and Ardagna (2010) that derives shifts in a country's budgetary stance from changes in the cyclically adjusted primary deficit. The primary deficit, which is the difference between non-interest expenditures and non-interest revenues, provides a metric for the discretionary budget stance that is unaffected by exogenous changes in the interest rate. We adjust the fiscal variables to remove cyclical effects that could misidentify policy-based consolidations based on the effects of the business cycle.[5] Specifically, we define a fiscal consolidation as a year in which the cyclically adjusted primary deficit divided by the GDP decreases by at least 1.5 percentage points. This is the *CAPB method.*

We apply this definition to OECD data with a maximum time period from 1970 to 2007. Following Alesina and Ardagna, we use 21 countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States. The CAPB method identifies 109 years of fiscal consolidation.

Our second approach for identifying fiscal consolidations relies on IMF (2010). The IMF uses an *Action-Based method* to identify fiscal adjustments based on an examination of ex-ante government plans for tax increases or expenditure reductions motivated by a desire to reduce deficits and debt. IMF (2010) utilizes this approach in response to their observation that the CAPB method "fails to identify consolidations when governments took substantial actions to reduce the deficit but the actions were associated with severe economic downturns." The CAPB method also does not account for concurrent economic development, such as appreciating commodity or asset prices. These shortfalls, they claim, cause studies that rely on the cyclically adjusted primary deficit to overstate the expansionary effects of fiscal consolidations.[6]

[5] Cyclical adjustments are made using the method outlined in Blanchard (1993) which corrects each fiscal variable for changes in the unemployment rate from year to year.
[6] Though note that Alesina (2010) responds to these arguments.

The IMF found consolidations for 15 countries from 1980–2009. We truncated the sample to 1980–2007 to match the data available in the OECD Economic Outlook Database no.84.The countries are: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Portugal, Spain, Sweden, the United Kingdom, and the United States. For 1980–2007, the IMF identified 36 years of large fiscal consolidations where the size of fiscal consolidation exceeded 1.5 percent of GDP. [7]

The years of adjustment for both methods are listed in Table 1.

2.3 Identifying Successes

We follow Alesina and Ardagna (2010) in identifying consolidations as successful for both approaches. We first aggregate periods of consecutive adjustments into multi-year events. We then isolate successful consolidations, which are defined as those in which the ratio of debt to potential GDP three years following the first year of the consolidation has declined by at least 4.5 percentage points (we also check the sensitivity of conclusions to this cutoff). For events beginning in 2005, the change in the ratio of debt to GDP is measured two years following the consolidation.[8]

The baseline standard of a 4.5 percentage point reduction in the ratio of debt to potential GDP indentifies 21 successful consolidations using the CAPB method and four successful consolidations using the Action-Based method. For purposes of sensitivity analysis, we also explore the range of results by reducing or increasing the reduction in the debt/GDP ratio necessary to qualify as a successful consolidation. Setting the rule at a 2.5 percentage point decrease in debt to potential GDP, the CAPB method finds 27 successful consolidations, while the Action-Based method identifies four. Setting the rule at a 3.5 percentage point decrease results in 25 successful consolidations using the CAPB method and four using the Action-Based method. A 5.5 percentage point rule finds 20 successful consolidations (CAPB) and four (Action Based method). A rule requiring a 6.5 percentage point reduction in debt finds 15 (CABP) and two (Action Based method). The years of successes under each rule are listed in Table 2.

There are a few problems with our method for identifying success, which we will call the *first-year* method. In particular, there are three ways that looking solely at the success of the first year of multi-year events might bias the results. The first occurs when fiscal consolidation is initiated late in the first year. In this case, the three-year window to reach the success threshold is artificially reduced to just over two years, which would cause the first-year method to underestimate the number of successes due to the shortened window, and to underestimate the average size of successful consolidations due to the shortened first year. The second case is when a country initiates a consolidation in the midst of an economic downturn. This would likely cause the first-year method to misstate items that affect short-term unemployment and growth. Governments might implement these items later in the consolidation

[7] Labeled as "Episodes of Large Fiscal Contraction" in IMF (2010).
[8] This bifurcation preserves the size of our sample.

to avoid exacerbating the downturn. Lastly, considering only the first year of multi-year consolidations likely overestimates the share of revenue and expenditure items that can be changed quickly.

There are alternative methods for dealing with years of consecutive consolidation. Alesina and Ardagna (1998) and Alesina, Perotti, and Travares (1998) do not aggregate consecutive events and judge each year of fiscal consolidation independently. Additionally, Alesina and Ardagna (2010) find that their results are robust to this alternative method, which eases some of the concerns about the first-year method. However, considering each year of fiscal consolidation independently creates a new set of problems. The most salient of these is that consolidations which take many years will be over-weighted in the results. Also, there are several instances where the second year of a consolidation was successful, but the first was unsuccessful. So the second two problems affecting the first-year method, listed above, will exist with a reversed effect.

In response to the problems with defining success based on the first year of aggregated consolidations or based on each year of consolidation individually, we implement another method to analyze the robustness of our results. The *whole-consolidation* method defines a multi-year consolidation as successful if just one year during the period individually meets the general definition for success (a reduction of debt to GDP within three years). A multi-year consolidation fails if every year within the consolidation individually fails to meet the general definition for success. Below, we explore the sensitivity of our results to these differing success metrics.

III. Results

All of the results in this section are for the single-year method of identifying successes. As the results for the whole-consolidation method are fairly close to those presented here, we present them in Appendix A.

3.1 Basic Statistics

Tables 3 and 4 show the changes in fiscal variables that occur during successful and unsuccessful consolidations. Table 3 shows the results where the consolidations are selected by the cyclically adjusted primary balance (CAPB) method and Table 4 where the consolidations are selected by the Action-Based method. Labeling the first year of the event T, the “prior” values in the table show the average of each fiscal variable for the two years preceding the consolidation. The “post” values show the average of each fiscal variable for the two years following T. Each value is based on yearly averages, and the fiscal variables are shown as a percent of GDP.

While the composition of successful and unsuccessful consolidations is more clearly displayed in Table 5, there are two things to note in Tables 3 and 4. The first is that our results concerning the size of the fiscal consolidations—as measured by the difference between the post and prior values of the primary deficit—are inconclusive as to whether larger fiscal consolidations,

meaning larger initial reductions in primary deficits, are more likely to lead to lasting reductions in debt. The Action-Based method shows that consolidations that prove to be successful in reducing debt in later years began with larger average initial reductions in the primary deficit. However, the CAPB method shows the opposite; that is, unsuccessful consolidations "come out of the blocks faster" with larger initial reductions in primary budget deficits, but do not lead to lasting reductions in debt.

The second thing to note is that the Action-Based method shows an initial *increase* in debt during successful fiscal consolidations. This is surprising given that we define success by a large reduction in debt between the first year of an event and the third year. However, there is a straightforward explanation: typically, debt is increasing prior to the initiation of a fiscal consolidation and often continues increasing one year after the consolidation, albeit generally at a lower rate. Normally, debt begins to decrease only in the second year following the consolidation and decreases further in the third year, the time when debt is measured to determine success the consolidation's success. This dynamic can easily lead to a successful consolidation showing a positive post-prior value of debt. For example, Finland in 1996 had a debt to GDP ratio of approximately 56 percent two years before the first year of consolidation, 61 percent one year before, 63 percent in the first year of consolidation, 63 percent in the first year after, 61 percent in the second year after, and 55 percent in the third year after. The percentage point decrease between the first year of consolidation and the third year after is 8, which easily qualifies it as successful under the entire range of our success definitions. The difference between the average of the two years after and the two years before is 3.5 percent, however.

3.2 Revenue and Expenditure

Table 5 displays the post-prior change in each fiscal variable as a percent of the post-prior change in the cyclically adjusted primary balance. The intent is to disaggregate the overall fiscal consolidation into its subcomponents. The signs of each revenue item have been switched so that each value represents a share of the total fiscal consolidation. The results for each definition of success, from a reduction of 2.5–6.5 percentage points of debt relative to GDP, are listed.

The difference between the revenue and expenditure shares of successful versus unsuccessful events is modest but significant. Based on the CAPB method, the smallest share of expenditures in successful consolidations across all of our definitions of success is slightly under 93 percent and the highest is slightly under 120 percent. Respectively, the revenue shares were approximately 7 percent and -20 percent. In unsuccessful consolidations, the highest expenditure share was just over 38 percent and the lowest just under 33 percent. Although somewhat less dramatic, consolidations isolated under the Action-Based method produced similar results. The lowest expenditure share for a successful fiscal consolidation was just over 66 percent and the highest just under 83 percent. Further, there is an obvious correlation between the strictness of the definition of success and the expenditure share of successful

consolidations. The highest expenditures shares under both the CAPB and Action-Based method occur when the reduction in debt to GDP ratios exceeded the strictest definition for success, and the lowest share of expenditures for both methods occurred at the most lax definition of success. Figure 1 displays these relationships graphically.

Figure 2 displays these relationships alongside similar results from the literature,[9] illustrating that different specifications tend to produce qualitatively similar results. Alesina and Perotti (1996) define an adjustment as a year when the cyclically adjusted primary balance falls by more than 1.5 percent of GDP for a period of two consecutive years, in which the cyclically adjusted primary balance falls by at least 1.25 percent of GDP in both years. They term an adjustment successful if for three years after the last year of the adjustment, the cyclically adjusted primary deficit as a share of GDP is on an average lower than in the last year of the adjustment and the debt to GDP ratio three years after the last year of the adjustment is below the level of the last year of the adjustment. Alesina and Ardagna (1998) use the same definition of adjustment as Alesina and Perotti (1996) except they use the thresholds 2 percent of GDP and 1.5 percent of GDP instead of 1.5 percent and 1.25 percent. Alesina and Ardagna (2009) use the same definitions of adjustment and success as does this paper, although they only examine the 4.5 percentage point definition of success.[10] Von Hagen and Strauch (2001) define an adjustment as a period when the cyclically adjusted total government budget improved by at least 1.25 percent of cyclically adjusted GDP in two consecutive years or a period when the cyclically adjusted total government budget improved by at least 1.5 percent of cyclically adjusted GDP in one year and was positive but possibly less than 1.25 percent in the proceeding and the following years. They define an adjustment as successful if two years after the initial adjustment the government budget balance has improved by 25 percent. For visual clarity, our results are only displayed for the 4.5 percentage point definition of success.

Figure 3 illustrates our results alongside the expenditure and revenue shares in United States deficit reduction proposals from President Obama's National Commission on Fiscal Responsibility and Reform (2010), the Bipartisan Policy Center's Debt Reduction Task Force (2010), and Section IV of this paper. Further, the composition of recent consolidations undertaken in the United Kingdom, Greece, and Ireland are included. The shares attributed to the National Commission are for deficit reduction in the period 2011–2020. The expenditure and revenue shares are taken from the Riedl (2010)[11]. The shares attributed to the Bipartisan Policy Center are for 2012–2020 cumulative savings (p. 21). The expenditure share is comprised of "Spending Policy Reductions." The revenue share is comprised of "Tax Expenditure Cuts" and "New Revenues." "Total Debt Service Savings" are excluded. The composition of the

[9] Alesina and Perotti (1996), Alesina and Ardagna (1998, 2009), and Von Hagen and Strauch (2001).
[10] We hypothesize that the relatively minor differences between their results and our results are the product of ad hoc data adjustments in their study.
[11] The shares in Riedl (2010) assume different spending and revenue baselines than the National Commission Report. Particularly, Riedl does not assume "nearly $2 trillion in tax increases from letting parts of the 2001 and 2003 tax cuts expire and from no longer renewing many other annual tax cuts" that are assumed in the National Commission baselines.

deficit reduction outlined under both proposals changes with time. We used the expenditure and revenue shares reported for the short term in order to match the results from our study, which reflect relatively short-term deficit reductions.

The United Kingdom implemented a fiscal consolidation in 2010 with an "emergency" budget in June and a Comprehensive Spending Review (2010) in October. Data is from Nomura Global Economics (2010) and spans the years 2011-2012 through 2014-2015. Greece also undertook a fiscal consolidation plan with the January 2010 publication of the Update of the Hellenic Stability and Growth Programme Including an Updated Reform Programme (2010). The data included in Figure 3 is for 2010-2013 (p. 23). Ireland began its fiscal consolidation in 2008 and by 2010 had already implemented five adjustment packages. The National Recovery Plan 2011–2014 (2010) documents the revenue and expenditure share of the 2008–2010 adjustments (p. 18) and of the planned 2011–2014 adjustments (p. 9).

The roughly 50/50 mix of proposals from the Bipartisan Policy Center and President Obama's National Commission are outside of the range that the literature indicates is likely to lead to success. Likewise, the literature indicates that the approximately 70/30 expenditure-revenue shares of the consolidations in Ireland and the United Kingdom are more likely to lead to success than the approximately 40/60 shares of the consolidation in Greece.

3.3 Expenditure Components

We find several interesting results regarding the individual components of expenditure reductions in successful fiscal consolidations. These results are visible in Table 5 and shown graphically alongside similar results from the literature in Figures 4–8. In these figures, the numbers 2.5–6.5 alongside "CAPB" and "Action-Based" indicate the definition of success used. "A&P" and "A&A" refer to "Alesina and Perotti" and "Alesina and Ardagna."

Our results are consistent with the consensus in the literature that reductions in social transfer spending play a significant role as part of successful consolidations. Using the CAPB method for identifying consolidations and a range of definitions of success, social transfer reductions make up no less than 36 percent of the overall deficit reduction for successful consolidations. In unsuccessful consolidations, social transfers are actually increased, on average, and lower the consolidation's overall deficit reduction by no less than 24 percent. Using the Action-Based method and the same range of definitions of success, social transfer reductions make up no less than 21 percent of the deficit reduction in successful consolidations, whereas in unsuccessful consolidations social transfers are increased and lower the consolidation's overall deficit reduction by no less than 33 percent. Across nearly the entire spectrum of definitions, the stricter the definition for success for a fiscal consolidation, the larger the role played by reduced social transfer expenditures.

Cuts to government wage expenditures, meaning the size and pay of the public sector work force, and cuts to subsidies are typical in both successful and unsuccessful consolidations. In results from both the CAPB and Action-Based methods, reductions in the government wage bill make up between 12–33 percent of the total deficit reduction in successful consolidations and between 12–35 percent in unsuccessful consolidations. Likewise, reductions in subsidies make up between 12–18 percent of the total deficit reduction in successful consolidations and between 4–10 percent in unsuccessful consolidations.

There is a narrow range in which government investment cuts contribute to the deficit reduction in successful consolidations, between 19–25 percent. Interestingly, unsuccessful consolidations tend to cut much more from government investments, ranging from 39–48 percent of the fiscal consolidation. There is almost no consensus regarding government non-wage expenditures, which are final consumption expenditures on non-wage bill goods and services. They appear to play little role in either successful or unsuccessful consolidations, although they tend to be cut slightly more in unsuccessful consolidations than successful consolidations.

Overall, our results support the literature in finding that that governments tend to be more successful when they cut politically difficult areas such as social transfers, while reductions in government non-wage expenditures and government investments contribute relatively little to the probability of a successful fiscal consolidation.

3.4 Revenue Components

Our results are less clear regarding which types of revenue increases contribute the most to successful consolidations, which is understandable, given the relatively minor role played by revenues in successful fiscal consolidations. We display the individual components of revenue in Figures 9–12. Using both the CAPB method and Action-Based method, income taxes are increased more in unsuccessful consolidations than successful consolidations, while business taxes are increased more in successful than unsuccessful consolidations. However, both of these differences are more dramatic in the CAPB method results than the Action-Based results. This may reflect the criticism of the CAPB approach that it can misidentify a successful fiscal consolidation if tax revenues soar because of a stock market boom. This endogeneity problem could easily lead to higher business tax revenues as well. Social security contributions are reduced for both successful and unsuccessful consolidation under both methods, but these results are significantly larger for the Action-Based method than the CAPB method. Regarding indirect taxes, the CAPB method and the Action-Based method disagree whether there are more increases in successful or unsuccessful consolidations. Moreover, the CAPB method indicates that indirect tax hikes make up less than 2–7 percent of either successful or unsuccessful consolidations. For the Action-Based method this range is much wider, from 9–37 percent, with larger hikes occurring in successful consolidations.

3.5 Outline for Success

Our results indicate that there are a several traits common to successful consolidations. Across two methods for identifying consolidations and four widely spaced thresholds of success, lasting reductions in debt stem from expenditure cuts, and less so from revenue increases. To facilitate success in future consolidations, our results and the previous literature indicate that a suitable low-end target for the expenditure share is around 85 percent of the total fiscal consolidation. This is equal to the average expenditure share across our two methods at the 4.5 percent definitions of success. The average expenditure share for successful consolidations is 80 percent if inclusive of our calculations and those from Alesina and Perotti (1996), Alesina and Ardagna (1998), Alesina and Ardagna (2009), Von Hagen and Strauch (2001), and Zaghini 1999, as can be seen in Table 6.

Of the individual expenditure items, our results indicate that social transfer reductions should comprise the largest share of the consolidation; there is a stark difference between the very large transfer shares in successful consolidations and very small transfer shares in unsuccessful consolidations. Reductions to subsidies, government wage expenditures, and investments should play a smaller, but sizeable role. Government non-wage expenditures may be increased slightly, but are typically adjusted little.

It is more difficult to make a prescription for the revenue items as there is little consensus across our results. In addition, our data relies on ex-post revenue changes rather than ex-ante changes to rates and bases, making policy prescriptions difficult to ascertain. Moreover, the endogeneity issue discussed earlier is still relevant: business tax shares are likely overstated by the CAPB method, because there are no controls for changes in asset prices. Given these caveats, our results indicate that revenue increases should come from indirect and business taxes more than income taxes, but the magnitudes of these preferences are not clear. More likely the best recommendations derive from the tax literature, which are to maximize revenues where possible by lowering rates and broadening the base.

IV. Specific Proposals for the United States

This section outlines what a fiscal consolidation for the U.S might look like if it is based upon the broad international evidence regarding the factors that historically have led to success. The outline herein is by necessity highly stylized, but gives a broad view of the size and type of steps that would need to be taken to resolve the long-term fiscal gap. Using the lessons learned above, this exercise will outline a resolution of the longer-term budget shortfalls projected for the United States federal government, in particular those driven by so-called entitlement programs providing health coverage and income support principally to the elderly. The exercise examines increases in entitlement costs projected over the coming 25 years, then outlines policy steps to address those cost increases.

The goal of this exercise is to address the budget shortfall evolving over the next several decades through steps that consist of approximately 85 percent reductions in expenditures and 15 percent increases in revenues, percentages that are consistent with historically successful fiscal consolidations.[12] This ratio is chosen as it matches the approximate average expenditure shares for successful fiscal consolidations examined in earlier sections. However, this exercise should carry the important caveat that the United States' fiscal shortfalls are projected to evolve over a much longer time frame than available data on fiscal consolidations abroad allow us to examine. This exercise applies lessons learned from fiscal consolidations taking place over the space of several years to addressing fiscal problems that, while present at the moment, will continue to increase over a space of decades.

The Congressional Budget Office calculates the fiscal gap for the federal government over various periods of time. The fiscal gap measures the immediate and permanent change in the primary budget balance necessary to stabilize the ratio of debt to GDP over a given period of time. Under its more realistic projection scenario for revenues and outlays, the CBO calculates a fiscal gap of 4.8 percent of GDP over 25 years, 6.9 percent of GDP over 50 years, and 8.7 percent of GDP over 75 years.[13]

However, these present value figures mask changes in annual deficits and debt from year to year. The CBO projects that the primary federal budget deficit will decline from a value of 8.0 percent of GDP in 2010 to 2.9 percent of GDP in 2020, reflective of an assumed increase in economic activity. However, the primary budget deficit is projected to rise to 7.2 percent of GDP by 2030 as costs for entitlement programs increase significantly. The total debt, inclusive of interest costs, will fall from 9.4 percent of GDP in 2010 to 6.6 percent of GDP in 2020, but will increase to 15.9 percent of GDP in 2030.

While the current U.S. budget deficit is driven principally by recession-induced reductions in revenues and increases in discretionary government expenditures, the principal drivers of the long-term budget gap are the so-called entitlement programs of Social Security, Medicare and Medicaid. Outlays on these social transfer programs will increase significantly due to the aging of the population and increases in per capita health expenditures. Outlays on these three programs, plus ancillary health programs such as CHIP and funds for the state health exchanges included in the 2010 health care reform, are projected by the Congressional Budget Office to increase by 7.4 percent of GDP from 2010 through 2035. This exercise will close that 7.4 percent of GDP gap through reductions in the growth of entitlements and other outlays and increases in revenues, with an approximately 85 percent expenditure share and 15 percent revenue share. Most of the expenditure reductions outlined here will be composed of reduced growth of outlays for these three programs, with a small role played by reductions in the government wage bill.

Rising Social Security costs could be addressed through the following steps:

[12] We aim for an 85/15 mix of expenditure cuts and revenue increases in 2035. The minimum expenditure share for any year in our proposal is 74 percent.
[13] Congressional Budget Office (2010).

- First, gradually increase the full retirement age from the currently legislated level of 67 to 70 for individuals born in 1993 and retiring in the 2050s.
- Second, increase the early retirement age from 62 to 65 for individuals born in 1966. This change would have little effect on Social Security's finances, but would raise total retirement incomes through longer work lives and could increase long-run GDP by at least 2 percent.
- Third, reduce annual Cost of Living Adjustments (COLAs) by 0.11 percentage point. This adjustment is designed to approximate the net effects on the current CPI of adjusting market baskets to the buying habits of older individuals (as is done in the experimental CPI-E) and accounting for the ways in which purchasing patterns respond to price changes (as in the C-CPI-U).
- Fourth, "progressive price indexing," which would reduce future benefits for middle and higher earners on a progressive basis.

These steps by themselves would make Social Security nearly solvent over 75 years, as opposed to being short by 5.8 trillion dollars in present value (0.6 percent of GDP). On an annual basis, the target size of our consolidation is approximately 7.4 percent of GDP as of the year 2035; reductions in Social Security costs account for around 11 percent of total expenditure reductions in that year.

In addition, an employer-side payroll tax increase levied on all earned income would generate revenues both to resolve Social Security solvency and to provide additional income for the Medicare and Medicaid programs. A gradual introduction of a 2.5 percent tax on all earned income (not limited to earnings under the current Social Security taxable maximum wage of $106,800) could generate revenues equal to approximately 1.5 percent of GDP by the year 2035, sufficient to cover approximately 15 percent of the cost of increased expenditures at that time. Since there is no VAT in the U.S., an increase in the payroll tax is the closest substitute. That such a large increase closes only around one-sixth of the shortfall highlights how massive the problem is.

Rising Medicare costs would be addressed by introducing a deductible based upon a percentage of the average expenditures per capita. Current per capita Medicare outlays are around $9,500. A deductible of 10 percent, for instance, would require that individuals pay the first $950 of annual health costs, after which Medicare would pay the remainder. Note that the deductible would be based on a percentage of average per capita costs, not on a percentage of the individual's own health costs. Under this provision, the deductible would reach 16 percent of average costs by 1017, 30 percent of costs by 2024, and 47 percent of average costs by 2035. This deductible would not address all Medicare cost increases, but it does significantly impact the consolidation; Medicare outlays would rise from approximately 3.1 percent of GDP in 2010 to around 3.8 percent in 2035, versus an increase to 7.2 percent of GDP

under Congressional Budget Office projections of current law. The Medicare part of our plan, then, accounts for 45 percent of the total deficit reduction as of 2035.

It should be expected that the introduction of a Medicare deductible would have a significant downward effect on costs due to increased incentives to purchase cost-efficient care. The RAND Health Experiment, for instance, found that individuals who bore 25 percent of health costs up to a limit spent 20 percent less overall than individuals with no cost sharing, yet had similar health outcomes.[14] Figures presented here do not reflect any reductions in per capita cost growth due to the deductible and thus could be considered an upper bound on costs. Nevertheless, the degree of restraint on Medicare cost growth necessary to remain consistent with the possibility of a successful fiscal consolidation is indicative of the size of the future fiscal gap.

Medicaid costs would be contained by converting the Medicaid matching formula to a program of block grants to states. The size of these grants would be allowed to grow from year to year at the rate of increase in GDP. Shifting from a matching formula, in which the federal government pays 50-83 percent of total Medicaid costs, to a system of block grants would require states to bear the marginal costs of Medicaid expansions, providing significant incentives to pursue cost-effective Medicaid policies. To the degree cost-effectiveness improves, total costs may be lower than projected here. As with Medicaid, no additional savings due to behavioral changes are included in these projections. This shift would resolve approximately 26 percent of the budget gap as of 2035.

Finally, public sector pay is reduced to account for estimated overcompensation of federal employees. The 1999 Handbook of Labor Economics reviews a number of studies on federal pay, most of which find a premium of 10-20 percent over otherwise similar private sector employees. A recent analysis by one of the authors using the 2009 Current Population Survey found a federal salary premium of 12 percent after adjusting for a range of demographic factors, firm size and geographic differences. Eliminating this pay differential, through across the board pay reductions or preferably through pay adjustment targets based upon job queues for specific federal positions, would reduce federal payroll costs by approximately 0.25 percent of GDP. This latter amount is deducted from projected increases in Social Security, Medicare and Medicaid outlays to approximate effects on the federal budget as a whole. Reductions in public sector pay comprise around 3 percent of total deficit reduction as of 2035. Research regarding comparability of public and private sector staffing levels is less developed than research on person-for-person pay, so no accommodation is made here for reductions in the number of federal employees.

In total, reduced expenditures address approximately 80 percent of projected cost increases for Social Security, Medicare and Medicaid, which together account for most of the federal government's long-term fiscal gap. Figure 13 illustrates changes in annual costs over time. Policy changes are assumed to begin implementation in 2011, but take full effect only gradually. By 2020 projected

[14] Brook, et al (2006).

cost increases for Social Security, Medicare and Medicaid are restricted to 0.3 percent of GDP, relative to 2.3 percent of GDP under current projections. The cost increase under the reform plan is net of reduced public sector pay of 0.25 percent of GDP. By 2035, costs under the stylized reform rise to 12 percent of GDP, a 2.3 percent of GDP increase, versus a 7.4 percent of GDP increase under current projections. Table 7 disaggregates these costs reductions by program in terms of percentages of GDP and 2010 dollar values. The payroll tax is the largest single contributor to resolution of federal outlay increases as 2.53 percent of GDP, followed by the introduction of a Medicare deductible (2.44 percent) and the cost restraints involved with block-granting the Medicare program (1.52 percent). The total reduction in the primary budget deficit as of 2035 equals approximately 1.9 trillion in constant 2010 dollars.

V. Conclusion

This article reviews the literature regarding fiscal consolidations, conducts new analysis of consolidations occurring in OECD countries over the period 1970-2007, and outlines a stylized plan to address long-term budget challenges in the U.S. that is designed to be consistent with conclusions drawn from successful consolidations in the OECD. The independent analysis confirms the literature's finding that fiscal consolidations that reduce ratios of debt to GDP tend to be based upon reduced government outlays rather than increased tax revenues. This result holds whether fiscal consolidations are defined in terms of improvements in the cyclically-adjusted primary budget deficit or in terms of pre-meditated policy changes designed to improve the budget balance.

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Tables and Figures

Table 1: Adjustments
Cyclically Adjusted Primary Balance Method

Australia	1987	1988								
Austria	1984	1996	1997	2005						
Belgium	1982	1984	1987	2006						
Canada	1981	1986	1987	1994	1995	1996	1997			
Denmark	1983	1984	1985	1986	2005					
Finland	1973	1976	1981	1984	1988	1994	1996	1998	2000	
France	1979	1996								
Germany	1996	2000								
Greece	1976	1986	1991	1994	1996	2005	2006			
Ireland	1976	1984	1987	1988	1989	2000				
Italy	1976	1980	1982	1990	1991	1992	1997	2007		
Japan	1984	1999	2001	2006						
Netherlands	1972	1973	1983	1988	1991	1993	1996			
New Zealand	1987	1989	1993	1994	2000					
Norway	1979	1980	1983	1989	1996	2000	2004	2005		
Portugal	1982	1983	1986	1988	1992	1995	2002	2006		
Spain	1986	1987	1994	1996						
Sweden	1981	1983	1984	1986	1987	1994	1995	1996	1997	2004
United	1977	1982	1988	1996	1997	1998	2000			

Action Based Method

Australia	1986	1987				
Belgium	1982	1983	1987	1993		
Denmark	1983	1984	1985	1986		
Finland	1992	1993	1994	1996	1997	1998
Germany	1997					
Ireland	1982	1983	1987	1988		
Italy	1992	1993	1995	1997		
Japan	1997					
Portugal	1983	2002				
Sweden	1993	1993	1995	1996	1997	
United Kingdom	1981	1997				
United States	1991					

Table 2: Years of Successful Adjustments

Cyclically Adjusted Primary Balance Method

Definition 2.5

Australia	1988					
Austria	2005					
Canada	1995	1996	1997			
Denmark	1984	1985	1986	2005		
Finland	1996	1998	2000			
Greece	1996	2005				
Ireland	2000					
Italy	1980	1982	1997			
Netherlands	1972	1973	1991	1993	1996	
New Zealand	1993	1994	2000			
Norway	1979	1980	1996			
Portugal	1995					
Spain	1996					
Sweden	1984	1986	1987	1996	1997	2004
United Kingdom	1977	1988	1996	1997	1998	2000

Definition 3.5

Austria	2005					
Canada	1995	1996	1997			
Denmark	1984	1985	1986	2005		
Finland	1996	1998				
Greece	1996	2005				
Ireland	2000					
Italy	1980	1982	1997			
Netherlands	1972	1991	1993	1996		
New Zealand	1993	1994	2000			
Norway	1979	1980	1996			
Portugal	1995					
Spain	1996					
Sweden	1984	1986	1987	1996	1997	2004
United Kingdom	1977	1988	1997	1998	2000	

Definition 4.5

Australia	2005					
Canada	1995	1996	1997			
Denmark	1984	1985	1986	2005		
Finland	1996	1998				
Greece	1996					
Ireland	2000					
Italy	1980	1982	1997			
Netherlands	1972	1993	1996			
New Zealand	1993	1994	2000			
Norway	1979	1980	1996			
Portugal	1995					
Sweden	1984	1986	1987	1996	1997	2004
United Kingdom	1977	1988	1997	1998		

Definition 5.5

Austria	2005					
Canada	1995	1996	1997			
Denmark	1984	1985	1986	2005		
Finland	1996	1998				
Ireland	2000					
Italy	1980	1982	1997			
Netherlands	1972	1993	1996			
New Zealand	1993	1994	2000			
Norway	1979	1980	1996			
Portugal	1995					
Sweden	1984	1986	1987	1996	1997	2004
United Kingdom	1977	1988	1997	1998		

Definition 6.5

Austria	2005					
Canada	1997					
Denmark	1985	1986	2005			
Finland	1996	1998				
Ireland	2000					
Italy	1980					
Netherlands	1993	1996				
New Zealand	1993	1994				
Norway	1979	1980				
Portugal	1995					
Sweden	1984	1986	1987	1996	1997	2004
United Kingdom	1977	1988	1998			

Action Based Method

Definitions 2.5/3.5/4.5/5.5

Belgium	1993		
Denmark	1984	1985	1986
Finland	1996	1997	1998
Italy	1997		
Sweden	1996		
United Kingdom	1997		

Definition 6.5

Belgium	1993		
Denmark	1985	1986	
Finland	1996	1997	1998
Sweden	1996		

Table 3: Basic Statistics—Cyclically Adjusted Primary Balance Method

2.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6861	0.6734	0.6316	-5.4544	0.6693	0.7025	0.6878	1.8497
	(4.2126)	(4.3916)	(4.5567)		(5.0768)	(5.2774)	(5.2750)	
primary deficit	0.0135	-0.0076	-0.0066	-2.0133	0.0284	0.0090	0.0084	-1.9983
	(0.5606)	(0.5664)	(0.5289)		(0.4479)	(0.4742)	(0.4296)	
primary expenditures	0.4405	0.4224	0.4215	-1.9084	0.4212	0.4157	0.4146	-0.6588
	(1.4920)	(1.3468)	(1.1750)		(1.1047)	(1.0842)	(1.0895)	
transfers	0.1971	0.1912	0.1892	-0.7930	0.1715	0.1756	0.1780	0.6463
	(0.9124)	(0.8012)	(0.7293)		(0.6197)	(0.6312)	(0.6388)	
gov wage expenditures	0.1227	0.1202	0.1183	-0.4468	0.1225	0.1205	0.1198	-0.2683
	(0.4964)	(0.4762)	(0.4384)		(0.4342)	(0.4053)	(0.3942)	
gov non wage expenditures	0.0822	0.0813	0.0822	0.0062	0.0763	0.0765	0.0756	-0.0671
	(0.4226)	(0.4109)	(0.4079)		(0.2986)	(0.3065)	(0.3063)	
subsidies	0.0185	0.0167	0.0159	-0.2627	0.0221	0.0212	0.0213	-0.0808
	(0.2547)	(0.2389)	(0.2262)		(0.1397)	(0.1361)	(0.1407)	
gov investment	0.0207	0.0130	0.0158	-0.4872	0.0285	0.0221	0.0203	-0.8264
	(0.2568)	(0.2327)	(0.2127)		(0.1853)	(0.1729)	(0.1506)	
total revenue	0.4270	0.4300	0.4281	0.1049	0.3928	0.4068	0.4062	1.3395
	(1.4049)	(1.3795)	(1.3333)		(1.0913)	(1.0552)	(1.0879)	
income taxes	0.1263	0.1267	0.1232	-0.3108	0.1065	0.1099	0.1117	0.5264
	(0.9571)	(0.9353)	(0.9056)		(0.6479)	(0.6589)	(0.6590)	
business taxes	0.0272	0.0328	0.0345	0.7258	0.0259	0.0288	0.0287	0.2816
	(0.2187)	(0.2638)	(0.2652)		(0.2131)	(0.2741)	(0.3066)	
indirect taxes	0.1286	0.1284	0.1296	0.0963	0.1263	0.1295	0.1283	0.1985
	(0.4875)	(0.4529)	(0.4515)		(0.3171)	(0.3059)	(0.3036)	
soc sec contributions	0.1123	0.1114	0.1106	-0.1769	0.1087	0.1098	0.1084	-0.0275
	(0.9492)	(0.8899)	(0.8997)		(0.6411)	(0.6585)	(0.6881)	

3.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6993	0.6855	0.6413	-5.8068	0.6629	0.6943	0.6792	1.6280
	(4.4681)	(4.6614)	(4.8744)		(4.8556)	(5.0676)	(5.0510)	
primary deficit	0.0135	-0.0065	-0.0054	-1.8852	0.0279	0.0079	0.0072	-2.0621
	(0.5845)	(0.5616)	(0.5614)		(0.4391)	(0.4740)	(0.4219)	
primary expenditures	0.4396	0.4226	0.4222	-1.7436	0.4223	0.4159	0.4145	-0.7756
	(1.5967)	(1.4425)	(1.2408)		(1.0732)	(1.0496)	(1.0556)	
transfers	0.1950	0.1900	0.1881	-0.6896	0.1734	0.1767	0.1789	0.5576
	(0.9523)	(0.8460)	(0.7647)		(0.6179)	(0.6177)	(0.6234)	
gov wage expenditures	0.1228	0.1204	0.1186	-0.4243	0.1225	0.1204	0.1196	-0.2860
	(0.5308)	(0.5099)	(0.4649)		(0.4199)	(0.3920)	(0.3816)	
gov non wage expenditures	0.0821	0.0815	0.0825	0.0386	0.0765	0.0766	0.0757	-0.0785
	(0.4557)	(0.4429)	(0.4406)		(0.2886)	(0.2959)	(0.2945)	
subsidies	0.0191	0.0172	0.0165	-0.2681	0.0217	0.0208	0.0209	-0.0880
	(0.2706)	(0.2536)	(0.2401)		(0.1379)	(0.1348)	(0.1395)	
gov investment	0.0213	0.0134	0.0165	-0.4767	0.0280	0.0216	0.0198	-0.8217
	(0.2719)	(0.2482)	(0.2233)		(0.1834)	(0.1710)	(0.1493)	
total revenue	0.4261	0.4291	0.4275	0.1415	0.3944	0.4080	0.4073	1.2865
	(1.4620)	(1.4259)	(1.4030)		(1.0733)	(1.0386)	(1.0605)	
income taxes	0.1260	0.1263	0.1227	-0.3355	0.1074	0.1108	0.1125	0.5084
	(1.0514)	(1.0180)	(0.9871)		(0.6260)	(0.6373)	(0.6346)	
business taxes	0.0263	0.0314	0.0336	0.7317	0.0263	0.0295	0.0293	0.3023
	(0.2230)	(0.2522)	(0.2843)		(0.2080)	(0.2711)	(0.2965)	
indirect taxes	0.1281	0.1282	0.1294	0.1327	0.1266	0.1295	0.1284	0.1808
	(0.5266)	(0.4891)	(0.4882)		(0.3068)	(0.2952)	(0.2922)	
soc sec contributions	0.1130	0.1125	0.1115	-0.1484	0.1085	0.1094	0.1081	-0.0489
	(1.0132)	(0.9485)	(0.9603)		(0.6227)	(0.6389)	(0.6656)	

4.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	(0.6876)	(0.6697)	(0.6189)	-6.8721	(0.6709)	(0.7004)	(0.6863)	1.5343
	(4.9741)	(5.1297)	(5.2636)		(4.5258)	(4.7288)	(4.7158)	
primary deficit	0.0125	-0.0072	-0.0066	-1.9042	0.0272	0.0072	0.0068	-2.0441
	(0.6525)	(0.6078)	(0.6648)		(0.4194)	(0.4543)	(0.3932)	
primary expenditures	0.4462	0.4285	0.4266	-1.9601	0.4212	0.4143	0.4134	-0.7810
	(1.8141)	(1.5956)	(1.3703)		(1.0169)	(1.0017)	(0.9995)	
transfers	0.1970	0.1909	0.1882	-0.8759	0.1741	0.1772	0.1795	0.5393
	(1.1138)	(0.9784)	(0.8810)		(0.5835)	(0.5837)	(0.5867)	
gov wage expenditures	0.1257	0.1229	0.1207	-0.4971	0.1215	0.1196	0.1187	-0.2740
	(0.6104)	(0.5906)	(0.5416)		(0.3948)	(0.3686)	(0.3568)	
gov non wage expenditures	0.0818538	0.081007	0.081957	0.0103	0.076979	0.077059	0.07641	-0.0569
	(0.4938)	(0.4595)	(0.4439)		(0.2815)	(0.2913)	(0.2944)	
subsidies	0.0210	0.0188	0.0179	-0.3117	0.0209	0.0201	0.0200	-0.0902
	(0.2961)	(0.2801)	(0.2659)		(0.1373)	(0.1339)	(0.1384)	
gov investment	0.0214	0.0148	0.0179	-0.3544	0.0275	0.0205	0.0190	-0.8452
	(0.3102)	(0.2528)	(0.2350)		(0.1759)	(0.1733)	(0.1477)	
total revenue	0.4338	0.4357	0.4332	-0.0559	0.3940	0.4071	0.4066	1.2631
	(1.6562)	(1.5930)	(1.5806)		(1.0108)	(0.9845)	(1.0001)	
income taxes	0.1301	0.1287	0.1248	-0.5266	0.1071	0.1109	0.1123	0.5170
	(1.2014)	(1.1647)	(1.1255)		(0.5931)	(0.6048)	(0.6016)	
business taxes	0.0256	0.0316	0.0342	0.8610	0.0265	0.0296	0.0293	0.2844
	(0.2425)	(0.2847)	(0.3293)		(0.1987)	(0.2569)	(0.2788)	
indirect taxes	0.1311	0.1310	0.1319	0.0777	0.1257	0.1285	0.1276	0.1861
	(0.5966)	(0.5487)	(0.5597)		(0.2931)	(0.2837)	(0.2765)	
soc sec contributions	0.1097	0.1096	0.1084	-0.1303	0.1100	0.1106	0.1095	-0.0492
	(1.1458)	(1.0679)	(1.0803)		(0.5979)	(0.6107)	(0.6348)	

5.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6729	0.6544	0.6027	-7.0262	0.6769	0.7061	0.6918	1.4952
	(5.0254)	(5.1477)	(5.2655)		(4.4685)	(4.6652)	(4.6457)	
primary deficit	0.0138	-0.0067	-0.0062	-1.9925	0.0266	0.0068	0.0064	-2.0169
	(0.6738)	(0.6367)	(0.6975)		(0.4175)	(0.4486)	(0.3882)	
primary expenditures	0.4529	0.4343	0.4312	-2.1719	0.4195	0.4127	0.4121	-0.7486
	(1.7768)	(1.5622)	(1.3574)		(1.0141)	(0.9990)	(0.9914)	
transfers	0.1990	0.1925	0.1896	-0.9441	0.1739	0.1769	0.1792	0.5335
	(1.1540)	(1.0147)	(0.9150)		(0.5745)	(0.5750)	(0.5774)	
gov wage expenditures	0.1271	0.1243	0.1216	-0.5507	0.1211	0.1192	0.1185	-0.2612
	(0.6248)	(0.6042)	(0.5622)		(0.3902)	(0.3646)	(0.3515)	
gov non wage expenditures	0.0835	0.0825	0.0836	0.0063	0.0765	0.0766	0.0759	-0.0568
	(0.4893)	(0.4563)	(0.4350)		(0.2807)	(0.2897)	(0.2929)	
subsidies	0.0218	0.0196	0.0187	-0.3156	0.0207	0.0198	0.0197	-0.0946
	(0.2976)	(0.2843)	(0.2657)		(0.1379)	(0.1342)	(0.1397)	
gov investment	0.0220	0.0154	0.0178	-0.4167	0.0272	0.0202	0.0190	-0.8167
	(0.3209)	(0.2581)	(0.2470)		(0.1753)	(0.1728)	(0.1452)	
total revenue	0.4392	0.4410	0.4374	-0.1794	0.3930	0.4059	0.4056	1.2683
	(1.6505)	(1.5794)	(1.6031)		(0.9994)	(0.9765)	(0.9875)	
income taxes	0.1301	0.1287	0.1248	-0.5266	0.1071	0.1109	0.1123	0.5170
	(1.2014)	(1.1647)	(1.1255)		(0.5931)	(0.6048)	(0.6016)	
business taxes	0.0256	0.0316	0.0342	0.8610	0.0265	0.0296	0.0293	0.2844
	(0.2425)	(0.2847)	(0.3293)		(0.1987)	(0.2569)	(0.2788)	
indirect taxes	0.1315	0.1315	0.1322	0.0700	0.1257	0.1284	0.1275	0.1859
	(0.6273)	(0.5750)	(0.5873)		(0.2883)	(0.2793)	(0.2717)	
soc sec contributions	0.1096	0.1093	0.1079	-0.1752	0.1100	0.1107	0.1096	-0.0349
	(1.2077)	(1.1224)	(1.1344)		(0.5880)	(0.6008)	(0.6240)	

6.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6536	0.6311	0.5814	-7.2127	0.6813	0.7078	0.6893	0.7993
	(4.1993)	(4.3727)	(4.6271)		(4.2573)	(4.4600)	(4.4490)	
primary deficit	0.0149	-0.0064	-0.0068	-2.1662	0.0255	0.0057	0.0056	-1.9972
	(0.7422)	(0.6849)	(0.8271)		(0.4066)	(0.4323)	(0.3733)	
primary expenditures	0.4629	0.4429	0.4370	-2.5920	0.4193	0.4123	0.4122	-0.7093
	(2.0753)	(1.9957)	(1.7102)		(0.9644)	(0.9296)	(0.9213)	
transfers	0.2026	0.1968	0.1919	-1.0700	0.1746	0.1771	0.1795	0.4885
	(1.3963)	(1.3095)	(1.1865)		(0.5483)	(0.5360)	(0.5360)	
gov wage expenditures	0.1305	0.1266	0.1234	-0.7097	0.1207	0.1190	0.1183	-0.2476
	(0.7799)	(0.7612)	(0.6951)		(0.3647)	(0.3416)	(0.3298)	
gov non wage expenditures	0.0853	0.0846	0.0852	-0.0122	0.0766	0.0766	0.0762	-0.0467
	(0.6297)	(0.5887)	(0.5700)		(0.2617)	(0.2692)	(0.2703)	
subsidies	0.0230	0.0202	0.0193	-0.3657	0.0205	0.0196	0.0195	-0.1013
	(0.3413)	(0.3357)	(0.3204)		(0.1350)	(0.1304)	(0.1338)	
gov investment	0.0216	0.0148	0.0172	-0.4344	0.0269	0.0200	0.0191	-0.7821
	(0.3975)	(0.3142)	(0.3223)		(0.1665)	(0.1631)	(0.1347)	
total revenue	0.4480	0.4494	0.4438	-0.4258	0.3938	0.4066	0.4066	1.2880
	(1.8874)	(1.9563)	(2.0498)		(0.9544)	(0.9163)	(0.9193)	
income taxes	0.1361	0.1342	0.1281	-0.7995	0.1069	0.1107	0.1124	0.5518
	(1.3976)	(1.4666)	(1.4373)		(0.5635)	(0.5632)	(0.5581)	
business taxes	0.0247	0.0306	0.0362	1.1503	0.0267	0.0300	0.0292	0.2511
	(0.2602)	(0.3062)	(0.4028)		(0.1908)	(0.2441)	(0.2588)	
indirect taxes	0.1338	0.1354	0.1343	0.0464	0.1255	0.1277	0.1274	0.1908
	(0.6737)	(0.6325)	(0.6581)		(0.2857)	(0.2735)	(0.2686)	
soc sec contributions	0.1127	0.1101	0.1080	-0.4756	0.1100	0.1104	0.1095	-0.0518
	(1.3523)	(1.2857)	(1.3003)		(0.5757)	(0.5818)	(0.6032)	

Table 4: Basic Statistics—
Action Based Method

2.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.9158	0.9494	0.9361	2.0369	0.7326	0.7929	0.8490	11.6372
	(21.3913)	(22.0643)	(21.9086)		(7.4339)	(6.9754)	(7.3132)	
primary deficit	0.0104	-0.0110	-0.0243	-3.4717	0.0350	0.0269	0.0140	-2.1023
	(2.2342)	(1.9567)	(1.0200)		(0.7172)	(0.7735)	(0.8149)	
primary expenditures	0.4517	0.4405	0.4286	-2.3003	0.4507	0.4467	0.4388	-1.1881
	(4.5851)	(4.1942)	(3.4060)		(2.3088)	(2.2748)	(2.0896)	
transfers	0.2163	0.2145	0.2089	-0.7417	0.1820	0.1859	0.1903	0.8366
	(2.9123)	(2.7016)	(2.4784)		(1.1391)	(1.1447)	(1.1720)	
gov wage expenditures	0.1215	0.1219	0.1157	-0.5795	0.1349	0.1329	0.1275	-0.7420
	(1.1056)	(1.1150)	(0.9656)		(0.9937)	(0.9104)	(0.8241)	
gov non wage expenditures	0.0822	0.0806	0.0830	0.0807	0.0818	0.0825	0.0814	-0.0455
	(0.5565)	(0.5641)	(0.4486)		(0.4794)	(0.4839)	(0.4708)	
subsidies	0.0157	0.0127	0.0116	-0.4097	0.0236	0.0230	0.0214	-0.2194
	(0.4815)	(0.2932)	(0.2730)		(0.2739)	(0.2550)	(0.2334)	
gov investment	0.0160	0.0108	0.0095	-0.6500	0.0298	0.0233	0.0197	-1.0113
	(0.4196)	(0.1611)	(0.2447)		(0.3245)	(0.3247)	(0.4123)	
total revenue	0.4413	0.4514	0.4530	1.1714	0.4157	0.4198	0.4249	0.9142
	(3.1799)	(3.1257)	(2.7393)		(2.0904)	(1.8523)	(1.9144)	
income taxes	0.1267	0.1270	0.1301	0.3450	0.1265	0.1290	0.1293	0.2787
	(1.0071)	(1.1224)	(0.6270)		(1.2022)	(1.1380)	(1.1922)	
business taxes	0.0261	0.0341	0.0328	0.6736	0.0229	0.0240	0.0252	0.2319
	(0.4592)	(0.4764)	(0.3888)		(0.2194)	(0.1739)	(0.2124)	
indirect taxes	0.1253	0.1274	0.1358	1.0499	0.1285	0.1290	0.1308	0.2369
	(0.5978)	(0.4079)	(0.6445)		(0.7060)	(0.6118)	(0.6013)	
soc sec contributions	0.1341	0.1333	0.1255	-0.8553	0.1071	0.1064	0.1084	0.1288
	(2.0518)	(2.0150)	(1.8866)		(1.2336)	(1.1608)	(1.1834)	

3.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.9158	0.9494	0.9361	2.0369	0.7326	0.7929	0.8490	11.6372
	(21.3913)	(22.0643)	(21.9086)		(7.4339)	(6.9754)	(7.3132)	
primary deficit	0.0104	-0.0110	-0.0243	-3.4717	0.0350	0.0269	0.0140	-2.1023
	(2.2342)	(1.9567)	(1.0200)		(0.7172)	(0.7735)	(0.8149)	
primary expenditures	0.4517	0.4405	0.4286	-2.3003	0.4507	0.4467	0.4388	-1.1881
	(4.5851)	(4.1942)	(3.4060)		(2.3088)	(2.2748)	(2.0896)	
transfers	0.2163	0.2145	0.2089	-0.7417	0.1820	0.1859	0.1903	0.8366
	(2.9123)	(2.7016)	(2.4784)		(1.1391)	(1.1447)	(1.1720)	
gov wage expenditures	0.1215	0.1219	0.1157	-0.5795	0.1349	0.1329	0.1275	-0.7420
	(1.1056)	(1.1150)	(0.9656)		(0.9937)	(0.9104)	(0.8241)	
gov non wage expenditures	0.0822	0.0806	0.0830	0.0807	0.0818	0.0825	0.0814	-0.0455
	(0.5565)	(0.5641)	(0.4486)		(0.4794)	(0.4839)	(0.4708)	
subsidies	0.0157	0.0127	0.0116	-0.4097	0.0236	0.0230	0.0214	-0.2194
	(0.4815)	(0.2932)	(0.2730)		(0.2739)	(0.2550)	(0.2334)	
gov investment	0.0160	0.0108	0.0095	-0.6500	0.0298	0.0233	0.0197	-1.0113
	(0.4196)	(0.1611)	(0.2447)		(0.3245)	(0.3247)	(0.4123)	
total revenue	0.4413	0.4514	0.4530	1.1714	0.4157	0.4198	0.4249	0.9142
	(3.1799)	(3.1257)	(2.7393)		(2.0904)	(1.8523)	(1.9144)	
income taxes	0.1267	0.1270	0.1301	0.3450	0.1265	0.1290	0.1293	0.2787
	(1.0071)	(1.1224)	(0.6270)		(1.2022)	(1.1380)	(1.1922)	
business taxes	0.0261	0.0341	0.0328	0.6736	0.0229	0.0240	0.0252	0.2319
	(0.4592)	(0.4764)	(0.3888)		(0.2194)	(0.1739)	(0.2124)	
indirect taxes	0.1253	0.1274	0.1358	1.0499	0.1285	0.1290	0.1308	0.2369
	(0.5978)	(0.4079)	(0.6445)		(0.7060)	(0.6118)	(0.6013)	
soc sec contributions	0.1341	0.1333	0.1255	-0.8553	0.1071	0.1064	0.1084	0.1288
	(2.0518)	(2.0150)	(1.8866)		(1.2336)	(1.1608)	(1.1834)	

4.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.9157621	0.949415	0.936131	2.0369	0.7326	0.7929	0.8490	11.6372
	(21.3913)	(22.0643)	(21.9086)		(7.4339)	(6.9754)	(7.3132)	
primary deficit	0.01037	-0.01096	-0.02435	-3.4717	0.0350	0.0269	0.0140	-2.1023
	(2.2342)	(1.9567)	(1.0200)		(0.7172)	(0.7735)	(0.8149)	
primary expenditures	0.4516521	0.440471	0.428649	-2.3003	0.4507	0.4467	0.4388	-1.1881
	(4.5851)	(4.1942)	(3.4060)		(2.3088)	(2.2748)	(2.0896)	
transfers	0.2163327	0.214489	0.208915	-0.7417	0.1820	0.1859	0.1903	0.8366
	(2.9123)	(2.7016)	(2.4784)		(1.1391)	(1.1447)	(1.1720)	
gov wage expenditures	0.1214822	0.121897	0.115687	-0.5795	0.1349	0.1329	0.1275	-0.7420
	(1.1056)	(1.1150)	(0.9656)		(0.9937)	(0.9104)	(0.8241)	
gov non wage expenditures	0.0821745	0.080618	0.082981	0.0807	0.0818	0.0825	0.0814	-0.0455
	(0.5565)	(0.5641)	(0.4486)		(0.4794)	(0.4839)	(0.4708)	
subsidies	0.0157102	0.012701	0.011614	-0.4097	0.0236	0.0230	0.0214	-0.2194
	(0.4815)	(0.2932)	(0.2730)		(0.2739)	(0.2550)	(0.2334)	
gov investment	0.0159515	0.010766	0.009452	-0.6500	0.0298	0.0233	0.0197	-1.0113
	(0.4196)	(0.1611)	(0.2447)		(0.3245)	(0.3247)	(0.4123)	
total revenue	0.4412821	0.451427	0.452996	1.1714	0.4157	0.4198	0.4249	0.9142
	(3.1799)	(3.1257)	(2.7393)		(2.0904)	(1.8523)	(1.9144)	
income taxes	0.1266979	0.127041	0.130148	0.3450	0.1265	0.1290	0.1293	0.2787
	(1.0071)	(1.1224)	(0.6270)		(1.2022)	(1.1380)	(1.1922)	
business taxes	0.0260723	0.034122	0.032808	0.6736	0.0229	0.0240	0.0252	0.2319
	(0.4592)	(0.4764)	(0.3888)		(0.2194)	(0.1739)	(0.2124)	
indirect taxes	0.1252776	0.127354	0.135776	1.0499	0.1285	0.1290	0.1308	0.2369
	(0.5978)	(0.4079)	(0.6445)		(0.7060)	(0.6118)	(0.6013)	
soc sec contributions	0.1340568	0.133305	0.125503	-0.8553	0.1071	0.1064	0.1084	0.1288
	(2.0518)	(2.0150)	(1.8866)		(1.2336)	(1.1608)	(1.1834)	

5.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.9158	0.9494	0.9361	2.0369	0.7326	0.7929	0.8490	11.6372
	(21.3913)	(22.0643)	(21.9086)		(7.4339)	(6.9754)	(7.3132)	
primary deficit	0.0104	-0.0110	-0.0243	-3.4717	0.0350	0.0269	0.0140	-2.1023
	(2.2342)	(1.9567)	(1.0200)		(0.7172)	(0.7735)	(0.8149)	
primary expenditures	0.4517	0.4405	0.4286	-2.3003	0.4507	0.4467	0.4388	-1.1881
	(4.5851)	(4.1942)	(3.4060)		(2.3088)	(2.2748)	(2.0896)	
transfers	0.2163	0.2145	0.2089	-0.7417	0.1820	0.1859	0.1903	0.8366
	(2.9123)	(2.7016)	(2.4784)		(1.1391)	(1.1447)	(1.1720)	
gov wage expenditures	0.1215	0.1219	0.1157	-0.5795	0.1349	0.1329	0.1275	-0.7420
	(1.1056)	(1.1150)	(0.9656)		(0.9937)	(0.9104)	(0.8241)	
gov non wage expenditures	0.0822	0.0806	0.0830	0.0807	0.0818	0.0825	0.0814	-0.0455
	(0.5565)	(0.5641)	(0.4486)		(0.4794)	(0.4839)	(0.4708)	
subsidies	0.0157	0.0127	0.0116	-0.4097	0.0236	0.0230	0.0214	-0.2194
	(0.4815)	(0.2932)	(0.2730)		(0.2739)	(0.2550)	(0.2334)	
gov investment	0.0160	0.0108	0.0095	-0.6500	0.0298	0.0233	0.0197	-1.0113
	(0.4196)	(0.1611)	(0.2447)		(0.3245)	(0.3247)	(0.4123)	
total revenue	0.4413	0.4514	0.4530	1.1714	0.4157	0.4198	0.4249	0.9142
	(3.1799)	(3.1257)	(2.7393)		(2.0904)	(1.8523)	(1.9144)	
income taxes	0.1267	0.1270	0.1301	0.3450	0.1265	0.1290	0.1293	0.2787
	(1.0071)	(1.1224)	(0.6270)		(1.2022)	(1.1380)	(1.1922)	
business taxes	0.0261	0.0341	0.0328	0.6736	0.0229	0.0240	0.0252	0.2319
	(0.4592)	(0.4764)	(0.3888)		(0.2194)	(0.1739)	(0.2124)	
indirect taxes	0.1253	0.1274	0.1358	1.0499	0.1285	0.1290	0.1308	0.2369
	(0.5978)	(0.4079)	(0.6445)		(0.7060)	(0.6118)	(0.6013)	
soc sec contributions	0.1341	0.1333	0.1255	-0.8553	0.1071	0.1064	0.1084	0.1288
	(2.0518)	(2.0150)	(1.8866)		(1.2336)	(1.1608)	(1.1834)	

6.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.9606	1.0023	0.9888	2.8190	0.7511	0.8058	0.8533	10.2242
	(37.3409)	(37.6329)	(36.7501)		(7.4239)	(7.0536)	(7.2750)	
primary deficit	0.0233	0.0076	-0.0140	-3.7333	0.0310	0.0212	0.0091	-2.1933
	(4.1857)	(2.8187)	(1.7656)		(0.7322)	(0.8217)	(0.8075)	
primary expenditures	0.5045	0.4953	0.4737	-3.0841	0.4453	0.4406	0.4333	-1.1936
	(8.3771)	(6.6012)	(4.8248)		(2.0931)	(2.0864)	(1.9212)	
transfers	0.2478	0.2428	0.2361	-1.1783	0.1823	0.1859	0.1895	0.7209
	(5.5620)	(5.1714)	(4.4637)		(1.0163)	(1.0298)	(1.0589)	
gov wage expenditures	0.1344	0.1359	0.1300	-0.4387	0.1320	0.1303	0.1247	-0.7243
	(1.9851)	(1.7547)	(1.1437)		(0.9028)	(0.8334)	(0.7595)	
gov non wage expenditures	0.0861	0.0869	0.0862	0.0167	0.0814	0.0816	0.0812	-0.0234
	(0.9087)	(0.8725)	(0.9252)		(0.4309)	(0.4380)	(0.4210)	
subsidies	0.0214	0.0167	0.0149	-0.6568	0.0222	0.0216	0.0201	-0.2065
	(0.7385)	(0.3148)	(0.2287)		(0.2655)	(0.2501)	(0.2301)	
gov investment	0.0148	0.0130	0.0065	-0.8269	0.0285	0.0218	0.0190	-0.9508
	(1.0001)	(0.2326)	(0.0861)		(0.3038)	(0.3085)	(0.3747)	
total revenue	0.4812	0.4877	0.4877	0.6492	0.4142	0.4193	0.4242	0.9997
	(4.1914)	(3.7825)	(3.0592)		(1.8847)	(1.6908)	(1.7362)	
income taxes	0.1407	0.1427	0.1399	-0.0781	0.1250	0.1273	0.1284	0.3349
	(1.4454)	(1.5770)	(0.6575)		(1.0770)	(1.0288)	(1.0716)	
business taxes	0.0183	0.0263	0.0321	1.3834	0.0241	0.0258	0.0261	0.1993
	(0.1162)	(0.3802)	(0.7541)		(0.2116)	(0.1991)	(0.2032)	
indirect taxes	0.1277	0.1278	0.1310	0.3339	0.1279	0.1288	0.1318	0.3927
	(1.2909)	(0.8622)	(1.0918)		(0.6326)	(0.5504)	(0.5478)	
soc sec contributions	0.1589	0.1546	0.1510	-0.7812	0.1073	0.1069	0.1075	0.0218
	(0.4964)	(1.0795)	(1.2462)		(1.1335)	(1.0775)	(1.0801)	

Table 5: Basic Statistics—Percent

		CAPB Method		Action-Based Method	
		Successful	Unsuccessful	Successful	Unsuccessful
2.5	**primary expenditures**	**94.79%**	**32.97%**	**66.26%**	**56.51%**
	total revenue	**5.21%**	**67.03%**	**33.74%**	**43.49%**
	transfers	39.39%	-32.34%	21.37%	-39.79%
	gov wage expenditures	22.19%	13.42%	16.69%	35.29%
	gov non wage expenditures	-0.31%	3.36%	-2.32%	2.17%
	subsidies	13.05%	4.04%	11.80%	10.44%
	gov investment	24.20%	41.36%	18.72%	48.10%
	income taxes	-15.44%	26.34%	9.94%	13.26%
	business taxes	36.05%	14.09%	19.40%	11.03%
	indirect taxes	4.78%	9.93%	30.24%	11.27%
	soc sec contributions	-8.78%	-1.38%	-24.64%	6.12%
	COUNT	27	55	4	18
3.5	**primary expenditures**	**92.49%**	**37.61%**	**66.26%**	**56.51%**
	total revenue	**7.51%**	**62.39%**	**33.74%**	**43.49%**
	transfers	36.58%	-27.04%	21.37%	-39.79%
	gov wage expenditures	22.50%	13.87%	16.69%	35.29%
	gov non wage expenditures	-2.05%	3.80%	-2.32%	2.17%
	subsidies	14.22%	4.27%	11.80%	10.44%
	gov investment	25.29%	39.85%	18.72%	48.10%
	income taxes	-17.80%	24.65%	9.94%	13.26%
	business taxes	38.81%	14.66%	19.40%	11.03%
	indirect taxes	7.04%	8.77%	30.24%	11.27%
	soc sec contributions	-7.87%	-2.37%	-24.64%	6.12%
	COUNT	25	57	4	18
4.5	**primary expenditures**	**102.94%**	**38.21%**	**66.26%**	**56.51%**
	total revenue	**-2.94%**	**61.79%**	**33.74%**	**43.49%**
	transfers	46.00%	-26.38%	21.37%	-39.79%
	gov wage expenditures	26.11%	13.40%	16.69%	35.29%
	gov non wage expenditures	-0.54%	2.78%	-2.32%	2.17%
	subsidies	16.37%	4.41%	11.80%	10.44%
	gov investment	18.61%	41.35%	18.72%	48.10%
	income taxes	-27.65%	25.29%	9.94%	13.26%
	business taxes	45.22%	13.91%	19.40%	11.03%
	indirect taxes	4.08%	9.11%	30.24%	11.27%
	soc sec contributions	-6.84%	-2.41%	-24.64%	6.12%
	COUNT	21	61	4	18

		CAPB Method		Action-Based Method	
		Successful	Unsuccessful	Successful	Unsuccessful
5.5	**primary expenditures**	**109.00%**	**37.12%**	**66.26%**	**56.51%**
	total revenue	**-9.00%**	**62.88%**	**33.74%**	**43.49%**
	transfers	47.38%	-26.45%	21.37%	-39.79%
	gov wage expenditures	27.64%	12.95%	16.69%	35.29%
	gov non wage expenditures	-0.32%	2.82%	-2.32%	2.17%
	subsidies	15.84%	4.69%	11.80%	10.44%
	gov investment	20.91%	40.49%	18.72%	48.10%
	income taxes	-26.43%	25.63%	9.94%	13.26%
	business taxes	43.21%	14.10%	19.40%	11.03%
	indirect taxes	3.51%	9.22%	30.24%	11.27%
	soc sec contributions	-8.79%	-1.73%	-24.64%	6.12%
	COUNT	20	62	4	18
6.5	**primary expenditures**	**119.65%**	**35.51%**	**82.61%**	**54.42%**
	total revenue	**-19.65%**	**64.49%**	**17.39%**	**45.58%**
	transfers	49.39%	-24.46%	31.56%	-32.87%
	gov wage expenditures	32.76%	12.40%	11.75%	33.02%
	gov non wage expenditures	0.56%	2.34%	-0.45%	1.07%
	subsidies	16.88%	5.07%	17.59%	9.42%
	gov investment	20.05%	39.16%	22.15%	43.35%
	income taxes	-36.91%	27.63%	-2.09%	15.27%
	business taxes	53.10%	12.57%	37.06%	9.09%
	indirect taxes	2.14%	9.55%	8.94%	17.91%
	soc sec contributions	-21.96%	-2.59%	-20.93%	0.99%
	COUNT	15	67	2	20

Table 6: Average expenditure share in successful consolidations from our results and the literature

Studies	**Expenditure Share**	**Revenue Share**
Alesina and Perotti 1996	64%	36%
Alesina and Ardagna 1998	62%	38%
Alesina and Ardagna 2009	135%	-35%
Von Hagen andStrauch 2001	52%	48%
Zaghini 1999	77%	23%
Action-Based 4.5	66%	34%
CAPB 4.5	103%	-3%
Mean	**80%**	**20%**

Table 7: Components of resolution of entitlement-generated federal outlay increases, 2010-2035

Resolution of entitlement-driven federal expenditure increases as of 2035			
Category	**Percent of GDP**	**Trillions ($2010)**	**Share of Consolidation**
Social Security benefit reductions	0.78%	$204	10.56%
Medicare deductible	3.36%	$878	40.55%
Medicaid block grants	1.90%	$496	25.67%
Payroll tax increase	1.11%	$289	14.96%
Reduced public sector pay	0.25%	$65	3.36%
Total	7.40%	$1,932	100%

Figure 1: Average Revenue and Expenditure Shares in Successful and Unsuccessful Consolidations
CAPB and Action-Based Method Results

Figure 2: Revenue and Expenditure Shares in Successful and Unsuccessful Consolidations
CABP and Action-Based Results with Relevant Literature

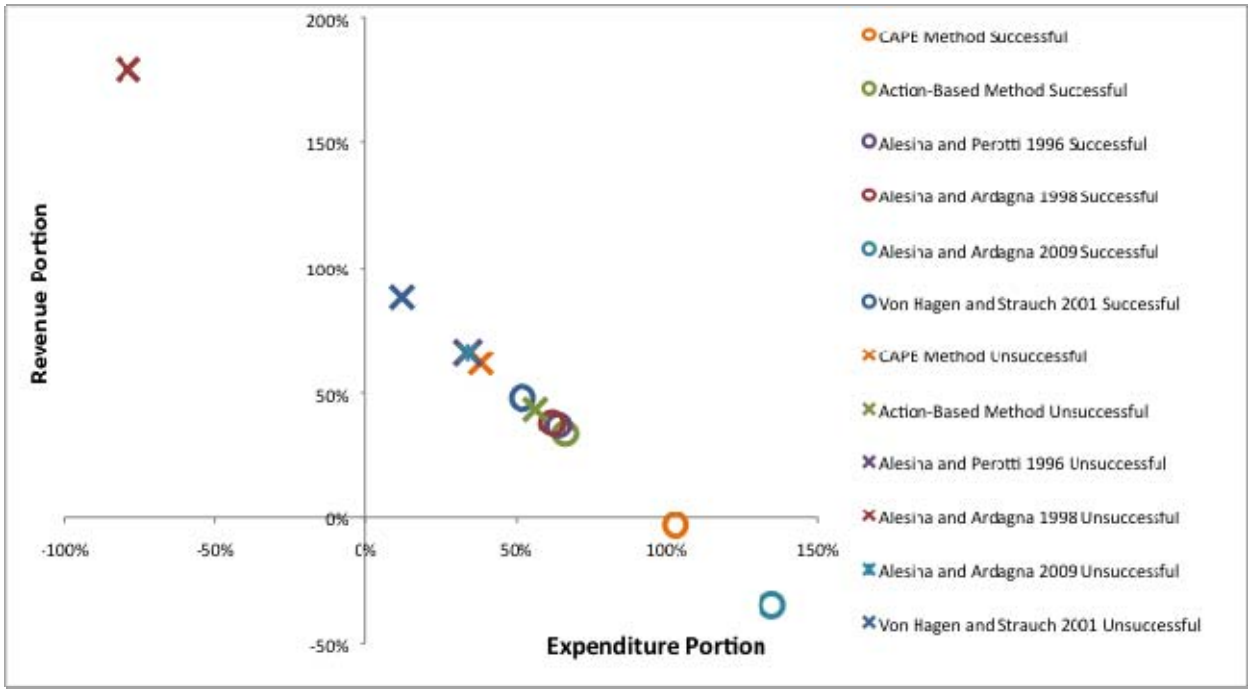
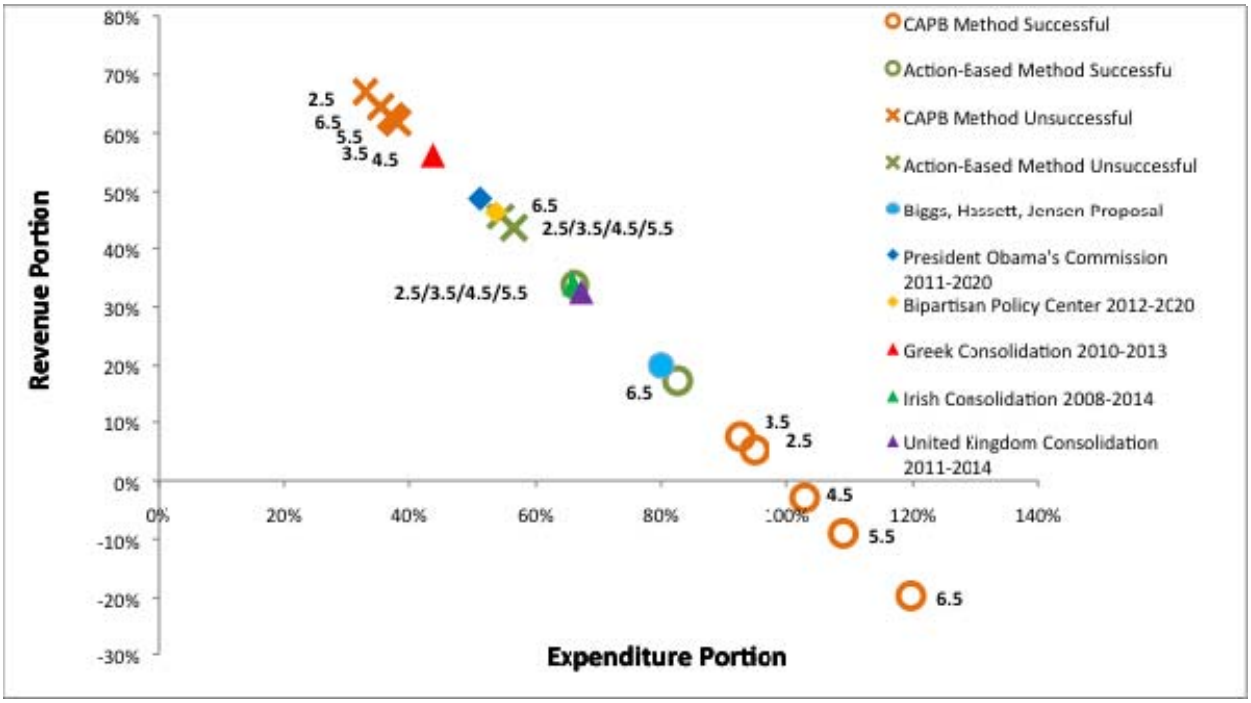


Figure 3 – Revenue and Expenditure Shares in Successful and Unsuccessful Consolidations
CABP and Action-Based Results with US Proposals and European Consolidation Plans



Figures 4: Transfers

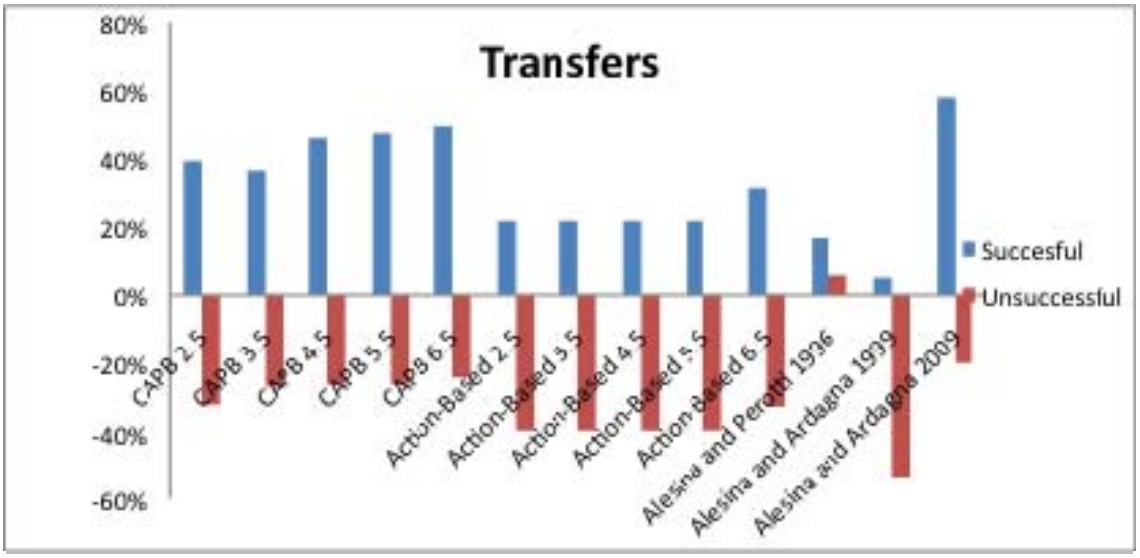


Figure 5: Government Wage Expenditures

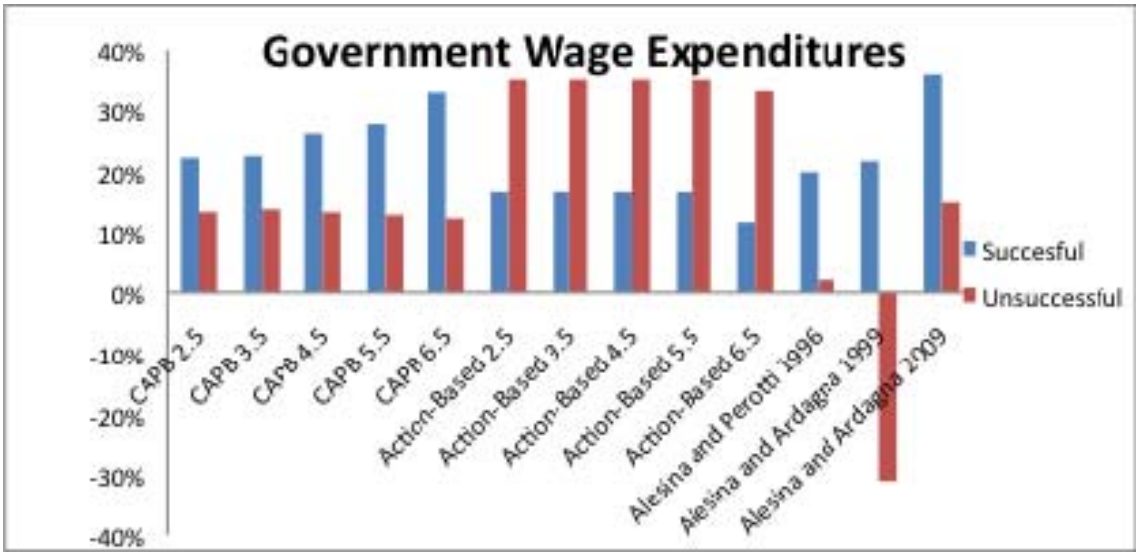


Figure 6: Government Non-Wage Expenditures

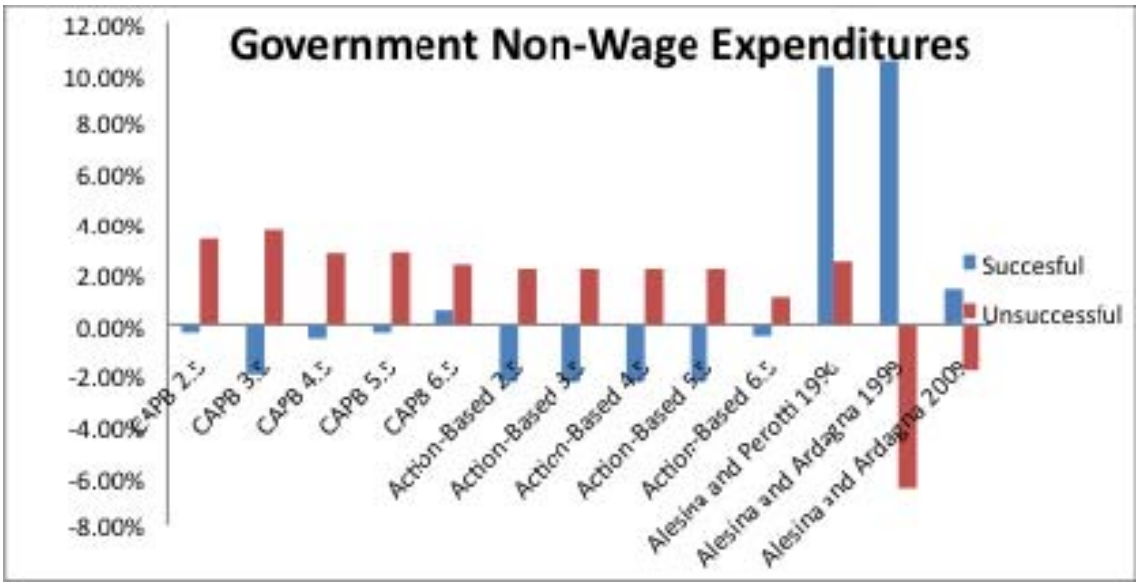


Figure 7: Subsidies

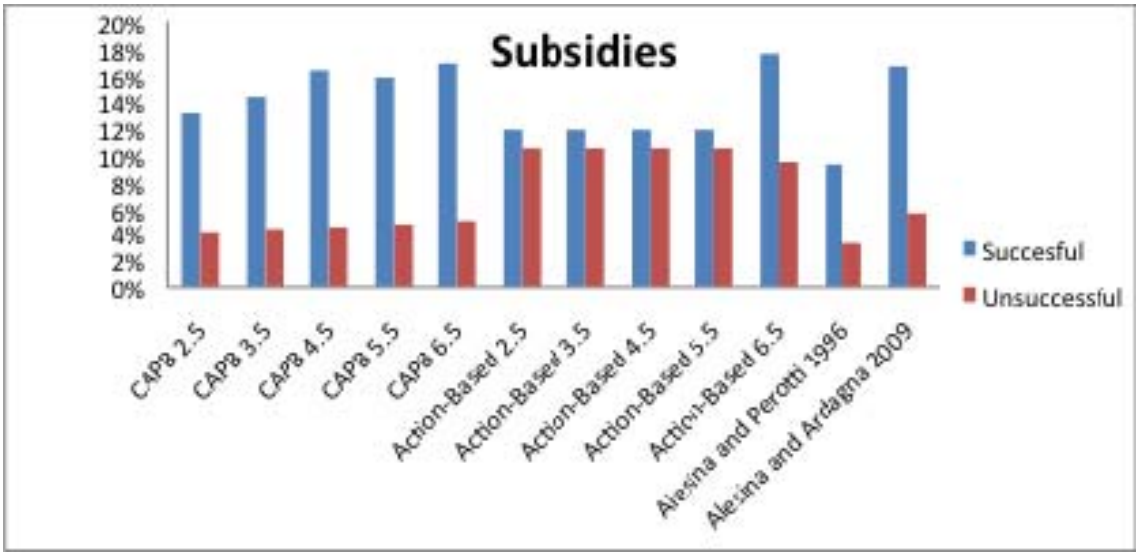


Figure 8: Government Investment

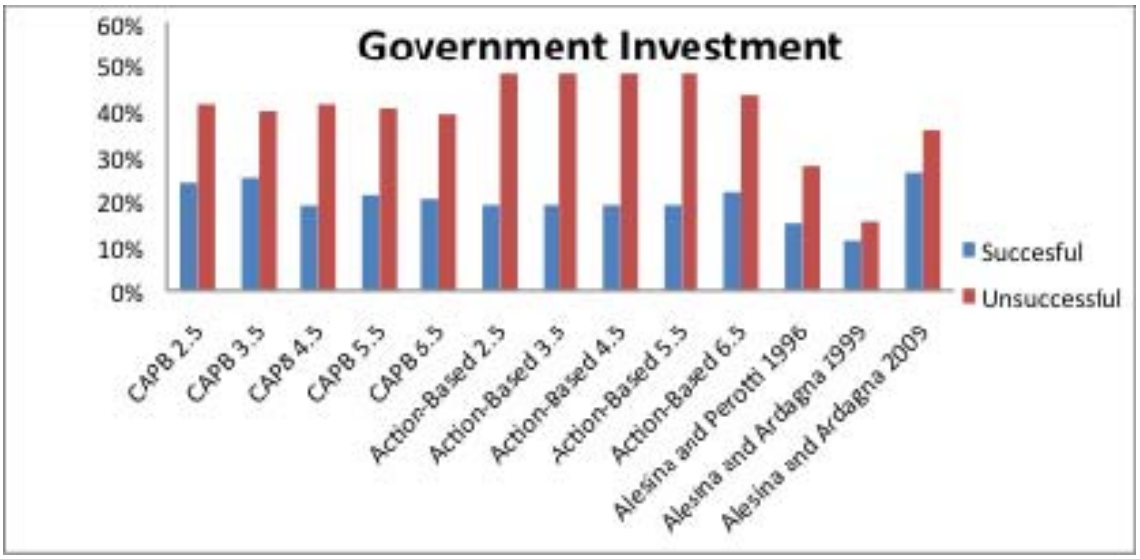


Figure 9: Income Taxes

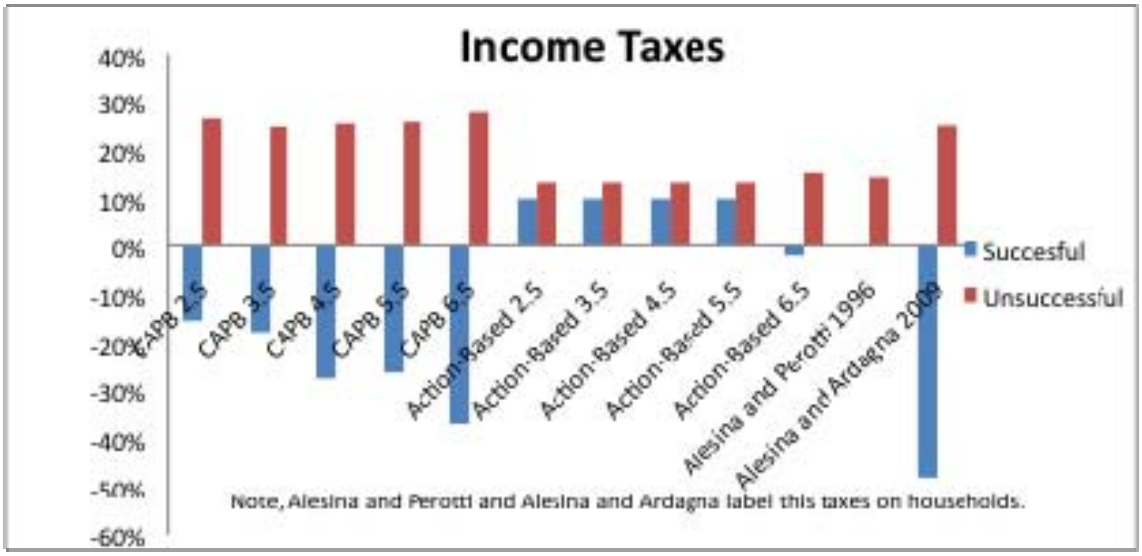


Figure 10: Business Taxes

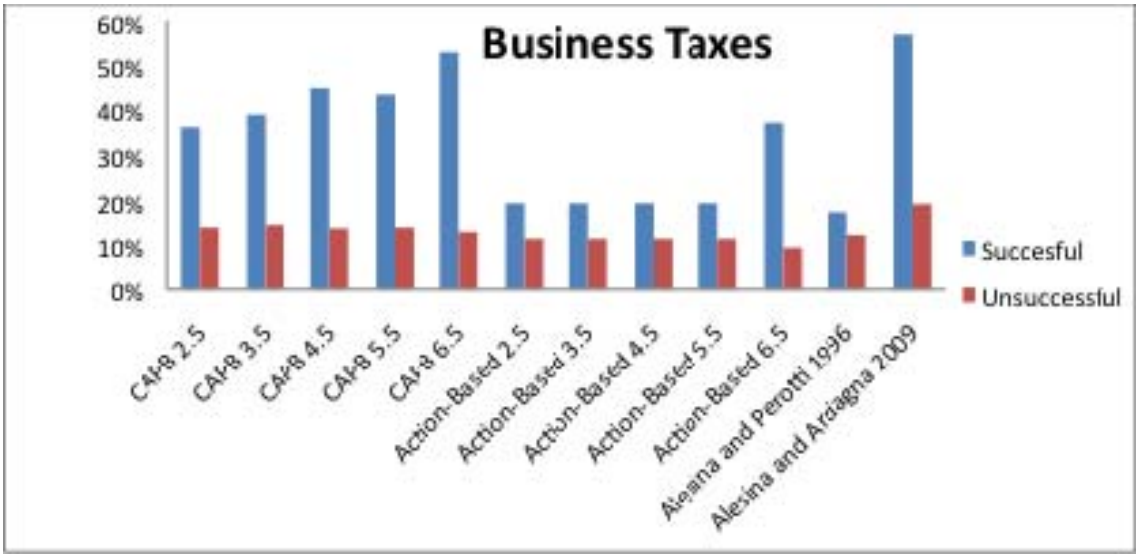


Figure 11: Indirect Taxes

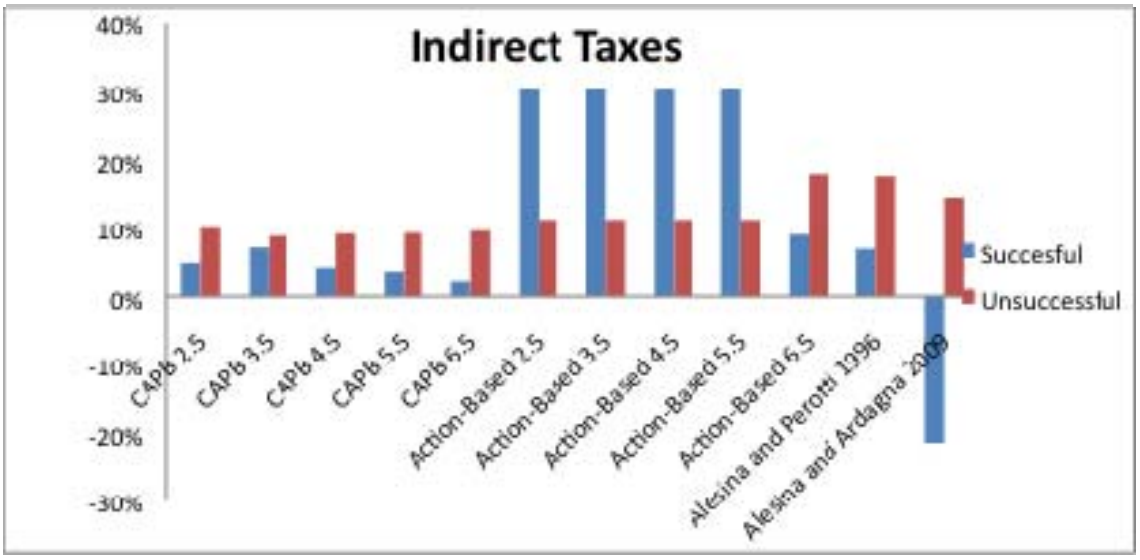


Figure 12: Social security Contributions

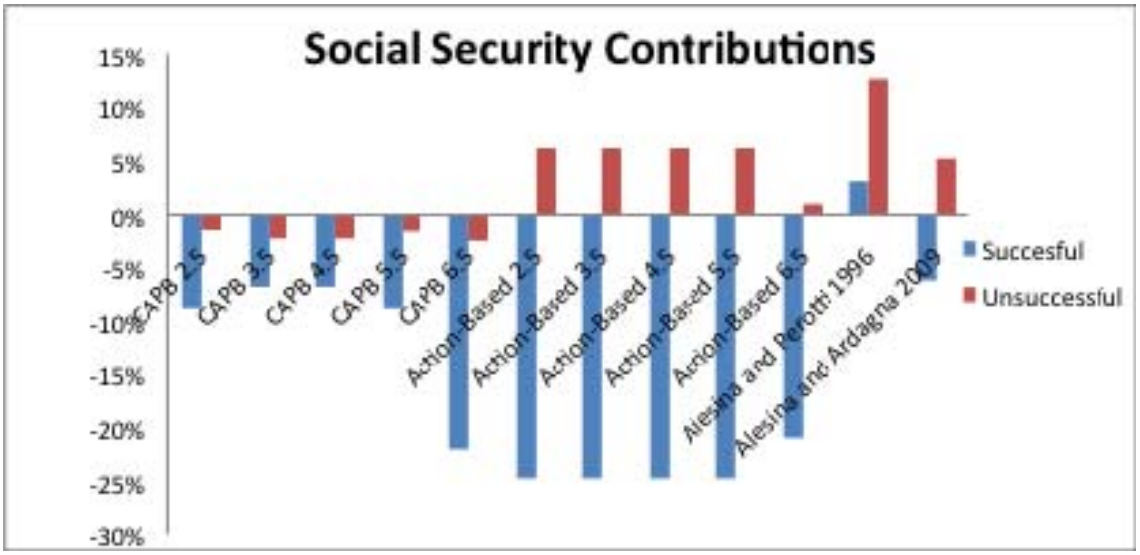
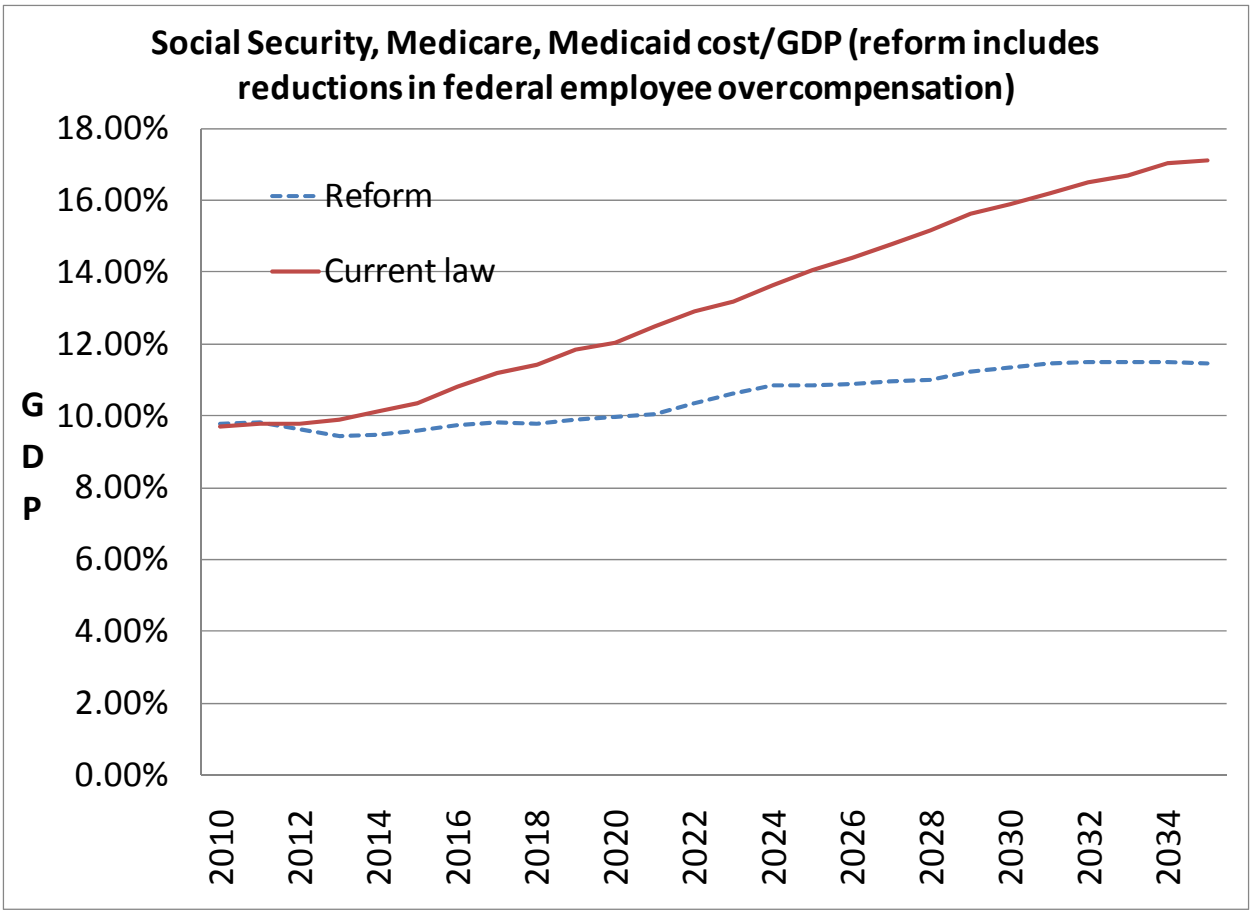


Figure 13: Annual Social Security, Medicare and Medicaid expenditures under current projections and stylized fiscal consolidation



Appendix A

This appendix provides a snapshot of the results obtained by using the alternate whole-consolidation method for identifying successful consolidations. The *whole-consolidation* method defines a multi-year consolidation as successful if just one year during the period individually meets the general definition for success (a reduction of debt to GDP within three years). This is the *qualifying-year*. A multi-year consolidation fails if every year within the consolidation individually fails to meet the general definition for success. Note that the years of adjustment and years of success shown in Tables 1 and 2 are still relevant to the *whole-consolidation* method.

Tables A.1 and A.2 show the changes in fiscal variables that occur during successful and unsuccessful consolidations. Table A.1 shows the results where the consolidations are selected by the cyclically adjusted primary balance (CAPB) method and Table A.2 where the consolidations are selected by the Action-Based method. The "T", "prior" and "post" values are defined differently here than in the rest of the paper to account for the different method of defining success. The "T" values show the average of each fiscal variable during the consolidation. If it is a one year consolidation, then the "T" values are just the fiscal variables during that year. If it is a successful multi-year consolidation, then the "T" values are the average of the fiscal variables for the consolidation years preceding the qualifying year. If it is a failed multi-year consolidation, then the "T" values are the average of the fiscal variables during the entire consolidation. The "prior" values show the average of each fiscal variable for the two years preceding the first year of the consolidation. The "post" values show the average of each fiscal variable for the two years following the entire consolidation for one-year and failed multi-year consolidations, and following the qualifying year for successful multi-year consolidations

Table A.3 displays the post-prior change in each fiscal variable as a percent of the post-prior change in the cyclically adjusted primary balance. Figures A.1–A.10 display these relationships graphically.

Table A.1: Basic Statistics—Cyclically Adjusted Primary Balance Method

2.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6873	0.6906	0.6411	-0.0462	0.6665	0.6935	0.6999	0.0334
	(3.7331)	(3.9651)	(4.2369)		(5.6000)	(5.8045)	(5.7917)	
primary deficit	0.0196	-0.0033	-0.0087	-0.0282	0.0261	0.0041	0.0090	-0.0170
	(0.5584)	(0.5314)	(0.4782)		(0.4698)	(0.4878)	(0.4591)	
primary expenditures	0.4499	0.4303	0.4247	-0.0252	0.4133	0.4068	0.4099	-0.0034
	(1.5129)	(1.3838)	(1.2040)		(1.0559)	(1.0325)	(1.0836)	
transfers	0.1959	0.1911	0.1884	-0.0075	0.1697	0.1734	0.1768	0.0071
	(0.8425)	(0.7652)	(0.7054)		(0.6406)	(0.6390)	(0.6671)	
gov wage expenditures	0.1304	0.1266	0.1235	-0.0069	0.1176	0.1159	0.1159	-0.0017
	(0.5738)	(0.5264)	(0.4732)		(0.3889)	(0.3678)	(0.3679)	
gov non wage expenditures	0.0836	0.0824	0.0829	-0.0007	0.0749	0.0751	0.0747	-0.0002
	(0.3754)	(0.3663)	(0.3652)		(0.3140)	(0.3235)	(0.3231)	
subsidies	0.0197	0.0178	0.0165	-0.0031	0.0218	0.0208	0.0210	-0.0008
	(0.2338)	(0.2211)	(0.2048)		(0.1439)	(0.1383)	(0.1472)	
gov investment	0.0212	0.0133	0.0142	-0.0070	0.0290	0.0215	0.0215	-0.0075
	(0.2361)	(0.2038)	(0.1958)		(0.1942)	(0.1791)	(0.1598)	
total revenue	0.4303	0.4336	0.4334	0.0030	0.3872	0.4026	0.4008	0.0136
	(1.3314)	(1.3052)	(1.3021)		(1.1095)	(1.0759)	(1.1105)	
income taxes	0.1348	0.1353	0.1331	-0.0017	0.0988	0.1026	0.1035	0.0047
	(0.9040)	(0.8978)	(0.9222)		(0.5956)	(0.6041)	(0.5902)	
business taxes	0.0261	0.0316	0.0336	0.0076	0.0264	0.0296	0.0290	0.0025
	(0.1926)	(0.2271)	(0.2301)		(0.2339)	(0.3167)	(0.3289)	
indirect taxes	0.1319	0.1315	0.1329	0.0010	0.1240	0.1278	0.1262	0.0022
	(0.4467)	(0.4150)	(0.4282)		(0.3236)	(0.3188)	(0.3085)	
soc sec contributions	0.1053	0.1047	0.1037	-0.0016	0.1128	0.1140	0.1130	0.0002
	(0.9542)	(0.8948)	(0.9033)		(0.6210)	(0.6504)	(0.6813)	

3.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6912	0.6959	0.6589	-0.0323	0.6642	0.6895	0.6818	0.0176
	(3.8484)	(4.0627)	(4.2714)		(5.4515)	(5.6680)	(5.6425)	
primary deficit	0.0207	-0.0015	-0.0081	-0.0288	0.0252	0.0026	0.0077	-0.0175
	(0.5857)	(0.5271)	(0.5064)		(0.4580)	(0.4860)	(0.4509)	
primary expenditures	0.4522	0.4331	0.4273	-0.0249	0.4134	0.4059	0.4087	-0.0047
	(1.5615)	(1.4237)	(1.2167)		(1.0379)	(1.0128)	(1.0663)	
transfers	0.1966	0.1924	0.1894	-0.0071	0.1703	0.1733	0.1765	0.0062
	(0.8232)	(0.7514)	(0.6835)		(0.6501)	(0.6387)	(0.6671)	
gov wage expenditures	0.1302	0.1264	0.1232	-0.0070	0.1180	0.1162	0.1162	-0.0018
	(0.5929)	(0.5451)	(0.4900)		(0.3828)	(0.3616)	(0.3614)	
gov non wage expenditures	0.0838	0.0826	0.0832	-0.0006	0.0749	0.0750	0.0748	-0.0002
	(0.3874)	(0.3773)	(0.3770)		(0.3076)	(0.3171)	(0.3162)	
subsidies	0.0199	0.0180	0.0167	-0.0032	0.0216	0.0206	0.0206	-0.0010
	(0.2491)	(0.2354)	(0.2186)		(0.1390)	(0.1340)	(0.1429)	
gov investment	0.0220	0.0138	0.0147	-0.0073	0.0282	0.0210	0.0208	-0.0074
	(0.2447)	(0.2145)	(0.2058)		(0.1945)	(0.1772)	(0.1591)	
total revenue	0.4315	0.4346	0.4354	0.0039	0.3883	0.4033	0.4010	0.0128
	(1.3404)	(1.3133)	(1.3176)		(1.1010)	(1.0679)	(1.0943)	
income taxes	0.1347	0.1344	0.1330	-0.0016	0.1005	0.1045	0.1052	0.0047
	(0.9774)	(0.9674)	(0.9915)		(0.5813)	(0.5916)	(0.5743)	
business taxes	0.0251	0.0305	0.0329	0.0078	0.0269	0.0304	0.0295	0.0026
	(0.1923)	(0.2153)	(0.2425)		(0.2271)	(0.3107)	(0.3158)	
indirect taxes	0.1317	0.1317	0.1333	0.0016	0.1244	0.1279	0.1262	0.0018
	(0.4771)	(0.4422)	(0.4549)		(0.3126)	(0.3067)	(0.2962)	
soc sec contributions	0.1080	0.1076	0.1065	-0.0015	0.1110	0.1119	0.1108	-0.0002
	(0.9455)	(0.8832)	(0.8944)		(0.6376)	(0.6628)	(0.6941)	

4.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6805	0.6847	0.6435	-0.0370	0.6730	0.6965	0.6825	0.0094
	(4.1521)	(4.3781)	(4.5490)		(5.0227)	(5.2310)	(5.2996)	
primary deficit	0.0210	-0.0012	-0.0095	-0.0306	0.0247	0.0020	0.0073	-0.0173
	(0.6490)	(0.5658)	(0.5788)		(0.4350)	(0.4628)	(0.4251)	
primary expenditures	0.4596	0.4395	0.4317	-0.0278	0.4129	0.4048	0.4088	-0.0041
	(1.7217)	(1.5444)	(1.3251)		(0.9800)	(0.9650)	(1.0206)	
transfers	0.1984	0.1934	0.1897	-0.0087	0.1714	0.1742	0.1769	0.0055
	(0.9307)	(0.8436)	(0.7660)		(0.6113)	(0.6016)	(0.6347)	
gov wage expenditures	0.1337	0.1293	0.1257	-0.0080	0.1172	0.1155	0.1157	-0.0016
	(0.6572)	(0.6081)	(0.5500)		(0.3570)	(0.3372)	(0.3412)	
gov non wage expenditures	0.0839	0.0824	0.0829	-0.0010	0.0756	0.0756	0.0760	0.0005
	(0.4085)	(0.3823)	(0.3724)		(0.2995)	(0.3120)	(0.3188)	
subsidies	0.0215	0.0193	0.0179	-0.0036	0.0207	0.0197	0.0201	-0.0006
	(0.2670)	(0.2546)	(0.2373)		(0.1388)	(0.1335)	(0.1397)	
gov investment	0.0223	0.0150	0.0155	-0.0067	0.0276	0.0198	0.0205	-0.0072
	(0.2719)	(0.2140)	(0.2192)		(0.1858)	(0.1809)	(0.1532)	
total revenue	0.4385	0.4407	0.4413	0.0027	0.3882	0.4028	0.4015	0.0133
	(1.4737)	(1.4302)	(1.4438)		(1.0312)	(1.0069)	(1.0437)	
income taxes	0.1390	0.1374	0.1361	-0.0029	0.1007	0.1049	0.1055	0.0048
	(1.0712)	(1.0691)	(1.0933)		(0.5483)	(0.5601)	(0.5432)	
business taxes	0.0244	0.0305	0.0333	0.0089	0.0271	0.0304	0.0296	0.0024
	(0.2024)	(0.2363)	(0.2727)		(0.2155)	(0.2925)	(0.2948)	
indirect taxes	0.1347	0.1346	0.1359	0.0012	0.1236	0.1269	0.1255	0.0019
	(0.5190)	(0.4769)	(0.5014)		(0.2966)	(0.2924)	(0.2833)	
soc sec contributions	0.1045	0.1045	0.1032	-0.0013	0.1123	0.1131	0.1117	-0.0007
	(1.0405)	(0.9688)	(0.9801)		(0.6098)	(0.6304)	(0.6694)	

5.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6687	0.6731	0.6315	-0.0372	0.6797	0.7028	0.6888	0.0092
	(4.1588)	(4.3930)	(4.5680)		(4.9462)	(5.1500)	(5.2075)	
primary deficit	0.0224	-0.0006	-0.0093	-0.0317	0.0240	0.0017	0.0069	-0.0171
	(0.6609)	(0.5850)	(0.6020)		(0.4323)	(0.4559)	(0.4191)	
primary expenditures	0.4654	0.4446	0.4356	-0.0298	0.4112	0.4031	0.4074	-0.0038
	(1.6877)	(1.5176)	(1.3189)		(0.9769)	(0.9617)	(1.0108)	
transfers	0.2001	0.1948	0.1909	-0.0092	0.1712	0.1740	0.1766	0.0054
	(0.9543)	(0.8662)	(0.7882)		(0.6008)	(0.5916)	(0.6231)	
gov wage expenditures	0.1351	0.1307	0.1265	-0.0085	0.1169	0.1152	0.1154	-0.0015
	(0.6676)	(0.6173)	(0.5651)		(0.3522)	(0.3330)	(0.3353)	
gov non wage expenditures	0.0853	0.0837	0.0842	-0.0011	0.0751	0.0752	0.0755	0.0004
	(0.3994)	(0.3755)	(0.3622)		(0.2980)	(0.3096)	(0.3167)	
subsidies	0.0222	0.0200	0.0185	-0.0036	0.0204	0.0195	0.0197	-0.0007
	(0.2678)	(0.2574)	(0.2371)		(0.1396)	(0.1340)	(0.1417)	
gov investment	0.0227	0.0154	0.0154	-0.0073	0.0273	0.0195	0.0204	-0.0069
	(0.2787)	(0.2169)	(0.2276)		(0.1850)	(0.1802)	(0.1503)	
total revenue	0.4430	0.4452	0.4449	0.0019	0.3872	0.4015	0.4005	0.0133
	(1.4641)	(1.4151)	(1.4540)		(1.0177)	(0.9974)	(1.0282)	
income taxes	0.1390	0.1374	0.1361	-0.0029	0.1007	0.1049	0.1055	0.0048
	(1.0712)	(1.0691)	(1.0933)		(0.5483)	(0.5601)	(0.5432)	
business taxes	0.0244	0.0305	0.0333	0.0089	0.0271	0.0304	0.0296	0.0024
	(0.2024)	(0.2363)	(0.2727)		(0.2155)	(0.2925)	(0.2948)	
indirect taxes	0.1352	0.1351	0.1364	0.0012	0.1236	0.1268	0.1255	0.0019
	(0.5388)	(0.4937)	(0.5199)		(0.2913)	(0.2873)	(0.2778)	
soc sec contributions	0.1042	0.1041	0.1026	-0.0017	0.1123	0.1131	0.1118	-0.0005
	(1.0844)	(1.0076)	(1.0180)		(0.5988)	(0.6192)	(0.6565)	

6.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.6394	0.6438	0.6018	-0.0376	0.6887	0.7102	0.6914	0.0028
	(3.4031)	(3.6737)	(4.0018)		(4.5859)	(4.8111)	(4.8536)	
primary deficit	0.0245	-0.0006	-0.0113	-0.0358	0.0232	0.0008	0.0054	-0.0179
	(0.7524)	(0.6461)	(0.7644)		(0.4127)	(0.4302)	(0.4046)	
primary expenditures	0.4778	0.4555	0.4439	-0.0339	0.4118	0.4034	0.4077	-0.0042
	(1.9693)	(1.8972)	(1.6268)		(0.9125)	(0.8766)	(0.9237)	
transfers	0.2049	0.2002	0.1947	-0.0102	0.1721	0.1743	0.1769	0.0048
	(1.1367)	(1.0902)	(0.9875)		(0.5623)	(0.5400)	(0.5653)	
gov wage expenditures	0.1389	0.1334	0.1293	-0.0096	0.1175	0.1157	0.1157	-0.0018
	(0.8216)	(0.7671)	(0.7011)		(0.3287)	(0.3086)	(0.3097)	
gov non wage expenditures	0.0872	0.0859	0.0865	-0.0008	0.0755	0.0753	0.0759	0.0004
	(0.5033)	(0.4738)	(0.4622)		(0.2719)	(0.2810)	(0.2852)	
subsidies	0.0235	0.0210	0.0194	-0.0041	0.0202	0.0192	0.0194	-0.0008
	(0.3116)	(0.3056)	(0.2857)		(0.1348)	(0.1289)	(0.1338)	
gov investment	0.0233	0.0152	0.0140	-0.0093	0.0267	0.0191	0.0201	-0.0066
	(0.3365)	(0.2610)	(0.3112)		(0.1746)	(0.1675)	(0.1412)	
total revenue	0.4533	0.4561	0.4552	0.0019	0.3886	0.4026	0.4023	0.0137
	(1.6737)	(1.7155)	(1.8231)		(0.9541)	(0.9177)	(0.9355)	
income taxes	0.1454	0.1444	0.1416	-0.0038	0.1014	0.1058	0.1069	0.0055
	(1.2434)	(1.3324)	(1.3837)		(0.5128)	(0.5113)	(0.4961)	
business taxes	0.0235	0.0298	0.0344	0.0109	0.0273	0.0307	0.0296	0.0023
	(0.2204)	(0.2567)	(0.3356)		(0.2019)	(0.2700)	(0.2665)	
indirect taxes	0.1373	0.1388	0.1395	0.0022	0.1239	0.1264	0.1257	0.0018
	(0.5846)	(0.5421)	(0.5980)		(0.2867)	(0.2773)	(0.2718)	
soc sec contributions	0.1085	0.1061	0.1042	-0.0043	0.1103	0.1118	0.1104	0.0001
	(1.2165)	(1.1453)	(1.1550)		(0.5862)	(0.5989)	(0.6323)	

Table A.2: Basic Statistics—Action-Based Method

2.5 Definition	**Successful**				**Unsuccessful**			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.8343	0.8943	0.8864	0.0521	0.7438	0.8099	0.8231	0.0793
	(14.6861)	(14.4039)	(14.2369)		(8.7121)	(8.0325)	(9.2040)	
primary deficit	0.0320	0.0018	-0.0260	-0.0581	0.0296	0.0223	0.0117	-0.0179
	(1.9887)	(1.5041)	(0.8421)		(0.6920)	(0.8598)	(0.8679)	
primary expenditures	0.4921	0.4717	0.4519	-0.0402	0.4344	0.4344	0.4249	-0.0095
	(4.0858)	(3.4526)	(2.8108)		(2.2451)	(2.4084)	(2.2456)	
transfers	0.2213	0.2184	0.2126	-0.0087	0.1754	0.1819	0.1866	0.0112
	(2.0882)	(1.8573)	(1.6675)		(1.1378)	(1.2611)	(1.3187)	
gov wage expenditures	0.1419	0.1390	0.1318	-0.0102	0.1280	0.1260	0.1203	-0.0077
	(1.4771)	(1.3047)	(1.1876)		(1.0049)	(0.9120)	(0.8135)	
gov non wage expenditures	0.0879	0.0854	0.0867	-0.0012	0.0793	0.0804	0.0797	0.0004
	(0.5292)	(0.5169)	(0.4954)		(0.5100)	(0.5339)	(0.5195)	
subsidies	0.0201	0.0169	0.0140	-0.0061	0.0229	0.0226	0.0199	-0.0031
	(0.5302)	(0.3934)	(0.2645)		(0.2799)	(0.2713)	(0.2548)	
gov investment	0.0208	0.0120	0.0068	-0.0140	0.0297	0.0243	0.0200	-0.0097
	(0.4078)	(0.1393)	(0.2588)		(0.3690)	(0.3528)	(0.4381)	
total revenue	0.4601	0.4699	0.4780	0.0179	0.4048	0.4121	0.4133	0.0085
	(2.5546)	(2.4030)	(2.4002)		(2.1867)	(1.9592)	(1.9844)	
income taxes	0.1517	0.1538	0.1600	0.0083	0.1164	0.1204	0.1183	0.0019
	(1.8341)	(2.0075)	(2.1567)		(1.0931)	(1.0261)	(1.0168)	
business taxes	0.0247	0.0316	0.0317	0.0070	0.0231	0.0238	0.0260	0.0029
	(0.3043)	(0.3421)	(0.2617)		(0.2493)	(0.2115)	(0.2187)	
indirect taxes	0.1385	0.1390	0.1471	0.0086	0.1236	0.1258	0.1256	0.0020
	(0.9204)	(0.7904)	(0.8379)		(0.7079)	(0.6247)	(0.5846)	
soc sec contributions	0.1139	0.1145	0.1093	-0.0047	0.1115	0.1114	0.1125	0.0010
	(2.3637)	(2.2685)	(2.1750)		(1.2347)	(1.1890)	(1.2013)	

3.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.8343	0.8943	0.8864	0.0521	0.7438	0.8099	0.8231	0.0793
	14.6861	14.4039	14.2369		(8.7121)	(8.0325)	(9.2040)	
primary deficit	0.0320	0.0018	-0.0260	-0.0581	0.0296	0.0223	0.0117	-0.0179
	1.9887	1.5041	0.8421		(0.6920)	(0.8598)	(0.8679)	
primary expenditures	0.4921	0.4717	0.4519	-0.0402	0.4344	0.4344	0.4249	-0.0095
	4.0858	3.4526	2.8108		(2.2451)	(2.4084)	(2.2456)	
transfers	0.2213	0.2184	0.2126	-0.0087	0.1754	0.1819	0.1866	0.0112
	2.0882	1.8573	1.6675		(1.1378)	(1.2611)	(1.3187)	
gov wage expenditures	0.1419	0.1390	0.1318	-0.0102	0.1280	0.1260	0.1203	-0.0077
	1.4771	1.3047	1.1876		(1.0049)	(0.9120)	(0.8135)	
gov non wage expenditures	0.0879	0.0854	0.0867	-0.0012	0.0793	0.0804	0.0797	0.0004
	0.5292	0.5169	0.4954		(0.5100)	(0.5339)	(0.5195)	
subsidies	0.0201	0.0169	0.0140	-0.0061	0.0229	0.0226	0.0199	-0.0031
	0.5302	0.3934	0.2645		(0.2799)	(0.2713)	(0.2548)	
gov investment	0.0208	0.0120	0.0068	-0.0140	0.0297	0.0243	0.0200	-0.0097
	0.4078	0.1393	0.2588		(0.3690)	(0.3528)	(0.4381)	
total revenue	0.4601	0.4699	0.4780	0.0179	0.4048	0.4121	0.4133	0.0085
	2.5546	2.4030	2.4002		(2.1867)	(1.9592)	(1.9844)	
income taxes	0.1517	0.1538	0.1600	0.0083	0.1164	0.1204	0.1183	0.0019
	1.8341	2.0075	2.1567		(1.0931)	(1.0261)	(1.0168)	
business taxes	0.0247	0.0316	0.0317	0.0070	0.0231	0.0238	0.0260	0.0029
	0.3043	0.3421	0.2617		(0.2493)	(0.2115)	(0.2187)	
indirect taxes	0.1385	0.1390	0.1471	0.0086	0.1236	0.1258	0.1256	0.0020
	0.9204	0.7904	0.8379		(0.7079)	(0.6247)	(0.5846)	
soc sec contributions	0.1139	0.1145	0.1093	-0.0047	0.1115	0.1114	0.1125	0.0010
	2.3637	2.2685	2.1750		(1.2347)	(1.1890)	(1.2013)	

4.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.8343	0.8943	0.8864	0.0521	0.7438	0.8099	0.8231	0.0793
	14.6861	14.4039	14.2369		(8.7121)	(8.0325)	(9.2040)	
primary deficit	0.0320	0.0018	-0.0260	-0.0581	0.0296	0.0223	0.0117	-0.0179
	1.9887	1.5041	0.8421		(0.6920)	(0.8598)	(0.8679)	
primary expenditures	0.4921	0.4717	0.4519	-0.0402	0.4344	0.4344	0.4249	-0.0095
	4.0858	3.4526	2.8108		(2.2451)	(2.4084)	(2.2456)	
transfers	0.2213	0.2184	0.2126	-0.0087	0.1754	0.1819	0.1866	0.0112
	2.0882	1.8573	1.6675		(1.1378)	(1.2611)	(1.3187)	
gov wage expenditures	0.1419	0.1390	0.1318	-0.0102	0.1280	0.1260	0.1203	-0.0077
	1.4771	1.3047	1.1876		(1.0049)	(0.9120)	(0.8135)	
gov non wage expenditures	0.0879	0.0854	0.0867	-0.0012	0.0793	0.0804	0.0797	0.0004
	0.5292	0.5169	0.4954		(0.5100)	(0.5339)	(0.5195)	
subsidies	0.0201	0.0169	0.0140	-0.0061	0.0229	0.0226	0.0199	-0.0031
	0.5302	0.3934	0.2645		(0.2799)	(0.2713)	(0.2548)	
gov investment	0.0208	0.0120	0.0068	-0.0140	0.0297	0.0243	0.0200	-0.0097
	0.4078	0.1393	0.2588		(0.3690)	(0.3528)	(0.4381)	
total revenue	0.4601	0.4699	0.4780	0.0179	0.4048	0.4121	0.4133	0.0085
	2.5546	2.4030	2.4002		(2.1867)	(1.9592)	(1.9844)	
income taxes	0.1517	0.1538	0.1600	0.0083	0.1164	0.1204	0.1183	0.0019
	1.8341	2.0075	2.1567		(1.0931)	(1.0261)	(1.0168)	
business taxes	0.0247	0.0316	0.0317	0.0070	0.0231	0.0238	0.0260	0.0029
	0.3043	0.3421	0.2617		(0.2493)	(0.2115)	(0.2187)	
indirect taxes	0.1385	0.1390	0.1471	0.0086	0.1236	0.1258	0.1256	0.0020
	0.9204	0.7904	0.8379		(0.7079)	(0.6247)	(0.5846)	
soc sec contributions	0.1139	0.1145	0.1093	-0.0047	0.1115	0.1114	0.1125	0.0010
	2.3637	2.2685	2.1750		(1.2347)	(1.1890)	(1.2013)	

5.5 Definition	Successful				Unsuccessful			
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.8343	0.8943	0.8864	0.0521	0.7438	0.8099	0.8231	0.0793
	14.6861	14.4039	14.2369		(8.7121)	(8.0325)	(9.2040)	
primary deficit	0.0320	0.0018	-0.0260	-0.0581	0.0296	0.0223	0.0117	-0.0179
	1.9887	1.5041	0.8421		(0.6920)	(0.8598)	(0.8679)	
primary expenditures	0.4921	0.4717	0.4519	-0.0402	0.4344	0.4344	0.4249	-0.0095
	4.0858	3.4526	2.8108		(2.2451)	(2.4084)	(2.2456)	
transfers	0.2213	0.2184	0.2126	-0.0087	0.1754	0.1819	0.1866	0.0112
	2.0882	1.8573	1.6675		(1.1378)	(1.2611)	(1.3187)	
gov wage expenditures	0.1419	0.1390	0.1318	-0.0102	0.1280	0.1260	0.1203	-0.0077
	1.4771	1.3047	1.1876		(1.0049)	(0.9120)	(0.8135)	
gov non wage expenditures	0.0879	0.0854	0.0867	-0.0012	0.0793	0.0804	0.0797	0.0004
	0.5292	0.5169	0.4954		(0.5100)	(0.5339)	(0.5195)	
subsidies	0.0201	0.0169	0.0140	-0.0061	0.0229	0.0226	0.0199	-0.0031
	0.5302	0.3934	0.2645		(0.2799)	(0.2713)	(0.2548)	
gov investment	0.0208	0.0120	0.0068	-0.0140	0.0297	0.0243	0.0200	-0.0097
	0.4078	0.1393	0.2588		(0.3690)	(0.3528)	(0.4381)	
total revenue	0.4601	0.4699	0.4780	0.0179	0.4048	0.4121	0.4133	0.0085
	2.5546	2.4030	2.4002		(2.1867)	(1.9592)	(1.9844)	
income taxes	0.1517	0.1538	0.1600	0.0083	0.1164	0.1204	0.1183	0.0019
	1.8341	2.0075	2.1567		(1.0931)	(1.0261)	(1.0168)	
business taxes	0.0247	0.0316	0.0317	0.0070	0.0231	0.0238	0.0260	0.0029
	0.3043	0.3421	0.2617		(0.2493)	(0.2115)	(0.2187)	
indirect taxes	0.1385	0.1390	0.1471	0.0086	0.1236	0.1258	0.1256	0.0020
	0.9204	0.7904	0.8379		(0.7079)	(0.6247)	(0.5846)	
soc sec contributions	0.1139	0.1145	0.1093	-0.0047	0.1115	0.1114	0.1125	0.0010
	2.3637	2.2685	2.1750		(1.2347)	(1.1890)	(1.2013)	

6.5 Definition		**Successful**				**Unsuccessful**		
variable	**PRIOR**	**T**	**POST**	**Post-Prior**	**PRIOR**	**T**	**POST**	**Post-Prior**
debt	0.8160	0.8934	0.8813	0.0652	0.7633	0.8223	0.8311	0.0678
	17.8151	16.6452	16.3572		(8.4899)	(7.9638)	(8.7902)	
primary deficit	0.0493	0.0138	-0.0278	-0.0771	0.0258	0.0166	0.0065	-0.0193
	2.3192	1.4198	1.7095		(0.7097)	(0.8883)	(0.8498)	
primary expenditures	0.5388	0.5126	0.4833	-0.0555	0.4302	0.4290	0.4203	-0.0099
	4.4657	3.3616	2.7799		(1.9937)	(2.1679)	(2.0229)	
transfers	0.2395	0.2346	0.2271	-0.0124	0.1765	0.1824	0.1860	0.0095
	2.7495	2.4149	2.0954		(1.0030)	(1.1202)	(1.1745)	
gov wage expenditures	0.1586	0.1536	0.1470	-0.0116	0.1256	0.1239	0.1181	-0.0075
	1.6315	1.2693	1.0949		(0.8910)	(0.8166)	(0.7318)	
gov non wage expenditures	0.0928	0.0907	0.0901	-0.0027	0.0792	0.0797	0.0797	0.0005
	0.5877	0.5565	0.6888		(0.4510)	(0.4745)	(0.4576)	
subsidies	0.0252	0.0208	0.0166	-0.0086	0.0214	0.0211	0.0186	-0.0028
	0.6432	0.4575	0.2624		(0.2697)	(0.2638)	(0.2445)	
gov investment	0.0227	0.0129	0.0024	-0.0203	0.0282	0.0225	0.0192	-0.0091
	0.6137	0.1817	0.4120		(0.3400)	(0.3347)	(0.3938)	
total revenue	0.4894	0.4989	0.5110	0.0216	0.4044	0.4124	0.4138	0.0094
	2.4126	1.9447	1.9187		(1.9430)	(1.7689)	(1.7793)	
income taxes	0.1713	0.1763	0.1812	0.0099	0.1160	0.1194	0.1185	0.0025
	2.1409	2.4839	2.8974		(0.9612)	(0.9120)	(0.9007)	
business taxes	0.0201	0.0265	0.0309	0.0109	0.0243	0.0258	0.0268	0.0025
	0.1157	0.1586	0.3303		(0.2363)	(0.2328)	(0.2073)	
indirect taxes	0.1463	0.1456	0.1518	0.0055	0.1235	0.1259	0.1272	0.0037
	1.2029	1.1081	1.3348		(0.6242)	(0.5548)	(0.5354)	
soc sec contributions	0.1163	0.1159	0.1139	-0.0024	0.1113	0.1115	0.1111	-0.0001
	3.4343	3.2308	3.2412		(1.1273)	(1.0961)	(1.0886)	

Table A.3: Basic Statistics—Percents

		Single-Year Method				Whole-Consolidation Method			
		CAPB		Action-Based		CAPB		Action-Based	
		Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful
2.5	**primary expenditures**	**94.79%**	**32.97%**	**66.26%**	**56.51%**	**89.20%**	**20.23%**	**69.23%**	**52.78%**
	total revenue	**5.21%**	**67.03%**	**33.74%**	**43.49%**	**10.80%**	**79.77%**	**30.77%**	**47.22%**
	transfers	39.39%	-32.34%	21.37%	-39.79%	26.58%	-41.73%	15.00%	-62.29%
	gov wage expenditures	22.19%	13.42%	16.69%	35.29%	24.28%	10.08%	17.53%	43.08%
	gov non wage expenditures	-0.31%	3.36%	-2.32%	2.17%	2.30%	1.02%	2.12%	-2.15%
	subsidies	13.05%	4.04%	11.80%	10.44%	11.13%	4.85%	10.50%	17.07%
	gov investment	24.20%	41.36%	18.72%	48.10%	24.73%	44.19%	24.07%	54.07%
	income taxes	-15.44%	26.34%	9.94%	13.26%	-5.99%	27.63%	14.24%	10.47%
	business taxes	36.05%	14.09%	19.40%	11.03%	26.78%	14.85%	12.05%	16.25%
	indirect taxes	4.78%	9.93%	30.24%	11.27%	3.39%	12.73%	14.75%	11.10%
	soc sec contributions	-8.78%	-1.38%	-24.64%	6.12%	-5.79%	1.05%	-8.01%	5.46%
	COUNT	27	55	4	18	32	50	6	16
3.5	**primary expenditures**	**92.49%**	**37.61%**	**66.26%**	**56.51%**	**86.45%**	**26.90%**	**69.23%**	**52.78%**
	total revenue	**7.51%**	**62.39%**	**33.74%**	**43.49%**	**13.55%**	**73.10%**	**30.77%**	**47.22%**
	transfers	36.58%	-27.04%	21.37%	-39.79%	24.78%	-35.25%	15.00%	-62.29%
	gov wage expenditures	22.50%	13.87%	16.69%	35.29%	24.21%	10.14%	17.53%	43.08%
	gov non wage expenditures	-2.05%	3.80%	-2.32%	2.17%	2.07%	0.89%	2.12%	-2.15%
	subsidies	14.22%	4.27%	11.80%	10.44%	10.93%	5.45%	10.50%	17.07%
	gov investment	25.29%	39.85%	18.72%	48.10%	25.38%	42.02%	24.07%	54.07%
	income taxes	-17.80%	24.65%	9.94%	13.26%	-5.65%	26.74%	14.24%	10.47%
	business taxes	38.81%	14.66%	19.40%	11.03%	27.05%	14.98%	12.05%	16.25%
	indirect taxes	7.04%	8.77%	30.24%	11.27%	5.56%	10.05%	14.75%	11.10%
	soc sec contributions	-7.87%	-2.37%	-24.64%	6.12%	-5.10%	-0.98%	-8.01%	5.46%
	COUNT	25	57	4	18	30	52	6	16

		Single-Year Method				Whole-Consolidation Method			
		CAPB		Action-Based		CAPB		Action-Based	
		Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful
4.5	**primary expenditures**	**102.94%**	**38.21%**	**66.26%**	**56.51%**	**91.10%**	**23.42%**	**69.23%**	**52.78%**
	total revenue	**-2.94%**	**61.79%**	**33.74%**	**43.49%**	**8.90%**	**76.58%**	**30.77%**	**47.22%**
	transfers	46.00%	-26.38%	21.37%	-39.79%	28.40%	-31.49%	15.00%	-62.29%
	gov wage expenditures	26.11%	13.40%	16.69%	35.29%	26.14%	9.17%	17.53%	43.08%
	gov non wage expenditures	-0.54%	2.78%	-2.32%	2.17%	3.20%	-2.72%	2.12%	-2.15%
	subsidies	16.37%	4.41%	11.80%	10.44%	11.70%	3.54%	10.50%	17.07%
	gov investment	18.61%	41.35%	18.72%	48.10%	21.98%	41.48%	24.07%	54.07%
	income taxes	-27.65%	25.29%	9.94%	13.26%	-9.52%	27.85%	14.24%	10.47%
	business taxes	45.22%	13.91%	19.40%	11.03%	29.02%	14.11%	12.05%	16.25%
	indirect taxes	4.08%	9.11%	30.24%	11.27%	3.93%	10.95%	14.75%	11.10%
	soc sec contributions	-6.84%	-2.41%	-24.64%	6.12%	-4.31%	-3.83%	-8.01%	5.46%
	COUNT	25	57	4	18	26	56	6	16
5.5	**primary expenditures**	**109.00%**	**37.12%**	**66.26%**	**56.51%**	**94.01%**	**22.23%**	**69.23%**	**52.78%**
	total revenue	**-9.00%**	**62.88%**	**33.74%**	**43.49%**	**5.99%**	**77.77%**	**30.77%**	**47.22%**
	transfers	47.38%	-26.45%	21.37%	-39.79%	29.02%	-31.51%	15.00%	-62.29%
	gov wage expenditures	27.64%	12.95%	16.69%	35.29%	26.90%	8.62%	17.53%	43.08%
	gov non wage expenditures	-0.32%	2.82%	-2.32%	2.17%	3.32%	-2.58%	2.12%	-2.15%
	subsidies	15.84%	4.69%	11.80%	10.44%	11.43%	3.95%	10.50%	17.07%
	gov investment	20.91%	40.49%	18.72%	48.10%	23.14%	40.37%	24.07%	54.07%
	income taxes	-26.43%	25.63%	9.94%	13.26%	-9.17%	28.22%	14.24%	10.47%
	business taxes	43.21%	14.10%	19.40%	11.03%	27.95%	14.30%	12.05%	16.25%
	indirect taxes	3.51%	9.22%	30.24%	11.27%	3.63%	11.09%	14.75%	11.10%
	soc sec contributions	-8.79%	-1.73%	-24.64%	6.12%	-5.26%	-2.94%	-8.01%	5.46%
	COUNT	20	62	4	18	25	57	6	16

		Single-Year Method				Whole-Consolidation Method			
		CAPB		Action-Based		CAPB		Action-Based	
		Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful
6.5	**primary expenditures**	**119.65%**	**35.51%**	**82.61%**	**54.42%**	**94.81%**	**23.25%**	**72.01%**	**51.13%**
	total revenue	**-19.65%**	**64.49%**	**17.39%**	**45.58%**	**5.19%**	**76.75%**	**27.99%**	**48.87%**
	transfers	49.39%	-24.46%	31.56%	-32.87%	28.39%	-27.12%	16.14%	-49.38%
	gov wage expenditures	32.76%	12.40%	11.75%	33.02%	26.69%	10.15%	15.02%	38.98%
	gov non wage expenditures	0.56%	2.34%	-0.45%	1.07%	2.18%	-2.31%	3.46%	-2.68%
	subsidies	16.88%	5.07%	17.59%	9.42%	11.46%	4.65%	11.10%	14.60%
	gov investment	20.05%	39.16%	22.15%	43.35%	26.09%	37.18%	26.29%	46.97%
	income taxes	-36.91%	27.63%	-2.09%	15.27%	-10.63%	30.63%	12.83%	13.20%
	business taxes	53.10%	12.57%	37.06%	9.09%	30.42%	13.01%	14.09%	12.85%
	indirect taxes	2.14%	9.55%	8.94%	17.91%	6.05%	10.32%	7.15%	19.35%
	soc sec contributions	-21.96%	-2.59%	-20.93%	0.99%	-11.98%	0.54%	-3.07%	-0.76%
	COUNT	15	67	2	20	19	63	4	18

Figure A.1: Average Revenue and Expenditure Shares in Successful and Unsuccessful Consolidations
CAPB and Action-Based Method Results

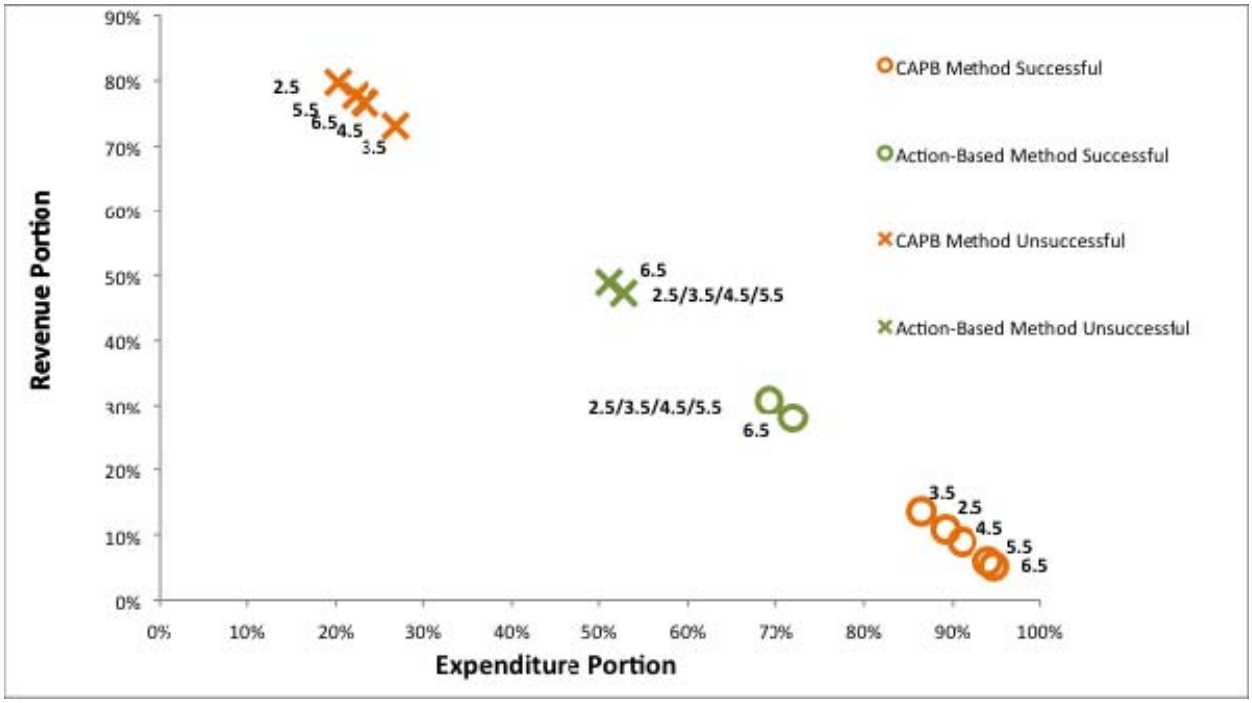


Figure A.2: Transfers

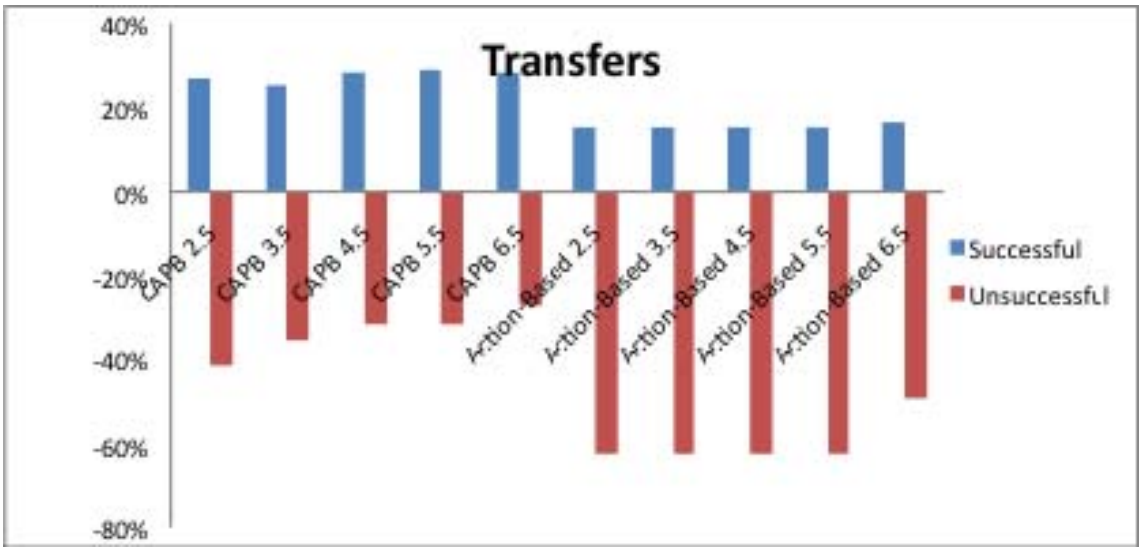


Figure A.3: Government Wage Expenditures

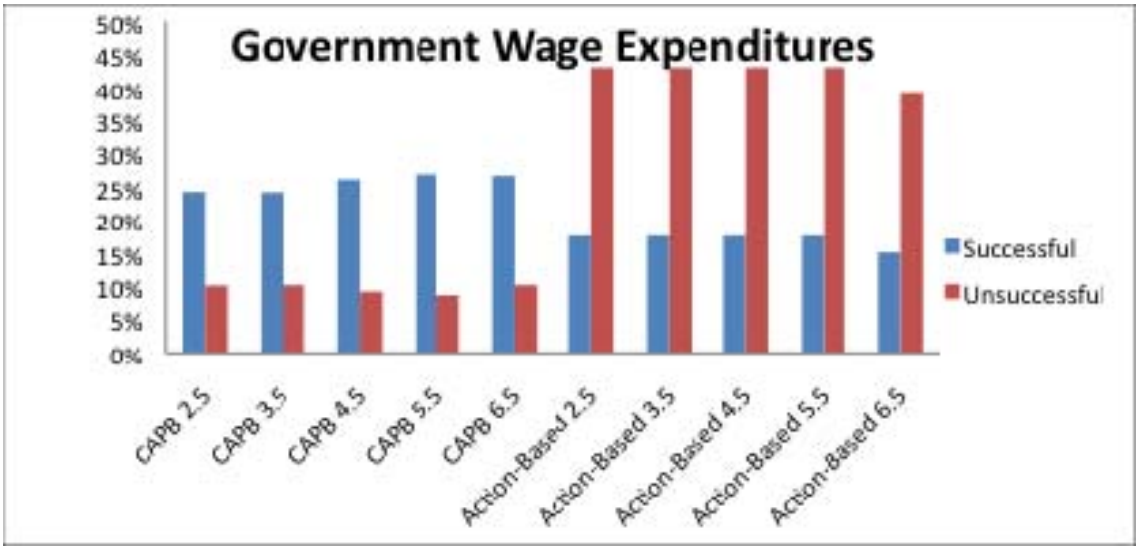


Figure A.4: Government Non-Wage Expenditures

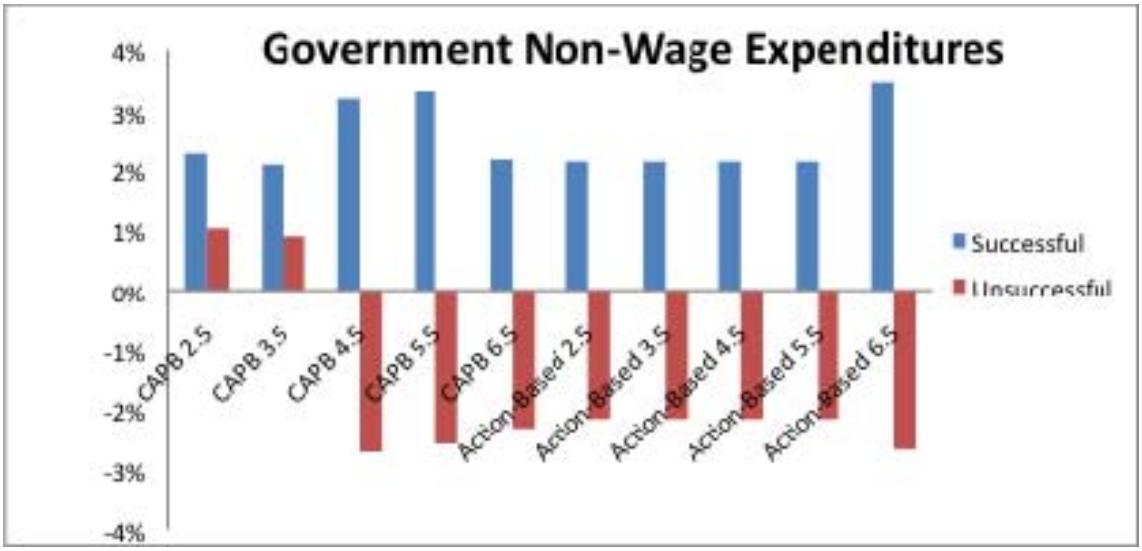


Figure A.5: Subsidies

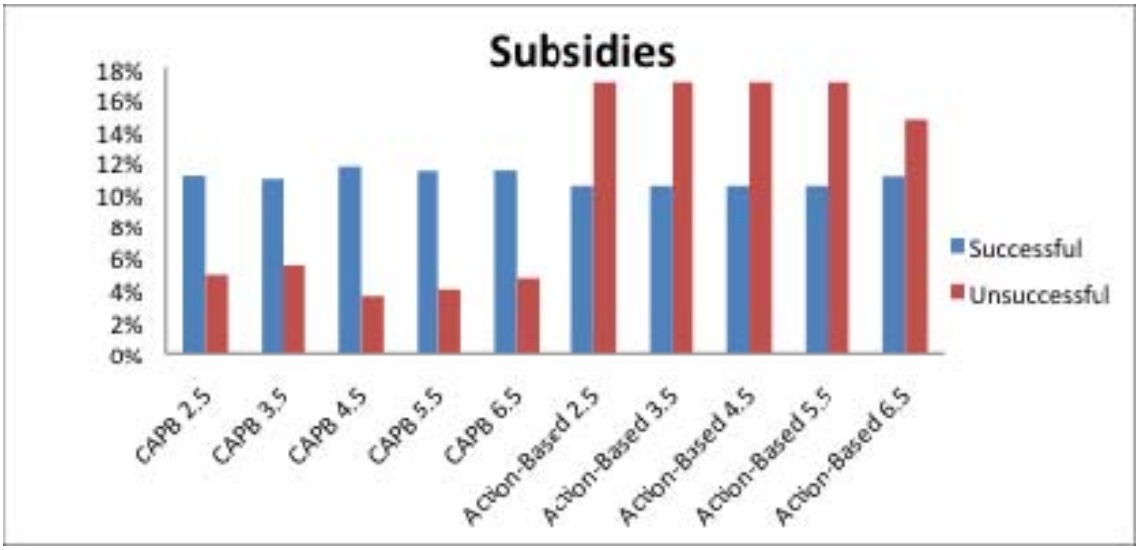


Figure A.6: Government Investment

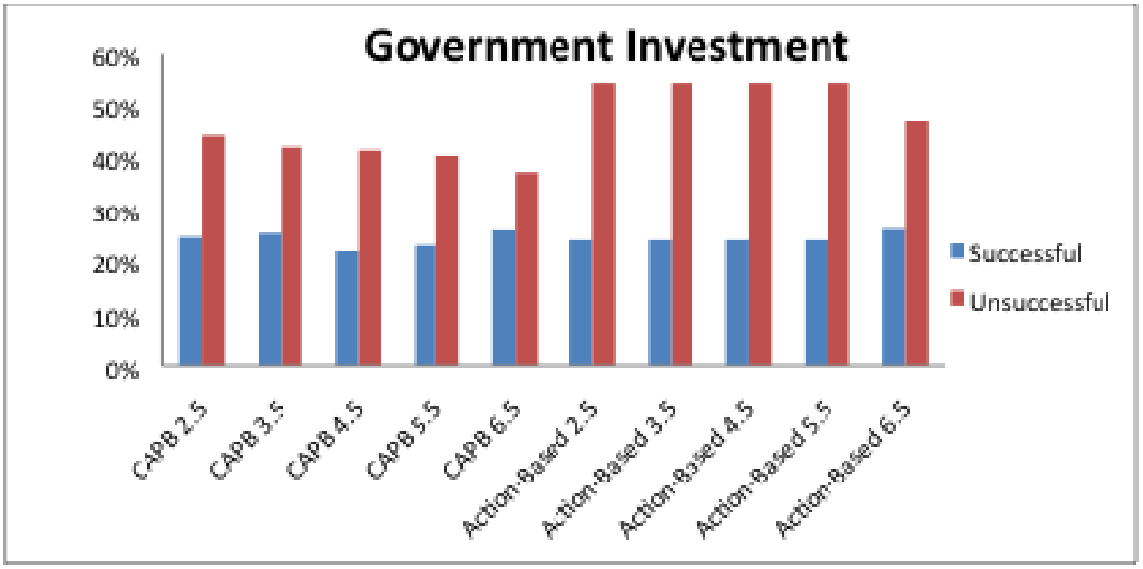


Figure A.7: Income Taxes

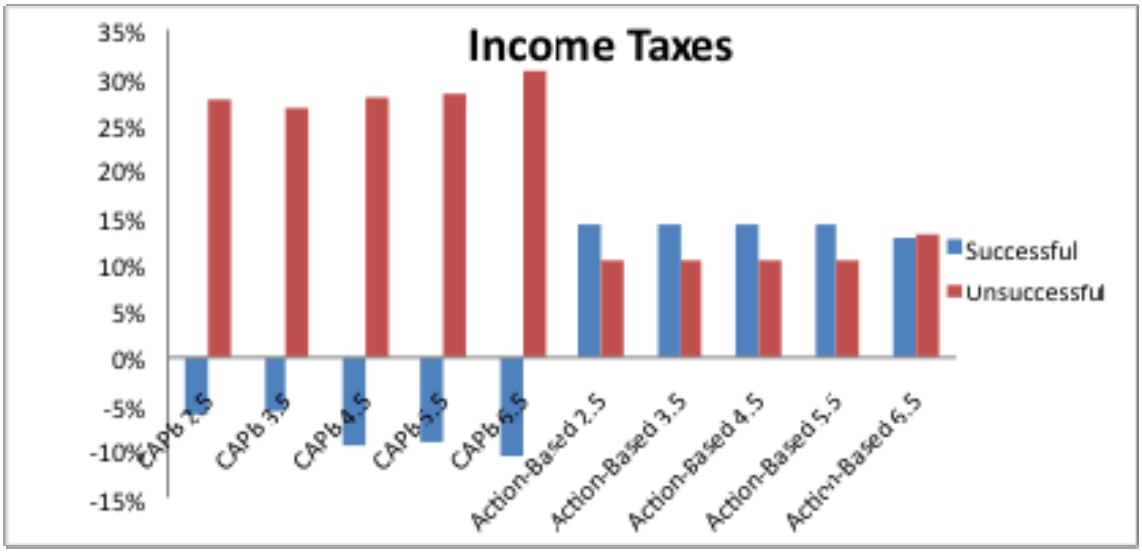


Figure A.8: Business Taxes

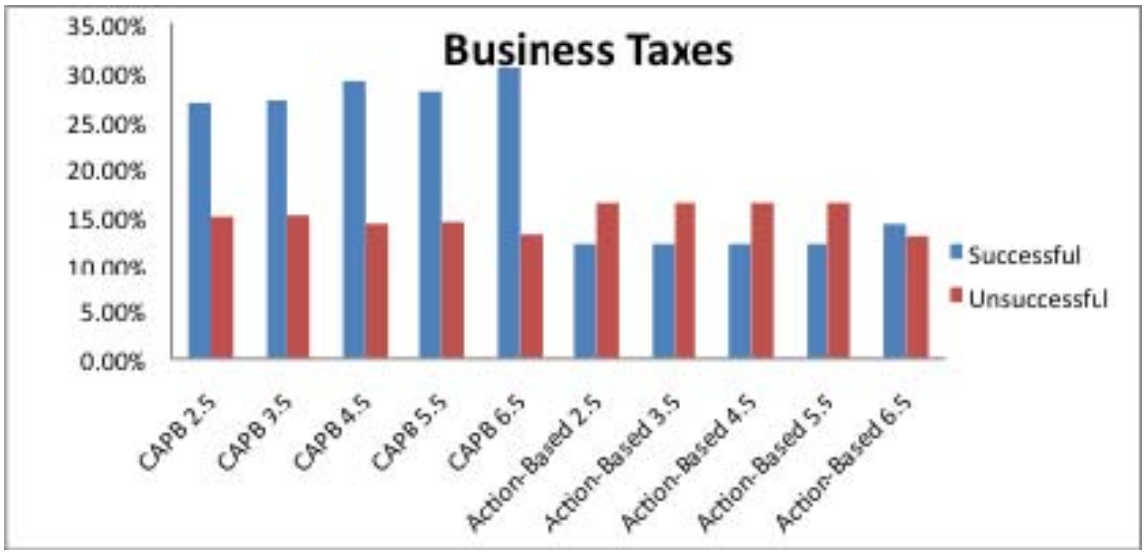


Figure A.9: Indirect Taxes

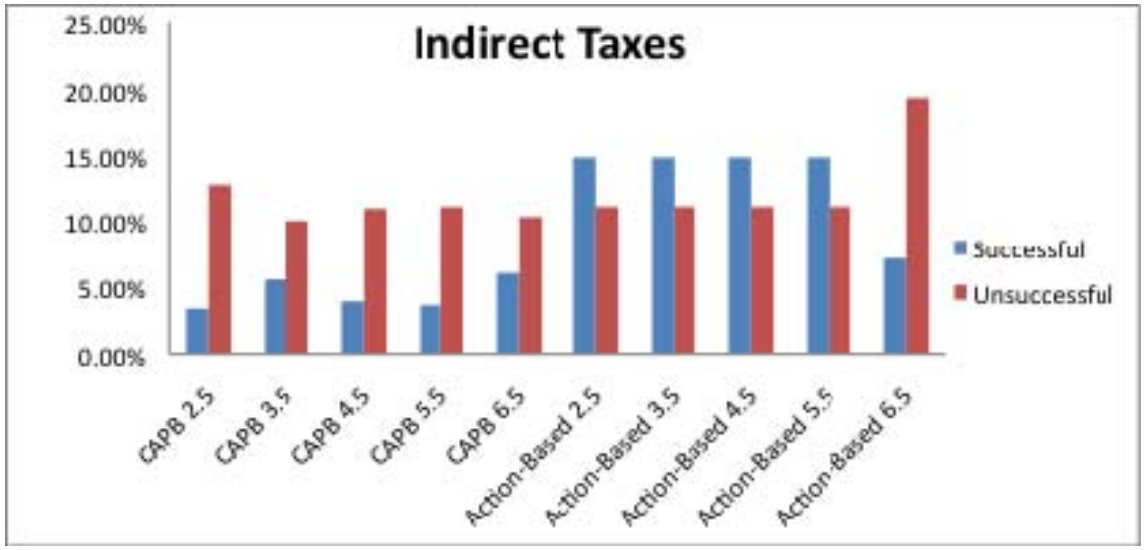


Figure A.10: Social Security Contributions