THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Consumer Confidence & National Debt:
The Two Keys to the White House in 2016?

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Abstract:
Conventional thinking concerning political elections has long been, "it's the economy stupid." This view is largely supported by the statistical significance of consumer sentiment as a predictor of Presidential election outcomes (Erikson, MacKuen, & Stimson, 2002) and the citizenry's' overall trust of government (Chanley, Rudolph, & Rahn, 2000). In essence, sway consumer sentiment positively and potentially sway election outcomes as well. Unfortunately for those holding or seeking public office, consumer sentiment is largely determined by economic factors merely influenced by elected officials and not under their direct control; i.e. unemployment, inflation, stock market performance, etc.
This paper empirically examines what other factors might influence consumer sentiment, factors directly controlled by those holding office. Specifically, the study examines two new factors: the impact of the national debt (as a percentage of real gross domestic product) and the federal budget deficit (as a percentage of real gross domestic product) on consumer sentiment. We find that both are statistically significant to reported consumer sentiment, with the level of national debt the second most significant predictor behind only the rate of unemployment. The ability to influence consumer sentiment, a known predictor of Presidential election outcomes, through controlling the two new independent variables of debt and deficit, has clear implications for the current Presidential candidates as well as fiscal and monetary policy implementation under any new administration.

Keywords: Consumer Sentiment, Government Monetary Policy, Macroeconomic Policy Objectives, Fiscal Policy, National Debt, Federal Budget Deficit or Surplus, Debt Management, Public Election Factors.

JEL Classification Codes: E42, E52, E61, E62, H62, H63

1. Introduction

Consumer confidence is an important component of the American national political and economic systems. Previous studies have concluded that presidential approval is *most dependent* on consumer's perceptions of the country's economic state aka consumer sentiment (MacKuen, 1986; Kinder & Sears, 1985). Furthermore, evidence exists that public *perception* is a more significant determinant of presidential approval than actual economic conditions. In other words, the electorates' view on the economy is largely based on the country's future economic prospects and not its current economic state (Kinder & Kiewiet, 1981; Lewis-Black, 1988; MacKuen, Erikson, & Stimson, 1992).

Consumer confidence is often measured using the Index of Consumer Sentiment (a University of Michigan measure of public confidence in the economy). Historically, the index has been shown to directly impact consumer spending, which in turn drives economic growth(Mishkin, 1978; Fuhrer, 1988; Throop, 1992; Matsusaka & Sbordone, 1995), effect presidential approval and election outcomes (Erikson, MacKuen, & Stimson, 2002; MacKuen et al., 1992)and ultimately the citizenry's overall trust of government (Chanley, Rudolph, & Rahn, 2000).It quickly becomes evident that understanding what factors contribute to the index of consumer confidence provides valuable information politically and economically.

Examining past consumer sentiment literature identifies three key economic factors which impact consumer outlook. The first is the rate of unemployment. An inverse relationship exists where the higher the rate of unemployment an economy is experiencing, the lower the reported consumer sentiment (Mueller, 1966; Clark & Oswald, 1994; Goldsmith, Veum, & Darity, 1996). Secondly, studies have shown an additional inverse relationship between consumer sentiment and the rate of inflation (Bryan & Venkatu, 2001; Di Tella, MacCulloch, & Oswald, 2001). Finally, the performance of the financial markets exhibits a mostly positive relationship with consumer sentiment; a positive return in the markets translating to a positive impact on reported consumer sentiment (Otto, 1999; Lemmon & Portniaguina, 2006). Some studies have shown an inverse relationship between sentiment and stock market performance however; where stocks held predominately by individual investors (small stocks) exhibit the opposite behavior or negative relationship. That is, when sentiment is low, large corporate stocks are viewed as risky by 'noise traders' and small firm securities are

considered more stable (Delong et al., 1990; Lee & Shleifer, 1991). Given that the overwhelming majority of securities are institutionally held, we focus on the large indexes as our measure of stock market performance as consistent with earlier literature (Fisher & Statman, 2003; Nagel, 2005).

The purpose of this study is to determine the potential impact of two new economic variables on consumer sentiment, more specifically, two new economic variables *directly controlled* by those in elected office; the level of the national debt and the federal budget deficit. While the rate of unemployment, inflation, and stock market performance are influenced by fiscal and monetary policy, the level of the national debt and operating budgets are under direct control of elected officials.

The research is based ondata compiled monthly beginning in April 1992 and running through February 2012. We limit the analysis to the last twenty five years, as previous research has shown that the power of consumer confidence to forecast future macroeconomic conditions is mainly presentover this time period (Lemmon & Portniaguina, 2006). Additionally, this range provides over 200 data points for each variable, a sufficient sample size for Hierarchical Multivariate Linear Regression. A full discussion of methodology appears in section three.

This paper addresses two specific questions with regards to consumer sentiment. First, does the level of the national debt, as percentage of GDP, negatively impact consumer sentiment? Second, does the level of the federal budget deficit, also as a percentage of GDP, have a negative impact consumer sentiment?

This study is significant in three ways; contribution to the existing consumer sentiment literature, impact on political and election strategy, and subsequent monetary/fiscal policy decisions concerning the use of debt and deficit.

2. Previous Researches

Consumer confidence is a well-established, key economic indicator with far reaching implications for those in public office. Traditional thinking maintains that strong consumer sentiment concerning present and future economic opportunities leads the citizenry to reward incumbents, while negative or diminishing sentiment results in punishment from the electorate (MacKuen, Erikson, & Stimson, 1992). More specifically however, consumer sentiment has been shown to predict outcomes in several key areas.

2.1. Sentiment and Consumer Spending/Gross Domestic Product Growth

The relationship between sentiment and consumer spending is perhaps the most established in previous literature. Numerous studies have shown a positive correlation between the two (Acemoglu & Scott, 1994; Carroll, Fuhrer, & Wilcox, 1994; Bram & Ludvigson, 1998; Ludvigson, 2004; Lemmon & Portniaguina, 2006). Moreover, Carroll, Fuhrer, & Wilcox (1994) conclude that sentiment alone performs as well as unemployment, inflation, and stock prices do *together* as a predictor of household expenditure.

The predicative ability of sentiment has extended in some research to show causality with household spending. Matsusaka and Sbordone concluded that as much as 26 percent of variations in gross domestic product can be directly contributed to changes in consumer sentiment (Matsusaka & Sbordone, 1995).

2.2. Sentiment and Presidential Approval/Election Results

Additionally, research is clear that the Index of Consumer Sentiment (ICS) has an impact on Presidential approval (Shapiro & Conforto, 1980; MacKuen, Erikson, & Stimson, 1992). Studies have shown that voters respond more readily to their perceptions of the *national* economy versus their personal economic circumstances (Kiewiet, 1983; MacKuen et al., 1992). While this sociotropic voting tendency is of interest, even more intriguing is the observation that this voting pattern is strongly prospective (forward looking) rather than retrospective (backward looking) in nature (Kuklinski & West, 1981; Kiewiet, 1983; Lewis-Black, 1988).

Typically, politicians have focused on influencing immediate economic factors experienced by the voter (i.e. unemployment, inflation, financial markets) through monetary and fiscal policy; however it is evident that changes in presidential approval are not dictated solely by current factors but also by perceptions of the immediate economic *future* (MacKuen, Erikson, & Stimson, 1992).

While the position that the electorate is more sociotropic and prospective in their economic sentiment has backing, the more familiar "Keynesian" theory of economic stimulation of present economic factors is not without merit as well. In fact, consumer sentiment is shown to be influenced by both retrospective and prospective viewpoints, as well as by sociotropic and personal economic experiences (Clarke & Stewart, 1994). The conclusion that appears without significant dissention is that consumer sentiment does impact Presidential approval (Kiewiet, 1983; Lewis-Black, 1988; MacKuen, Erikson, & Stimson, 1992; Clarke & Stewart, 1994) and the President's ability to manage the economy, specifically in regards to fiscal policy, reversely impacts observed sentiment (De Boef & Kellstedt, 2004).

2.3. Sentiment and Overall Trust of Government

The level of public trust in government is known to be impacted by negative economic perceptions, a.k.a. consumer sentiment (Citrin & Green, 1986; Nye, 1997; Hetherington, 1998; Chanley, Rudolph, & Rahn, 2000). This mistrust of government has implications for citizen compliance, but more directly results in voter support for non-incumbent and third party candidates (Hetherington, 1999; Chanley et al., 2000). Additionally, research suggests that declining trust in government erodes public support for federal involvement in public affairs thus making the public less likely to support government spending on domestic issues (Hetherington & Nugent, 2001). In fact, several studies have supported the notion that individual beliefs on whether or not the government is fiscally responsible or wasteful (monetarily trustworthy) impacts the public's support for governmental spending and action (Jacoby, 1994; Chanley et al., 2000). Research clearly supports the conclusion that consumer sentiment economically, as well as whether government

officials are viewed as fiscally trustworthy, directly impacts the overall level of trust of the populace and subsequent election outcomes.

3. Data and Methodology

This study a Hierarchical Linear Regression Model as established in previous research on consumer confidence (Sonquist & Morgan, 1964; Mueller, 1966; Clark & Oswald, 1994; Matsusaka & Sbordone, 1995; Darity & Goldsmith, 1996; Di Tella, MacCulloch, & Oswald, 2001). The aim of this study is to expand on the known linear regression model of unemployment, inflation, and stock market performance as predictors of consumer sentiment through the addition of two new independent variables in successive stages (Mueller, 1966; Shapiro & Angevine, 1969; Hymans, 1970; Minford, 1983; Clark & Oswald, 1994; Darity & Goldsmith, 1996; Di Tella, MacCulloch, & Oswald, 2001; Mankiw, Reis, & Wolfers, 2003; Ludvigson, 2004; Saghafi, 2011). The first additional independent variable considered is the federal debt, as a percentage of real gross domestic product. Converting the figure into a percentage allows for historical comparisons of debt over numerous time periods. For example, the current level of national debt is approximately $18.1 trillion dollars, or 100.4% of gross domestic product (Treasury Direct, 2015). Compare that to the national debt in 1945 at a mere $241.86 billion, yet at an all-time high of 113% of gross domestic product (Phillips, 2012). The addition of the new independent variable will enable the study to determine the significance of national debt on consumer sentiment by considering adjusted r-squared results from the established model to the new one. Changes in adjusted r-squared results will be noted and their significance determined. Additionally, standardized beta coefficients for each variable will be isolated to determine which of the independent variables regressed is the most important. The second new independent variable, federal budget deficit as a percentage of real gross domestic product, will then be added to the regression model and analyzed together with the known control variables and the national debt independent variable with the total difference in adjusted r-squared values determined.

The sources of data for the replicated independent variablesfollow earlier studies and are as follows: 1) the monthly unemployment rate as reported by the Bureau of Labor Statistics (Mueller, 1966; Clark & Oswald, 1994; Di Tella, MacCulloch, & Oswald, 2001), 2) the monthly rate of inflation or consumer price index as reported by the Bureau of Labor Statistics (Bryan & Venkatu, 2001; Lemmon & Portniaguina, 2006), and 3) the monthly rate of return on the S&P 500 index(Fisher & Statman, 2003; Lemmon & Portniaguina, 2006). The sources of data for the two new independent variables are: 4) the level of national debt as a percentage of real gross domestic product taken directly from the monthly financial statements of the United States Treasury Department. This figure includes all debt instruments issued by the United States Treasury, both held internally and externally. Monthly real gross domestic product figures are provided by Y Charts data service and reflect the seasonally adjusted figures as reported by the Bureau of Economic Analysis (Y Charts, 2013; Bureau of Economic Activity, 2013). 5) The federal budget deficit defined as, the amount of government expenditure in excess of government revenues. The amount of the federal budget deficit was compiled from the data provided monthly through the Congressional Budget Office (Congressional Budget Office, 2013). The federal budget deficit is seasonally adjusted by the CBO and the data used is taken directly from their reports. The University of Michigan Index of Consumer Sentiment will serve as the model's dependent variable. This index was selected over the Index of Consumer Confidence collected by the Conference board for several reasons. First, the University of Michigan Index (ICS) is backward looking, asking respondents to compare their present situation to that of a year ago. Secondly, the ICS examines expectations over a longer time period of time. Thirdly, the Conference Board Index of Consumer Confidence tends to focus on job availability, while our model considers numerous variables. Finally, the ICS enquires about the economic conditions of the country as a whole, while the Conference Board focuses on local economic conditions. The regression equation utilized will be as follows:

$\rightarrow$ Consumer Confidence$_t$= ß$_0$ + ß$_1$Unemployment$_{t-1}$ + ß$_2$Inflation$_{t-1}$ + ß$_3$Stock Market Return$_{t-1}$ + ß$_4$National Debt$_{t-1}$ + ß$_5$Federal Budget Deficit$_{t-1}$ + $\mathcal{E}_i$

As noted previously, this multivariate regression model design is based on the methodology of previous studies, with the exception being that our paper utilizes monthly figures rather than quarterly (Otto, 1999; Fisher & Statman, 2003; Lemmon & Portniaguina, 2006).Furthermore, while some earlier studies treated any residual as "excess sentiment (pessimism or optimism) unwarranted by fundamentals," we view the residual as potentially unexplained explanatory factors of observed sentiment.

4. Results

The results indicate that both the level of national debt (as a percentage of real gross domestic product) and/or the level of the federal budget deficit (as a percentage of real gross domestic product) are statistically significant to consumer sentiment at $p<=.05$ though at at lower level of R-squared than earlier studies. This discrepancy is believed to be contribuatable to the population size difference betweeen monthly and quarterly data.

 Regression one replicated the findings of earlier research which considered these variables independently, and showed that unemployment rate, inflation rate, and stock market performance were all statistically signficant explanatory factors for consumer sentiment figures. This supports earlier findings where these variables are shown to be strongly correlated to sentiment and connected to overall economic health.

Regression two was the second stage of the hierarchical mulitivariate linear regression analysis, adding the first new independent variable of this study; the level of national debt expressed as a percentage of real gross domestic product. The level of national debt was statistically significant as an explanatory variable.

Regression three was the final stage of the hierarchical multivariate linear regression, where federal budget deficit expressed as a percentage of real gross domestic product was added to the regression equation. The level of the federal budget deficit also proved to

be a statistically significant explanatory variable to consumer sentiment in the United States. Following are detailed descriptive statistics for each regression.

4.1. Regression One Descriptive Statistics
The baseline regression (regression one) combined the ealier work of several individuals on the independent variables of unemployment, inflation, and financial market performance into a single aggregate regression model (Mueller, 1966; Clark & Oswald, 1994; Goldsmith, Veum, & Darity, 1996; Di Tella, MacCulloch, & Oswald, 2001; Morck, Shleifer, & Vishny, 1990; Poterba & Samwick, 1995; Otoo, 1999; Fisher & Statman, 2003; Baker & Wurgler, 2006).   The regression considered 239 individual observations and established that all three indepednent control variables are statistically signficant in explaining observed consumer sentiment. Furthermore, the model produced an adjusted r-squared value of.569, thus explaining 56.9% of the observed variation in reported consumer sentiment. See table 1.
The standardized beta coefficients for this baseline regression indicate that of the three independent variables considered first, unemployment is the most important explanatory factor. This is followed by rate of inflation and finally stock market performance. See table 1.1. Also of interest is the negative relationship seen between consumer sentiment and unemployment, as well as with inflation rate. The relationship between consumer sentiment and stock market performace is positive, as expected utilizing major indexes of large firms.

4.2. Regression Two Descriptive Statistics
The Hierarchical Multivariate Regression Model's second stage re-runs the baseline regression with the addition of the first new independent variable; the level of the United States national debt expressed as a percentage of real domestic product. This regression utilizes the same 239 observations as the baseline and shows that the national debt variable is statistically significant in explaining the observed consumer sentiment figure with a significance of.000. The addition of national debt as an independent variable also increases the model's adjusted r-squared by.048 to a new figure of.617 or a 61.7% explanatory function. See table 2. Lastly, when the standardized coefficients are determined, unemployment remains the most important explanatory variable, however national debt now replaces inflation rate as the second most important. See table 2.1.

4.3. Regression Three Descriptive Statistics
The final stage of the hierarchical multivariate linear regression re-runs the regression incorporating all the variables thus far and adding the final new independent variable of the level of federal budget deficit expressed as a percentage of real gross domestic product. The same data points are utilized and the final stage shows that the level of the federal budget deficit is also statistically significant with regards to consumer sentiment. The adjusted r-squared is improved by.009 to a new adjusted r-squared for the entire mode l of.624 or 62.4% explanatory factor. See Table 3. Standardized beta coefficients again allow for the most important of the variables to be identified. Unemployment remains the most important, followed by the level of national debt, inflation rate, the federal budget deficit, and finally stock market performance. See table 3.1.

5. Model Robustness
The challenge of any Multivariate Linear Regression is potential multicollinearity between variables. Following best practices, results were tested for correlation and as expected given findings in earlier studies, some variables showed an elevated relationship.
Table 4however, shows the complete correlation matrix of all the variables utilized in the model with no variable producing a correlation greater than.80; multicollinearity therefore is not an obvious concern (Field, 2013; Studenmund, 2010). Given that the independent specific variables of unemployment and national debt level approach the.80 acceptability threshold however, the potential for subtle forms of multicollinearity do exist (Field, 2013).
To verify the robustness of the regression equation, the variance inflation factor (VIF), as well as the tolerance statistic, were also run for the complete variable list. A VIF factor greater than 10 indicates that multicollinearity is likely (Bowerman & O'Connell, 1990; Myers 1990; Studenmund, 2010), while a tolerance statistic less than.1 indicates a serious multicollinearity issue (Field, 2013). Table 4.1 indicates that none of the utilized variables fall outside the acceptable range for VIF or tolerance confirming multicollinearity is not an issue with the regression model used.

6. Conclusion
While the 2016 Presidential election has addressed issues of immigration, healthcare reform, and national security, the age old challenge of the economy remains relevant. The clear statistical significance of the national debt and federal budget deficits to consumer optimism in the country demonstrated by this paper could provide a key advantage in a contentious race. While unemployment remains the top predicator of optimism for the American electorate (standardized beta figure of -5.08) the surprising emergence of national debt as the second most significant predictor (standardized beta figure of -3.07) reveals a population that may have reached a tipping point with regards to borrow and spend monetary policy. This emergence provides a previously unknown means by which candidates may directly influence consumer sentiment and therefore their presidential ambitions. What is less clear is whether or not the electorate has always been negatively impacted by the national debt and deficits, or if this is a new phenomenon. More specifically, at what level of debt (as a percentage of gross domestic product) does the relationship with consumer confidence become negative? These are appropriate questions for further research to apendix

Model Summary Regression One							
Model 1992 -2012	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.758[a]	.575	.569	8.8281	.575	105.849	3

Table 1

Coefficients[R1]						
Model 1992 - 2012		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	133.562	3.049		43.802	.000
	UNEMPLOYMENT RATE	-644.691	36.602	-.800	-17.614	.000
	INFLATION RATE	-300.920	55.728	-.250	-5.400	.000
	STOCK MKT RETURN	30.951	13.418	.100	2.307	.022
	(Constant)	137.158	2.951		46.479	.000

Table 1.1

Model Summary Regression Two							
Model 1992 -2012	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.758[a]	.575	.569	8.8281	.575	105.849	3
2	.789[b]	.623	.617	8.3294	.048	29.985	1

Table 2

Coefficients[R2]						
Model 1992 - 2012		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	UNEMPLOYMENT RATE	-438.384	51.108	-.544	-8.578	.000
	INFLATION RATE	-275.378	52.787	-.229	-5.217	.000
	STOCK MKT RETURN	29.677	12.662	.096	2.344	.020
	NATL DEBT % GDP	-29.249	5.341	-.332	-5.476	.000
	(Constant)	135.054	3.060		44.142	.000

Table 2.1

Model Summary Regression Three							
Model 1992 - 2012	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.758[a]	.575	.569	8.8281	.575	105.849	3
2	.789[b]	.623	.617	8.3294	.048	29.985	1
3	.795[c]	.632	.624	8.2516	.009	5.432	1

Table 3

Coefficients[R3]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	133.562	3.049		43.802	.000
	UNEMPLOYMENT RATE	-644.691	36.602	-.800	-17.614	.000
	INFLATION RATE	-300.920	55.728	-.250	-5.400	.000
	STOCK MKT RETURN	30.951	13.418	.100	2.307	.022
	(Constant)	137.158	2.951		46.479	.000
	UNEMPLOYMENT RATE	-438.384	51.108	-.544	-8.578	.000
	INFLATION RATE	-275.378	52.787	-.229	-5.217	.000
	STOCK MKT RETURN	29.677	12.662	.096	2.344	.020
	NATL DEBT % GDP	-29.249	5.341	-.332	-5.476	.000
	(Constant)	134.929	3.068		43.980	.000
	UNEMPLOYMENT RATE	-409.022	52.083	-.508	-7.853	.000
	INFLATION RATE	-280.047	52.303	-.233	-5.354	.000
	STOCK MKT RETURN	26.978	12.588	.087	2.143	.033
	NATL DEBT % GDP	-27.014	5.371	-.307	-5.029	.000
	BDGT DEF % GDP	-302.013	126.742	-.112	-2.383	.018

Table 3.1

Correlations of All Variables

		UMCSENT	UNEMPLOYMENT RATE	INFLATION RATE
Pearson Correlation	UMCSENT	1.000	-.708	.010
	UNEMPLOYMENT RATE	-.708	1.000	-.350
	INFLATION RATE	.010	-.350	1.000
	STOCK MKT RETURN	.110	.049	-.197
	NATL DEBT % GDP	-.691	.747	-.203
	BDGT DEF % GDP	-.477	.504	-.179
Sig. (1-tailed)	UMCSENT	.	.000	.439
	UNEMPLOYMENT RATE	.000	.	.000
	INFLATION RATE	.439	.000	.
	STOCK MKT RETURN	.044	.226	.001
	NATL DEBT % GDP	.000	.000	.001
	BDGT DEF % GDP	.000	.000	.003
N	UMCSENT	239	239	239
	UNEMPLOYMENT RATE	239	239	239
	INFLATION RATE	239	239	239
	STOCK MKT RETURN	239	239	239
	NATL DEBT % GDP	239	239	239
	BDGT DEF % GDP	239	239	239

Correlations of All Variables

		STOCK MKT RETURN	NATL DEBT % GDP	BDGT DEF % GDP
Pearson Correlation	UMCSENT	.110	-.691	-.477
	UNEMPLOYMENT RATE	.049	.747	.504
	INFLATION RATE	-.197	-.203	-.179
	STOCK MKT RETURN	1.000	.013	-.052
	NATL DEBT % GDP	.013	1.000	.477
	BDGT DEF % GDP	-.052	.477	1.000
Sig. (1-tailed)	UMCSENT	.044	.000	.000
	UNEMPLOYMENT RATE	.226	.000	.000
	INFLATION RATE	.001	.001	.003
	STOCK MKT RETURN	.	.423	.210
	NATL DEBT % GDP	.423	.	.000
	BDGT DEF % GDP	.210	.000	.
N	UMCSENT	239	239	239
	UNEMPLOYMENT RATE	239	239	239
	INFLATION RATE	239	239	239
	STOCK MKT RETURN	239	239	239
	NATL DEBT % GDP	239	239	239
	BDGT DEF % GDP	239	239	239

Table 4

Tolerance & VIF Coefficients

Model 1992 - 2012		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	UNEMPLOYMENT RATE	.877	1.140
	INFLATION RATE	.845	1.183
	STOCK MKT RETURN	.961	1.041
2	(Constant)		
	UNEMPLOYMENT RATE	.401	2.496
	INFLATION RATE	.839	1.192
	STOCK MKT RETURN	.960	1.041
	NATL DEBT % GDP	.437	2.286
3	(Constant)		
	UNEMPLOYMENT RATE	.379	2.640
	INFLATION RATE	.836	1.196
	STOCK MKT RETURN	.954	1.048
	NATL DEBT % GDP	.425	2.355
	BDGT DEF % GDP	.721	1.388

Table 4.1

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