Per Capita Consumption, Luxury Consumption and the Presidential Puzzle: A Partial Resolution [1]

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Abstract

Santa-Clara and Valkanov (2003) document that excess returns on the stock market are puzzlingly higher under Democratic presidential administrations. We examine whether differences in economic fundamentals can account for this presidential puzzle. We find that the role for fundamentals crucially depends on how they are defined. When fundamentals are identified with per capita consumption growth, differences in consumption growth account for at most 2% of the difference in excess returns across the presidential cycle. When fundamentals are identified with the consumption growth of luxury goods, as much as 45% of the difference in excess returns can be accounted for by differences in fundamentals. Other measures of macroeconomic economic performance indicate large differences in business cycle experience over the presidential cycle. Hence, large differences in excess returns coincide with large differences in economic fundamentals across the presidential cycle. We also investigate whether the observed difference in fundamentals and stock returns over the presidential cycle were anticipated over the period we study. We do this in two ways. First we examine real-time data on expectations. Expectations data reveal little evidence in favor of a systematic relationship between presidential party and expected fundamentals or stock returns. Secondly, we examine the robustness of the observed difference in stock returns and fundamentals to large, unpredictable macroeconomic shocks. Removing the influence of the most severe depression years and major military conflicts results in a considerable attenuation of the presidential puzzle. This finding supports the view that the differences in both fundamentals and excess returns over the presidential cycle were unanticipated.

1 Introduction

Santa-Clara and Valkanov (2003), henceforth SCV, document that excess returns on the stock market are considerably higher under Democratic presidential administrations. For example, they find that over the period 1927-1998 the excess return on the CRSP value-weighted portfolio averaged 10.7% during Democratic presidencies and 1.7% over Republican administrations on an annualized basis. This difference is striking. In comparison, the small stock premium, the difference between the first and last CRSP size-decile portfolio, is roughly 2% on an annualized basis over the same period. Apart from the size of the differential, the difference is robust across subsamples and different asset classes. SCV find strong evidence of a Democratric return premium over three periods (1927-1998, 1927-1962, 1963-1998) in the CRSP value-weighted, equally-weighted and size-decile portfolios. Furthermore SCV subject their finding to a battery of robustness checks; including the bootstrap as well as size correcting their test statistics to account for the possibility of data mining and still find strong evidence in favor of a Democratic return premium.

SCV examine a variety of explanations for the return differential to no avail. In particular, they examine whether Republican and Democratic administrations are correlated with business cycle risks. Instead of weakening the evidence in favor of the Democratic premium, they find that controlling for business cycle risks only bolsters the case for a large and statistically significant premium. Additionally SCV examine the variance of excess returns and find no significant difference across the presidential cycle. Based on these considerations the authors conclude that there is no risk based explanation for the difference in returns. Furthermore, they argue that the large difference in excess returns represents a puzzle and reflects differences in unexpected rather than expected returns. Ultimately, they "attribute the difference in realized returns to the stock market being systematically, positively surprised by Democratic policies."

In this paper we shed light on the presidential puzzle by examining the link between

the difference in unexpected returns and unexpected differences in economic fundamentals across the presidential cycle. We do this through the lens of consumption based asset pricing models. Consumption based asset pricing models predict that periods of unexpectedly high consumption growth should also be periods of unexpectedly high excess returns. In measuring consumption, we draw on a recent literature which stresses the importance of recognizing incomplete consumption insurance and limited stock market participation (Constantinides (2002), Mankiw and Zeldes (1991)). In the presence of these market frictions, aggregate consumption measures are inappropriate for testing the implications of asset pricing models. Instead, consumption should be defined relative to those households actually investing in the stock market. Recent research has documented that measuring consumption in this way results in a dramatic improvement in both the fit and plausibility of consumption based asset pricing models (Aït-Sahalia, Parker and Yogo (2003), Brav, Constantinides and Geczy (2002)).

Informed by these considerations, we examine the presidential puzzle using both per capita consumption of nondurables and services data as well as data on the consumption of luxury goods. The per capita data is the standard measure of consumption typically employed in tests of asset pricing models (Hansen and Singleton (1982)). The luxury goods data is new and comes from Aït-Sahalia, Parker and Yogo's (2003) study of luxury goods and the equity premium. These data serve as a proxy for the consumption of wealthy stockholders. We examine whether either source of consumption data is informative for the presidential puzzle.

We find that the explanatory power of consumption based models for the presidential puzzle depends crucially on which source of consumption data is employed. Over the sample period for which we have data on both aggregate and luxury consumption measures, the growth in both consumption measures is higher under Democratic administrations. The magnitude, however, is only important in the case of luxury consumption growth. Per capita

consumption growth was marginally higher under Democratic presidencies while luxury consumption growth more than doubled across the presidential cycle. This difference in luxury consumption growth implies that a significant portion of the presidential puzzle can be attributed to differences in economic fundamentals across the presidential cycle. In the case of the CRSP value-weighted portfolio, our estimates suggest that roughly 40% of the difference in excess returns across the presidential cycle can be traced to the robust growth in luxury consumption over Democratic administrations. A similar calculation using the per capita consumption data suggests that only 2% of the difference in excess returns can be attributed to differences in per capita consumption growth. These results are in line with those of Aït-Sahalia, Parker and Yogo (2003) who demonstrate that luxury consumption betas explain the unconditional cross section of stock returns more effectively than do per capita consumption betas between 1961 and 1998. Our results suggest that luxury consumption betas are informative in explaining the large difference in excess stock returns across Democratic and Republican presidencies as well as the unconditional cross section of returns.

While our results indicate that differences in luxury consumption are important for understanding the presidential puzzle, we are still left with the issue that Republican administrations appear to have forecasted poor fundamentals (i.e., luxury consumption growth). This raises two important questions.

First, what is the source of the difference in fundamentals across Democratic and Republican administrations? Are the changes in luxury consumption growth related to the underlying state of the macroeconomy or is the correlation between excess returns and luxury consumption spurious? We address this question by showing that differences in luxury consumption growth across the presidential cycle are directly related to the business cycle. Republican presidencies have been more prone to economic recessions since 1929. Luxury consumption, unlike per capita consumption, responds strongly to changes in the business

cycle. Hence, periods of depressed growth in luxury consumption signal a general malaise in overall economic activity. In this way, luxury consumption growth provides a link between stock returns and the state of the macroeconomy.

Secondly, our analysis interprets changes in fundamentals over the presidential cycle as unanticipated. Given the size and apparent predictability of the disparity in fundamentals over the presidential cycle, it is natural to question whether these changes were anticipated. Moreover, if investors could have forecasted better economic times during Democratic administrations one would counterfactually expect lower returns during these periods. We address the predictability of fundamentals in two ways.

First, we directly examine data on expectations. We use survey forecast data from the Livingston survey of professional forecasters to assess whether or not investors expected any difference in excess returns or economic activity across the presidential cycle. In general, we find little support for the claim that either expected economic activity or expected returns vary considerably across the political cycle. Second, we examine the robustness of the presidential puzzle to the inclusion of two classes of economic shocks that are, arguably, difficult to anticipate: depressions and major military conflicts. We examine the differences in excess returns and fundamentals after removing the major depression years (1929-35) as well as all major military conflicts since 1929.[1] Removing these periods from the data results in a significant attenuation of the difference in both excess returns and fundamentals across the presidential cycle. Over the 1929-1998 period, removing the influence of these shocks completely eliminates the difference in excess returns across the presidential cycle. Over a more recent period, in which we have data on luxury consumption, removal of these shocks reduces the difference in excess returns across the presidential cycle by over 50%. Additionally, we find that removing these large shocks substantially reduces the disparity in luxury consumption growth over the presidential cycle. Based on these considerations we

[1]Specifically, we remove data from World War II (1941-45), the Korean Conflict (1950-1953), the Vietnam War (1965-1975) and the Gulf War (1990-1991)

conclude that large and unexpected differences in fundamentals over the presidential cycle are an important source of the large observed difference in excess returns.

These empirical results are important for three reasons. First, the results suggest that a significant portion of the presidential puzzle can be explained by a traditional asset pricing theory. Unexpectedly high excess returns coincided with unexpectedly strong fundamentals. Historically, Democratic administrations have been marked by more and longer expansions, stronger real output and luxury consumption growth as well as higher stock returns. In this way, we make a connection between the political environment, fundamentals and stock returns. Second, this paper highlights the importance of focusing on an appropriate consumption measure when relating stock returns and fundamentals. A consumption measure that is only appropriate in a frictionless environment, offers few insights into the presidential puzzle. Alternatively, a consumption measure that is appropriate in the presence of market frictions such as limited participation or incomplete markets is revealing about the nature of the puzzle. Accordingly, these results add to a growing body of evidence supporting the view that recognizing incomplete consumption insurance and limited stock market participation is important for explaining the behavior of asset returns. Third, we provide additional evidence that the difference in excess returns and fundamentals across the presidential cycle were largely unexpected. Examining expectations data shows that neither stock returns nor real economic activity are expected to differ across the presidential cycle. Also we show that removing large and largely unforeseeable macroeconomic shocks from the data considerably reduces the size of the presidential puzzle.

The rest of the paper is organized as follows. Section 2 briefly reviews the presidential puzzle as documented by SCV. Section 3 discusses the issue of using consumption data to measure fundamentals. We review the arguments for and against using per capita consumption and luxury consumption data as a measure of fundamentals and discuss their implications for our empirical analysis. Section 4 discusses the data employed in our em-

pirical analysis. Sections 5 and 6 present our empirical results and compares results for per capita and luxury consumption data. Section 7 examines the link between presidential administration and fundamentals and investigates the extent to which the large differences in fundamentals across the presidential cycle can be regarded as unanticipated. Section 8 concludes and discusses directions for future research.

2 The Presidential Puzzle

SCV document large and persistent differences in excess returns across Democratic and Republican presidential administrations over the period 1927-1998. This large return differential has not gone unnoticed in the previous literature. SCV point out that previous work by Hensel and Ziemba (1995), Herbst and Slinkman (1984), Huang (1985), Chittenden, Jensen and Johnson (1999) and Siegel (1998) documents the empirical regularity of increased stock returns during Democratic presidencies.

SCV measure the size of the return premium by using CRSP data on the value-weighted (VWR), equally-weighted (EWR) and size-sorted decile (DEC) portfolios. The case for a Democratic return premium is made in Table II of their paper. Table I reproduces this table.

The first column of Table I presents estimates of the average excess return on stocks over the period 1927-1998. Excess returns are formed by subtracting either the inflation rate (INF) or the return on a 90 day T-bill (TBL) from the stock return. Interacting these variables results in four different measures of excess return. Glancing at Table I, the difference in excess returns is extremely large over the presidential cycle. Over the period 1927-1998, the difference in average excess return on the value-weighted portfolio (VWR-TBL) between Democratic and Republican presidencies is over 9% on an annualized basis. Looking at the equally-weighted portfolio (EWR-TBL) only makes the case stronger as the return differential increases to 16.5%. This premium is robust to tests of statistical

significance and varying subsamples. SCV employ both a HAC estimator for the standard error of the difference in returns as well as a test based on the bootstrap. Over the full sample, three out of four of the tests of equal excess returns are rejected at the 3% level or below. Only the difference between inflation adjusted returns on the value-weighted portfolio (VWR-INF) is insignificantly different over the sample period.

Considering the size and robustness of this return premium it is somewhat surprising that SCV are the first to examine potential explanations for this large premium. In fact, they note that while the effect of politics on stock returns has been widely noted and discussed in the media for quite some time, the link between politics and asset markets has been virtually unexplored by economists.[2] SCV are the first to systematically inquire whether the large return premium can be explained by differences in risk across the presidential cycle. They do this in two ways.

First, following an extensive literature on the presence of business cycle fluctuations in asset returns they examine whether it is the case that Democratic presidencies are correlated with business cycle risks which are known to change expected returns (Fama and French, 1989). Specifically they estimate the model,

$$r^e_{t+1} = \alpha + \beta Rep_t + \gamma' X_t + u_{t+1} \tag{2.1}$$

where r^e_{t+1} represents the monthly excess return,$r_{t+1} - r_{f,t}$, on either the CRSP value-weighted or equally-weighted portfolio, Rep_t is a dummy variable taking the value of one whenever a Democrat is in office and X_t is a vector of variables, related to the business cycle, which have been shown to forecast future stock returns. Specifically, X_t includes the (log) dividend yield, the difference in yield between a 10 year Treasury note and a 3 month

[2]The relationship between asset markets and politics has not gone entirely unnoticed. For example, Shiller (2000) argues that Republican (congressional) promises of a capital gains tax cut actually buoyed the market between 1994-1997. Also, Knight (2003) examines the extent to which different presidential platforms were capitalized into stock prices during the most recent presidential election.

Treasury bill (term spread) and the difference in yield between high (AAA) and low (Baa) quality corporate bonds.

The results of this analysis only strengthen the case for a Democratic return premium.[3] Regardless of the excess return measure or the sample period examined, the return differential is large and significant. In every case the null hypothesis of equal excess returns can be rejected at the 15% level and most tests reject the null hypothesis at or below the 5% level. Essentially, the results of Table I are strengthened in the conditional analysis because the business cycle related variables are virtually uncorrelated with the political party in office and adding variables that predict stock returns effectively reduces the variance of the return innovation (u_{t+1}), hence reducing the standard error of the estimates.

Before abandoning the possibility of a risk based explanation for the return premium SCV examine one last measure of risk across the presidential cycle: the volatility of returns. SCV examine whether risk, as measured by the standard deviation of monthly returns, is significantly different between Democratic and Republican administrations. They find that volatility is actually slightly higher under Republican administrations and hence can not explain the large return premium.

In the face of these failures to correlate excess returns with some measure of risk the authors conclude that the difference in excess returns represents a puzzle. They state that "given the results...we are left with a puzzle. How can such a large and persistent difference in returns exist in an efficient market if it is not a compensation for risk?" In what follows we discuss the possibility that unexpected differences in returns were generated by unexpected differences in fundamentals over the presidential cycle.

[3]For brevity's sake we do not report these results here since they are so similar to the results in Table I. Interested readers should consult Santa-Clara and Valkanov (2003) for further details.

3 Consumption Risk and the Presidential Puzzle

A fundamental tenet of asset pricing theory is that investors are paid returns in excess of the risk-free rate for holding assets that covary positively with their own economic well-being. Hence, assets which covary more with an investors economic well-being should, on average, exhibit higher excess returns. This logic can be formalized in the context of a stochastic discount factor (SDF) model. Namely,

$$\begin{aligned} E\left[m_{t+1}\left(r^e_{t+1}\right)\right] &= 0 \\ m_{t+1} &= a + bf_{t+1} \end{aligned}$$

where r^e_{t+1} represents the excess return on a risky asset and m_{t+1} represents the stochastic discount factor. In consumption based models without any market frictions, the factor represents marginal utility growth of the representative investor.

Re-arranging the stochastic discount factor model yields an expected return beta relationship of the following form,

$$\begin{aligned} E\left(r^e_{t+1}\right) &= \beta_{r,f}\lambda \\ r^e_{t+1} &= \beta_{r,f}\lambda + \beta_{r,f}\left(f_{t+1} - E\left(f\right)\right) + \varepsilon_{t+1} \\ E\left(\varepsilon_{t+1}|\Omega_t\right) &= 0 \end{aligned}$$

where $\beta_{r,f}$ represents the population regression coefficient from regressing excess returns onto the factor (f_{t+1}) and λ represents the market price of factor risk.

In this model, variations in realized returns are attributable to unexpected variation in fundamentals (f_{t+1}) as well as other idiosyncracies (ε_{t+1}). A main goal of this paper

is to determine the extent to which the observed difference in excess returns across the presidential cycle can be attributed to unexpected differences in fundamentals.

3.1 What is the appropriate measure of m_{t+1}?

In order to operationalize the expected return-beta representation in our empirical work we need to specify a measure of the stochastic discount factor, $m_{t+1} = a + bf_{t+1}$. The classic way of specifying this is to assume a representative investor endowed with iso-elastic utility over consumption, $u(c_t) = \frac{c_t^{1-\gamma}}{1-\gamma}$, in which case $m_{t+1} = \left(\frac{c_{t+1}}{c_t}\right)^{-\gamma}$ (Hansen and Singleton (1982)). Incorporating this assumption into the expected return-beta framework results in the classic CCAPM relation (Breeden (1979)),

$$E_t\left(r_{t+1}^e\right) = \beta_{r,\Delta c}\lambda, \tag{3.2}$$

where $\beta_{r,\Delta c}$ represents the beta between stock returns and (log) consumption growth and λ represents the market price of risk.[4]

Before the above equation can be taken to the data, one must choose an empirical proxy for c. In standard settings, when investors face no costs of investing and have access to complete consumption insurance, c represents the consumption of the representative investor. This motivation has led many researchers to use the per capita consumption of all U.S. households as a proxy for c. The use of per capita consumption as a proxy for c is not, however, unproblematic. A growing and important literature suggests that stochastic discount factors which are constructed from measures of per capita consumption are inappropriate from the viewpoint of economic theory. Theoretical objections to the use of PCE consumption are principally raised on two grounds.

First, the standard Euler equation for consumption implies that the marginal rate of substitution between present and future consumption of any investor is an appropriate

[4]The above relation is actually a first order approximation to the consumption Euler equation. This approximation becomes exact in an continuous time setting (Breeden (1979)).

stochastic discount factor. For example, assuming iso-elastic utility implies that,

$$\begin{aligned} E_t\left[m_{i,t+1}\left(r^e_{t+1}\right)\right] &= 0 \\ m_{i,t+1} &= \left(\frac{c_{i,t+1}}{c_{i,t}}\right)^{-\gamma}, \end{aligned}$$

where i indexes an investor. Extending this result to the case of per capita consumption is not immediate. Namely, the per capita formulation of the above Euler equation,

$$\begin{aligned} E_t\left[m_{t+1}\left(r^e_{t+1}\right)\right] &= 0 \\ m_{t+1} &= \left(\frac{\sum_i c_{i,t+1}}{\sum_i c_{i,t}}\right)^{-\gamma}, \end{aligned}$$

is a direct consequence of market completeness. If investors are unable to fully insure against idiosyncratic income shocks the individual Euler equation holds but the per capita Euler equation does not (Constantinides (1982)).

Brav, Constantinides and Geczy (2002), present empirical evidence that recognizing the disconnect between the individual and per capita consumption Euler equation is important. They show that when the stochastic discount factor is calculated as a simple average of investor SDF's, $\frac{1}{I}\sum_{i=1}^{I}\left(\frac{c_{i,t+1}}{c_{i,t}}\right)^{-\gamma}$, the explanatory power of the model increases and provides more reasonable estimates of the coefficient of relative risk aversion. Specifically, the authors find that the observed equity premium is consistent with the average stochastic discount factor and a value of γ between 3 and 4. In contrast, employing the per capita stochastic discount factor,$\left(\frac{\sum_i c_{i,t+1}}{\sum_i c_{i,t}}\right)^{-\gamma}$, results in a rejection of the standard CCAPM model and would imply a magnitude of γ in the neighborhood of 50-100.

A second objection to the use of per capita consumption as a stochastic discount factor is that stock market participation is limited to the wealthiest households (Mankiw and Zeldes (1991), Blume and Zeldes (1993), Haliassos and Bertaut (1995)). In the presence of high fixed costs to investment, only the consumption of inframarginal households is important for determining asset prices. Mankiw and Zeldes (1991) and Brav, Constantinides

and Geczy (2002) demonstrate that as per capita consumption is defined over those households who actually own assets, the explanatory power of the per capita stochastic discount factor increases and provides a more reasonable estimate of the coefficient of relative risk aversion. Moreover, the explanatory power of the stochastic discount factor increases as the definition of an asset holder is successively tightened to recognize the limited participation of households in the capital market.

In related work, Aït-Sahalia, Parker and Yogo (2003), have recently stressed the importance of luxury good consumption for asset pricing. The authors, consider a model in which consumption is of two kinds, necessities (C) and luxuries (L). In their model, necessities (C) are subject to a subsistence level so that poor households only consume necessities and no luxuries. Consequently, these households are unwilling to accept consumption risk so they hold little equity and exhibit extremely stable consumption. Also, the authors argue that necessities exhibit satiation at low levels so that most of the variation in consumption comes from changes in luxury good consumption.

The authors show that a linearized version of their model admits an expected return-beta representation of the following form,

$$E\left(r_{t+1}^{e}\right) = \beta_{r,\Delta l}\lambda \tag{3.3}$$

where $\beta_{r,\Delta l}$ represents the population regression coefficient between an asset's return and luxury consumption growth. Using data on retail sales from Tiffany's department stores as a proxy for L they test the above expected return-beta relationship. They compare the explanatory power of their model in which m_{t+1} is proxied by luxury good consumption and the traditional CCAPM in which m_{t+1} is proxied by per capita (PCE) consumption.

Their results show that the unconditional cross section of asset returns is better explained by luxury consumption than per capita consumption betas. Over the period 1961-2001 using luxury consumption growth instead of per capita consumption growth to price returns results in smaller pricing errors across the 25 Fama-French (1993) portfolios sorted

by size and book to market. Also, similar to the findings of Brav, Constantinides and Geczy (2002), they find that estimates of the coefficient of relative risk aversion are substantially reduced when the luxury consumption data is employed as a proxy for the stochastic discount factor. Over their sample period the traditional CCAPM implies a value of γ equal to 50 while employing luxury consumption as the stochastic discount factor yields a value of 7.

Based on these theoretical and empirical considerations we consider the explanatory power of consumption based asset pricing models that take either per capita or luxury consumption growth as a measure of the fundamental (stochastic discount factor).

4 Data

We make use of consumption data, stock return data and data on which party holds the presidency at the annual frequency.

4.1 Consumption Data

4.1.1 per capita consumption

Our data on per capita consumption of nondurables and services comes from the Bureau of Economic Analysis' (BEA) Personal Consumption Expenditure (PCE) series. We use annual data from 1961 through 1998. This series was obtained from the BEA (www.bea.gov). The nominal consumption data is deflated using the Consumer Price Index of all urban consumers (CPI-U). The CPI data is observed at the monthly frequency. We assume that consumption takes place at a uniform rate over the year and deflate it using the average level of the CPI over each of the twelve months within each quarter. The CPI series was obtained from the Bureau of Labor Statistics (www.bls.gov). Table II contains summary statistics for (log) consumption growth and Figure I plots the data over the sample period

along with NBER recession dates.

4.1.2 luxury good data

In this study we use annual sales data from Tiffany's, an upscale department store, from 1961-1998. This is the same data analyzed in Aït-Sahalia, Parker and Yogo (2003). The authors retrieved the data from the COMPUSTAT database and since Tiffany's main line of business is jewelry, their sales were deflated using a jewelry price index. This series is only available at the annual frequency since 1961. Readers interested in further details relating to this data series and its construction are referred to the aforementioned paper. Table II contains summary statistics for this series and Figure I plots the data over the sample period along with NBER recession dates.

We rely solely on the Tiffany's sales data as a measure of luxury good consumption which ultimately proxies as a measure of the consumption of wealthy households. This is not the only potential source of data on the consumption of the wealthy. Brav, Constantinides and Geczy (2002), for example, directly measure the consumption of wealthy households through the CEX database. Unfortunately, this data source is only available since the early 1980's. Since the CEX data became available there have been only two Democratic presidential administrations. As a result, these data are not useful for measuring variation in excess returns across the presidential cycle. The Tiffany's data, however, is not the only potential source of data on luxury consumption. Aït-Sahalia, Parker and Yogo (2003) identify a variety of other series which may be reasonable proxies for the consumption of the wealthy. They include the consumption of luxury automobiles, fine Bordeaux wines and expensive Manhattan apartments. Unfortunately, each of these series suffers from a significant durable component, lack of data availability or both. Lastly, there are two subcategories of PCE consumption which could arguably be classified as luxury consumption: PCE jewelry and watches and PCE boats and aircraft. PCE jelwery and watches contains a substantial

amount of non-luxury consumption while PCE boats and aircraft represent the consumption of durable goods.

Besides the difficulties with other sources of luxury good consumption data we favor the use of the Tiffany's sales data because it has been proven to successfully price stock returns. Aït-Sahalia, Parker and Yogo (2003) show that using the Tiffany's sales data instead of per capita consumption results in a significant improvement in the fit and plausibility of the expected return-beta relationship relative to models that employ per capita consumption data. Our investigation of luxury consumption growth and the presidential puzzle serves as a further test of this series as a proxy for the stochastic discount factor. While luxury consumption growth has been shown to explain the unconditional cross section of returns, that is no guarantee that it will be informative for explaining the large differences in returns across the presidential cycle.

Figure 1 reveals a dramatic difference between the two consumption series. Per capita consumption of nondurables and services varies little relative to the consumption of luxury goods. The shaded regions corresponding to NBER recessions in Figure 1 reveal that while both series rise and fall with the business cycle, luxury consumption growth is considerably more sensitive to the business cycle. The behavior of these two series is also considerably different across the presidential cycle. While both per capita and luxury consumption growth was higher over Democratic administrations, the behavior of luxury consumption growth is significantly more sensitive to the political affiliation of the president. Table II reports that luxury consumption growth increased from roughly 6% to 12% per year between Republican and Democratic administrations. Over the same period, per capita consumption growth experienced a very modest increase from 1.98% to 2.04%. This dramatic difference in the behavior of per capita and luxury consumption data has implications for their ability to account for the presidential puzzle. The small difference in per capita consumption across the presidential cycle implies that the consumption beta required to reconcile consumption

growth with excess returns would be extremely large. In comparison, the large difference in luxury consumption growth implies smaller and more reasonable estimates of beta will be required to account for the variation in excess returns across the presidential cycle.

4.2 Stock Return Data

Following SCV we use the CRSP size-sorted decile portfolios, equally-weighted portfolio and value-weighted portfolio as measures of stock returns. To calculate excess returns we also use the return on the 90 Day T-bill. Table II contains summary statistics for the stock return data. We note that while our sample period does not coincide with that of SCV due to the lack of consumption data in the early part of their sample period, the presidential puzzle is alive and well in our sample period. The difference in average annual excess return on the value weighted portfolio is 7.2% between 1961 and 1998. Consistent with the findings of SCV the premium is larger for smaller stocks. Over the same period, the difference in excess returns in the equally-weighted portfolio is roughly 14% between Democratic and Republican administrations.

4.3 Political Data

We use a dummy variable, Rep_t, which takes the value 1 if a Republican is in office from the end of year t to the end of year $t+1$ and 0 otherwise. Over the sample period no third-party candidates were elected to office. This data was obtained directly from Santa-Clara and Valkanov (2003). Table II displays summary statistics for this variable.

Our empirical work focuses on examining how excess returns and fundamentals change across the presidential cycle. Specifically, at time t we are interested in the information that is relevant for returns measured between the end of year t and the end of year $t+1$. Since presidential elections are held in November and the presidency changes hands in January, investors are always aware of which party will be in office at the beginning of any year

following an election. Accordingly, the only uncertainty about the party of the president surrounds the possibility of a president's removal from office. For example, a president may be assassinated (Kennedy), resign (Nixon) or may otherwise be removed from office. Even if this were to occur, however, it would be extremely unlikely that the following president would have a different party affiliation than the previous one.[5] As a result, we simply assume perfect foresight. Investors are assumed to know at the beginning of any year, which party will hold office during that year.

5 Consumption Beta and the Presidential Cycle

In this section we examine the ability of consumption based models to explain excess returns across the presidential cycle. In doing so we allow for the political party of the president to potentially affect both risk and return through varying consumption betas and alphas. Following a long line of research investigating time varying risk and return, we work with the following empirical model,

$$\begin{aligned} r^e_{i,t+1} &= \alpha_{i,t} + \beta_{i,t}\left(f_{t+1} - E\left(f\right)\right) + \varepsilon_{t+1} \\ \alpha_{i,t} &= \alpha_{i,Dem} + \left(\alpha_{i,Rep} - \alpha_{i,Dem}\right) * Rep_t \\ \beta_{i,t} &= \beta_{i,Dem} + \left(\beta_{i,Rep} - \beta_{i,Dem}\right) * Rep_t \end{aligned} \tag{5.4}$$

where f_{t+1} represents either per capita or luxury consumption growth. This model comes from a variety of empirical studies investigating conditioning variables and stock returns. Examples of this line of research include Shanken (1990), Ferson and Harvey (1999), Ferson and Korajczyck (1995), Ferson and Schadt (1996) and Lewellen (1999). While similar in spirit, these studies differ from ours in two main respects.

First, these studies typically identify the factor (f_{t+1}) with a market portfolio or a set

[5]This has occurred once since 1789. Andrew Johnson, a Democrat, succeeded Lincoln, a Republican, after he was assassinated in 1865.

of portfolios while we identify the factor with a more fundamental determinant of asset prices.[6] In the current context, identifying the factor with a portfolio would preclude us from investigating why excess returns on the market portfolio itself vary so much across the presidential cycle. Secondly, these studies examine how risk and return vary with indicators that proxy for the such as the interest rate, the dividend yield or the slope of the term structure. In contrast, we are interested in how returns change with the presidential cycle.

Our main hypothesis is that neither risk nor expected return varies across the presidential cycle so that $(\alpha_{i,Rep} - \alpha_{i,Dem}) = 0$ and $(\beta_{i,Rep} - \beta_{i,Dem}) = 0$. Under this hypothesis all variation in excess returns can be attributed to unexpected changes in fundamentals $(f_{t+1} - E(f))$ and other unpredictable components of returns (ε_{t+1}).

At this point we stress the importance of allowing for changes in both expected return (i.e., $(\alpha_{i,Rep} - \alpha_{i,Dem}) \neq 0$) and risk (i.e., $(\beta_{i,Rep} - \beta_{i,Dem}) \neq 0$) when investigating the predictive power of conditioning variables for stock returns. In principle, one could imagine estimating a model which only allows for time variation in alpha,

$$r^e_{i,t} = \alpha_i + (\alpha_{i,Rep} - \alpha_{i,Dem}) * Rep_t + \beta_i (f_{t+1} - E(f)) + \varepsilon_t$$

and testing whether alpha varies between Democratic and Republican administrations. We do not follow this approach due to the link between risk and return. As SCV point out, there is reason to believe that differences in return are related to systematic differences in fiscal and taxation policies, and hence risk, across the presidential cycle. SCV explore the possibility of varying risk across the presidential cycle by examining differences in the volatility in returns. In consumption based models, risk is defined as the covariance between asset returns and the relevant consumption measure. Accordingly, changing risk is directly

[6]The market portfolio is typically defined as the CRSP value-weighted portfolio. Some authors have also examined the case for time variation in the betas of the three Fama-French (1993) portfolios and the four portfolios of Elton, Gruber and Blake (1995).

measured by whether or not beta changes across the presidential cycle. In this way, our model directly investigates the case for varying risk across the presidential cycle in a manner that is consistent with an intertemporal framework. Also, from an econometric perspective, Ferson and Harvey (1999) point out that conditioning variables which appear significant in specifications like the one above may simply signal that beta is time varying. If changes in beta are correlated with changes in the conditioning variables then an omitted variables problem arises and inference on $(\alpha_{i,Rep} - \alpha_{i,Dem})$ becomes biased.

5.0.1 Model Estimates

In Table III we report model estimates from the specification that allows for changes in alpha and beta across the presidential cycle. We report results which employ either per capita consumption or luxury consumption data as a proxy for the stochastic discount factor (f_t). In each case, the model was estimated using excess returns on the ten CRSP decile portfolios and the value and equally-weighted portfolios between 1961 and 1998. The model was estimated by OLS.[7]

We report results for per capita consumption in the first three columns and results for luxury consumption in the last three columns. We report results for the interaction terms $((\alpha_{i,Rep} - \alpha_{i,Dem}), (\beta_{i,Rep} - \beta_{i,Dem}))$ as well as the percentage change in beta across the presidential cycle $(\%\Delta\beta_i)$ to conserve space.

The results when per capita consumption is employed as a stochastic discount factor are in line with those of SCV. Republican administrations predict future stock returns and the effect is more pronounced for smaller stock portfolios. At the annual frequency the estimate of the differences in alpha across Republican and Democratic administrations, $(\alpha_{i,Rep} - \alpha_{i,Dem})$, is large and declines in magnitude for larger stock portfolios. For example, the estimated difference in alpha across the presidential cycle is estimated to be 21% in the

[7]Since the dependent variables are identical across all the test portfolios, equation by equation OLS is equivalent to a seemingly unrelated regression (SUR) estimator.

case of the value-weighted portfolio and 29% for the equally weighted portfolio. Moreover, each estimate of $(\alpha_{i,Rep} - \alpha_{i,Dem})$ is highly significant across all twelve of the test portfolios. In summary, when per capita consumption is employed as a stochastic discount factor, the predictability of excess returns across the presidential cycle still emerges as a robust feature of the data.

The considerable variation in per capita alphas, by themselves, however, do not constitute a puzzle. Significant decreases in per capita consumption betas would be in line with the decrease in alphas. Reduced excess returns would coincide with reduced systematic risk. While the data do suggest significant variation in consumption betas across the presidential cycle, the pattern of variation is inconsistent with a risk based explanation to the presidential puzzle. For each of the twelve portfolios, per capita consumption betas are estimated to increase during Republican presidencies suggesting that returns should in fact be higher during these administrations. These increases are both large and statistically significant. The maximum p-value on the difference in per capita consumption beta across all twelve portfolios is only 0.07 and beta typically more than doubles between Democratic and Republican administrations. In the case of the value-weighted portfolio, the difference in beta is significant at the 1% level and it is estimated that beta increases by 286% across the presidential cycle. These findings, along with the considerable decreases in alpha across the presidential cycle suggest that employing per capita consumption growth as a stochastic discount factor can provide few insights into the nature of the presidential puzzle. Quite the opposite, this approach only deepens the puzzle.

Results employing luxury consumption data are considerably more promising. The estimates in Table III show little evidence of significant variation in alphas across the presidential cycle. The minimum p-value across the twelve test portfolios is only 0.21 and most of the p-values are in the 0.2-0.6 range. Comparing these results with those for per capita consumption, it is clear that the lack of statistical significance comes from a sharp reduction

in the estimated size of the difference in alpha, $(\alpha_{i,Rep} - \alpha_{i,Dem})$, rather than an increase in its estimated standard error. Comparing the second and fourth column of Table III reveals that the estimated difference in alpha decreases by roughly 50% between the per capita and luxury consumption results while the estimated standard errors are very similar in magnitude.

The final two columns of Table III present estimates of the amount of time variation in luxury beta across the presidential cycle. These results do not provide any strong evidence in favor of variation in beta that coincides with the presidential cycle. While the point estimates of the difference in beta, $(\beta_{i,Rep} - \beta_{i,Dem})$, are all positive none are statistically significant. The p-values range from 0.57 to 0.88 suggesting little evidence that risk changes during Republican administrations. Also, as was the case for estimated alphas, the estimated change in luxury consumption beta is uniformly smaller across all portfolios when the factor is identified with luxury consumption. In the case of the value-weighted portfolio, the luxury consumption beta is estimated to increase by 32% while the per capita consumption beta is estimated to increase by over 250% across the presidential cycle.

These results suggest that the size of the presidential puzzle is substantially reduced when viewed through the lens of a single factor, luxury consumption beta model. Even without any significant differences in risk across Republican and Democratic presidencies, there is no significant evidence in favor of predictably high returns during Democratic administrations. The source of the luxury beta model's explanatory power can be seen by examining Table II. The growth in luxury consumption reveals a dramatic increase in luxury consumption growth during Democratic presidencies (12.27% vs. 5.96%). In the context of the luxury beta model, the increase in excess returns is attributed to this unexpected increase in consumption growth. These luxury consumption results suggest that the large increase in excess returns over Democratic administrations can, in part, be explained by traditional asset pricing theory. Unexpectedly high excess returns coincided

with unexpectedly strong fundamentals. What may be regarded as untraditional in this explanation is not the underlying theory but rather the measure of fundamentals that we consider. While these Tiffany sales data are far from commonplace in the empirical asset pricing literature, we stress that these data have previously been shown to be informative for the unconditional cross section of stock returns (Aït-Sahalia, Parker and Yogo (2003)). We view these results as further evidence that luxury consumption, at least relative to per capita consumption, is a meaningful stochastic discount factor for pricing returns.

At this point, we note that while these results suggest that variation in luxury consumption is important for understanding the difference in returns across the presidential cycle, it is still the case that Republican administrations have forecasted low luxury consumption growth. In this sense, our results shift the focus of the presidential puzzle. The relevant question becomes "why were fundamentals so different over the presidential cycle?" instead of "why were excess returns so different over the presidential cycle?". We take up the question of why fundamentals were so different over the presidential cycle and whether these differences were forecastable in what follows. Before examining these questions, however, we examine the quantitative significance of unexpected changes in luxury consumption for the presidential puzzle.

6 The Quantitative Significance of Variation in Luxury Consumption

In this section we examine whether the size of the change in luxury consumption growth across the presidential cycle can explain a significant portion of the large return differential across Democratic and Republican presidencies. We quantitatively assess how well changes in luxury consumption explain the change in average excess returns for each of the twelve test portfolios over the period 1961-1998.

Note that in the case of the single factor luxury consumption model without any differences in risk or return across the presidential cycle we have that,

$$\begin{aligned} r^e_{i,t+1} &= \alpha_i + \beta_i \Delta l_{t+1} + \varepsilon_{i,t+1} \\ \overline{r}^e_{i,0} - \overline{r}^e_{i,1} &= \beta_i \left(\overline{\Delta l}_0 - \overline{\Delta l}_1 \right) + \left(\overline{\varepsilon}_0 - \overline{\varepsilon}_1 \right) \\ \Delta \overline{r}^e_i &= \beta_i \Delta \left(\overline{\Delta l} \right) + \Delta \overline{\varepsilon}_i \end{aligned} \tag{6.5}$$

where $r^e_{i,t+1}$ represents the excess return on portfolio i and $\overline{x}_{Rep}$ represents the sample average over either Republican ($Rep_t = 1$) or Democratic ($Rep_t = 0$) administrations. Using estimates of β_i, we can decompose the change in expected returns across the presidential cycle into a component due to changes in fundamentals ($\Delta \left(\overline{\Delta l} \right)$) and a component due to other unpredictable components of returns ($\Delta \overline{\varepsilon}_i$). In Table IV we perform this decomposition using both the luxury beta and per capita consumption beta.[8]

We report the average annual difference in returns across the presidential cycle between 1961 and 1998 for the twelve test portfolios considered in the first column of Table IV. In the next columns we display the amount of the difference in excess returns attributable to changes in fundamentals, the difference in returns due to other unpredictable components of returns and the proportion of the change that can be attributed to changes in fundamentals. The decomposition is performed using OLS estimates of the single factor model above.

The results in Table IV suggest that changes in luxury consumption growth are important for understanding the nature of the presidential puzzle. The proportion of the change in excess returns attributable to changes in luxury consumption growth ranges from 24% in the case of the equally-weighted portfolio to 48% for the portfolio of largest stocks (DEC10-TBL). Consistent with the findings of SCV, changes in luxury consumption growth are less informative for the difference in the returns on small stock portfolios. Changing fundamentals account for 39% of the difference in the value-weighted portfolio and 24% of the change

[8] Although our previous analysis raises questions concerning the validity of the single factor per capita consumption beta model, we include it for comparative purposes.

in the equally-weighted portfolio. Also, the proportion of the variation in return explained by changes in luxury consumption growth rises steadily from 28% of the smallest stock portfolio to 48% of the largest stock portfolio. When per capita consumption growth is employed as the stochastic discount factor, fundamentals have little role to play in explaining the presidential puzzle. At most, 3% of the change in excess returns across the presidential cycle can be attributed to unexpected changes in PCE consumption growth. Accordingly, even if one is convinced that per capita consumption growth is a valid stochastic discount factor it offers few insights into the presidential puzzle.

At this point we wish to stress that clearly neither changes in luxury or per capita consumption growth provides a complete explanation to the presidential puzzle. We view our results this far in two ways. First, luxury consumption growth is more informative in explaining the large differences in excess returns across the presidential cycle than per capita consumption growth. We have made this point in two ways. First, the results of the previous section suggest that excess returns over 1961-1998 are qualitatively consistent with identifying luxury consumption growth as the stochastic discount factor whereas they are not consistent with per capita consumption. Employing per capita consumption growth as the factor implies that betas, and hence risk, decrease during Democratic administrations while returns increase. The results employing luxury consumption growth suggest that neither risk nor return is significantly different across the presidential cycle. Increased excess returns are attributed to unexpectedly strong fundamentals over Democratic administrations. The results in Table IV offer a more quantitative view of the contribution of luxury consumption growth in explaining the presidential puzzle. While the fit is less than perfect, considering the efforts of SCV, explaining 40% of the observed change in returns with changes in fundamentals provides considerable insight into the nature of the presidential puzzle. In this way, these results establish a link between the political landscape, economic fundamentals and stock returns.

7 Predictability, Presidential Cycles and Luxury Consumption Growth

A key assumption of this analysis has been that differences in fundamentals, i.e., luxury consumption growth, across Democratic and Republican administrations were unexpected. In this section we investigate the extent to which this assumption is reasonable and document the source of the difference in the behavior of luxury consumption growth across the presidential cycle.

Recall, that our asset pricing model assumes that fundamentals are unpredictable. In particular, note that we employ the factor representation,

$$r^e_{i,t+1} = \lambda\beta_i + \beta_i \left(f_{t+1} - E\left(f\right)\right) + \varepsilon_{t+1}$$

and that we have implicitly assumed no conditional mean dynamics in the factor so that $E\left(f_{t+1}|Rep_t = 0\right) = E\left(f_{t+1}|Rep_t = 1\right) = E\left(f\right)$. If the factor is predictable, then the above asset pricing model is inappropriate. In particular, if the factor is largely predictable one would expect the market price of risk (λ) to vary across the presidential cycle. Since the factor is a proxy for a representative investor's marginal utility growth, the market price of risk should fall in good times when the factor is expected to be robust, and rise when economic fundamentals are expected to be weak.[9] Moreover, if the differences in luxury consumption growth were predictable one would counterfactually expect excess returns to be higher during Republican administrations when fundamentals were predictably weaker.

While our explanation for the difference in returns across the presidential cycle rests on the assumption that differences in luxury consumption growth be unpredictable, the

[9]This statement can be formalized in the context of a stochastic discount factor model. Recall that in a conditional framework the asset pricing relation $E_t\left(m_{t+1}\left(r^e_{t+1}\right)\right) = 0$ implies that $E_t\left(r^e_{t+1}\right) = \beta_t\lambda_t$ where β_t is the asset's conditional beta with the stochastic discount factor and $\lambda_t = \frac{Var_t\left(m_{t+1}\right)}{E_t\left(m_{t+1}\right)}$ is the conditional price of risk. Assuming that the variance of the stochastic discount factor is constant, an increase in the expected value of m_{t+1} implies a decrease in the market price of risk.

data appear to suggest otherwise. Recall that Table II documents that luxury consumption growth more than doubled between Republican and Democratic administrations.

Consider the following forecasting model,

$$\Delta l_{t+1} = \alpha + \beta Rep_t + \eta_{t+1},$$

and note that Δl_{t+1} represents the real sales growth of Tiffany's from January 1^{st} to December 31^{st} of any year and that Rep_t is in the investor's information set on January 1^{st} of each year so that the above equation represents a realistic forecasting model. Over the period 1961-1998, estimating this model results in point estimates consistent with Table II, $\beta = -6\%$, and a p-value of 4% suggesting the possibility of some systematic relationship between current presidential affiliation and future luxury consumption growth. A main contribution of this paper has been to document that the predictability of presidential party for stock returns is actually related to the fact that presidential party has predicted growth in luxury consumption. In what follows we draw a connection between luxury consumption growth, the presidential cycle and the business cycle. We then examine the evidence that these differences in economic fundamentals were predictable.

7.1 Luxury Consumption, Business Cycles and the Presidential Cycle

Since 1929, Republican presidencies have born the brunt of economic recessions. Republican administrations have spent considerably more time in recessionary periods. Consider a contraction index, $cont_t$, which tracks the number of quarters within a year spent in recession as defined by the NBER business cycle dating committee. We document the disparity between Democratic and Republican administrations in Figure II. Panels on the left display histograms of $cont_{t+1}$ conditional on $Rep_t = 0$ (Democratic administrations). Histograms conditional on $Rep_t = 1$ (Republican administrations) are displayed on the right. The top row displays histograms covering the period 1929-1998. The bottom row displays histograms covering the more recent sample 1961-1998.

Since 1929 Republican administrations have spent roughly 1.18 quarters in recession per year while Democratic administrations have typically spent 0.40 quarters per year in recession. Apart from the large difference in means, Republican presidencies were much more likely to experience deep recessions lasting more than two quarters and Democratic administrations were considerably more likely to experience recession free years. The same pattern is evident over the shorter sample period since 1961. The period since 1961 has enjoyed considerably more economic stability than the period since 1929 so that the average number of quarters spent in a contraction is lower for both Democrats and Republicans. The relative disparity, however, is even more striking. Since 1961 Democratic administrations spent, on average, 0.16 quarters in recession while Republicans were five times more susceptible to downturns in the business cycle.

This look at the differing business cycle experience of Democrats and Republicans indicates that part of the difference in stock returns may be attributable to an overall difference in economic performance across the two administrations. Luxury consumption growth, as proxied by Tiffany's sales, is more responsive to economic downturns than per capita consumption and hence more informative about the business cycle risk of the stock market. We provide quantitative evidence that the difference in the behavior of luxury consumption growth across the presidential cycle is due, in large part, to the difference in business cycle experience in Table V. In Table V we present estimates from regressing both luxury consumption growth and per capita consumption growth on, Rep_t, as well as the contraction indicator, $cont_{t+1}$.

This analysis is meant to clarify the source of the predictive power of presidential party for consumption growth. Presidential party could forecast future luxury consumption growth because presidential party forecasts future changes in the business cycle or it may have predictive content that is unrelated to the business cycle. As an example, Democratic administrations might be more likely to shift the tax burden towards the wealthy thereby

forecasting a future decline in luxury spending regardless of the state of the business cycle. The results in Table V indicate that the bulk of the predictive content of presidential party works though its ability to forecast future recessionary periods. The first column of Table V shows that without controlling for contractions, Republican administrations are associated with 6% lower luxury growth and the effect is highly significant. Controlling for contractions reduces the point estimate on Rep_t by 43% and renders it insignificant at the 15% level.

At the same time, contractionary periods have a large and statistically significant effect on luxury consumption growth. A single contractionary quarter results in an expected fall in luxury consumption of 4%. This effect is large. Two quarters of recession are expected to decrease luxury consumption growth by nearly one standard deviation. Also, a single contractionary quarter has a larger and more significant effect on luxury growth than does a Republican administration. These results are also large when compared to the corresponding results for per capita consumption. One quarter of a contraction only has roughly 20% of the effect on per capita consumption as it does on luxury consumption. This difference in sensitivity to the business cycle is likely due to the fact that a large share of per capita consumption includes necessities which do not respond to economic downturns. Luxury consumption, however, surely contains a variety of goods that can be and are foregone in the face of bad economic times. Moreover, these are precisely the kinds of goods that are likely important for determining the welfare of those households actually investing in the stock market.

7.2 The Case for Ex Ante Predictability of Fundamentals and Stock Returns Across the Presidential Cycle

In light of the evidence that Republican administrations have predicted future recessions it is necessary to ask whether investors actually expected poorer economic times during

Republican administrations. Importantly, it is important to distinguish between ex-ante predictability and ex-post statistical significance. Clearly, there is an ex-post statistically significant relation between current presidential party and future economic performance. The more important question, however, is whether economic participants were aware of any link between presidential party, real activity and stock returns. As previously noted, if investors actually expected poorer economic performance during Republican administrations that would suggest an increase in expected returns which would be difficult to reconcile with the data. We investigate whether any relationship between presidential party, the business cycle and stock returns was known to investors by examining real-time data on expectations. We use data from the Livingston Survey of professional forecasters to determine if economic forecasters were aware of any systematic relationship between presidential party and the economy.

7.2.1 Livingston Survey Data

In 1946 a Philadelphia newspaper columnist, Joseph Livingston, began asking business economists about their expectations concerning a number of economic variables. Livingston wrote a column summarizing the responses of the respondents and published it in a variety of Philadelphia newspapers. Over the years, the opinions of economists from industry, government, banking and academia were included in the survey. Since 1990, the survey has been managed by the Federal Reserve Bank of Philadelphia where it is published today. The survey data used in this study are available from the Philadelphia Federal Reserve Bank (www.phil.frb.org/econ/liv).

The survey is an important source for data on the actual expectations of economists and other professional forecasters. Unlike econometric analyses which suffer from sample selection bias, look ahead bias, and a variety of other problems, the Livingston Survey data represent actual expectations which were elicited in real-time. The survey has been used

as source data in a number of studies concerned with the expectations of economic agents. Turnovsky (1970) used the Livingston price forecasts in early tests of rational expectations models. Gultekin (1983) studied the joint behavior of stock market and inflation forecasts. More recently, Ball and Croushore (1995) have studied the effects of monetary policy on inflation expectations.

Our primary interest in the expectations data is to examine whether economists and professional forecasters actually expected differences in stock returns or economic performance across the presidential cycle. We focus on three measures, expected annual real returns, expected annual real GNP/GDP growth and the expected annual change in the unemployment rate.[10] Forecasts of the level of the S&P 500 proxy for the stock market.[11] Real returns and real GDP expectations are formed using expectations for the CPI. We exclusively rely on the CPI since the survey only included questions about interest rates in the early 90's.[12] For every series, the survey asks each respondent to forecast the level of the appropriate series in six and twelve months time. There is some uncertainty about precisely when forecasts were being made. The survey was conducted by mail and so it is impossible to know exactly when forecasts were made and what information was available to forecasters. This is problematic in the case of stock market forecasts since markets can move substantially over a period of just a few days. Following Gultekin (1983), we use the implied return over the last six months of the year, taken as the percent change in the forecasted level of the S&P 500 in six and twelve months, as our measure of expected return. In the case of the more slowly moving real GDP and unemployment rate, we use the level of the series when the survey was mailed out.

[10]Prior to 1992, forecasters were asked about their expectations regarding GNP.

[11]The S&P 400 was the stock market variable used in the survey prior to 1990.

[12]Throughout the paper we have examined the behavior of excess returns. Due to the lack of expectations data on interest rates it is impossible to construct excess return forecasts using these data. As long as the real interest rate is relatively constant, using real return forecasts should be informative for expected excess returns.

Our expectations data spans 1953-1998 in the case of the real GDP and excess return forecasts. Unemployment forecasts are available from 1961. For each series we use the survey from December of the previous year to extract expectations for the current year. For example, real GDP, real return and unemployment expectations from 1955 are collected from the Livingston survey conducted in December of 1954. Also, we aggregate expectations by using the median forecast.

In Table VI we present results from regressing expectations on Rep_t. The evidence is very weak for any systematic relationship between expectations and the presidential cycle. In every case the point estimates are very small and insignificant. In the case of real activity measures, real GDP is expected to decrease slightly but unemployment is expected to slightly decrease during Republican administrations. Interestingly, real returns are estimated to increase by 0.8% during Republican administrations which is at least suggestive that forecasters might perceive some increased business cycle risk during Republican administrations. Also, real stock return expectations exhibit the highest R^2 with presidential party. Variation in Rep_t explains 4% of the variance in the median stock market forecast. The estimate, however, is not statistically significant and more importantly is not backed up by any evidence that forecasters actually perceive any risk of decreased real activity during these periods. Based on these expectations data we can only conclude that both the large difference in returns and fundamentals over the presidential cycle were largely unexpected. In this sense, our interpretation of the data is consistent with that of SCV. SCV also conclude that the large difference in returns across the presidential cycle represents unexpected differences in returns. Importantly, however, our analysis links the unexpected difference in excess returns to unexpected differences in fundamentals, i.e. luxury consumption growth, over the presidential cycle.

7.2.2 The Depression, Military Conflict and the Presidential Puzzle

In this section, we examine the robustness of the presidential puzzle to large and unforeseeable economic shocks. We remove the effect of the most severe depression years (1929-1935) as well as every major military conflict between 1929 and 1998. Our motivation for examining the robustness of the presidential puzzle to the removal of these macroeconomic shocks is two fold.

First, this analysis provides an additional means of assessing whether the large differences in excess returns across the presidential cycle represent a predictable or unpredictable component of returns. A lack of robustness of the presidential puzzle to the exclusion of these largely unpredictable shocks would call into question its uniformity and predictability over time. This analysis complements the subsample analysis of SCV. Unlike SCV who examine two different subsamples of the data (1927-1961, 1961-1998) we examine periods which would likely be most informative to investors trying to gauge the size and stability of the Democratic return premium when making decisions about their future investments.

Secondly, this analysis provides a further test of whether differences in overall economic activity, and in particular differences in luxury consumption growth, are related to the presidential puzzle. To the extent that removing these large shocks from the data attenuates the difference in excess returns over the presidential cycle we would expect a similar attenuation in luxury consumption growth and other fundamental measures of economic activity such as the contraction index.

Table VII lists the periods which were excluded from the sample and the difference in mean excess returns on the value-weighted and equally-weighted portfolios as well as the difference in the mean of the contraction index and per capita and luxury consumption growth. We examine the data over two periods, 1929-1998 as well as the more recent sample between 1961 and 1998 which has been the major focus of this paper. For each period we report results for the full sample and the sample which excludes the Depression and major

military conflicts in Table VIII.[13]

Table VII shows that over the long sample, 1929-1998, the presidential puzzle is nearly eliminated after removing these macroeconomic shocks. Omitting the severe depression years and major military conflicts, reduces the annualized difference in excess returns on the equally-weighted portfolio from over 15% per year in the full sample to just 0.11% per year in the restricted sample. Similarly, the difference in the excess return on the value-weighted portfolio shrinks from nearly 10% to 0.11%. It is also the case that the difference in general economic performance is much narrower over the restricted sample. Between 1929-1998, Republican presidencies experienced 0.80 more quarters of recession per year than their Democratic counterparts. Over the restricted sample Republicans were only subject to 0.21 more quarters of recession per year. Ultimately, we are interested in whether the reduction of the difference in excess returns coincides with a similar reduction in the difference of our measure of fundamentals - luxury consumption growth. Since luxury consumption growth is only observed between 1961 and 1998, we turn to an analysis of this time period.

Over this more recent sample, 1961-1998, removing large shocks results in a somewhat smaller reduction in the size of the presidential puzzle. Over this period the restricted sample amounts to removing the Vietnam and Gulf War periods from the data. In the case of the equally-weighted portfolio, the difference in annualized excess returns falls from roughly 14% over the full sample to 5.3% during the restricted sample that omits the Vietnam and Gulf War periods. General economic performance also converges over this period during the restricted sample. Over the full sample,1961-1998, Republican administrations were subject to 0.6 more quarters of recession per year than their Democratic counterparts. Over the

[13]Table VIII does not provide any standard errors or tests of statistical significance. In this context it is not clear how to account for the fact that our removal of these periods is based, at least in part, on the excess return data. On this point, we leave it to the reader to decide how to interpret the results of this analysis.

restricted sample, the difference narrows to 0.2 more quarters of recession per year. More importantly, differences in luxury consumption growth across the presidential cycle also converge in the restricted sample. Over the full sample, luxury consumption growth was 6.0 percentage points higher under Democratic administrations. Over the restricted sample, luxury consumption growth was only 1.2 percentage points higher during Democratic administrations.

Per capita consumption growth is considerably less sensitive to the inclusion or omission of these macroeconomic shocks. Whether the Vietnam and Gulf War periods are included or excluded per capita consumption growth is nearly constant across the presidential cycle. Excluding these periods results in per capita consumption growth which is marginally higher during Republican administrations (0.9 percentage points) while including these shocks results in marginally lower consumption growth during Republican administrations (0.02 percentage points).

These results show that a significant portion of the presidential puzzle is generated by the behavior of asset markets during the Great Depression and periods of military conflict. This suggests that it may be difficult to interpret the Democratic return premium as a uniform and stable phenomenon that would have been anticipated by investors. Rather, this analysis indicates that the difference in excess returns may be due to a few unexpected yet persistent economic shocks. Furthermore, these results demonstrate a link between the behavior of luxury consumption growth, the overall macroeconomy and asset returns. Removing these shocks makes the difference in both excess returns and luxury consumption growth between Democratic and Republican administrations small. Accordingly, a substantial portion of the difference in excess returns across the presidential cycle can be attributed to concomitant differences in fundamentals that were precipitated by large macroeconomic shocks.

8 Conclusion

Differences in excess stock returns across Democratic and Reopublican presidential administrations are large. In this paper we have investigated this presidential puzzle through the lens of the consumption based asset pricing model. We find contrasting results depending on whether the fundamental stochastic discount factor is proxied by per capita (PCE) consumption or the consumption of luxury goods as proxied by the sales of Tiffany's department stores.

Empirical implementation of the CCAPM using per capita consumption as the stochastic discount factor is unable to offer any insights into the nature of the presidential puzzle. The estimated difference in alpha across Democratic and Republican administrations is both large and statistically significant when excess returns are related to per capita consumption growth. Also, per capita consumption betas are estimated to vary over the presidential cycle in a way that is at considerable odds with the data. Beta risk is estimated to increase during Republican administrations when excess returns decreased.

Implementing the CCAPM using the growth in luxury good consumption as a stochastic discount factor considerably reduces the size of the presidential puzzle. Across all twelve test portfolios, the estimated difference in alpha and beta is sharply reduced and insignificantly different from zero when luxury consumption growth is employed as a stochastic discount factor. These results complement the findings of Aït-Sahalia, Parker and Yogo (2003) who find that luxury consumption growth is informative for the unconditional cross section of returns. Our results indicate that luxury consumption growth is also useful for explaining some of the conditional features of excess returns.

Quantitatively, between 25% to 40% of the difference in excess returns can be attributed to differences in luxury consumption growth across the presidential cycle. The large difference in luxury growth is shown to be a consequence of the increased incidence of recessions during Republican administrations. Luxury growth is very sensitive to changes in the busi-

ness cycle whereas per capita consumption is not. As a result, luxury growth is a better indicator of the business cycle risk inherent in stocks.

We also investigate whether the large differences in economic fundamentals and stock returns across the presidential cycle can reasonably be interpreted as unexpected. Using data from the Livingston survey of professional forecasters we find no evidence that expectations of either real activity measures or excess stock returns vary with the presidential administration. Also, we show that the difference in both excess returns and economic fundamentals are reduced considerably when large economic shocks are removed from the data. Removing the influence of the Great Depression and major military conflicts results in smaller differences in excess returns, business cycle experience and luxury consumption growth across the presidential cycle. Accordingly, we conclude that much of the increase in excess returns during Democratic presidencies between 1961 and 1998 was due to unexpectedly strong economic fundamentals during these periods.

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Table **I**: **Average Returns under Republican and Democratic Presidents**

This table is reprinted from Santa-Clara and Valkanov (2003) and reports mean excess and real returns of value-weighted and equal-weighted portfolios, VWR-TBL, VWR-INF, EWR-TBL, EWR-INF and the real interest rate, TBL-INF, during Republican (RD) and Democratic (DD) presidential terms. All rates are represented in annualized percentage points. The numbers below the coefficients in the RD and DD columms represent p-values under the null hypothesis that the estimates are not significantly different from zero. The first number is the p-value of the test conducted using Newey-West (1987) heteroskedasticity and serial-correlation robust t-statistics. The second number is the p-value of the test conducted using a conditional bootstrap t-statistic. The p-values below the coefficients in the Diff column are obtained from the Newey-West and conditional bootstrap t-statistics under the null that there is no difference in returns during Republican and Democratic regimes. The row T/Republicans displays the number of observations and the number of months of Republican administrations during the estimation period. The row $\bar{R}^2$ displays the average adjusted R^2 obtained in the regressions.

	1927:01-1998:12			1927:01-1962:12			1963:01-1998:12		
	RD	DD	Diff	RD	DD	Diff	RD	DD	Diff
VWR-TBL	1.69	10.69	-9.01	1.68	11.13	-9.45	2.60	9.45	-6.85
	0.33	0.00	0.03	0.40	0.01	0.06	0.23	0.00	0.07
	0.31	0.01	0.02	0.39	0.02	0.04	0.20	0.03	0.09
VWR-INF	4.25	9.56	-5.31	5.22	8.54	-3.32	4.50	10.21	-5.71
	0.12	0.00	0.13	0.22	0.03	0.17	0.10	0.00	0.12
	0.13	0.00	0.13	0.17	0.06	0.16	0.10	0.01	0.13
EWR-TBL	-0.01	16.52	-16.52	1.30	16.23	-14.93	0.02	17.21	-17.19
	0.50	0.00	0.01	0.44	0.00	0.04	0.50	0.00	0.01
	0.46	0.00	0.01	0.45	0.00	0.03	0.48	0.00	0.01
EWR-INF	2.58	15.38	-12.80	4.84	13.63	-8.79	1.94	17.95	-16.00
	0.29	0.00	0.02	0.28	0.02	0.10	0.33	0.00	0.01
	0.29	0.00	0.03	0.32	0.02	0.08	0.31	0.00	0.01
TBL-INF	2.54	-1.16	3.70	3.50	-2.66	6.16	1.89	0.79	1.10
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
T/Republicans		863/407			431/179			431/239	
$\bar{R}^2$		0.01			0.01			0.01	

Table **II**: **Summary Statistics**

The table reports means and standard deviations of all variables used in this study. Summary statistics are reported for both the quarterly and annual sample. All returns and consumption growth are computed in logarithmic form and are reported in annualized percentage points.

	Annual: 1961 - 1998					
	Full Sample		Democratic		Republican	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Financial Variables						
VWR-TBL	5.98	15.55	9.74	12.13	2.58	17.71
EWR-TBL	8.64	23.58	15.99	17.64	2.02	26.59
DEC1-TBL	10.57	26.15	17.40	20.17	4.42	29.72
DEC2-TBL	8.64	24.06	14.97	17.76	2.94	2.78
DEC3-TBL	7.96	22.59	13.93	16.76	2.60	26.04
DEC4-TBL	8.40	21.56	14.31	17.23	3.08	24.02
DEC5-TBL	7.17	19.78	11.56	15.32	3.22	22.74
DEC6-TBL	7.40	18.89	10.74	14.43	4.40	22.11
DEC7-TBL	6.62	18.27	9.73	13.08	3.84	21.89
DEC8-TBL	7.12	16.47	10.23	12.77	4.34	19.10
DEC9-TBL	6.14	15.44	8.99	11.35	3.57	18.29
DEC10-TBL	5.47	14.99	8.29	13.19	2.93	16.35
Consumption Variables						
Δc_t	2.00	1.81	2.04	1.76	1.98	1.90
Δl_t	9.0	9.58	12.27	8.1	5.96	10.05
Political Variables						
Rep_t	67.89	21.81	0.00	0.00	1.00	0.00
N	38		18		20	

Table **III**: **Model Estimates**

This table reports OLS estimates from the model, $r_{i,t+1} - r_{f,t} = \alpha_{i,t} + \beta_{i,t}\left(f_{t+1} - E\left(f\right)\right) + \varepsilon_{t+1}$. Asymptotic p-values are reported in parentheses. The column, $\%\Delta\beta_i$, reports the estimated percent change in consumption beta between Democratic and Republican administrations. Both excess returns and fundamentals are measures in annualized percentages

	PCE Consumption			Luxury Consumption		
	1961-1998			1961-1998		
	$(\alpha_{i,Rep} - \alpha_{i,Dem})$	$(\beta_{i,Rep} - \beta_{i,Dem})$	$\%\Delta\beta_i$	$(\alpha_{i,Rep} - \alpha_{i,Dem})$	$(\beta_{i,Rep} - \beta_{i,Dem})$	$\%\Delta\beta_i$
VWR-TBL	−20.88	6.89	286.62	−6.00	0.11	31.63
	(0.00)	(0.00)		(0.42)	(0.85)	
EWR-TBL	−28.79	7.45	246.53	-13.53	0.16	53.32
	(0.00)	(0.00)		(0.23)	(0.85)	
DEC1-TBL	−23.89	5.54	122.30	-13.52	0.31	85.82
	(0.03)	(0.19)		(0.28)	(0.74)	
DEC2-TBL	−25.91	7.00	199.54	-14.35	0.48	147.04
	(0.01)	(0.07)		(0.21)	(0.58)	
DEC3-TBL	−24.72	6.75	190.68	-12.65	0.39	109.74
	(0.01)	(0.06)		(0.24)	(0.62)	
DEC4-TBL	−24.87	6.86	244.62	-10.30	0.12	37.00
	(0.01)	(0.05)		(0.32)	(0.88)	
DEC5-TBL	−21.49	6.62	216.77	-7.56	0.21	49.00
	(0.01)	(0.03)		(0.43)	(0.77)	
DEC6-TBL	−18.07	5.91	215.80	-6.44	0.25	72.51
	(0.03)	(0.05)		(0.49)	(0.71)	
DEC7-TBL	−19.83	7.01	244.51	-7.31	0.37	119.22
	(0.01)	(0.01)		(0.41)	(0.57)	
DEC8-TBL	−18.51	6.34	270.70	-5.93	0.19	70.99
	(0.01)	(0.02)		(0.46)	(0.75)	
DEC9-TBL	−17.98	6.30	285.00	-6.61	0.30	121.83
	(0.01)	(0.01)		(0.38)	(0.59)	
DEC10-TBL	−19.35	7.02	299.86	-3.95	0.08	24.37
	(0.00)	(0.00)		(0.59)	(0.88)	

Table **IV**: **Fundamentals and the Presidential Puzzle**

This table decomposes the difference in excess returns across Democratic and Republican administrations between 1961 and 1998 into a component that is related to differences in fundamentals and a residual component. The decomposition is constructed from OLS estimates of the single factor model, $r^e_{i,t+1} = \alpha + \beta\left(f_{t+1} - E\left(f\right)\right) + \varepsilon_{t+1}$, in which the factor is taken to be either luxury consumption growth (Δl_{t+1}) or per capita consumption growth (Δc_{t+1}). The table reports the difference in excess returns across the presidential cycle, $\Delta\overline{r^e_i}$, the estimated difference due to unexpected changes in fundamentals, $\hat{\beta}\Delta\overline{f}$, the estimated difference due to the residual, $\Delta\overline{\hat{e}_i}$, and the proportion of the change in excess returns due to unexpected changes in fundamentals, $\frac{\hat{\beta}\Delta\overline{f}}{\Delta\overline{r^e_i}}$. All numbers are reported as percentages.

		Luxury Consumption $f_{t+1} = \Delta l_{t+1}$			Per Capita Consumption $f_{t+1} = \Delta c_{t+1}$		
Excess Returns: 1961-98	$\Delta\overline{r^e_i}$	$\hat{\beta}\Delta\overline{f}$	$\Delta\overline{\hat{e}_i}$	$\frac{\hat{\beta}\Delta\overline{f}}{\Delta\overline{r^e_i}}$	$\hat{\beta}\Delta\overline{f}$	$\Delta\overline{\hat{e}_i}$	$\frac{\hat{\beta}\Delta\overline{f}}{\Delta\overline{r^e_i}}$
VWR-TBL	7.16	2.78	4.38	38.84	0.17	6.99	2.42
EWR-TBL	13.97	3.36	10.61	24.06	0.21	13.76	1.53
DEC1-TBL	12.98	3.68	9.30	28.35	0.30	12.68	2,29
DEC2-TBL	12.03	3.53	8.50	29.33	0.24	11.79	2.00
DEC3-TBL	11.33	3.56	7.77	31.44	0.24	11.09	2.14
DEC4-TBL	11.22	3.11	8.12	27.67	0.20	11.03	1.76
DEC5-TBL	8.33	3.43	4.91	41.11	0.21	8.13	2.54
DEC6-TBL	6.34	2.84	3.50	44.87	0.19	6.15	2.98
DEC7-TBL	5.89	2.68	3.21	45.47	0.20	5.69	3.42
DEC8-TBL	5.89	2.30	3.59	39.02	0.17	5.72	2.84
DEC9-TBL	5.43	2.21	3.21	40.84	0.16	5.26	2.93
DEC10-TBL	5.36	2.60	2.76	48.47	0.17	5.19	3.16

Table **V**: **Luxury and Per Capita Consumption Across Presidential and Business Cycles**

This table examines the relationship between fundamentals, $(\Delta l_{t+1}, \Delta c_{t+1})$, the presidential cycle, Rep_t, and the business cycle, $cont_{t+1}$ between 1961-1998. Each column of the table reports the results of the regression $f_{t+1} = \gamma_0 + \gamma_1 Rep_t + \gamma_1 cont_{t+1} + \varepsilon_{t+1}$, where f_{t+1} is either per capita consumption growth (Δc_{t+1}) or luxury consumption growth (Δl_{t+1}). P-values are reported in parentheses and the R^2 is reported along the bottom row of the table.

	Δl_{t+1}		Δc_{t+1}	
Rep_t	-6.31 (0.04)	-3.61 (0.19)	-0.05 (0.93)	0.43 (0.44)
$cont_{t+1}$		-4.26 (0.00)		-0.76 (0.00)
R^2	11.10%	34.42%	0.02%	20.91%

Table **VI**: **Expectations and the Presidential Cycle**

This table reports the results from the following regression, $E_{t,t+1} = a + bRep_t + \eta_t$, where $E_{t,t+1}$ represents the median expectation (forecast) of real stock returns, real GDP or the change in unemployment between the end of year t and the end of year $t+1$. As discussed in the text, in the case of stock return forecasts, we use the implied real return over the last six months of the year. All expectations data are expressed in annual percentage terms. The first column reports the point estimate, $\widehat{b}$, the second column reports the p-value and the third column reports the R^2 of the regression.

	$\widehat{b}$	$p-value$	R^2
Excess Returns	0.84	0.25	4.0
Real GDP Growth	-0.14	0.82	0.14
Δ Unemployment	-0.04	0.84	0.11

Table **VII**: **The Depression, Military Conflict and the Presidential Puzzle**

This table reports the mean difference in excess returns on the value ($\Delta(VWR - TBL)$) and equally-weighted ($\Delta(EWR - TBL)$) portfolios as well as the contraction index ($\Delta cont$), luxury consumption ($\Delta(\Delta l)$) and per capita consumption growth ($\Delta(\Delta c)$). The difference in sample means are presented over two periods, 1929-1998 and 1961-1998. For each period we consider the full sample period as well as a restricted sample. The restricted sample excludes the major Depression years (1929-1935), World War II (1941-1945), the Korean Conflict (1950-1953), the Vietnam War (1965-1975) and the Gulf War (1990-1991). All numbers are reported in annual terms

	1929-1998		1961-1998	
	Full Sample	Restricted Sample	Full Sample	Restricted Sample
Excess Returns				
$\Delta(VWR - TBL)$	9.93	-0.10	6.73	3.49
$\Delta(EWR - TBL)$	15.67	0.11	13.97	5.29
Fundamentals				
$\Delta cont$	-0.80	-0.21	-0.63	-0.24
$\Delta(\Delta l)$	–	–	6.00	1.20
$\Delta(\Delta c)$	–	–	0.02	-0.88

Figure **I**:

This figure plots real per capita (PCE) consumption, Δc_t, and Tiffany's sales, Δl_t, growth series over the sample period. The shaded regions reflect NBER recessionary periods. Any year that experienced one or more quarters of recession is labeled as a recessionary period.

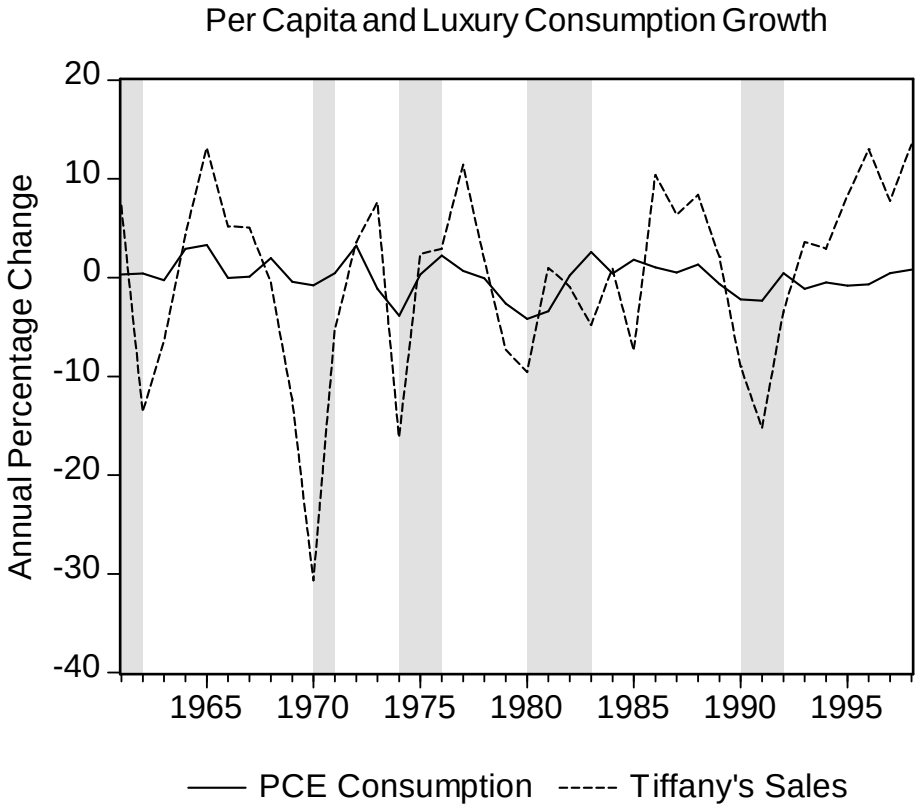

Figure **II**:

This figure presents histograms of the annual contraction index. The contraction index takes a value between 0 and 4 depending on how many quarters of the year were designated as an NBER contraction. Each row displays two histograms. A histogram over Democratic and Republican administrations. The top row diaplays histograms for the period 1929-1998 and the bottom row displays histograms for the period 1961-1998.