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Departamento Académico de Ciencia Política
Political Science Department

Working Paper Series

“How do Crime and Violence Impact Presidential Approval?
Examining the Dynamics of the Mexican Case”

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Working paper # 2013-002

<http://departamentodecienciapolitica.itam.mx>

v1.4: Very rough and incomplete draft.

Comments welcomed.

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How do Crime and Violence Impact Presidential Approval?

Examining the Dynamics of the Mexican Case¹

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Abstract

In order to effectively fight criminal organizations, governments require support from significant segments of society. If citizens have a positive assessment of the executive's job, the likelihood that they will report crimes, and act as allies in the fight, increases. This provides important leverage for incumbents, and allows them to continue their policies. Yet, winning the hearts and minds of citizens is not an easy endeavor. Crime and violence affect citizens' most valuable assets: life and property. Thus, one would expect a close relationship between presidential approval and public security. What exactly is the relationship between public security and presidential approval? To generate robust answers to this question, and its multiple implications, we use Mexico as case study, and use data at both the aggregate and at the individual level. We find that approval levels are indeed affected by crime, but not by all crimes. Perhaps surprisingly, they are not affected by the most serious of crimes: homicide. At the individual level, we find that support for the mere act of fighting organized crime has a stronger effect on approval than

¹ Prepared for delivery at the annual meeting of the American Political Science Association, Chicago, IL, Aug 29th-Sep 3rd, 2013. Beatriz Magaloni thanks the support from the Center on Democracy, Development and the Rule of Law (CDDRL) at Stanford University. Vidal Romero thanks the excellent research assistance of Alexis Cherem, and the Asociación Mexicana de Cultura A.C., the Sistema Nacional de Investigadores of Conacyt, the Poverty and Governance Program at CDDRL, Stanford University, and the Center for Latin American Studies at Stanford University for its support for this project.

actual performance on public security. We also find no effect of crime victimization on approval at the individual level.

Presidents are more likely to be able to implement public policy if they have the approval of their citizens. Approval increases the likelihood of social collaboration and it raises the cost of uncooperative behavior from opposing politicians.

The existing literature has traditionally focused on the economy as the main determinant of presidential approval. This makes sense, given the relevance of the economy in our lives, and the impact that governmental policies have on a nation's welfare (Berlemann and Enkelmann, 2012; Chang and Lee, 2013). However, many countries in the world, especially in Latin America, have suffered high levels of a public insecurity during the last decade (UNODC, 2012). This fact should have an effect on citizens' appraisal of their governments' performances, just as the economic crises of the 1980s and 1990s affected presidential approval in the region.

For citizens, public security is a complex issue to evaluate "objectively", as compared to other issues. It is relatively easier for a citizen to directly evaluate whether the economy is going badly, and how badly it is going, than to have a precise assessment of public security. A person may simply walk into the grocery store, or pay utilities bills to get a feel for the economic climate. However, a myriad of barriers exist to acquiring an accurate idea of the public security situation: official statistics may not be made public, or the "dark figure" may significantly underrepresent crime incidence, and crimes on acquaintances, or suffered personally, may inflate perceptions of insecurity. Add to this that the media may distort the security situation, usually magnifying it. How do these citizen evaluations of public security impact upon presidential approval? Which are the relevant dimensions in the relationship between these two variables? Under which circumstances can governments get their citizens to support policy interventions

related to crime and violence? How do citizens hold governments accountable on public security issues?

This document develops preliminary answers to these substantive questions using Mexico as a case study. Specifically, we attempt to increase our understanding of two core issues regarding the relationship between approval and public security. First, we identify and investigate what we consider the two most relevant dimensions on public security related to presidential approval: a government's decision to intervene (or not), and a government's performance on public security. Importantly, these two dimensions are not deterministically related, that is, supporting the fight against crime does not necessarily imply that an individual would approve of the government's performance on security, and vice versa.

This may explain why things may go terribly wrong regarding public security, and yet a president's approval may not plummet. Citizens may support the mere fact that the incumbent is attempting to fight crime. This is analogous to the rally-round-the-flag phenomena (Brody, 1991).

The second issue that we study is the effect of crime upon approval ratings. Multiple studies show that victims of crime are less likely to trust public institutions (Ceobanu et al., 2011; Corbacho, 2012; Cruz, 2008; Fernandez and Kuenzi, 2010). There is also evidence that victims of crime are less likely to be receptive to an incumbent government's messages regarding its accomplishments (Magaloni et al, 2013). Yet, the evidence regarding the effect of crime victimization upon approval ratings is mixed.

Whether crime affects approval, or not, should have an impact upon the incentives that governments have to implement specific public policies. Our aim is to contribute additional

empirical evidence to this line of investigation, and to develop theoretical elements that help to explain this relationship.

In this first iteration of this research project, we delve into the relationship between presidential approval and crime in Mexico in two complementary ways. First, we explore the relationship at the macro-level using a monthly time-series from January 1990 to December 2011 that combines aggregate data from a variety of public opinion surveys, and aggregate data from different official sources. Secondly, we turn to the micro-level, and inquire into the public security determinants of presidential approval. We use data from a public opinion survey conducted in July 2011, at the peak of homicides during the Calderon administration.

In the following section we present our theoretical argument regarding the relationship between approval and security, on the bases of the existing literature on the topic. Subsequently, we analyze the Mexican case at the macro and micro levels. Finally, we discuss the implications of our findings, and we describe our agenda for further research on the topic.

APPROVAL AND PUBLIC SECURITY

What citizens think about the government's performance determines much of the chief executives' decision-making. This is true even in non-democratic regimes, albeit with different dynamics (Magaloni, 2006). If public opinion of the president is favorable, policy implementation is facilitated by citizens' active collaboration, and by inducing other politicians to support the incumbents' policy.

In the case of public security, the fact that resources are limited implies that citizen cooperation is crucial. Citizens become information providers regarding criminal activities: they report crimes, act as witnesses, inform on potential criminal activities, and can act as watchdogs.

To fight crime, some individual liberties may be restricted; citizens have to be willing to absorb some of the costs of fighting against insecurity.

In addition to citizens' cooperation, material resources are needed. Public security policies are usually not cheap; they normally require the acquisition of sophisticated equipment, and hiring and training additional personnel. Policy interventions take many months, and frequently years to be completed. In order to get sufficient funds, presidents require legislative support and participation from all levels of government; this implies an investment in political capital.

When policy implementations are successful, a virtuous circle develops: citizens approve an executive's policy and, thus, her performance, therefore congress and organized groups are induced to support the president as well, this support then increases the likelihood of the policy's future success, which in turn creates additional positive support for the president. Yet, when citizens disapprove of the implemented policy, things become complicated for an executive. Presidential approval would tend to decrease, reducing incentives for politicians to support the executive, which therefore jeopardizes the future success of the public policy.

The bulk of the literature on approval has focused on analyzing the impact of the economy on executives' job approval (Berlemann and Enkelmann, 2012). There is general agreement on a positive relationship between these two variables, although there are unsettled debates on how to best empirically measure the impact of the economy on approval ratings.

However, little has been written about the impact of public security issues on presidential approval. The closest well-developed set of work that exists, especially for the United States, is on the effect of wars on approval. This line of inquiry has a long empirical tradition since Mueller (1970). Two effects have been highlighted in this literature that could be imported to study the relationship between approval and public security. First, the rally-round-the-flag effect

(Behr, 2006; Brody, 1991). In a nutshell, it establishes that when a nation is at war, citizens would tend to support the chief executive on the basis of the national interest, regardless of partisan preferences.

Ideology may also play a role in supporting the executive at times of war. In the case of Peru, Arce (2003) finds that subversive actions by the insurgent army Shining Path boosted support for right wing governments, but reduced support for left wing governments.

A second, related, effect is that support for a war tends to lessen as the war worsens, and this deteriorates presidential approval as a consequence. The specifics vary. It may be that the war becomes too costly—usually measured in war casualties (Mueller, 1973). It may also be that the prospects of winning the war decrease (Gelpi et al., 2006). Or, it may be that the initial reasons that justified going to war in the first place come into question (Eichenberg and Stoll, 2004; Gelpi et al., 2006).

These effects delineate two distinct, although related, dimensions: support for the war and performance evaluation. These two dimensions, we argue, are also present in public security policy interventions.

In a war against crime, policy interventions to increase public security during a crisis would tend to increase presidential approval. This is analogous to a rally-round-the-flag effect. Citizens would reward the executive for “trying” to solve the problem. To the degree that the security problem is relatively worse at the outset, this effect should be stronger.

Regarding performance evaluation, our second dimension, the relationship between approval and public security is much more complex. Crime and violence do not directly affect all, or even a majority of the population, simultaneously. Thus, much of the population evaluates the security situation based on indirect information. Take, for instance, Honduras, which is one of the worst

of the recent cases. This country had a rate of 82 homicides per 100 thousand inhabitants in 2010 (UNODC, 2011). If we assume that for every killing a set of 6 people gets directly affected, it would take 203 years for the whole population of Honduras to be directly harmed by crime (ignoring births and deaths). If we compare this to the effects of an inflationary crisis or an economic recession, which do affect a majority of the population at the same time, the direct effects upon the population are much higher due to economic conditions than an extreme crime situation.

This particularity allows for significant effects due to subjective perceptions when evaluating public security. Subjective perceptions may, or not, benefit incumbent politicians (Ardanaz et al., 2012; Magaloni et al., 2013; Romero, 2013; Voeten and Brewer, 2006).

Our initial hypothesis regarding performance in general is rather straightforward: *ceteris paribus*, as perceptions of public security improve, presidential approval should tend to improve as well.

Public security has additional related dimensions that are worth examining which can shed additional light on the relationship between approval and public security. Two are of significant interest to us: direct and indirect crime victimization.

Theoretically, we would expect that someone who is the direct victim of a crime would be less likely to support the president, if this individual connects the crime to the executive's performance. There is, after all, sufficient evidence showing that crime victimization negatively affects victims' trust in government institutions (Ceobanu et al., 2011; Corbacho, 2012; Cruz, 2008; Fernandez and Kuenzi, 2010; Magaloni et al., 2013; Perez, 2003). However, the evidence regarding the effect of victimization on presidential approval is mixed. Using 2010 data, Perez (2012) finds no effect of crime levels on Venezuelan President Hugo Chavez's popularity.

Romero (2013) finds no effect of crime victimization on approval for the case of Mexico in 2010, but a negative effect on approval is present if someone at the interviewee's household had been the victim of a crime. Bravo (2012) reports a negative effect of crime victimization on presidential approval using Americas Barometer data for a panel of 20 countries in the Americas for 2010.

Indirect victimization may also negatively affect presidential approval, yet the evidence is also mixed. Cruz (2008) and Dammert and Malone (2003) find a negative effect of fear of crime on public security evaluations for the aggregate of Latin America and Chile respectively. But Romero (2013) finds no effect of fear of crime on presidential approval.

At the aggregate level, we expect that high levels of crime victimization should be associated to a decrease in the level of presidential approval. This would take into account the negative effects of both direct and indirect victims of crime.

THE MEXICAN CASE AT THE AGGREGATE LEVEL

In this section we use aggregate time-series data on Mexico to look into the relationship between public security and approval.

In recent years, Mexico has suffered from a significant outbreak of homicides related to criminal activity. From 2007 to 2012 around 50,000 people were murdered in crime related violence in the country.²

However, it should be noted that crime and violence are not new issues for Mexico. The present day Mexican territory accumulates the highest number of civil war years in all of Latin America between 1816 and 1945 (Fearon and Laitin, 2012). If we look at time-series data on

² See Guerrero (2010), Poire (2011), and Rios & Shirk (2011) for narratives and explanations on Mexico's public security situation.

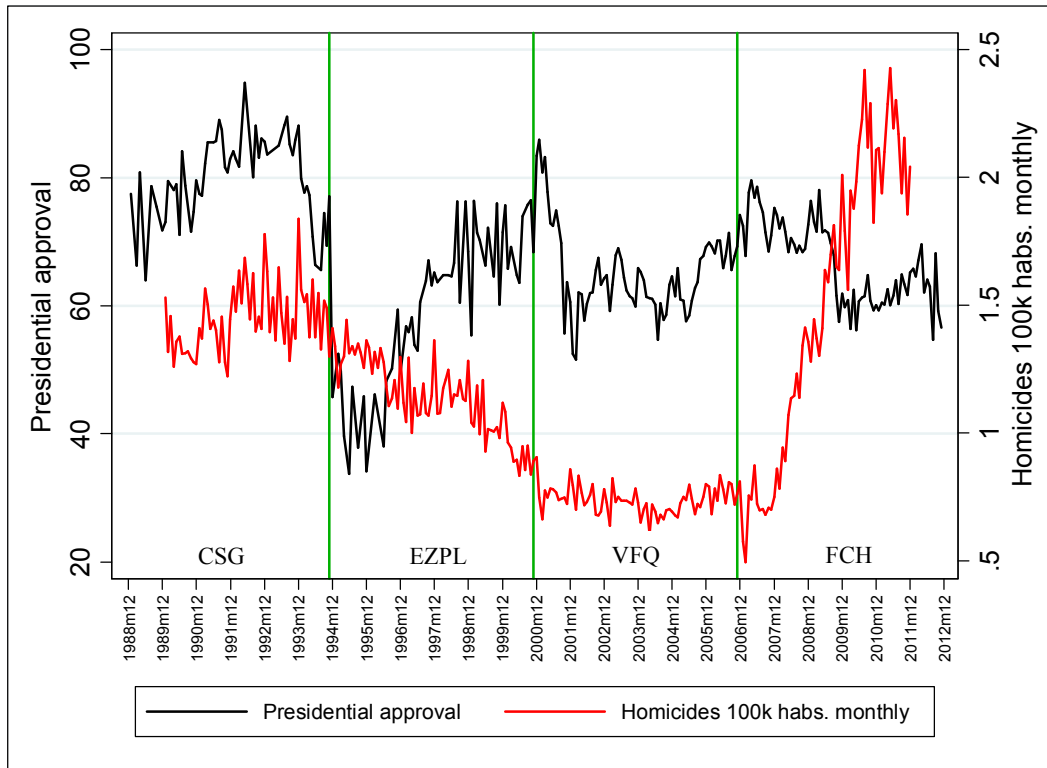
homicides in Mexico, the recent rates are not so different from those that Mexico experienced in the 1980's (Soares and Naritomi, 2010: 38). While it is true that the causes of homicides in Mexico at different points in time may have changed, it is clear that high homicide rates are not a novel phenomenon.

What is relatively new in the country is the sort of gruesome and overt violence associated with recent homicides. It is not uncommon for the news to show images of men hanged from city bridges, beheaded bodies thrown in the middle of highways, heads left outside police posts, and rival criminal bands killing each other in plain daylight.³

As in the case of the impact of the economy upon approval, the effect of crime upon approval should exist not only during times of crises. With that in mind, our study of the relationship between approval and public security extends to other administrations, in addition to President Calderon's. Figure 1 shows the monthly number of homicides⁴ and presidential approval—which is the monthly average of all surveys that are publicly available—from 1989 to 2012. At the outset, we do not observe a systematic relationship between these two variables over time.

³ See Proceso (2012) for a quite graphic recompilation of crime-related violence in Mexico in recent years.

⁴ These are homicides reported by Mexico's health authorities from death certificates.

Figure 1 – Presidential approval and homicides in Mexico (1989-2012)

Even if we concentrate on Calderon’s presidential period, there is no observable decrease in presidential approval associated with the systematic rise in homicides. Even though much of the existing literature on the topic directly relates the rise in homicides to Calderon’s policy intervention (e.g. Guerrero, 2013; Osorio, 2011; Lessing, 2012), there does not seem to be a systematic deterioration of President Calderon’s approval rating as Mexico’s war on drugs developed.

Modeling the Determinants of Approval

In this subsection we are interested in assessing whether there is a systematic relationship between the level of presidential approval and public security (approximated by different types

of crimes) across presidential administrations. Given our unit of analysis, we make no claim about individual level behavior.⁵ Ideally, we would have specified a model using a pooled set of surveys across time, but we could not find a single series of surveys for Mexico that covers the period we are investigating (i.e. monthly surveys); or even different survey series that could somehow be homogenized. Thus, we utilize data at the aggregate level.

However, there are some advantages to using aggregate time-series data. First, modeling at the aggregate level allows us to introduce the effect of shocks, such as the capture of crime lords, high profile kidnappings, or economic crises. Additionally, there are no problems of simultaneous equations bias (Duch and Stevenson, 2008), since there is no plausible reason to suspect presidential approval has a strong and decisive influence on the level of inflation, or on the level of homicides.

The general function we posit states that,

$$Approval = f(Economics, Politics, Security)$$

This is a variation of the standard performance-approval function. In the literature, it has focused mostly on economic performance;⁶ we have added the security component. However, it must be said that the specific econometric formulation of this function is an unresolved debate in the literature concerning presidential approval.

The debate centers around the following concerns: the stability of the time-series (Bellucci and Lewis-Beck, 2011), the co-integration of the time-series across presidential administrations (Alvarez and Katz, 2000) and across-countries over time (Bellucci and Lewis-Beck, 2011), the

⁵ See Alvarez and Katz (2000) on potential problems about using aggregate level data to inquire into the determinants of presidential approval.

⁶ See Bellucci and Lewis-Beck (2011) for an excellent review on the literature on economic determinants of presidential popularity using data at the aggregate level in different countries.

appropriate way to control for events across presidential administrations (Newman and Forcehimes, 2010), and about the non-linearity of the approval–performance relationship (Berlemann and Enkelmann, 2012; Smyth and Taylor, 2003).

In this first approach to the topic, we empirically model the relationship between approval and public security based on error corrected models (ECM), a choice already taken in some of the literature (e.g. Beck, 1993; Clarke, Stewart, and Whiteley, 1997; DeBoef and Kellstedt, 2004; Ostrom and Smith, 1992; and, Voeten and Brewer, 2006). The ECM duly reflects our substantive understanding of the relationship between approval and performance. In its general formulation, the ECM is specified as follows,

$$\Delta Y_t = \beta_0 + \beta_1 \Delta X_t + \beta_2 [Y_{t-1} - \beta_3 X_{t-1}] + \varepsilon_t$$

The basic notion of the model implies that movements in Y_t are related in the long run to X_t and the variation of Y_t in the short-run responds to temporary deviations from that long run equilibrium. In the equation above, β_1 represents the short-term effect of a change in X_t on Y_t ; and β_2 is the error correction term. We estimate the model using the single-equation model.⁷

A significant limitation to our investigation is the relatively short time-series on presidential approval available for Mexico, as compared, for instance, to the United States. Additionally, there is not a single set of publicly available surveys that simultaneously considers citizens' appraisals of the president's job, the economy, and public security.⁸

There is information for most of the period under study for our presidential approval variable; however, it comes from different polling sources. The measurements vary in the set of

⁷ See Alogoskoufis and Smith (1991) for a more detailed explanation of the ECM model.

⁸ Public opinion polls are a relatively new instrument in Mexico. The first systematic measurements date back to the late 1980s, about 50 years later than in the United States.

response categories: some only allow for two (approve or disapprove), some add two degrees of approval and disapproval, and some include an intermediate category. In order to homogenize the data into two response categories we collapse the two different responses for approval into a single category, and we then do the same for disapproval. Where there is only one intermediate category, we redistribute the proportion of responses proportionality to the categories of approve and disapprove; we do the same for the no-responses. This way, we end up with two response categories for every survey, in which the proportions of approve and disapprove add to 100 percent. Finally, we average all existing surveys with equal weight for every month to get a single number for every month in the sample.

Within the existing data restrictions, we look into a potential systematic relationship between approval and crime across presidential administrations in Mexico from 1990 to 2011. This includes the administrations of the four last Mexican presidents: Carlos Salinas (1988-94), Ernesto Zedillo (1994-2000), Vicente Fox (2000-2006), and Felipe Calderón (2006-2012).

We examine the effect of four different public security proxies on presidential approval. The first three refer to crime incidence and reporting: homicides, auto-theft, and kidnapping.⁹ These are crimes reported to the authorities, thus, there is potential concern about the dark figure in this data. The data on homicides would likely be the most accurate of all three variables, since all deaths must go through a registry process by some authority—in our data the health authority—then, sub-registries of homicides may occur only as classification errors, which we have no reason to believe are of great magnitude, or that they would present any bias across time.

Regarding auto-thefts' dark-figure: this is the crime most reported by citizens since insurance companies require individuals to file official reports as a prerequisite to collect the insurance

⁹ See Figure 1D in Appendix D for a graphical description of the time-series data.

payment. According to data from Mexico's National Victimization Survey (ENVIPE),¹⁰ 63.8% of auto-thefts were reported to the authorities in 2011 (in contrast, only 5.2% of street robberies were reported). Again, we have no reason to suspect any time-related biases in the data since the insurance companies' incentives structure has not varied over our period of study.

The data on kidnappings is probably the most problematic. There are many incentives not to report this crime, for instance, fear of retaliation by criminals, or distrust in the authorities. According to the ENVIPE, only 6% of kidnappings were reported to the authorities in 2011. In this case, it is plausible to assume that there may be biases over time, since reporting is a function of trust in the authority, which may not be constant.

Finally, we also include a variable related to crime enforcement: "crimes against health".¹¹ This category basically refers to crimes related to illegal drugs: the production and trafficking of narcotics. This data measures observable government efforts towards combating crime; i.e. enforcement. There are good reasons to suspect non-systematic biases in this variable unrelated to the level of actual criminal activity. Changes are more likely linked to incumbents' strategic decisions on public security and public opinion image. Thus, using this variable we intend to understand whether increased enforcement efforts from the authority are positively associated with improvement on incumbents' approval.

Since we have a different number of observations for every executive, the regression models are ECMs weighted by presidential administration. We use monthly observations. Table 1 shows

¹⁰

Available at

<http://www.inegi.org.mx/est/contenidos/Proyectos/Encuestas/Hogares/regulares/envipe/envipe2012/default.aspx>.

¹¹ This crime category refers to: production and/or traffic of narcotics, purposely transmitting an infectious disease, and in-vitro fertilization without the women's consent. We would expect that the two latter categories would be a very small proportion of the total, and of little variation over time. Thus, the bulk of crimes against health and its variation over time should be related to narcotics production and trafficking.

the results of the four models. The dependent variable is the first difference in approval ($\text{approval}_t - \text{approval}_{t-1}$); we omit the first month for every presidency to account for concerns regarding potential non-integration issues of our approval variable across presidential administrations. However, we're aware this potential problem may not be fully eliminated (Alvarez and Katz, 2000).

Given the existing evidence of the impact of aggregate economic measures upon presidential approval, we also include inflation as a variable (using the National Index of Consumer Prices); it serves as a proxy for economic performance. We selected inflation because it has clearly been the main economic issue in Mexico for the period we are studying.¹² Additionally, we include a dummy variable indicating whether there was an economic crisis or not, which we measure as months in which the change in inflation is of more than two standard deviations from the average change of the period we are studying.

Dummies are included to account for the potential impact of pre and post electoral periods at the federal level, and a dummy variable that indicates the first six months of every presidential administration, to account for potential honeymoon effects. We include monthly dummies to account for the potential seasonal effects of the time-series. Finally, we specified fixed effects by president. The data on crimes has been standardized to crimes per 100 thousand habitants by month. Table 1 shows the estimates.

¹² We include in Appendix A regression models that include unemployment and exchange rate as alternatives to inflation. None of these two variables is statistically significant.

Table 1 – Impact of Public Security on Approval (ECMs)

Dependent variable: D1.Approve

		Model 1 Homicides	Model 2 Auto-theft	Model 3 Kidnappings	Model 4 Drug related
Approve					
	L1.	-.475***	-.433***	-.448***	-.473***
Inflation					
	D1.	-4.214***	-3.758**	-3.619**	-3.050*
	L1.	.174***	.076	.050	.095
Homicides					
	D1.	-2.571			
	L1.	-5.312***			
Auto theft					
	D1.		-0.938*		
	L1.		-0.564		
Kidnappings					
	D1.			-68.246**	
	L1.			-46.477**	
Drug related					
	D1.				-0.542
	L1.				.724***
Pres. EZPL		-14.198***	2.474	1.803	7.908**
Pres. VFQ		-21.690***	-2.588	-2.307	3.600*
Pres. FCH^a		-19.723***	(omitted)	(omitted)	(omitted)
Economic crisis^b		-9.058***	(omitted)	(omitted)	(omitted)
Pre-election		0.044	0.561	1.436	0.635
Post-election		-0.134	-0.331	-0.005	-0.161
First 6 months		5.027***	4.906**	4.743**	5.391***
Monthly dummies		Yes	Yes	Yes	Yes
Constant		44.400***	32.469***	29.698***	19.215***
N		205	170	170	169
R-square		0.37	0.25	0.27	0.28

Note: Estimates weighted by president. * p< .1; ** p< .05; *** p < .01.

^a There is no available data on auto-thefts, kidnappings, or drug-related crimes for the administration of Carlos Salinas, which is the control dummy for presidents in Model 1; thus, for models 2-4 Felipe Calderon is the control dummy for presidents.

^b The economic crisis variable is omitted for models 2-4 because it does not vary for the time period for which there is data for the crimes included in these regression models.

There are various useful results in Table 1. On the one hand, an increase or decrease on homicides does not determine any difference in levels of approval. This specific result is robust

to alternative econometric specifications, and in restricted models for every presidential administration.¹³

Similarly, differences in approval levels do not correspond to changes in enforcement against drug-related crimes (“against health”). Enforcement efforts against drug related crimes do not seem to pay off in terms of aggregate presidential popularity. Perhaps specific events, such as arrests of drug-cartel’s bosses or the homicide of high profile personalities may affect the level of approval, which is something we consider for further research on the topic.

On the other hand, we find significant effects on levels of approval related to changes in the level of auto thefts. An increase of one stolen car per every 100,000 habitants reduces presidential approval by almost 1 point. On average, 13.2 cars per every 100,000 habitants were stolen each month in the period we are studying; the absolute average monthly difference in the number of cars stolen is 0.73 cars per 100 thousand habitants, with a standard deviation of 0.62 cars. Thus, the coefficient on auto-theft is substantively significant as well. Although auto-theft is a crime that falls under the jurisdiction of state-level authorities in Mexico, it seems that part of the blame is placed upon the federal executive.

The monthly difference in kidnappings is also statistically significant. An increase in kidnappings respect to the previous month implies a lower level of approval. This result should be taken with a grain of salt, given the severe under-reporting of this crime, and the likely endogeneity of higher reporting to trust in authorities.

Regarding our economic control variables, inflation has a significantly relationship with presidential approval levels. This is an expected result, given the existing evidence in previous

¹³ Alternative model specifications are available upon request to the authors.

literature. The result is robust to different model specifications. Similarly, the economic crisis dummy has a strong negative effect upon approval, which falls 9% in months of crisis.

We also find a significant honeymoon effect. On average, the monthly difference in approval is 5% higher in the first 6 months of a presidential administration as compared to the rest of the months during the same presidential administration. We find no relationship of electoral periods upon approval.

To wrap-up, these preliminary models show mixed effects of insecurity upon approval ratings. On the one hand, a crime like homicide that is of relatively low incidence—as compared to auto theft or armed robbery—does not seem to impact upon the level of presidential approval. On the other hand, a high incidence crime such as auto-theft does negatively affect presidential approval.

This would imply that, at least at the aggregate level, society holds incumbent executives partially accountable for their performance on public security.

Initially, we had been puzzled as to why President Calderon's approval had not plummeted despite the significant increase in violence in the country. According to our results, increases in homicides are not negatively associated to presidential approval. Thus, the increasing number of murders did not affect his ratings. Further research on the topic should look for alternative specifications to confirm or discard this result.

APPROVAL AND SECURITY AT THE INDIVIDUAL LEVEL

To complement our inquiry into the relationship between approval levels and public security, we now turn to the individual level of analysis. We do so at a specific point in time: July of 2011. In July 2011, the war on drugs declared by President Calderon had already lasted four and a half

years; it was a time of crisis regarding public security, the number of homicides for a given month had reached its peak (See Figure 1B).

In this subsection, we are interested in adding to answer the following questions: How do issues concerning public security impact upon individuals' decisions to approve of the president? And why, if public security indicators systematically worsened during Felipe Calderon's administration, did his job approval not collapse? During a public security crisis, how does the impact of public security variables compare to the impact of economic variables?

The standard function explaining individuals' decisions to approve of the president includes two core variables: performance (usually referred to the economy), and political predispositions, such as partisanship. We follow this same logic while adding additional variables to account for security issues. We focus on the two core dimensions of public security that we examine in this paper: the decision to intervene, and job evaluation.

Approval = f(Performance, political predispositions)

Performance = g(Economy, public security, other performance items)

Public security = h(decision to intervene, job evaluation)

We utilize data from a nationwide face-to-face survey conducted in Mexico in July 2011. The sample is stratified by type of locality (urban and non-urban), population density, and the number of homicides at the municipal level. The sample size is 2,700.¹⁴

We specify a multinomial logit model using presidential approval as the dependent variable. The variable we use has three categories: disapprove, neither approve nor disapprove, and

¹⁴ The survey was conducted by the by the Office of the Mexican Presidency. We thank Rafael Giménez and Lorena Becerra for allowing us to participate in the design of the survey and for granting access to the data.

approve. The original variable in the questionnaire had five response categories, yet a Wald test showed that the categories of “somewhat” and “strongly approve/disapprove” should be collapsed into one. We do not use an ordinal logit model since the cuts for the categories overlap.

The model includes variables that approximate citizens’ opinions on different aspects of public security (see Appendix C for descriptive statistics and exact question wording). First, we include a variable that approximates individuals’ positions on the dimension of support for intervention (*Fight against crime*); it asks whether individuals favored or opposed the federal government’s fight against organized crime.

Second, we include two variables that approximate the evaluation of public security. One variable on citizens’ retrospective evaluation of public security (*Security evaluation*), and another on who the individuals’ thought was winning the war on drugs: the government or organized crime (*Government/Crime is winning*).

Third, we include a variable regarding direct crime victimization (*Crime victim*). Fourth, we include two variables concerning indirect victimization: a variable on whether the individual considers insecurity to be the main problem of the country (*Main problem: security*), and a variable that approximates citizens’ changes in daily routines due to security concerns (*Change of routine*).

Finally, we add a variable regarding the security context surrounding the individuals. We created three categories based on the aggregate number of homicides at the municipal level from the beginning of Calderon’s administration in December 2006 up to July 2011, when the survey was conducted. The first category comprises municipalities in the first three quartiles of the distribution (up to 4 homicides), the second category includes municipalities in the last quartile (5 to 1000 homicides), and the four most violent municipalities make up the last category

(*Homicides: Low/Medium/High*). In addition, the model includes variables that control for the effect of economic issues, and political predispositions.

The model is weighted to adjust the sample to the population parameters by type of locality (urban and non-urban), number of homicides related to drug trafficking organizations, population density, age groups, and sex. The standard errors are clustered by municipality.

Given the inherent complications in interpreting coefficients from multinomial logit models, Table 2 shows the marginal change in the likelihood of observing each of the three outcomes—approve, intermediate, and disapprove—when every variable changes from its minimum to its maximum while holding everything else constant. The complete coefficients are in Appendix D. In the following subsections we discuss our results.

Table 2 – Determinants of approval

Marginal change (Minimum to maximum). Sorted by Approve.

Variable	Approve	Intermediate	Disapprove
Fight on crime	33.0%	-10.4%	-22.6%
Security evaluation (retro)	26.7%	-7.0%	-19.7%
Party ID: PAN	26.7%	-4.0%	-22.7%
Government is winning	18.3%	-6.5%	-11.7%
Homicides: Low	16.4%	-7.3%	-9.2%
Economic evaluation (retro)	16.0%	0.3%	-16.4%
Years of schooling	12.3%	-14.5%	2.2%
Homicides: Medium	8.8%	-8.9%	0.1%
Main problem: Insecurity	6.3%	9.1%	-15.4%
Woman	5.9%	-1.1%	-4.8%
Main problem: Economy	1.4%	5.6%	-7.0%
Urban locality	0.6%	1.3%	-1.9%
Crime victim	0.0%	2.5%	-2.4%
Age: 30-44	-0.5%	1.5%	-1.0%
Age: 45-59	-1.2%	-2.9%	4.1%
Age: 18-29	-2.2%	1.6%	0.6%
Change of routine	-3.0%	-5.3%	8.3%
Crime is winning	-6.0%	-1.9%	7.9%
Homicides: High	-10.3%	9.2%	1.2%

Dimensions of Public Security

Regarding the two core dimensions of public security that we are considering in our model: we find that support for the fight against crime—independently of the outcome of the policy intervention—has a bigger effect on approval than any of the other variables that approximate performance evaluation in our model. *Ceteris paribus*, an individual that strongly favored the fight against organized crime was 33% more likely to approve of President Calderon, as compared to an equivalent individual that strongly opposed the government's fight against organized crime.

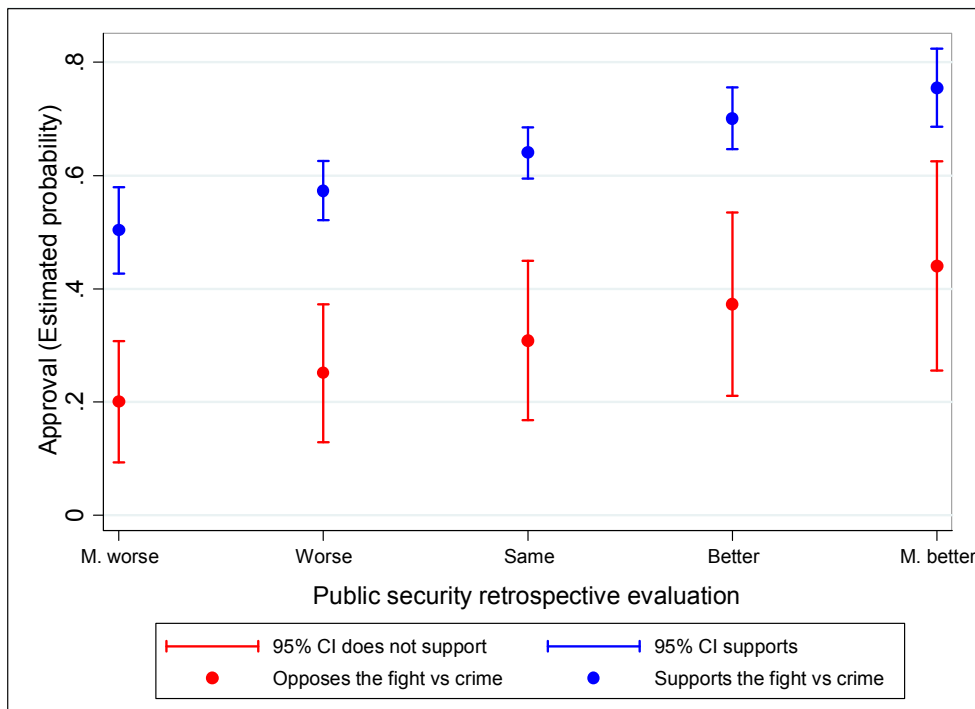
This result tentatively implies that citizens would reward an executive for “trying” to solve the problem, more than they reward, or punish, a president's performance on the matter. Note that at the time the survey was conducted, a significant majority of citizens were in favor of the fight (although they may not have agreed with the specific strategy): 29% percent were somewhat in favor, and 57% was strongly in favor. These are significant levels of support, especially if one considers that the survey was conducted in the summer of 2011, four and a half years after Calderon's declaration of war on criminal organizations. Thus, public support for President Calderon's initiative to fight organized crime represented a significant floor to his approval.

To illustrate how support for the fight against organized crime provided a significant cushion to presidential approval, Figure 2 shows, *ceteris paribus*, the estimated probabilities of the retrospective evaluation of security in two different scenarios: first, an individual who strongly opposed the fight against crime that launched the Calderon government, and, second, an

individual who strongly favored the fight against crime.¹⁵ As we can see, if an average citizen supports the government's fight against organized crime, then, even in the worse scenario of negative retrospective evaluation on public security, the president would still manage to get a 50% probability of approval.

Yet, if citizens opposed the intervention against organized crime, things turn quite dark for the executive. Even if an average citizen thinks that public security is much improved, this citizen will only have a 44% probability of approving of the president. In the worst-case scenario for a president: a citizen that both opposes the fight and evaluates public security poorly will only have a 20% probability of approving of the chief executive.

Figure 2 – Model predictions for different values of fight support and security evaluation



¹⁵ We specified a model including an interaction term between public security evaluation and support for the fight; the coefficient is not-significant. To prevent potential over-specification issues we do not include this variable in our final model.

We also find that citizens do not punish the incumbent president for their worries on public security; instead, they are 15% less likely to disapprove of him. This is akin to a sort of rally-round-the-flag effect.

Crime Victimization

We find no significant effect of victimization on individuals' decisions to approve of the president. That is, a victim of crime is no more likely to disapprove of the president as compared to a non-victim. This finding contributes to explaining why Calderon's approval did not collapse as a result of the insecurity conditions in Mexico.

We do face potentially conflicting results, or at least of no obvious fit, at the aggregate and the individual level. Two are worth discussing. We found that specific crimes—such as auto theft—had a negative effect on approval at the aggregate level; meaning that when there were more crimes of this type, a lower proportion of citizens would approve of the incumbent president. Yet, we also ran separate models at the individual level, disaggregating our crime victimization variable by specific crimes, and none of these were significant.¹⁶

We tested for homicides at the aggregate level in the previous section, and found that the number of homicides does not have an effect on the level of presidential approval. For obvious reasons, we cannot test whether victims of homicides are less likely to approve of the president, yet we can test whether individuals living in geographical subunits with relatively more homicides are less likely to approve of the president; which would be an indirect effect on citizens.

¹⁶ The regressions' outcome is available upon request to the authors.

In Table 2 we can see that those individuals living in municipalities with high levels of homicides are less likely to approve of the president as compared to those living in middle and low homicide municipalities. The results in low and high homicide levels are not surprising, yet, it is interesting to note that those individuals living in localities in our medium violence category tend to approve of the president, even if some of these are still quite violent. However, only one related coefficient is statistically significant, thus, we are cautious regarding our conclusions on this point (see Appendix D).

Finally, we find a statistically significant effect on approval due to individuals' changes in routines as a result of security concerns. The likelihood of disapproving of the president increases by 8.3%; there is no significant effect on approving of the executive.¹⁷

Extreme Scenarios

Lastly, to provide a better sense of the overall effect of public security on approval, Table 3 shows punctual predictions of the model for a president's best and worst-case scenarios, using the security variables that are statistically significant in the regression model.

These scenarios show the huge effect that security has on presidential approval. The results also indicate that an executive gets relatively more rewards when things go well than punishments if things go badly. Approval in the first case goes up to almost 89%, while disapproval in the worst scenario comes to 71.8%. The numbers are quite significant.

¹⁷ We also tested a model including a proxy for fear of crime, the coefficient is not significant, but we decided not to include this variable in our chosen model due to collinearity issues.

Table 3 – Model predictions for extreme scenarios

	Approve	Intermediate	Disapprove
Best scenario: Supports the fight on crime, positive retrospective evaluation of security, believes that the government is winning the war on drugs, lives in a low-homicide locality, security is the main problem.	88.9%	8.3%	2.8%
Worst scenario: Does not support the fight on crime, negative retrospective evaluation of security, believes that the crime is winning the war on drugs, lives in a high-homicide locality, security is not the main problem.	9.30%	18.90%	71.80%

CONCLUSIONS AND FURTHER RESEARCH

This paper is a first approach to understanding the relationship between presidential approval and public security, both at the aggregate and at the individual level.

We find evidence of the following: (a) The decision to fight crime has a greater weight on citizens' approval of the president than the actual performance evaluation. (b) Only in specific cases, crime victimization is negatively related to approval.

The overall picture shows that presidents are able to gain society's support even if things go wrong regarding public security. Specifically, if an executive manages to get support for the intervention, creating a sort of rally-round-the-flag effect, then the negatives from poor performance evaluations may be mitigated. In this sense, the structure of the determinants of approval regarding public security seems to be similar to the impact of wars upon presidential approval ratings.

These findings have substantive implications upon executives' decision-making on public security issues. On the one hand, if there is a demand from citizens for action on security,

delaying the intervention is not an optimal strategy for incumbents. Citizens want action, even if the actual performance is weak. On the other hand, weakly supported policy interventions on security will not get the incumbent far in way of approval ratings.

At the aggregate level, we find that the level of auto thefts, which is a relatively common crime, affects approval ratings. Surprisingly, however, the level of approval is not affected by changes in the level of homicides, which is a more serious offense.

Our research agenda on the topic includes further investigation into the issues presented in this paper. At the aggregate level, we intend to include additional control variables on specific security events that may affect the level of approval; this will give us a more robust model, in terms of context. We also aim to use alternative time-series models to test for the robustness of our results, especially given the formerly mentioned unsettled debate that exists in the literature.

At the individual level, we intend to test our current results using alternative methods. Propensity scores matching seems like a good complementary method that we may implement to inquire into the effects of crime victimization, which in this study, and in some previous ones, did not show any significant effects upon approval ratings.

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APPENDIX A

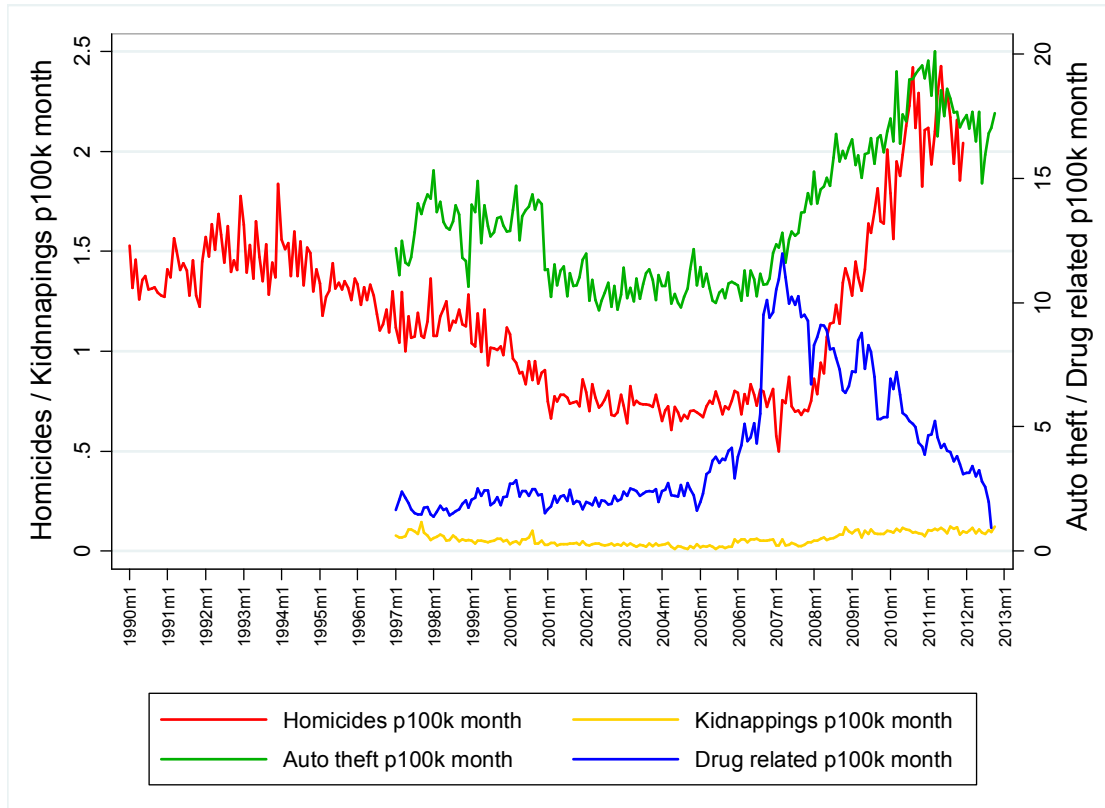
Table 1A – Error Correction Models

		Model 1	Model 2	Model 3	Model 4
		Homicides	Inflation	Unemployment	Exchange rate
Approve					
	L1.	-0.409***	-0.475***	-0.556***	-0.433***
Homicides					
	D1.	-1.939	-2.571	0.093	-2.037
	L1.	-3.856***	-5.312***	-1.026	-4.663***
Inflation					
	D1.		-4.214***		
	L1.		.174***		
Unemployment					
	D1.			0.191	
	L1.			-2.975***	
Exchange rate					
	D1.				1.770
	L1.				.798*
Pres. EZPL		-8.438***	-14.198***	-9.114***	-13.864***
Pres. VFQ		-9.991***	-21.689***	-9.355***	-16.949***
Pres. FCH		-6.112***	-19.723***	-3.155**	-13.812***
Economic crisis		-13.517***	-9.058***	-10.601***	-12.755***
Pre-election		0.200	0.044	0.561	-0.045
Post-election		0.636	-0.134	1.274	0.479
First 6 months		2.909*	5.027***	3.858**	3.867**
Feb		0.955	-0.336	2.748	0.897
Mar		1.689	0.597	3.636**	1.824
Apr		1.516	0.281	3.154*	1.957
May		-2.373	-4.987**	-0.556	-2.047
Jun		-0.750	-2.255	-0.131	-0.513
Jul		3.224	2.336	4.287***	3.826**
Aug		2.484*	1.962	5.090***	2.456
Sep		0.706	0.666	3.144*	0.623
Oct		0.294	-0.547	2.662	0.281
Nov		-0.212	-0.727	1.955	-0.220
Dec		3.538**	2.776*	4.364**	3.468**
Constant		38.119***	44.401***	53.161***	38.651***
N		205	205	205	205
R-square		0.32	0.37	0.40	0.33

Note: Estimates weighted by president. * p < .1; ** p < .05; *** p < .01.

APPENDIX B – Crimes in Mexico 1990-2012

Figure 1B – Reported crimes by 100k Habitants, monthly. Mexico 1990-2012



APPENDIX C – Variables description

Table 1C – Descriptive Statistics (n=2,451)

Variable	Mean	Std. Dev.	Min	Max	Question Wording
Presidential approval	2.31	0.87	1	3	In general, Do you approve or disapprove the job of President Felipe Calderón?
Fight on crime	4.31	1.03	1	5	Are you for or against that President Calderon's government is fighting organized crime?
Security evaluation (retro)	2.84	1.15	1	5	If you compare the current public security in the country with public security a year ago, would you say that now it is much better, better, worse or much worse?
Main problem: Security	0.60	0.49	0	1	What do you think is the most important problem in Mexico at this time?
Crime victim	0.47	0.50	0	1	In the previous year, have you been a victim of... (<i>crime</i>).
Government is winning	0.31	0.46	0	1	In the fight between the Federal Government and organized crime, who do you think is winning?
Crime is winning	0.52	0.50	0	1	In the fight between the Federal Government and organized crime, who do you think is winning?
Change of routine	1.34	1.58	0	5	I will now read you a list of activities that some persons do, please let me know if in the last six months you have stopped doing any of these activities because of insecurity concerns, or let me know if it is an activity that you do not do.
Homicides: Low	0.27	0.45	0	1	
Homicides: Medium	0.67	0.47	0	1	
Homicides: High	0.05	0.22	0	1	
Main problem: Economy	0.28	0.45	0	1	What do you think is the most important problem in Mexico at this time?
Economic evaluation (retro)	2.72	1.09	1	5	If you compare your current economic situation to a year ago, would you say that now it is much better, better, worse, or much worse?
Party ID: PAN	0.23	0.42	0	1	Independently of your voting choice, what is the party with which you most identify yourself?
Woman	0.50	0.50	0	1	
Age: 18-29	0.31	0.46	0	1	
Age: 30-44	0.36	0.48	0	1	
Age: 45-59	0.15	0.36	0	1	
Years of schooling	6.13	3.33	1	12	
Urban locality	0.70	0.46	0	1	

APPENDIX D – Estimated Coefficients – Multinomial Logit Model

	Coefficient	z	P>z		Coefficient	z	P>z
woman				crime_winning			
Disappro-Approve	-0.2996	-1.751	0.080	Disappro-Approve	0.4352	2.231	0.026
Disappro-Intermed	-0.1377	-0.648	0.517	Disappro-Intermed	0.4244	1.425	0.154
Intermed-Approve	-0.1619	-0.833	0.405	Intermed-Approve	0.0109	0.040	0.968
age1829				vict1_victim			
Disappro-Approve	0.0659	0.223	0.824	Disappro-Approve	-0.0978	-0.578	0.563
Disappro-Intermed	-0.0530	-0.170	0.865	Disappro-Intermed	-0.2238	-1.045	0.296
Intermed-Approve	0.1189	0.381	0.704	Intermed-Approve	0.1260	0.617	0.537
age3044				p1_probsecurity			
Disappro-Approve	-0.0341	-0.142	0.887	Disappro-Approve	-0.6851	-2.938	0.003
Disappro-Intermed	-0.1178	-0.385	0.700	Disappro-Intermed	-1.0771	-3.387	0.001
Intermed-Approve	0.0837	0.291	0.771	Intermed-Approve	0.3920	1.312	0.190
age4559				p1_probeco			
Disappro-Approve	0.1780	0.617	0.537	Disappro-Approve	-0.3337	-1.251	0.211
Disappro-Intermed	0.3150	0.787	0.431	Disappro-Intermed	-0.5783	-1.747	0.081
Intermed-Approve	-0.1370	-0.342	0.733	Intermed-Approve	0.2446	0.680	0.496
school				seg3_secretro			
Disappro-Approve	-0.0120	-0.493	0.622	Disappro-Approve	-0.3329	-4.039	0.000
Disappro-Intermed	0.0793	2.446	0.014	Disappro-Intermed	-0.1182	-1.174	0.240
Intermed-Approve	-0.0912	-2.734	0.006	Intermed-Approve	-0.2147	-2.337	0.019
urban				eco3_ecoretro			
Disappro-Approve	-0.0861	-0.403	0.687	Disappro-Approve	-0.2485	-2.528	0.011
Disappro-Intermed	-0.1427	-0.652	0.514	Disappro-Intermed	-0.1822	-1.592	0.111
Intermed-Approve	0.0566	0.256	0.798	Intermed-Approve	-0.0663	-0.693	0.488
homicides_low				seg2_fightvscime			
Disappro-Approve	-0.7039	-2.556	0.011	Disappro-Approve	-0.3741	-3.426	0.001
Disappro-Intermed	0.0017	0.005	0.996	Disappro-Intermed	-0.0667	-0.699	0.484
Intermed-Approve	-0.7056	-2.251	0.024	Intermed-Approve	-0.3074	-3.061	0.002
homicides_medium				idpan			
Disappro-Approve	-0.1585	-0.892	0.372	Disappro-Approve	-1.7261	-5.865	0.000
Disappro-Intermed	0.4302	1.361	0.174	Disappro-Intermed	-1.0669	-3.128	0.002
Intermed-Approve	-0.5888	-2.516	0.012	Intermed-Approve	-0.6593	-3.371	0.001
Homicides_high				vict3_changeroutine			
Disappro-Approve	0.2402	1.3790	0.168	Disappro-Approve	0.0746	1.403	0.161
Disappro-Intermed	-0.3705	-1.194	0.232	Disappro-Intermed	0.1214	1.722	0.085
Intermed-Approve	0.6107	2.653	0.008	Intermed-Approve	-0.0469	-0.663	0.507
govt_winning							
Disappro-Approve	-0.8454	-3.279	0.001				
Disappro-Intermed	-0.1700	-0.477	0.633				

Intermed-Approve	-0.6754	-2.645	0.008
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