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10-1-2016

PAYGO for Punctuality

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ABSTRACT. The federal budgeting process is wrought with conflict that makes it nearly impossible for the budget to be passed on time, or so it seems. One aspect overlooked is the effects of statutory Pay-As-You-Go (PAYGO) rules. The cursory evidence indicates PAYGO may be beneficial under certain circumstances. The analysis relies on an Autoregressive-Moving-Average (ARMA) time series model with data from appropriations bills signed into law from fiscal years 1994 to 2014. The findings indicate mixed effects for PAYGO statutes with a shorter budgeting timeline under the Budget Enforcement Act of 1990, but a longer timeline under the Statutory PAYGO Act of 2010. Additional findings suggest substantive relationships between the length of the budgeting process and party polarization, presidential leadership, and the economy.

INTRODUCTION

Since the Clinton administration, the federal government has experienced three government shutdowns, in which neither a budget nor a continuing resolution was in place to authorize continued government spending into the new fiscal year.[1] On other the hand, during the same time period, there have only been two years in which the federal budget was passed in its entirety before the beginning of the fiscal year.[2] Clearly, the federal budgeting process is wrought with conflict that makes it nearly impossible for the budget to be passed on time, or so it seems. Furthermore, state governments have experienced some of the same strife in adopting budgets over the last two decades. Thus, scholars have begun to take notice and focus on fiscal gridlock in recent years (Klarner, Phillips, & Muckler, 2010,

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2012; Cummins, 2012). Their questions are substantively focused on the causes of legislative gridlock in the budgeting process, and findings have added depth to understanding the dynamics of the legislative process. Thus, the factors in the process which lead to a longer or shorter budgeting timeline are ripe for further analysis and additional hypotheses.

Nevertheless, one aspect overlooked is the effects of statutory Pay-As-You-Go (PAYGO) rules. There have essentially been two eras of statutory PAYGO in contemporary Congressional budgeting: from 1990 to 2002 under the Budget Enforcement Act (BEA), and from 2010 to the present under the Statutory PAYGO Act. During the BEA PAYGO era, federal deficit levels decreased and a balanced budget was achieved. Thus, it has been contended that PAYGO was a watershed in managing federal debt levels. However, this era also saw budgets passed on time and two government shutdowns. During the latter era, federal deficits have been among their highest in history. While they are arguably beginning to come under control, the data remain mixed. Additionally, passing a budget in general has seemed a herculean task with the budgeting process stretching well into the next Congressional session, with the exception of the budget for the 2010 fiscal year which was finished by December. What remains to be determined is: how have PAYGO rules affected the capacity of Congress to pass a budget on time? The cursory evidence indicates PAYGO may be beneficial under certain circumstances.

This article seeks to further explore that issue. The analysis relies on an Autoregressive-Moving-Average (ARMA) time series model with data from appropriations bills signed into law for fiscal years 1994 to 2014. The findings indicate mixed effects for the PAYGO statutes with a shorter budgeting timeline under BEA PAYGO, but a longer timeline under the Statutory PAYGO Act. Additional findings suggest substantive relationships between the length of the budgeting process and party polarization, presidential leadership, and the economy.

PAYGO AND THE BUDGETING PROCESS

PAYGO adds a complicated dynamic to the budgeting process. In general, PAYGO requires increases in expenditures or decreases in

revenue to be offset by other increases in revenue or decreases in spending. The Congressional Budget and Impoundment Act of 1974 sets out the modern framework of the federal process. However, in the light of historic levels of deficits and debt, a new emphasis on balancing the budget was placed, making way for amendments to budgeting procedures. The Gramm-Rudman-Hollings Balanced Budget and Emergency Deficit Control Act of 1985 (GRH), and later the Balanced Budget and Emergency Deficit Control Reaffirmation Act of 1987, placed new procedural rules surrounding deficits; namely, statutory limits each year. However, by 1990, these procedural changes had garnered criticism for focusing too much on deficit control and not enough on spending control. This was the impetus for the Budget Enforcement Act of 1990 (BEA), part of the Omnibus Budget Reconciliation Act of 1990 (Congressional Research Service, 1990, 2010a, 2011b; Doyle and McCaffrey, 1991). According to Doyle and McCaffrey (1991, p. 28):

> In summary, the Budget Enforcement Act changes the impetus of GRH from deficit control to spending control within the context of a rising deficit, frees the Appropriations Committees from the threat of sequester arising from unforeseen economic events, and attempts to shift the focus of the budget process from a macro focus on the deficit number and the sequestration percentage to a more intermediate level.

The BEA essentially marks the beginning of statutory PAYGO at the federal level. Of the several changes adopted in 1990, two are of particular note: 1) the emphasis changed to limiting spending, not deficit growth; and, 2) discretionary appropriations were categorized into packages with specific spending targets and caps for each. These two changes set the foundation of the approach of PAYGO, and also limited the context in which sequestration of spending occurs (Doyle and McCaffrey, 1991). PAYGO relies on sequesters to control direct spending. In budgetary terms, sequesters are triggers for automatic across-the-board cuts to programs once spending limitations have been reached within spending categories (Congressional Research Service, 1990, 2010a, 2011b; Doyle & McCaffrey, 1991). That is, to control spending, once the statutory spending limits are reached for a spending category all programs are cut to keep spending from exceeded the statutory limit.

Enforcements of these mechanisms were ultimately the responsibility of the President, once the budget was being implemented, to control spending and ensure budget resolutions do not exceed the statutory limitations. The formal procedures of the sequester mechanisms relied on the U.S. Office of Management and Budget as the scorekeeper to report three times a year to Congress: with the President's proposed budget, at the mid-session review of the budget, and a final report 15 days after Congress adjourned. The first two reports were informational to Congress, so they could make adjustments in appropriations bills in anticipation of exceeding spending limits (Doyle & McCaffrey, 1991; Congressional Research Service, 2010a). However, if the final report indicated the statutory limits were indeed violated, "the President was required to issue an order making across-the-board cuts of nonexempt spending programs within that category" (Congressional Research Service, 2010a, p. 4). However, "Congress was able to use points of order to enforce them as well" (Congressional Research Service, 2010a, p. 4). These points of order were binding within the Congressional budgeting process, and were used to keep appropriations from violating limitations before the President was forced to order a sequester. Congress was made aware of anticipated funding excesses and had available the opportunity and tools to circumvent reaching statutory limits (Congressional Research Service, 2010a, 2011b, 2013). Thus, the PAYGO rules played into the Congressional budget process too, as Congressional leadership was apprehensive to allow sequestration to happen and cede programmatic funding control to the White House. That is, when informed of an anticipated violation of spending limits, Congress could either work to reduce programmatic spending internally or allow the President to order across-the-board cuts, ultimately without Congressional input. Congress, for the most part, remained pro-active and managed to reduce spending before the sequester order was necessary (Congressional Research Service, 2010a, 2011b, 2013). The BEA era of statutory PAYGO expired on October 1, 2002, at the end of the 2002 fiscal year (Congressional Research Service, 2010a).

Although the statutory requirements of PAYGO expired, Congress still had the opportunities to use points of order established under the Congressional Budget Act of 1974 to enforce spending limitations. However, these points of order can be waived under the rules of both chambers. In the Senate, it requires a simple majority or supermajority, depending on the point of order; in the House, it

required special rules to be adopted by the chamber (Bradford & Scogin, 2008; Congressional Research Service, 2013). In both cases, these rules only applied to Congressional budgeting and did not trigger any action from the President if spending limitations were violated. Furthermore, spending limitations could easily be waived during the process and without the consent from the president. That is, with statutory limitations, the President has to sign legislation increasing spending limitations, but with chamber rules setting the limitations, expenditure ceilings could be raised with a simple majority vote (Congressional Research Service, 2007; Bradford & Scogin, 2008). Thus, PAYGO under Congressional rules did not have the binding power that statutory PAYGO carried. This period of budgeting, though, was defined by the 'Great Recession' as much as any other factor as the U.S. experienced stagnation in economic growth and employment rates (Grusky, Western, & Wimer, 2011).

On February 12, 2010, the Statutory Pay-As-You-Go Act of 2010 reestablished statutory PAYGO rules for the first time in almost a decade. Like the previous era of PAYGO, it was designed to limit increases in the deficit caused by new direct spending or revenue legislation, through the use of sequestration mechanism (Congressional Research Service, 2010b). Theoretically, this would be a return to the system established under the BEA, with no notable difference in the design for spending and deficit control. However, the specific rules and spending limitations under the new PAYGO system were updated to address contemporary budgeting issues (See Congressional Research Service, 1990, 2010a, 2010b, 2011a, and 2011b for more details on the specific legislative differences between the BEA and the Statutory PAYGO Act). The Budget Control Act of 2011 further supported this by reinforcing discretionary spending caps and the sequester mechanism (Congressional Research Service, 2011a).

Data on the outcome of the budgeting process indicates PAYGO had notable impacts. Figure 1 displays the federal budget surplus/deficit in real dollars and as a ratio to gross domestic product (GDP) from fiscal years 1985 to 2014, with the eras of statutory PAYGO indicated. As figure 1 indicates, BEA PAYGO was instrumental in bringing budget deficits under control. With the peak coming during the late 1990s, when the federal budget resulted in a budget surplus. Following the expiration of statutory PAYGO at the end of 2002, budget deficits and debt remained relatively stable through 2007. After 2007,

FIGURE 1
Budget Surplus/Deficit and Surplus/Deficit to GDP Ratio per Fiscal Year in Real (2009) Dollars: 1985 to 2014
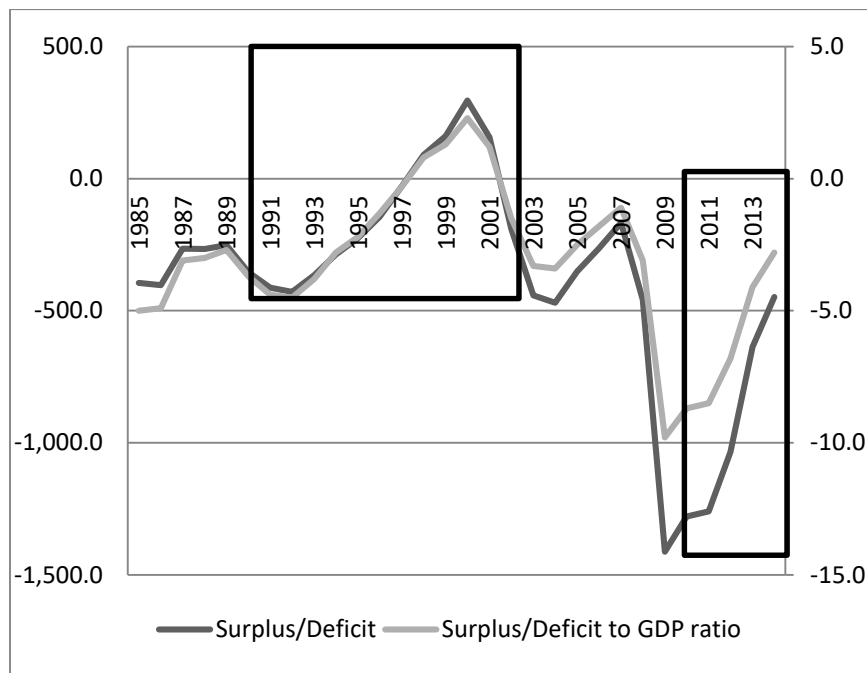
Note: From left to right, the first box indicates the BEA PAYGO era, and the second box indicates the Statutory PAYGO Act era.
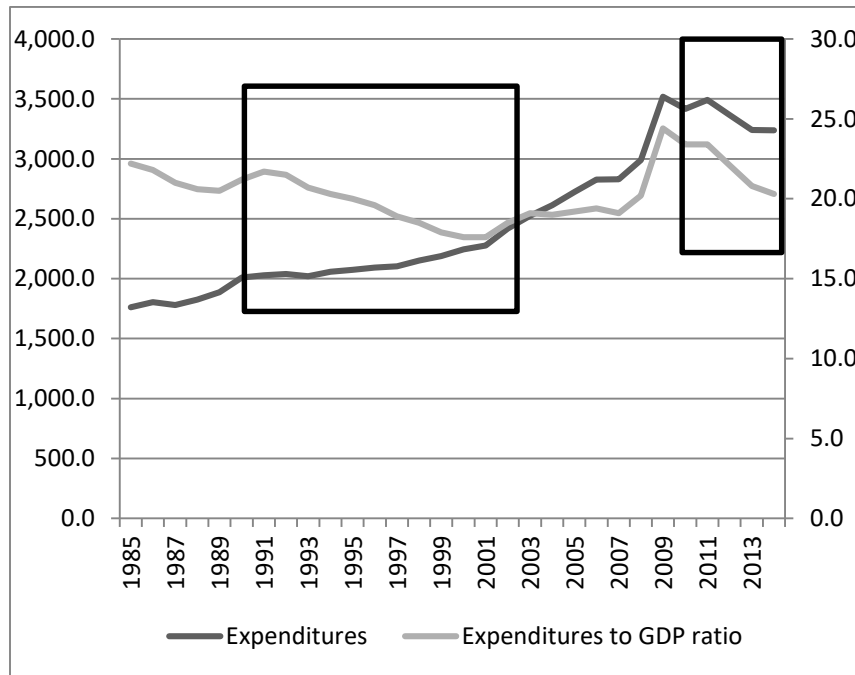Source: U.S. Office of Management and Budget (2014).

there is a definitive period of growth that occurs in the deficit. The Statutory PAYGO Act era, starting in 2010, again, sees the beginning of budget deficits and debt coming under control. Note that these trends are heavily influenced by the economy, but there does appear to be a correlation between PAYGO and reductions in the federal budget deficit.

Figure 2 displays the federal expenditures in real (2009) dollars and as a ratio to GDP from fiscal years 1985 to 2014, with the eras of

statutory PAYGO indicated. Trends for the real dollars of expenditures indicate a stable, marginal increase over time until 2007; however, by 2014, there are marked inclines in this trend. On the other hand, the expenditures to GDP ratio bring these trends into a little more perspective, as expenditures naturally increase over time. This ratio indicates expenditures were reduced during BEA PAYGO, but began to climb again after its expiration. However, in the Statutory PAYGO Act era, expenditures appear to be coming under control. Nevertheless, the true impacts of the Statutory PAYGO Act on deficits may remain to be seen for some time, as these new statutory rules have only been in effect for a few years.

FIGURE 2
Federal Expenditures (in billions) and Expenditures to GDP Ratio per Fiscal Year in Real (2009) Dollars: 1985 to 2014

Note: From left to right, the first box indicates the BEA PAYGO era, and the second box indicates the Statutory PAYGO Act era.
Source: U.S. Office of Management and Budget (2014).

Table 1 presents a further comparison of deficits and expenditures across the budgetary eras. Across the board, there are three noteworthy trends. First, the era in which deficits and expenditures saw the greatest reduction was during the BEA PAYGO era. Second, budgeting after the expiration of BEA PAYGO era saw an explosion of deficits and expenditures, reversing the trends from the previous two decades. Finally, the Statutory PAYGO Act appears to have resulted in marked increases in all these indicators as well. These figures considered together indicate PAYGO has an important impact on the outcome of the federal budgeting process. These charts also may indicate there is a different relationship for BEA era compared to the Statutory PAYGO Act era; however, that difference may dissipate over time. The effects on deficit and expenditure reductions are fairly obvious to ascertain, given that is the direct aim of the PAYGO rules. However, the timing of the budget may prove to be an externality, where the changing of the dynamics of budgetary negotiations has impacted the pace at which appropriations bills proceed through the budgetary process.

TABLE 1
Comparisons of Average Fiscal Year Deficits and Expenditures across Budgeting Eras

Budget Rules Era	Deficit (in Billions, Real 2009 dollars)	Deficit to GDP Ratio	Expenditures (in Billions, Real 2009 Dollars)	Expenditures to GDP Ratio
Gramm-Rudman-Hollings (1985-1990)	-322.6	-3.7	1844.3	21.2
Budget Enforcement Act (1991-2003)	-139.7	-1.4	2170.8	19.4
Congressional rules/Non-statutory PAYGO (2003-2010)	-628.9	-4.3	2987.2	20.7
Statutory PAYGO Act (2011-2014)	-844.7	-5.6	3334.2	21.7

Source: U.S. Office of Management and Budget (2014).

Figure 3 provides a comparison of the timeline for appropriations bills from fiscal years 1991 to 2014. The figure displays the date the president signed into the law the first appropriations bill, the last appropriations bill, and the median date of all appropriations bills for each fiscal year.[3] This comparison provides a cursory look at the budgeting timeline for each fiscal year, with the eras of PAYGO indicated. The average date of the first appropriations bill passed during fiscal years with statutory PAYGO was October 15; the average median date for appropriations bills, November 21; and, the average date for the last appropriations bill, December 17. For fiscal years within the intermediary non-PAYGO era, the average date for the first appropriations date was October 14; the average median date for appropriations bills, November 15; and, the average date for the last appropriations bill, January 19. The basic comparison of dates does indicate that the budgetary process as whole ended earlier under

FIGURE 3
Date First, Median, and Last Appropriations Bills Were Signed into Law by President by Fiscal Year: FY1991 to 2014
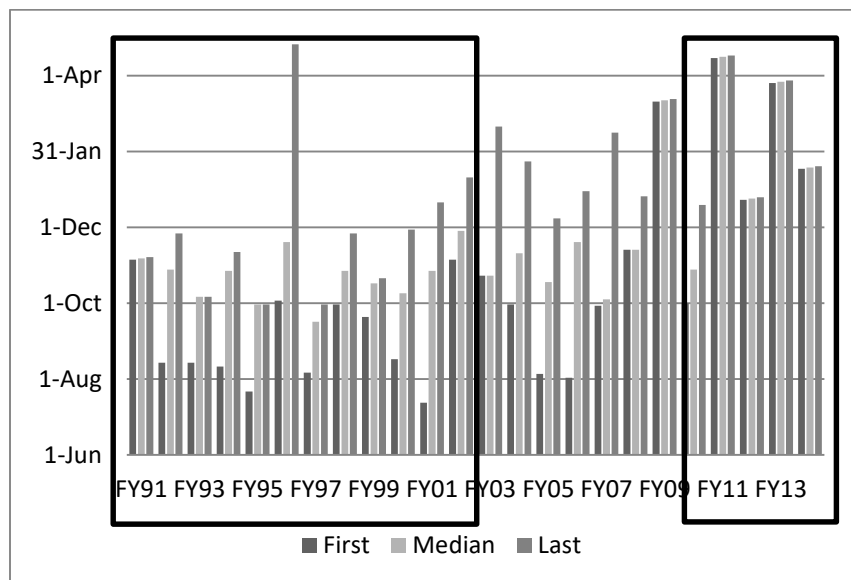
Note: From left to right, the first box indicates the BEA PAYGO era, and the second box indicates the Statutory PAYGO Act era.
Source: U.S. Library of Congress (2014).

PAYGO, even though this is not a trend that seems to stretch across all appropriations bills.

However, the charts do indicate that the effects under the BEA and the Statutory PAYGO Act seem to be different. When separated into two eras, the average date for the first appropriations bill for BEA PAYGO was September 2; the average median date for appropriations bills, October 22; and, the average date for the last appropriations bill was November 25. On the other hand, the average date for the first appropriations bill for the Statutory PAYGO Act era was February 19; the average median date for appropriations bills was February 20; and, the average date for the last appropriations bill was February 21. When separated, the results certainly indicate PAYGO is having some effect on the budgeting timeline, with BEA era resulting in earlier appropriations bills than both the intermediary PAYGO era of the 2000's and the Statutory PAYGO Act era.

Why would PAYGO affect the timeline of appropriations bills, though? PAYGO, at its heart, is a symptom of fiscal discipline associated with political regimes. This in turn represents a different status quo associated with the budget negotiation process. Namely, it places hard and fast restrictions on spending and deficits both procedurally and as a goal. This provides an additional obstacle for budgetary actors to grapple with as they put together a financing plan for the federal government. Therefore, it affects the speed at which the process may occur. However, this may play out as a positive or a negative effect. If it is a negative effect (meaning PAYGO decreases the length of the budgetary process), it suggests that PAYGO rules limit options, focus goals, and limit conflict. Fiscal gridlock (discussed more below) is the primary result of conflict from budgetary actors. Much of this conflict is the result of trying to create agreement when there are potentially infinite alternatives available. That is, when there are an infinite number of options in distributing resources, deciding between those options becomes very difficult. Every actor can develop their own preference for that distribution with little overlap or agreement between actors. However, when the number of potential options is greatly reduced, agreement becomes easier. That is, when there are very strict rules surrounding the distribution of resources, it is much easier to find agreement because the alternatives for doing so are more easily compared. There are only a finite number of alternatives which creates much more overlap in the preferences for budgetary

actors. Based on the cursory look at the dates of appropriation bill signings, it is likely BEA PAYGO was conducive to this experience.

On the other hand, if PAYGO has a positive effect (meaning PAYGO increases the length of the budgetary process), it suggests that budgeting actors are unwilling to compromise within the restrictions set. That is, PAYGO not only limits options, it also limits the ability to satisfy all interests. Without spending or deficit control, every "pet project" can be funded; every interest can be given resources without consideration of the overarching financial consequences. If the ability to satisfy all interests is limited and budgeting actors refuse to compromise, the process may come to a standstill. That is, when the spending cap is reached, if the benefactors of program A and program B both become entrenched in their position, a stalemate is likely to result. Even in the circumstances in which one benefactor can exert political capital to see their program win, the process of doing so slows down the timeline of the budgeting process. Based on the cursory look at the dates of appropriation bill signings, it is likely PAYGO under the Statutory PAYGO Act is conducive to this experience. While there is little evidence from previous scholarship to indicate why these separate trends exist, it is likely the result of the focus on fiscal discipline associated with the PAYGO eras. As discussed below, fiscal gridlock has been of interest to scholars for some time, but few have ventured into looking at the causes of late budgets and none have focused specifically on PAYGO. Nevertheless, both theory and the cursory evidence presented in the previous figures indicate PAYGO affects the budgeting process and those affects likely impact the timeline of appropriations bills. Therefore, there is a need to investigate further this phenomenon.

FISCAL GRIDLOCK

There is a litany of other potential political and economic factors which contribute to gridlock, though. Previous scholarship has identified party polarization and divided government, presidential leadership, and economics among other things. The favorite target of scholars researching gridlock has been divided government for some time, with numerous researchers finding that divided government has an important effect on both the passage of legislation and fiscal outcomes (Mayhew, 1991; Alt & Lowry, 1994; Poterba, 1994; Clingermayer & Wood, 1995; Bohn & Inman, 1996; Clarke, 1998;

Binder, 1999; Conley, 2002; Anderson, Lassen, & Nielsen, 2012; Klarner, Phillips, & Muckler, 2010; Kousser, 2010). Researchers have continued to develop their findings and further challenge the understanding of inter-party dynamics in the legislative process (Kelly, 1993; Binder, 1999). Understanding these findings, though, may depend on what is being measured, as Anderson, Lassen, and Nielsen (2012) and Klarner, Phillips, and Muckler (2010) both found divided government led to budgetary delays, but Gilligan and Matsusaka (1995; 2001) found little to no effects on state spending. However, other scholars point to increasing party polarization as the culprit (Clarke, 1998; Binder, 1999; Masket, 2007), especially as it exacerbates the conflict between parties under divided government (Kousser, 2010; Cummins, 2012). The understanding of the effects of divided government have evolved to take note of the increasing impact of party polarization, as the gap in ideological beliefs between parties has a substantive influence on inter-party dynamics.

Party polarization has been a definitive trend over the last several decades, with several scholars noting it as well as the impacts it has had on the legislative process (for more detail on party polarization, see Stonecash, Brewer, & Mariani, 2003; Theriault, 2006, 2008; Theriault & Rohde, 2011; Sorensen, 2014; Gray et al., 2015). Scholars have measured these divisions in numerous ways including party votes (Coleman, 1997; Stonecash, Brewer, & Mariani, 2003), party unity scores, Americans for Democratic Action (ADA) scores (Brewer, Mariani, & Stonecash, 2002; Stonecash, Brewer, & Mariani, 2003), and American Conservative Union (ACU) scores (Collie and Mason, 2000). Regardless of the measurement, though, the trends appear the same. Furthermore, Woon and Anderson (2012) specifically analyze the political bargaining process for appropriations bills. The findings indicate appropriations bills are not plagued by delays when ideological differences between leadership are minimized and distribution of appropriations is maximized. In other words, as long as polarization is minimized by key players, the process moves forward. Alternatively, Hanson (2014) finds that majority party leadership is most likely to take measures to ease passage of appropriations bills when the majority party is ideologically divided, distant from the minority, or holding onto a thin margin of control. In sum, the existing evidence indicates partisan and ideologically based conflicts can create gridlock in the legislative process. Nevertheless, given the

previous research, it is expected that party polarization will have an impact on the budgeting timeline.

As the budgeting process begins and ends with the president, his leadership throughout the process cannot be ignore. Namely, presidential popularity (Canes-Wrone & de Marchi, 2002) and coalition building capacity (Weatherford, 1993; Peake, 2002) have been related to legislative success of his agenda. To that effect, Anderson and Woon (2014) find the bargaining process for appropriations bill is heavily affected by the president's position and his ability to negotiate with Congress. Legislators are more likely to support the president when he is popular, as they can tie their electoral fates to him and use his support later to push their own agenda. Furthermore, campaigning for Congressional elections can help build legislative support for Presidents after elections (Herrnson, Morris, & McTague, 2011). Additionally, not all presidents are equal in their ability to shape politics in Washington, or in their leadership ability. Skowronek (1993) argues Presidents are elected in a political regime in which they must align with or fight against, and this shapes their ability to lead. On the other hand, Barber (1985) contends Presidential character is defined by the energy he invests and his impression of his actions, which shapes his ability to effectively lead the nation. Therefore, it cannot be expected that the budgeting process under all presidents is the same, when the political landscape and presidential character of the Commander-in-Chief can differ significantly between administrations. For instance, the last three administrations (Clinton, Bush, and Obama) have seen both different leadership styles and political landscapes. Thus, it is expected that presidential leadership will have an impact on the budgeting timeline as well.

Of course, the implications of economics on the legislative and budgeting processes cannot be ignored, especially considering the economic history of the period in question (Grusky, Western, & Wimer, 2011). The availability of resources is a source of conflict with any bill that requires funding, as it is in natural competition with all other sources. Additionally, as the purpose of budgeting is determining how limited resources are to be distributed between competing interests (Key, 1940) it requires values to be measured in dollars creating conflict in itself. At the federal level, two important indicators of availability of resources are economic growth and public debt. Economic growth suggests a growing tax base and more available

revenue. While public debt can be measured in numerous ways and can likely have many implications, the simplest relationship may be that as borrowing increases Congress is more willing to rely on borrowed money to balance the budget, and thus seek more resources which will ameliorate conflict in funding programs. In other words, as debt grows, Congress is likely more willing to rely on it to balance the budget; inversely, a decreasing debt would likely mean Congress has prioritized paying debt over spending in other areas, resulting in budgeting conflict. During the Clinton administration, balancing the budget and reducing the debt were set as priorities causing money that would otherwise go to programs to be earmarked for those purposes, in turn reducing the potential resources to programs. Alternatively, borrowing was heavily relied on during the Bush administration to fund the War on Terror, rather than create more conflict by balancing it against tax cuts and spending in other programs (Schick, 2007). Therefore, a growing economy and availability of borrowed money means more resources, reducing competition. It is expected that both economic factors will have an important impact on the budgeting process.

METHODOLOGY

Data and Variables

Since the budget process is a process that is dynamic over time, an innovative dataset had to be created to capture the potential for variables that vary at different time intervals to affect the outcome of the process. The first step was to determine the level of observation. As the budget process plays out over days, it was determined it was best suited to measure the data at this level. Thus, the level of observation are days in the budgeting process. Every observation is for a specific day in the budgeting timeline; these will be referred to as the observation dates. It is assumed the budgeting timeline for each fiscal year begins on January 3 of each year as the beginning of the Congressional session; while this may vary slightly in some years, it creates an objective point of beginning for budgeting in each fiscal year. There are two important considerations about this point to note though. First, some initial budgeting events take place before this date. For the purposes here, it is assumed that Congress as a whole does not focus on the next fiscal year's budget until the session has started. Second, in some years, the budgeting process continues into

the next Congressional session (i.e., a bill is not signed by the president by January 3). In these cases, serial processing is assumed, not concurrent processing; so the budget process for the next fiscal year is not assumed to have started until after the previous one has been concluded. To control for these effects, a dummy variable for those years is included for the fiscal year that the budget process has been stalled. This controls for the potential effects of having the process delayed by the previous year's budget.

While this set of assumptions can be made about the beginning of the budgeting process, the end of the budget process is a little more difficult to pinpoint, as most years include numerous appropriations bills. To effectively compare between years, the analysis will focus on three specific dates for the budgeting timeline for each fiscal year. These three dates are: the date the first appropriations bill was signed, the date the last appropriations bill was signed, and the median date for all appropriations bill signed that year.[4] This essentially captures the effects for the first bill completed, the last bill completed, and the bills completed in between. However, in some years, the same appropriations bill may fall into multiple categories (i.e., when a consolidated package is passed, rather than individual bills). Figure 3 (above) sums the distribution of dates for the passage of these bills. In sum, the budgeting process is assumed to last from January 3, with the noted exception, until the president signs the first and last appropriations bill, and the median date of all appropriations bills. The date of the Presidential signing was obtained from the U.S. Library of Congress (2014) for each budget bill passed between 1993 and 2014.

There is a certain limitation associated with only considering one bill at a time though. Again, this assumes serial processing by the actors associated with each bill. However, by focusing on the order of appropriations bills, rather than say the function of the bill, this does not make any other assumptions about how concurrent processing occurs for each bill. That is, it is assumed the factors causing the last bill to be later than the first bill are the same every year and not a result of some functional category, which does not eliminate the effects of concurrent processing. It just does not specifically include them as an analytical tool. This is a noted limitation and is taken into consideration when developing conclusions.

The final issue concerning the organization of the data is which fiscal years to include. It was determined the budget processes for

Clinton, Bush, and Obama (to date) create a natural time period of comparison across the last three administrations. Therefore, fiscal years 1994 to 2014 are included in the analysis; the dataset runs from January 3, 1993 to January 17, 2014. In total this creates a dataset of 5866 observations days for the first appropriations bill, 6591 observation days for the median appropriations bill, and 7243 observation days for the last appropriation bill. Note that if there are any days in between the date of signing for the appropriations bill and the start of the next Congressional session, those dates are not included in the dataset as they are not considered to have occurred during a budgeting timeline.

With the data organized to analyze the dynamics of the budgeting process, the dependent variable has to be an objective measure of the outcome of that process in relation to time. Thus, the dependent variable is measured as the number of days late the appropriations bill is. That is, the budget process is "supposedly" to be completed by September 31 each year to fund the fiscal year beginning October 1. If the appropriations bill is not signed by October 1, it is late, leaving the government without a financing plan. The number of days late is measured as the number of calendar days between the first, median, and last dates of presidential appropriations bill signings and October 1 of the fiscal year that the appropriations bill is meant to fund. Note the variable is measured as days late so late bills carry a positive sign while bills signed before October 1 would carry a negative sign (i.e., October 6 would be measured as 5, while September 26 would be measured as -5). This dependent variable does not vary on a daily basis but remains constant for the entire budgeting process for that fiscal year. However, this is corrected for with the statistical analysis technique outlined below, which is meant to correct for autocorrelation issues of this nature; it takes into consideration the relative relationship as it changes over time allowing for the dynamic nature to be captured. That is, the statistical model takes into consideration how the changes in the independent variables over time affect the dependent variable, even though the dependent variable is constant, without violating statistical assumptions.

To control for the effect of PAYGO, dummy variables were used to compare different budgetary eras. First, a simple dummy variable was used that compares only times with statutory PAYGO to times without it. This would be the time period from the beginning of the dataset to

the expiration of BEA PAYGO at the end of the 2002 fiscal year, and beginning again with the signing of the Statutory PAYGO Act of 2010. Second, as a cursory look at deficits and the timing of appropriations bills indicate, the effects of BEA PAYGO and the Statutory PAYGO Act may not be the same. Thus, an additional set of dummy variables is used to break these eras apart to determine if all PAYGO is created equally. Data on the dates of PAYGO were obtained from the U.S. Library of Congress (2014).

To control for the effects of party polarization, data from the ADA was utilized. The ADA measures how often members of each party vote for selected legislation (See ADA (2015) for more information on these scores).[5] The difference between the voting percentages for Republicans and Democrats on ADA selected legislation for each Congress was used to measure the ideological distance between parties in Congress (Brewer, Mariani, & Stonecash, 2002; Stonecash, Brewer, and Mariani, 2003). To control for the effects of presidential leadership, dummy variables for presidency compare dates when Clinton or Bush (each with an individual dummy variable) were serving as president to dates when Obama was serving. Data on dates of presidency was obtained from the White House website (White House, 2014). Note that the dummy variables for PAYGO, divided government, and presidential leadership vary at the daily level, as there are specific dates in which these begin and end.

To control for economic trends, two variables were included: debt, and gross domestic product (GDP). These variables fluctuate at different rates, based on the availability of information. In the analysis, these fluctuations are consistent with the rate of fluctuation in reality, allowing for a modeling of effects based on the behavior of budgeting actors. Debt fluctuates monthly, while GDP fluctuates at the quarterly level. To code these, it was assumed debt numbers changed on the first day of every month and GDP numbers changed on the first day of every quarter. Data on public debt and GDP was obtained from the Monthly Public Debt Statements from the U.S. Treasury and the U.S. Bureau of Economic Analysis, respectively (U.S. Treasury, 2014; BEA, 2014).

In addition to the previously mentioned dummy variable concerned with controlling for the effects of the budgetary process bleeding into the next Congressional session, a time variable is essential to control for effects of pressure to make statutory deadlines. These two

variables will be referred to as the process control variables. This time variable is measured as the number of days between the observation date and the date when a government shutdown will occur. That is, the date at which the current appropriations legislation expires. This measure is included for two reasons. First, by using the number of days from the date of observation to the date of a government shutdown, it controls for the pressure associated with passing the budget on-time.

Second, it, also, controls for the issue of time, by creating an objective comparison between observations throughout the process that may occur on different dates or process days, but have the same effect due to their relationship with the end of the process, which is the main interest here. However, the date of government shutdown, or the date on which there must be a budget in place, can be moved, through the use of continuing resolutions. To deal with this, as continuing resolutions are passed, the new effective date for the government shutdown is used to calculate the days until shutdown. That is, if on September 15 there is no continuing resolution, the shutdown date is October 1 and the days until shutdown is calculated as 16 days; if on September 16 a continuing resolution is passed to providing funding until October 10, the days until shutdown is calculated as 29 days. This allows objectively for the analysis to consider the effects of the predictors in relationship to how close or far away in time they were made to the actual presidential signing date. Additionally, in the event the government did shutdown, days until shutdown was recorded as a negative number from the beginning date of the shutdown. In this way, it is assumed that continuing resolutions do not reset the clock, but simply add more time to it. That is, a continuing resolution is a treatment for the problem but not a cure; it provides more time and alleviates some pressure but pressure still remains. This is a limitation in the research design. However, this assumption best captures the length of time of the budgetary process as ending with a successful appropriations bill, compared to alternatives, which treat continuing resolutions as failures or ignore their implications all together. Data on continuing resolutions was obtained from the U.S. Library of Congress (2014).

Analysis Technique

Initial data exploration indicated an autocorrelation issue that was beyond the capacity of Ordinary Least Squares (OLS) regression

(Chatterjee & Hadi, 2006; Graddy & Wang, 2008).[6] Further data exploration[7] suggested an Autoregressive-Moving-Average (ARMA) model was the best solution for fitting the statistical model to the causal model and available data (Hy & Woolscheid, 2008; Asteriou & Hall, 2011). The autoregressive ARMA formula is defined as:

$$X_t = c + \sum_{i=1}^{p} \varphi_i X_{t-i} + \varepsilon_t$$

where, X_t is a series, φ_1,...., φ_p are parameters of the model, c is a constant, and ε_t is white noise (Mills, 1990).

ARMA is based on the work of Box and Jenkins (1970) and was developed for hypothesis testing in time-series analysis when there is a (weak) stationary stochastic process. In contrast to OLS, the autoregressive aspect assumes the output variable is linearly dependent on its previous values, while the moving average controls for observations that lie outside the norm (Box & Jenkins, 1970; Mills, 1990; Asterious & Hall, 2011). This allows for the estimations of models in which outcome variables are highly dependent on their previous values (see Box & Jenkins, 1970; or Mills, 1990 for more details on ARMA estimation).

Given the assumptions that the budgeting process is a stationary process that is only being affected by the changes in the political and economic environment, the ARMA model allows for the estimation of the effects of the environment on the process while considering the role previous values have in predicting the outcome variable, in this case the end of the budget process. Additionally, the organization of the data assumes dependence between observation dates which is taken into consideration by the ARMA model. Therefore, the ARMA model best matches statistical assumptions with theoretical assumptions and the available data. In comparison to other analysis techniques, ARMA was chosen for its strengths in analyzing time-series data and its fit with the causal model. The budgeting process, along with the data for this analysis, is well fitted within these assumptions. The Box and Jenkins (1970) methodology for model identification was employed (NIST/SEMATECH, 2014). Review of the data distribution and initial testing of ARMA forms indicated that a non-seasonal random walk model best suits the data (see Mills, 1990 or NIST/SEMATECH, 2014 for more details on identifying and fitting forms of ARMA).[8] This special form is used to estimate the model here. Further diagnostic

tests indicated the model was a good fit to the data, and no other assumptions were violated.

RESULTS

Table 2 displays the results for the predictive models using the date of the first, median, and last dates for appropriation bill signings as the dependent variables, respectively. For brevity and continuity, the results across all three dependent variables will be discussed together. Note that in the discussion, models for each dependent variable are paired, with the first model in each pair including PAYGO and the process control dummy variables as well as the political and economic variables, and the second model in the pair only including the PAYGO and process control dummy variables to isolate the effects of PAYGO.

First, Models 1 and 2, 5 and 6, and 9 and 10 show the results using both PAYGO eras pooled together for the first, median, and last appropriation bill dates, respectively. While all models indicate that

TABLE 2
Results for First, Median, and Last Appropriations Bills as Dependent Variable

First Bill	Model 1*	Model 2*	Model 3*	Model 4*
-PAYGO (pooled)	-2.101	9.404*	-	-
-BEA PAYGO	-	-	-22.734*	-28.484*
-Statutory PAYGO Act	-	-	32.390*	73.679*
-Bush	-112.784*	-	-113.663*	-
-Clinton	-30.836*	-	-24.930***	-
-Polarization	-3.800*	-	-3.691*	-
-Debt	-7.77E-6*	-	1.31E-5*	-
-GDP	32.179*	-	33.516*	-
-Days until Shutdown	-.178*	-.295*	-.178*	-.194*
-Multi-session Budget	120.530*	120.60***	121.321*	96.268*
Constant	-16.713	13.947	2.910	15.528
Log L.	-30586.56	-33616.36	-30557.99	-32789.1
BIC	61259.24	67276.1	61210.73	65630.27
N	5501	5866	5501	5866

TABLE 2 (Continued)

Median Bill	Model 5*	Model 6*	Model 7*	Model 8*
-PAYGO (pooled)	-17.403*	5.781*	-	-
-BEA PAYGO	-	-	-58.515*	-19.847*
-Statutory PAYGO Act	-	-	52.343*	57.520*
-Bush	-86.355*	-	-91.816*	-
-Clinton	-18.824***	-	-9.304	-
-Polarization	-2.620*	-	-2.435*	-
-Debt	-4.10E-6***	-	-1.52E-5*	-
-GDP	18.213*	-	21.442*	-
-Days until Shutdown	-.102*	-.153*	-.098*	-.106*
-Multi-session Budget	91.926*	89.980*	93.996*	69.365*
Constant	76.789	40.678	116.403	46.178
Log L.	-34319.21	-37002.91	-34181.69	-36389.69
BIC	68725.79	74049.78	68459.49	72832.13
N	6226	6591	6226	6591
Last Bill	Model 9*	Model 10*	Model 11*	Model 12*
-PAYGO (pooled)	-24.631*	-6.663*	-	-
-BEA PAYGO	-	-	-47.107*	-15.552*
-Statutory PAYGO Act	-	-	14.085**	12.260*
-Bush	-38.618*	-	-43.33247*	-
-Clinton	6.866	-	10.463***	-
-Polarization	.693*	-	.797***	-
-Debt	-2.84E-6*	-	-9.10E-6*	-
-GDP	8.826*	-	10.731*	-
-Days until Shutdown	-.007	-.014**	-.004	-.003
-Multi-session Budget	100.228*	95.225*	100.697*	88.153*
Constant	-59.646	64.330	-36.113	66.909
Log L.	-33201.82	-35601.86	-33016.88	-35283.1
BIC	66492.01	71248.15	66130.95	70619.53
N	6877	7242	6877	7242

Note: statistical significance ***>.05, **>.01, *>.001.

PAYGO does have a statistically significant relationship with each dependent variable, there is a change in direction of the substantive relationship as a result of the inclusion of political and economic variables that occurs in the models for the first and median dates, but not for the last appropriations bill date. Initially, the results suggest PAYGO is having an effect on budgetary timelines, but that relationship warrants further inquiry.

The more sophisticated modeling of PAYGO, though, sheds some additional light on the relationship. Models 3 and 4, 7 and 8, and 11 and 12 show the results using the PAYGO eras separated, rather than pooled, for the first, median, and last appropriation bill dates, respectively. In this case, the results for both PAYGO dummy variables are consistent in both substantive and statistical relationships across all models, suggesting reliability. The results indicate that under BEA PAYGO budgetary timelines tends to be shorter compared to the non-statutory intermediate period, but under the Statutory PAYGO Act, budgetary timelines tend to be longer. However, these findings do not consider the budgeting timeline prior to BEA PAYGO, so there is a notable limitation in the comparison. Furthermore, the comparisons of the BIC scores across all twelve models for all three dependent variables indicate the strongest models are those that incorporate the separate PAYGO eras, rather than the models in which the two eras are pooled. This suggests that the two forms of PAYGO are having different effects on the budgeting process and should be considered separately.

Second, models 1 and 3, 5 and 7, and 9 and 11 show the results for the models which include control variables for political and economic conditions. For all variables, the substantive and statistically significant relationship is consistent within dependent variables, with the exception of debt, Clinton, and party polarization, suggesting reliability for the mass of variables included. In the case of Clinton and party polarization, the change in substance is between the first and median bills and the last bill. This suggests a different relationship occurs towards the end of the budgeting cycle compared to earlier. On the political side, the results indicate that party polarization consistently decreases the budgetary timeline in the process but increases the timeline late in the process.

The results for the presidential variables indicate that the budgeting process under the Obama administration has been consistently longer than under the Bush and Clinton administrations,

except for the last bill for Clinton, when controlling for other political and economic variables. However, the relative relationship between the Bush and Clinton administration differs when comparing the first appropriations bill date to the median and last appropriations bill dates. These results indicate that while the budgeting timeline for the first appropriations bill tended to be shorter for the Clinton administration, it also tended to be longer for other appropriations bills. This suggests that there may be a high degree of variability within the budgeting process affected by which appropriations bill is being analyzed.

On the economic side, the results indicate there is stability for the effects of GDP within dependent variables, but the effect changes direction when comparing the first and median appropriations bills to the last appropriations bill. For the first and median appropriations bill dates, GDP has a negative relationship, meaning growth in GDP tends to reduce the budgeting timeline. This suggests that budgeting during a weak economy is more difficult as resources contract. However, for the last appropriations bill, GDP has a positive relationship, meaning GDP tends to have increased in the years when the budgeting timeline also increased. On the other hand, the findings for debt are consistent in their statistical significance, but not in their directional relationship. As a whole, this indicates that debt has an impact on the budgeting process but the substance of that relationship is still undetermined. When the economic variables are considered together, the findings indicate the economy is having an impact on the budgeting process but that impact may vary depending on the specifics of the bills.

Third, across all four models, the substantive and statistical results for the process control variables are stable within dependent variables, suggesting reliability. However, days until shutdown experiences a change between variables as the direction of the relationship is different for the first and median bills compared to the last appropriation bill. Given the lack of statistical significance, as well as the findings concerning the last appropriations bill, it is likely that by the time the last bill is being debated the threat of the process continuing is less of a deterrent to making compromise. That is, early in the process budgeting actors may be willing to acquiesce in the interest of making deadlines, but by the time the last appropriations bill is being finalized continuing resolutions are the order of the day and the pressure to compromise has been dissipated as the deadline

is pushed in procedural votes. The finding for the dummy variable concerned with the budgeting process bleeding into the next Congressional session is as expected.

Finally, as indicated above, the findings for the first and median appropriations bills differ from the findings for the last appropriations bill in a few notable places. Taken as a whole, this suggests there is a different relationship happening late in the budgeting process than early. Again, this is likely the result of the pressure associated with the beginning of the fiscal year and continuing resolutions that have less of an impact on compromises late in the process. Additionally, the appropriations bills passed early on are likely to be the less controversial, compared to those passed last. Thus, the last appropriations bills passed most likely are affected differently based on political and economic pressures than those passed early. Across the board, the relationships appear consistent, but there is some notable variation that indicates timing in the process does change the effects, which supports the use of a times series analysis technique, and does offer insight into the process.

DISCUSSION AND CONCLUSIONS

The direct implications of PAYGO rules clearly apply to spending control and deficit reduction, as a symptom of fiscal discipline. However, in the process of affecting those issues, PAYGO also changes the dynamics of the budget negotiation process as it signifies a political focus of leadership on fiscal discipline. Statutory PAYGO reduces the number of options available for financing government, by placing enforceable rules around spending levels. In practice, PAYGO changes the rules of the budgeting game, and as a result, has far reaching implications for its outcomes. Furthermore, it represents a marked emphasis on fiscal discipline. As the cursory evidence implies, spending and deficits came under control while the BEA was in effect and appear to be moving in the same direction under the Statutory PAYGO Act. To the point of this article, though, there have also been important implications for timeliness of passing the budget. The effects of PAYGO can either be positive or negative for the timeline of the budgeting process, depending on the reaction of budget actors. If budget actors use the reduction of financing options as a means to find compromise, there is much more opportunity for agreement as options leading to disagreement are eliminated. Therefore, the budget

negotiation process is simplified and the result is a shorter budgeting timeline.   On the other hand, if budget actors choose to become entrenched in their position in the face of reduced options, there is less opportunity for compromise.   The negotiation process enters a stalemate and fiscal gridlock is unavoidable.   The result, then, is a lengthened budgeting process. Based on results, it appears that PAYGO at the federal level has experience with both effects.

The findings indicate PAYGO is having an important impact on the budgeting process, but the relationship is notably different under the BEA and the Statutory PAYGO Act. This finding adds an interesting and sophisticated dynamic.   After reviewing the results and the existing literature, there are three possible explanations for the contradictory relationship that is occurring.   First, possibly the most obvious explanation is the role of party polarization. Anecdotally, despite the government shutdown and the conflict between President Bill Clinton and Speaker Newt Gingrich, the Clinton era was a time of bipartisan agreement on fiscal issues between a Democratic president and a Republican Congress. On the other hand, during the Obama era, there seems to be little common ground when the same partisan division of institutional control has occurred.   Additionally, the Obama administration has seen much larger intra-party polarization than the Clinton administration. Scholarship on the subject does indicate that party polarization has increased since the early 1990s (Sinclair, 2006; Mann & Ornstein, 2012).

The statistical evidence indicates that party polarization actually shortens the timeline for the first and median appropriation bills, but leads to a lengthen timeline for the last bills. This is likely a result of the increased controversy related to the appropriations bills signed at the end of the process compared to the beginning. Additionally, during times of greater party polarization and conflict, omnibus appropriations packages are more common, so larger portions of the budget are determined at the end of the budgeting cycle. This may create some limitations in the statistical analysis presented. Nevertheless, the results indicate the less controversial bills at the beginning of the process are more quickly passed, most likely as party leadership are choosing their battles and focusing on the more controversial appropriations bills that take more time to pass. With the more controversial appropriations bills, it is likely ideologies gaps both within and between parties have created such a conflict that both sides are

becoming entrenched in their positions rather than cooperating to achieve results, which is supported by previous research (Clarke, 1998; Binder, 1999; Masket, 2007; Kousser, 2010; Cummins, 2012). The findings on the issues of inter- and intra-party polarization present a limitation to the findings here, and future research should continue to evaluate how partisan conflict effects fiscal gridlock.

Second, while PAYGO under the BEA and the Statutory PAYGO Act follow the same theory, there are some nuanced differences in the legislation about the specific rules, many of which are relative to entitlements and what constitutes PAYGO eligible bills (See Congressional Research Service, 1990, 2010a, 2010b, 2011a, and 2011b for more details on the specific legislative differences between the BEA and the Statutory PAYGO Act). These may seem superficial, but they may also be the definitive difference in the effects on the budgeting timeline. The legislative rules of the Statutory PAYGO Act may be so cumbersome to navigate that it leads to a lengthened budgeting timeline, compared to both the BEA and non-statutory intermediary PAYGO eras. A cursory comparison of provisions does seem to support this (Congressional Research Service, 1990, 2010a, 2010b, 2011a, 2011b). However, while the specific rules can be examined, there is little means by which to test this explanation, as concluding from a content analysis that the Statutory PAYGO Act is a more complex piece of legislation than the BEA is not enough to establish causality. Future research should consider the nuanced difference between the BEA and the Statutory PAYGO Act when evaluating the effects of PAYGO, and seek ways to test the effects of these differences to determine the most effective form of PAYGO.

Finally, possibly the simplest explanation, the Statutory PAYGO Act has only been in effect for a relatively short period of time. Non-statutory PAYGO was the order of the day for nearly a decade when the Statutory PAYGO Act was signed. The Statutory PAYGO Act, though, has only been in use through four budgeting cycles. Thus, the actors in the budgeting process have to have some time to learn the new system, as they have limited experience working with PAYGO under the new set of rules. During that learning process, adopting a budget is likely to be a longer process, because there is less familiarity with the nuances. More importantly, though, they may need time to adjust to the renewed focus on fiscal discipline that is now being implemented. During non-statutory PAYGO, this emphasis faded, and budget actors must now

refocus their efforts to these goals. As the data on expenditures and deficits indicate, the results are not flattering for the Statutory PAYGO Act when only the existing data is considered. However, future trends may prove more positive, based on current projects from the U.S. Office of Management and Budget (2014). While there are not long-term projections for the signing of appropriations bills, if this were to follow the same trend as expenditures and deficits, it is likely that the budget process would shorten over time as budgeting actors become more familiar with budgeting under the Statutory PAYGO Act. Furthermore, the economic history of the period in question cannot be forgotten. Although, these events can be controlled for with GDP, those measures do not account for the larger political effects associated with 'Great Recession' and how they may impact budgeting. Only time will tell if this explanation pans out, though. Future research should continue to consider how the Statutory PAYGO Act is affecting the budgeting process, and how budgeting actors are learning to work under these new rules.

The findings surrounding the political and economic factors are not particularly surprising and correspond, for the most part, with the extant literature on fiscal gridlock. Party polarization, presidential leadership, and a weak economy all contribute to gridlock in budget negotiation process. This is due to the political nature of the bargaining process and the availability of resources. The inconsistencies that exist between and within models for the dependent variables, however, do indicate there may be a complexity to these relationships as well. This complexity is likely due to interactions that occur over time. As the process control variables indicate, time does play a role in the process. That is, the magnitude of the effects of the predictor variables may fluctuate across the budgeting timeline as deadlines begin to approach. The pressure to pass a budget only builds over time, so there is an interaction that occurs with the pressure from the political and economic factors. In other words, a weak economy early in the process may have a less dramatic effect than a weak economy late in the process, or vice versa. The same may be said for the magnitude for the relationships of divided government and presidential leadership. Future research should explore the effects of the political and economic factors further while considering how the effects may fluctuate throughout the timeline. Although some research has already been produced on this topic, there is certainly room for further insight and understanding about the exact nature of those relationships.

The findings here have two important implications for the practice of public budgeting. First, and foremost, PAYGO can alleviate some of the conflict and complexity associated with the budgeting process, when used properly. PAYGO rules may lead to a reduced number of financing options, but this reduces the complexity of the budgeting process. Furthermore, this reduced number of options may result in a reduced number of issues on which to disagree. With less disagreement and less complexity, comes a process that moves quicker. Thus, PAYGO rules may be a suitable solution to public jurisdictions and organizations that find themselves in a malaise of fiscal gridlock. Second, 'when used properly' is the operative phrase. Not all PAYGO rules are made equally. When considering PAYGO, the specific design and implementation of the rules should be evaluated thoroughly. As the comparison between the BEA and Statutory PAYGO Act eras indicates, PAYGO as a broad concept is not a magic bullet and does not lead to the same outcomes every time. Future research should look deeper into the specific PAYGO mechanisms that do and do not work in practice to determine how best the budgeting process can be managed for results.

NOTES

1. November 13 to 19, 1995; December 15, 1995 to January 6, 1996; and September 30 to October 17, 2013.

2. Fiscal years 1995 and 1997.

3. In the event there were more than one median date (i.e., even number of appropriations bills), the earlier date is included. In the event that one appropriations bill falls into more than one of these categories, it is included for all the categories it falls into for that fiscal year (i.e., one consolidated package passed for the entire fiscal year).

4. In the case that there is more than one median date, the earlier date was identified.

5. Data was unavailable for 112th Congress (2012).

6. Use of the Prais-Winston correction did little to solve the problem, so it was concluded that a more sophisticated technique was necessary for the time-series analysis.

7. Several analysis techniques were considered, but ARMA was found to have the most applicable assumptions and to produce the most effective estimations based on diagnostic tests and residual variance.

8. The graphical distribution of the outcome variable most closely matched that of the AR(1) distribution; testing of alternative forms of the ARMA model supported this conclusion based on diagnostic tests and residual variance. The ARMA model form was specified based on 0 autoregressive term (p), 0 nonseasonal differences (d), and 0 lagged forecast errors (q).

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