

Preliminary

**Trust in Government and the Growth of Government:
Evidence on their Coevolution**

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I. Introduction

An important phenomenon over the past several decades has been the large decline in trust of government. Pew Research Center (2010) reports that respondents who indicate that they trust government “most of the time” or “just about always” fell from 76.6 percent in 1966 to 21.5 percent in 2010.¹ This decline in the public’s trust of government has caused great unease among many commentators, with the concern that trust is an important aspect of social capital and its decline may detract from the efficacy of government, as well as in the ease of economic and social interactions.² Notably, this decline in trust occurred during the time period of substantial government growth in the U.S., largely in the form of federal transfer programs and regulatory activity. This presents something of a paradox: how does a mistrusted institution grow and become so large? This paper first reviews an economic framework to understand this paradox. We then turn to an empirical analysis of the time series of measures of government size and trust in government, as well as related outcomes to assess how well the economic model aligns with the data.

Trust and cooperation are linked to ideas of social capital, that is, customs, norms, and habits that assist in social cooperation.³ Indeed, studies have shown the importance of social capital to an economy.⁴ Many have argued that trust in and cooperation with government is part of this beneficial set of norms. A variety of reasons are given for this importance, mostly having to do with cooperation and involvement in the political process and civic activities, e.g., jury

¹ Many more details are in Pew Research Center (2010). For other discussions of trends in measures of trust in government for the U.S. see Nye, Zelikow, and King (1997) and Hunter and Bowman (1996).

² As examples, Nye, Zelikow, and King (1997), Hunter and Bowman (1996), Warren (1999), Dalton (2004), Blind (2006), Hetherington (2005), and Pharr and Putnam (2000).

³ A succinct summary is Fukuyama (2000).

⁴ See Knack and Keefer (1997) as an example.

service, voting, and willingness to work for the government. The argument is that cooperation of the above type helps government run more effectively.

However, perhaps more convincing is the following. There are a number of functions of government that most agree are value-increasing. These include establishing and enforcing property rights and other personal rights, maintaining good contract law, promoting competition, and dealing with public goods and externalities. While these may raise value for several reasons, one reason is that they raise productivity. Trust in and cooperation with government enables and augments the productivity-enhancing effects of these government functions. For example, voluntarily compliance with the known parameters of contract and property law limits disputes and saves on transactions costs. Likewise, cooperation with police investigations makes it easier to enforce laws and improves property rights. Such cooperative attitudes enable government to work more effectively and raise private-sector productivity.

A handful of authors consider that trust in government is not an isolated phenomenon but that it is determined in conjunction with government activity. Clark and Lee (2001a,b) emphasize that, while trust is important for government to function, the trust of the public is earned by good performance of the government and they model this simultaneous relationship – that trust enables government action, but government action affects the degree of trust. Other papers in the literature also examine the co-determination of attitudes and economic outcomes, e.g., Francois and Zbojnik (2005), Tabellini (2008), and Aghion, et al. (2010).

Garen and Clark (2013) extend previous models, as well as incorporating the literature on rent seeking and trust and reciprocity to understand the paradoxical growth in the size of and mistrust of government. Additionally, a number of other empirical implications emerge from

their framework. This paper makes an initial assessment regarding how the data align with these implications.

Section II of the paper reviews the basics of the Garen and Clark (2013) model and describes its empirical predictions regarding government growth and trust, as well as with respect to lobbying/rent seeking and productivity. Section III presents an overview of the time series of our measure of trust in government, various metrics of government activity in the economy, in addition to data on lobbying activity and productivity. Section IV describes the econometric analysis of the data. Because much of the data is non-stationary, we are careful to select the appropriate time series methods. We estimate the long run relationships between the variables of interest and how they adjust to one another, i.e., we consider the cointegration of relevant variables and their mutual adjustment using the error correction model.

Our results are preliminary, but many findings are consistent with the economic model. In particular, our cointegration results show a negative, long run relationship between trust and lobbying activity and a positive, long run association of lobbying and our measure of federal regulation. These imply a negative, long run relationship between trust and federal regulatory activity. Also, changes in trust, lobbying, and federal regulation follow patterns as expected. Lastly, section V concludes.

II. The Joint Determination of Trust, Government Activity, Rent Seeking, and Productivity

This section reviews the framework of Garen and Clark (2013) on the co-determination of trust in government and government activity and extracts a number of its empirical implications. In this model, individuals (or individual organizations or interest groups) choose the level of work activity, political support/rent-seeking activity, and the degree of cooperativeness/trust in government. Government/politicians gain from people supplying

political support and establish a reward to individuals for doing so. It is in the form of in-cash of in-kind subsidies and/or favorable regulation. Government also determines the level of productivity-enhancing government functions, e.g., property rights enforcement. We show the equilibrium that results and how it may change.

A. Individual and Aggregate Political Support, Work Effort, and Cooperation

For individuals, let the following definitions hold.

h = effort in productive activity, e.g., hours of work

$(1-t)w$ = the after-tax return to productive activity, where t is the tax rate

s = effort in political support activity

r = the return to each unit of political support activity, assumed not to be subject to tax.

ℓ = degree of trust in and cooperation with government

$C(h,s)$ = the utility cost of effort. Assume that there is increasing marginal cost of each type of effort ($C_{ii} > 0, i=h,s$) and $C_{hs} > 0$.

Let the individual's utility function be

$$(1) \quad U = (1-t)wh + rs - C(h,s) + \beta\ell - \varphi(\ell)$$

The first two terms are the after-tax income from work plus the payoff from political support effort, respectively. The third term is the utility cost of effort. The last two terms represent the individual's benefit and cost of cooperation with government.

The genesis of the final two terms is from the experimental and psychology literatures. Laboratory experiments on trust and reciprocity indicate that people engage in reciprocating behavior – trusting and cooperation or withdrawal of trust and punishment – even in in one-shot prisoners' dilemma games where the dominant strategy is to neither cooperate nor punish. Such findings strongly suggest that behavior is in part determined by perceived fairness, i.e., “fair”

behavior by the other party is rewarded and “unfair” actions are punished.⁵ Evidently, individuals gain utility from cooperation with persons that they judge as being worthy. The final terms in the utility function (1) reflect this.

Furthermore, there is evidence that individuals apply a related standard to cooperation with institutions. For example, Levi, Tyler, and Sacks (2008) find that compliance with the law is dependent on whether the state is viewed as an appropriate authority entitled to be obeyed. Nadler (2005) shows that the perceived illegitimacy of and noncompliance with one law reduces the willingness to comply with the law in general. Other research obtains result regarding government in general. Various studies find that non-cooperative attitudes toward government are engendered by perceived inefficiency of government, a heavy influence of special interests, misconduct by government officials, and a perception of poor macroeconomic policy.⁶ Overall, these findings link to the idea of reciprocity and cooperation as a social norm and suggest that this norm is applied to government. If government is perceived to be effective, then this is reciprocated with trust and with cooperation. If not, it is withdrawn.

These ideas are incorporated into the model in a simple way. The marginal benefit of trust/cooperation is given by the parameter β . The above implies better government will generate higher values of β . To specify this more precisely, consider the following. Let G = government spending on the value-enhancing aspects of government. Define aggregate political support activity as S . With payment r per unit of S , total spending in this respect is rS .⁷ Thus, total government spending is $G+rS$. Let $\beta=G/(G+rS)$ so that the marginal utility of cooperation with government rises with the share of G in total spending and falls with rS . This captures the

⁵ Fehr and Gächter (2000) provide a succinct summary of these experimental results.

⁶ See, for example, Blendon, et. al. (1997), Pharr (2000), and Alesina and Wacziarg (2000).

⁷ Rewards for political support may be in-kind. If so, the rS is the dollar equivalent.

essence of the foregoing arguments that cooperation ensues from value-enhancing government and the converse from government activity that generates political activities.

The individual chooses work effort, h , political support effort, s , and cooperativeness, ℓ , to maximize utility. It is also assumed that each individual has an infinitesimal effect on economy-wide aggregates, so they are taken as given. Focusing on s and ℓ , it is straightforward to show that s rises with r and falls with w and ℓ falls with S . In equation form, this is

$$(2) \quad s = s(r, w), \text{ with } s_r > 0 \text{ and } s_w < 0$$

$$(3) \quad \ell = \ell(S), \text{ with } \ell' < 0$$

Recall from the foregoing functions of government such as establishing and enforcing property rights, maintaining good contract law, promoting competition, and dealing with public goods and externalities are value-increasing. We denote this type of government activity as G . In this framework, G is modeled as raising productivity. This is expressed in a simple way. Let $w = w(G)$, with $w_G > 0$, i.e., greater G raises the productivity of work effort.

Also from the foregoing, the literature indicates that citizen cooperation with government enhances the productivity-augmenting effect of G . To express this in the model, denote the aggregate level of trust of and cooperation with the government by L . It is the sum of the cooperation of each individual, ℓ_i , so that $L = \sum \ell_i$. The effectiveness of the G in raising productivity depends on L and is expressed in the following way: $w = w(G, L)$, with $w_G > 0$, $w_L > 0$, and $w_{GL} > 0$. The latter cross-partial conveys that the marginal product of G is increased by L .

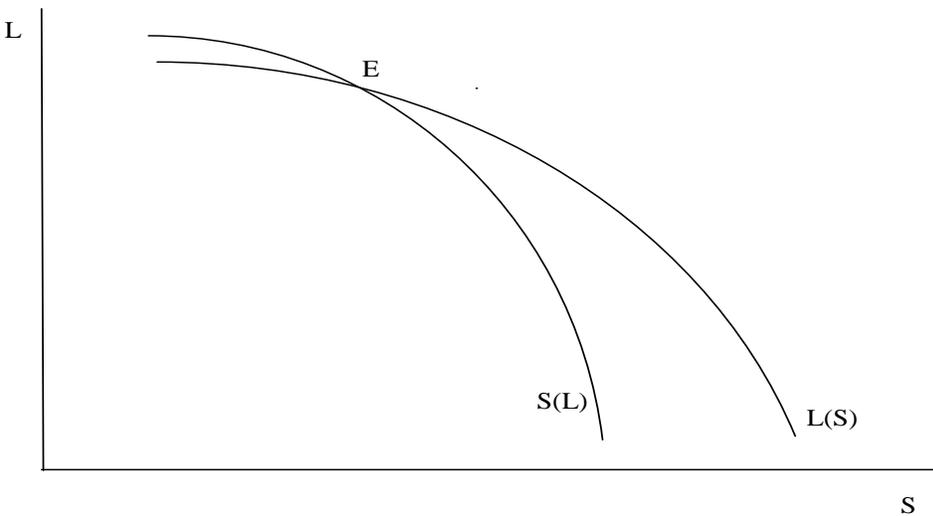
Substitute this into equation (2) to obtain:

$$(4) \quad s = s(r, w(G, L)), \text{ with } \partial s / \partial L = s_w \cdot w_L < 0$$

Now consider the aggregate levels of trust/cooperation and political activity. The former is $L = \sum \ell_i$ and the latter is $S = \sum s_i$. Because each ℓ_i declines with S and each s_i declines with L ,

there is an aggregate mutual dependence between L and S, that is, $L=L(S)$ and $S=S(L)$ with $L' < 0$ and $S' < 0$. Aggregate cooperation is a negative function of total political activity and total political activity is a negative function of aggregate trust/cooperation. The social equilibrium of L and S requires that these relationships hold simultaneously. This is illustrated in Figure 1. Point E in figure 1 at the intersection of the L(S) and S(L) loci shows the social equilibrium.

Figure 1. The Equilibrium Levels of Cooperation and Political Activity



B. Government Behavior and Changing the Equilibrium

Let the politician's utility function be the following:

$$(5) \quad U^P = \theta f(S) + (1 - \theta)U$$

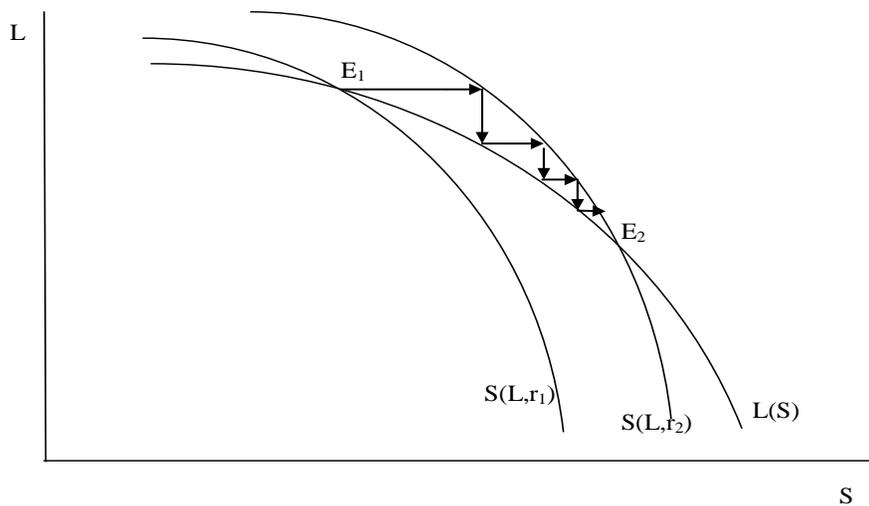
where $0 < \theta < 1$, U is the typical citizen's utility, $f(S)$ represents benefits to the politician from S . The latter is from a higher S being an effective way of the politician retaining office and enjoying its perks. Thus, politician utility is a weighted average of the support generated from political activities and the support received by raising the utility of the average citizen.

The political system determines the weight θ , that is, how political support activities translate into favorable outcomes for the politician vis-à-vis average citizen utility. A higher θ indicates that the politician/government has more power and discretion and can more readily transform S into his/her benefit.

It is straightforward to show that an increase in θ shifts the politician's choices toward a higher r (leading to more S) relative to G . Increases in r generate a political cost because it lowers citizen utility, U . The political benefit is the increased likelihood of retaining the perks of office. A higher θ puts more weight on the political benefit, so more will occur.

Figure 2 illustrates the effect of an increase in θ . It augments the loci of figure 1. Suppose that the original level of $r=r_1$, the original $S=S(L,r_1)$, and the original equilibrium is E_1 .

Figure 2. Shifting the Equilibrium: Increased Government and Less Trust



The increased θ results in $r=r_2>r_1$ and shifts the S function to $S(L,r_2)$ as shown, i.e., more political support activity for each level of L . The immediate effect is a movement from point E_1 toward F ; more political activity. However, the increase in political activity lowers β , undermines trust in

and cooperation with government, and society moves southeast on the L function. This, in turn, reduces productivity, lowers the return to productive effort, and – as illustrated by the arrows – generates another round of political activity. This causes further growth in rent-seeking government activity and reductions in trust. This spiral in the growth of and mistrust in government eventually weakens and a new equilibrium is reached at point E_2 . The result is an outcome with a much larger government that is much less trusted.

C. More Detailed Implications

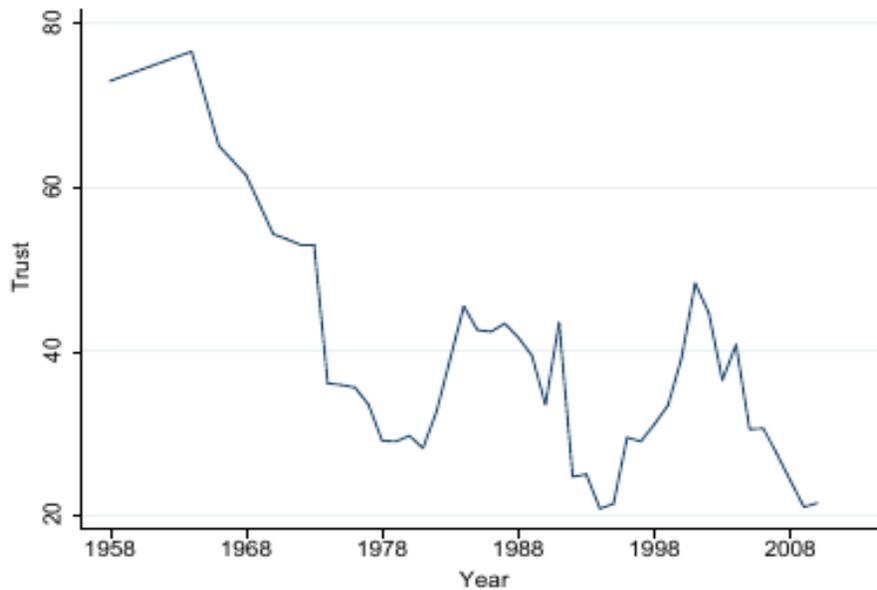
This basic framework enables an understanding of how government can grow while engendering more mistrust. A number of causal relationships in the model underlie this final outcome. They are the following. Rent seeking/political activity depends on the opportunities for doing so, i.e., opportunities to influence spending and regulations. This also is affected by changes in private sector productivity; any reduction induces a shift toward political activity and away from work. Trust declines as government is perceived as behaving badly – via encouraging lobbying and adoption of inefficient regulations and taxes/subsidies – and as productivity declines. Productivity falls with inefficient taxes/subsidies and regulation, as more resources are devoted to lobbying, and as trust declines. Inefficient and special-interest-favoring policies increase with lobbying/political activity.

III. An Overview of the Data

We examine the inter-relationships among a host of variables in order to assess how consistent the above framework is with the data. To do so, we collect time series of various measures or proxies for the phenomena of interest. This section presents an overview of these variables.

Our measure of trust in government is from Pew Research Center data. These data are a compilation of surveys undertaken by several polling organizations and summarized in a standardized fashion. They cover the years 1958 to 2010.⁸ We focus on the percent of respondent who indicate that the trust government “most of the time” or “just about always.” Figure 3 shows a plot of these data. This measure of trust in government peaked in 1966 at 76.6%, began to fall markedly and by 1979 it was 29.0%. Subsequent to then, it has ebbed and flowed over the years.

Figure 3
The Evolution of Trust Over Time



Source: Pew Research Center, <http://www.people-press.org/2014/11/13/public-trust-in-government/>.

We present data on three measures of federal government size over this time period. The first is federal outlays as a share of GDP. The plot of these data is in Figure 4. This shows a

⁸ These data are used in Pew Research Center for the People & the Press (2010) and are summarized at <http://www.people-press.org/2014/11/13/public-trust-in-government/>. For years that more than one survey was taken, we use the average percent. In some years, no survey of this nature was done and in these cases, we enter interpolated data. In the earlier years, such surveys are available roughly every other year. Since the mid-1970s there is a survey almost every year.

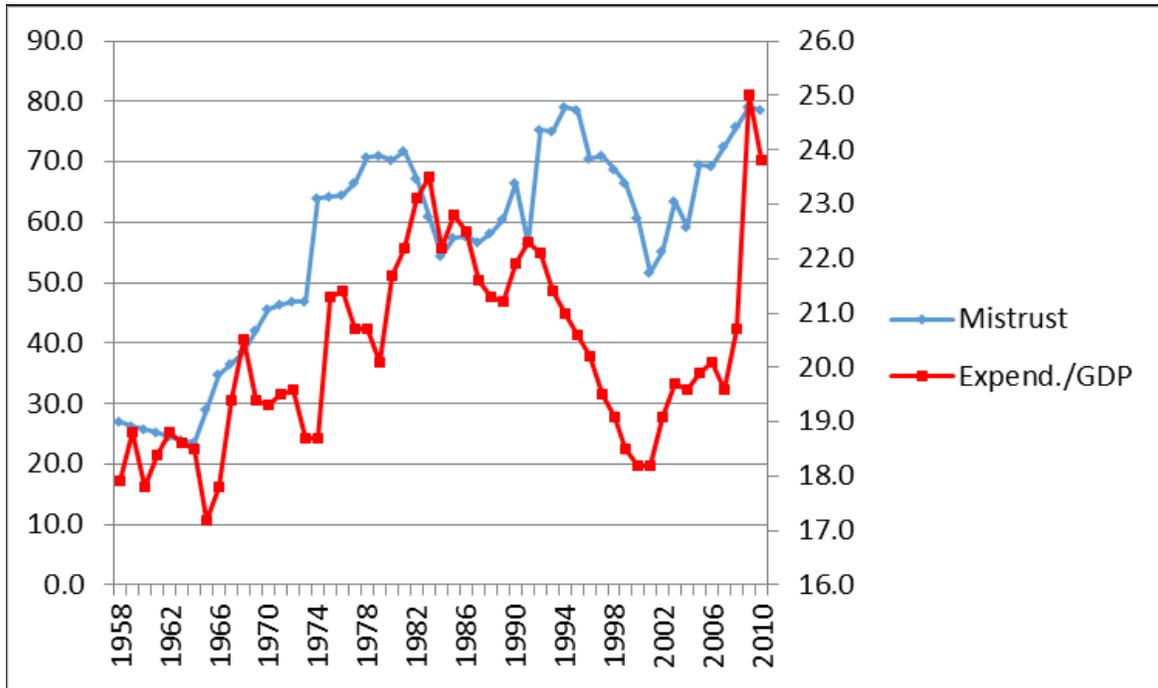
sizable, albeit somewhat erratic, increase through the 1960s and 1970s, a substantial period of decline through much of the 1980s and 1990s, and a large increase in the 2000s.

To gain a sense of relationships in our data, in Figure 5 we also plot this measure of government against the data on trust. For illustrative purposes, we plot “mistrust” instead of “trust”. The former is simply 100% minus the percent trust measure and is plotted with the left-hand scale as the metric, with federal outlays over GDP on the right-hand scale. As can be seen, the two time series move together quite closely. The correlation coefficient between the two is 0.59.

Figure 4
The Evolution of Federal Outlays as a Percent of GDP Over Time



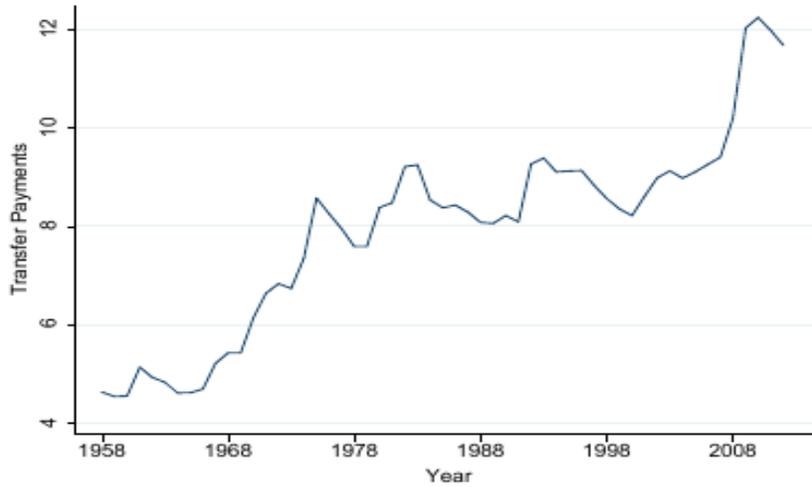
Figure 5
Percent “Mistrust” of Government and Federal Outlays/GDP



A second measure of government size is federal transfer payments as a share of GDP. This time series is displayed in Figure 6. These data are similar to the data on overall federal outlays, but with some exceptions. This shows a fairly steady increase in the 1960s and 1970s, a period in the 1980s and 1990s with little trend, and then a resumption of the upward trend in the 2000s. The correlation between federal transfer spending and total spending is 0.68. Federal transfer payments over GDP is more closely correlated with mistrust, however, with a correlation coefficient of 0.90.

Figure 6

The Evolution of Transfer Payments as a Percent of GDP Over Time

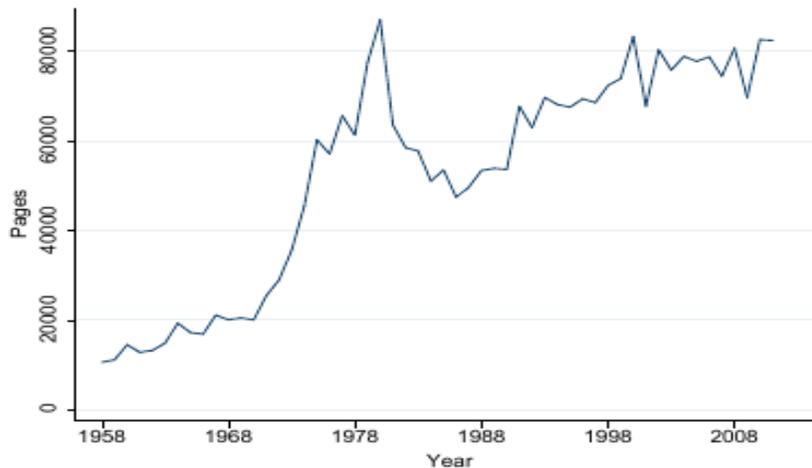


A third measure of government size that we use is a count of the number of pages in the federal register. This is often used as a rudimentary metric of the extent of federal regulatory activity. This time series is plotted in Figure 7. It is also plotted in conjunction with mistrust in Figure 8, with mistrust on the left-hand scale and federal register pages on the right-hand scale.

Figure 7 shows a dramatic increase in this measure of federal regulatory activity in the

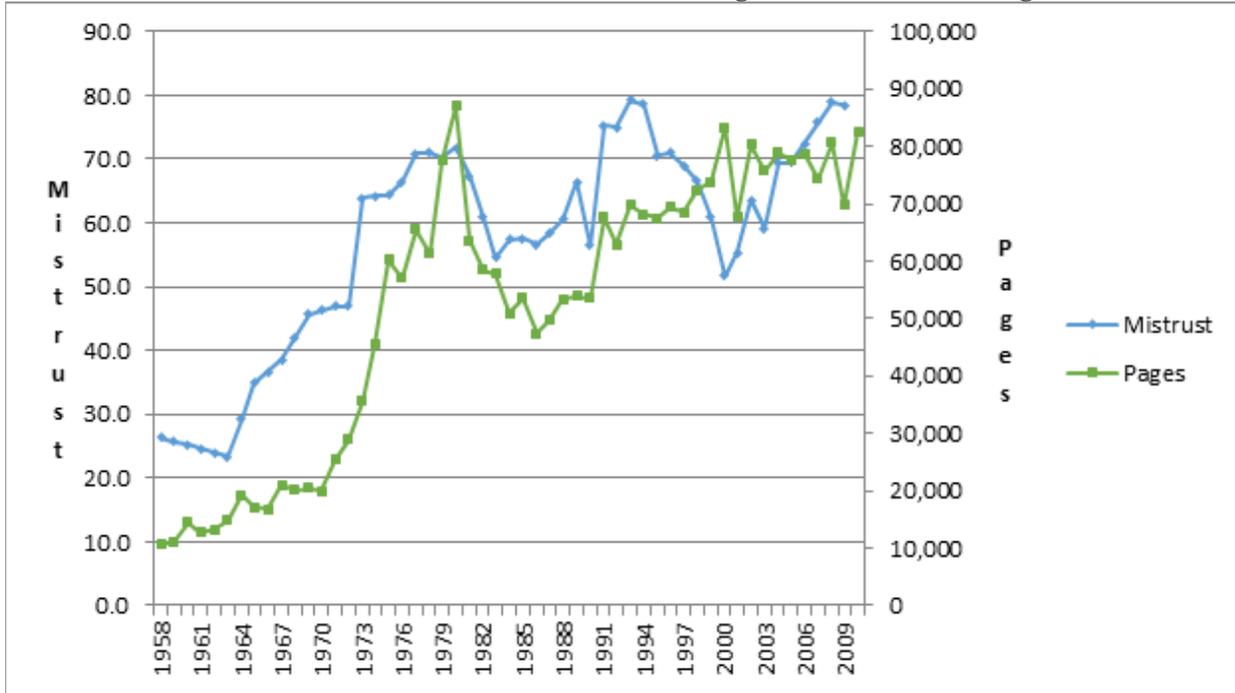
Figure 7

The Evolution of Pages in the Federal Registrar Over Time



Source: <https://www.federalregister.gov/uploads/2014/04/FR-Pages-published-2013.pdf>.

Figure 8
Percent “Mistrust” of Government and Pages in the Federal Register

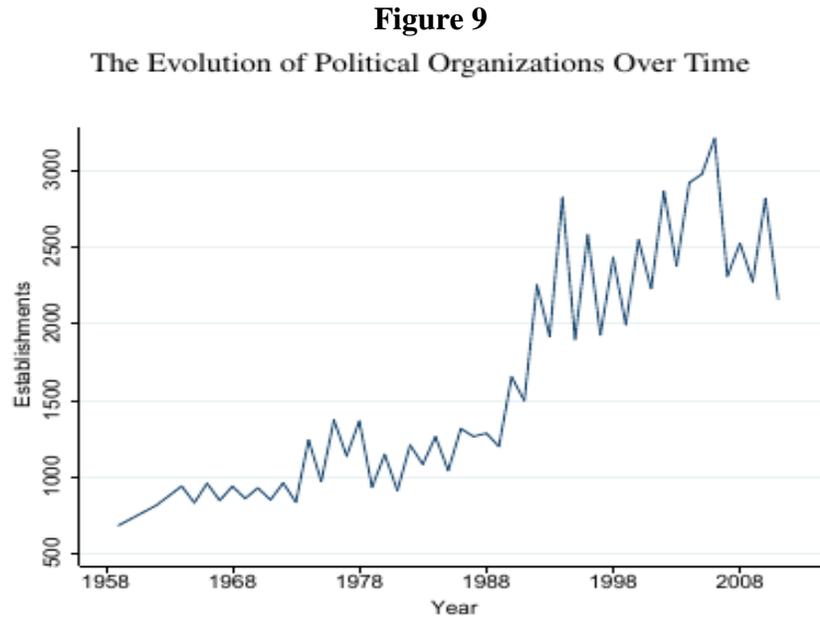


1960s and 1970s, a sharp reduction in the early 1980s, a slow increase in the 1990s, and little trend in the 2000s. The plots in Figure 8 suggest a very close association of this measure of federal regulations with the public’s mistrust. The correlation between the two is 0.88.

We consider two other time series. One is our proxy for lobbying/political support activity. For this, we utilize the number of establishments in NAICS industry code 81394, Political Organizations. This industry code “comprises establishments primarily engaged in promoting the interests of national, state, or local political parties or candidates.”⁹ This naturally does not capture all lobbying activity in the economy. A good deal of lobbying is in regards to particular policies. Also, individual firms and other organizations engage in lobbying on their own rather than through a separate political organization. We rely on the presumption that our measure is strongly correlated with economy-wide lobbying.

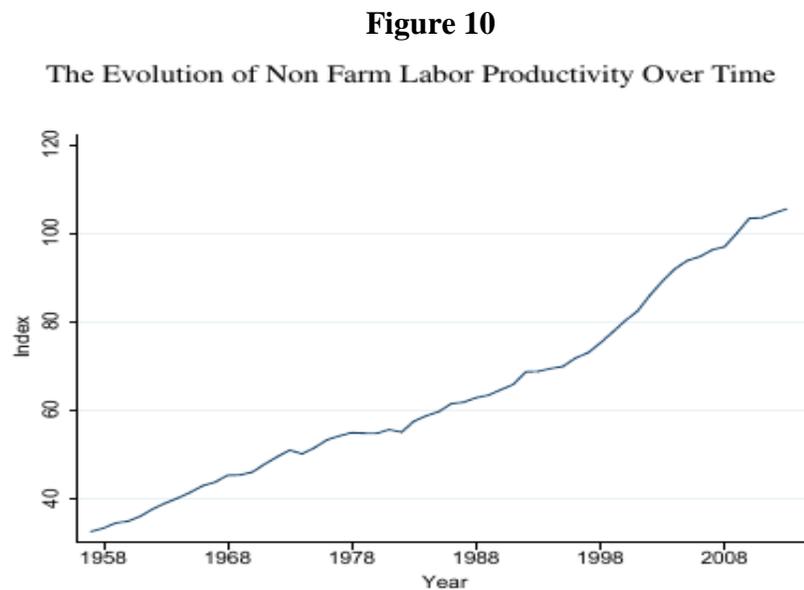
⁹ See U.S. Census Bureau, <http://www.census.gov/econ/isp/sampler.php?naicscode=81394&naicslevel=5#>.

Figure 9 shows the plot of this variable over time. The jagged bi-annual pattern is due to



upticks during elections years. Overall, there is a fairly strong upward trend. This trend is mild during the 1960s, 1970s, and early 1980s, followed by a strong upswing in the early 1990s and a mild upward trend in the 2000s.

Lastly, we also examine a measure of economy-wide productivity. In particular, we use



Source: U.S. Bureau of Labor Statistics, <http://www.bls.gov/lpc/home.htm>.

the Bureau of Labor Statistics index of non-farm labor productivity, with 2009 as the base year. Figure 10 presents the plot of this variable. It shows a reasonably steady upward trend, though with some relatively low growth during much of the 1970s.

Table 1 presents a correlation matrix of the above variables. Many of these variables have correlations as suggested by the model outlined above. Trust has a very strong negative correlation with each of the measures of the size of government. Also consistent with the above framework is the negative associations of political organizations with trust and of labor productivity with trust since political activity and a larger government are expected to be associated with less trust and less productivity.

Table 1
Correlation Matrix of Variables

	Trust	Fed. Outlays/GDP	Fed. Transfers/GDP	Pages, Fed. Reg.	Political Orgs.	Labor Prod.
Trust	1	-0.591	-0.903	-0.887	-0.630	-0.717
Federal Outlays, percent of GDP		1	0.678	0.424	0.129	0.314
Transfer Payments, percent of GDP			1	0.881	0.720	0.852
Pages in Federal Register				1	0.761	0.830
Political Organizations					1	0.912
Labor Productivity Index, Non-Farm						1

However, several other correlations do not clearly fit. For example, political organizations is positively related to labor productivity, as are the measures of government size. This speaks to the problems of interpretation with variables that trend together and/or are non-stationary. We address this issue next.

IV. Econometric Analysis

The theoretical framework reviewed in the foregoing implies that enhanced power and discretion of government will initiate a process of more rent seeking/lobbying, less trust, reduced productivity, and the growth in government. Changes in the power and discretion of government are difficult to measure and we do not attempt to do so. Nevertheless, the model does predict a number of associations within that data that are expected to emerge. It is these associations that we examine.

We also face the challenge that our variables of interest may be non-stationary. As is well known, spurious correlations among non-stationary variable are more likely to occur than standard statistical inference suggests. Here, we discuss and apply the appropriate methods to determine the legitimate associations in our data and assess their alignment with the theory.

In the empirical analysis, we focus on four variables: Trust, Pages in the Federal Register, Political Organizations, and Labor Productivity. To ease the empirical analysis, we select only the Pages variable to measure the size of government. However, it is tightly correlated the transfer payment measure of government; the correlation coefficient is 0.881.

Initially, we determine whether each variable is stationary or not. To do so, we apply three different tests for stationarity. They are the Augmented Dickey Fuller (DF), the Elliott-Jansson (EJ), and the Elliott-Rothenburg-Stock (ERJ) tests, respectively. Table 2 below details the results. The value of the test statistics, as well as critical values for rejection of the null of non-stationarity, are listed. For all variable and all tests, non-stationarity cannot be rejected. Thus, we apply the appropriate methods to determine associations among non-stationary variables.

Table 2
Test Statistics for Stationarity

Test	Trust	10% Critical Value	Pages	10% Critical Value	Labor Prod.	10% Critical Value	Political Orgs.	10% Critical Value
DF, 1 lag	-1.754	(-3.179)	-1.772	(-3.179)	-.587	(-3.177)	-1.702	(-3.179)
DF, 2 lags	-2.084	(-3.180)	-1.987	(-3.179)	-.798	(-3.178)	-2.642	(-3.180)
EJ	16.299	[5.7475]	13.881	[6.051]	27.580	[9.019]	2.389	[5.700]
ERS, 1 lag	-1.699	(-2.881)	-1.743	(-2.878)	-.738	(-2.869)	-1.614	(-2.881)
ERS, 2 lags	-1.991	(-2.881)	-2.002	(-2.878)	-1.013	(-2.869)	-2.502	(-2.881)

DF tests include trend. EJ tests allow the possibility of trend and constant in either dependent variable or stationary covariate. No tests reject the null of unit root at at least the 10 percent level, for all but the EJ test for Political Organizations. Note, that the condition for the EJ test to reject the null, the test statistic must be less than the critical value. 10 percent critical values are in parentheses, and 5 percent critical values are in brackets.

There are two inter-related approaches we utilize: determining cointegration in the data and error correction of the variables. Cointegration tests for long run associations among the variables and error correction methods determine if the variables are in fact changing as expected based on the long run associations.

Suppose that we wish to determine if two variables, Y_t and X_t , have a long run association as the following:

$$(6) \quad Y_t = BX_t + u_t$$

where both Y_t and X_t are both non-stationary. If u_t is stationary, then Y and X do maintain a stable relationship to one another and that relationship is characterized by the parameter B . They are cointegrated. Furthermore, if this cointegrating relationship exists, we expect changes in Y to reflect it. Thus, if in one time period, the residual in equation (6) is positive, then Y is below its long run cointegrated relationship with X and so Y is expected to increase. The converse holds if the residual in (6) is negative. This is the error correction mechanism.

This can be expressed as follows. If $u_{t-1} = Y_{t-1} - BX_{t-1} > 0$, then we expect $\Delta Y_t = Y_t - Y_{t-1} < 0$. If $u_{t-1} = Y_{t-1} - BX_{t-1} < 0$, then we predict that $\Delta Y_t = Y_t - Y_{t-1} > 0$. Writing this as a single equation, we have

$$(7) \quad \Delta Y_t = \alpha(Y_{t-1} - BX_{t-1}), \text{ with } \alpha < 0$$

The term $Y_{t-1} - BX_{t-1}$ is stationary if Y and X are cointegrated and, assuming ΔY_t is stationary (which is likely if Y_t is non-stationary), then equation (7) can be estimated in a straightforward manner, in conjunction with estimation of (6).

The above is expressed with for two variables, but the approach is generalizable to multiple variables. In our case, we are interested in four variables. Recall that we are looking for long run associations among these four variables. For four variables, there are six possible unique correlations/associations among them. The estimation finds the statistically significant cointegrating coefficients.¹⁰ The Johansen test finds the presence of 3 cointegrating relationships. Table 3 reports the findings.

Note that the procedure identifies associations among the variables and these associations require a normalization. For example, equation (6) can be written as $Y_t - BX_t = u_t$ or as $-Y_t/B + X_t = -u_t/B$. In the former, the coefficient on Y is normalized to one and in the latter that on X is normalized to one. Normalizations in Table 3 are shown by the coefficient reported as one in each row.

Consider the findings for the trust equation given in the first row of Table 3. We find only a single cointegrating relationships: it is a negative one between trust and political organizations. However, this is as expected. Political organizations is our proxy for lobbying and related political activity and this is expected to be associated with less trust. In the second row, a significant relationship is estimated between Pages and political organizations. This is a

¹⁰ The Schwarz's Bayesian information criterion (SBIC) is used to determine lag length, and chooses 1 lag.

positive association, i.e., they move together. This, too, is as expected. Pages in the federal register indicates more regulation, which can both encourage and be the result of lobbying.

Table 3
Estimates of Cointegrating Coefficients

Cointegrating Equation	Trust	Pages	Labor Prod.	Political Orgs.	Constant
	β_t	β_p	β_{lp}	$-\beta_{po}$	
Trust Equation	1	0	0	-0.03793*** (-0.00567)	-73.071
Pages Equation	0	1	0	48.935*** (6.840)	-7698.96
Labor Prod. Equation	0	0	1	0.02924*** (-0.00228)	-18.33

Notes: Standard error are in parenthesis. *** indicates 1% level of significance.

The findings in the third row regarding labor productivity are not consistent with expectations. The results show a positive association between labor productivity and political organizations. The expectation is a negative association since lobbying detracts from productive activity.¹¹

Note, though, that the combination of the results imply several things the model suggests. Consider an increase in the discretion of government that generates more pages of regulations. From the second cointegrating equation, this indicates more political organizations. From the first cointegrating equation, the latter entails a reduction in trust. Thus, the negative association of trust and government size is implied.

The estimation also produces estimates of the parameters of error correction as in equation (7). The results are shown in Table 4. The first row and column shows how the current change in trust responds to a higher or lower than expected lagged trust, with the expectation based on the long run cointegrating relationship. As can be seen, the coefficient is negative and significant. This implies that a lagged level of trust above expectations generates a reduction in

¹¹ Findings similar to those in Table 3 were found when allowing for a trend in the cointegrating relationships.

trust and the converse for a lagged level below expectations. A similar finding is obtained with respect to the adjustment in Pages shown in the second row and column. Regarding Labor Productivity, shown in the third row and column, we again find an anomalous result.

Table 4
Estimates of Error Corrections Coefficients

	Lagged Trust Residual	Lagged Pages Residual	Lagged Labor Prod. Residual
Change in:	α_t	α_p	α_{lp}
Trust	-0.1545*		
	(0.0887)		
Pages		-0.4164***	
		(0.1053)	
Labor Prod.			.04424**
			(.01809)

Notes: Standard error are in parenthesis. *** indicates 1% level of significance.

The results of the former two variables, however, are consistent with an adjustment process that aligns with the theoretical framework. Consider a change in government policy that encourages more political organizations. This creates a negative residual in the Pages long run relationship and, according to our error correction parameters, generates an increase in Pages. This same change in policy causes a positive residual in the trust long run relationship, generating a reduction in trust. Thus, increases in federal regulation and political organizations are associated with a reduction in trust.

V. Conclusion

While seemingly paradoxical, the negative association of the growth in government and the trust in government is consistent with a broad economic model that uses a public choice approach and incorporates rent seeking and behavioral economics findings regarding trust and reciprocity. While this broad economic model is consistent with the sweep of historical data since the late 1950s, this paper presents a preliminary but more econometrically sophisticated

examination of the data. In particular, we are careful to recognize the difficulties of statistical inference with non-stationary data and take the appropriate steps to deal with it.

Though the results are preliminary, many findings align with the economic model. Specifically, we find cointegration between trust and lobbying activity, indicating a negative, long run relationship between the two. Also, a positive, long run association of lobbying and our measure of federal regulation is estimated. These imply a negative, long run relationship between trust and federal regulatory activity. Also, the error correction model estimates that changes in trust, lobbying, and federal regulation that follow patterns consistent with the broad economic model.

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