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GOVERNMENT PARDONS AND TAX COMPLIANCE: THE IMPORTANCE OF WEALTH AND ACCESS TO PUBLIC GOODS*

Maximiliano Lauletta**
Felipe Montaño Campos†***

ABSTRACT

We estimate the differential effect of a tax amnesty on tax compliance across two dimensions of heterogeneity: wealth and access to public goods. Using a five-year panel from tax payers in Argentina, we use a difference-in-differences approach and show that the amnesty induced a significant differential decrease in tax compliance for wealthier tax payers and those with low access to public goods. We further show that the amnesty differentially increased the probability of having at least one unpaid month for wealthier taxpayers and those with low access to public goods. Our findings provide a possible explanation for the ambiguity in previous estimates of the effects of the tax amnesties by indicating the importance of population heterogeneity on responses to tax amnesties. Moreover, our findings bear an important policy implication: heterogeneous responses should be taken into account when performing the cost-benefit analysis of undertaking a tax amnesty, since tax compliance is sensitive to the composition of the population regarding wealth and access to public goods.

Keywords: *Tax Amnesty, Tax Compliance, Effects of Tax Amnesties*

RESUMEN

Estimamos el efecto diferencial de una moratoria sobre el cumplimiento tributario en dos dimensiones de heterogeneidad: riqueza y acceso a bienes públicos. Usando un panel de cinco años de contribuyentes en Argentina, utilizamos un enfoque de diferencia en diferencias y mostramos que la moratoria indujo una disminución diferencial significativa en el cumplimiento tributario para los contribuyentes más ricos y aquellos con bajo acceso a bienes públicos. Además, demostramos que la

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*** Universidad de San Andrés*
†Corresponding author: jmontanocampos@udesa.edu.ar. Universidad de San Andres, Vito Dumas 284, B1644BID, Victoria, Buenos Aires, Argentina.
**** Universidad de San Andrés*
JEL Classification Codes: H21, H23, H26

amnistía aumentó diferencialmente la probabilidad de tener al menos un mes sin pagar para los contribuyentes más ricos y aquellos con bajo acceso a bienes públicos. Nuestros resultados proporcionan una posible explicación de la ambigüedad en las estimaciones previas de los efectos de las amnistías fiscales al indicar la importancia de la heterogeneidad de la población en las respuestas a las amnistías fiscales. Además, nuestros hallazgos tienen una importante implicación política: las respuestas heterogéneas deben tenerse en cuenta al realizar el análisis de costo-beneficio de emprender una moratoria, ya que el cumplimiento tributario es sensible a la composición de la población en relación con la riqueza y el acceso a bienes públicos.

Palabras Clave: Moratorias, Cumplimiento Tributario, Efectos de las moratorias

I. Introduction

Tax amnesties are a common instrument used by numerous governments to increase tax revenue in the short term.[1] Nevertheless, there is an unsettled debate as to whether the benefits of the short term increase in tax revenue outweigh the possible negative effects of tax amnesties (Marchese, 2014; Nar, 2015; Dunning et al., 2015), with empirical evidence revealing ambiguous results (Torgler et al., 2003). Previous studies, however, did not account for the possibility of heterogeneous effects of tax amnesties on tax compliance. In this paper, we estimate the differential effect of a tax amnesty on tax compliance across two dimensions of heterogeneity: access to public goods and wealth. We find that the reduction in tax compliance is stronger for wealthier taxpayers and those with lower access to public goods, indicating that tax amnesties have differential effects on tax compliance.

The literature identifies several advantages and disadvantages of tax amnesties. The key advantage is the short term increase in tax revenue, while other advantages include—but are not limited to—reducing administrative costs, offering a "soft option" for those who became tax evaders by mistake, getting some tax evaders back on compliance, and signalling that the tax problem will be tackled by the government. The disadvantages include lowering tax compliance morale, signalling a weak government, increasing awareness of non-compliance, reducing moral costs of behaving dishonestly, and potentially reducing future compliance by creating anticipation of future tax amnesties (Leonard and Zeckhauser, 1987). Whether the advantages of tax amnesties outweigh the disadvantages is an unsettled debate that has warranted a substantial amount of research to this day.

Previous empirical evidence regarding the effect of tax amnesties on tax revenue reveals ambiguous results, with some studies indicating increases in tax revenue (Alm and Beck, 1991; Das-Gupta and Mookherjee, 1995), others indicating negligible or null effects (Alm and Beck, 1993; Christian et al., 2002), and others indicating reductions in tax collection (Alm et al., 1990). Most of the previous literature relies on the use of time series aggregate data analysis and the effects of tax amnesties in developing countries have sel-

1 See, for example, Torgler et al. (2003) for a recounting of tax amnesties undertaken by various governments across the World.

dom been studied (Torgler et al., 2003). Moreover, these previous studies did not address the possibility of heterogeneous effects of tax amnesties on tax compliance, which might explain some differences in the estimated effects of tax amnesties on posterior revenue.

Tax amnesties are not the only measure implemented by governments looking to increase tax revenue. Argentina and Uruguay have raffled prizes to compliant taxpayers in order to boost tax compliance using positive incentives (Chelala and Giarrizzo, 2014). Sending messages to tax payers was also explored in recent literature: a field experiment conducted in the municipality of Junin found that messages emphasizing fines and other legal consequences of non-payment increased tax compliance in 4 percentage points (Castro and Scartascini, 2015). Finally, a field experiment in the United States found that shaming penalties has a large effect on repayment of smaller debt amounts, but no effect on larger debt amounts (Perez-Truglia and Troiano, 2015). Despite these alternative policies, the most prominent measure to increase tax revenue in the short term are tax amnesties (Bergman, 2003).[2]

In this paper, using a five-year panel from taxpayers in Argentina, we estimate the differential effect of a tax amnesty on a property based tax on tax compliance across two dimensions of heterogeneity: access to public goods and wealth. On one hand, we capture wealth with a proxy variable constructed as the ratio of property valuation to the property area (i.e. the valuation of a squared meter of the property).[3] On the other hand, we capture differential access to public goods through a variable that indicates whether a tax payer is located at a gated community or not, since gated communities do not receive some public services (e.g. garbage collection and street cleaning). We measure tax compliance as the ratio of the yearly amount paid to the total amount of tax liabilities for the same year (Payment-ratio). Our main result is that the tax amnesty induced a greater decrease in tax compliance across both dimensions of heterogeneity: wealthier taxpayers and those located at gated communities showed a stronger de-

2 Tax amnesties are considered temporary periods during which voluntary payments associated with confessed tax evasion are received by the municipality with reduced penalty.
3 Our results are robust to using the total value of the property as proxy for wealth.

cline in tax compliance after the amnesty. In particular, an increase of one standard deviation on the value of a squared meter implies a 1.04 percentage points differential reduction on tax compliance, while taxpayers located at gated communities show a 4.01 percentage points differential decrease in tax compliance.

To further argue our results, we group another set of monthly data into two periods (pre- and post-amnesty) and estimate the differential effect of the tax amnesty on the probability of having at least one unpaid month of tax across both of our dimensions of heterogeneity. Results from this exercise yield a similar finding: wealthier taxpayers and those located at gated communities show a differential increase in the probability of having at least one unpaid month. In particular, an increase in one standard deviation in the value of a squared meter implies an 11.3% stronger increase in the probability of having at least one unpaid month, while tax payers located at gated communities show an increase 25% higher in the probability of having at least one un paid month.

Our results indicate important heterogeneous effects of tax amnesties across both of our dimensions of heterogeneity (access to public goods and wealth). These findings might explain some ambiguity on previous estimates of the effects of tax amnesties by indicating that heterogeneity of taxpayers induces differential responses in tax compliance. Furthermore, our findings also bear an important policy implication: heterogeneous effects on tax compliance should be taken into account when performing the cost benefit analysis of undertaking a tax amnesty, since future tax compliance is sensitive to the composition of the population regarding wealth and access to public goods.

The rest of the paper is structured as follows. Section 2 describes the tax amnesty we study. Section 3 describes the data. Section 4 presents the empirical strategy and results. Section 5 presents some robustness checks. Section 6 concludes.

II. The Natural Experiment

The property-based tax in Pilar is computed by taking into account the property linear frontage extent (meters), the property valuation and, main-

ly, the amount of indirect and direct services received by the property from the municipality. The tax name is *Tributo de Mantenimiento de la Via Publica y Servicios Generales* (property-based tax, PBT henceforth) and property owners are billed every month.[4]

Even though the tax frequency payment is monthly, the municipality allows taxpayers to pay a yearly basis with various discounts according to the months paid in advance.[5] Nevertheless, less than 10% of taxpayers incur in this payment method. Also, all individuals who do not have any debt on the PBT, get a 10% discount on it. Tax payers have approximately 10 days to pay from the moment they receive the bill to the first due date.[6] In case of payment delays, a cumulative compound monthly interest rate of 3% is applied to the outstanding liabilities. Most of all tax payers pay their duties personally at the municipality or through other private offices (e.g. banks and private tax collection agencies) instead of using automatic payment methods.[7] At the same time war veterans, religious institutions, volunteer firemen, and social security recipients (retirees) receiving the minimum pension are exempted from the tax.

Pilar is a municipality in the Province of Buenos Aires and is 35 miles away from Autonomous City of Buenos Aires (Capital City of Argentina). The municipality is known as one of the richest in the country since the 30% of its properties belong to luxurious gated communities (62 in total, see Figure 1). The average income in Pilar is much higher than the average in the country (AR$13,520 vs AR$9,825)[8] and, according to the last 2010 Argentine census, it is also the 9th most populated city in the Province of Buenos Aires.[9] Pilar is divided into 11 districts (Figure 2). Districts are large and tax compliance, public services' provision, as well as the property built area and the property valuation vary across districts as a reflection of heterogeneous characteristics of the underlying taxpayer population. Over the last

4 Even though the property tax is paid monthly. The municipality sends bills to tax payers bimonthly (i.e. bills sent in January correspond to January and February).

5 A 15% discount if the twelve months are paid, 10% if ten and, 5% if eight.

6 Tax payers also have ten days from the first due date to the second due date.

7 Less than 5% of tax payers are sub-scripted to automatic payment methods (e.g. direct debit from credit card).

8 Data from 2003 (World Bank and http://observatorioconurbano.ungs.edu.ar/).

9 A total population of 226,517 People according to the 2010 Argentine Census.

years in Pilar the PBT revenue has decreased as in many other municipalities in Argentina.

Pilar is not an exception to the downward trend in tax collection accompanied with measures to increase revenue. In 2014, the municipality carried out a tax amnesty in order to revert the shortfall in public revenues in recent years. The tax amnesty initially was supposed to last three months (July, August and September) but was extended during the rest of the year (October, November and December). The policy consisted in a reduction of the surcharge fees of PBT debt, depending in the payment plan incurred by the taxpayer. There were three payment plans. The first plan offered a 100% reduction in penalty fees if the debt was paid entirely within one to three monthly payments. The second payment plan was a 50% reduction if the total payment was done within two to six monthly payments. And, the third payment plan was a 20% discount if paid within seven to twelve monthly payments. It is worth noting that the incentives to incur in the first payment plan are stronger (total penalty forgiven), since the main reason to carry out a tax amnesty in municipalities like

Pilar that have income problems, is to increase short-term revenue.[10]

The tax amnesty was widely announced to the population through a publicity campaign in local newspapers and radios. Also, public spaces were used as platforms to inform the population (through signs, information campaigns, and pamphlets), and stands were set in strategic points of the city and business centers where tax payers could consult their debt and simulate the amount of monthly fees according to different payment plans. Any person[11] could participate in the tax amnesty without the need to get a lawyer or an accountant. The only requirement was to approach the municipality and sign the agreement.

III. Data

Exploiting the natural experiment of tax amnesties, we aim to identify its differential impact on tax compliance across two dimensions of heterogeneity: access to public goods and wealth. To answer this question we use a

10 For further discussion whether tax amnesties increase tax revenue in the long-term see Stella (1991).
11 Even people that are not related to the Partida.

data set on tax compliance provided by the Municipality of Pilar. The data set has information about all *Partidas* in the municipality from 2012 to 2016 (about 700 thousand observations).

Each property in Pilar has a unique identification number called *Partida*. The holder of the *Partida* is the property-owner and is not necessarily the one who pays the PBT. As in most cases, if not all, we assume that the individual who pays for the tax associated to a property's *Partida* is the one who lives in the property (tenant, owner, householder, etc).[12]

Our unit of observation is the number of *Partida* associated to individual tax payers.[13] We excluded private companies (e.g. local industry and retailers) and social organizations from the sample since payment decision for those taxpayers do not take into account the public services received by the property or any other issue related to it, so including those tax payers could bias the results.

The name of the holder of the *Partida* and the individual who pays the tax associated to the *Partida* was not provided for confidentiality reasons. Nevertheless, since the instrument exploited for identification only varies at the *Partida* level, this is not a nuisance for our econometric analysis. For each *Partida*, we collected administrative information on tax lia- bilities, tax arrears, property valuation, property area and property built-up area, *Partidas*' category, use of the property, neighborhood identification, and access type to the property (i.e street, avenue, or highway). Particularly, from 2012 to June 2016[14] we have the yearly amount of tax liability for each *Partida* and the total amount paid corresponding to it. For 2014 and thereafter, for those months where the PBT was paid, we have a variable that identifies the exact date on which the payment was made. This variable allows us to identify which months were paid and which were not for each *Partida* in this period.

The *Partida*' category refers to the amount of public services received by the property. Among public services there are two kinds: direct ones (e.g.

12 This clarification is important since not all Partida's holders are tax payers. We consider tax payers the ones who pay for the tax associated to the property they live in.

13 Taxpayers considered as physical heads of household or physical persons who have responsibility for paying the PBT.

14 Since this data is yearly, 2016 corresponds for the total tax liabilities amount until June.

garbage collection and street cleaning services) and indirect ones (e.g. maintenance of public spaces and recreational and leisure activities).[15] Properties classified as category 1 receive all indirect and direct services; properties classified as category 2 receive all indirect services and only 3 (out of 4) direct services and; properties classified as category 3 receive all indirect services and only 2 (out of 4) direct services. Properties in gated communities in Pilar are considered as category 3 since they are private neighborhoods that do not receive some public services. Finally, the use of each property is a variable that identifies the principal or representative use of the property (e.g. uni-familiar house, sumptuous house, hospital, hotel, etc).

For each *Partida* we calculated the yearly Payment-ratio as the ratio of the amount paid over total tax liability billed. This is our main outcome since it represents how tax compliance behaviour varies through the years. This ratio allows us to study how tax amnesties affect tax compliance behaviour across two dimensions of heterogeneity: access to public goods and wealth. The level of public goods provision is captured by a dummy variable that indicates whether the individual is located at a gated community (since gated communities receive less public services) and as a proxy of income we calculated the valuation per square meter of each *Partida* (as the ratio between valuation and property area). Finally, we also analyze how the probability of having at least one unpaid month is affected by the tax amnesty. In this sense, we collapse our data into two periods (pre- and post- amnesty) and create a dummy variable equals 1 if the tax payer had at least one month unpaid, and 0 otherwise.

By June 2016, there were 149.470 Partidas in the municipality. During 2012 and 2016, the average taxpayer in Pilar pays AR$81 every month (62% of the average billed amount) and, only the 24% of the taxpayers pay the PBT in term. The average payment rate is 46.7%, similar to the average in most municipalities in the Province of Buenos Aires. Finally, the average property valuation is 298,514 and, the average property area and property built up area is 2,285 and 75 squared meter correspondingly (For descriptive statistics see table1).

15 For further information see Ordenanza Fiscal y Ordenanza Tarifaria (2016), Municipalidad de pilar

IV. Empirical Strategy and Results

Our purpose is to estimate the differential impact of the tax amnesty on tax compliance across two dimensions of heterogeneity: access to public goods (captured by living in a gated community) and a proxy for wealth (constructed as the value of a squared meter of the property). We measure tax compliance as the ratio of the yearly amount paid to the total amount of tax liabilities for the same year (Payment-ratio). Formally, we estimate the following regression model:

$$Y_{it} = \alpha_i + \beta I_{it} + \mu_t + \varepsilon_{it} \qquad (1)$$

$$Y_{it} = \alpha_i + \beta(Amnesty_t * H_i) + \mu_t + \varepsilon_{it}$$

where Y_{it} denotes the Payment-ratio of *Partida i* at time *t*, α_i is the *Partida* fixed effect, μ_t is a time period fixed effect common to all *Partidas*, and ε_{it} is the usual error term. The variable I_{it} has both time and cross-sectional variability. The time variability is captured by a dummy variable that takes the value of one from the year 2014 onwards ($Amnesty_t$). The cross-sectional variability is captured by any of our two dimensions of heterogeneity (H_i): access to public goods (captured with a dummy variable $Gated - Community_i$ that takes the value of one if *Partida i* is located at a gated community) and property valuation (measured as the value of a squared meter of property). The parameter of interest is β, which captures the differential effect of the tax amnesty on tax compliance across each of our dimensions of heterogeneity.

The difference-in-differences model assumes that the change in the Payment-ratio in those taxpayers that receive more public services is an unbiased estimate of the counter-factual. While we cannot directly test this assumption, we can test whether time trends in the two groups of taxpayers were the same in the pre-tax amnesty period in our full sample. If time trends are the same in the pre-tax amnesty period, then it is likely that they would have been the same in the post- tax amnesty period in the absence of the tax amnesty. To test the hypothesis that the pre-tax amnesty time trends are not different in the two groups, we estimate a model like the one in (1) using pre-tax amnesty data for all the tax payers in the sample, but we replace the Tax Amnesty interaction with a linear trend

and an interaction term between the linear trend and the *Gated − Community* dummy. Column (1) in Table 2 shows that the interaction term is not significant, thus validating our difference-in- differences identification strategy. Column (2) reports the estimates of the same regression but interacting the time trend with the valuation of a squared meter. Again, we find that the interaction term is not statistically significant.

The usual assumption in econometrics is that observations are independent. In our particular case, however, there might be potential correlation between observations for the same *Partida*. Thus, in every regression we cluster standard errors at the *Partida* level. Results are robust to clustering standard errors at the neighborhood level or the zone level.

Table 3 reports Ordinary Least Squares (OLS) estimates of Equation (1). Column (1) reports the estimate of the differential effect of the tax amnesty for *Partidas* located in gated communities. The estimated coefficient indicates that the tax amnesty reduced the Payment- ratio of *Partidas* in gated communities by 4.01 percentage points relative to those *Partidas* outside gated communities. The effect is statistically significant at the one percent level. Column (2) reports the estimate of the differential effect of the tax amnesty with regard to the property valuation. Since the *V aluation* variable is normalized by its standard deviation, the estimated coefficient indicates that an increase of one standard deviation in the value of a squared meter is associated to a reduction of 1.03 percentage points in the Payment- ratio. This effect is, too, statistically significant at the one percent level. Finally, Column (3) reports the estimates of including interaction terms for both dimensions of heterogeneity. Estimates are lower in magnitude but otherwise results remain virtually unchanged: the tax amnesty differentially reduced the Payment-ratio for gated communities in 3.65 percentage points, while an increase of one standard deviation in the value of a squared meter differ- entially reduces the Payment-ratio post-amnesty in 0.7 percentage points. Both coefficients are statistically significant at the one percent level. These results indicate important het- erogeneous effects of tax amnesties on tax compliance: i) agents who perceive less benefits from public goods differentially reduce their Payment-ratio following the tax amnesty, and

ii) wealthier agents also differentially decrease their Payment-ratio after the tax amnesty.

To further argue our results, we exploit our monthly data on whether each *Partida* paid its PBT on each month. We collapse our data into two periods: pre- and post-amnesty. We then create a dummy variable that takes the value of one if *Partida i* has so far not paid at least one month of its corresponding PBT and zero otherwise. We then estimate Equation

(1) as a linear probability model to estimate the differential effect of the tax amnesty on the probability of having at least one unpaid month of PBT across our two dimensions of heterogeneity. Table 4 reports OLS estimates of this exercise. Column (1) shows that the probability of having at least one unpaid month increases in 12.06 percentage points in the post-amnesty period, and the effect is 2.92 percentage points greater for *Partidas* in gated communities. This result is statistically significant at the 1 percent level and implies a differential effect almost 25% greater for *Partidas* in gated communities. Column (2) reports the differential effect of the tax amnesty with regard to our proxy for wealth, the property valuation. The estimate indicates that a one standard deviation increase in the value of a squared meter increases the probability of having at least one unpaid month in 1.38 percentage points, and this is statistically significant at the 5% level. Finally, Column (3) includes interactions for both dimensions of heterogeneity. As before, estimates are lower in magnitude but otherwise results remain virtually unchanged: the tax amnesty differentially increased the probability of having at least one unpaid month in gated communities by 2.37 percentage points, and an increase in one standard deviation in the squared meter value of the property increases the probability in 1.21 percentage points. The estimates for gated communities and valuation interactions are significant at the one and five percent level, respectively. These results provide further evidence in favor of the differential effect of tax amnesties on tax compliance across wealth and access to public goods.

V. Robustness Checks

To argue that our findings are driven by the tax amnesty of 2014, and serving as another traditional way to address the possibility of differential pre-

treatment trends, we propose the following specification (see Perez-Truglia, 2015):

$$Y_{it} = \alpha_i + \beta\left(Amnesty_t^{14-16} * H_i\right) + \gamma(Amnesty_t^{13} * H_i) + \mu_t + \varepsilon_{it} \qquad (2)$$

where $Amnesty_t^{13}$ is a "fake" treatment indicator that occurs just before the actual tax amnesty (i.e. a dummy variable that equals 1 in the year 2013 and 0 otherwise). If the Payment-ratio changed sharply in 2014, we should expect $\beta>0$ and $\gamma=0$ (the false interaction). The results are shown in Table 5. Column (1) reports the estimates considering the first dimension of heterogeneity $Gated-Community$ and, as expected, β is positive and statistically significant while $\gamma=0$. Column (2) reports the estimates of the same regression but considering the second dimension of heterogeneity (valuation of a squared meter), the results are the same as before.

Our main results suggest that tax amnesties reduce tax compliance for wealthier taxpayers and those with low access to public services. To further address the validity of these results, we use a monthly dataset available for a subset of the observations and we re-estimate equation (1). For January 2014 to December 2015, we have the monthly amount of tax liability and the total amount paid corresponding to each month for a subset of the sample. These two variables enable us to calculate the Payment-ratio as the ratio of the amount paid over total tax liability billed. As before, the time variability is captured by a dummy variable that takes the value of 1 from July 2014 onwards ($Amnesty_t$) and, the cross-sectional variability is captured by each dimension of heterogeneity (access to public goods and property valuation). We perform the same analysis as in section 4 by estimating equation (1) using our monthly data available for a subset of the observations. First, we test the common trend assumption. As shown in Table 6, the interaction terms for the time trend with both dimensions of heterogeneity are not statistically significant. Table 7 reports OLS estimates of Equation (1) using monthly data. Column (1) reports the estimate of the monthly differential effect of the tax amnesty for *Partidas* located in gated communities. The tax amnesty differentially reduced the payment ratio in 0.44 for *Partidas* in gated communities. Column (2) reports the differential effect of the tax amnesty with regard to our proxy for wealth, the valuation

of a squared meter of property. The estimated coefficient indicates that an increase of one standard deviation in the value of a squared meter implies a differential decrease of 0.15 percentage points in the payment ratio, and the effect is statistically significant at the 10% level. Finally, Column (3) includes interactions for both dimension of heterogeneity. As before, estimates are lower in magnitude but results remain virtually unchanged. Together, these results offer further evidence of the differential effect of tax amnesties on tax compliance across wealth and access to public goods.

Lastly, to argue that the estimates are driven driven by the tax amnesty (and serving as an additional way to address the possibility of differential pre-treatment trends), we generate a "fake" treatment indicator that occurs just before the actual tax amnesty (i.e. a dummy variable that equals 1 in the two months prior the amnesty and 0 otherwise). Table 8 report the estimates of this exercises. As shown in Column (2), the false interaction is not statistically significant, suggesting that results are in fact driven by the amnesty.

VI. Conclusion

In this paper we estimated the differential effect of tax amnesties on tax compliance across two dimensions of heterogeneity: access to public goods (captured by being located at a gated community) and wealth (captured by the value of a squared meter of property). Our main result is that the tax amnesty induced a differential decrease in tax compliance on wealthier taxpayers and those who have lower access to public goods. We also find that the tax amnesty induced a differential increase in the probability of not paying at least one month for wealthier taxpayers and those located at gated communities.

Our results might explain some ambiguity on previous evidence of the effects of tax amnesties by indicating that heterogeneity of taxpayers induces differential responses on tax compliance. Our findings also bear an important policy implication: heterogeneous effects on tax compliance need to be taken into account when performing the cost-benefit analysis of undertaking a tax amnesty, since posterior tax compliance is sensitive to the composition of the population regarding wealth and access to public goods.

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Appendix A
Tables

Table 1: Summary Statistics

VARIABLES	Mean	SD	Min	Max
Valuation	298,514.9	2,334,007	0	4.41e+08
Property Area	2,285	25,468	0	2,433,170
Property Built-up Area	76	795.69	0	80,317.26
Billed (Yearly)	1560	130.53	0	291,106
Paid (Yearly)	972	80.73	0	240,959

Notes: Valuation refers to the property value in AR$; Property area and prop- erty built-up are in square meter; the billed and paid amount are measured in AR$

Table 2: Pre-treatment trends

	(1)	(2)
Time	-0.0462***	-0.0449***
	(0.0105)	(0.0091)
Gated-community*time	0,0096	-
	(0.0105)	-
StdValutaion*time	-	0,0017
	-	(0.0024)
Constant	89.9616***	89.9535***
	(17.1381)	(17.1321)
Observations	274.231	274.139
Number of id	137.473	137.427

*Notes: Standard errors clustered at the person level are shown in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.*

Table 3: Differential impact of the tax amnesty on payment compliance

	(1)	(2)	(3)
Amnesty	-0.0568***	-0.0614***	-0.0554***
	(0.00129)	(0.00131)	(0.00149)
Gated-community*Amnesty	-0.0401***	-	-0.0365***
	(0.00542)	-	(0.00525)
StdValuation*Amnesty	-	-0.0104***	-0.0077***
	-	(0.00396)	(0.00298)
Observations	693.656	693.238	693.238
Number of id	140.652	140.418	140.418

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

Table 4: Differential impact of the tax amnesty on the probability of being at least one payment behind schedule

	(1)	(2)	(3)
Amnesty	0.1206***	0.1221***	0.1181***
	(0.001)	(0.0018)	(0.0014)
Gated-community*Amnesty	0.0292***	-	0.0237***
	(0.0024)	-	(0.0034)
StdValuation*Amnesty	-	0.0138**	0.0121**
	-	(0.0056)	(0.0052)
Constant	0.5309***	0.5309***	0.5309***
	(0.0004)	(0.0004)	(0.0004)
Observations	284.852	284.760	284.760
Number of id	142.426	142.380	142.380

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

Table 5: Falsification Test

	(1)	(2)
Amnesty	-0.0577***	-0.0617***
	(0.0009)	(0.0012)
Interaction	-0.0354***	-0.0095***
	(0.0018)	(0.0035)
False Interaction	0,0095	0,0017
	(0.0105)	(0.0023)
Constant	0.5761***	0.5761***
	(0.0018)	(0.0018)
Observations	693.656	693.238
Number of id	140.652	140.418

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

Table 6: Robustness Check: Pre- treatment trends

	(1)	(2)
Time	-0.0007***	-0.0008***
	(0.0002)	(0.0002)
Gated-community*time	-0,0003	-
	(0.0006)	-
StdValutaion*time	-	0,0000
	-	(0.0001)
Constant	0.5155***	0.5154***
	(0.0007)	(0.0007)
Observations	963.662	963.340
Number of id	137.774	137.728

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

Table 7: Robustness Check: Monthly Payment-ratio

	(1)	(2)	(3)
Amnesty	-0.0038***	-0.0042***	-0.0036***
	(0.0013)	(0.0013)	(0.0013)
Gated-Community*Amnesty	-0.0044***	–	-0.0039**
	(0.0017)	–	(0.0017)
StdValuation*Amnesty	–	-0.0015*	-0.0012*
	–	(0.0008)	(0.0007)
Constant	0.5148***	0.5147***	0.5147***
	(0.0011)	(0.0011)	(0.0011)
Observations	3,325,246	3,324,142	3,324,142
Number of id	140,247	140,201	140,201

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

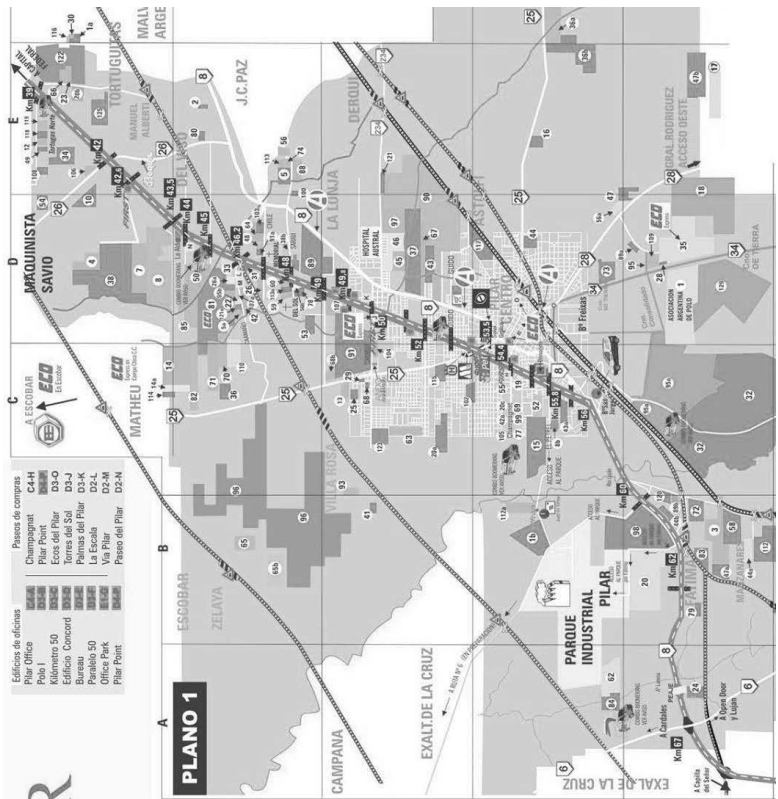
Table 8: Robustness Check: Falsification Test

	(1)	(2)
Amnesty	-0.0087***	-0.0091***
	(0.0012)	(0.0013)
Interaction	-0.0046**	-0.0015*
	(0.002}	(0.0008)
False Interaction	-0,0008	-0,0002
	(0.0015)	(0.0003)
Constant	0.5148***	0.5147***
	(0.0011)	(0.0011)
Observations	3.325.246	3.324.142
Number of id	140.247	140.201

*Notes: Standard errors clustered at the person level in parentheses. All models are estimated by OLS. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level*

B. Figures

Figure 1: Countries in Municipality of Pilar



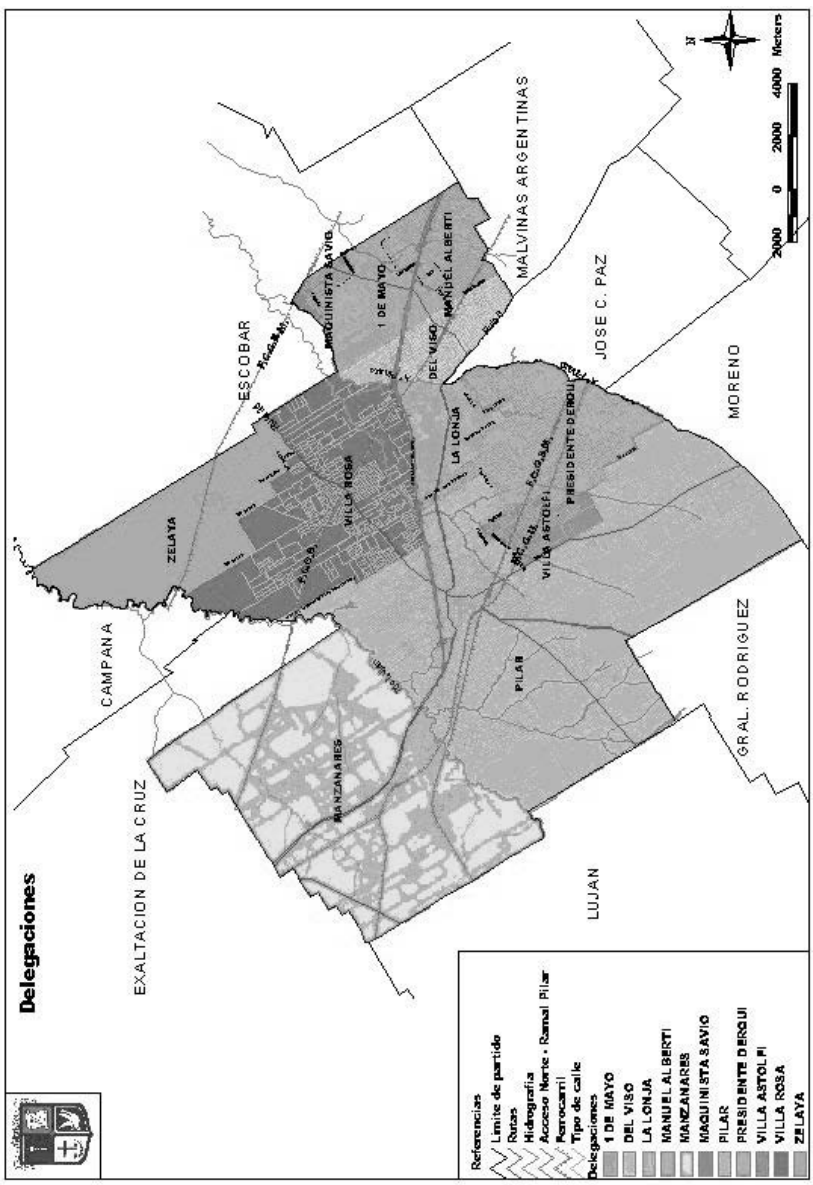


Figure 2: Districts of Municipality of Pilar