The Effect of Violent Crime on Intra-household Resource Allocation and Bargaining Power

Maria Hernandez-de-Benito†

Download latest version here

December 31, 2021

Abstract

The effects of exposure to community violence are numerous and complex, and we should not expect them to be gender-neutral. This paper studies the effects of violent crime on household expenditures and intra-household bargaining power. I exploit an unexpected and geographically heterogenous increase in local violence in Mexico using a nationally representative longitudinal survey of married households formed prior to the increase in crime. I first estimate a household demand model and find that the escalation in violence reallocated household expenditures towards male goods, at the expense of food and other household necessities. These findings would typically be interpreted as a deterioration in women's bargaining power. But changes in local violence may have also affected consumption preferences. To show that the results can be explained by changes in bargaining power, I compute the effect of violence on intra-household resource shares within a structural setup that allows for violence to also affect preference parameters. The increase in violence also led the household members themselves to report decreases in female decision-making power. Finally, I discuss the evidence on the role played by fear of victimization limiting women's outside options.

JEL Classification Numbers: D13, J12, J16, K42, I31

Keywords: crime, Mexico, Engel curves, women's bargaining power, resource shares

Acknowledgments: I am extremely grateful to Garance Genicot for her invaluable guidance and support. I am also very thankful to Martin Ravallion, Andrew Zeitlin, Becka Brolinson, Carolina Concha-Arriagada, David Frisof, Jorge Garcia-Hombrados, Pamela Jakiela, Pedro Juarros, Juan Margitic, Umberto Muratori, Owen Ozier, Franco Peracchi, and Daniel Valderrama-Gonzalez. Participants to the NEUDC, EALE, GCER, DSW, SDC, IPWSD, BCDE, Econ PhD Warwick, SEA, Ridge Crime Workshop, and SAEe conferences, and seminars at University of

Exeter, WZB, University of Surrey, University of Alicante, University of Vienna, University of Montreal, Universidad del Rosario, Pontificia Universidad Javeriana, CUNEF, and Abt Associates have provided lively debates and useful feedback. I have also benefited from fruitful discussions with several seminar speakers and colleagues at Georgetown University and the Center for Global Development. All errors are my own and the usual caveats apply.

† Universidad de Alicante. Correspondence: mhernandez.debenito@ua.es.

1 Introduction

Exposure to violence is a pervasive and growing development challenge. In 2017, 220 million people lived in close proximity to conflict areas, twice as many as 10 years before (Corral et al. 2020). The threat goes beyond armed conflicts. Homicide, rape, or kidnapping are "everyday crimes" in many parts of the world. Crime reduction has not always gone hand in hand with economic growth. For instance, the economy grew in the majority of the Latin America and Caribbean region between 2000 and 2015. But as poverty rates fell and human capital increased, the crime rate rose (Jaitman 2017). Global economic shocks, climate change, and rising income inequality can all trigger new surges in violence in the near future (Fajnzylber, Lederman, and Loayza 2002; Miguel and Satyanath 2011; Enamorado et al. 2016; Levy, Sidel, and Patz 2017).

The effects of violence are numerous and complex, and we should not expect them to be gender neutral (Buvinic et al. 2013). Changes in crime and victimization often have gender-differentiated impacts on labor supply, marital outcomes, fear of victimization, and mental health (La Mattina 2017; Velasquez 2019; Balmori de la Miyar 2020). Increases in local violence may therefore exacerbate gender inequalities inside the household. A large body of research has provided substantial evidence showing how shocks that worsen an individual's capacity to contribute to the household, as well as their options outside of marriage affect their intra-household bargaining power (Chiappori and Mazzocco 2017). These gendered impacts can have important policy implications. Women's intra-household bargaining power, defined as their capacity to negotiate or determine the allocation of a household's resources, commonly affects consumption allocations, and it is positively associated with women's and children's well-being (Doss 2013; Baland and Ziparo 2017).

In the late 2000s, Mexico experienced an unprecedented and unanticipated surge in drug-related crime. I exploit this quasi-experimental, geographical and temporal variation to estimate causal impacts of violent crime on households' behavior. In particular, this paper studies the effects of exposure to community violence on households' expenditure, expenditure allocations, and the distribution of intra-household bargaining power.

I use data from the Mexican Family Life Survey (MxFLS), a rich longitudinal survey that has information on the same households before and after the escalation in crime. The timing and longitudinal structure of the MxFLS surveys allow to control for unobserved time-invariant household heterogeneity, and to account for behavioral responses such as non-random migration or household composition. Other researchers have used these data to estimate causal effects of the rise in Mexican drug-related crime on several outcomes.[1] I estimate a system of household demand equations linear on the logarithm of total expenditure and local violence, captured by the homicide rate at the municipality level.

This paper finds the increase in violence affected the composition of household expenditures. The results suggest increases in homicides shifted downward the household Engel curves of food and other necessities (hygiene and personal care items), while increasing the share of household expenditures allocated to private male clothing, transportation, and gambling. The coefficient of interest in the demand equations is the local violence variable. But I first show the increase in violence did not affect total household expenditure. This null effect alleviates concerns of misspecification bias due to the linearity assumption of the log of total expenditure.

The reported impacts on consumption allocations are consistent with a deterioration in women's bargaining power. Previous research in Mexico and other developing countries has shown that improvements in women's control over the budget increases household expenditure on food and women's private goods (Bobonis 2009; Attanasio and Lechene 2010; Armand et al. 2020). But previous work linking women's bargaining power and intra-household allocations has mostly relied on *distribution factors.* These are variables that are assumed to alter bargaining power but not

[1] Previous studies have documented impacts of the Mexican drug war on labor force participation (Velasquez 2019), youth education (Brown and Velasquez 2017), birth outcomes (Brown 2018), risk preferences (Brown et al. 2018), and female decision-making power (Tsaneva, Rockmore, and Albohmood 2018). In terms of geographic representativeness of the increase in violence in Mexico, Velasquez (2019) documents non statistically significant differences in the change in violence across MxFLS and non-MxFLS municipalities.

preferences, for example, changes in family law and individual cash transfers (Bobonis 2009; Attanasio and Lechene 2014; Chiappori and Mazzocco 2017). Admittedly, this assumption is stronger in the context of a large increase in community violence. To address this concern, I provide further empirical evidence of changes in intra-household bargaining power being an important mechanism explaining the effects on consumption allocations.

In the second part of the paper, I first present reduced-form evidence of women losing decision-making power in their households. Increases in crime lowered the probability that a woman would self-report as a decision-maker regarding several household purchases. Concurrently, women become more likely to say their spouse is the one who makes such decisions. Importantly, I also find a positive effect of crime on men saying they, and not their spouses, make decisions regarding their own clothing, consistent with changes in bargaining power driving the expenditure increase in male goods, at the expense of household necessities.

Then, within a model of intra-household resource allocation, I compute women's resource shares, defined as the fraction of the total household budget individuals privately consume, and study how they vary with household's characteristics, including the exposure to violent crime. The results suggest that, in households who experienced the average increase in crime over the period, women's resource shares (a proxy for their bargaining power) decreased by about 5 percentage points. The structural setting allows the local homicide rate to affect both resource shares and preference parameters. The approach assumes a collective model of the household (Chiappori and Mazzocco 2017), and implements the methodology proposed by Dunbar, Lewbel, and Pendakur (2013).

Finally, I discuss the role played by fear of victimization in explaining the results. Heterogeneity analysis suggests the reported effects on expenditure shares are starker in households where women become more afraid of crime victimization. Fear can operate through multiple channels that can limit women's outside options and affect their intra-household bargaining power such as labor force participation, time allocations, or psychological effects.

Estimating causal effects of violent crime on households' outcomes requires addressing concerns over potential sources of omitted variable bias. The identification strategy relies on observing the same households before and after an unexpected escalation in local violence. The structure of the survey allows to account for households' migration behavioral responses in response to the increase in crime. I implement an "intent-to-treat" approach, where I assign the municipality of residence prior to the escalation in violence to all survey rounds. I also find no statistical evidence of non-random attrition.

The main threat to identification would be that the heterogeneous geographic and sharp temporal variation in homicides reported in Mexico was actually anticipated or was correlated with other underlying trends related to households' consumption patterns. To address these concerns, the main specification also controls for many time-varying characteristics, and I demonstrate the results are consistent throughout multiple robustness checks. These checks include, but are not restricted to, implementing double-lasso, the inclusion of a large set of potential municipality-level confounders, and a placebo exercise to test for unobserved municipality trends using a prior survey wave.

Further robustness checks include ruling out alternative mechanisms driving the results on consumption expenditures. I find no statistical evidence suggesting the results could be explained by changes in household composition, local prices, home production allocations, households' standards of living, or male time allocations.

Contribution to the literature This paper contributes to several strands of the literature. The findings add to the understanding of the effects of exposure to violent crime on household's behavior and well-being. Disentangling selection from causal mechanisms has been a major challenge because crime can generally not be treated as randomly assigned. Households self-select their place of residence, and panel data have not commonly been available in such settings. This paper directly addresses these challenges.

Specifically, I add to the literature on gender-differentiated effects of community violence. Understanding such gendered effects are key for effective policy design. Treatment effects may be heterogeneous by women's exposure to violence. For instance, Buehren et al. (2017) find that a randomized vocational and life skills training in South Sudan was only effective for girls not previously exposed to violent conflict. The male scarcity induced by wars and other armed conflicts had adverse effects on women's marital outcomes in places like France after World War I (Abramitzky, Delavande, and Vasconcelos 2011), and Russia after World War II (Brainerd 2017). La Mattina (2017) finds that women who married after the Rwandan genocide experienced greater domestic violence and reduced decision-making power. Importantly, I add to the scarce, but rising, literature on gender-differentiated effects of local crime and fear of victimization. The majority of research estimating causal impacts of community violence has focused on the consequences of armed conflicts, such as international or civil wars. Borker (2017) finds that women in India are willing to go to lower-quality colleges if the commuting routes are safer, whereas men are not. Recent randomized control trials that provide bicycles to girls have shown promising results in increasing female education, with both safety and time being relevant mechanisms (Muralidharan and Prakash 2017; Fiala et al. 2020).

In the context of drug-related crime, Velasquez (2019) and Dell (2015) show the increase in drug-related crime in Mexico has lowered women's labor force participation. Calderon, Gafaro, and Ibanez (2011) find that positive effects on labor outcomes among conflict-displaced women in Colombia did not translate into higher bargaining power or lower domestic violence. Millan-Quijano (2015) find that increases in homicides in Colombia increase the probability of early motherhood. Evidence exists of gendered impacts of exposure to homicides on education as well, with boys experiencing a larger negative effect on human capital accumulation in Mexico and Brazil (Brown and Velasquez 2017; Koppensteiner and Menezes 2020).

More generally, the results also contribute to the literature on the determinants of intra-household allocation of resources and bargaining power. Extensive research has been conducted on the importance of women's control over household budgets on consumption allocations, and women's and children's well-being (Doss 2013; Baland

and Ziparo 2017). Previous research has mostly focused on the effects of exogenous shocks that presumably shifts bargaining parameters, but not preferences (Bobonis 2009; Attanasio and Lechene 2010; Armand et al. 2020). I also add to the growing literature on the structural estimation of the determinants of intra-household resource allocation and women's intra-household bargaining power within a collective model of the household. This model of the household first introduced and developed by Chiappori (1992) and Bourguignon et al. (1993) has been used extensively in the literature. The key to the model is to assume household decisions are Pareto efficient. Although evidence is mixed on whether this assumption is reasonable in developing countries generally (Udry 1996), the work by Attanasio and Lechene (2014) and Bobonis (2009) fail to reject the efficiency assumption for Mexican families (at least within the PROGRESA cash-transfers recipients). The estimatation of women's resource shares relies on the presence of private assignable goods, and I use the methodology developed by Browning, Chiappori, and Lewbel (2013) and Dunbar, Lewbel, and Pendakur (2013). Other work has used this methodology to explain the phenomenon of elderly missing women in India (Calvi 2020), the effect of a cash-conditional-transfer program in Mexico (Sokullu and Valente 2018), or the introduction of unilateral divorce in Mexico (Hoehn-Velasco and Penglase 2021).

The next section describes the background of the increase in drug-related crime in Mexico. Section 3 discusses the theoretical framework. Section 4 details the data and empirical strategy. Section 5 discusses the results on household expenditures. In section 6, I provide evicence of the effects of crime on explore the effect of crime on intra-household bargaining power, and section 7 discusses potential channels. Finally, section 8 concludes.

2 Background

2.1 The Mexican Drug War

Mexico experienced a sudden, unanticipated, and large increase in violent crime starting in 2007. The homicide rate in the country almost tripled within five years (Figure 1). The increase in homicides per capita was so drastic it surpassed countries in the midst of armed conflicts at the time, such as Iraq and Afghanistan (GPI 2016). In 2019, the homicide rate reached a new record of 35 per 100,000 people. The amount of lives lost was so drastic that life expectancy stagnated for young men at the national level, and even decreased in some parts of the country (Aburto and Beltrán-Sánchez 2019).

Extensive research has studied the drivers of this rapid and unanticipated spike in violence. The most accepted hypothesis is that the surge in violence was an unintended consequence of the war on drugs initiated by the Mexican government (Calderon et al. 2015; Dell 2015; Osorio 2015; Lessing 2015; Lindo and Padilla-Romo 2018). Within weeks of President Felipe Calderon's election in December 2006, the federal government deployed thousands of troops to fight drug-trafficking organizations (DTOs). The government combined its militarized approach with a "kingpin strategy" of arresting the leaders of the main drug cartels. The number of DTOs skyrocketed, and violence both escalated and spread geographically as drug leaders fought for territorial control (Coscia and Ríos 2012; Sobrino 2020).[2] Beyond President Calderon's war on drugs, previous research has identified other risk factors for the increase in homicides including scarcity in cocaine markets (Castillo, Mejía, and Restrepo 2018), manufacturing job loss (Dell, Feigenberg, and Teshima 2019), agricultural price shocks (Dube, Garcia-Ponce, and Thom 2016), and income inequality (Enamorado et al. 2016).[3]

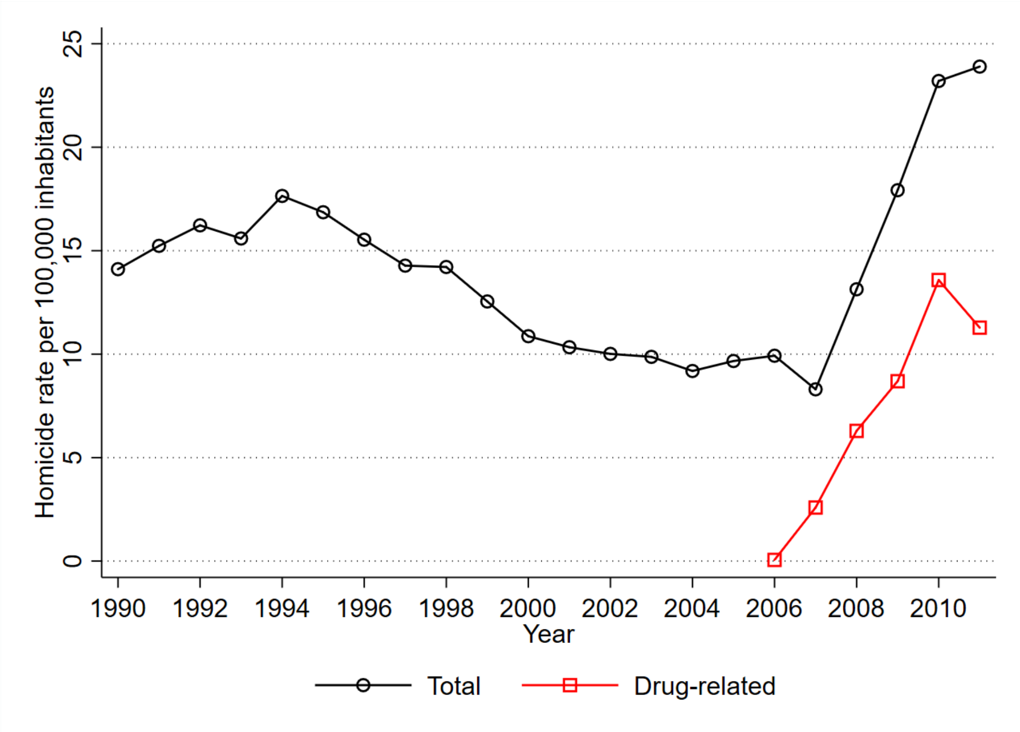
In addition to the temporal variation in violence, the increase in drug-related violence was also geographically heterogeneous. Whereas in some municipalities, the

[2]Dell (2015) uses a regression discontinuity design to show how a subsequent, larger increase occurred in the homicide rate in the municipalities where Calderon's political party won mayoral elections. Calderon et al. (2015) and Lindo and Padilla-Romo (2018) both show how the captures or killings of drug kingpins and lieutenants brought destabilizing effects through the cartels and were accompanied by escalations in homicides.

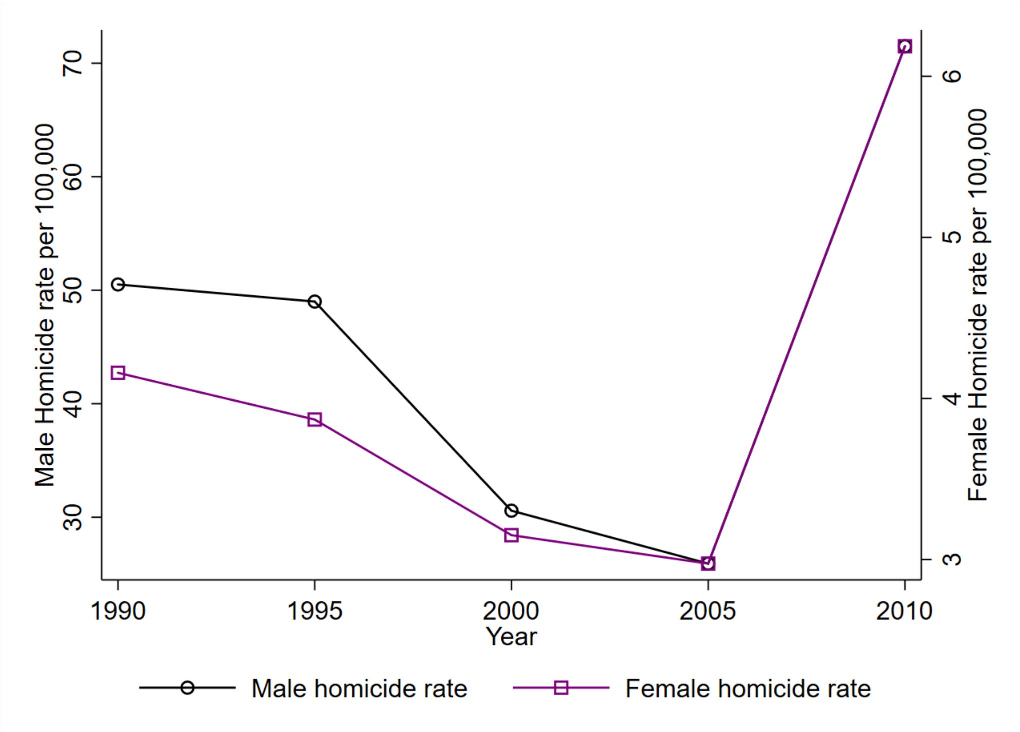
[3]Castillo, Mejía, and Restrepo (2018) document how market scarcity induced by cocaine seizures in Colombia also increased violence in Mexico. Dell, Feigenberg, and Teshima (2019) show how municipalities that experience greater manufacturing job loss due to Chinese competition have greater cocaine trafficking and violence. Dube, Garcia-Ponce, and Thom (2016) show that lower maize prices differentially increased the cultivation of marijuana and opium poppies in climatically better-suited municipalities. Enamorado et al. (2016) find that increments in the municipality Gini coefficient increases drug-related homicides.

Figure 1: Annual Homicide Rate per 100,000 People

(a) Homicide Rate and Drug-Related Homicide Rate



(b) 15-39 Male and Female Homicide Rate per 100,000 People



Sources: INEGI, Office of the Mexican Attorney General, CONAPO.
Notes: Figure 1a plots the Mexican annual homicide rate over time (black line), and a "drug-related" homicide rate based on data compiled by the government, which counts deaths that can be directly linked to cartel members killing each other or resulting from confrontation with military and police forces (red line). Figure 1b plots the homicide rate of 15 to 39 year old men (black line) and women (purple line).

homicide rate was multiplied by 30, others continued to witness a decline in crime rates (Figure A1). In 2007, violence was concentrated in a few municipalities along the border with the US and the states of Sinaloa and Michoacan, the two main drug-producing states and home to the powerful Sinaloa and Michoacan Family cartels.[4] By 2012, violence had spread to many new municipalities as they had become newly attractive routes of drug trafficking (Calderon et al. 2015; Dell 2015).

Recent literature has already documented negative impacts on several outcomes including economic activity (Robles, Calderon, and Magaloni 2013), young male educational investment (Brown and Velasquez 2017), individual risk aversion (Brown et al. 2018), newborns' birth weight (Brown 2018), and migration displacement effects (Basu and Pearlman 2017; Orozco-Aleman and Gonzalez-Lozano 2018).

2.2 Gender-differentiated impacts

The direct and indirect effects of the changes in crime exposure in Mexico can have gender-differentiated impacts on intra-household dynamics through several channels. The potential impacts on individuals' outside options and preferences may influence when and who you marry, how the gains from marriage are distributed across household members, and if or when you get divorced. Previous research have provided substantial theoretical support and empirical evidence showing how economic shocks that worsens individual's capacity to earn income affects their intra-household bargaining power. Additionally, changes in individual preferences, the strengthening or weakening of traditional social norms, the safety perception of having a male partner, or an increase in taste for leisure induced by fear of commuting to work; could each be sufficient to influence marriage markets and deteriorate women's position inside the household.

It has been well-documented that women tend to report greater fear and perceived risk of victimization than men, even in contexts where men are more likely to be the target victims (Ferraro 1996; Mesch 2000; Chataway and Hart 2019). In Mexico,

[4]The Sinaloa cartel has been commonly declared as the most powerful cartel in the world and is infamously known for its leader "El Chapo."

the majority of the homicides have been perpetrated against adult men. But the female homicide rate also doubled from 2007 to 2010 (Figure 1b). In addition, the large increments in drug-related violence go beyond homicides. Mexican civilians have been exposed to a much higher prevalence of other crimes as well, including extortion, kidnapping, rape, and human trafficking (Calderon et al. 2015; Magaloni et al. 2020). The stories of girls and adult women forced, kidnapped, and sold into sex trafficking and slavery have become daily news for many Mexican women. The cartels also actively engage in "Narco-propaganda" deliberately displaying victim bodies in public, including abandoning raped or sexually tortured women undressed in public (Risley 2010; Grillo 2013; Campbell 2014).

Importantly, previous research has documented gendered effects of the Mexican drug war. Mexican municipalities exposed to a higher drug-conflict intensity have experienced decreases in female labor supply—both among self-employed women and blue collar workers (Dell 2015; Utar 2018; Velasquez 2019). Velasquez (2019) shows the effect is much stronger among women who become more afraid of being attacked outside the household. Tsaneva, Rockmore, and Albohmood (2018) show a reduction in women's participation in household decision-making. Balmori de la Miyar (2020) finds the increase in drug-related homicide rates had a negative effect on women's mental well-being, but had no statistical effects on men. Qualitative evidence on the so-called "narco-culture" also suggests that social norms may be at play involving stagnation or regression on attitudes toward women's place in the economy and inside the household (Garcia 2011, Kim 2014).

3 Theoretical Framework

In this section, I present a general version of the collective model of intrahousehold allocation based on Browning, Chiappori, and Lewbel (2013) and Dunbar, Lewbel, and Pendakur (2013) within a static framework. Assuming limited commitment, where households are assumed to fully cooperate in each period to achieve *within-period* Pareto efficiency, but cannot commit to the allocation of resources for every future period and possible state of nature (Mazzocco 2007; Chiappori and Mazzocco

2017), the distribution of bargaining power can shift over time and marriages can end.[5] Chiappori and Mazzocco (2017) show how the dynamic limited-commitment model can be formulated as a three-stage problem. In the first stage, households decide on the disposition of lifetime resources across time and states of nature. In the second stage, households decide on the optimal allocation of commodities for household production and time allocation in labor, leisure, and household production. This paper focuses on the final stage, the static "intra-household allocation" that corresponds to the stage at which households decide on the optimal allocation of private goods within the household members. I also abstract from modeling marital formation decisions because the empirical analysis is restricted to married households that were formed prior to the escalation in violence.

3.1 A Collective Model of the Household

Consider a static collective model of the household with two adult decision-makers, a wife w and a husband h.[6] Households can consume K different goods with market prices $p = (p^1, ..., p^k)'$. Let $z = (z^1, ..., z^k)'$ be the K-vector of goods consumed by the household, and let y be the total expenditure incurred by the household. Given a household consumption bundle z, a private good equivalent vector x_i exists for each household member, such that $z = F(x_w + x_h)$. In the absence of economies of scale, z would be equal to the sum of the private equivalent consumptions $x_w + x_h$. Consumption sharing and the presence of public goods suggests, however, this as-

[5]Participation constraints will depend on each partner's option outside of the marriage. Marital breakup occurs when there is no feasible arrangement that makes both partners better off staying together. But as long room for renegotiation remains, we may expect intra-household allocations to shift over time (Chiappori and Mazzocco 2017).The outside option has also been modeled as the non-cooperative solution instead of divorce (Lundberg and Pollak 1993). The collective model is silent on how the relative Pareto weights are determined in each period. The evolution of the bargaining power parameters over time can be thought of as the solution to a repeated bargaining model subject to the period's outside options (divorce, separation, or a non-cooperative arrangement). Or it may be thought of as updated only when one of the individual's participation constraints binds and renegotiation occurs to achieve a new feasible allocation more favorable to this individual (Mazzocco 2007).

[6]For ease of exposition, I limit the discussion to nuclear households that consist of two adult decision makers and a number of dependents. The model can be easily extended to households with a greater number of male and female decision-makers in the household. The empirical analysis will account for the latter type of households as well.

sumption is plausibly unrealistic. Instead, I assume *à* la Barten linear consumption technology $z = A'(x_w + x_h)$, a standard approach in the literature (Browning, Chiappori, and Lewbel 2013; Dunbar, Lewbel, and Pendakur 2013; Calvi 2020).[7]

The collective model of the household allows each individual to have their own utility function, and assumes there is Pareto efficiency within each period. The collective model has been tested empirically in Mexico exploiting exogenous variation from the PROGRESA conditional cash transfer. Attanasio and Lechene (2014) and Bobonis (2009) both fail to reject efficiency of household consumption decisions.[8]

Let $U_i(x_i)$ be the utility of individual i over the vector of consumption goods x_i. Individuals' total utility may also depend on other household members' utilities (caring preferences), or depend on other economic decisions (e.g., leisure, savings). The individual's total utility function would then be assumed to be weakly separable over the subutility functions for the consumption goods $U_i(x_i)$ in a given period. I assume the $U_i(x_i)$ are monotonically increasing in consumption, twice continuously differentiable, and strictly quasi-concave.

At each period, households solve the following problem:

$$\max_{\{x_w, x_h, z\}} \mu(p, y)\ U_w(x_w) + (1 - \mu(p, y))\ U_h(x_h) \tag{1}$$

subject to a budget constraint:

$$z'p \leq y \tag{2}$$

[7] A is a $K \times K$ matrix such that $x_w + x_h = A^{-1}z$. This technology allows for different levels of jointness of consumption rather than categorizing goods as either private or public. Suppose the two members of the household always watch TV streaming services together. Then, the consumption of streaming services in private good equivalents is 2 times the purchased quantity at the household level. Assuming the consumption of streaming services does not depend on consumption of other goods, $z^k = \frac{1}{2}(x_w^k + x_h^k)$. Off diagonal elements of A may be different from zero if the degree to which a good can be shared depends on the consumption of other goods.

[8] Angelucci and Garlick (2016) study within-sample variation in the efficiency of intra-household resource allocation among low-income Mexican households and observe that consumption patterns are Pareto efficient for households with relatively old heads, but not in households with relative young heads. The average age of the household head in the empirical analysis of this paper is over 45 years old in the first round of the panel data used which heavily alleviates the concerns posed by Angelucci and Garlick (2016)'s findings.

and the consumption technology constraint:

$$z = A(x_w + x_h) \tag{3}$$

where $\mu(p, y)$ and $(1 - \mu(p, y))$ are the Pareto weights for the wife and the husband, respectively. Both preferences and Pareto weights are allowed to depend on individuals' socio-demographic characteristics (e.g., age, education, community characteristics) but will be suppressed to simplify notation in this section.

By the second welfare theorem, any Pareto efficient allocation can be supported as an equilibrium after transfers within household members. The solution to the maximization problem in (1) is equivalent to an economy in which each individual i maximizes her private utility U^i subject to a vector of shadow prices $A'p$ and a shadow income of $\eta_i(p, y)y$. Following Dunbar, Lewbel, and Pendakur (2013), let η_w and η_h be defined as the resource share of the wife and the husband, respectively. The resource shares capture the fraction of household expenditure consumed by each household member and they must add up to one ($\eta_w + \eta_h = 1$).[9] Under standard utility assumptions, there is a one-to-one relationship between the Pareto weights and the resource shares.[10] Hence, the resource shares are a proxy for an individual's

[9]The allocation of shares of the household resources among the different household members is also known as the sharing rule in the collective model literature (Chiappori 1992; Vermeulen 2002; Browning, Chiappori, and Lewbel 2013).

[10]Let $\tilde{p}^k = A^k p^k$. The first-order conditions of the household maximization problem in (1) imply:

$$\frac{\mu(p, y)}{(1 - \mu(p, y))} = \left(\frac{\partial U_h / \partial x_h^k}{\partial U_w / \partial x_w^j}\right)\left(\frac{\tilde{p}^j}{\tilde{p}^k}\right), \quad \forall k, j = 1, ..., K. \tag{4}$$

The first-order conditions from the wife's and the husband's individual problems, the envelope theorem, and equation (4) imply:

$$\frac{\lambda_h}{\lambda_w} = \left(\frac{\partial U_h / \partial x_h^k}{\partial U_w / \partial x_w^j}\right)\left(\frac{\tilde{p}^j}{\tilde{p}^k}\right) \qquad \forall k, j = 1, ..., K$$

$$\frac{\mu(p, y)}{(1 - \mu(p, y))} = \frac{\partial V^h(A'p, (1 - \eta(p, y)y)}{\partial(1 - \eta(p, y)y)} \Big/ \frac{\partial V^w(A'p, \eta(p, y)y)}{\partial \eta(p, y)y}$$

where λ_i is the Lagrangian multiplier from individual i's maximization problem, and V_i is the indirect utility function of individual i. The last equality shows there is a one-to-one relationship between the Pareto weights and the resource shares, see Browning, Chiappori, and Lewbel (2013) for the full proof.

bargaining power in the intra-household allocation stage.

3.2 Household Budget Shares

The demand function for each good k derived from the maximization of equation (1) can be expressed as a household budget share W^k, a function of prices, total expenditure, and household characteristics. Let ω_i^k be the hypothetical budget share we would observe if individual i would independently maximize her own utility with respect to the shadow price vector $(A'p)$ and shadow income $(\eta_i y)$.

I parametrize the individual budget shares ω_i^k assuming price-independent generalized logarithm (PIGLOG) preferences,[11] a widely used parametrization in the literature.[12] The Almost Ideal Demand System (AIDS, Deaton and Muellbauer (1980)) is derived from the PIGLOG model. The main advantage is that it allows estimation of the budget shares as a system of Engel curves linear in the log of expenditure:

$$\omega_w^k = \alpha_w^k + \beta_w^k \ln(\eta_w y) \qquad \forall k = 1, ..., K \tag{5a}$$

$$\omega_h^k = \alpha_h^k + \beta_h^k \ln(\eta_h y) \qquad \forall k = 1, ..., K. \tag{5b}$$

Given the linear consumption technology, the household budget shares W^k can be expressed as a weighted sum of the individual budget shares ω_i^k, where the weights are the bargaining power of each individual represented by their resource share η_i:

$$W^k = \eta_w \omega_k^w + \eta_h \omega_h^k \qquad \forall k = 1, ..., K. \tag{6}$$

This means that both the intercept and slope parameters in the standard household Engel curve equations are a function of both the household members' individual

[11]The indirect utility function of individual i can be expressed as $V_i(p, y) = \ln\left(\ln\left(\frac{y}{G_i(p)}\right)\right) + F_i(p)$. The Marshallian individual demands can be derived by applying Roy's identity: $\alpha_i^k(p) = p^k(\frac{\partial F_i(p)}{\partial p^k}\ln(G_i(p)) + \frac{1}{G_i(p)}\frac{\partial G_i(p)}{\partial p^k})$; $\beta_i^k(p) = -p^k\frac{\partial F_i(p)}{\partial p^k}$.

[12]See, among many others, Attanasio and Lechene (2010), Dunbar, Lewbel, and Pendakur (2013), Attanasio and Lechene (2014), Sokullu and Valente (2018), Brown, Calvi, and Penglase (2019),Calvi (2020), Penglase (2020), and Hoehn-Velasco and Penglase (2021).

preferences and of the distribution of bargaining power within the household:

$$W^k = \alpha^k + \beta^k \ln(y) \tag{7}$$

$$\alpha^k = \eta_w(\alpha_w^k + \beta_w^k \ln(\eta_w)) + \eta_h(\alpha_h^k + \beta_h^k \ln(\eta_h)) \tag{8}$$

$$\beta^k = \eta_w \beta_w^k + \eta_h \beta_h^k \qquad \forall k = 1, ..., K. \tag{9}$$

There is a type of goods for which the Engel curves are simpler. These are private assignable goods. The household consumption of a private assignable good is equal to the private equivalent consumption of this good. A good is private if it cannot be shared with other members of the household, that is no economies of scale. It is assignable if we can identify which member of the household consumes it, for example adult women. For ease of exposition, assume the wife and the husband are the only adults in the household.[13] Let Γ_w and Γ_h be the vectors of the private assignable goods of the wife and the husband, respectively, with $|\Gamma_w| + |\Gamma_h| \leq K$. Then, the household's budget shares of these private assignable goods can be expressed as:

$$W_w^k = \eta_w \omega_w^k = \eta_w[\alpha_w^k + \beta_w^k \ln(\eta_w y)] \quad \forall k \in \Gamma_w \tag{10a}$$

$$W_h^k = \eta_h \omega_m^k = \eta_h[\alpha_m^k + \beta_m^k \ln(\eta_h y)] \quad \forall k \in \Gamma_h. \tag{10b}$$

4 Data and Empirical Strategy

4.1 Homicide Data

The local crime data come from the National Institute of Statistics and Geography (INEGI). I measure exposure to local crime with the homicide rate per 100,000 people at the municipality level. The use of the homicide rate can be thought as a proxy for the general escalation in insecurity and crime victimization that occurred

[13]This assumption will be relaxed in the empirical part of the paper.

in Mexico during the relevant time period. Homicides do not capture the whole crime environment civilians are exposed to, but they are much less subject to misreporting bias than other crime data. The trend in homicides also matches the available data on other crime activities, such as extortions and kidnappings (Heinle, Molzahn, and Shirk 2015).

In the main empirical analysis, I apply the quartic root transformation to the homicide rate. The quartic root serves as proxy for a logarithmic transformation for positive numbers avoiding either dropping zeroes or adding an arbitrary small amount. It is a common transformation for variables with outliers that could disproportionately influence the estimates, such as crime rates, saving rates, or earnings (Ashraf et al. 2015; Velasquez 2019). It has been used in most papers measuring the impacts of the Mexican drug war using the MxFLS data described in section 4.2. In section 5.2.3, I also show the main results are robust to the logarithmic and inverse hyperbolic sine transformations.

4.2 Household Data: Mexican Family Life Survey

The Mexican Family Life Survey (MxFLS) is a longitudinal survey containing a wide range of information at the community and household level, including a very detailed consumption module. The baseline survey (MxFLS-1) was conducted in 2002 and collected data on 8,442 households and over 35,600 individuals. The second wave was collected in 2005–2006 (MxFLS-2), right before the sharp increase in homicides in Mexico. The third wave was conducted in 2009–2012 (MxFLS-3).

The timing of the MxFLS surveys allows the comparison of the same households before and after the escalation in violence across Mexico. Other researchers have used it to estimate causal effects of the Mexican drug war on labor markets (Velasquez 2019), youth male education (Brown and Velasquez 2017), birth outcomes (Brown 2018), risk aversion (Brown et al. 2018), and female decision-making power (Tsaneva, Rockmore, and Albohmood 2018).

The survey is representative at the national level of the Mexican population, and for urban and rural areas within regions at baseline. It is also geographically representative of the increase in homicides over the period. Velasquez (2019) documents the lack of statistically significant differences in the change in violence across MxFLS and non-MxFLS municipalities. Appendix Table B1 also shows the MxFLS municipalities included in this paper's analytical sample are not statistically different in terms of the rise in the homicide rate than those not included.[14]

4.2.1 Sample structure

The main analytical sample includes every household consisting of at least one head, his/her spouse, and one son or daughter who were interviewed both in the 2005–2006 and 2009–2012 MxFLS waves. Hence, the sample includes married couples that were already formed by the time MxFLS-2 was collected in 2005–2006. I further restrict the sample by dropping households with missing age or relationship to the head for any household member, households with missing education information for the household head or the spouse, same-sex couples, households where the head or the spouse is less than 14 years old, households with missing consumption or assets module, households who reported zero expenditure in food, and households with missing timing or location of the interview. I apply these restrictions to both survey waves. In section 4.3.1, I present evidence of the lack of evidence of non-random attrition from different potential sources. Given the interest in intra-household decision-making, I also present the analysis restricting the sample to nuclear households with sons or daughters in the household; these households contain only the wife, husband, and sons or daughters (e.g., no grandparents or siblings) and represent 73% of the sample. In addition, given potential concerns of sample selection of changes in household composition, I also present the results including all married households formed prior to the 2005-2006 MxFLS wave (regardless of having children in the household or not).

[14] The dependent variable in Table B1 is the change in the homicide rate between 2005 and 2010. The coefficient of interest is an indicator variable if the municipality is included in this paper's sample. The point estimate is very small (-0.19 homicides per 100,000 people) and not statistically different from zero at any conventional significance level.

Table 1: Descriptive Statistics: Household Characteristics in 2005-2006

	Mean and standard deviation	**Violence variables**		
		$\sqrt[4]{H_{m2005}}$	ΔH_m	$\Delta \sqrt[4]{H_m}$
	(1)	(2)	(3)	(4)
Wife's age	41.06	–0.84**	–0.03**	–0.19
	[12.08]	(0.37)	(0.01)	(0.34)
Husband's age	44.45	–1.08**	–0.02	0.15
	[12.99]	(0.42)	(0.02)	(0.43)
Age gap	3.40	–0.25*	0.01	0.34
	[5.31]	(0.15)	(0.01)	(0.21)
Wife's secondary	0.42	0.07***	0.00	–0.01
	[0.49]	(0.02)	(0.00)	(0.02)
Husband's secondary	0.44	0.06***	0.00	–0.02
	[0.50]	(0.02)	(0.00)	(0.02)
Number of children	2.56	–0.07	–0.00	0.01
	[1.40]	(0.06)	(0.00)	(0.06)
Average age children	14.26	–0.47	–0.01	–0.11
	[9.21]	(0.29)	(0.01)	(0.25)
Share of daughters	0.50	0.01	–0.00	–0.00
	[0.36]	(0.01)	(0.00)	(0.01)
Rural locality	0.42	–0.15***	0.00	0.09*
	[0.49]	(0.05)	(0.00)	(0.05)
Household size	5.02	–0.08	–0.00	–0.01
	[1.80]	(0.07)	(0.00)	(0.06)
Observations	3,853	3,853	3,853	3,853
Joint equality test (p-value)		0.04	0.12	0.23

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Column (1) presents sample means and standard deviations, in brackets, of the analytical sample in MxFLS-2. Columns (2)-(4) are calculated with OLS and clustering standard errors (in parentheses) at the municipality level. Column (2) reports the OLS coefficient of a regression of the household characteristic on the homicide rate in 2005-2006 MxFLS-2. Column (3) reports an OLS coefficient of a regresion of the household characteristic on the increase in the homicide rate between MxFLS-2 and MxFLS-3. Column (4) also reports an OLS coefficient, but of the increase in the quartic root of the homicide rate.

4.2.2 Descriptive statistics

Table 1 presents descriptive statistics of the analytical sample measured at the MxFLS-2 2005–2006 wave. The first column shows the mean and standard deviation of several household characteristics. Overall, 42% of the households live in rural localities, 42% of the wives and 44% of the husbands have achieved secondary education or higher, and the average household size is 5 members. Appendix Table B3 reports similar descriptive statistics when restricting the sample to nuclear households with children. The nuclear subsample is a bit more educated and younger (on average, women and men are 39 and 42 years old, respectively, vs. 41 and 44 in the whole sample).

Table 1 also presents statistical differences in household characteristics by different measures of violence in households' municipalities of residence in 2005–2006. Each

Table 2: Descriptive Statistics: Household Expenditures in 2005-2006

	Mean and standard deviation	**Violence variables**		
		$\sqrt[4]{H_{m2005}}$	ΔH_m	$\Delta \sqrt[4]{H_m}$
	(1)	(2)	(3)	(4)
Total expenditure	73,550.73	6,430.65*	–124.25	–5,913.03
	[455,923.47]	(3,650.25)	(196.85)	(6,908.76)
Ln(total expenditure)	10.79	0.09*	0.00*	0.02
	[0.78]	(0.05)	(0.00)	(0.05)
Food	55.81	–1.59	0.04	1.46
	[18.71]	(0.98)	(0.03)	(0.90)
Drinks and Tob.	3.36	–0.11	0.01**	0.25
	[4.02]	(0.19)	(0.01)	(0.17)
Male clothing	1.48	0.07	–0.00**	–0.10
	[2.66]	(0.08)	(0.00)	(0.07)
Female clothing	1.50	–0.03	–0.00	–0.03
	[2.63]	(0.08)	(0.00)	(0.07)
Children goods	2.09	–0.06	0.00	0.11
	[3.52]	(0.10)	(0.00)	(0.11)
Hygiene, personal care	6.01	–0.15	0.00	0.08
	[5.47]	(0.18)	(0.01)	(0.13)
Other household goods	12.96	0.51	–0.01	–0.51
	[9.83]	(0.38)	(0.01)	(0.35)
Transportation	10.14	0.88**	–0.01	–0.70
	[12.39]	(0.44)	(0.02)	(0.52)
Health	1.63	–0.01	–0.01	–0.06
	[5.08]	(0.15)	(0.00)	(0.15)
Education	2.38	0.16	–0.01***	–0.28***
	[4.21]	(0.12)	(0.00)	(0.09)
Recreation	2.62	0.31*	–0.01	–0.19
	[6.38]	(0.18)	(0.01)	(0.19)
Gambling	0.05	0.02*	–0.00**	–0.02**
	[0.44]	(0.01)	(0.00)	(0.01)
Shares joint equality test (p-value)		0.36	0.02	0.00
Observations	3,853	3,853	3,853	3,853

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Column (1) presents sample means and standard deviations, in brackets, of the analytical sample in MxFLS-2. Columns (2) - (4) are calculated with OLS and clustering standard errors (in parentheses) at the municipality level. Column (2) reports the OLS coefficient of the expenditure share on the homicide rate in 2005-2006 MxFLS-2. Column (3) reports an OLS coefficient of a regresion of the expenditure share on the increase in the homicide rate between MxFLS-2 and MxFLS-3. Column (4) also reports an OLS coefficient, but of the increase in the quartic root of the homicide rate.

of the rows in columns (2) to (4) report the OLS coefficient and standard error, in parentheses, of a regression of the household characteristic on the measure of the municipality's violence, clustering standard errors at the municipality level. In general, households self-select into their place of residence, and the homicide rate in their municipality of residence cannot be treated as randomly assigned. Column (2) documents that households who lived in municipalities with a greater homicide rate in 2005–2006 were more likely to live in urban localities and to be more educated. This observation is consistent with the higher prevalence of homicides in Mexican urban areas (Dell, Feigenberg, and Teshima 2019).

The sharp and heterogeneous increase in violence, however, was largely unanticipated, as previously discussed. Columns (3) and (4) show that the increase in the level and quartic root of the annual homicide rate has no predictive power on household characteristics in 2005–2006. I also report joint tests checking the significance of all the household characteristics simultaneously by running a linear regression of the increase in the level and quartic root of the homicide rate on all household characteristics and test the joint significance of the coefficients. We fail to reject the null hypotheses across specifications, providing further evidence that households were not systematically different at baseline in terms of ex-post violence changes, at least with respect to observable characteristics.

4.2.3 Total expenditure and expenditure shares

The total expenditure data and the corresponding budget shares are estimated using self-reported monetary-value information about household purchases and the home production of non-durable goods, see Table B2 for a detailed description of each of the goods included in the analysis. I first transform all the expenditures on individual items into a comparable annual period. Then, total expenditure on non-durables is calculated by aggregating the annualized recalled household expenditure on food, drinks and tobacco,[15] hygiene and other personal goods, adult male clothing, adult female clothing, other household public goods (e.g., detergent, utilities), health care

[15] This category includes alcoholic beverages as well as juices, purified water, and powder for preparing water.

and health services, transportation, communication, recreation, education (including tuition fees), and gambling. The methodology used to estimate total expenditure is similar to the one used by, among others, Bobonis (2009), Attanasio and Lechene (2010), and Attanasio and Lechene (2014) in their estimation of Engel curves for Mexican households.

Tables 2 report descriptive statistics of households' expenditure patterns in 2005–2006. The average annual total expenditure is approximately 70,000 MXN ($10,000 2005 in US PPP[16]). The largest expenditure share is food, accounting for about 55% of total household expenditures in the sample. Appendix Table B4 shows the equivalent numbers when restricting the sample to nuclear households with children.

In 2005–2006, households living in more violent places had a higher total expenditure, a lower expenditure share on food, and a higher expenditure share on education and recreation (column 2), again consistent with living in more urban areas. In columns (3) and (4), we see the 2005-2006 expenditure shares on education, and gambling, have some predictive power on the posterior change in homicide rates. Although these regressions do not control for any household characteristic and we fail to reject the null hypothesis of joint significance across budget shares, it highlights the importance of using a longitudinal survey that provides the ability to control for initial household characteristics.

4.3 Empirical Strategy

The sharp and heterogeneous increase in homicides in Mexico was largely unanticipated, as previously discussed. The identification strategy relies on comparing the same households over time with the inclusion of household fixed effects which allows controlling for any time-invariant household characteristics potentially correlated with both the trends of violence and of the households' budget shares. The longitudinal nature of the MxFLS data and the restriction to previously married households also allow to isolate the effects that the rise in violence may have had on selection into marriage. But two other sources of sample selection may still raise

[16]Source: Purchasing Power Parity 2005, World Health Organization.

concerns: non-random attrition and selective migration.

4.3.1 Non-random attrition

The MxFLS survey was quite successful in terms of attrition: 89% of the original respondents from the 2002 baseline were interviewed again in both MxFLS-2 and MxFLS-3. The high retention rate, however, does not alleviate the concerns of attrition bias if the probability of individuals being reinterviewed in the MxFLS-3 wave is correlated with the exposure to the violence. In Appendix B.2, I provide evidence that the increase in homicide rates at the municipality level does not predict the probability of attrition at the household level and that this null effect does not seem to mask heterogeneity based on household characteristics (Table B6). To alleviate further concerns, I delve into the potential sources of attrition. There is no evidence of the increase in crime affecting the probability of households not responding to the consumption module where expenditure data is derived from (Table B7). Finally, as appointed by Berniell, de la Mata, and Machado (2020), it is important to test for the assumption of marriage stability especially with the interest of interpreting the effects as changes in bargaining power as I do in section 6. Appendix Table B8 shows the the increase in crime has no effect on the overall probability of being divorced or widowed in MxFLS-3, with the exception of a higher probability of female widows consistent with the drastic male victimization brought by the Mexican drug war (see discussion in section 2).

4.3.2 Selective migration

Previous research has found effects of the Mexican drug war on migration behavior (Basu and Pearlman 2017; Orozco-Aleman and Gonzalez-Lozano 2018). The results of this paper could be biased if migrants and non-migrants have different characteristics, and they are correlated with their consumption patterns. In Appendix B.3, I provide evidence that although the average effect of violence intensity on the probability of migration is not statistically significantly different from zero, some heterogeneity exists. Households with a highly educated husband and nuclear rural households were more likely to migrate between survey waves in the face of greater violence.

To deal with the suggestive evidence of selective migration, I follow the relevant literature and implement an "intention-to-treat" (ITT) approach. I assign the 2005–2006 households' municipality of residence to both survey waves MxFLS-2 and MxFLS-3. This methodology might induce attenuation bias, but it lessens concerns about the results been driven by migration behavior (Brown and Velasquez 2017; Brown et al. 2018; Velasquez 2019). Given the ITT approach, the household fixed effects also effectively control for any time-invariant characteristics at the municipality level.

5 Effect of Violence on Household Allocations

5.1 Effect of Violence on Total Expenditures

Prior to the estimation of demand equations, I study whether increases in local crime led to changes in total household expenditure estimating the following specification:

$$\ln(y_{ijt}) = \alpha + \gamma H_{jt} + \Theta D_{ijt} + \lambda_t + \delta_i + \epsilon_{ijt} \tag{11}$$

where $\ln(y_{ijt})$ is the logarithm of total household expenditure on non-durable goods by household i living in municipality j and year t. H_{jt} is the measure of violence in municipality j and year t, defined as the quartic root of the homicide rate per 100,000 people over the last 12 months prior to the interview.[17] D_{ijt} is a vector of time-variant household characteristics; δ_i are household fixed effects that will control for both time-invariant household and municipality characteristics; λ_t are year-of-interview fixed effects; and ϵ_{ijt} are conditionally mean-zero errors clustered by municipality.

[17]As discussed in section 4.1, the quartic root resembles the logarithmic transformation without having to drop or transform observations with a homicide rate equal to 0, and is commonly used in the the crime literature and other fields in the presence of outliers (Ashraf et al. 2015; Velasquez 2019).

Table 3: Effect of Homicide Rates on Total Household Expenditure

	Households:					
	With children		**Nuclear with children**		**All**	
	(1)	(2)	(3)	(4)	(5)	(6)
$\sqrt[4]{}$ Homicide rate last 12 months	0.028	-0.008	0.024	-0.001	0.031	-0.009
	(0.026)	(0.027)	(0.025)	(0.028)	(0.025)	(0.025)
Household controls	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓
Household FE		✓		✓		✓
Y mean	10.92	10.92	10.92	10.92	10.87	10.87
Observations	7,591	7,591	6,141	6,141	8,834	8,834
adj. R^2	0.25	0.14	0.27	0.15	0.27	0.13

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is the logarithm of total household expenditure on non-durable goods. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, and rural locality dummy.

Increases in violent crime did not have a significant effect on total household expenditure (Table 3). The null effects are present across sample specifications. The point estimates flip sign—from positive to negative—with the inclusion of household fixed effects, but the effect of violence remains highly statistically insignificant at any conventional level. I also do not find substantial evidence of heterogeneous effects of homicides on total expenditure by household characteristics (Appendix Figure B1). Appendix Table B10 also shows the null effects are robust to controlling for time-varying economic municipality characteristics.

5.2 Effect of Violence on Expenditure Shares

We saw the increase in local violence did not affect total household expenditure within the MxFLS sample. But this does not mean it had no effect on the composition of such expenditure. This section tests whether the increase in local violence in Mexico had any effects on household decision-making with respect to expenditure allocations. I estimate a system of households' Engel curves parametrizing and adding an error term to each equation of (7):

$$W_{ijt}^k = \alpha^k + \beta^k \ln(y_{ijt}) + \gamma^k H_{jt} + \Theta^k D_{ijt} + \lambda_t^k + \delta_i^k + \epsilon_{ijt}^k \tag{12}$$

where W_{ijt}^k is the budget share spent on good k by household i living in municipality j in year t. The coefficient of interest is γ^k, and H_{jt} is the measure of violence in municipality j and year t. It remains defined as the quartic root of the homicide rate per 100,000 people over the last 12 months prior to the interview. As in equation (11), $\ln(y_{ijt})$ is the logarithm of total household expenditure on non-durable goods; D_{ijt} is a vector of time-variant household characteristics; δ_i^k are household fixed effects; λ_t^k are year-of-interview fixed effects; and ϵ_{ijt}^k are conditionally mean-zero errors.

5.2.1 Estimation Strategy

I estimate the set of Engel curves specified in (12) simultaneously as a system allowing for correlation of the error terms, clustering at the municipality level.

Endogeneity of total household expenditure. The coefficients of interest are γ^k, the effects of violent crime on budget shares. However, if we are interested in an unbiased estimation of β^k to classify goods based on their expenditure elasticity, we need to address the potential endogeneity of total expenditure.[18] I use household wealth as an instrumental variable for total household expenditure within a period. This strategy is standard when estimating demand equations (Dunbar, Lewbel, and Pendakur 2013; Armand et al. 2020). The theoretical foundation relies on households' inter-temporal problem of allocating resources over time and across states of nature. Wealth will be uncorrelated with unobserved consumption heterogeneity within the same period if consumption decisions within a period are separable from

[18] Households are assumed to engage in two-step budgeting. They first decide how much to allocate in each period t and then how the total expenditure is allocated within the current period (Chiappori and Mazzocco 2017). This assumption raises endogeneity concerns if we worry about households' time preferences being potentially correlated with unobserved preference heterogeneity. Additionally, recall bias and other types of non-random measurement error are a common concern when dealing with self-reported expenditure data.

saving decisions across time.[19]

In the estimation, I implement the instrumental variable strategy, using a control function approach bootstrapping the standard errors (clustering by municipality). The first-stage regressions are reported in Tables B11 and B12 for the main sample and the nuclear households subsample, respectively.[20] The instrumentation of contemporaneous expenditure with contemporaneous wealth in the presence of household fixed effects also requires the lack of unobserved trends correlated with both the growth in households' wealth and households' budget shares. Hence, as a robustness check, I also estimate the Engel curves with two other instruments: wealth at the time of MxFLS-1 (2002) and wealth at the time of MxFLS-2 (2005–2006).[21]

Double-lasso I augment the Engel curves specified in (12) implementing the post-double-cluster-lasso methodology proposed by Belloni et al. (2016), which allows to control for household fixed effects and a clustered covariance structure. The double-lasso methodology permits relaxation of the assumption of a linear functional form of the household controls. I include the original set of household controls, their square, and interactions among all controls.[22] The main goal of the double-selection methodology is to deal with potential omitted variable bias.[23] The first step helps

[19]The wealth instrument is constructed by taking the natural logarithm of the monetary value of the assets owned by the household: land, bicycles, automobiles and other vehicles, household appliances, financial assets, and livestock and other agricultural assets. Appendix B.5 provides more detailed discussion.

[20]The instrument has the expected positive effect on total expenditure and is highly predictive (F statistic of 49 in main sample and 29 in the nuclear subsample). The first stage is also strong when we include the square of the wealth instrument, which I use when testing the validity of the linear specification in section 5.2.3.

[21]The results are very similar and are available upon request.

[22]I remove one control from any pair of covariates that had a bivariate correlation exceeding 0.99 in absolute value. High-dimensional variable-selection methods work best when the set of variables to be selected is not very large (Belloni, Chernozhukov, and Hansen 2014). Note the variables post selected by lasso can vary across the different demand regressions.

[23]The following steps summarize the methodology: (i) select control variables that predict H_{jt} by cluster-lasso; (ii) select control variables that predict the budget shares W^k_{ijt} by cluster-lasso, excluding the regressor of interest H_{jt}; and (iii) estimate the coefficient of interest γ^k controlling for any variables selected in either of the first two steps, clustering errors at the municipality level. I include total household expenditure in each of the three steps, as well as household and time fixed effects. The cluster-lasso coefficients from step 1 and step 2 are the solution to a penalized minimization problem with the standard lasso λ penalty parameter, and covariate specific penalty

implement robustly the conditional exogeneity assumption finding variables that are highly correlated with the homicide rate and could be confounding factors. The second step aims to keep the residual variance small by providing a good prediction of the budget shares, and it is an additional opportunity to find confounders (Belloni, Chernozhukov, and Hansen 2013).

Prices I proxy for local prices estimating the demand equations including state-time fixed effects (see Attanasio and Lechene (2014) or Armand et al. (2020) for similar methodologies). This approach requires that prices are constant within a state, though they can vary across time, and I also include a rural locality linear trend to account for urban versus rural differences over time. I also provide evidence suggesting the increase in homicides did not have a meaningful impact on local prices, at least within the MxFLS municipalities. I use market prices collected at the community level by the MxFLS, although unfortunately, not all goods have price information. I aggregate prices by estimating the median price across markets and communities within the municipality.[24] Appendix Table B5 presents the results of difference-in-differences estimations of the price indices by good category. The point estimates are insignificant across the board both from a statistical and an economical evaluation for all the goods considered: food, household goods, men's clothing, women's clothing, and children's clothing.

5.2.2 Results

Tables 4 and 5 present the results of the household Engel curves specified in (12). Table 4 presents the estimates on the log of total expenditure (β^k) and Table 5 reports the coefficients of interest γ^k, the effect of an increase in homicide rates on expenditure shares. All regressions implement the instrumental variable strategy and include household time-varying controls, as well as household, year, and month

---

loadings to allow for data with potential dependence within municipalities. The last step is a simple linear regression of the lasso selected variables (post-lasso), because the lasso coefficients will be generally substantially biased toward zero.

[24] Ideally, we would calculate unit values, dividing information on expenditure by quantity purchased. This approach is not feasible across all the non-durable goods considered, given the infrequency of purchases of many items.

Table 4: Engel Curves: Coefficients on Log Expenditure

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–17.84***	–17.81***	–17.41***	–20.09***	–20.00***	–19.63***	–15.70***	–15.31***	–15.27***
	(3.92)	(3.78)	(3.87)	(5.93)	(5.51)	(5.76)	(3.31)	(3.24)	(3.39)
Drinks and Tob.	–0.11	–0.02	–0.05	0.60	0.68	0.73	–0.19	–0.07	–0.08
	(0.88)	(0.88)	(0.90)	(1.20)	(1.15)	(1.19)	(0.84)	(0.86)	(0.90)
Male adult clothing	1.25***	1.34***	1.31***	1.03*	1.12**	1.12*	1.80***	1.89***	1.92***
	(0.44)	(0.44)	(0.46)	(0.58)	(0.57)	(0.60)	(0.56)	(0.56)	(0.58)
Female adult clothing	1.22*	1.20*	1.09	0.85	0.77	0.63	1.32*	1.27*	1.21
	(0.68)	(0.66)	(0.68)	(0.99)	(0.95)	(0.99)	(0.73)	(0.73)	(0.76)
Children goods	1.16	1.03	0.92	1.75	1.41	1.39	1.10	1.04	1.02
	(0.80)	(0.77)	(0.81)	(1.22)	(1.10)	(1.25)	(0.69)	(0.67)	(0.70)
Hygiene and care	–1.39	–1.25	–1.21	–1.03	–0.83	–0.92	–1.89	–1.81	–1.96*
	(1.25)	(1.15)	(1.13)	(1.66)	(1.51)	(1.54)	(1.24)	(1.17)	(1.19)
Other hh goods	3.65	3.76*	3.61	5.20*	5.02*	5.01*	1.55	1.52	1.31
	(2.33)	(2.27)	(2.29)	(3.14)	(2.93)	(3.03)	(2.12)	(2.07)	(2.19)
Transportation	7.49***	7.36***	7.44***	6.51*	6.74**	7.12**	6.98***	6.73***	7.04***
	(2.33)	(2.21)	(2.24)	(3.40)	(3.13)	(3.33)	(2.02)	(1.95)	(2.06)
Health	1.30	1.15	0.90	2.28**	2.09*	1.80	1.45	1.22	1.09
	(0.82)	(0.82)	(0.85)	(1.16)	(1.07)	(1.16)	(0.90)	(0.86)	(0.91)
Education	0.59	0.45	0.59	0.41	0.30	0.24	0.47	0.34	0.44
	(0.73)	(0.68)	(0.71)	(1.15)	(1.06)	(1.12)	(0.63)	(0.59)	(0.63)
Recreation	2.45*	2.26*	2.28*	2.15	1.99	1.86	2.89**	2.67**	2.71**
	(1.25)	(1.24)	(1.25)	(1.85)	(1.78)	(1.81)	(1.14)	(1.11)	(1.13)
Gambling	0.24	0.25	0.23	0.31	0.32	0.26	0.23	0.24*	0.24*
	(0.19)	(0.17)	(0.17)	(0.30)	(0.26)	(0.23)	(0.16)	(0.14)	(0.14)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	7,476	7,476	7,476	6,258	6,258	6,258	8,834	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 4 reports coefficient β^k on $\ln(y)$ of each demand equation (12). Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, and number of household members by gender and age group.

fixed effects. In each of the sample specifications presented, the second column selects controls implementing the double lasso methodology and the third column also includes state- and rural-time linear trends to control for unobserved prices.

Expenditure elasticities The coefficients on total expenditure show that food is a necessity, consistent with Engel's law. An increase of 10% in total expenditure is associated with a decrease of 1.7 percentage points in the food budget share. Hygiene and care goods are also necessities, that is they have expenditure elasticity less than one. The estimates also suggest the rest of household goods and services are luxury goods, that is expenditure share increases as total spending rises. Table

Table 5: Effect of Homicide Rates on Expenditure Shares

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–0.96*	–1.01*	–0.74	–1.21*	–1.26**	–1.11*	–0.90*	–0.96*	–0.67
	(0.56)	(0.56)	(0.60)	(0.66)	(0.60)	(0.61)	(0.54)	(0.52)	(0.57)
Drinks and Tob.	0.05	0.04	–0.19	0.01	–0.01	–0.19	0.10	0.08	–0.15
	(0.13)	(0.14)	(0.17)	(0.13)	(0.13)	(0.15)	(0.13)	(0.13)	(0.18)
Male adult clothing	0.26***	0.24***	0.27***	0.30***	0.28***	0.34***	0.24***	0.22***	0.25***
	(0.09)	(0.08)	(0.09)	(0.10)	(0.09)	(0.10)	(0.08)	(0.07)	(0.08)
Female adult clothing	0.05	0.04	0.10	0.07	0.07	0.17	0.06	0.05	0.05
	(0.08)	(0.07)	(0.10)	(0.10)	(0.09)	(0.11)	(0.07)	(0.07)	(0.09)
Children goods	–0.14	–0.14	–0.04	–0.13	–0.14	0.00	–0.07	–0.08	0.01
	(0.16)	(0.16)	(0.17)	(0.19)	(0.18)	(0.19)	(0.14)	(0.14)	(0.15)
Hygiene and care	–0.35*	–0.33*	–0.27	–0.36*	–0.33	–0.16	–0.43**	–0.41**	–0.37*
	(0.18)	(0.19)	(0.22)	(0.19)	(0.20)	(0.22)	(0.18)	(0.19)	(0.20)
Other hh goods	0.17	0.18	–0.03	0.48	0.51*	0.27	0.18	0.23	–0.04
	(0.31)	(0.30)	(0.39)	(0.33)	(0.29)	(0.38)	(0.30)	(0.28)	(0.35)
Transportation	0.56*	0.60*	0.90**	0.31	0.32	0.47	0.41	0.45	0.77**
	(0.32)	(0.33)	(0.38)	(0.36)	(0.35)	(0.39)	(0.28)	(0.29)	(0.31)
Health	0.13	0.14	0.14	0.22	0.22	0.16	0.22	0.24	0.26
	(0.18)	(0.17)	(0.20)	(0.21)	(0.20)	(0.25)	(0.15)	(0.15)	(0.19)
Education	0.03	0.04	0.04	0.04	0.09	0.12	0.05	0.06	0.06
	(0.11)	(0.10)	(0.11)	(0.13)	(0.12)	(0.13)	(0.08)	(0.09)	(0.10)
Recreation	0.15	0.14	–0.20	0.20	0.20	–0.07	0.08	0.08	–0.20
	(0.21)	(0.20)	(0.23)	(0.24)	(0.22)	(0.23)	(0.20)	(0.19)	(0.20)
Gambling	0.06*	0.06	0.03	0.07*	0.07	0.05**	0.05*	0.05*	0.03*
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.02)	(0.03)	(0.03)	(0.02)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	7,476	7,476	7,476	6,258	6,258	6,258	8,834	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 4 reports coefficient γ^k on the quartic of the homicide rate in 100,000 of each equation (12). Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, and number of household members by gender and age group.

B13 presents the elasticities of each food category at the mean sample values.[25]

Effect of violent crime on food and other necessities The results present evidence that an increase in the local homicide rate decreased the expenditure shares of food and hygiene and personal care goods. Both of these goods are necessities according to their estimated elasticities (Table 4). A household living in a non-violent municipality in 2005–2006, who then experienced the average increase in homicides (15 in 100,000), decreased the share of total expenditure allocated to food by 1.89 percentage points (pp) less of food (2.38 in nuclear households with children), and to hygiene and other household necessities by 0.68 percentage points ($\hat{\gamma}^k * \sqrt[4]{15}$). Relative to the baseline average expenditure shares (Table 2), the increase in crime lead to a decrease of 3.4% in food and 11.5% in hygiene and other household necessities (4.33% and 11.79% in nuclear households, respectively). The effects on food are more negative and more precisely estimated when we drop households in the top and bottom expenditure percentiles (see further discussion in section 5.2.3 and Tables B22, B23).

Appendix Table B14 splits the food expenditure share by food categories (fruits and vegetables, cereals and grains, meats and dairy, and other food). The point estimates are negative across the board but imprecisely estimated, with the exception of the fruits and vegetables category. The break-up results of the hygiene and care goods are further discussed below when discussing the effects on male and female goods, but the overall effect is mostly driven from a decrease in the expenditure of gender-neutral household necessities (Table B15).

Effect of violent crime on male and female goods The results indicate an increase in the local homicide rate led to an increase in the budget share spent on

[25] Expenditure elasticities are calculated in the standard form for Working-Leser Engel curves (Armand et al. 2020; Vreyer, Lambert, and Ravallion 2020). The elasticities are equal to $1 + \frac{\beta^k}{W^k}$, with W^k equal to the average budget share for good k across the two survey waves:

$$\frac{\partial \ln(W^k y)}{\partial \ln(y)} = \frac{\partial \ln(W^k y)}{\partial y} y = 1 + \frac{\beta^k}{W^k} \tag{13}$$

adult male clothing. A household living in a municipality that experienced the average increase in the annual homicide rate consumed around 0.51 percentage points more of adult male clothing, about a 34% increase of a 2005–2006 average. As in the case of the food share, the effect is stronger among nuclear households (columns (4) to (6) of Table 5). In contrast, the effect of homicides on adult female clothing is small in terms of point estimates and not statistically significant across specifications. Neither the male or female adult clothing expenditure share can be further break down by category given the format of the MxFLS consumption module.

The hygiene and personal care goods budget share can be split further in household goods, women care goods, and men care goods. Table B15 replicate the results splitting the budget share in the three categories. Reading point estimates, the effect on household personal care goods is the largest and most precisely estimated. The point estimates on female and male care goods are also negative, but significantly smaller, and imprecisely estimated.

I also re-estimate the Engel curves analysis merging the clothing and care goods categories creating new "male goods" and "female goods" categories. The combined effect of crime on male goods is still large and positive, while the effect on female goods remains null (Tables B16 and B17).

Finally, the results also provide some evidence that the increase in homicide rates led to greater expenditure share on gambling, which has been reported to be more common among Mexican men than women (Velazquez et al. 2018). But, of course, we cannot conclude firmly that this result only reflects male preferences.

Effect of violent crime on other luxury goods and services The results also provide some evidence that the increase in homicide rates lead to greater expenditure share on transportation. This may reflect the need to invest in safer routes or modes of transportation due to increased risk of victimization. However, the MxFLS data does not allow to disentangle to what extent these results reflect households adapting behaviors, or if it is driven by modes of transportation raising prices in response to the increase in insecurity. The rest of the coefficients of interest are largely statistically insignificant. It is worth noting the relatively large negative coefficient on the children goods category, that although it is imprecisely estimated, its randomization-based p-value is 0.14 (see sections 5.2.3 and B.6.1 for further discussion).

5.2.3 Threats to identification and other robustness checks

Unobserved municipality trends and other economic confounders. The main threat to identification would be that the heterogeneous geographic and sharp temporal variation in homicides reported in Mexico was actually anticipated or was correlated with other underlying trends related to households' consumption patterns. To assess the plausibility of this source of bias, I conduct a placebo test estimating the same system of demand equations using data from the 2002 MxFLS-1 and the 2005–2006 MxFLS-2, but assigning to each survey wave the homicide rate of the subsequent wave. In the within-household framework, this test captures whether prior trends of households' budget shares are correlated with posterior changes in homicides at the municipality level. The future homicide rate changes should not predict changes in consumption patterns between 2002 and 2005. Indeed, the results show that the effect of violence on the budget shares is never simultaneously statistically significant and of the same sign as in the main results (Tables B18 and B19).

These results alleviate concerns with respect to non-random linear unobserved municipal trends. A word of caution remains with respect to sources of bias coming from non-linear omitted trends. However, these would need to be on a similar temporal path as the increase in homicides rates, and to mirror the geographic heterogeneity of the change in violence in Mexico after 2006. Still, one might worry that several local economic conditions could be confounding the results, especially given the occurrence of the Great Recession between the two survey waves, although previous research has failed to provide evidence in support of a significant relationship between the heterogeneity in the exposure to violence and to the economic effects of the Great Recession (Velasquez 2019). I augment the demand equations (12) with local economic controls to alleviate concerns about municipality-level confounders. First, I add a large number of economic municipality controls.[26] Second, I implement post-double-lasso allowing for a flexible functional form of the controls including higher polynomial orders and interactions among the household and municipality controls. Table B20 shows the estimated effects are quite robust to the inclusion of a very large set of municipality time-varying controls.

Randomization-based inference. To analyze the likelihood that the main results could have occurred by chance, I generate randomness in the exposure to increased local violence and calculate randomization-based p-values (Athey and Imbens 2016; Young 2019). The estimated p-values indicate that the sharp null hypothesis—that the increase in homicides had no effect on households' expenditure shares among these good categories—should be rejected further confirming the main results, see appendix B.6.1 for a more detailed discussion.

Multiple hypothesis testing. Given the joint estimation of a set of demand equations, the probability of type-I error—the probability of one or more false rejections—is greater than the size of the test we choose when deciding whether to reject the null hypothesis of statistical significance in each regression. Appendix Table B21 shows the results are robust to re-estimating the model controlling for the familywise error rate.[27]

Alternative sample restrictions and specifications. The results are also robust to relaxing several sample restrictions and using alternative specifications. A

[26]The municipality-level controls are the following: share of manufacturing, commerce, and services employment, the logarithm of total electricity consumption, share of rural population, Gini index, food poverty index, assets poverty index, and capacities poverty index. Sources: Population Census, Federal Electricity Commission, ENIGH, Technical Committee on Poverty Measurement. The three poverty measures are monetary poverty measures. Capacities poverty is defined as the lack of sufficient household resources to maintain expenditures on a minimum diet, education, and health care. Assets poverty expands the notion of capabilities poverty to include households that cannot afford clothing, housing, energy, and transportation expenditures. I am grateful to Enamorado et al. (2016) for making the inequality and poverty data and descriptions publicly available.

[27]Specifically, I implement the procedure for multiple hypothesis testing based on List, Shaikh, and Xu (2019) within a multivariate regression setting. I use the *mhtreg* Stata package developed by Steinmayr (2020). The procedure allows for p-values to be correlated across specifications and to cluster at the municipality level using a bootstrapping approach.

standard sample restriction aimed to shield the estimates from the influence of expenditure outliers is to drop the top and bottom percentiles of total annualized expenditures. Appendix Tables B22 and B23 present the Engel curves results excluding households in the top and bottom 1% and 5% of total expenditures, respectively. The results are robust, and if anything, the negative effect of homicides on the food budget share is exacerbated.

On the right hand side, the main coefficient of interest is the quartic root of the homicide rate but, as we can see in Appendix Table B24, the results are robust to instead implementing other standard monotonic transformations such as the logarithmic and inverse hyperbolic sine functions.

With respect to the curvature of the Engel curves, the Engel equations in (12) assume a linear relationship between total expenditure and expenditure shares. It is important to remember that the null effect of the increase in homicides on total expenditure (Table 3) alleviates concerns about misspecification bias of the estimate of crime on the budget shares. Still, Appendix Table B25 shows the results are robust to introducing a quadratic term for total expenditure.[28]

5.2.4 Ruling out mechanisms

In this section, I explore and rule out a series of mechanisms that we may expect could explain the relationship found between the increase in crime and changes in household expenditures. They are household or individual characteristics that we could expect, either from a theoretical perspective or prior empirical evidence, to have a relationship with expenditure allocations and that may also be affected by changes in local crime.

Household composition The main results already include controls for the number of people living in the household by gender and age group (0-6, 7-11, 12-18, 19-55,+55). If the change in local violence has an impact on household composi-

[28]The addition of the quadratic term is a common parameterization extension to the AIDS model named the Quadratic Almost Ideal Demand System (QUAIDS). QUAIDS introduces a more flexible relationship and allows for the possibility of a good being a luxury at very low levels of expenditure and a necessity afterwards. For example, for households living at the subsistence level, the food expenditure share may increase with total income at first.

tion, the main results would capture the average effect of the increase in homicides on consumption net of the effect on the number and type of household members. In addition, Appendix Table B27 shows the measure of local violence does not predict changes in the number and type of household members, except for a very small negative effect on the number of young boys ages 7 to 11. In addition, treating changes in household composition as a mechanism through which violence can affect consumption relies on the assumption that the outcome variables do not affect who lives in the household. However, the results could suffer from collider bias if changes in the intra-household allocation of resources leads certain household members to join or to leave the family unit (Cunningham 2021). But the results are also robust to the exclusion of the household composition variables.

Male time allocations The main results, and all the aforementioned robustness checks, show an increase in the budget share of adult male clothing, a male private assignable good. As discussed in the theoretical section, this reallocation of household expenditure can reflect a shift of intra-household bargaining power toward men and I provide further empirical evidence supporting this hypothesis in section 6.

But an alternative explanation could be that there are crime-induced changes in time allocations that drive households' reallocation of resources toward male clothing. If households are responding to the increase in homicide rates with an increase in male labor supply, or simply the time men spent outside the household, then households might need to spend more in male clothing. Using the MxFLS survey, Velasquez (2019) already documents no effects on working hours either among self-employed or wage-employed men. Appendix Tables B28, B29, and B30 show that Velasquez 2019's results also hold within this paper's analytical sample. There is no statistically significant evidence that crime affected the husbands' labor supply, either at the extensive or intensive margin. The total number of male working hours worked aggregating at the household level is also not affected by the rise in violence. In addition, the MxFLS also includes a time allocation module that asked how many hours respondents spent in a series of activities during the last week and there is no evidence the increase in crime increased the amount of hours the sample's men spent participating activities outside the household (Table B31).

Households' standards of living The negative effects on the expenditure shares on food and other necessities along with the positive effect of homicides on the shares spent on luxury goods could also raise concerns about the possibility of homicides reflecting an increase in households' total resources, not fully captured by controlling by total expenditure. The empirical evidence to date has, if anything, documented the opposite (Velasquez 2019). Still, we may worry that households might be positively benefiting from the increase in illicit activities in their communities. In this case, self-reported income data may suffer from (under)reporting bias. The use of consumption data as opposed to self-reported income already alleviates largely these concerns. In addition, Appendix Table B32 also shows that the increase in homicides rates does not predict any changes in household's measures of wealth or labor earnings.

Home production and gifts The effects of violence on the budget shares are also not driven by changes in gifts or by shifts in the type of goods households produce. The budget shares are calculated including consumption that the household purchased, received as a gift or payment, or obtained from its crops, animals, or businesses. The concern would be that the increase in homicides could have affected informal trading markets, gifts and transfers, or the type of home production households engage in. Appendix Table B33 splits the budget shares into purchased and gifts/self-production and shows it is the household purchases that drive the reported effects on expenditures.

Survey interview process The consumption module of the MxFLS survey had be completed by a household member that is above 18 years old and "who knows about the characteristics of all household members". In 95% of the sample, it is either the head of the household or the spouse who completes the section. In 83% of the cases is the female spouse of the head of the household. We may worry the increase in crime has affected who is the person who completes the survey which could be a problem if men and women have different recall bias for different goods, or if they hide expenditures from each other that are otherwise willing to report to the survey enumerators. The Engel curve results are robust to limiting the sample to households where the person who fills the consumption survey is the same across survey waves (Table B26). In addition, if we worry about non-random changes in bystander effects, there is also no evidence of the increase in crime affecting who is present at the time of the interview, regardless if it is the wife or the husband who completes the consumption module (Table B34).

6 The Effect on Intra-Household Bargaining Power

Given previous research, the main results presented in section 5 are consistent with the increase in violence deteriorating women's intra-household bargaining power. The increase in the budget share of male clothing is consistent with increases in men's relative bargaining power inside the household. Clothing is a private assignable good and has been shown to be correlated with individuals' bargaining power in Mexico and other countries (Bobonis 2009). Attanasio and Lechene (2010) also show that the budget share of food is unchanged following the receipt of a large cash conditional transfer in Mexico, in contrast to what would be predicted by Engel's law. They rule out multiple mechanisms and argue the key is that the transfer is made to women, which changes the control over household resources. But previous empirical evidence linking food and clothing expenditures to intra-household bargaining power relies on *distribution factors*. These factors are observables that affect individuals' bargaining power inside the household but are assumed to not affect preferences as well (e.g., cash transfer, change in family law). We may worry this assumption might be less likely to hold when we discuss increases in violent crime in households' communities (see Appendix C.1 for a theoretical discussion).

In this section, I provide further evidence in favor of the results been, at least partly, driven by declines in women's bargaining power. First, I present reduced-form results of the effect of violence on individuals' responses on who makes decisions regarding household expenditures. Second, I structurally estimate women's resource shares and study how they vary with household characteristics, allowing for homicides to affect both preference and bargaining power parameters.

6.1 Reduced-form: Intra-household Decision-Making

In this section, I show that households themselves report decreases in female decision-making power with respect to household purchases. The MxFLS survey includes a standard decision-making module asking the head of the household and the spouse separately who generally makes the decisions regarding different items. Prior papers have used this module to document a positive correlation between female decision-making and higher secondary enrollment for boys (Chakraborty and De 2017) and a negative relationship between increase in homicide rates and female self-reported decision making (Tsaneva, Rockmore, and Albohmood 2018). I estimate the effect of homicide rates on intra-household decision making-power with the following specification:

$$Y_{ijt}^m = \alpha^m + \gamma^m H_{jt} + \Theta^m D_{ijt} + \lambda_t^m + \delta_i^m + \epsilon_{ijt}^m$$

where the coefficient of interest is again γ^m and H_{jt} is the quartic root of the homicide rate per 100,000 people over the last 12 months prior to the interview. The outcome variables are two indicator variables based on the wife's and husband's responses with respect to decision m: i says i decides over m, and i says spouse decides over m. The sample is limited to those households where both the wife and the husband filled the decision-making module during their individual questionnaires.

Table 6 plots γ^m of equations (6.1) and shows exposure to local violence has a negative effect on the probability of women reporting they are a decision-maker, sole or jointly regarding expenditure on her clothes, her spouse's clothes, and large purchases for the household. The changes in violence also have an effect on men's perceptions especially regarding their own clothing, and being less likely to report their wives as decision-makers regarding large household purchases. These results are also important in quantitative terms. A woman living in a municipality that had no violence exposure in 2005–2006, and then experienced the average annual homicide rate rise between the two survey waves, is about 4 percentage points more likely to report having lost her decision-making power regarding her own clothing, and about 8 percentage points with respect to male clothing and large expenditures in the household; this number is 2.7 percentage points with respect to food eaten in the household and 4 percentage points with respect to their own clothing expenses. Applying the same empirical exercise to men's answers, they are about 6 percentage points more likely to report their wives have lost decision-making power to them with respect to his clothing.

Table 6: Effects of Homicide Rates on Decision Making

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Households with children				**Nuclear households with children**			
	Wife says		**Husband says**		**Wife says**		**Husband says**	
	She is DM	Husband is DM	He is DM	Wife is DM	She is DM	Husband is DM	He is DM	Wife is DM
Food	–0.002	0.015	0.014	0.002	0.005	0.007	0.015	–0.003
	(0.010)	(0.025)	(0.027)	(0.011)	(0.010)	(0.025)	(0.028)	(0.010)
Your clothes	–0.017**	0.021	0.036**	–0.032	–0.021**	0.013	0.032**	–0.033
	(0.008)	(0.023)	(0.014)	(0.023)	(0.010)	(0.025)	(0.015)	(0.024)
Spouses' clothes	–0.037	0.025*	–0.021	0.013	–0.041	0.019	–0.021	0.005
	(0.025)	(0.015)	(0.027)	(0.013)	(0.026)	(0.015)	(0.028)	(0.015)
Children's clothes	–0.004	0.022	0.010	–0.009	–0.002	0.022	0.014	–0.008
	(0.017)	(0.020)	(0.019)	(0.017)	(0.018)	(0.022)	(0.019)	(0.017)
Children's educ.	0.011	–0.025	–0.008	–0.011	0.019	–0.021	0.000	–0.016
	(0.017)	(0.024)	(0.016)	(0.019)	(0.016)	(0.026)	(0.017)	(0.019)
Children's health	–0.004	–0.027	–0.021	–0.023	0.014	–0.020	–0.009	–0.027
	(0.014)	(0.019)	(0.018)	(0.020)	(0.014)	(0.020)	(0.019)	(0.021)
Large house exp.	–0.038*	0.013	0.008	–0.044	–0.060***	0.024*	–0.002	–0.059*
	(0.022)	(0.012)	(0.011)	(0.029)	(0.022)	(0.013)	(0.010)	(0.032)
Observations	4,794	4,794	4,794	4,794	3,754	3,754	3,754	3,754

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each number is the coefficient of the quartic root of the homicide rate of a different regression whose outcome variable is described by the column with respect to the decision described in the row. Columns (1) and (5) outcome variable is equal to 1 if the wife reports been a decision maker. Columns (2) and (6) outcome variable is equal to 1 if the wife says her husband is a decision-maker. Columns (3) and (7) outcome variable is equal to 1 if the husband reports been a decision maker. Columns (4) and (8) outcome variable is equal to 1 if the husband says his wife is a decision-maker. In all cases, a decision-maker may be reported as deciding solely or jointly with others.

The interpretation of self-reported decision-making as a measurement of intra-household bargaining power or agency is well-extended in the literature although, of course, it presents several limitations since higher involvement in decision-making does not always necessarily reflect greater agency (Seymour and Peterman 2018; Donald et al. 2020; Peterman et al. 2021; World Bank 2021). However, taken together with the previous set of results, they provide further evidence of the hypothesis that exposure to local violence led to reductions in married women's control over their household's resources.

6.2 Structural Analysis of Intra-household Inequality

In this section, I set up a model of intra-household resource allocation identifying women's resource shares and study how they vary with household's characteristics, including the exposure to violent crime. As explained in section 3, resource shares are a proxy for individuals' intra-household bargaining power under standard utility assumptions. Identification of the resource shares—the fraction of household expenditure consumed by each household member—will rely on the presence of private assignable goods. In particular, male and female goods will comprise adult clothing and personal care goods.[29]

The computation of resource shares will derive from the slope of the Engel specified in equations (10a) and (10b). Note that, in the absence of further preference assumptions, the system of Engel curves specified in equations (10a) and (10b) would consist of two Engel curves equations (women's and men's goods) and three unknown parameters: $\{\eta, \beta_m, \beta_w\}$. Therefore, identification would not be possible without additional constraints. I impose a semiparametric restriction following Dunbar, Lewbel, and Pendakur (2013) and assume similar preferences across members of the household restricting, $\beta_w = \beta_m = \beta$. This methodology, known in the literature as the DLP system, has been increasingly used to measure the levels and determinants of intra-household inequality.[30]

In addition, I control for unobserved time-invariant heterogeneity exploiting the use of panel data. Given that, within a non-linear model with unobserved effects, the

[29]Adult male clothing is defined as "Clothes and shoes for male adults such as: pants, shirts, sweaters, suites, underwear, etc". Male care goods is defined as "Men's personal effects such as: lotion, deodorant, razors, shaving foams, haircuts, etc.". Adult female clothing is defined as "Clothes and shoes for female adults such as: blouses, sweaters, skirts, underwear, pants, dresses, shoes, etc." Female care goods is defined as "Women's personal effects as: perfume, deodorant, cosmetics, feminine hygiene, face lotion, haircut, dyes, manicure, waxing, etc."

[30]For instance, Calvi (2020) applies the methodology to estimate the age profile of women's resource shares in India to shed light on the phenomenon of elderly missing women. Brown, Calvi, and Penglase (2019) use the structural estimates of resource shares to measure intra-household consumption inequality in Bangladesh. Hoehn-Velasco and Penglase (2021) estimate resource shares to study the impact of unilateral divorce in women's bargaining power in Mexico. Tommasi (2019) estimates the impact of the Mexican Progresa cash conditional transfer on intra-household resource shares.

direct inclusion of household fixed effects is not computationally feasible (Wooldridge 2001), I instead include Mundlak effects: average time-varying characteristics across survey waves.[31] This follows the approach in Wooldridge (2019) exploiting the equivalence between the one-way fixed effects estimator and the Mundlak regression in the small T case (two survey waves in this paper's context), and I let the time dummy to be included among the time-varying covariates, as opposed to the additional inclusion of cross-sectional averages for each time period (Wooldridge 2021).

The empirical implementation is the following:

$$W_{it}^{w} = \eta(x_{it})[\alpha^{w}(x_{it}) + \beta(x_{it})[\ln(\eta(x_{it})) + \ln(y_{it}/n_{it}^{w})] + \theta^{w}\bar{x}_i] \tag{14a}$$

$$W_{it}^{m} = (1-\eta(x_{it}))[\alpha^{m}(x_{it}) + \beta(x_{it})[\ln(1-\eta(x_{it})) + \ln(y_{it}/n_{it}^{m}) + \theta^{m}\bar{x}_i] \tag{14b}$$

where W_{it}^{w} and W_{it}^{m} are the household budget shares spent on women's and male's private assignable goods, y_{it} is total household expenditure, n^{w} and n^{m} are the number of adult women and men in the household, respectively. η denotes the share of total household expenditure consumed by all adult women and provides a measure of their overall bargaining power (Calvi 2020). It is important to note that the budget shares of the private assignable goods are not the same as the resource shares η. It is important to keep in mind that although imposing the same β restricts preference heterogeneity, it does not impose identical preferences across household members. If it did, $W_{w}^{k} > W_{h}^{k}$ would imply η must be greater than 0.5. But this conclusion is not necessarily true when we just restrict the slope β.[32]

[31] This methodology is used to replace household fixed effects when the model uses time-invariant regressors of interest. For instance, Vreyer, Lambert, and Ravallion (2020) include Mundlak effects in the estimation of household Engel curves in Senegal. This approach can also be crucial for analyzing non-linear models with unobserved heterogeneity.

[32] In Figure C1, for a hypothetical household with one adult woman and one adult man, I plot the hypothetical budget shares of two different goods against the resource share of the wife. The wife has a stronger preference for good 1 than her husband ($\alpha_{w}^{1} > \alpha_{h}^{1}, \beta_{w}^{1} = \beta_{h}^{1}$), and vice versa for good 2. We can see a range of η exists for which $\eta < 0.5$ and $W_{w}^{1} > W_{h}^{1}$, and another where $\eta > 0.5$ and $W_{w}^{2} < W_{h}^{2}$. Therefore, using $\frac{W_{w}^{k}}{W_{h}^{k}} \gtreqless 1$ to determine $\eta \gtreqless 0.5$ would not be correct unless we assume identical preferences, which highlights the need to estimate the resource shares within a structural setting; see Calvi (2020) for another example.

6.2.1 Estimation strategy and results

The model is implemented by adding an error term to equations (14a) and (14b) and estimated by the non-linear seemingly unrelated regression (SUR) method. The preference parameters $(\alpha^w, \alpha^m, \beta)$ are parametrized linear on a set of household time-varying controls, including the municipality-level homicide rate. Mundlak effects, $\bar{x}_i$ are averages across panels of all the included household characteristics. I also include survey, region, and rural locality fixed effects to account for price variation. As in the Engel curves analysis, the sample is restricted to those households where there is at least one son or daughter in the household for representativeness reasons of Mexican households, as well as comparability with other papers estimating resource shares in the Mexican context.

Table 7 reports the coefficients on the resource shares of the covariates (x_{it}). The coefficient on the homicide rate on women's resource shares is negative across the board. Columns (1), (2), and (5) keep β constant across households and survey waves, whereas columns (3) and (4) parametrize it linearly on household time-varying controls, including the homicide rate, and a time fixed effect. We can see that this has little effects on the coefficients on η. Columns (2), (4), and (5) include Mundlak effects to account for unobserved heterogeneity. According to these estimates, in households that experienced the average increase in crime during the period, women's resource shares are estimated to decrease by about 5-7 percentage points consistent with the hypothesis that increases in local crime negatively affects women's intra-household bargaining power.

Figure 2 plots the distribution of the average predicted resource shares and the resource shares against household characteristics. Reassuringly, they are all within 0 and 1, even though they were not forced in the estimation. In addition, consistent with previous research, women's resource shares are positively correlated with the levels of education, are lower in rural areas, and their relationship with age is U-shaped significantly decreasing in post-reproductive ages (Calvi 2020; Tommasi 2019). The DLP system is a complex model to estimate and different specifications may lead to unstable results. Column (5) of Table 7 tests a common source of instability in the methodology, the inclusion of dummies rather than a linear index on the number of kids in the household which is a powerful robustness check (Tommasi and Wolf 2018; Tommasi 2019).

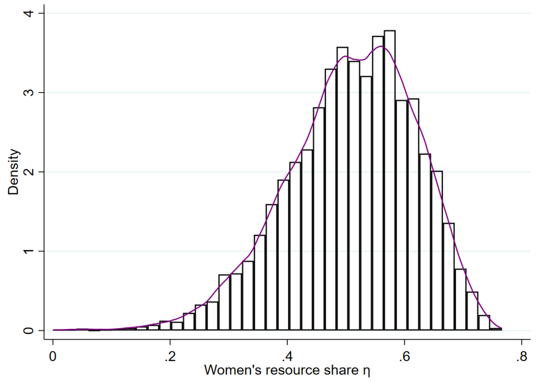
Table 7: Determinants of Women's Resource Shares

	(1)	(2)	(3)	(4)	(5)
Avg. secondary adult women	0.08**	0.05*	0.07**	0.05*	0.08***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Avg. secondary adult men	0.02	0.02	0.02	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Avg. age adult women	0.01	0.01	0.01	0.01	0.00
	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Avg. age all women^2	–0.00**	–0.00**	–0.00***	–0.00***	–0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Avg. age adult men	0.01	0.01	0.01**	0.01**	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Avg. age adult men^2	–0.00	–0.00	–0.00**	–0.00***	–0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
# hh members <=18	0.01*	0.01	0.01	0.01	
	(0.01)	(0.01)	(0.01)	(0.01)	
$\sqrt[4]{}$ Homicide rate last 12 months	–0.03**	–0.03**	–0.04***	–0.05***	–0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Rural locality	–0.10***	–0.10***	–0.10***	–0.10***	–0.10***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Central region	0.04	0.05	0.02	0.02	0.03
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
North region	–0.10***	–0.11***	–0.11***	–0.12***	–0.10***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
West region	–0.00	0.00	–0.02	–0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
MxFLS-3	–0.06***	–0.07***	–0.04*	–0.03	–0.05**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Dummy: 1 kid <= 18					0.04
					(0.03)
Dummy: > 1 kids <= 18					0.08**
					(0.04)
Intercept	0.37***	0.36**	0.34**	0.30**	0.40***
	(0.13)	(0.14)	(0.14)	(0.14)	(0.15)
Average η	0.51	0.50	0.52	0.51	0.51
Observations	7,554	7,554	7,554	7,554	7,554
Mundlak effects		✓		✓	✓
$\beta(.)$	Constant	Constant	x_{it}	x_{it}	Constant

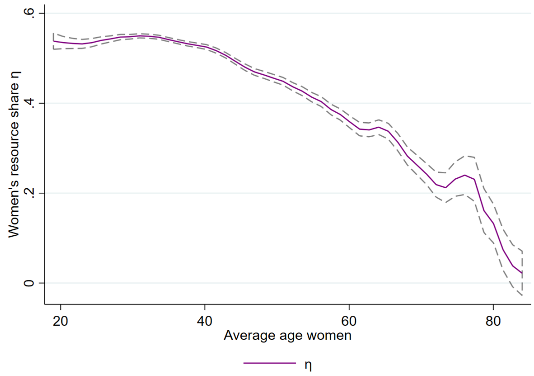
Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, clustered at the municipality level.

Figure 2: Average Predicted Women's Resource Shares

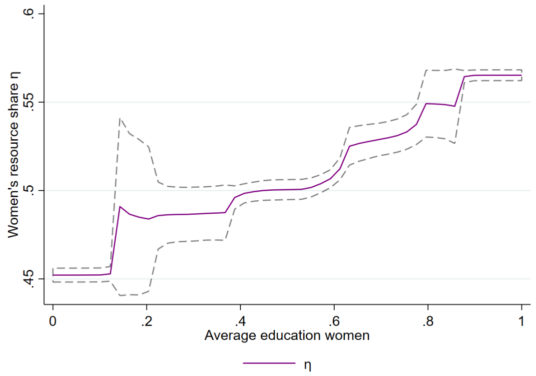
(a) Distribution



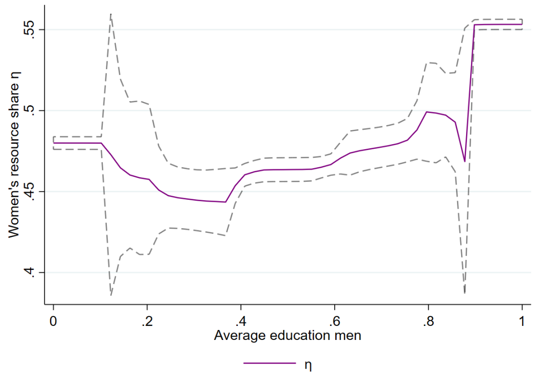
(b) Women's age



(c) Women's education



(d) Men's education



Notes: The figure plots the average predicted women's resource share. Figure 2a plots the distribution of the average predicted shares. Figures 2b, 2c, 2d show women's average resource shares against the average age of women in the household, the proportion of female adults with a secondary education, and the proportion of male adults with a secondary education, respectively. The dashed lines are 95% confidence intervals. Estimates come from column (1) of Table 7.

7 Discussion

To recap, this paper provides robust evidence that violent crime can affect households' allocation of resources through changes in intra-household control of resources. I discuss in this section different channels that could be at play highlighting the overall role of fear of victimization.

The effects of crime may operate directly through direct victimization but the results are robust to dropping those households that report being victims of any type of crime in the last five years prior to the MxFLS-3 survey round. But, most importantly, crime can affect households indirectly through fear of victimization which can differentially affect women's outside options. Within this paper's analytical sample, the increase in crime also had a greater effect on women's fear of victimization than men's (Table D1). The rise in homicides increases the probability that women are afraid to be attacked at night, lowers the probability of feeling safer than five years ago, and increases the probability of expecting an attack within the next three years. The increase in homicides also makes men feel less safe, but there is no statistically significant effect on how scared they are of being attacked and the point estimates are statistically insignificant and smaller than women's across the board.

Heterogeneity analysis of the effects of crime on household expenditures suggest that women's fear of victimization plays a role in the decline of their bargaining power presented in this paper (Figure D1). The patterns of the heterogeneous effects are very similar but more precisely estimated when we include all households (Figure D2). The reported effects of homicides on food and male clothing are stronger in those households whose wives report being more scared of victimization than before. And, interestingly, there is some evidence of an increase in the budget share of alcohol and tobacco in such households as well, a good previously found to be negatively correlated with women's bargaining power in Mexico (Angelucci 2008; Bobonis 2009). There is no evidence that this effect is driven by either the wives or husbands being more likely, as a consequence of the increase in crime, to drink alcohol with food at home or to smoke cigarettes (Tables D2, D3).

The relationship between women's fear of victimization and bargaining power may operate through multiple channels. Women's earnings capacity through labor markets is of course an important candidate, especially given previous findings (Dell 2015; Utar 2018; Velasquez 2019).[33] In this paper's sample, where three fourths of the married women were already not working prior to the escalation in crime, the direct effect is bound to be limited. Still, heterogeneity analysis suggests that the effects on the expenditures on household necessities and male clothing are not present among those women who work more than at baseline (Figures D1,D2). Of course we need to be careful interpreting these effects causally given the restricted sample size and the stronger assumptions required on the identification strategy. But lower female labor participation may lower women's bargaining power indirectly even for those who were not working before by limiting their outside options, as separation may become more costly, a channel further explored in Hernandez-de Benito (2020).

Beyond labor markets, women's increased fear of crime may also operate limiting the time spent outside the household in non-working activities. As opposed to the men in the sample, the increase in homicides negatively affected the number of hours women spend outside the household in sports, cultural, or entertainment activities (Table B31). This might shrink women's capacity to join, or interact with existing, empowering social networks (Oster and Thornton 2012; Kandpal and Baylis 2019; Andrew et al. 2020). A reduction in the time spent outside the household may also decrease the frequency of women commuting to markets to purchase households' goods, potentially allowing men to reallocate the budget towards their preferred commodities. Neither the social networks nor the market buyer channels can be tested with the MxFLS data, but given their policy implications, they should be subject of future research.

Finally, psychological effects might be at play as well. There is extensive research documenting that women and men can have different reactions to acute stress (Tay-

[33]Velasquez (2019) finds that the negative effects of the Mexican drug war on hours worked are much stronger for women who report fear of been assaulted, whereas these effects are not present in men.

lor and Updegraff 2000; Tamres, Janicki, and Helgeson 2002; Wang and Detre 2007). Angelucci and Cordova (2018), in a lab experiment in the US, find that acute stress reduces women's productivity and changes their decisions leading to income losses not found in men. At the same time, there is evidence suggesting women's depression levels have gone up during the Mexican drug war (Balmori de la Miyar 2020). While there is a growing body of research linking mental health and labor market outcomes (Peng, Meyerhoefer, and Zuvekas 2013; Böckerman et al. 2017), little is known on how it may affect individuals' willingness and capacity to participate in their household's decision-making process.

8 Conclusion

This paper presents evidence that changes in violent crime can significantly affect households' behavior, and the effects are not gender neutral. I do so in the context of an unprecedented and unanticipated surge in violent crime in Mexico in the late 2000s. I estimate causal estimates using a rich longitudinal survey that follows the same households before and after the escalation in violence. Understanding gendered effects of crime are key for effective policy design. The treatment effects of cash conditional transfers and other anti-poverty programs may be heterogeneous by women's exposure to violence in different parts of the world.

The increase in violence had an effect on the composition of household expenditures. The results suggest increases in homicides shifted the household Engel curves of food and other necessities (hygiene and personal care items) downward, while increasing the share of household expenditures allocated to private male clothing and gambling. The reported impacts on consumption allocations, as well as heterogeneous effects, are consistent with a deterioration in women's bargaining power. But previous research in Mexico and other developing countries has mostly relied on distribution factors. These factors are variables assumed to alter bargaining power but not preferences. To address this concern in the context of community violence, I further complement the findings analyzing intra-household decision-making measures and computing the effect of violence on women's bargaining power through the estimation of intra-household resource shares, defined as the fraction of the total household budget that individuals consume, within a structural set up.

References

Abramitzky, Ran, Adeline Delavande, and Luis Vasconcelos. 2011. "Marrying Up: The Role of Sex Ratio in Assortative Matching." *American Economic Journal: Applied Economics* 3 (3):124–57.

Aburto, José Manuel and Hiram Beltrán-Sánchez. 2019. "Upsurge of Homicides and Its Impact on Life Expectancy and Life Span Inequality in Mexico, 2005–2015." *American Journal of Public Health* 109 (3):483–489. PMID: 30676788.

Andrew, Alison, Orazio Attanasio, Britta Augsburg, Jere Behrman, Monimalika Day, Pamela Jervis, Costas Meghir, and Angus Phimister. 2020. "Mothers' Social Networks and Socioeconomic Gradients of Isolation." NBER Working Papers 28049, National Bureau of Economic Research, Inc.

Angelucci, Manuela. 2008. "Love on the Rocks: Domestic Violence and Alcohol Abuse in Rural Mexico." *The B.E. Journal of Economic Analysis and Policy* 8 (1):1–43.

Angelucci, Manuela and Karina Cordova. 2018. "Productivity and Choice Under Stress: Are Men and Women Different?" Working paper.

Angelucci, Manuela and Robert Garlick. 2016. "Heterogeneity in the Efficiency of Intrahousehold Resource Allocation: Empirical Evidence and Implications for Investment in Children."

Armand, Alex, Orazio Attanasio, Pedro Carneiro, and Valerie Lechene. 2020. "The effect of gender-targeted conditional cash transfers on household expenditures: Evidence from a randomized experiment." *Economic Journal* .

Ashraf, Nava, Diego Aycinena, Claudia Martínez A., and Dean Yang. 2015. "Savings in Transnational Households: A Field Experiment among Migrants from El Salvador." *The Review of Economics and Statistics* 97 (2):332–351.

Athey, Susan and Guido Imbens. 2016. "The Econometrics of Randomized Experiments."

Attanasio, Orazio and Valerie Lechene. 2010. "Conditional cash transfers, women and the demand for food." IFS Working Papers W10/17, Institute for Fiscal Studies.

Attanasio, Orazio P. and Valerie Lechene. 2014. "Efficient Responses to Targeted Cash Transfers." *Journal of Political Economy* 122 (1):178–222.

Baland, Jean-Marie and Roberta Ziparo. 2017. "Intra-household bargaining in poor countries." Tech. rep.

Balmori de la Miyar, Jose Roberto. 2020. "Breaking sad: drug-related homicides and mental well-being in Mexico." *International Review of Economics* 67 (4):513–531.

Basu, Sukanya and Sarah Pearlman. 2017. "Violence and migration: evidence from Mexico's drug war." *IZA Journal of Development and Migration* 7 (1):18.

Böckerman, Petri, Alex Bryson, Jutta Viinikainen, Christian Hakulinen, Laura Pulkki-Råback, Olli Raitakari, and Jaakko Pehkonen. 2017. "Biomarkers and long-term labour market outcomes: The case of creatine." *Journal of Economic Behavior & Organization* 142 (C):259–274.

Belloni, Alexandre, Victor Chernozhukov, and Christian Hansen. 2013. "Inference on Treatment Effects after Selection among High-Dimensional Controls†." *The Review of Economic Studies* 81 (2):608–650.

———. 2014. "High-Dimensional Methods and Inference on Structural and Treatment Effects." *Journal of Economic Perspectives* 28 (2):29–50.

Belloni, Alexandre, Victor Chernozhukov, Christian Hansen, and Damian Kozbur. 2016. "Inference in High-Dimensional Panel Models With an Application to Gun Control." *Journal of Business & Economic Statistics* 34 (4):590–605.

Berniell, Ines, Dolores de la Mata, and Matilde Pinto Machado. 2020. "The Impact of a Permanent Income Shock on the Situation of Women in the Household: The Case of a Pension Reform in Argentina." *Economic Development and Cultural Change* 68 (4):1295–1343.

Bobonis, Gustavo J. 2009. "Is the Allocation of Resources within the Household Efficient? New Evidence from a Randomized Experiment." *Journal of Political Economy* 117 (3):453–503.

Borker. 2017. "Safety first: Perceived risk of street harassment and educational choices of women ." Working paper.

Bourguignon, François, Martin Browning, Pierre-André Chiappori, and Valerie Lechene. 1993. "Intra Household Allocation of Consumption: A Model and some Evidence from French Data." *Annals of Economics and Statistics* (29):137–156.

Brainerd, Elizabeth. 2017. "The Lasting Effect of Sex Ratio Imbalance on Marriage and Family: Evidence from World War II in Russia." *The Review of Economics and Statistics* 99 (2):229–242.

Brown, Caitlin, Rosella Calvi, and Jacob Penglase. 2019. "Sharing the Pie: Undernutrition, Intra-Household Allocation, and Poverty." *Working Paper* .

Brown, Ryan. 2018. "The Mexican Drug War and Early-Life Health: The Impact of Violent Crime on Birth Outcomes." *Demography* 55 (1):319–340.

Brown, Ryan, Veronica Montalva, Duncan Thomas, and Andrea Velasquez. 2018. "Impact of Violent Crime on Risk Aversion: Evidence from the Mexican Drug War." *The Review of Economics and Statistics* .

Brown, Ryan and Andrea Velasquez. 2017. "The effect of violent crime on the human capital accumulation of young adults." *Journal of Development Economics* 127:1 – 12.

Browning, Martin, Pierre-Andre Chiappori, and Arthur Lewbel. 2013. "Estimating Consumption Economies of Scale, Adult Equivalence Scales, and Household Bargaining Power." *Review of Economic Studies* 80 (4):1267–1303.

Buehren, Niklas, Shubha Chakravarty, Markus Goldstein, Vanya Slavchevska, and Munshi Sulaiman. 2017. "Adolescent Girls' Empowerment in Conflict-Affected Settings: Experimental Evidence from South Sudan ." Working paper.

Buvinic, Mayra, Monica Das Gupta, Ursula Casabonne, and Philip Verwimp. 2013. "Violent Conflict and Gender Inequality. An Overview." *World Bank Policy Research Working Paper* .

Calderon, Gabriela, Gustavo Robles, Alberto Díaz-Cayeros, and Beatriz Magaloni. 2015. "The Beheading of Criminal Organizations and the Dynamics of Violence in Mexico." *Journal of Conflict Resolution* 59 (8):1455–1485.

Calderon, Valentina, Margarita Gafaro, and Ana María Ibanez. 2011. "Forced Migration, Female Labor Force Participation, and Intra-household Bargaining: Does Conflict EmpowerWomen?" Documentos CEDE 008912, Universidad de los Andes - CEDE.

Calvi, Rossella. 2020. "Why Are Older Women Missing in India? The Age Profile of Bargaining Power and Poverty." *Journal of Political Economy* 128 (7):2453–2501.

Campbell, Howard. 2014. "Narco-Propaganda in the Mexican "Drug War": An Anthropological Perspective." *Latin American Perspectives* 41 (2):60–77.

Castillo, Juan Camilo, Daniel Mejía, and Pascual Restrepo. 2018. "Scarcity without Leviathan: The Violent Effects of Cocaine Supply Shortages in the Mexican Drug War." *The Review of Economics and Statistics* .

Chakraborty, Tanika and Prabal K. De. 2017. "Mother's autonomy and child's secondary schooling enrollment in Mexico." *Review of Economics of the Household* 15 (3):1037–1053.

Chataway, Michael L. and Timothy C. Hart. 2019. "A Social-Psychological Process of "Fear of Crime" for Men and Women: Revisiting Gender Differences from a New Perspective." *Victims & Offenders* 14 (2):143–164.

Chiappori, Pierre-André. 1992. "Collective Labor Supply and Welfare." *Journal of Political Economy* 100 (3):437–467.

Chiappori, Pierre-Andre and Maurizio Mazzocco. 2017. "Static and Intertemporal Household Decisions." *Journal of Economic Literature* 55 (3):985–1045.

Corral, Paul, Alexander Irwin, Nandini Krishnan, Daniel Gerszon Mahler, and Tara Vishwanath. 2020. "Fragility and Conflict : On the Front Lines of the Fight against Poverty." *World Bank* .

Coscia, Michele and Viridiana Ríos. 2012. "Knowing Where and How Criminal Organizations Operate Using Web Content." *CIKM* .

Cunningham, Scott. 2021. *Causal Inference: The Mixtape*. Yale University Press.

Deaton, Angus and John Muellbauer. 1980. "An Almost Ideal Demand System." *The American Economic Review* 70 (3):312–326.

Dell, Melissa. 2015. "Trafficking Networks and the Mexican Drug War." *American Economic Review* 105 (6):1738–79.

Dell, Melissa, Benjamin Feigenberg, and Kensuke Teshima. 2019. "The Violent Consequences of Trade-Induced Worker Displacement in Mexico." *American Economic Review: Insights* 1 (1):43–58.

Donald, Aletheia, Gayatri Koolwal, Jeannie Annan, Kathryn Falb, and Markus Goldstein. 2020. "Measuring Women's Agency." *Feminist Economics* 26 (3):200–226.

Doss, Cheryl. 2013. "Intrahousehold bargaining and resource allocation in developing countries." Policy Research Working Paper Series 6337, The World Bank.

Dube, Oeindrila, Omar Garcia-Ponce, and Kevin Thom. 2016. "From Maize To Haze: Agricultural Shocks And The Growth Of The Mexican Drug Sector." *Journal of the European Economic Association* 14 (5):1181–1224.

Dunbar, Geoffrey R., Arthur Lewbel, and Krishna Pendakur. 2013. "Children's Resources in Collective Households: Identification, Estimation, and an Application to Child Poverty in Malawi." *American Economic Review* 103 (1):438–71.

Enamorado, Ted, Luis F. López-Calva, Carlos Rodríguez-Castelán, and Hernán Winkler. 2016. "Income inequality and violent crime: Evidence from Mexico's drug war." *Journal of Development Economics* 120:128 – 143.

Fajnzylber, Pablo, Daniel Lederman, and Norman Loayza. 2002. "Inequality and Violent Crime." *The Journal of Law and Economics* 45 (1):1–39.

Ferraro, Kenneth F. 1996. "Women's Fear of Victimization: Shadow of Sexual Assault?" *Social Forces* 75 (2):667–690.

Fiala, Nathan, Ana Garcia-Hernandez, Narula Kritika, and Nishith Prakash. 2020. "Wheels of change: Impacts of Bycyles on Female Education and Empowerment in Zambia." *Working Paper* .

Garcia, Michelle. 2011. "Machos y Putas: Masking Mexico's Violence." *NACLA Report on the Americas, 34-37* .

GPI. 2016. "Global Peace Index. Institute for Economics and Peace."

Grillo, Ioan. 2013. "The Mexican Drug Cartels' Other Business: Sex Trafficking." *Time* .

Heinle, Kimberly, Cory Molzahn, and David Shirk. 2015. "Drug Violence in Mexico: Data and Analysis Through 2014." *Justice in Mexico Project* .

Hernandez-de Benito, Maria. 2020. "Violent Crime And Marriage Markets: Evidence from the Mexican Drug War." *Working Paper* .

Hoehn-Velasco, Laura and Jacob Penglase. 2021. "The Impact of Unilateral Divorce in Mexico: Bargaining Power and Labor Supply." *Working paper* .

Jaitman, Laura. 2017. "The Costs of Crime and Violence: New Evidence and Insights in Latin America and the Caribbean." *Inter-American Development Bank* 510.

Kandpal, Eeshani and Kathy Baylis. 2019. "The social lives of married women: Peer effects in female autonomy and investments in children." *Journal of Development Economics* 140:26–43.

Kim, Jacob JiHyong. 2014. "Mexican Drug Cartel Influence in Government, Society, and Culture." Tech. rep., UCLA.

Koppensteiner, Martin F. and Lívia Menezes. 2020. "Violence and Human Capital Investments." *Forthcoming Journal of Labor Economics* .

La Mattina, Giulia. 2017. "Civil conflict, domestic violence and intra-household bargaining in post-genocide Rwanda." *Journal of Development Economics* 124 (C):168–198.

Lessing, Benjamin. 2015. "Logics of Violence in Criminal War." *Journal of Conflict Resolution* 59 (8):1486–1516.

Levy, Barry S., Victor W. Sidel, and Jonathan A. Patz. 2017. "Climate Change and Collective Violence." *Annual Review of Public Health* 38 (1):241–257. PMID: 28125385.

Lindo, Jason M. and María Padilla-Romo. 2018. "Kingpin approaches to fighting crime and community violence: Evidence from Mexico's drug war." *Journal of Health Economics* 58:253 – 268.

List, John A., Azeem M. Shaikh, and Yang Xu. 2019. "Multiple hypothesis testing in experimental economics." *Experimental Economics* 22 (4):773–793.

Lundberg, Shelly and Robert A. Pollak. 1993. "Separate Spheres Bargaining and the Marriage Market." *Journal of Political Economy* 101 (6):988–1010.

Magaloni, Beatriz, Gustavo Robles, Aila M. Matanock, Alberto Diaz-Cayeros, and Vidal Romero. 2020. "Living in Fear: The Dynamics of Extortion in Mexico's Drug War." *Comparative Political Studies* 53 (7):1124–1174.

Mazzocco, Maurizio. 2007. "Household Inter Temporal Behaviour: A Collective Characterization and a Test of Commitment." *The Review of Economic Studies* 74 (3):857–895.

Mesch, Gustavo. 2000. "Women's Fear of Crime: The Role of Fear for the Well-Being of Significant Others." *Violence and Victims* 15 (3):323–336.

Miguel, Edward and Shanker Satyanath. 2011. "Re-examining Economic Shocks and Civil Conflict." *American Economic Journal: Applied Economics* 3 (4):228–232.

Millan-Quijano, Jaime. 2015. "Drugs, guns and early motherhood in Colombia." UC3M Working papers. Economics we1509, Universidad Carlos III de Madrid. Departamento de Economía.

Muralidharan, Karthik and Nishith Prakash. 2017. "Cycling to School: Increasing Secondary School Enrollment for Girls in India." *American Economic Journal: Applied Economics* 9 (3):321–50.

Orozco-Aleman, Sandra and Heriberto Gonzalez-Lozano. 2018. "Drug Violence and Migration Flows: Lessons from the Mexican Drug War." *Journal of Human Resources* 53 (3):717–749.

Osorio, Javier. 2015. "The Contagion of Drug Violence: Spatiotemporal Dynamics of the Mexican War on Drugs." *Journal of Conflict Resolution* 59 (8):1403–1432.

Oster, Emily and Rebecca Thornton. 2012. "Determinants of Technology Adoption: Peer Effects in Menstrual Cup Take-Up." *Journal of the European Economic Association* 10 (6):1263–1293.

Peng, Lizhong, Chad D. Meyerhoefer, and Samuel H. Zuvekas. 2013. "The Effect of Depression on Labor Market Outcomes." NBER Working Papers 19451, National Bureau of Economic Research, Inc.

Penglase, Jacob. 2020. "Consumption Inequality Among Children: Evidence from Child Fostering in Malawi." *The Economic Journal* 131 (634):1000–1025.

Peterman, Amber, Benjamin Schwab, Shalini Roy, Melissa Hidrobo, and Daniel . Gilligan. 2021. "Measuring women's decisionmaking: Indicator choice and survey design experiments from cash and food transfer evaluations in Ecuador, Uganda and Yemen." *World Development* 141:105387.

Risley, Amy. 2010. "Sex Trafficking: The "Other" Crisis In Mexico?" *The Latin Americanist* 54 (1):99–117.

Robles, Gustavo, Gabriela Calderon, and Beatriz Magaloni. 2013. "The Economic Costs of Drug-Trafficking Violence in Mexico." *Working Paper for the Costs of Crime and Violence in Latin American and the Caribbean* .

Seymour, Greg and Amber Peterman. 2018. "Context and measurement: An analysis of the relationship between intrahousehold decision making and autonomy." *World Development* 111:97–112.

Sobrino, Fernanda. 2020. "Mexican Cartel Wars: Fighting for the U.S. Opioid Market."

Sokullu, Senay and Christine Valente. 2018. "Individual Consumption in Collective Households: Identification Using Panel Data with an Application to PROGRESA." *Working paper* .

Steinmayr, Andreas. 2020. "MHTREG: Stata module for multiple hypothesis testing controlling for FWER." Statistical Software Components, Boston College Department of Economics.

Tamres, Lisa K., Denise Janicki, and Vicki S. Helgeson. 2002. "Sex Differences in Coping Behavior: A Meta-Analytic Review and an Examination of Relative Coping." *Personality and Social Psychology Review* 6 (1):2–30.

Taylor, Laura C. Klein Brian P. Lewis Tara L. Gruenewald Regan A.R. Gurung, Shelley E. and John Updegraff. 2000. "Biobehavioral responses to stress in females: Tend- and-befriend, not fight-or-flight." *Psychological Review* 107:411–429.

Tommasi, Denni. 2019. "Control of resources, bargaining power and the demand of food: Evidence from PROGRESA." *Journal of Economic Behavior & Organization* 161 (C):265–286.

Tommasi, Denni and Alexander Wolf. 2018. "Estimating household resource shares: A shrinkage approach." *Economics Letters* 163:75–78.

Tsaneva, Magda, Marc Rockmore, and Zahra Albohmood. 2018. "The effect of violent crime on female decision-making within the household: evidence from the Mexican war on drugs." *Review of Economics of the Household* .

Udry, Christopher. 1996. "Gender, Agricultural Production, and the Theory of the Household." *Journal of Political Economy* 104 (5):1010–1046.

Utar, Hale. 2018. "Firms and Labor in Times of Violence: Evidence from the Mexican Drug War." CESifo Working Paper Series 7345, CESifo Group Munich.

Velasquez, Andrea. 2019. "The Economic Burden of Crime: Evidence from Mexico." *Journal of Human Resources* .

Velazquez, Jorge, Esbehidy Escobar, Marycarmen Bustos, Ailema Salazar, Maria Elena Medina-Mora, Vianey Martinez, Itzia Soto, Clara Bautista, and Martin Romero. 2018. "Magnitude and extent of gambling disorder in the Mexican population." *Salud Mental* 41 (4).

Vermeulen, Frederic. 2002. "Collective Household Models: Principles and Main Results." *Journal of Economic Surveys* 16 (4):533–564.

Vreyer, Philippe De, Sylvie Lambert, and Martin Ravallion. 2020. "Unpacking Household Engel Curves." NBER Working Papers 26850, National Bureau of Economic Research, Inc.

Wang, Marc Korczykowski Hengyi Rao Yong Fan John Pluta Ruben C. Gur Bruce S. McEwen, Jiongjiong and John A. Detre. 2007. "Gender difference in neural response to psychological stress." *Social Cognitive and Affective Neuroscience* 2:227–239.

Wooldridge, Jeffrey M. 2001. *Econometric Analysis of Cross Section and Panel Data*, *MIT Press Books*, vol. 1. The MIT Press.

———. 2019. "Correlated random effects models with unbalanced panels." *Journal of Econometrics* 211 (1):137–150. Annals Issue in Honor of Jerry A. Hausman.

———. 2021. "Two-Way Fixed Effects, the Two-Way Mundlak Regression, and Difference-in-Differences Estimators." .

World Bank. 2021. "Measuring Women's Goal Setting and Decision-Making." Tech. rep.

Young, Alwyn. 2019. "Channeling Fisher: Randomization Tests and the Statistical Insignificance of Seemingly Significant Experimental Results." *The Quarterly Journal of Economics* 134 (2):557–598.

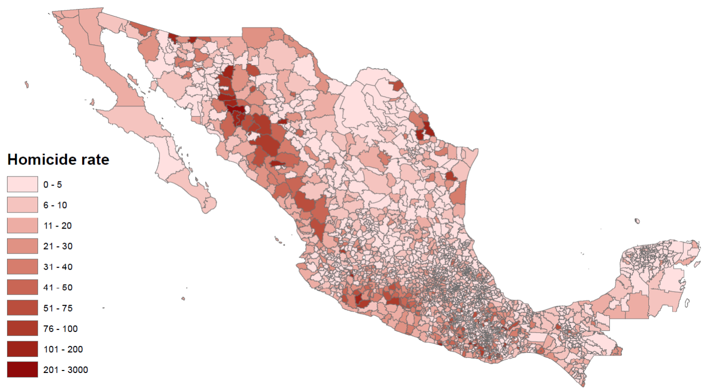
Appendix

A Violent Crime in Mexico

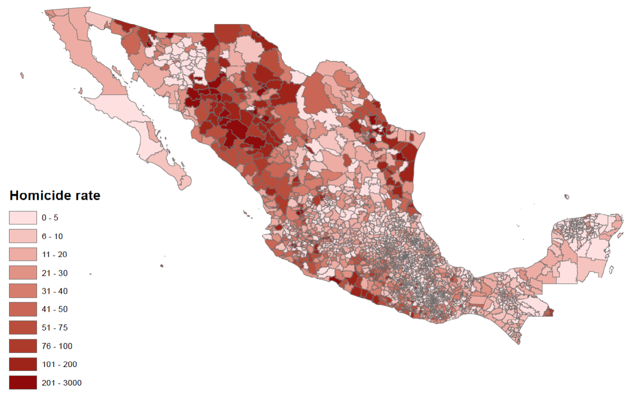
In this Appendix, I present further statistical evidence of the escalation in crime in Mexico during the Mexican Drug War. Figure A1 maps the homicide rate at the municipality level in 2005 and 2012 using data from INEGI.

Figure A1: Annual Homicide Rates at the Municipality Level (per 100,000 People)

(a) 2005



(b) 2012



Notes: Annual homicide rates at the municipality level (per 100,000) in 2005 and 2012.

B Additional Analysis

B.1 Sample Characteristics

Table B1: Comparison of the Change in the Municipal Homicide Rate Between Municipalities Included and Excluded in the MxFLS Sample

	Change from 2005 to 2010
	(1)
MxFLS sample	-0.196
	(3.416)
Intercept	12.532***
	(1.851)
Observations	2,454
adj. R^2	-0.00

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, reported in parentheses, are clustered at the municipality level.

Table B2: MxFLS Expenditure Data: Good Categories

Good category	**Recall period**	**Desscription**
Food	7 days	Vegetables and fruits, cereals and grains, meats and other animal originated food, other processed food and drinks.
Drinks & Tobacco	7 days	Juices, purified water, beverages such as beer, tequila, rum, and powder for preparing water, cigarettes and tobacco.
Male adult clothing	3 months	Clothes and shoes for male adults such as: pants, shirts, sweaters, suits, underwear, etc.
Female adult clothing	3 months	Clothes and shoes for female adults such as: blouses, sweaters, skirts, underwear, pants, dresses, shoes etc.
Children goods	1 month / 3 months	Clothes and shoes for boys and girls (excluding school uniforms). Toys in general, baby clothes and baby items such as: clothes, daycares, baby bottles, carriages, bath tubs, etc.
Hygiene and personal care	1 month	toothpaste, shampoo, tissues, toilet paper, lotion, deodorant, shaving foam, haircuts, etc.
Other household goods	1month & 3 months & 1 year	detergents, cleaners, light bulbs, brooms, candles, bar of soap, bleaches, glass lampshades, domestic service, laundry, dry cleaner's shop, tableware, dishes, glasses, pots, bedspreads, bed sheets, pillows, yarn, needles, any other domestic utensils, etc. Utilities: water, electricity, gas, garbage collection, firewood, coal, petroleum, telephone, telegraph, money orders, postage stamps, internet, etc. Value of gifts given to others. Property or income taxes. Funerals, vacations, parties, insurances, moving costs, other transportation services, and other expenditures.
Transportation	7 days/3 months	Transportation such as: bus, subway, taxi, and/or gasoline. Maintenance services for vehicles such as: fuel, oil, lubricants, pension, parking, car wash, mechanical shops, appliances, auto parts, etc.
Health	3 months	Healthcare and health services such as: medicine, medical and dental visits, hospitalization, etc.
Education	Current school period	Enrollments fees, exam fees, shcool supplies, uniforms, school transportation.
Recreation	7 days& 1 month	Food and drinks consumed outside the household. Culture and recreation as: books, magazines, newspapers, records, excursions, fairs, etc.
Gambling	1 month	Lottery and other such games of chance.

Table B3: Descriptive Statistics: Household Characteristics in 2005-2006. Nuclear Households with Children.

	Mean and standard deviation	Violence variables		
		$\sqrt[4]{H_{m2005}}$	ΔH_m	$\Delta\sqrt[4]{H_m}$
	(1)	(2)	(3)	(4)
Wife's age	38.94	–0.79**	–0.03**	–0.06
	[11.41]	(0.39)	(0.01)	(0.35)
Husband's age	42.16	–0.99**	–0.02	0.20
	[12.34]	(0.45)	(0.01)	(0.45)
Age gap	3.22	–0.20	0.00	0.26
	[5.19]	(0.18)	(0.01)	(0.25)
Wife's secondary	0.47	0.08***	0.00	–0.00
	[0.50]	(0.02)	(0.00)	(0.02)
Husband's secondary	0.49	0.07***	0.00	–0.01
	[0.50]	(0.02)	(0.00)	(0.02)
Number of children	2.53	–0.06	–0.00	–0.00
	[1.35]	(0.06)	(0.00)	(0.06)
Average age children	12.45	–0.44	–0.01	0.05
	[8.38]	(0.28)	(0.01)	(0.24)
Share of daughters	0.49	0.01	–0.00	–0.01
	[0.36]	(0.01)	(0.00)	(0.01)
Rural locality	0.40	–0.15***	–0.00	0.08
	[0.49]	(0.05)	(0.00)	(0.05)
Household size	4.53	–0.06	–0.00	–0.00
	[1.35]	(0.06)	(0.00)	(0.06)
Observations	3,012	3,012	3,012	3,012
Joint equality test (p-value)		0.03	0.35	0.59

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Column (1) presents sample means and standard deviations, in brackets, of the analytical sample in MxFLS-2. Columns (2)-(4) are calculated with OLS and clustering standard errors (in parentheses) at the municipality level. Column (2) reports the OLS coefficient of a regression of the household characteristic on the homicide rate in 2005-2006 MxFLS-2. Column (3) reports an OLS coefficient of a regresion of the household characteristic on the increase in the homicide rate between MxFLS-2 and MxFLS-3. Column (4) also reports an OLS coefficient, but of the increase in the quartic root of the homicide rate.

Table B4: Descriptive Statistics: Household Expenditures in 2005-2006. Nuclear Households with Children.

	Mean and standard deviation	Violence variables		
		$\sqrt[4]{H_{m2005}}$	ΔH_m	$\Delta \sqrt[4]{H_m}$
	(1)	(2)	(3)	(4)
Total expenditure	75,555.12	7,115.49*	–166.63	–6,813.40
	[514,074.77]	(4,098.33)	(234.56)	(8,409.15)
Ln(total expenditure)	10.78	0.09*	0.00*	0.02
	[0.79]	(0.05)	(0.00)	(0.05)
Food	55.05	–1.66*	0.03	1.32
	[18.68]	(1.00)	(0.03)	(0.91)
Drinks and Tob.	3.36	–0.02	0.01**	0.24
	[4.04]	(0.18)	(0.00)	(0.17)
Male clothing	1.52	0.07	–0.00**	–0.13*
	[2.68]	(0.08)	(0.00)	(0.08)
Female clothing	1.54	–0.03	–0.00	–0.06
	[2.69]	(0.09)	(0.00)	(0.07)
Children goods	2.17	–0.04	0.00	0.07
	[3.58]	(0.11)	(0.00)	(0.13)
Hygiene, personal care	6.01	–0.06	0.00	0.03
	[5.43]	(0.19)	(0.01)	(0.14)
Other household goods	12.76	0.39	–0.01	–0.45
	[9.66]	(0.39)	(0.01)	(0.33)
Transportation	10.50	0.81*	–0.01	–0.41
	[12.50]	(0.46)	(0.02)	(0.49)
Health	1.66	0.03	–0.01	–0.13
	[5.33]	(0.18)	(0.01)	(0.18)
Education	2.49	0.12	–0.01***	–0.30***
	[4.41]	(0.12)	(0.00)	(0.10)
Recreation	2.88	0.36*	–0.01	–0.16
	[6.75]	(0.21)	(0.01)	(0.21)
Gambling	0.05	0.02*	–0.00*	–0.03**
	[0.47]	(0.01)	(0.00)	(0.01)
Shares joint equality test (p-value)		0.50	0.05	0.00
Observations	3,012	3,012	3,012	3,012

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Column (1) presents sample means and standard deviations, in brackets, of the analytical sample in MxFLS-2. Columns (2) - (4) are calculated with OLS and clustering standard errors (in parentheses) at the municipality level. Column (2) reports the OLS coefficient of the expenditure share on the homicide rate in 2005-2006 MxFLS-2. Column (3) reports an OLS coefficient of a regresion of the expenditure share on the increase in the homicide rate between MxFLS-2 and MxFLS-3. Column (4) also reports an OLS coefficient, but of the increase in the quartic root of the homicide rate.

Table B5: Effects of Homicide Rates on Market Prices

	Food	HH goods	Men clothes	Women clothes	Child clothes
$\sqrt[4]{}$ Hom. last 12 months	–0.03*	–0.07	–0.05	–0.07	–0.01
	(0.02)	(0.05)	(0.03)	(0.04)	(0.04)
Intercept	0.43***	0.12***	0.15***	0.13***	0.12***
	(0.02)	(0.04)	(0.04)	(0.04)	(0.04)
State-Survey FE					
Observations	120	120	120	120	120
$\sqrt[4]{}$ Hom. last 12 months	–0.01	–0.03	–0.03	–0.07	0.05
	(0.03)	(0.05)	(0.03)	(0.05)	(0.03)
Intercept	0.45***	0.06	0.07	–0.03	0.11
	(0.03)	(0.10)	(0.10)	(0.06)	(0.10)
State-Survey FE	✓	✓	✓	✓	✓
Observations	120	120	120	120	120

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.2 Attrition Analysis

Table B6 presents an analysis of the probability of attrition based on the following specification:

$$A_{ij} = P(\alpha + \beta H_j + \gamma X_{ij} + \pi_s + \epsilon_{ij}) \tag{B1}$$

where A_{ij} is an indicator variable equal to 1 if household i living in municipality j in 2005–2006 was not interviewed or had relevant missing information in 2009–2012 MxFLS-3. The regressor of interest H_j is the difference between the quartic root of the homicide rate in 2009 and 2005 in municipality j. The vector of household characteristics X_{ij} includes: wife's and husband's age and age squared, wife's and husband's secondary education dummy, log of total household size, rural locality indicator variable, and year and month of interview fixed effects. π_s are state fixed effects. Finally, errors are clustered at the municipality level. Following Velasquez (2019), I also run an specification interacting the measure of violence with X_{ij}. These interactions aim to capture whether there is heterogeneity in selective attrition based on households' baseline attributes. The results are qualitatively equivalent using a linear probability model or a probit specification as shown in Table B6.

Tables B7 and B8 delve into potentials sources of attrition. Table B7 shows the probability of a household dropping from the sample in MxFLS-3 due to households not completing the consumption module is not differentially affected by the escalation in crime. Table B8 shows the lack of predictive power of the homicide rate on the respondents being widow or divorced in MxFLS-3.

Table B6: Prediction of Attrition

	Households with children						Nuclear with children					
	LPM			Probit			LPM			Probit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\Delta\sqrt[4]{H\_j}$	-0.005	0.001	0.122	-0.016	0.001	0.405	0.003	0.004	0.113	0.012	0.014	0.364
	(0.008)	(0.009)	(0.075)	(0.027)	(0.034)	(0.250)	(0.008)	(0.009)	(0.087)	(0.028)	(0.036)	(0.301)
$\Delta\sqrt[4]{H\_j}$ *Wife's age			0.004			0.016			0.004			0.015
			(0.006)			(0.021)			(0.008)			(0.026)
$\Delta\sqrt[4]{H\_j}$ *Husband's age			-0.009			-0.031			-0.009			-0.033
			(0.006)			(0.021)			(0.007)			(0.025)
$\Delta\sqrt[4]{H\_j}$ *Wife's age square			-0.000			-0.000			-0.000			-0.000
			(0.000)			(0.000)			(0.000)			(0.000)
$\Delta\sqrt[4]{H\_j}$ *Husband's age square			0.000			0.000			0.000			0.000
			(0.000)			(0.000)			(0.000)			(0.000)
$\Delta\sqrt[4]{H\_j}$ *Wife's secondary			-0.021			-0.077			-0.014			-0.053
			(0.017)			(0.062)			(0.019)			(0.074)
$\Delta\sqrt[4]{H\_j}$ *Husband's secondary			0.022			0.079			0.018			0.064
			(0.015)			(0.059)			(0.016)			(0.062)
$\Delta\sqrt[4]{H\_j}$ *log (household size)			-0.013			-0.053			0.003			0.012
			(0.023)			(0.090)			(0.030)			(0.128)
$\Delta\sqrt[4]{H\_j}$ *Rural locality			-0.003			-0.015			-0.006			-0.021
			(0.014)			(0.055)			(0.016)			(0.060)
Intercept	0.222***	0.638***	0.595***	-0.765***	0.556*	0.421	0.208***	0.557***	0.513***	-0.813***	0.373	0.238
	(0.010)	(0.095)	(0.098)	(0.033)	(0.302)	(0.313)	(0.010)	(0.098)	(0.103)	(0.035)	(0.342)	(0.356)
Household controls		✓	✓		✓	✓		✓	✓		✓	✓
State FE		✓	✓		✓	✓		✓	✓		✓	✓
N	4,942	4,942	4,942	4,942	4,942	4,942	3,810	3,810	3,810	3,810	3,810	3,810
Mean dependent variable	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21
adj. R^2	-0.00	0.05	0.05				-0.00	0.04	0.04			
χ^2 interactions jointly=0 (p-value)			0.05			0.06			0.16			0.24

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is an indicator variable equal to 1 if qualifying household in MxFLS-2 was not interviewed in MxFLS-3.

Table B7: Prediction of Consumption Module Missing in MxFLS-3

	LPM			Probit		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta\sqrt[4]{H\_j}$	-0.005	0.005	0.021	-0.026	0.049	0.223
	(0.008)	(0.006)	(0.047)	(0.043)	(0.051)	(0.273)
$\Delta\sqrt[4]{H\_j}$ *Wife's age			-0.001			-0.002
			(0.005)			(0.029)
$\Delta\sqrt[4]{H\_j}$ *Husband's age			0.000			-0.000
			(0.004)			(0.026)
$\Delta\sqrt[4]{H\_j}$ *Wife's age square			0.000			-0.000
			(0.000)			(0.000)
$\Delta\sqrt[4]{H\_j}$ *Husband's age square			-0.000			0.000
			(0.000)			(0.000)
$\Delta\sqrt[4]{H\_j}$ *Wife's secondary			-0.014			-0.104
			(0.012)			(0.082)
$\Delta\sqrt[4]{H\_j}$ *Husband's secondary			0.015			0.119
			(0.011)			(0.080)
$\Delta\sqrt[4]{H\_j}$ *log (household size)			-0.013			-0.143
			(0.011)			(0.113)
$\Delta\sqrt[4]{H\_j}$ *Rural locality			0.013			0.079
			(0.011)			(0.079)
Intercept	0.110***	0.276***	0.264***	-1.225***	-0.193	-0.285
	(0.009)	(0.067)	(0.070)	(0.045)	(0.324)	(0.342)
Household controls		✓	✓		✓	✓
State FE		✓	✓		✓	✓
N	4,942	4,942	4,942	4,942	4,942	4,942
Mean dependent variable	0.11	0.11	0.11	0.11	0.11	0.11
adj. R^2	-0.00	0.05	0.05			
χ^2 interactions jointly=0 (p-value)			0.51			0.45

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level The outcome variable is an indicator variable equal to 1 if qualifying household in MxFLS-2 had consumption module missing in MxFLS-3.

Table B8: Prediction of Not Married in MxFLS-3

	Women				Men			
	LPM		Probit		LPM		Probit	
	Widow	Divorced	Widow	Divorced	Widower	Divorced	Widower	Divorced
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta\sqrt[4]{H\_j}$	0.006**	-0.000	0.173**	-0.026	0.001	-0.003	0.079	-0.073
	(0.003)	(0.002)	(0.077)	(0.133)	(0.003)	(0.003)	(0.092)	(0.112)
Intercept	0.089***	0.006	-2.186**	-4.416***	0.046**	0.050	-8.180***	-2.135**
	(0.029)	(0.018)	(0.899)	(1.324)	(0.021)	(0.037)	(1.474)	(0.976)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓	✓	✓	✓
N	4,560	4,560	4,134	4,331	4,553	4,553	4,152	4,446
Mean dependent variable	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
adj. R^2	0.05	0.00			0.04	0.01		
χ^2 interactions jointly=0 (p-value)								

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level

B.3 Selective Migration

Table B9 presents an analysis of the probability of migration based on the following regression specification:

$$M_{ij} = P(\alpha + \beta H_j + \gamma X_{ij} + \pi_s + \epsilon_{ij}) \tag{B2}$$

where M_{ij} is an indicator variable equal to 1 if household i living in municipality j in 2005-2006 resided in a different municipality in 2009–2012 MxFLS-3. The regressor of interest H_j is the difference between the quartic root of the homicide rate in 2009 and 2005 in municipality j. The vector of household characteristics X_{ij} includes: wife's and husband's age and age squared, wife's and husband's secondary education dummy, log of total household size, rural locality indicator variable, and year and month of interview fixed effects. Following Brown and Velasquez 2017 and Velasquez 2019, I also run an specification interacting the measure of violence with X_{ij}. These interactions aim to capture whether there are heterogeneities in selective migration based on households' baseline attributes. The results are qualitatively equivalent using a linear probability model or a probit specification as shown in Table B9.

Table B9: Prediction of Migration

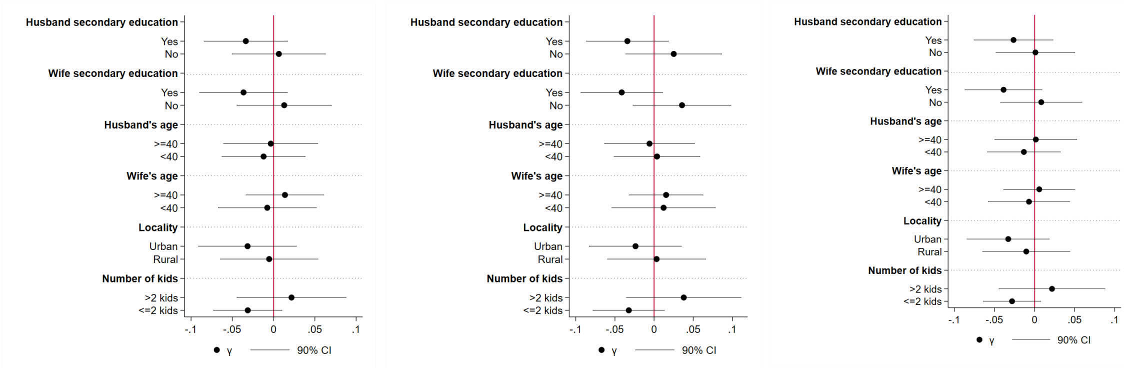
	Households with children						Nuclear with children					
	LPM			Probit			LPM			Probit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\Delta\sqrt[4]{H\_j}$	-0.003	0.004	-0.051	-0.043	0.079	-0.505	-0.003	0.004	-0.078	-0.042	0.072	-0.932*
	(0.007)	(0.006)	(0.066)	(0.094)	(0.085)	(0.509)	(0.008)	(0.006)	(0.070)	(0.095)	(0.089)	(0.565)
$\Delta\sqrt[4]{H\_j}$ *Wife's age			0.004			0.056			0.005			0.072*
			(0.003)			(0.040)			(0.004)			(0.042)
$\Delta\sqrt[4]{H\_j}$ *Husband's age			-0.003			-0.029			-0.002			-0.027
			(0.003)			(0.042)			(0.004)			(0.041)
$\Delta\sqrt[4]{H\_j}$ *Wife's age square			-0.000			-0.001			-0.000			-0.001
			(0.000)			(0.000)			(0.000)			(0.001)
$\Delta\sqrt[4]{H\_j}$ *Husband's age square			0.000			0.000			0.000			0.000
			(0.000)			(0.000)			(0.000)			(0.000)
$\Delta\sqrt[4]{H\_j}$ *Wife's secondary			-0.001			-0.028			-0.002			-0.020
			(0.009)			(0.119)			(0.011)			(0.126)
$\Delta\sqrt[4]{H\_j}$ *Husband's secondary			0.018			0.232*			0.022*			0.261**
			(0.011)			(0.130)			(0.013)			(0.133)
$\Delta\sqrt[4]{H\_j}$ *log (household size)			0.001			-0.052			-0.001			-0.074
			(0.008)			(0.150)			(0.014)			(0.212)
$\Delta\sqrt[4]{H\_j}$ *Rural locality			0.017			0.211			0.029**			0.336**
			(0.014)			(0.180)			(0.014)			(0.167)
Intercept	0.035***	0.132**	0.151**	-1.815***	-0.882	-0.785	0.039***	0.075	0.098	-1.762***	-0.442	-0.129
	(0.009)	(0.065)	(0.074)	(0.119)	(0.702)	(0.706)	(0.010)	(0.068)	(0.078)	(0.115)	(0.743)	(0.768)
Household controls		✓	✓		✓	✓		✓	✓		✓	✓
State FE		✓	✓		✓	✓		✓	✓		✓	✓
N	3,853	3,853	3,853	3,853	3,648	3,648	2,917	2,917	2,917	2,917	2,617	2,617
Mean dependent variable	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
adj. R^2	-0.00	0.05	0.05				-0.00	0.05	0.05			
χ^2 interactions jointly=0 (p-value)			0.54			0.64			0.43			0.27

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level The outcome variable is an indicator variable equal to 1 the household change municipality of residence between MxFLS-2 and MxFLS-3.

B.4 Effect of Violence on Household Resources

Figure B1: Heterogeneous Effects of Homicide Rates on Total Household Expenditure

(a) With children (b) Nuclear with children (c) All households



Notes: Figure B1 plots marginal effects of increases in homicides on the log of total household expenditure. Each coefficient is estimated in a separate regression in which the sample is restricted to the categories reported in the left columns. Standard errors are clustered at the municipality level. Confidence intervals are constructed with a 90% significance level.

Table B10: Effect of Homicide Rates on Total Household Expenditure Controlling by Municipality Characteristics

	Households:		
	With children	**Nuclear with children**	**All**
	(1)	(2)	(3)
$\sqrt[4]{}$ Homicide rate last 12 months	-0.032	-0.023	-0.031
	(0.032)	(0.033)	(0.028)
% Manufacturing employment	-0.205	-0.164	-0.128
	(0.779)	(0.843)	(0.840)
% Commerce employment	-0.617	-0.463	0.043
	(1.024)	(1.133)	(1.009)
% Services employment	-0.984	-1.231**	-0.944
	(0.686)	(0.616)	(0.654)
log(total electricity consumption)	0.097***	0.096***	0.082***
	(0.029)	(0.030)	(0.027)
% of rural population	-0.545*	-0.284	-0.494*
	(0.303)	(0.350)	(0.277)
Gini index	-0.400	0.052	-0.585
	(0.892)	(0.903)	(0.888)
Food poverty index	-10.484**	-11.316**	-11.182**
	(4.496)	(4.817)	(4.638)
Capacities poverty index	13.631**	14.326**	14.879**
	(6.067)	(6.486)	(6.326)
Assets poverty index	-3.786*	-3.703	-4.423*
	(2.179)	(2.292)	(2.367)
Household controls	✓	✓	✓
Month and year of interview FE	✓	✓	✓
Household FE	✓	✓	✓
Y mean			
Observations	4,616	3,761	5,413
adj. R^2	0.17	0.18	0.14

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is the logarithm of total household expenditure on non-durable goods. Household controls include: wife's and husband's age, wife's and husband's age squared, and number of household members by gender and age group.

B.5 Wealth Instrument of Total Expenditure

The MxFLS records households' assets by first asking: "do/are you or any household member own [...]/owner of [...]?". If yes, it records a monetary value by asking "what is the value of the [...]?"or "in case you had to sell, how much approximately would you ask for the [...]?" or "in case you had to buy an equivalent [...], approximately how much would it cost?".

The wealth instrument is built by taking the natural logarithm of the monetary value of all the following household assets: dwelling occupied by this household (including the land), other dwelling/building/real state/land/plot/agricultural/cattle or forest land, bicycles, motorcycles/trucks/cars/any other motorized vehicle, electronic devices (radio, TV, VCR, DVD player, computer, etc.), washer and dryer machine, stove, refrigerator, furniture, appliance (iron, blender, microwave, toaster, etc.), savings, financial assets, stocks, checking accounts, AFORES, coins and others, tractor/other machinery or equipment, livestock (cows, bulls, horses, pigs, chickens, etc.), other assets.

Table B11: First stage regression for total expenditure

	ln(total expenditure)					
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Wealth instrument)	0.085***	0.060***	0.030***	-0.126***	-0.093***	-0.013
	(0.005)	(0.004)	(0.004)	(0.014)	(0.012)	(0.012)
ln(Wealth instrument)^2				0.014***	0.010***	0.003***
				(0.001)	(0.001)	(0.001)
Wife's age		0.003	0.105***		-0.002	0.101***
		(0.007)	(0.021)		(0.007)	(0.021)
Husband's age		0.019***			0.015**	
		(0.007)			(0.007)	
Wife's age squared		0.000	-0.000		0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Husband's age squared		-0.000***	-0.000		-0.000**	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Wife's secondary		0.284***			0.244***	
		(0.021)			(0.020)	
Husband's secondary		0.244***			0.214***	
		(0.023)			(0.022)	
Rural locality		-0.263***			-0.241***	
		(0.034)			(0.032)	
# by gender and age group		✓	✓		✓	✓
Household FE			✓			✓
Year FE	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓
F instrument total expenditure	242.62	207.58	48.87	81.40	58.03	37.52
p-value instrument total expenditure	0.00	0.00	0.00	0.00	0.00	0.00
N	7,591	7,591	7,591	7,591	7,591	7,591
adj. R^2	0.15	0.30	0.16	0.22	0.33	0.16

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at municipality level.

Table B12: First stage regression for total expenditure: nuclear households with children

	ln(total expenditure)					
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Wealth instrument)	0.089***	0.060***	0.026***	-0.121***	-0.085***	-0.017
	(0.006)	(0.005)	(0.005)	(0.016)	(0.015)	(0.014)
ln(Wealth instrument)^2				0.013***	0.010***	0.003***
				(0.001)	(0.001)	(0.001)
Wife's age		0.007	0.081***		0.002	0.078***
		(0.009)	(0.031)		(0.009)	(0.030)
Husband's age		0.023***			0.018**	
		(0.008)			(0.007)	
Wife's age squared		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Husband's age squared		-0.000***	-0.000		-0.000***	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Wife's secondary		0.299***			0.262***	
		(0.023)			(0.022)	
Husband's secondary		0.249***			0.224***	
		(0.025)			(0.025)	
Rural locality		-0.250***			-0.227***	
		(0.033)			(0.032)	
# by gender and age group		✓	✓		✓	✓
Household FE			✓			✓
Year FE	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓
F instrument total expenditure	200.79	156.56	28.77	54.58	33.19	26.94
p-value instrument total expenditure	0.00	0.00	0.00	0.00	0.00	0.00
N	5,834	5,834	5,834	5,834	5,834	5,834
adj. R^2	0.16	0.32	0.17	0.23	0.35	0.17

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at municipality level.

B.6 Engel Curves

Table B13: Expenditure Elasticities

	Households with children			Nuclear households		
		95% Confidence Interval			95% Confidence Interval	
	Elasticity	Lower bound	Upper bound	Elasticity	Lower bound	Upper bound
Food	0.68	0.55	0.82	0.64	0.43	0.85
Drinks and Tob.	0.97	0.44	1.49	1.18	0.46	1.90
Male clothing	1.91	1.28	2.54	1.73	0.93	2.54
Female clothing	1.85	0.92	2.77	1.57	0.26	2.88
Children goods	1.60	0.78	2.41	1.87	0.68	3.07
Hygiene and care	0.77	0.36	1.18	0.83	0.28	1.37
Other hh goods	1.27	0.93	1.61	1.39	0.93	1.86
Transportation	1.78	1.30	2.26	1.66	0.99	2.33
Health	1.80	0.82	2.78	2.37	1.00	3.74
Education	1.23	0.66	1.80	1.16	0.30	2.02
Recreation	2.04	1.00	3.08	1.85	0.41	3.30
Gambling	4.57	–0.98	10.11	5.43	–3.06	13.93

Notes: the elasticities are calculated as $1 + \frac{\beta^k}{W^k}$, with W^k equal to the average budget share for good k across the two survey waves. The estimates come from Column (2) of Tables 5 and **??**.

Table B14: Effect of Homicide Rates on Food Type Budget Shares

		(1)	(2)	(3)	(4)
		Households with children		Nuclear with children	
Fruit & Veg.	ln(total expenditure)	–4.13***	–3.98***	–7.18***	–6.90***
		(1.53)	(1.50)	(2.17)	(2.05)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.34*	–0.34*	–0.45*	–0.45**
		(0.20)	(0.20)	(0.26)	(0.22)
Cereals & Grains	ln(total expenditure)	–4.82***	–4.67***	–4.35*	–4.21**
		(1.37)	(1.35)	(2.24)	(2.05)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.08	–0.10	–0.27	–0.30
		(0.31)	(0.28)	(0.28)	(0.26)
Meat & Dairy	ln(total expenditure)	–5.70**	–5.85**	–6.10	–6.79*
		(2.58)	(2.52)	(3.91)	(3.63)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.23	–0.28	–0.22	–0.25
		(0.36)	(0.38)	(0.40)	(0.42)
Other food	ln(total expenditure)	–1.06	–0.81	–2.46	–2.10
		(1.27)	(1.18)	(1.66)	(1.51)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.25	–0.24	–0.26	–0.26
		(0.16)	(0.16)	(0.22)	(0.21)
Drinks and Tob.	ln(total expenditure)	–0.19	–0.07	0.60	0.68
		(0.84)	(0.86)	(1.20)	(1.15)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.10	0.08	0.01	–0.01
		(0.13)	(0.13)	(0.13)	(0.13)
Male adult clothing	ln(total expenditure)	1.80***	1.89***	1.03*	1.12**
		(0.56)	(0.56)	(0.58)	(0.57)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.24***	0.22***	0.30***	0.28***
		(0.08)	(0.07)	(0.10)	(0.09)
Female adult clothing	ln(total expenditure)	1.32*	1.27*	0.85	0.77
		(0.73)	(0.73)	(0.99)	(0.95)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.06	0.05	0.07	0.07
		(0.07)	(0.07)	(0.10)	(0.09)
Children goods	ln(total expenditure)	1.10	1.04	1.75	1.41
		(0.69)	(0.67)	(1.22)	(1.10)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.07	–0.08	–0.13	–0.14
		(0.14)	(0.14)	(0.19)	(0.18)
Hygiene and care	ln(total expenditure)	–1.89	–1.81	–1.03	–0.83
		(1.24)	(1.17)	(1.66)	(1.51)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.43**	–0.41**	–0.36*	–0.33
		(0.18)	(0.19)	(0.19)	(0.20)
Other hh goods	ln(total expenditure)	1.55	1.52	5.20*	5.02*
		(2.12)	(2.07)	(3.14)	(2.93)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.18	0.23	0.48	0.51*
		(0.30)	(0.28)	(0.33)	(0.29)
Transportation	ln(total expenditure)	6.98***	6.73***	6.51*	6.74**
		(2.02)	(1.95)	(3.40)	(3.13)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.41	0.45	0.31	0.32
		(0.28)	(0.29)	(0.36)	(0.35)
Health	ln(total expenditure)	1.45	1.22	2.28**	2.09*
		(0.90)	(0.86)	(1.16)	(1.07)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.22	0.24	0.22	0.22
		(0.15)	(0.15)	(0.21)	(0.20)
Education	ln(total expenditure)	0.47	0.34	0.41	0.30
		(0.63)	(0.59)	(1.15)	(1.06)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.05	0.06	0.04	0.09
		(0.08)	(0.09)	(0.13)	(0.12)
Recreation	ln(total expenditure)	2.89**	2.67**	2.15	1.99
		(1.14)	(1.11)	(1.85)	(1.78)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.08	0.08	0.20	0.20
		(0.20)	(0.19)	(0.24)	(0.22)
Gambling	ln(total expenditure)	0.23	0.24*	0.31	0.32
		(0.16)	(0.14)	(0.30)	(0.26)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.05*	0.05*	0.07*	0.07
		(0.03)	(0.03)	(0.04)	(0.05)
	Household controls	✓	✓	✓	✓
	Month and year of interview FE	✓	✓	✓	✓
	Instrument expenditure	✓	✓	✓	✓
	Household FE	✓	✓	✓	✓
	Double Lasso		✓		✓
	Observations	8,834	8,834	6,258	6,258

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B15: Effect of Homicide Rates on Hygiene Budget Shares

		(1)	(2)	(3)	(4)
		Households with children		Nuclear with children	
Food	ln(total expenditure)	–17.84***	–17.81***	–20.09***	–20.00***
		(3.92)	(3.78)	(5.93)	(5.53)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.96*	–1.01*	–1.21*	–1.26**
		(0.56)	(0.56)	(0.66)	(0.60)
Drinks and Tob.	ln(total expenditure)	–0.11	–0.02	0.60	0.68
		(0.88)	(0.88)	(1.20)	(1.15)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.05	0.04	0.01	–0.01
		(0.13)	(0.14)	(0.13)	(0.13)
Male adult clothing	ln(total expenditure)	1.25***	1.34***	1.03*	1.12**
		(0.44)	(0.44)	(0.58)	(0.57)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.26***	0.24***	0.30***	0.28***
		(0.09)	(0.08)	(0.10)	(0.09)
Female adult clothing	ln(total expenditure)	1.22*	1.20*	0.85	0.77
		(0.68)	(0.66)	(0.99)	(0.94)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.05	0.04	0.07	0.07
		(0.08)	(0.07)	(0.10)	(0.09)
Children goods	ln(total expenditure)	1.16	1.03	1.75	1.41
		(0.80)	(0.77)	(1.22)	(1.10)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.14	–0.14	–0.13	–0.14
		(0.16)	(0.16)	(0.19)	(0.18)
Hh hygiene and care	ln(total expenditure)	–2.32**	–2.18**	–2.05*	–1.86*
		(0.97)	(0.92)	(1.13)	(1.05)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.20	–0.17	–0.22	–0.22*
		(0.14)	(0.15)	(0.14)	(0.13)
Male care goods	ln(total expenditure)	0.67*	0.68**	0.81	0.73
		(0.35)	(0.32)	(0.49)	(0.46)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.08	–0.08	–0.07	–0.07
		(0.06)	(0.06)	(0.07)	(0.07)
Female care goods	ln(total expenditure)	–0.51	–0.52	–0.73	–0.71
		(0.48)	(0.43)	(0.73)	(0.65)
	$\sqrt[4]{}$ Homicide rate last 12 months	–0.04	–0.04	–0.05	–0.04
		(0.07)	(0.07)	(0.09)	(0.09)
Other hh goods	ln(total expenditure)	3.65	3.76*	5.20*	5.02*
		(2.33)	(2.27)	(3.14)	(2.94)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.17	0.18	0.48	0.51*
		(0.31)	(0.30)	(0.33)	(0.29)
Transportation	ln(total expenditure)	7.49***	7.36***	6.51*	6.74**
		(2.33)	(2.21)	(3.40)	(3.14)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.56*	0.60*	0.31	0.32
		(0.32)	(0.33)	(0.36)	(0.35)
Health	ln(total expenditure)	1.30	1.15	2.28**	2.09*
		(0.82)	(0.82)	(1.16)	(1.07)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.13	0.14	0.22	0.22
		(0.18)	(0.17)	(0.21)	(0.20)
Education	ln(total expenditure)	0.59	0.45	0.41	0.30
		(0.73)	(0.68)	(1.15)	(1.06)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.03	0.04	0.04	0.09
		(0.11)	(0.10)	(0.13)	(0.13)
Recreation	ln(total expenditure)	2.45*	2.26*	2.15	1.99
		(1.25)	(1.24)	(1.85)	(1.77)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.15	0.14	0.20	0.20
		(0.21)	(0.20)	(0.24)	(0.22)
Gambling	ln(total expenditure)	0.24	0.25	0.31	0.32
		(0.19)	(0.17)	(0.30)	(0.26)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.06*	0.06	0.07*	0.07
		(0.04)	(0.04)	(0.04)	(0.05)
	Household controls	✓	✓	✓	✓
	Month and year of interview FE	✓	✓	✓	✓
	Instrument expenditure	✓	✓	✓	✓
	Household FE	✓	✓	✓	✓
	Double Lasso		✓		✓
	Observations	7,476	7,476	6,258	6,258

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B16: Engel Curves: Coefficients on Log Expenditure. Female and Male Goods.

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–17.84***	–17.81***	–17.41***	–20.09***	–20.00***	–19.63***	–15.70***	–15.31***	–15.27***
	(3.92)	(3.78)	(3.87)	(5.93)	(5.51)	(5.76)	(3.31)	(3.24)	(3.39)
Drinks and Tob.	–0.11	–0.02	–0.05	0.60	0.68	0.73	–0.19	–0.07	–0.08
	(0.88)	(0.88)	(0.90)	(1.20)	(1.15)	(1.19)	(0.84)	(0.86)	(0.90)
Male goods	2.13***	2.21***	2.11***	2.18***	2.23***	2.16**	2.72***	2.79***	2.73***
	(0.60)	(0.58)	(0.60)	(0.83)	(0.81)	(0.89)	(0.71)	(0.70)	(0.72)
Female goods	0.84	0.81	0.72	0.29	0.22	0.12	0.92	0.90	0.81
	(0.81)	(0.77)	(0.79)	(1.21)	(1.12)	(1.17)	(0.84)	(0.82)	(0.86)
Children goods	1.16	1.03	0.92	1.75	1.41	1.39	1.10	1.04	1.02
	(0.80)	(0.77)	(0.81)	(1.22)	(1.10)	(1.25)	(0.69)	(0.67)	(0.70)
HH Hygiene and care	–2.32**	–2.18**	–2.02**	–2.05*	–1.86*	–1.74*	–2.88***	–2.82***	–2.77***
	(0.97)	(0.92)	(0.88)	(1.13)	(1.04)	(1.00)	(1.00)	(0.97)	(0.99)
Other hh goods	3.65	3.76*	3.61	5.20*	5.02*	5.01*	1.55	1.52	1.31
	(2.33)	(2.27)	(2.29)	(3.14)	(2.93)	(3.03)	(2.12)	(2.07)	(2.19)
Transportation	7.49***	7.36***	7.44***	6.51*	6.74**	7.12**	6.98***	6.73***	7.04***
	(2.33)	(2.21)	(2.24)	(3.40)	(3.13)	(3.33)	(2.02)	(1.95)	(2.06)
Health	1.30	1.15	0.90	2.28**	2.09*	1.80	1.45	1.22	1.09
	(0.82)	(0.82)	(0.85)	(1.16)	(1.07)	(1.16)	(0.90)	(0.86)	(0.91)
Education	0.59	0.45	0.59	0.41	0.30	0.24	0.47	0.34	0.44
	(0.73)	(0.68)	(0.71)	(1.15)	(1.06)	(1.12)	(0.63)	(0.59)	(0.63)
Recreation	2.45*	2.26*	2.28*	2.15	1.99	1.86	2.89**	2.67**	2.71**
	(1.25)	(1.24)	(1.25)	(1.85)	(1.78)	(1.81)	(1.14)	(1.11)	(1.13)
Gambling	0.24	0.25	0.23	0.31	0.32	0.26	0.23	0.24*	0.24*
	(0.19)	(0.17)	(0.17)	(0.30)	(0.26)	(0.23)	(0.16)	(0.14)	(0.14)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	7,476	7,476	7,476	6,258	6,258	6,258	8,834	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B17: Effect of Homicide Rates on Expenditure Shares. Female and Male Goods.

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–0.96*	–1.01*	–0.74	–1.21*	–1.26**	–1.11*	–0.90*	–0.96*	–0.67
	(0.56)	(0.56)	(0.60)	(0.66)	(0.60)	(0.61)	(0.54)	(0.52)	(0.57)
Drinks and Tob.	0.05	0.04	–0.19	0.01	–0.01	–0.19	0.10	0.08	–0.15
	(0.13)	(0.14)	(0.17)	(0.13)	(0.13)	(0.15)	(0.13)	(0.13)	(0.18)
Male goods	0.18	0.16	0.22*	0.24*	0.22*	0.31**	0.16	0.12	0.18
	(0.11)	(0.10)	(0.11)	(0.13)	(0.12)	(0.13)	(0.10)	(0.08)	(0.11)
Female goods	–0.00	–0.01	0.07	0.02	0.03	0.19	–0.04	–0.05	–0.02
	(0.11)	(0.11)	(0.15)	(0.14)	(0.13)	(0.17)	(0.10)	(0.11)	(0.15)
Children goods	–0.14	–0.14	–0.04	–0.13	–0.14	0.00	–0.07	–0.08	0.01
	(0.16)	(0.16)	(0.17)	(0.19)	(0.18)	(0.19)	(0.14)	(0.14)	(0.15)
HH Hygiene and care	–0.20	–0.17	–0.18	–0.22	–0.22*	–0.14	–0.22	–0.19	–0.20
	(0.14)	(0.15)	(0.16)	(0.14)	(0.13)	(0.14)	(0.14)	(0.15)	(0.14)
Other hh goods	0.17	0.18	–0.03	0.48	0.51*	0.27	0.18	0.23	–0.04
	(0.31)	(0.30)	(0.39)	(0.33)	(0.29)	(0.38)	(0.30)	(0.28)	(0.35)
Transportation	0.56*	0.60*	0.90**	0.31	0.32	0.47	0.41	0.45	0.77**
	(0.32)	(0.33)	(0.38)	(0.36)	(0.35)	(0.39)	(0.28)	(0.29)	(0.31)
Health	0.13	0.14	0.14	0.22	0.22	0.16	0.22	0.24	0.26
	(0.18)	(0.17)	(0.20)	(0.21)	(0.20)	(0.25)	(0.15)	(0.15)	(0.19)
Education	0.03	0.04	0.04	0.04	0.09	0.12	0.05	0.06	0.06
	(0.11)	(0.10)	(0.11)	(0.13)	(0.12)	(0.13)	(0.08)	(0.09)	(0.10)
Recreation	0.15	0.14	–0.20	0.20	0.20	–0.07	0.08	0.08	–0.20
	(0.21)	(0.20)	(0.23)	(0.24)	(0.22)	(0.23)	(0.20)	(0.19)	(0.20)
Gambling	0.06*	0.06	0.03	0.07*	0.07	0.05**	0.05*	0.05*	0.03*
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.02)	(0.03)	(0.03)	(0.02)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	7,476	7,476	7,476	6,258	6,258	6,258	8,834	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B18: MxFLS Wave 1 and Wave 2 Placebo Test: Coefficients on Log Expenditure

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–17.53***	–17.21***	–16.87***	–17.41***	–17.28***	–16.51***	–21.55***	–21.52***	–21.59***
	(5.37)	(5.49)	(5.11)	(4.98)	(5.15)	(5.01)	(6.10)	(5.99)	(5.10)
Drinks and Tob.	1.37	1.38	1.31	1.23	1.08	0.94	0.94	0.99	1.11
	(1.17)	(1.16)	(1.14)	(1.22)	(1.21)	(1.16)	(1.36)	(1.30)	(1.29)
Male adult clothing	1.91**	1.99***	1.96***	1.13	1.30*	1.31*	2.50***	2.54***	2.49***
	(0.78)	(0.72)	(0.71)	(0.71)	(0.67)	(0.70)	(0.84)	(0.78)	(0.77)
Female adult clothing	0.68	0.64	0.61	0.51	0.57	0.55	0.95	0.83	0.92
	(0.69)	(0.67)	(0.65)	(0.74)	(0.70)	(0.68)	(0.68)	(0.65)	(0.60)
Children goods	0.25	0.27	0.26	0.88	0.63	0.70	0.52	0.43	0.39
	(1.02)	(1.00)	(1.01)	(1.11)	(1.03)	(1.04)	(0.92)	(0.91)	(0.88)
Hygiene and care	–2.20	–2.15	–1.99	–2.12	–2.21	–2.06	–2.08	–2.19	–1.97
	(1.77)	(1.67)	(1.67)	(1.51)	(1.44)	(1.36)	(1.68)	(1.59)	(1.56)
Other hh goods	2.71	3.35	3.39	3.80	4.41	4.31	5.67*	6.62**	6.88**
	(2.81)	(2.72)	(2.60)	(3.10)	(2.90)	(2.95)	(3.09)	(2.96)	(2.68)
Transportation	11.19***	10.15***	9.90***	11.00***	10.23***	9.87***	11.01***	10.09***	9.72***
	(3.65)	(3.49)	(3.45)	(3.32)	(3.13)	(3.10)	(3.61)	(3.48)	(3.19)
Health	–0.90	–0.60	–0.43	–1.12	–0.33	0.05	–0.86	–0.48	–0.16
	(1.37)	(1.30)	(1.24)	(1.53)	(1.42)	(1.20)	(1.51)	(1.44)	(1.33)
Education	0.07	–0.05	–0.14	–0.05	–0.06	–0.52	0.14	0.00	0.05
	(1.30)	(1.23)	(1.19)	(1.46)	(1.38)	(1.43)	(1.16)	(1.09)	(1.06)
Recreation	2.19	2.08	1.95	1.69	1.83	1.54	2.52*	2.55*	2.77**
	(1.60)	(1.55)	(1.49)	(1.82)	(1.77)	(1.71)	(1.51)	(1.46)	(1.36)
Gambling	0.27	0.23	0.24	0.46*	0.39	0.44**	0.24	0.19	0.17
	(0.21)	(0.20)	(0.17)	(0.27)	(0.24)	(0.22)	(0.20)	(0.18)	(0.15)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	8,066	8,066	8,066	6,116	6,116	6,116	9,252	9,252	9,252

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B19: MxFLS Wave 1 and Wave 2 Placebo Test: Effect of Homicide Rates on Expenditure Shares

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	1.45*	1.13	1.48*	1.30	1.25	1.42	1.73**	1.19	1.61**
	(0.85)	(0.79)	(0.84)	(0.90)	(0.85)	(0.91)	(0.84)	(0.73)	(0.81)
Drinks and Tob.	–0.30	–0.24	–0.12	–0.35	–0.30	–0.11	–0.24	–0.18	–0.03
	(0.22)	(0.21)	(0.20)	(0.22)	(0.21)	(0.21)	(0.20)	(0.19)	(0.19)
Male adult clothing	–0.11	–0.06	0.03	–0.04	–0.02	0.06	–0.14	–0.04	0.06
	(0.11)	(0.10)	(0.11)	(0.12)	(0.12)	(0.14)	(0.12)	(0.10)	(0.10)
Female adult clothing	–0.06	–0.05	0.00	–0.07	–0.07	–0.00	–0.07	–0.05	0.03
	(0.11)	(0.11)	(0.12)	(0.12)	(0.11)	(0.14)	(0.11)	(0.11)	(0.11)
Children goods	–0.21	–0.23	–0.21	–0.31	–0.30	–0.35	–0.22	–0.22	–0.18
	(0.17)	(0.17)	(0.17)	(0.22)	(0.21)	(0.22)	(0.16)	(0.15)	(0.17)
Hygiene and care	0.00	–0.06	–0.05	–0.00	–0.05	–0.25	0.01	–0.06	–0.09
	(0.24)	(0.21)	(0.24)	(0.27)	(0.24)	(0.27)	(0.24)	(0.21)	(0.23)
Other hh goods	–0.38	–0.38	–0.84*	–0.07	–0.08	–0.50	–0.57	–0.41	–0.74
	(0.51)	(0.47)	(0.47)	(0.57)	(0.49)	(0.52)	(0.56)	(0.50)	(0.52)
Transportation	–0.26	–0.00	–0.29	–0.28	–0.13	–0.11	–0.26	0.04	–0.29
	(0.59)	(0.55)	(0.62)	(0.64)	(0.62)	(0.71)	(0.49)	(0.44)	(0.50)
Health	0.26	0.17	0.10	0.35	0.21	0.13	0.14	0.01	–0.08
	(0.26)	(0.21)	(0.19)	(0.31)	(0.25)	(0.24)	(0.26)	(0.21)	(0.20)
Education	–0.28**	–0.26**	–0.24*	–0.35**	–0.36***	–0.23	–0.26**	–0.22**	–0.21*
	(0.14)	(0.13)	(0.14)	(0.15)	(0.14)	(0.15)	(0.12)	(0.11)	(0.12)
Recreation	–0.09	–0.04	0.01	–0.15	–0.16	–0.09	–0.09	–0.05	–0.12
	(0.20)	(0.18)	(0.19)	(0.23)	(0.21)	(0.22)	(0.18)	(0.15)	(0.16)
Gambling	–0.01	–0.01	–0.01	–0.02	–0.00	–0.02	–0.02	–0.01	–0.01
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	8,066	8,066	8,066	6,116	6,116	6,116	9,252	9,252	9,252

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B20: Effects of Homicide Rates on Budget Shares: Municipality Economic Controls

		(1)	(2)	(3)	(4)
		Households with children		Nuclear with children	
Food	ln(total expenditure)	−18.04***	−16.59***	−23.18***	−20.31***
		(4.87)	(4.80)	(8.33)	(7.07)
	$\sqrt[4]{}$ Homicide rate last 12 months	−0.51	−0.99	−0.84	−1.81**
		(0.86)	(0.78)	(1.18)	(0.91)
Drinks and Tob.	ln(total expenditure)	1.99*	1.74*	2.61	1.95
		(1.19)	(1.06)	(2.19)	(1.52)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.14	0.18	0.14	0.20
		(0.18)	(0.22)	(0.22)	(0.24)
Male adult clothing	ln(total expenditure)	0.93	0.83	0.89	0.78
		(0.60)	(0.58)	(0.76)	(0.68)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.25*	0.30*	0.30*	0.33*
		(0.13)	(0.17)	(0.16)	(0.18)
Female adult clothing	ln(total expenditure)	1.08*	0.79	1.14	0.81
		(0.64)	(0.65)	(0.95)	(0.96)
	$\sqrt[4]{}$ Homicide rate last 12 months	−0.01	0.11	0.06	0.20
		(0.12)	(0.14)	(0.14)	(0.14)
Children goods	ln(total expenditure)	−0.37	−0.75	−0.12	−0.72
		(0.92)	(0.93)	(1.28)	(1.21)
	$\sqrt[4]{}$ Homicide rate last 12 months	−0.38*	−0.27	−0.27	−0.15
		(0.20)	(0.22)	(0.23)	(0.24)
Hygiene and care	ln(total expenditure)	−2.29	−1.85	−1.39	−1.06
		(1.82)	(1.77)	(2.43)	(2.19)
	$\sqrt[4]{}$ Homicide rate last 12 months	−0.74***	−0.48*	−0.63*	−0.37
		(0.26)	(0.27)	(0.32)	(0.29)
Other hh goods	ln(total expenditure)	2.49	1.83	4.92	3.99
		(2.97)	(2.97)	(4.24)	(3.98)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.03	0.04	0.53	0.52
		(0.45)	(0.51)	(0.50)	(0.48)
Transportation	ln(total expenditure)	8.07***	7.82**	7.07	6.97*
		(3.07)	(3.12)	(4.49)	(4.04)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.42	0.60	−0.22	0.23
		(0.48)	(0.62)	(0.53)	(0.66)
Health	ln(total expenditure)	1.41	1.08	2.96	2.68
		(1.27)	(1.30)	(1.89)	(1.66)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.19	0.23	0.27	0.24
		(0.30)	(0.32)	(0.37)	(0.36)
Education	ln(total expenditure)	0.15	0.12	−0.06	−0.30
		(0.88)	(0.91)	(1.17)	(1.17)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.12	0.10	0.07	0.11
		(0.18)	(0.20)	(0.21)	(0.22)
Recreation	ln(total expenditure)	4.23***	4.03***	4.72	4.12
		(1.57)	(1.50)	(2.88)	(2.57)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.43	0.31	0.50	0.40
		(0.33)	(0.31)	(0.40)	(0.33)
Gambling	ln(total expenditure)	0.36	0.41	0.43	0.44
		(0.28)	(0.25)	(0.47)	(0.35)
	$\sqrt[4]{}$ Homicide rate last 12 months	0.07	0.09**	0.08	0.13*
		(0.05)	(0.04)	(0.07)	(0.07)
	Household controls	✓	✓	✓	✓
	Month and year of interview FE	✓	✓	✓	✓
	Instrument expenditure	✓	✓	✓	✓
	Household FE	✓	✓	✓	✓
	Double Lasso		✓		✓
	Observations	7,476	7,476	6,258	6,258

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B21: Familywise Error Rate p-values

	(1)	(2)	(3)	(4)	(5)	(6)
	Households with children		**Nuclear households with children**		**All households**	
	$\sqrt[4]{}$ Homicide rate last 12 months	FWER p-value	$\sqrt[4]{}$ Homicide rate last 12 months	FWER p-value	$\sqrt[4]{}$ Homicide rate last 12 months	FWER p-value
Food	–0.96*	0.06	–1.21**	0.03	–0.90*	0.07
Drinks and Tob.	0.05	0.73	0.01	0.93	0.10	0.45
Female adult clothing	0.05	0.47	0.07	0.45	0.06	0.35
Male adult clothing	0.26***	0.00	0.30***	0.00	0.24***	0.00
Children goods	–0.14	0.38	–0.13	0.48	–0.07	0.59
Education	0.03	0.71	0.04	0.77	0.05	0.51
Health	0.13	0.44	0.22	0.28	0.22	0.14
Transportation	0.56*	0.07	0.31	0.41	0.41	0.15
Hygiene and care	–0.35*	0.07	–0.36*	0.07	–0.43**	0.01
Other hh goods	0.17	0.55	0.48*	0.09	0.18	0.47
Recreation	0.15	0.48	0.20	0.43	0.08	0.67
Gambling	0.06	0.30	0.07	0.32	0.05	0.25

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. p-values are calculated controlling for the familywise error rate (FWER), this is the probability of making any type I error across the 12 equations. The procedure allows for p-values to be correlated across specifications using a bootstrapping approach (3,000 replications) and clustering errors at the municipality level. Calculations use the *mhtreg* Stata package developed by Andreas Steinmayr, LMU Munich.

Table B22: Effect of Homicide Rates on Expenditure Shares. Exclude Top and Bottom Expenditure 1%.

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–1.32**	–1.28**	–1.02*	–1.49**	–1.46**	–1.38**	–1.18**	–1.19**	–0.95*
	(0.53)	(0.53)	(0.59)	(0.63)	(0.59)	(0.60)	(0.49)	(0.48)	(0.54)
Drinks and Tob.	0.06	0.05	–0.20	0.02	–0.01	–0.20	0.06	0.05	–0.21
	(0.14)	(0.15)	(0.19)	(0.13)	(0.13)	(0.16)	(0.14)	(0.14)	(0.19)
Male adult clothing	0.23***	0.23***	0.22***	0.25***	0.23***	0.27***	0.24***	0.20***	0.23***
	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.07)	(0.08)
Female adult clothing	0.06	0.05	0.09	0.07	0.07	0.16	0.07	0.05	0.06
	(0.08)	(0.08)	(0.10)	(0.10)	(0.09)	(0.12)	(0.08)	(0.07)	(0.09)
Children goods	–0.12	–0.12	–0.04	–0.11	–0.12	0.01	–0.06	–0.07	0.03
	(0.16)	(0.17)	(0.18)	(0.19)	(0.19)	(0.20)	(0.14)	(0.15)	(0.16)
Hygiene and care	–0.34*	–0.33*	–0.24	–0.38*	–0.32	–0.18	–0.43**	–0.41**	–0.36*
	(0.18)	(0.19)	(0.21)	(0.19)	(0.20)	(0.22)	(0.17)	(0.17)	(0.19)
Other hh goods	0.24	0.24	–0.02	0.57*	0.57*	0.32	0.21	0.26	–0.03
	(0.33)	(0.31)	(0.38)	(0.34)	(0.31)	(0.39)	(0.31)	(0.29)	(0.35)
Transportation	0.74**	0.73**	1.04***	0.45	0.46	0.64*	0.62**	0.64**	0.96***
	(0.33)	(0.33)	(0.38)	(0.37)	(0.36)	(0.38)	(0.29)	(0.30)	(0.31)
Health	0.12	0.13	0.13	0.20	0.19	0.13	0.22	0.25	0.24
	(0.18)	(0.17)	(0.21)	(0.21)	(0.21)	(0.24)	(0.16)	(0.15)	(0.20)
Education	0.07	0.05	0.10	0.09	0.13	0.19	0.08	0.08	0.11
	(0.11)	(0.10)	(0.11)	(0.14)	(0.13)	(0.13)	(0.09)	(0.09)	(0.10)
Recreation	0.24	0.25	–0.07	0.32	0.31	0.08	0.15	0.14	–0.09
	(0.20)	(0.19)	(0.21)	(0.23)	(0.21)	(0.22)	(0.18)	(0.18)	(0.19)
Gambling	0.02	0.02	0.02	0.02	0.01	0.03*	0.02*	0.02*	0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	7,348	7,348	7,348	6,140	6,140	6,140	8,658	8,658	8,658

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 4 reports coefficient γ^k on the quartic of the homicide rate in 100,000 of each equation (12). Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B23: Effect of Homicide Rates on Expenditure Shares. Exclude Top and Bottom Expenditure 5%.

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Food	–1.34**	–1.23**	–0.96	–1.49**	–1.47**	–1.17*	–1.30***	–1.26***	–0.87*
	(0.58)	(0.54)	(0.64)	(0.71)	(0.59)	(0.64)	(0.47)	(0.49)	(0.52)
Drinks and Tob.	0.14	0.11	–0.17	0.09	0.07	–0.16	0.13	0.10	–0.18
	(0.15)	(0.16)	(0.19)	(0.16)	(0.15)	(0.18)	(0.14)	(0.15)	(0.19)
Male adult clothing	0.22**	0.20**	0.17*	0.23**	0.20**	0.22*	0.21**	0.19**	0.20**
	(0.10)	(0.09)	(0.10)	(0.11)	(0.10)	(0.12)	(0.09)	(0.08)	(0.10)
Female adult clothing	0.12	0.10	0.11	0.09	0.10	0.14	0.10	0.09	0.09
	(0.08)	(0.08)	(0.11)	(0.11)	(0.10)	(0.13)	(0.08)	(0.08)	(0.10)
Children goods	–0.16	–0.17	–0.05	–0.18	–0.19	–0.01	–0.09	–0.09	0.02
	(0.16)	(0.17)	(0.21)	(0.20)	(0.20)	(0.23)	(0.14)	(0.15)	(0.16)
Hygiene and care	–0.32*	–0.31*	–0.19	–0.32	–0.28	–0.14	–0.36*	–0.35*	–0.25
	(0.19)	(0.18)	(0.21)	(0.21)	(0.20)	(0.23)	(0.19)	(0.19)	(0.21)
Other hh goods	0.16	0.14	–0.09	0.50	0.50	0.29	0.19	0.23	0.09
	(0.36)	(0.33)	(0.43)	(0.41)	(0.33)	(0.40)	(0.30)	(0.29)	(0.36)
Transportation	0.82**	0.80**	1.12***	0.47	0.51	0.52	0.80**	0.80**	0.98***
	(0.36)	(0.35)	(0.40)	(0.40)	(0.40)	(0.43)	(0.33)	(0.35)	(0.35)
Health	0.14	0.14	0.15	0.29	0.29	0.27	0.16	0.18	0.09
	(0.19)	(0.18)	(0.23)	(0.22)	(0.21)	(0.27)	(0.17)	(0.16)	(0.21)
Education	0.07	0.05	0.05	0.07	0.10	0.15	0.07	0.05	0.07
	(0.11)	(0.11)	(0.12)	(0.14)	(0.14)	(0.13)	(0.09)	(0.09)	(0.11)
Recreation	0.15	0.16	–0.15	0.22	0.23	–0.02	0.06	0.06	–0.25
	(0.22)	(0.20)	(0.21)	(0.25)	(0.23)	(0.21)	(0.18)	(0.18)	(0.20)
Gambling	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02*	0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double Lasso		✓	✓		✓	✓		✓	✓
Price proxy			✓			✓			✓
Observations	6,816	6,816	6,816	5,672	5,672	5,672	7,954	7,954	7,954

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 4 reports coefficient γ^k on the quartic of the homicide rate in 100,000 of each equation (12). Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B24: Effect of Homicide Rates on Budget Shares: Transformations of Homicide Rates

	Households with children			Nuclear households with children			All households		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\sqrt{\text{Hom. rate}}$	log (Hom. rate)	IHS (Hom. rate)	$\sqrt{\text{Hom. rate}}$	log (Hom. rate)	IHS (Hom. rate)	$\sqrt{\text{Hom. rate}}$	log (Hom. rate)	IHS (Hom. rate)
Food	–0.96*	–0.60	–0.30	–1.21*	–0.75*	–0.38*	–0.90*	–0.57	–0.29
	(0.56)	(0.39)	(0.20)	(0.66)	(0.45)	(0.23)	(0.54)	(0.38)	(0.19)
Drinks and Tob.	0.05	0.04	0.02	0.01	0.01	0.00	0.10	0.08	0.04
	(0.13)	(0.09)	(0.04)	(0.13)	(0.09)	(0.04)	(0.13)	(0.09)	(0.04)
Male adult clothing	0.26***	0.18***	0.09***	0.30***	0.21***	0.10***	0.24***	0.17***	0.08***
	(0.09)	(0.06)	(0.03)	(0.10)	(0.07)	(0.03)	(0.08)	(0.05)	(0.03)
Female adult clothing	0.05	0.05	0.02	0.07	0.06	0.03	0.06	0.05	0.02
	(0.08)	(0.06)	(0.03)	(0.10)	(0.07)	(0.03)	(0.07)	(0.05)	(0.02)
Children goods	–0.14	–0.12	–0.06	–0.13	–0.12	–0.06	–0.07	–0.07	–0.03
	(0.16)	(0.10)	(0.05)	(0.19)	(0.13)	(0.06)	(0.14)	(0.09)	(0.05)
Hygiene and care	–0.35*	–0.26**	–0.13**	–0.36*	–0.25*	–0.12*	–0.43**	–0.30***	–0.15***
	(0.18)	(0.12)	(0.06)	(0.19)	(0.13)	(0.07)	(0.18)	(0.12)	(0.06)
Other hh goods	0.17	0.13	0.06	0.48	0.34	0.17	0.18	0.15	0.07
	(0.31)	(0.21)	(0.11)	(0.33)	(0.23)	(0.11)	(0.30)	(0.21)	(0.10)
Transportation	0.56*	0.30	0.15	0.31	0.13	0.06	0.41	0.22	0.11
	(0.32)	(0.22)	(0.11)	(0.36)	(0.25)	(0.12)	(0.28)	(0.20)	(0.10)
Health	0.13	0.11	0.05	0.22	0.16	0.08	0.22	0.16	0.08
	(0.18)	(0.12)	(0.06)	(0.21)	(0.15)	(0.07)	(0.15)	(0.10)	(0.05)
Education	0.03	0.01	0.01	0.04	0.02	0.01	0.05	0.03	0.01
	(0.11)	(0.07)	(0.04)	(0.13)	(0.09)	(0.05)	(0.08)	(0.06)	(0.03)
Recreation	0.15	0.11	0.06	0.20	0.15	0.08	0.08	0.05	0.03
	(0.21)	(0.14)	(0.07)	(0.24)	(0.16)	(0.08)	(0.20)	(0.13)	(0.07)
Gambling	0.06*	0.04*	0.02*	0.07*	0.05*	0.02*	0.05*	0.04*	0.02*
	(0.04)	(0.02)	(0.01)	(0.04)	(0.03)	(0.01)	(0.03)	(0.02)	(0.01)
	7,476	7,476	7,476	6,258	6,258	6,258	8,834	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table B24 reports the different coefficient γ^k on the several transformations of the homicide rate in 100,000 of each equation (12). Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total houseold size, and rural locality dummy.

Table B25: Effect of Homicide Rates on Expenditure Shares: QUAIDS

	Households with children		Nuclear households with children		All households	
	(1)	(2)	(3)	(4)	(5)	(6)
Food	−0.96*	−0.91	−1.21*	−1.45**	−0.89*	−0.76
	(0.55)	(0.64)	(0.63)	(0.73)	(0.54)	(0.57)
Drinks and Tob.	0.05	−0.11	0.02	−0.08	0.10	−0.08
	(0.13)	(0.15)	(0.13)	(0.15)	(0.13)	(0.15)
Male adult clothing	0.26***	0.28***	0.30***	0.36***	0.25***	0.25***
	(0.09)	(0.10)	(0.10)	(0.11)	(0.08)	(0.09)
Female adult clothing	0.05	0.11	0.07	0.15	0.06	0.07
	(0.08)	(0.11)	(0.10)	(0.13)	(0.07)	(0.10)
Children goods	−0.14	−0.03	−0.13	0.03	−0.07	0.04
	(0.16)	(0.19)	(0.18)	(0.23)	(0.14)	(0.16)
Hygiene and care	−0.35*	−0.27	−0.36*	−0.21	−0.42**	−0.34*
	(0.18)	(0.22)	(0.19)	(0.24)	(0.18)	(0.20)
Other hh goods	0.18	−0.19	0.49	0.16	0.19	−0.20
	(0.32)	(0.42)	(0.33)	(0.44)	(0.31)	(0.39)
Transportation	0.55*	0.91**	0.31	0.58	0.40	0.75**
	(0.32)	(0.40)	(0.37)	(0.46)	(0.28)	(0.32)
Health	0.13	0.15	0.21	0.21	0.22	0.25
	(0.18)	(0.22)	(0.21)	(0.26)	(0.15)	(0.20)
Education	0.03	0.03	0.03	0.07	0.05	0.06
	(0.10)	(0.13)	(0.12)	(0.15)	(0.08)	(0.12)
Recreation	0.15	−0.00	0.20	0.15	0.08	−0.06
	(0.21)	(0.23)	(0.24)	(0.27)	(0.19)	(0.21)
Gambling	0.06*	0.02	0.07	0.04	0.05*	0.03
	(0.04)	(0.02)	(0.04)	(0.03)	(0.03)	(0.02)
Household controls	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓
Price proxy		✓		✓		✓
Observations	7,476	7,476	6,258	6,258	8,834	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B26: Effect of Homicide Rates on Expenditure Shares: Households with Same Respondent Across Survey Waves

	(1) Households with children	(2) Nuclear households with children	(3) All households
Food	–0.69	–0.69	–0.72
	(0.67)	(0.67)	(0.64)
Drinks and Tob.	–0.02	–0.02	0.08
	(0.16)	(0.16)	(0.16)
Male adult clothing	0.25***	0.25***	0.27***
	(0.10)	(0.10)	(0.09)
Female adult clothing	0.08	0.08	0.08
	(0.09)	(0.09)	(0.08)
Children goods	–0.14	–0.14	–0.08
	(0.17)	(0.17)	(0.15)
Hygiene and care	–0.38	–0.38	–0.42*
	(0.25)	(0.25)	(0.23)
Other hh goods	0.43	0.43	0.42
	(0.36)	(0.36)	(0.31)
Transportation	0.32	0.32	0.19
	(0.36)	(0.36)	(0.32)
Health	–0.07	–0.07	–0.04
	(0.14)	(0.14)	(0.15)
Education	–0.05	–0.05	–0.04
	(0.14)	(0.14)	(0.10)
Recreation	0.22	0.22	0.19
	(0.24)	(0.24)	(0.19)
Gambling	0.07	0.07	0.06
	(0.05)	(0.05)	(0.04)
Household controls	✓	✓	✓
Month and year of interview FE	✓	✓	✓
Household FE	✓	✓	✓
Instrument expenditure	✓	✓	✓
Observations	5,708	5,670	6,666

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table B26 limits the sample to those households who had the same respondent on the consumption module in MxFLS-2 and MxFLS-3. It reports coefficient γ^k on the quartic of the homicide rate in 100,000 of each equation (12)

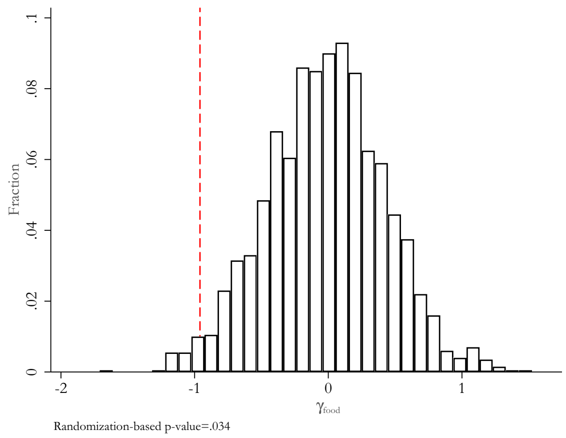
B.6.1 Randomization-Based Inference

To analyze the likelihood that the main results could have occurred by chance, I generate randomness in the exposure to increased local violence and calculate randomization-based p-values (Athey and Imbens 2016; Young 2019). It consists on randomly reassigning increases in homicides, drawing values from the original distribution in the sample of interest. I then reestimate the main set of results and calculate what the coefficient of interest would have been under this new distribution of homicide rates. The observed outcome variables do not change for any unit under the null hypothesis, but the estimate of the coefficient on homicides does. I repeat the procedure 2,000 times.[34] The randomization-based p-value is the proportion of reassigned estimates at least as large in absolute value as the actual estimate. I plot the distribution of coefficient estimates in Figure B2. The vertical dashed line in each graph plots the estimated coefficient in the main specification. The p-values associated with these statistics, also reported in Figure B2 footnotes, are approximately 0.03 (food budget share), 0.03 (hygiene/personal care budget share), 0.001 (male adult clothing), 0.48 (female adult clothing), 0.08 (transportation), and 0.14 (children goods). These p-values indicate that the sharp null hypothesis—that the increase in homicides had no effect on households' expenditure shares among these good categories—should be rejected further confirming the main results.

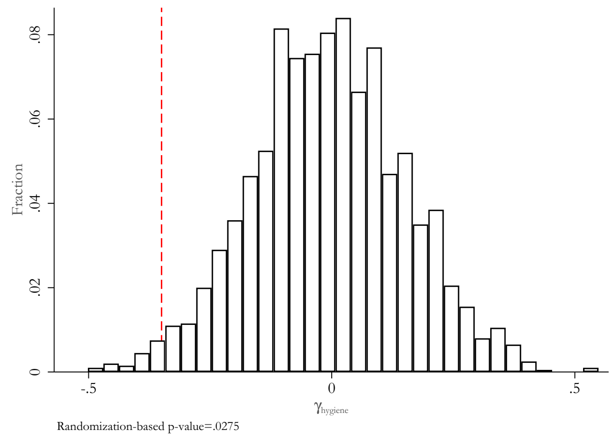
[34] Young (2019) finds no appreciable changes in rejection rates after 2,000 repetitions.

Figure B2: Randomization Inference of Homicide Rate's Effects on Budget Shares

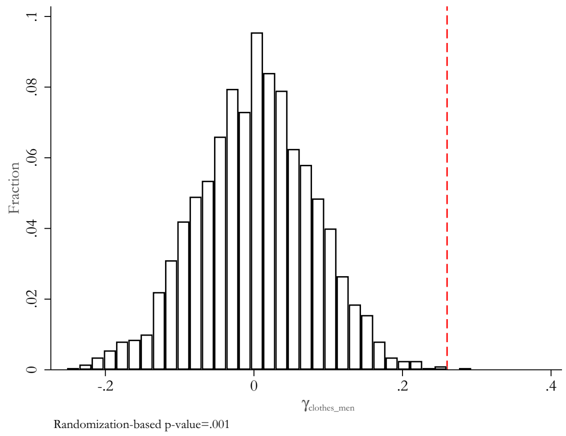
(a) Food



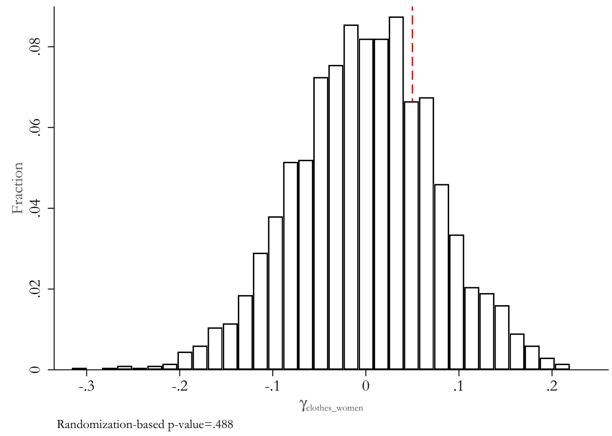
(b) Hygiene and Personal Care



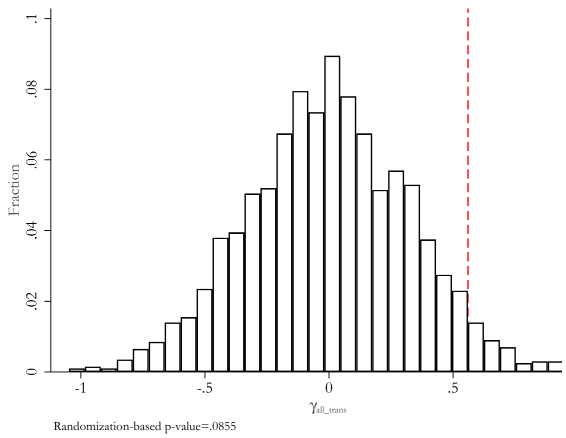
(c) Male Clothing



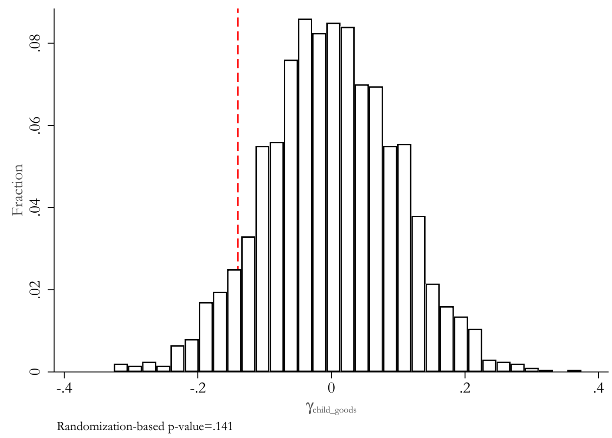
(d) Female Clothing



(e) Transportation



(f) Children goods



Notes: These figures show the distribution of the homicides coefficients obtained from column (1) specification of Table 5 while randomly replacing the change in the quartic root of the municipality's homicide rate. The random reassignments come from the original distribution of homicide rates of the analytical sample. The red dashed line represents actual estimates from the main specification.

B.7 Potential Mechanisms

Table B27: Effect of homicides on household composition

	Number Female					Number Male						
	0-6	7-11	12-18	18-55	+55	0-6	7-11	12-18	18-55	+55	HHsize	Log(hhsize)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\sqrt[4]{}$ Homicide rate last 12 months	-0.008	0.021	-0.019	-0.007	0.002	0.008	-0.024*	0.009	0.002	-0.001	-0.010	-0.002
	(0.010)	(0.015)	(0.013)	(0.013)	(0.006)	(0.010)	(0.013)	(0.013)	(0.014)	(0.005)	(0.022)	(0.004)
Intercept	4.458***	-0.208	0.142	-1.263	1.041***	3.882***	1.504*	-1.710**	-0.139	0.151	4.124**	1.103***
	(0.768)	(0.601)	(0.770)	(0.868)	(0.276)	(1.253)	(0.824)	(0.782)	(1.178)	(0.408)	(1.600)	(0.273)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	8,834	8,834	8,834	8,834	8,834	8,834	8,834	8,834	8,834	8,834	8,834	8,834
adj. R^2	0.21	0.01	0.02	0.04	0.10	0.20	0.01	0.02	0.02	0.09	0.16	0.17

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. Columns (1-5) outcome variable is the number of female members in the correspondent age group living in the household. Columns (6-10) outcome variable is the number of male members in the correspondent age group living in the household. Columns 11 and 12 outcome variable are the number and logarithm of household size, respectively.

Table B28: Effect of homicides on Male Labor Supply: Husband Worked Last Week

	Households with children	**Nuclear households with children**	**All households**
	(1)	(2)	(3)
$\sqrt[4]{}$ Homicide rate last 12 months	-0.005	-0.006	-0.010
	(0.013)	(0.014)	(0.013)
Household controls	✓	✓	✓
Month and year of interview FE	✓	✓	✓
Household FE	✓	✓	✓
Observations	6,508	5,249	7,640
adj. R^2	0.05	0.05	0.06

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is an indicator variable equal to 1 if the husband worked last week.

Table B29: Effect of homicides on Male Labor Supply: Husband $\sqrt[4]{}$ Hours Worked Last 12 Months

	Households with children	**Nuclear households with children**	**All households**
	(1)	(2)	(3)
$\sqrt[4]{}$ Homicide rate last 12 months	0.025	0.048	0.014
	(0.087)	(0.101)	(0.085)
Household controls	✓	✓	✓
Month and year of interview FE	✓	✓	✓
Household FE	✓	✓	✓
Observations	6,219	5,012	7,317
adj. R^2	0.03	0.03	0.04

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is the quartic root of the number hours worked by the husband in the last 12 months.

Table B30: Effect of homicides on Male Labor Supply: Household Men $\sqrt[4]{}$ Hours worked last 12 months

	Households with children	**Nuclear households with children**	**All households**
	(1)	(2)	(3)
$\sqrt[4]{}$ Homicide rate last 12 months	0.013	0.044	0.023
	(0.094)	(0.106)	(0.101)
Household controls	✓	✓	✓
Month and year of interview FE	✓	✓	✓
Household FE	✓	✓	✓
Observations	5,429	4,526	6,506
adj. R^2	0.04	0.03	0.06

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. The outcome variable is the quartic root of the number hours worked by all male members of the houshold in the last 12 months.

Table B31: Effect of homicides on Time Spent Outside

	Wife			**Husband**		
	Extensive margin	# Hours	Quartic root hours	Extensive margin	# Hours	Quartic root hours
	(1)	(2)	(3)	(4)	(5)	(6)
$\sqrt[4]{}$ Homicide rate last 12 months	-0.017**	-0.068	-0.023*	-0.004	-0.008	-0.002
	(0.008)	(0.058)	(0.012)	(0.012)	(0.118)	(0.018)
Intercept	0.460	3.921	0.765	0.130	0.017	0.173
	(0.539)	(3.003)	(0.806)	(0.837)	(7.153)	(1.405)
Household controls	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓
Observations	7,337	7,334	7,334	6,338	6,331	6,331
adj. R^2	0.00	0.01	0.01	0.01	0.00	0.01

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level.

Table B32: Effect of Homicide Rates on Household Wealth and Earnings

	With children		**Nuclear with children**		**All**	
	ln(Wealth)	$\sqrt[4]{}$ Total earnings last year	ln(Wealth)	$\sqrt[4]{}$ Total earnings last year	ln(Wealth)	$\sqrt[4]{}$ Total earnings last year
	(1)	(2)	(3)	(4)	(5)	(6)
$\sqrt[4]{}$ Homicide rate last 12 months	-0.105	0.053	-0.131	0.135	-0.069	0.042
	(0.124)	(0.292)	(0.127)	(0.297)	(0.118)	(0.285)
Household controls	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓
Observations	7,591	7,591	6,141	6,141	8,834	8,834
adj. R^2	0.01	0.02	0.01	0.03	0.01	0.03

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

Table B33: Effect of Homicide Rates on Expenditure Shares: Purchased versus Home Production/Gifts

	(1)	(2)	(3)	(4)	(5)	(6)
	Households with children		**Nuclear households with children**		**All households**	
	Purchased	HP/Gifts	Purchased	HP/Gifts	Purchased	HP/Gifts
Food	–0.95	0.02	–0.79	–0.23	–0.81	0.01
	(0.60)	(0.21)	(0.65)	(0.20)	(0.54)	(0.24)
Drinks and Tob.	0.06	–0.02	0.03	–0.01	0.10	0.00
	(0.13)	(0.01)	(0.13)	(0.01)	(0.13)	(0.01)
Male adult clothing	0.27***	–0.01	0.31***	–0.01	0.23***	0.01
	(0.09)	(0.01)	(0.10)	(0.01)	(0.07)	(0.02)
Female adult clothing	0.06	–0.01	0.08	–0.01	0.05	0.01
	(0.08)	(0.01)	(0.10)	(0.01)	(0.07)	(0.02)
Children goods	–0.09	–0.05*	–0.07	–0.06*	–0.02	–0.04**
	(0.15)	(0.03)	(0.18)	(0.03)	(0.13)	(0.02)
Hygiene and care	–0.35*		–0.36*		–0.43**	
	(0.18)		(0.19)		(0.18)	
Other hh goods	0.17		0.48		0.18	
	(0.31)		(0.33)		(0.30)	
Transportation	0.37	–0.01	0.22	–0.00	0.22	0.00
	(0.28)	(0.01)	(0.33)	(0.00)	(0.28)	(0.02)
Health	0.12	0.01	0.22	–0.00	0.20	0.01
	(0.18)	(0.01)	(0.22)	(0.01)	(0.15)	(0.01)
Education	0.03		0.04		0.05	
	(0.11)		(0.13)		(0.08)	
Recreation	0.10		0.12		0.04	
	(0.18)		(0.21)		(0.17)	
Gambling	0.06*		0.07*		0.05*	
	(0.04)		(0.04)		(0.03)	
Observations	3,738		3,129		4,417	
Household controls	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓
Instrument expenditure	✓	✓	✓	✓	✓	✓
Observations	.	7,476	.	6,258	.	8,834

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates are based on a control function approach bootstrapping standard errors (500 replications) clustered at the municipality level. The dependent variables are budget shares of household goods, defined as the expenditure on that good divided by total household expenditure multiplied by 100. Household controls include: wife's and husband's age, wife's and husband's age squared, wife's and husband's secondary school dummy, number of household members by gender and age group, logarithm of total household size, and rural locality dummy.

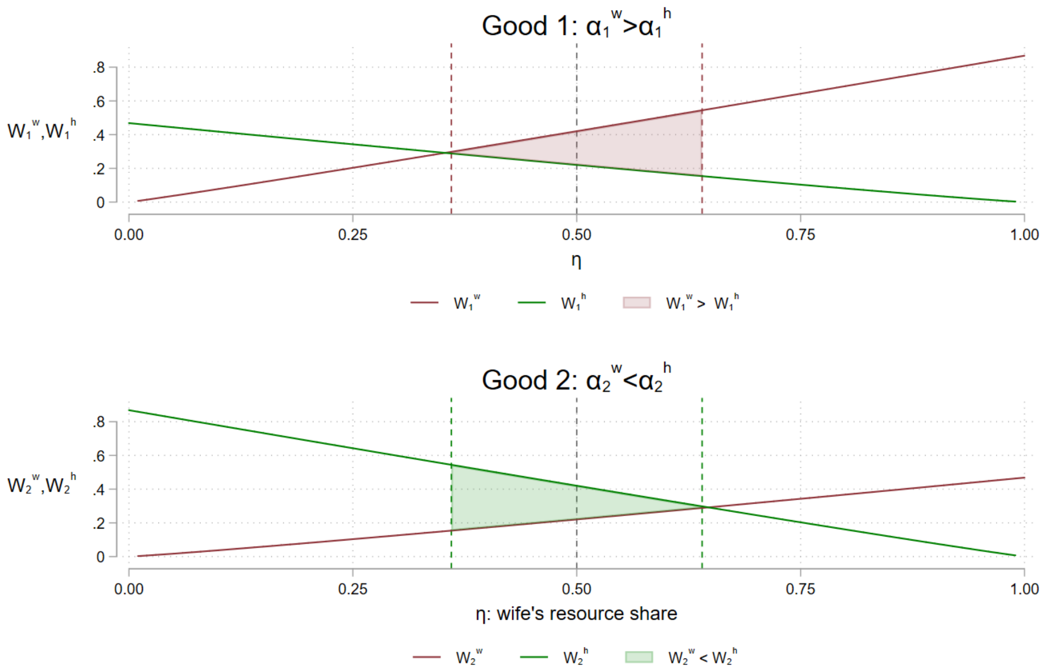
Table B34: Effect of homicides on who is present at the time of the interview

	Wife responds, nobody present (1)	Wife responds, spouse present (2)	Husband responds, nobody present (3)	Husband responds, spouse present (4)
$\sqrt{}$ Homicide rate last 12 months	-0.009	-0.004	0.006	-0.006
	(0.023)	(0.012)	(0.008)	(0.004)
Intercept	1.641***	-0.087	0.166	0.049
	(0.346)	(0.202)	(0.139)	(0.094)
Household controls	✓	✓	✓	✓
Household FE	✓	✓	✓	✓
Outcome mean	0.52	0.10	0.05	0.02
Observations	7,584	7,584	7,584	7,584
adj. R^2	0.04	0.02	0.01	0.00

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level.

C Resource Shares

Figure C1: Budget Shares vs. Resource Shares



C.1 Violent Crime: Distribution Factors or Taste Shifter?

This section illustrates theoretically why whether changes in homicides affect preferences of adult male clothing matters for the conclusions derived from the Engel curves results with respect to changes in intra-household bargaining power. I present comparative statistics with respect to violence of the Engel curves of male private assignable goods W_m^k specified in equation (10b).

Case 1. $\frac{\partial \alpha^m}{\partial H_j} = \frac{\partial \beta^m}{\partial H_j} = 0$. Changes in homicides do not affect preferences; they are *distribution factors*. Then, for any male private assignable luxury good m,

$$\frac{\partial W^m}{\partial H_j} = -\frac{\partial \eta}{\partial H_j}\left(\frac{W^m}{(1-\eta)} + \beta^m\right) \tag{C1}$$

$$\frac{\partial W^m}{\partial H_j} \geq 0 \qquad \text{if and only if} \qquad \frac{\partial \eta}{\partial H_j} \leq 0. \tag{C2}$$

The empirical results provide evidence of $\frac{\partial W^m}{\partial H_j} > 0$ in male clothing. Because the second term of equation (C1) is positive (male clothing is a luxury good, $\beta^m > 0$), it must be that $\frac{\partial \eta}{\partial H_j} < 0$, that is the increase in violence decreases women's resource shares in the household (a proxy for bargaining power).

Case 2. $\frac{\partial \alpha^m}{\partial H_j} \leq 0$ and $\frac{\partial \beta^m}{\partial H_j} \leq 0$. Changes in violence may shift downward the intercept and slope of the Engel curves of male private goods. Then,

$$\frac{\partial W^m}{\partial H_j} = -\frac{\partial \eta}{\partial H_j}\left(\frac{W^m}{(1-\eta)} + \beta^m\right) + (1-\eta)\left(\frac{\partial \alpha^m}{\partial H_j} + \frac{\partial \beta^m}{\partial H_j}\ln((1-\eta)y/n^m)\right) \tag{C3}$$

$$\frac{\partial W^m}{\partial H_j} \geq 0 \qquad \text{if and only if} \qquad \frac{\partial \eta}{\partial H_j} \leq 0. \tag{C4}$$

Under these assumptions, the empirical results would still be supportive of increases in violent crime leading to increases in male bargaining power.

Case 3. $\frac{\partial \alpha^m}{\partial H_j} \geq 0$ or $\frac{\partial \beta^m}{\partial H_j} \geq 0$, with at least one of them with strict inequality. Changes in homicides may shift downward the intercept and slope of the Engel curves of male goods. Then, it may be the case that $\frac{\partial W^m}{\partial H_j} > 0$ and $\frac{\partial \eta}{\partial H_j} \geq 0$.

D Discussion

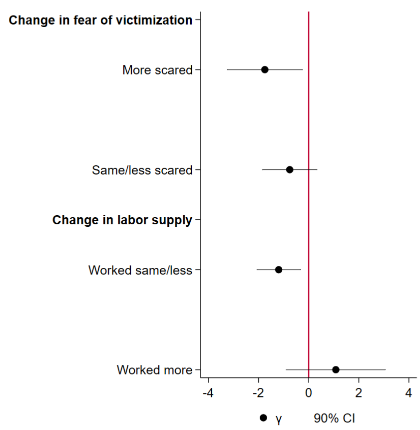
Table D1: Effect of homicides on fear of victimization

	Wife				**Husband**			
	Scared attacked day	Scared attacked night	Feels safer	Expect attack	Scared attacked day	Scared attacked night	Feels safer	Expect attack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\sqrt[3]{}$ Homicide rate last 12 months	0.060	0.087**	-0.083***	0.109*	0.058	0.039	-0.047*	0.078
	(0.037)	(0.040)	(0.028)	(0.056)	(0.037)	(0.036)	(0.027)	(0.052)
Intercept	0.056	1.211	0.329	0.179	-1.559	-1.831	0.968	-2.852**
	(1.903)	(1.795)	(1.085)	(2.148)	(1.701)	(1.735)	(1.530)	(1.262)
Household controls	✓	✓	✓	✓	✓	✓	✓	✓
Month and year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	6,315	6,315	6,315	5,597	6,202	6,202	6,202	5,620
adj. R^2	0.01	0.01	0.04	0.02	0.03	0.02	0.05	0.02

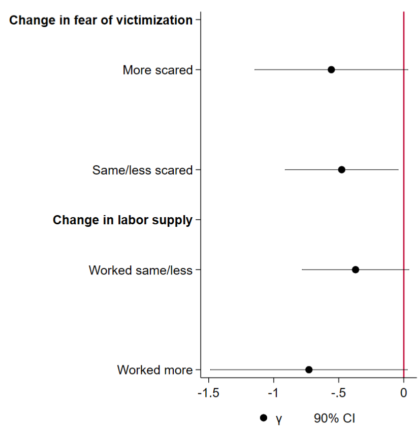
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level.

Figure D1: Heterogeneous Effects of Homicide Rates on Expenditure Shares: Households with Children

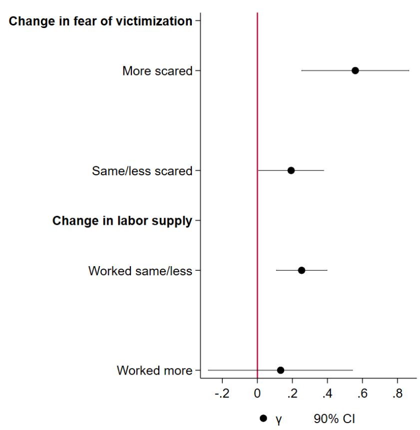
(a) Food



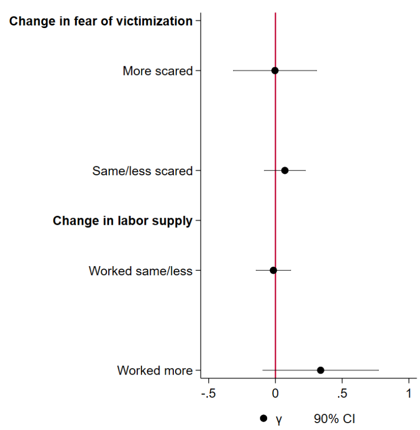
(b) Hygiene and Care



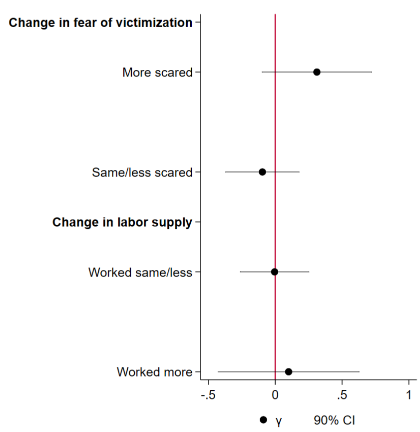
(c) Male adult clothing



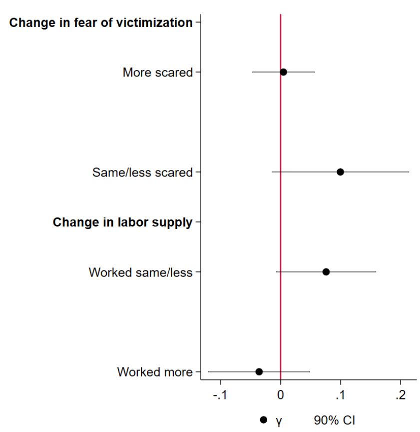
(d) Female adult clothing



(e) Drinks & Tobacco



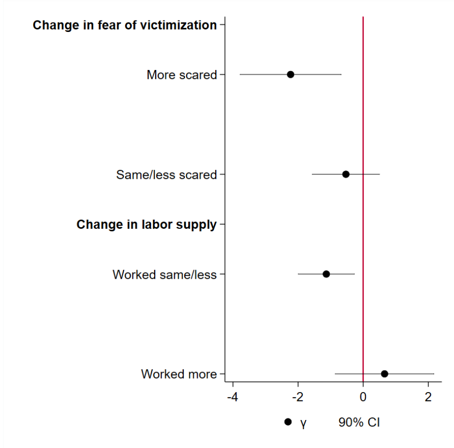
(f) Gambling



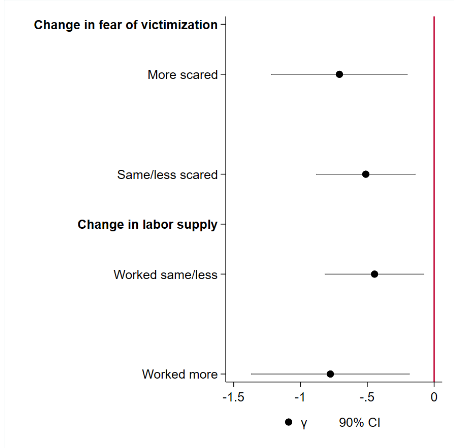
Notes: Figure D1 plots marginal effects of increases in homicide rates on expenditure shares. Each coefficient is estimated in a separate regression in which the sample is restricted to the categories reported in the left columns. Standard errors are clustered at the municipality level.

Figure D2: Heterogeneous Effects of Homicide Rates on Expenditure Shares: All Households

(a) Food

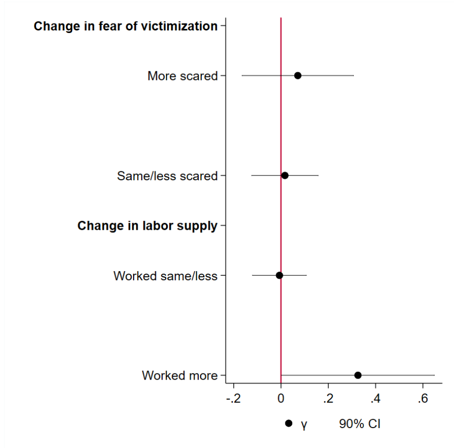


(b) Hygiene and Care

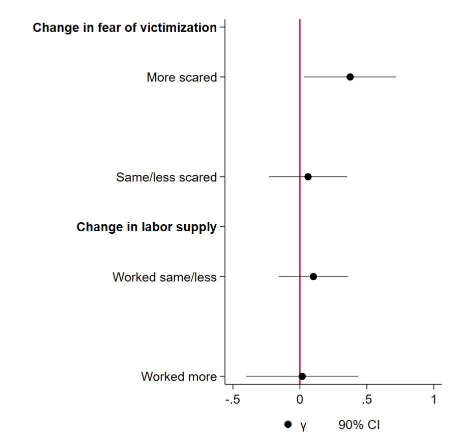


(c) Male adult clothing

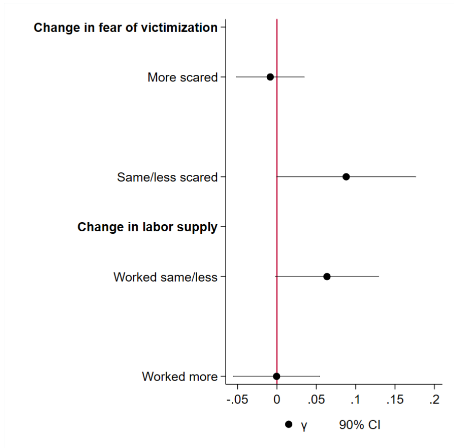
(d) Female adult clothing



(e) Drinks & Tobacco



(f) Gambling



Notes: Figure D1 plots marginal effects of increases in homicide rates on expenditure shares. Each coefficient is estimated in a separate regression in which the sample is restricted to the categories reported in the left columns. Standard errors are clustered at the municipality level.

Table D2: Effect of homicides on female alcohol and tobacco habits

	(1) Likes to drink alcohol at social gathering	(2) Drink alcohol with food at home	(3) Ever smoked cigarettes	(4) $\sqrt{}$ money/week cigarettes	(5) $\sqrt{}$ number cigarettes /week
$\sqrt{}$ Homicide rate last 12 months	-0.022**	-0.003	0.006	0.004	0.008
	(0.010)	(0.011)	(0.006)	(0.010)	(0.008)
Intercept	-0.227	0.498	0.062	0.205	0.293
	(0.712)	(0.322)	(0.145)	(0.567)	(0.517)
Household controls	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓
Outcome mean	0.16	0.05	0.06	0.10	0.09
Observations	7,306	7,311	7,323	7,315	7,320
adj. R^2	0.01	0.01	0.02	0.01	0.01

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level.

Table D3: Effect of homicides on male alcohol and tobacco habits

	(1) Likes to drink alcohol at social gathering	(2) Drink alcohol with food at home	(3) Ever smoked cigarettes	(4) $\sqrt{}$ money/week cigarettes	(5) $\sqrt{}$ number cigarettes /week
$\sqrt{}$ Homicide rate last 12 months	-0.025	0.015	0.010	-0.041	-0.051**
	(0.015)	(0.013)	(0.012)	(0.025)	(0.024)
Intercept	1.445*	0.424	0.065	-0.103	-0.557
	(0.732)	(0.666)	(0.360)	(0.776)	(0.728)
Household controls	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓
Outcome mean	0.58	0.07	0.24	0.45	0.41
Observations	6,332	6,321	6,339	6,316	6,333
adj. R^2	0.01	0.01	0.02	0.01	0.01

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors, in parentheses, are clustered at the municipality level.