

2016

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Recommended Citation

Schiaffino, Pablo; Marcos, Sora; and Tetaz, Martín (2016) "Understanding the Aggregate Effects of Criminal Prevention Policy: The Role of Relative Safety in Argentina," *The Latin American and Iberian Journal of Law and Economics*: Vol. 2 : Iss. 2 , Article 2.
Available at: <http://laijle.alacde.org/journal/vol2/iss2/2>

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Understanding the Aggregate Effects of Criminal Prevention Policy: The Role of Relative Safety in Argentina

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Abstract: Criminal prevention policies necessarily affect safety in all neighborhoods at the same time, given the existing spillovers these policies entail. Thus they affect not only absolute but also relative safety in each neighborhood. This analysis studies how the perceived relative safety of one's own neighborhood affects neighborhood satisfaction, which is one of the determinants of life satisfaction, and finds there is a diminishing marginal utility of relative safety.

Keywords: neighborhood satisfaction, victimization, perceived crime, life satisfaction, diminishing marginal utility of relative safety.

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I. INTRODUCTION

In the last couple of decades, researchers have been studying life satisfaction and its determinants in several domains. It comes to our attention that one of these domains is neighborhood (or residence) satisfaction (Sirgy, 2012). In this paper, we study the relation between neighborhood satisfaction and subjective perception of crime within the neighborhood. We tailored a special survey executed in Argentina (2014) in collaboration with TNS-Gallup using a total sample of (N=1010) under 26 counties which represents the major part of the territory. Plain vanilla variables like “victimization” were included, but also questions related to subjective perceived safety. Our contribution concludes that subjective perceptions of town-safety do affect neighborhood satisfaction, but it does with diminish marginal returns over neighborhood-utility. This means that, for a representative agent, security consumption (feeling safer) has diminishing marginal returns, like in the typical Jevonian consumption microeconomic exercise. Likewise, the neighborhood satisfaction function is concave through the subjective perceived safety.

This analysis shows that the value function is reference dependent, being steeper for losses than for gains. The result has important implications for the administration of security, because investments in one quarter or city may have significant spillovers toward other non-protected places (Glaeser, 1996) if criminals react to the novelty moving to a (relatively) less protected place. This implies there are diminishing returns in the allocation of police forces or monitoring security, generating higher impacts in terms of utility at lower levels of security.

We proceeded in four steps. First, some literature review was conducted. For the sake of transparency, we estimated our hypothesis under different models (seven in total), each of these under two different estimation strategies (OLS and Probit). Then we checked for the statistical difference of the absolute value of the coefficients and finally we ran a model to explain the determinants of subjective perception of security in our sample.

II. PREVIOUS LITERATURE

A vast list of research has been done studying crime, robbery and life satisfaction. Kuroki (2013) uses a large Japanese data set (N=16637) to examine how well-being is affected by burglary and robbery. Burglary implies losses of 0.14 points—in a five-point scale—in well-being. Staubli et al (2014) find a negative effect on life satisfaction of theft, attempted burglary and consumer fraud, as well as of crimes against the person. Graham and Chaparro (2012) have also found a strong relation between both, although they also reported an adaptation effect.

We know from previous research that people elucidate their impressions not only from absolute judgments (Tetaz, 2014) but also on relative perceptions. It is the change difference from a given reference point what makes a difference in terms of satisfaction (in the present paper, neighborhood satisfaction), but this topic has been attacked by researchers only recently. Ambrey et al (2014) argue that individuals' perceptions of crime sometimes are greater than actual levels of crime. Besides real crime rates, the authors show that perceived rates of crime can have an adverse impact on life satisfaction too. Cruces, Ham, and Tetaz, (2008) have found that the subjective perception of security during daylight is an important predictor of neighborhood satisfaction. Hipp (2009) argues that perceiving more crime (general insecurity) showed an accelerating negative effect on neighborhood satisfaction.

Security is a major concern in modern societies. In Latin America, the perception of crime is bigger than the real values of victimization (c.f. Graham & Chaparro, 2012). Therefore, if perception of crime seems to play an important role in people's system of beliefs, a valuable question for researchers is: how does feeling more or less secure affect satisfaction with a neighborhood?

Our paper is very close to Cohen (2008). The author uses three dimensions to capture crime: county level crime (US), perceived neighborhood safety and victimization (suffer burglary or robbery in the last 12 months) over life satisfaction. The dimension of variables two and three are used in the present paper, and it might be objected that not using crime rates is a flaw of our data. However, Cohen shows that perceived neighborhood safety is relatively more important than county-level crime rates, up to the point where county crime rates are longer statically significant once controlling for perceived neighborhood. The crucial variable in his study is victimization, for example, those who suffer from burglary experiences a similar behavior as 'moving from excellent to good health'. We test for perceived neighborhood and victimization, as Cohen does, but instead of assuming a linearity through the subjective perceived safety, we test the possibility of concavity. In other words, we assume (and later test) for the possibility of some asymmetry over perceived security.

III. DATA & RESULTS

Our dependent variable is neighborhood satisfaction, which is measured on a 1 to 5 scale. The individual level data comes from the UP-Gallup survey conducted in 2014 (cross-section) with N=1010 (after deleting observations with "no data" for the relevant questions, we are left with 927). Our key independent variables are "I feel my neighborhood is safer compared to others" and "I feel my neighborhood is less safe compared to others", where "equally safe neighborhood" is chosen as

base group for the safety questions. As control variables, we include a vector of personal characteristics¹. (sex, age, age squared), income, relation with neighbors, victimization, the existence of parks and public facilities, transport availability, neighborhood identity and if (or not) the neighborhood is poor.

Respondents had to choose between three options, depending on their consideration of their own neighborhood being safer, equally safe or less safe than other neighborhoods. *Equally safe* was chosen as the base category, so two dummies *Safer* and *Less safe* were constructed. Each of these takes value 1 if the person answers he considers his own neighbor safer or less safe respectively, and 0 otherwise.

To construct the *Victimization* variable, we created a dummy which took value 1 if the respondent answered he had been subject to any type of insecurity events within the neighborhood during the last years, and 0 otherwise. Similarly, we constructed the *Poor* variable, which took value 1 if the respondent answered yes to the question if he considered his neighborhood was poor and 0 otherwise.

The different income categories were constructed as follows: we chose the worst possible socioeconomic level category in the survey (D2-E) as the base group and then qualified those in D1 as Middle Low Income, those in C2-C3 as Middle High Income and those in ABC1 as High Income. For these three groups dummy variables taking value 1 if the observation fitted in that group were constructed. Class groups were constructed by Gallup following a specific questionnaire which asks several questions socio-economic variable (available upon request).

Regarding the control variables like Neighborhood Identity, Transport Availability, Parks and Public Facilities and Good Relation with Neighbors, we proceeded as follows. Respondents answered the extent to which they agreed on a 1-5 scale with the following statements, respectively: *I'm identified with my neighbor and its people*, *I count on transportation that allows me to go where I need to*, *I count on public facilities where I can spend time with friends and neighbors* and *I have a good relation with my neighbors*. Their answers were used as the ordinal variables, 5 being the highest possible degree of agreement.

For the control variable *Relative Income in Neighborhood* in Table 4 (see Annex), we used the answer respondents gave whether they thought their families level of life was higher, equal or lower than the average between neighbors. Here 1 means higher and 3 lower, so – although this effect is not significant – we find that poorer (relatively) families consider their neighbors to be safer. This

¹ More details regarding the composition of the sample studied can be found in Tables 5 and 6 at the end of the article (Annex).

possibility implies that relatively poor families concede a low probability of suffering a robbery/burglary if they assume that rich are more vulnerable within the neighborhood.

Neighborhood satisfaction is reported on an ordinal scale. Therefore, we estimate both standard OLS regression and Probit adjusted OLS (see Ferrer-i-Carbonel & Van Praag, 2004). In the case of Probit, regression coefficients do not represent either semi elasticities or simple first derivative effects, but they can be understood by its signs, and relative to the size of other coefficients. The qualitative results of Probit (see Annex, Table 1) and OLS (see Annex, Table 2) are very similar. Under different specifications (seven in total, for each estimation procedure), the main finding is that “safer neighborhood” has a positive sign (in model n°7, OLS, Coef: 0.145, $p < 0.01$) while “less safe” has a negative sign (Coef: -0.455, $p < .001$). Note that the magnitude of the coefficients is radically different. This possibility implies that neighborhood satisfaction function is concave thought the subjective perceived safety. Since Tables 1 and 2 (see Annex) are not enough to confirm this result, we conducted a robustness check (see Annex, Table 3) to test for the hypothesis of equality of coefficients in absolute value for Safer and Less Safe. We tested the linear hypothesis that the sum of both coefficients equals zero. Table 3 (see Annex) confirms that the difference between these coefficients in absolute value is statically different from zero² in the OLS regression while we can’t reject that hypothesis in the Ordered Probit model.

Apart from considering the absolute level of security in the neighborhood (victimization), people tend to infer how safe a neighborhood is, comparing it with others (the reference point). While the perception that living in a safer neighborhood improves the perceived quality of life in that place, the magnitude of the difference is smaller than the one caused by the opposite sensation.

III. POLICY RECOMMENDATIONS

²A comment on the other variables: socioeconomic variables do play a role here. Although they are not highly significant, those who belong to the upper class feel more satisfied with their neighborhoods. Variables capturing the quality of parks and transport availability are also significantly correlated with neighborhood satisfaction. The most important single predictor is the variable that captures the extent to which the neighbor thinks his or her neighborhood really reflects his or her beliefs, leading to feel therefore “Identify” with the neighborhood and its neighbors. In Table 1 (see Annex), every point increase in neighborhood identification, has seven times the impact of a one-point change in the quality of parks and public facilities, for instance. In Table 1 (see Annex), those victims of a crime in the last twelve months experienced a drop in neighborhood satisfaction almost equivalent to a three points fall in satisfaction with transport availability (in a 1 to 5 scale), for example, or of the same magnitude of living in a poor neighborhood.

No policy shall be recommended that instead of reducing overall crime just spills it to other jurisdictions.. The reason is that the gains in the place where the policy is taken are smaller than the losses in the community that receives the crime spillover (Glaeser, 1996). Consider the following situation. Suppose there are two regions, pretty equal in general terms, both starting at a similar level of crime prevention and safety. If monitoring resources (police, cameras, security guards) are re-allocated from region A to region B, by whatever reason, this would produce small gains in total utility since the marginal gains in B would not compensate the marginal losses in A. Conversely, consider what would happen if the initial conditions are region A is very unsafe and B is safe: reallocations from B to A imply large gains in total utility.

It has come to our attention that in poor neighborhoods people who live there feel more insecure. Table 4 (see Annex) presents some evidence of the determinants of considering the neighborhood safer or less safe and Figure 1 (see Annex) shows the impact of victimization. As could be expected, victimization is positively correlated and highly significant (Coef: 0.522, $p < 0.001$) with the feeling of being unsafe in the neighborhood; but still and contrary to our expectations, a poor neighborhood is an important explanatory variable of feeling unsafe (Coef: 0.467, $p < 0.001$). This has to do with the fact that poor neighborhoods receive less supply of public goods in general and, in this case, monitoring or police services. Contrary to Cohen (2008), we speculate that people might not have an adaptation³ effect over the losses (for example, removing police) even though they present marginal decreasing returns. If rich neighborhoods concentrate more of total resources dedicated to monitor crime, incrementing security standards in rich neighbors would only has a marginal effect compared to the same policy in poor neighborhoods (where the impact would be big).

V. CONCLUSIONS

This paper shows that insecurity impacts negatively on neighborhood satisfaction. Not only victimization erodes the satisfaction with the neighborhood, but the belief that the quarter is less safe than average has also a negative effect. Our most interesting result has to do with the relative perception of security. Those believing that their neighborhood is safer than other quarters feel more satisfied with their neighborhoods, but the group of those thinking that the opposite is true, report a higher, and obviously negative effect. This effect was found to be

³ Others scholars such as Graham and Chaparro (2012) have also found a correlation, although they also reported an adaptation effect. The authors look for the relation between crime and happiness in Latin America and find that the effect of crime reduces the chances of happiness—but still, as an adaption effect exists, this seems to mitigate the negative effects of victimization on life satisfaction—. On the contrary, Di Tella and Schargrodsy (2009) did not find any relation, using data from Argentina.

statistically greater, in absolute value, in the model estimated using OLS. The result has important implications for the administration of security, because investments in one quarter has significant spillovers toward other non-protected places (Glaeser 1996) if criminals react to the novelty moving to a (relatively) less protected place. In this story, policy interventions should be centralized, so as to equalize the marginal profitability of committing a crime across different cities and neighborhoods, because if an investment in CCTV cameras, police or any other anti-crime measure makes an average neighborhood safer, but sends another quarter down (negative spillovers), then social welfare would fall, because the gains in the place favored by the police would be lower than the losses of a neighboring quarter.

REFERENCES

- Ambrey, C. L., Fleming, C. M. & Manning, M. (2013). Perception or Reality, What Matters Most When it Comes to Crime in Your Neighbourhood? *Social Indicators Research*, 1-20.
- Cruces G, Ham A & Tetaz M. (2008). Quality of Life in Buenos Aires Neighborhoods: Hedonic Price Regressions and the Life Satisfaction Approach. *Inter-American Development Bank, Research Department, Research Department Publications 3260*. Retrieved from <https://ideas.repec.org/p/idb/wpaper/3260.html>
- Di Tella, R. & Schargrodsky, E. (2009). Happiness, Ideology and Crime in Argentine Cities (No. IDB-WP-112). *IDB Working Paper Series*.
- Ferrer-i-Carbonell, A. & Van Praag, B. M. S. (2004). *Happiness Quantified*. New York: Oxford University Press.
- Glaeser, E. L., Sacerdote, B. & Scheinkman, J. A. (1996). Crime and Social Interactions. *The Quarterly Journal of Economics*, 111(2), 507-548.
- Graham, C. & Chaparro J. (2012). The Linkages Between Insecurity, Health, and Well-Being in Latin America: An Initial Exploration Based on Happiness Surveys. In Webb, D. & Wills-Herrera, E. (Eds.), *Subjective Well-Being and Security Social Indicators Research Series* (Vol. 46), 197-252.
- Hipp, John R. (2009). Specifying the determinants of neighborhood satisfaction: A robust assessment in 24 metropolitan areas. *Social Forces*, 88(1), 395-424.
- Kuroki, M. (2013). Crime victimization and subjective well-being: Evidence from happiness data. *Journal of Happiness Studies*, 14(3), 783-794.

- Powdthavee, N. (2005). Unhappiness and Crime: Evidence from South Africa. *Economica*, 72(287), 531–547.
- Sirgy, M. J. (2012). *The psychology of quality of life: Hedonic well-being, life satisfaction, and eudaimonia* (2nd ed.). Dordrecht, Heidelberg, New York & London: Springer.
- Staubli, S., Killias, M., & Frey, B. S. (2014). Happiness and victimization: An empirical study for Switzerland. *European Journal of Criminology*, 11(1), 57-72.
- Tetaz, M. (2014) . *Psychonomics: La economía está en tu mente*. Buenos Aires: Ediciones B.
- Thompson, R. F. & Spencer, W. A. (1966). Habituation: a model phenomenon for the study of neuronal substrates of behavior. *Psychological Review*, 73, 16–43.

ANNEX: FIGURES AND TABLES

TABLE 1
PROBIT MODELS – NEIGHBORHOOD SATISFACTION (NS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	NS						
NS							
High Income	0.575* (2.37)	0.526* (2.13)	0.483* (1.96)	0.560* (2.52)	0.560* (2.52)	0.455* (2.01)	0.428 (1.88)
Middle High Income	0.0233 (0.21)	-0.0125 (-0.11)	-0.0487 (-0.43)	-0.0697 (-0.59)	-0.0697 (-0.59)	-0.141 (-1.18)	-0.141 (-1.19)
Middle Low Income	0.0480 (0.44)	0.0293 (0.27)	0.0388 (0.36)	-0.0192 (-0.17)	-0.0192 (-0.17)	-0.0404 (-0.35)	-0.0769 (-0.67)
Good Relation w/ Neighbors	0.518*** (8.02)	0.469*** (7.08)	0.451*** (6.95)	0.199** (2.78)	0.199** (2.78)	0.186** (2.64)	0.164* (2.31)
Victimization	-0.330** (-3.24)	-0.334** (-3.25)	-0.371*** (-3.59)	-0.353*** (-3.31)	-0.353*** (-3.31)	-0.366*** (-3.45)	-0.346** (-3.24)
Safer Neighborhood	0.545*** (5.38)	0.521*** (5.06)	0.515*** (5.00)	0.393*** (3.59)	0.393*** (3.59)	0.362*** (3.33)	0.379*** (3.48)
Less Safe Neighborhood	-0.793*** (-6.11)	-0.767*** (-5.83)	-0.710*** (-5.33)	-0.592*** (-4.70)	-0.592*** (-4.70)	-0.550*** (-4.34)	-0.527*** (-4.10)
Parks and Public Facilities		0.197*** (5.60)	0.168*** (4.66)	0.121** (3.14)	0.121** (3.14)	0.100** (2.60)	0.114** (3.01)
Transport Availability			0.179*** (4.16)	0.132** (3.10)	0.132** (3.10)	0.147*** (3.44)	0.147*** (3.43)
Neighborhood Identity				0.735*** (10.86)	0.735*** (10.86)	0.732*** (10.96)	0.733*** (11.11)
Poor Neighborhood						-0.371*** (-3.58)	-0.377*** (-3.63)
Sex							0.190* (2.19)
Age							-0.00377 (-0.27)
Squared Age							0.000122 (0.82)
Observations	927	927	927	927	927	927	927

Low Income chosen as base group for income. Equally safe chosen as base group for safety questions.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 2
OLS MODELS – NEIGHBORHOOD SATISFACTION (NS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	NS						
High Income	0.342** (2.66)	0.300* (2.38)	0.277* (2.22)	0.246* (2.57)	0.246* (2.57)	0.195* (2.04)	0.185 (1.93)
Middle High Income	0.0391 (0.50)	0.0225 (0.29)	0.00305 (0.04)	-0.0216 (-0.34)	-0.0216 (-0.34)	-0.0608 (-0.98)	-0.0623 (-1.02)
Middle Low Income	0.0863 (1.14)	0.0785 (1.07)	0.0825 (1.13)	0.0296 (0.49)	0.0296 (0.49)	0.0192 (0.32)	0.00938 (0.16)
Good Relation w/ Neighbors	0.338*** (6.84)	0.293*** (5.78)	0.279*** (5.56)	0.0506 (1.00)	0.0506 (1.00)	0.0432 (0.88)	0.0338 (0.69)
Victimization	-0.220** (-2.81)	-0.214** (-2.79)	-0.231** (-3.04)	-0.169** (-2.62)	-0.169** (-2.62)	-0.175** (-2.76)	-0.165** (-2.60)
Safer Neighborhood	0.297*** (5.67)	0.276*** (5.35)	0.265*** (5.21)	0.156*** (3.36)	0.156*** (3.36)	0.136** (3.01)	0.145** (3.20)
Less Safe Neighborhood	-0.774*** (-5.73)	-0.737*** (-5.61)	-0.703*** (-5.37)	-0.499*** (-4.72)	-0.499*** (-4.72)	-0.470*** (-4.51)	-0.455*** (-4.35)
Parks and Public Facilities		0.133*** (4.92)	0.116*** (4.17)	0.0635** (2.65)	0.0635** (2.65)	0.0512* (2.19)	0.0557* (2.43)
Transport Availability			0.0958** (2.80)	0.0508 (1.89)	0.0508 (1.89)	0.0594* (2.23)	0.0586* (2.22)
Neighborhood Identity				0.522*** (11.05)	0.522*** (11.05)	0.514*** (10.96)	0.510*** (11.02)
Poor Neighborhood						-0.235*** (-3.42)	-0.239*** (-3.49)
Sex							0.0880 (1.96)
Age							-0.00303 (-0.45)
Squared Age							0.0000681 (0.98)
Constant	2.812*** (12.01)	2.507*** (10.58)	2.244*** (9.06)	1.419*** (6.43)	1.419*** (6.43)	1.573*** (6.95)	1.562*** (6.24)
Observations	927	927	927	927	927	927	927

Low Income chosen as base group for income. Equally safe chosen as base group for safety questions.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

For the two previous models we tested the hypothesis of equality of coefficients for Safer and Less Safe. Results were the following:

TABLE 3
TEST OF LINEAR HYPOTHESIS

Statistic	P-value	Model
6.76	0	OLS
0.65	0.42	Ordered Probit

TABLE 4
EXPLAINING SAFER/LESS SAFE - ORDERED PROBIT MODELS

	(1) Relative Safety
Relative Safety Victimization	0.522*** (4.85)
Poor Neighborhood	0.467*** (4.52)
Relative Income inside Neighborhood	0.195 (1.76)
Good Relation w/Neighbors	-0.106 (-1.65)
Parks and Public Facilities	-0.0626 (-1.79)
Observations	908

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 5
DESCRIPTION OF THE SAMPLE

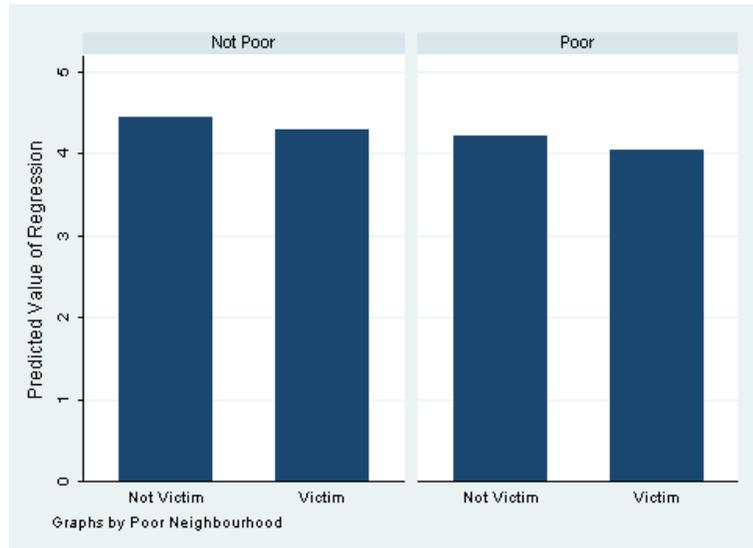
Variable	Min	Max	Mean	Standard Deviation
Age	18	90	42.8	17.11
Socioeconomic Group	1	4	2.7	0.85
Zone	1	3	2.26	0.78
Sex	1	2	1.5	0.5
Education	1	3	1.64	0.68

TABLE 6
DESCRIPTION OF THE SAMPLE

Income Group	Number of Observations
High Income	50
Middle High Income	368
Middle Low Income	321
Low Income	188

FIGURE 1

THE PREDICTED VALUE OF NEIGHBORHOOD SATISFACTION IF THE AGENT WAS SUBJECT TO ANY TYPE OF INSECURITY EVENTS DURING THE LAST YEAR, FOR BOTH POOR AND NOT POOR NEIGHBORHOODS



This figure shows the predicted value of neighborhood satisfaction if the agent was subject to any type of insecurity events during the last year, for both poor and not poor neighborhoods. Variables including Sex, Age, Squared Age, Good Relations with Neighbors, Parks and Public Facilities, Transport Availability, Neighborhood Identity, Safer, Less Safe were kept at their average means while Socioeconomic Levels were kept at their actual levels. Then we predicted the level of NS according to each category using the model. Source: own elaboration.