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THE PRICE OF POLITICAL OPPOSITION:
EVIDENCE FROM VENEZUELA'S MAISANTA

Chang-Tai Hsieh
Edward Miguel
Daniel Ortega
Francisco Rodriguez

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ABSTRACT

In 2004, the Chávez regime in Venezuela distributed the list of several million voters whom had attempted to remove him from office throughout the government bureaucracy, allegedly to identify and punish these voters. We match the list of petition signers distributed by the government to household survey respondents to measure the economic effects of being identified as a Chavez political opponent. We find that voters who were identified as Chavez opponents experienced a 5 percent drop in earnings and a 1.5 percentage point drop in employment rates after the voter list was released. A back-of-the-envelope calculation suggests that the loss aggregate TFP from the misallocation of workers across jobs was substantial, on the order of 3 percent of GDP.

Chang-Tai Hsieh
University of Chicago GSB
5807 S Woodlawn Ave
Chicago, IL 60637
and NBER
chsieh@chicagogsb.edu

Edward Miguel
Department of Economics
University of California, Berkeley
508-1 Evans Hall #3880
Berkeley, CA 94720
and NBER
emiguel@econ.berkeley.edu

Daniel Ortega
Instituto de Estudios Superiores
de Administracion
Centro de Politicas Publicas
Ave. IESA, Edif. IESA
San Bernardino, Caracas
Venezuela 1010
dortega@caf.com

Francisco Rodriguez
Department of Economics
Wesleyan University
238 Church Street
Middletown, CT 06459-0007
frodriquez@wesleyan.edu

1. Introduction

Over an 18 month period starting in late 2002, more than 4.7 million Venezuelans signed one or more of the three petitions calling for a vote to remove President Chávez from office. After two failed petition drives, a third petition in December 2003 was successful in forcing a recall election that took place in August 2004. After Chavez won the recall vote, the list of the signers of the last petition was packaged into user-friendly software program known as *Maisanta*. There were soon widespread allegations that the *Maisanta* software was widely distributed throughout the public sector and used by the Chavez regime as an “enemies” list. Jatar (2006), for example, presents the stories of several individuals who lost their jobs after being identified in the *Maisanta* database as a Chavez opponent.

This paper looks for systematic evidence that the *Maisanta* database was used by the Chavez regime to identify and punish the voters who had attempted to remove Chavez from office, using the *Maisanta* database itself in the analysis. The information in *Maisanta* has sufficient detail to match two-thirds of the adults in the Venezuelan national household survey to the voter lists. Using this data, we measure whether voters who signed petitions to recall Chavez experienced changes in income or employment after the *Maisanta* lists were widely distributed.

Figure 1 presents our key evidence from this data. The top panel plots the employment rate of the petition signers relative to that of the non-signers and the bottom panel plots their relative wage. Relative employment of the Chavez opposition was roughly constant from 1997 through 2004 before falling by 1.5 percentage points in 2005 and 2006. Similarly, the wage gap between the Chavez opposition and the non-signers was roughly constant until 2004, and then dropped by 5 percent in 2005-2006. The fact that there were no trends in either the employment rate or the wage prior to 2004

suggests that individuals who signed a petition to recall Chavez did not do so as a reaction to worsening employment and income after Chavez became President in 1999.

This paper builds on the growing literature on the effect of political ties and conflict on economic outcomes.¹ What is different about the setting we study is that political information was collected on and allegedly used to punish a large share of the population and not just political opposition leaders. Granted, the Chavez regime is not the only one that is alleged to have collected and used detailed data on its opponents to further its political goals: witness the role of the Stasi in East Germany or the use of personnel files in Communist China. But what is unique is our ability to match the database used by the Chavez regime to a standard household survey, which allows us to provide precise measures of the economic price of political opposition for everyday Venezuelans.

2. Hugo Chavez's Venezuela and the *Maisanta* Database

Hugo Chávez was elected President of Venezuela in December 1998 with the support of 56 percent of the electorate. Chávez capitalized on a widespread perception that Venezuela's traditional political parties were corrupt and partly responsible for Venezuela's long economic decline: Venezuela's GDP per worker fell by 32 percent between 1978 and 1998.² Once in office, Chávez sought to remake Venezuela's political institutions. One of his first actions was to pass a new Constitution. The new Constitution called for Presidential and Legislative elections. The Presidential election took place in July 2000, which Chavez won, this time with nearly 60 percent of votes.

¹ See Fisman (2001), Khwaja and Mian (2006), and Ferguson and Voth (2008) on the effect of political ties on economic outcomes in Indonesia, Pakistan, and Nazi Germany, respectively. Dunning and Stokes (2007) use a subset of *Maisanta* to explore political affiliation and the receipt of government social programs in Venezuela. See Hirshleifer (1991), Skaperdas (1992), Alesina and Rodrik (1994), Benabou (2004), Londregan and Poole (1990), and Alesina et al. (1996) for papers on the effect of political conflict on economic outcomes. The implications of punishments meted out to political opponents were discussed in Kuran's (1995) study of preference falsification, but empirical applications have been hampered by limited data on individuals' public political expression.

² Calculations from Rodríguez (2004).

Chavez used his newfound authority to pass 49 laws, including a controversial land reform bill and a law that increased the taxes paid by the state-owned oil company. Venezuela's main business and labor organizations initiated public protests and a series of one-day national strikes to pressure Chavez to reverse course. These protests culminated in a violent confrontation with government supporters on April 11, 2002. On that day, several high-ranking military officers announced that they had disobeyed Chávez's order to repress the opposition demonstrators and that they had removed Chavez from power. However, two days after his removal from office, Chavez was reinstated as President by his supporters in the military.

Opposition groups continued to push for Chavez's removal. They organized a nationwide strike in December 2002 that brought the economy to a standstill for two months. They also pursued a new strategy of submitting petitions calling for a vote to remove Chavez from office.³ In November 2002, opposition groups collected almost 1.6 million signatures (out of 12 million registered voters) calling for a non-binding referendum (a "Consultivo") on Chavez's rule. The petition was accepted by the Electoral Council, but its decision was overturned by the Supreme Court with the argument that the Electoral Council had not been legally constituted. The Supreme Court then appointed a new Electoral Council with a pro-government majority.

Opposition groups responded by organizing a nationwide drive to collect signatures for another petition. Over one day in February 2003 (the "Firmazo"), 2.8 million voters signed a petition calling for a *binding* vote to remove Chavez. However, because Venezuela's Constitution stipulated that a petition for a binding recall vote can be scheduled only after half of the official's term was over, the opposition waited until the midpoint of Chavez's term (August 2003) to submit the petition. This second petition

³ The ability to petition for recall elections, if backed by enough signatures, was a novel feature of the 1999 Constitution. For revoking specific laws or on "matters of national interest" the threshold was 10% of voters; for a constitutional amendment, 15%; and to recall an elected official, 20%.

was rejected by the Electoral Council with the argument that the petition was signed before the midpoint of Chavez's term.

The opposition launched a third petition drive, this time under new rules set up by the Electoral Council, in which the petition signing process was directly supervised by the Electoral Council. The Electoral Council set up 2,700 signing stations between November 28 and December 1, 2003, and voters who wished to sign a recall petition had to show up at a signing station between these dates. This time, nearly 3.5 million voters signed yet another petition (the "Reafirmazo") calling for a binding vote to remove Chávez.

The Electoral Council ruled that 375 thousand signatures were invalid and that it could not verify the authenticity of an additional 1.2 million signatures. The voters whose signatures could not be verified had the option of appearing on May 28 to May 31 2004 at the offices of the Electoral Council to resign the petition. Over 50 percent of these voters showed up, which pushed the total number of valid signatures over the legal threshold for a recall vote (20 percent of registered voters). After 18 months of political battle, the recall referendum was finally held on August 15, 2004, which Chavez won with over 59 percent of the vote.

Throughout the political struggle over the recall, Chavez supporters made it clear that supporters of the recall would be publicly identified. Two months after the first petition, pro-government legislator Luis Tascón posted the list of signers on his website.⁴ This website was updated with the identity of the signers of the second and third petitions. Similar lists appeared on the website of the Electoral Council.

The Chavez government also actively attempted to dissuade voters from signing the recall petitions. For example, an advertisement (Exhibit 1 in the Appendix) entitled "*Retira Tu Firma*" (Withdraw Your Signature) that appeared in several newspapers in October 2003 states:

⁴ Tascón's stated reason was to allow citizens to find out whether their signature had been forged by the opposition. See Hernández, "MVR Asegura que 72 dirigentes opositores no firmaron solicitud," *El Universal* January 15, 2003.

“40% of the signatures presented by the Anti-Chavez Groups were fake...they used the IDs of your dead relatives, non-registered voters, the elderly, and maybe even your ID....If your ID, your friend's ID, or an ID of your relative was used: **YOU MUST WITHDRAW THE SIGNATURE**. If you signed under pressure or regret having signed: **WITHDRAW YOUR SIGNATURE**.....Look for your signature on the lists of your voting center or on the following website www.cne.gov.ve." (emphasis in original)

Chavez and his supporters also made explicit threats of retaliation against the petition signers. In a nationally televised address on October 17, 2003, President Chavez said:

"Whoever signs against Chávez... their name will be there, registered for history, because they'll have to put down their first name, their last name, their signature, their identity card number, and their fingerprint."⁵

A billboard on the streets of Caracas conveyed a similar message, stating: "Your Vote is Secret, Your Signature is Not." (Exhibit 2 in the Appendix).

In the spring of 2004, the list of signers of the third petition was compiled into a user-friendly computer program that became known as "Maisanta." This program is a database of *all* registered voters as of March 2004 (a total of 12,394,109 voters). Exhibit 3 (in the Appendix) illustrates the information provided by this software. After a person's identity card number is entered (on the upper left hand side of the screen), the entry immediately to the right of the ID indicates whether the individual signed the *third* petition. Maisanta does not indicate whether the signature was challenged by the Electoral Council, nor does it provide information on whether the individual signed the first or the second petition. The entries in the next two rows provide information on the individual's name, birth date, and address. Finally, the bottom of the screen indicates whether the individual participated in several of the government's social programs. This last set of information makes clear that the creators of the Maisanta software had merged the Electoral Council's list of voters with administrative data from the government's social programs.

⁵ "El que firme contra Chávez está firmando contra la patria," *El Universal*, Oct. 17 2003. See also *Ciudadanía Activa* (2006).

The list of the signers of all three petitions was removed from Tascon's and the Electoral Council's websites after the August 2004 recall vote. At the same time however, the Maisanta software containing the list of voters who had signed the third petition was widely distributed throughout the public sector after Chavez won the recall vote. Since the identity of signers of all three petitions was public information at some point, the list of signers of all three petitions is the broadest definition of whom the Chavez regime might have considered as their opponent. However, since the widely distributed Maisanta software only contains the list of signers of the third petition, these individuals might have been more readily identified as political opponents by the Chavez regime after 2004.

3. Data

The Maisanta database provides the list of all registered voters in Venezuela in 2003 and the list of all the signers of the third petition. We also obtained the list of signers of the first two petitions (which was publicly available from Tascon's website before August 2004), which we match to the list of voters in Maisanta.

Maisanta identifies the municipality and the *parroquia* (a small geographic unit containing an average of 25,000 inhabitants) of the voting center of all registered voters. Maisanta does not identify the voter's gender, so we impute gender from the voter's name.⁶ The combination of voting center, birth date, and (imputed) gender uniquely identifies about 7 million individuals in *Maisanta*. In addition, there are 3 million voters where all the individuals with the same voting center, gender, and date of birth signed the petitions in the same way. Including this second group of voters, we end up with a sample of 10 million voters, or about 80 percent of all the registered voters, whose signing choices we can identify.

We match these 10 million voters in Maisanta to the Venezuelan Household Survey (*Encuesta de Hogares por Muestreo*) collected by Venezuela's National Institute of Statistics. The household survey

⁶ We were able to confidently assign gender to 87% of individuals in *Maisanta* using lists of common first names.

provides standard labor market and demographic information for a nationally representative sample. We use the survey waves from the first semester of 1997 to the first semester of 2006. Although the Household Survey is supposed to track families twice a year over three years (for a total of six semesters), we find that the attrition rates in the data are extraordinarily high, at 41% across three semesters and 90% across all six semesters a household is meant to be retained in the panel. We opted to ignore the panel dimension of the data and only use the data as a repeated cross-section.

The household survey provides information on each individual's municipality and parroquia of residence, as well as their gender and birth date. These variables uniquely identify 97% of the individuals in the household survey. After matching this sample from the household survey to the sample of 10 million voters in Maisanta, we obtain a final sample of 145,937 individuals. Because this matching strategy relies on the likelihood that there will be few people with the exact same birth date and gender within a given *parroquia*, and because this probability varies depending on *parroquia* population, the fraction of successful matches to the household survey varies by *parroquia* size. To retain sample representativeness, we reweighted each observation in the final matched sample by the reciprocal of the match success rate calculated as the ratio of the matched population to the total population over age 18 in each *parroquia*.⁷

Table 1 presents the number of petition signers in the Maisanta database (rows 1 and 2) and in our matched household data (row 3). We categorize petition signers in the following manner: those who signed at least one petition (column 1); individuals who only signed petitions 1 or 2 (column 2); individuals who only signed petition 3 (column 3); and voters who signed petition 3 and at least one of the first two petitions (column 4). The Table shows that 29 percent of all voters signed at least one of the three petitions (column 1) and nearly 20 percent signed the third and decisive petition (columns 3

⁷ The data appendix contains further discussion.

and 4). We will primarily focus on voters who signed at least one petition (column 1) because the identity of all petition signers was available to the government. Therefore, unless otherwise indicated, we define the term "petition signers" as voters who signed at least one of the three petitions. However, since the Maisanta program only contains the list of voters who signed the third petition, we also focus at times on voters who signed the third petition.

Table 2 compares the labor market characteristics for petition signers ("opposition") with voters that did not sign any of the recall petitions. The first column presents the mean of the sample (both signers and non-signers), the second column presents the difference in means between individuals who signed any of the three petitions and the non-signers, and the third column presents the difference between signers of the third petition and the non-signers. The sample is restricted to individuals in the labor force and to observations prior to 2002 to exclude any effect of the petition signing. The table shows that petition signers have higher incomes than non-signers, by 9.5 percent (row 1) and similar employment rates (row 2). Part of the higher income can be "attributed" to the fact that a larger share of the signers are employed in the formal sector (both public and private), by 3.4 percentage points (rows 3, 4 and 5). Signers are also likely to be older (1.3 years; row 6), more educated (0.78 more years of schooling; row 7), more likely to be female (row 8), and more likely to live in Caracas (row 9). Finally, the third column suggests that there is little difference in terms of the observables between the signers of the third petition and voters who signed any of the three petitions.

4. Employment and Wage Effects

This section looks for evidence that the petition signers suffered from lower employment and wages after Chavez prevailed in the recall election. Before we present the empirical evidence, it is useful to

think about what a comparison of the employment and wages of petition signers versus non-signers measures. Suppose that voter (indexed by i) expected utility from signing or not signing a petition is:

$$U_i^{SIGN} = T_i + \pi(Y_i^C - P)$$

The utility gain from signing is the sum of their political distaste for Chavez T_i , the expected income *change* in the event of a Chavez victory πY_i^C , and expected punishment from being identified as a Chavez opponent $-\pi P$ (where π denotes the probability of a Chavez victory). The income change in the event Chavez was defeated in the recall election is normalized to zero. In turn, the expected utility from not signing is

$$U_i^{NOT SIGN} = \pi Y_i^C$$

Note that the cost of being publicly identified as a Chavez opponent (P) is contingent on signing a petition while the expected income change if Chavez remains in power (Y_i^C) is not.⁸ Individual i chooses to sign if $T_i > \pi P$. Since Chavez won the recall vote, a regression of the change in income on an indicator variable for signing the petition yields the following estimate for the income change of the signers vs. the non-signers:

$$-P + K * Cov(Y_i^C, T_i)$$

where K is a positive constant. We seek to measure the cost of political opposition P . Therefore, an objective of this section is to show that our estimate of P is not biased because of a correlation between expected post-election income changes and signing choices, or $Cov(Y_i^C, T_i) \neq 0$.

We now present the evidence on employment rates and wages. The top panel in Figure 1 plots the difference between the employment rate of petition signers and that of non-signers. The bottom

⁸ We also assume that individuals' vote has no effect on the referendum outcome and that voters recognize this fact.

panel presents plots the difference in the log wage between these two groups. Specifically, Figure 1 plots β_t from the following regression:

$$Y_{it} = \alpha Sign_i + \sum_t \gamma_t D_t + \sum_t \beta_t D_t Sign_i + \varepsilon_{it}$$

Here, i indexes individuals, t indexes year (1998-2006; the excluded year in 1997), Y_{it} is an indicator variable for being employed, namely having positive income (in the top panel), or the log wage (in the bottom panel), $Sign_i$ is an indicator variable for a petition signer (defined as a person who signed any of the three anti-Chavez petitions for now), and D_t is a year fixed effect. The sample in the top panel are individuals in the labor market, and the sample in the bottom panel are individuals with positive income. Recall that Chavez won the recall election in August 2004. The figure shows that both wages and employment of the petition signers (relative to that of the non-signers) are stable through 2004 and fell exactly in 2005.

Table 3 provides estimates of the drop in employment in 2003-2004 and 2005-2006 for the signers (the sample are adults between ages of 18 and 65 in the labor force). Specifically, we estimate the above regression restricting β_t to be the same for observations in 2003-2004 and the same for observations in 2005-2006 (where the excluded years are now 1997-2002). The first column in Table 3 shows that the employment of petition signers during the petition signing and recall vote in 2003-2004 was unchanged (relative to 1997-2002 and relative to non-signers), but fell by 1.5 percentage points in 2005-2006. The second column introduces controls for individual characteristics (gender, a quadratic in age, years of schooling, and an indicator variable for residence in Caracas); the point estimate now shows a slightly larger drop in employment for petition signers, of 1.6 percentage points. The third column introduces interactions of these individual characteristics with a linear time trend to control for the possibility of changes in the demand for skills that petition signers were more endowed with. Here

again, the point estimates are virtually unchanged. Finally, the last column introduces regional controls (indicator variables for Venezuela's 24 states), which yields a similar estimate of the employment drop in 2005-2006 for the petition signers, 1.6 percentage points.

Table 4 presents similar estimates but with the log wage as the dependent variable. (The sample is now adults between age 18 and 65 with positive labor income.) The first column shows that wages for petition signers did not change in 2003-2004 and fell by 5 log points in 2005-2006. The estimated size of the wage drop in 2005-2006, at 5 log points, does not change when we introduce controls for individual characteristics (column 2), interactions of individual characteristics with time trends (column 3), and state fixed effects (column 4).

We have so far defined petition signers as individuals who signed any of the three recall petitions. This is the broadest definition of people that the Chavez regime might have viewed as their opponents, and the list of signers of all three petitions was publicly available on the internet at some point in time. However, the widely distributed Maisanta database only contains the list of signers of the third and final petition. Table 5 measures whether the effect of signing a petition differs between individuals who signed only in the first or second petition rounds versus people who signed in the third round. In effect, we estimate the same equation as above, but we now distinguish between those who signed in the third round and those who only signed in the first two rounds with different indicator variables. The estimates in column 1 shows that wages of voters who signed in the third round suffered a wage loss of 9.3 log points in 2005-2006. In contrast, voters who only signed in the first two rounds did not see a wage loss after Chavez won the recall vote. The second column further disaggregates between voters who only signed in the third round and voters who signed both in the third round and in first or second rounds. Here, there appears to be little difference between the wage losses suffered by both groups (both groups saw a drop in wages of nearly 8 log points). In sum, the wage loss appears to

have been concentrated among signers of the third petition, while signers of the first two petitions do not appear to have been penalized after Chavez's victory.

The top panel in Figure 2 plots the difference between the employment rate of third round petition signers and that of non-signers, and the bottom panel presents wages. As in Figure 1, the sample in the top panel are individuals in the labor market and the sample in the bottom panel are individuals with positive income. Both the wages and employment of the third round petition signers (relative to that of the non-signers) were largely stable through 2004 and again fell exactly in 2005.

The identifying assumption in the estimates shown in Tables 3, 4, and 5 is that there is no correlation between expected income changes and the political distaste for Chavez driving petition signing choices, or that $Cov(Y_i^C, T_i) = 0$. Table 6 begins our probe for evidence whether this is in fact the case. Here, we revert back to defining signers as individuals who signed any of the three petitions. We begin by looking for evidence of demand shocks in 2005-2006, say for educated workers or in sectors and occupations that were dominated by the petition signers. We estimate the following regression on the sample of *non-signers*:

$$Y_{it} = \alpha Char_i + \gamma_1 D_{2003-04} + \gamma_2 D_{2005-06} + \beta_1 D_{2003-04} Char_i + \beta_2 D_{2005-06} Char_i + \varepsilon_{it}$$

Here, Y_{it} denotes the log wage, $D_{2003-04}$ and $D_{2005-06}$ denote indicator variables for observations in 2003-2004 and in 2005-2006, respectively, and $Char_i$ is a measure of characteristics typical of petition signers. We use three definitions of $Char_i$: 1) years of schooling; 2) an indicator variable for occupations where the share of petition signers among all workers in the occupation is above the median

share and; 3) an indicator variable for sectors where the share of petition signers among all workers in the sector is above the median share.⁹

Table 6 presents the estimates of α , β_1 and β_2 for the sample to voters that that did not sign any petitions. This table shows that there is no evidence of a drop in earnings, in either 2003-2004 or in 2005-2006, for non-signers with more schooling (column 1), who work in occupations that are dominated by petition signers (columns 2-3), or who work in sectors that are dominated by petition signers (columns 4-5). On the contrary, the point estimates of β_2 are even positive in some cases (columns 4 and 5), which suggests that the sectors employing relatively more petition signers if anything fared slightly better after Chavez won the 2004 recall vote.

Table 7 analyzes the proximate sources of the drop in earnings among pro-opposition individuals. The first column shows that petition signers are less likely to be employed in the public sector starting in 2005 by 1.67 percentage points (column 1). This amounts to roughly a 10 percent drop in public sector employment. Column 2 shows that informal sector employment, which typically has worse pay and less job security, increased by 2.81 percentage points, or 7 percent of informal employment.

We next explore shifts across more disaggregated employment sectors and occupations. The dependent variable in column 3 is the average earnings in the respondent's sector *among petition non-signers*; this captures how lucrative employment is in this sector overall independent of any petition signing effects. There is a sharp drop in average earnings in the employment sector of opposition individuals in 2005-2006, by -1.72 percentage points, and average education in the sector is also significantly lower (column 4). Pro-opposition individuals are also forced into lower wage and

⁹ We also introduce individual controls (sex, quartic in age, indicator for living in Caracas) in some specifications.

education occupations in 2005-2006 (columns 5-6), with a drop in average earnings (education) in their occupational category of 3.18 percentage points (0.27 years).

Our claim is that the job shifts documented in Table 7 were due to fact that certain individuals were publicly identified as Chavez opponents. We conducted a survey of 1,248 randomly selected individuals in 67 municipalities in February 2008 to probe for evidence for this interpretation.¹⁰ Specifically, in our sample, thirteen percent of respondents changed jobs between 2002 and 2007. Of the sample of job changers, 10.2 percent claimed that political factors played a role in the job change. This is likely to be an underestimate of effect of being publicly identified as a Chavez opponent since 3.6 percent (of the sample of job changers) refused to answer. Among the individuals who cited a layoff as the cause of their job change, 24 percent claimed they were “laid off due to their political opinions”, while smaller numbers of respondents claimed they were unable to get the job they wanted due to their political opinions, that they decided to quit a job due to their political opinions, or that their “business suffered due to their political opinions.”

Finally, we provide some suggestive evidence on the potential loss in aggregate TFP due to this reallocation of workers. We do not observe all the job shifts, only changes across sectors. This likely leads us to underestimate the total extent of labor market reallocation due to rising political discrimination in Venezuela after 2004. Computing the aggregate social cost of this excess job turnover is challenging, however, since it relies on having a number of the value of the job match surplus, which we do not have. However, if we assume that the job match surplus is shared equally between employers and employees, then we can measure the loss in aggregate efficiency due to political discrimination from the estimated wage loss.¹¹ Specifically, the loss of productivity due to lower quality matches after 2004 is roughly twice the drop the wages of the petition signers multiplied by the fraction of workers who

¹⁰ The appendix provides further details on this survey.

¹¹ Lentz and Mortensen’s (2008) estimates from Danish matched employer-employee data suggests that 55% of job match surplus accrues to workers, and the calibrations in Hall and Milgrom (2008) imply a share of 54% for U.S. workers.

signed, or $2 \times (-5\% \text{ drop in wages for anti-government signers}) \times (33.7\%) = -3.4\%$ of total value added. This can be interpreted as the loss in aggregate TFP from worse worker-firm matches, and thus is a dimension along which the resource reallocation generated by growing political polarization in Venezuela lowered aggregate economic productivity.

5. Conclusion

There is a sense in which this paper's findings are not terribly surprising, namely, that there are regimes that punish their political opponents and that these costs can be substantial. What is unusual about the case we study is the availability of the voter database actually used to target the opposition, and that the punishment was carried out on such a large scale that we are able to measure the labor market outcomes of the everyday individuals that suffered from political retaliation. We find that one third of Venezuelan voters that signed any of the three recall petitions suffered from an average 5 percent drop in their earnings and a 1.5 percentage point drop in their employment probability. This wage drop is largely borne by the 20 percent of voters who signed the third and decisive petition round, which is suggestive that the main instrument of political retaliation was the widely circulated Maisanta database that contains the list of signers of the third petition.

An important question that we do not fully answer here is what the broader consequences were of Chavez's attempt to punish the voters that attempted to remove him from office. We provide a back-of-the-envelope calculation that the aggregate TFP costs from the misallocation of workers across jobs can be substantial, on the order of 3.4 percent of GDP, though we need to know more about the job matching process to make more definitive statements. In addition, it is also possible that firms owned by Chavez opponents may have been disadvantaged, perhaps from having worse access to capital, higher taxes or from being expropriated, after the Chavez regime learned of their political affinities and

decided to carry out its threats to retaliate against its perceived opponents. We hope to make progress on these important questions in future work.

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Table 1: Voters Signing Anti-Chavez Petitions

	Any Petition	Petition 1 or 2 (only)	Petition 3 (only)	Petition 1 or 2 AND Petition 3
<u>Petition Data</u>				
Number of signers	4,736,285	1,393,672	1,081,736	2,122,969
% of registered voters	29.1	8.6	6.7	13.1
<u>Household Survey</u>				
% of potential voters	33.7	10.5	7.7	15.4

Note: Potential voters in household survey defined as individuals more than 18 years old.

Table 2: Characteristics of Chavez Opponents, Household surveys 1997-2002

	Opposition and Non-Signers, Mean (s.d.)	Opposition – Non-Signers, Difference (s.e.)	Maisanta – Non-Signers, Difference (s.e.)
Log Labor Income (2000 Bolivares)	7.431 (0.791)	0.095 (0.009)	0.098 (0.015)
Employed (x 100)	91.5 (27.9)	-0.53 (0.27)	-0.59 (0.31)
<u>Employed (x 100) in:</u>			
Private Formal	39.3 (48.8)	1.15 (0.60)	0.40 (0.69)
Public	17.1 (37.6)	2.27 (0.55)	2.11 (0.63)
Informal	43.6 (49.6)	-3.43 (0.63)	-2.51 (0.72)
Age	36.6 (12.2)	1.27 (0.16)	2.46 (0.19)
Years of Schooling	8.29 (3.93)	0.78 (0.05)	0.74 (0.62)
Female	0.37 (0.48)	0.06 (0.01)	0.07 (0.01)
Lives in Caracas	0.14 (0.35)	0.04 (0.00)	0.05 (0.01)

Note: Opposition is defined as signing at least one Anti-Chavez petition. Maisanta is defined as signing the third petition. Bold denotes statistical significance at over 95% confidence. Sample restricted to individuals from 1997 through 2002, above age 18, and in the labor force. N=110,652.

Table 3: Employment of Chavez Opponents, Household surveys 1997-2006

	(1)	(2)	(3)	(4)
Chavez Opponent x 2005-2006	-1.46 (0.72)	-1.61 (0.72)	-1.55 (0.71)	-1.63 (0.70)
Chavez Opponent x 2003-2004	0.32 (0.40)	0.27 (0.40)	0.60 (0.40)	0.46 (0.39)
<u>Controls:</u>				
Demographics	NO	YES	YES	YES
Demographics x Time Trend	NO	NO	YES	YES
State	NO	NO	NO	YES

Notes: Dependent variable is indicator variable for being employed (x 100). Bold denotes statistical significance at over 95% confidence. Entries are coefficients of indicator variable for signing an Anti-Chavez petition interacted with an indicator for observations in 2003-2004 and 2005-2006. All regressions include indicator variables for year. Demographic controls are years of schooling, a quartic in age, sex, and a Caracas indicator. Demographic x Time trend controls are interactions of linear year trend with these demographic controls. State controls are indicator variables for state (24 states). All regressions also include an indicator variable for signing a pro-Chavez petition, and signing a pro-Chavez petition interacted with indicators for observations in 2003-2004 and 2005-2006. Sample are adults (between ages of 18 and 65) in labor force. N=217,031.

Table 4: Earnings of Chavez Opponents, Household surveys 1997-2006

	(1)	(2)	(3)	(4)
Chavez Opponent x 2005-2006	-5.04 (1.73)	-5.36 (1.49)	-5.63 (1.49)	-5.16 (1.48)
Chavez Opponent x 2003-2004	-0.33 (1.06)	-0.71 (0.92)	-0.90 (0.91)	-0.38 (0.91)
Controls:				
Demographics	NO	YES	YES	YES
Demographics x Time Trend	NO	NO	YES	YES
State	NO	NO	NO	YES

Notes: Dependent variable is log labor income (x 100). Bold denotes statistical significance at over 95% confidence. Entries are coefficients of indicator variable for signing an Anti-Chavez petition interacted with indicators for observations in 2003-2004 and 2005-2006. All regressions include indicator variables for year and for a Chavez opponent. Demographic controls are years of schooling, a quartic in age, sex, and a Caracas indicator. Demographic x Time trend controls are interactions of linear year trend with these demographic controls. State controls are indicator variables for state (24 states). All regressions also include an indicator variable for signing a pro-Chavez petition, and signing a pro-Chavez petition interacted with indicators for observations in 2003-2004 and 2005-2006. Sample are adults (between ages of 18 and 65) in labor force. N=200,016 (same as Table 3 but excluding those with zero reported earnings).

Table 5: Earnings of Chavez Opponents, Household surveys 1997-2006

	(1)	(2)
<u>Chavez Opponent x 2005-2006</u>		
Petition 1 or 2 (Only)	1.48 (2.09)	2.13 (2.50)
Petition 3	-9.31 (2.25)	
Petition 3 (Only)		-7.73 (3.15)
Petition 3 and Petition 1 or 2		-7.97 (2.44)
<u>Chavez Opponent x 2003-2004</u>		
Petition 1 or 2 (Only)	2.98 (1.29)	2.46 (1.57)
Petition 3	-2.97 (1.36)	
Petition 3 (Only)		-3.01 (1.92)
Petition 3 and Petition 1 or 2		0.34 (1.45)

Notes: Dependent variable is log labor income (x 100). Bold denotes statistical significance at over 95% confidence. Entries in column 1 are coefficients of indicator variable for only signing petitions 1 or 2 and for signing petition 3 interacted with dummies for observations in 2003-2004 and 2005-2006. Entries in column 2 are coefficients of indicator variables for only signing petitions 1 or 2, for only signing petition 3, and for signing petition 3 and either petitions 1 or 2, all interacted with indicators for observations in 2003-2004 and 2005-2006. All regressions include: year fixed effects; demographic controls, demographics x linear time trend controls, and state controls (as in Table 4 column 4). All regressions also include an indicator variable for signing a pro-Chavez petition, and signing a pro-Chavez petition interacted with indicators for observations in 2003-2004 and 2005-2006. N=200,016 (same as Table 4).

Table 6: Returns to Opposition Characteristics for Non-Signers

	(1)	(2)	(3)	(4)	(5)
Schooling attainment (1997-2002)	7.68				
	(0.13)				
Schooling x 2005-2006	-0.14				
	(0.25)				
Schooling x 2003-2004	0.68				
	(0.17)				
Opposition Occupations (1997-2002)		30.18	16.68		
		(1.05)	(1.01)		
Opp. Occupation x 2005-2006		-3.93	-1.31		
		(2.88)	(2.53)		
Opp. Occupation x 2003-2004		0.53	3.41		
		(1.45)	(1.25)		
Opposition Sectors (1997-2002)				29.95	17.09
				(1.03)	(0.94)
Opp. Sectors x 2005-2006				2.66	6.74
				(2.13)	(1.84)
Opp. Sectors x 2003-2004				11.57	12.21
				(1.41)	(1.22)
Controls:					
Demographics	YES	NO	YES	NO	YES

Notes: Sample restricted to individuals who did **not** sign any petitions, above age 18 with positive earnings (N=119,327). Dependent variable is log labor income (x 100). Bold denotes statistical significance at over 95% confidence. Entries are coefficients on Schooling, Opposition Occupation (indicator for occupations where the share of the opposition among all workers in that occupation is above the median share), Opposition Sector (indicator for sectors where the share of opposition among all workers in that sector is above the median share), and the three variables interacted with indicators for 2003-2004 and 2005-2006. All regressions also include year fixed effects. Demographic controls are a quartic in age, sex, and a Caracas indicator. All regressions also include an indicator variable for signing a pro-Chavez petition, and signing a pro-Chavez petition interacted with indicators for 2003-2004 and 2005-2006.

Table 7: Proximate Determinants of Opposition Earnings Loss

	Employment Type		Employment Sector		Occupation	
	Public	Informal	Earnings (avg. for non-signers)	Education (avg. for non-signers)	Earnings (avg. for non-signers)	Education (avg. for non-signers)
	(1)	(2)	(3)	(4)	(5)	(6)
Chavez Opponent	-0.96 (0.35)	-1.78 (0.44)	2.97 (0.27)	0.30 (0.02)	5.27 (0.35)	0.50 (0.02)
Chavez Opponent x 2005-2006	-1.67 (0.82)	2.81 (0.63)	-1.72 (0.64)	-0.08 (0.04)	-3.18 (0.65)	-0.27 (0.04)
Chavez Opponent x 2003-2004	-0.59 (0.48)	2.10 (0.59)	-0.58 (0.38)	-0.04 (0.02)	-0.36 (0.50)	-0.05 (0.03)

Notes: Dependent variables are indicator variable (x 100) for being employed in public sector (Column 1); indicator (x 100) for employment in informal sector (Column 2); log average wage (x 100) for non-signers in sector (Column 3); average years of schooling for non-signers in sector (Column 4); log average wage (x 100) among non-signers in occupation (Column 5) and; average years of schooling among non-signers in occupation (Column 6). Bold denotes statistical significance at over 95% confidence. Entries are coefficients on an indicator for signing an Anti-Chavez petition and interactions of the Anti-Chavez indicator with indicators for 2003-2004 and 2005-2006. All regressions also include indicator variables for year, for signing a pro-Chavez petition, and signing a pro-Chavez petition interacted with indicators for observations in 2003-2004 and 2005-2006. Sample is adults (between ages of 18 and 65) with non-zero labor income. N=200,016.

Figure 1: Employment and Wages of Chavez Opponents (relative to non-signers), Venezuela Household Surveys 1997-2006

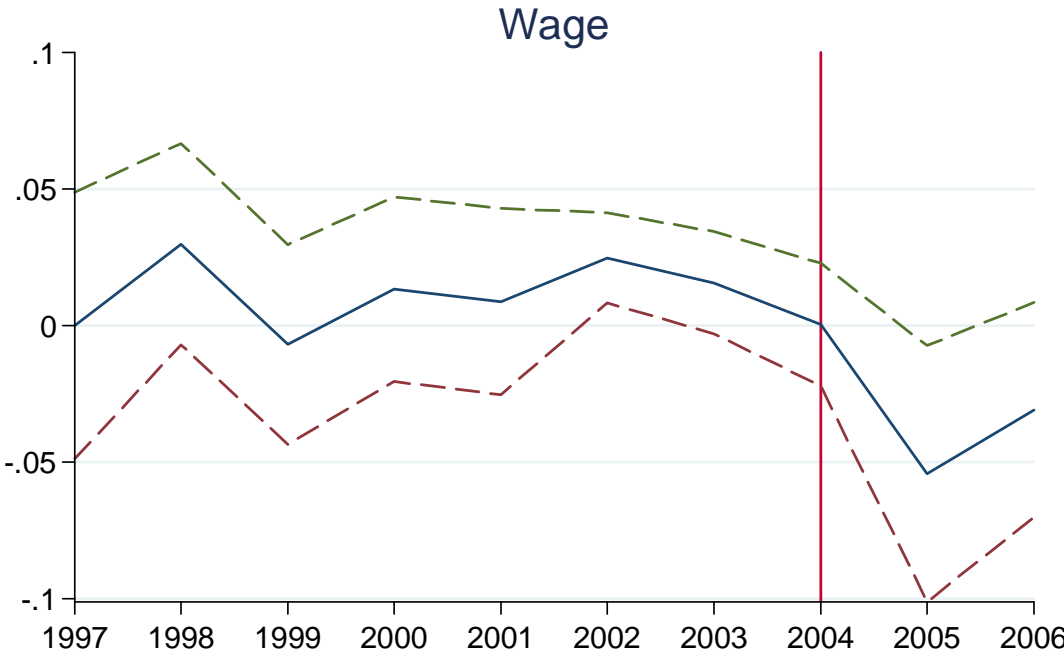
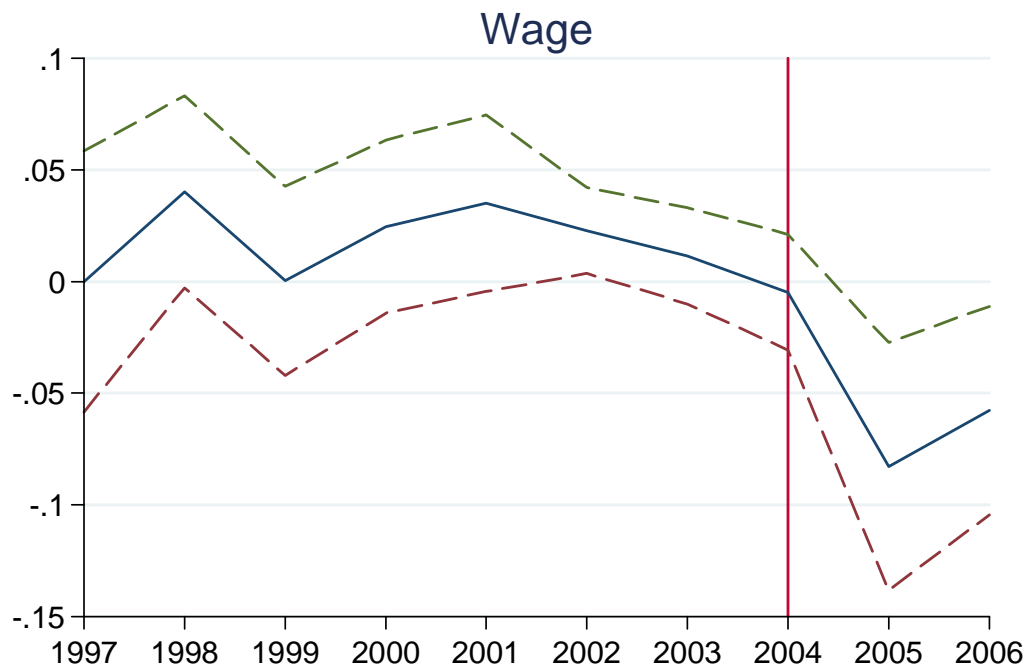


Figure 2: Employment and Wages of Third Petition Signers (relative to non-signers), Venezuela Household Surveys 1997-2006



Data Appendix

The Venezuelan Household Survey (VHS) has been conducted since 1967. Households are retained in the survey sample for six consecutive semesters in a rotating panel. An internal identifier (IDEX), using administrative information (state of residence, primary sampling unit, household number and person number) is fixed across survey waves, allowing us to sometimes match individuals over time. In 2001, the master sample, individual weights, and primary sampling unit codes were updated to reflect the geographical distribution of the population obtained in that year's Census, and this led to changes that unfortunately prevent us from linking households across the first and second semesters of 2001, disrupting the panel dimension of the data. From the end of 2001 onwards, we are again able to track some individuals across rounds (through 2006), although high rates of sample attrition again limits the usefulness of the panel dimension of the data in practice. The IDEX is unique for 97.2% of observations before 2001-1 and for 82.5% from 2001-2 onwards.

We obtained municipality and *parroquia* of residence codes for each survey round, and based on this information and individual gender and birth date, we construct a second identifier (IDSEX). There are 335 municipalities in Venezuela and 1084 *parroquias*; with a population of 27 million in 2006 (23 million in 1997), there are 24,936 people on average in each *parroquia* (though sizes vary significantly). The IDSEX identifier is unique for 97.5% of individuals before 2001-1 and 96.8% from 2001-2 onwards. There are 2,650,651 observations in all 19 waves of the VHS. IDSEX has some missing values in every semester due to missing birth date, gender, municipality or *parroquia* data. In the first semester of 1997, as well as from 2004-2 onwards, the birth date variable is not included in the publicly available dataset, so IDSEX is missing and individual identities must be recovered by first matching IDSEX to IDEX in a semester where we have both pieces of data, and then matching IDEX across survey rounds where possible. After dropping observations without unique IDSEX and IDEX values within a semester, and recovering 239,409 missing IDSEX observations using IDEX (as described above), we have a total of 1,828,826 survey observations, which we use to match to Maisanta.

Appendix table 1 describes the representativeness of our matched sample for the pre-*Maisanta* period of 1997-1 to 2002-2. While sometimes statistically significant, the differences between matched and unmatched individuals along socioeconomic and demographic dimensions are relatively minor. Matched individuals are somewhat less likely to be employed in the informal sector and are slightly older. (Appendix table 1 contains all adults, leading to lower employment rates than those found in Table 2, where the sample is restricted to adults in the labor force.)

Finally, we hired the polling firm *Datanalisis* to survey 1,248 households in February 2008 as a special module of their regular monthly public opinion survey. *Datanalisis* surveyed these households in 67 municipalities and 138 *parroquias* in 8 cities. House visits were made at times when it was more likely to find the head of household (weekends, evenings), but if not available, any adult over 17 was interviewed. If nobody was available at the time of the visit, the household was replaced by the next door neighbor.

Appendix Table 1: Representativeness of the Matched Household Survey–*Maisanta* sample

	Matched: Household survey to <i>Maisanta</i>	Unmatched: Household survey to <i>Maisanta</i>	Matched – Unmatched
	Mean (s.d.)	Mean (s.d.)	(s.e.)
Log Labor Income (2000 Bolivares)	1187 (1995)	1186 (2021)	1.2 (8.9)
Employed (x 100)	52.6	51.9	0.7 (0.2)
<u>Employed (x 100) in:</u>			
Private Formal	11.0	10.1	1.0 (0.1)
Public	11.6	9.2	2.4 (0.1)
Informal	22.7	25.7	-3.0 (0.1)
Age	1966.9	1965.5	1.4 (0.1)
Female	0.502	0.517	-0.014 (0.002)
Lives in Caracas	0.051	0.055	-0.035 (0.001)
Years of Schooling	8.2 (3.8)	7.8 (3.9)	0.37 (0.02)
Observations (households)	137,318	638,911	

Notes: The data is for years 1997 (first semester) – 2002 (second semester) from the household labor market survey. The household survey data was matched to *Maisanta* using individual gender, birth date, and parish (*parroquia*) of residence, and only unique matched retained. Bold denotes statistical significance at over 95% confidence.

Exhibit 1

RETIRA TU FIRMA

El 40 % de las firmas presentadas por la Coordinadora Antichavista fueron trampeadas o clonadas; dicho de otra manera, son **Firmas Chimbas**.

Utilizaron las cédulas de tus difuntos, la de los abstencionistas crónicos, de los ancianos y a lo mejor la tuya también, pretendiendo sacar al presidente fraudulentamente. Los golpistas enloquecidos y obsesionados quieren robarte la paz, quitarte las misiones y matarte de hambre.

Si tu cédula, la de un amigo o la de un familiar fue utilizada: **DEBES RETIRARLA**
Si firmaste presionado o estás arrepentido: **RETIRA TU FIRMA**.

**Búscate en los listados de los centros de votación o la página web www.cne.gov.ve.
Si no puedes por estos medios, comunícate con el PPT a través de los números:
0212-577.45.45, 578.02.12, 578.15.46 y 414.10.95, disponibles las 24 horas del día.**



RETIRA TU FIRMA
DEFIENDE LA DEMOCRACIA

Militantes de la Unidad

www.ppt.org.ve

Exhibit 2



Exhibit 3

Santa Inés (Rev.06/07/2004) R.E.P. (Marzo-2004) ? X

 Leeme Registros: 12,394,109

Ingrese su Número de Cédula: **SI FIRMO CONTRA EL PRESIDENTE (VALIDA)** Fecha Nac:

Apellidos y Nombre:

Dirección:

Centro Votación:

Dirección:

Región:

Fallecido:

Abstencionista:

Misión RIBAS :

Vuelvan Caras :