

# **Extended Families in Mexico and the United States**

**Gabriela Farfan**

The World Bank

**Maria Genoni**

The World Bank

**Duncan Thomas**

Duke University

**Andrea Velasquez**

University of Colorado, Denver

May, 2017

This research has benefited from comments by Joe Altonji, Peter Arcidiacono, Pascaline Dupas, Erica Field, Elizabeth Frankenberg, Robt Garlick, Amar Hamoudi, Gordon Hanson, Joe Hotz, Daniel LaFave, Shelly Lundberg, Marjorie McElroy, Marcos Rangel, Luis Rubalcava, Alessandro Tarozzi, Graciela Teruel, Chrisopher Udry, Xiao Yu Wang and Daniel Xu. Financial support from the National Institutes on Aging and the National Institute for Child Health and Human Development is gratefully acknowledged.

## 1. Introduction

Whereas theoretical models of resource allocations within families are cast in terms of decisions by all family decision-makers, empirical studies typically rely on data collected only from co-resident family members. This reflects the fact that most surveys are designed to collect information on individuals and, in some cases, other members of their households. Very few surveys collect detailed information about behaviors of non co-resident family members which limits generalizability of empirical results in, for example, contexts where married couples do not co-reside.

More generally, a large literature has established the importance of interactions among non co-resident family members through, for example, providing time and money transfers as well as insurance and access to capital (Rosenzweig and Stark, 1989; Albarran and Attanasio 2002; Laferrere and Wolff, 2006; Angelucci et al, 2010). The role of co-resident family members is thought to be especially important in contexts in which access to markets, particularly financial and insurance markets, is incomplete or where information asymmetries are potentially important. Other studies have highlighted that inferences are potentially contaminated in empirical studies of family behavior that do not take the endogeneity of household living arrangements into account (Hamoudi and Thomas, 2014).

This research exploits new survey data that tracks and interviews family members who co-reside and those who do not including families whose members live in two different countries, Mexico and the U.S. We extend seminal work by Altonji, Hayashi and Kotlikoff (1992, 1997) who test whether extended families are fully altruistic (or share the same preferences). We follow Chiappori (1988, 1992) and allow preference heterogeneity among family members and test whether allocations are Pareto efficient (Dalton et al, 2013; LaFave and Thomas, 2014). Our research advances the literature by explicitly exploiting the spatial dispersion of family members, particularly those extended families spanning an international border who provide unique opportunities to test hypotheses about family decision-making in the context of high monitoring costs and thus incomplete information about incomes and outcomes of other members as well as arguably limited scope for punishment. (See, for example, Ashraf, 2009; Ashraf, Lee and Field, 2012; Castilla and Walker, 2013.)

Two classes of the outcomes of family decisions are examined: allocations of the budget, which are costly to monitor across non co-resident family members, and child human capital outcomes, which are more readily observed. For each class of outcome, first, we determine whether it is affected by resources of non-co-resident family members; second, we test whether all family resources are pooled; and, third, whether family resource allocations are Pareto efficient.

Data are drawn from the Mexican Family Life Survey (MxFLS), a longitudinal survey of individuals, households, families and communities that is representative of the Mexican population living in Mexico

at baseline, in 2002. There are two features of the MxFLS design that are key for this research. First, every adult member of the 8,440 households was eligible to be interviewed at baseline and information about children was collected from the primary caretaker; data was collected on over 35,000 individuals. Second, every respondent, plus their children born after the baseline, are eligible for follow-up including those who move to the United States. MxFLS is the first large-scale population-based survey that has successfully track respondents across an international border. The second wave was implemented in 2005-2007, reaching a 90% re-contact rate. Crucially, this high re-contact rate is not driven by individuals who remained in Mexico. Among individuals thought to be in the U.S. at the time, the re-contact rate was 91%. We use data from the third wave, collected between 2009-2014, in which re-contact rates are 89% for the whole sample, and 90% conditional on being in the U.S. Family members are identified through household split-offs, i.e. individuals related by blood or marriage who were living together in a previous wave but are part of different households in later waves.

To highlight the role of costs of monitoring and resource sharing, the behavior of families with members that straddle the Mexico-U.S. border, is contrasted with families that are spread across different localities within Mexico and with those families in which all members reside in the same locality, for whom resource sharing and monitoring is the least costly. Our results suggest that with respect to allocations of the budget, all three groups of families share resources across non co-resident members but none of the families is completely altruistic in the sense that allocations are consistent with all family members having the same preferences. Overall, spending by families is consistent with Pareto efficiency although the result potentially reflects lack of power of the tests since taking spending on specific groups of goods, one at a time, Pareto efficiency is rejected more often than not. Importantly, with respect to these tests, family behavior does not vary with degree of spatial dispersion. This is not true for child human capital outcomes. For those families who entirely reside in Mexico, not only do family resources from outside the household influence child outcomes but full altruism is not rejected: the marginal effect of family resources is the same regardless of whether those resources originate inside or outside the child's household. However, among international families, resources from outside the household do not affect child outcomes. The results suggest that the *combination* of looking at different degrees of spatial dispersion and different dimensions of family behavior is crucial to the understanding of intra-family decision-making.

The next section places this research in context and is followed, in section 3, by the model underlying the empirical analyses. The data are described in section 4, the empirical specifications in section 5 and results on expenditures and child human capital outcomes in sections 6 and 7, respectively. Assumptions are empirically evaluated in section 8 and the final section concludes.

## 2. Background

This research exploits variation in spatial dispersion of family members, including those with members spanning international borders, to better understand family behavior and resource allocations. Most of the literature in development on inter-household interactions settings has focused on families with migrants or related households living close to each other, usually in the same village.

The first line of research corresponds to a large and growing literature whose primary focus has been the study of the determinants and impact of remittances. Virtually all work is based on information collected on one side of the relationship, that is, either from the migrant's point of view or from the family that stayed behind. A unique and important dimension of our analysis is the fact that we look at outcomes and resources from households in both the sending and receiving country.

There is a rich literature on risk sharing within families, mostly in the context of rural villages<sup>1</sup>, which indicates families engage in a broad array of risk sharing and consumption-smoothing contracts. Some research suggests the arrangements extend only to co-located households. For example, within poor rural villages in Mexico, Angelucci et al. (2009) show that family members share risk with each other but not with non-relatives in the village. Relative to isolated households, i.e. households without family members in the village, households with relatives in the village invest more when hit by a positive shock and disinvest less when hit by a negative shock. Similarly, Kinnan and Townsend (2012) show that in rural Thailand access to kin networks in the village facilitates access to financing, reduces the sensitivity of investment to income, and helps smooth consumption. Finally, Chiappori et al. (2010) show in the same setting how full risk sharing cannot be rejected among households with relatives in the village, but it can be rejected for households without kin in the village. A common characteristic among these papers is that there is no information on family networks outside the village. To provide a comparison with this research, we examine families that are co-located and those living in different localities including those living in Mexico and the U.S.

The value of linking family members within longitudinal surveys through household split-offs was established by Altonji et al. (1992) who examine spending on food in the Panel Study of Income Dynamics. While resources of non co-resident family members predict food expenditures, families are not fully altruistic. Dalton et al. (2013) use the same data, and taking advantage of the more detailed expenditure module implemented in later waves, they conclude that resources from outside the family

---

<sup>1</sup> See for example, Angelucci et al. (2009), Chiappori et al. (2010), Kinnan and Townsend (2012). For risk sharing within units other than the family, see for example Townsend 1994 (villages) and Munshi and Rosenzweig (2009) (jati).

influence housing and education expenditures. Similarly, using the Indonesian Family Life Survey, Witoelar (2013) rejects a model of the family with full altruism when looking at total expenditures, and finds evidence of risk sharing within Indonesian families. Finally, drawing on the MxFLS, Hamoudi (2010) presents evidence that Mexican families also share risk across households.

Two papers implement the collective model developed in the intra-household literature by Chiappori and coauthors to model the family decision problem, and use the testable implications of the model to test whether the family allocation of resources is consistent with Pareto efficiency. Analyzing household budget shares, Dalton et al. (2013) reject Pareto efficiency for families in the U.S. Looking at human capital outcomes, LaFave and Thomas (2014) fail to reject that Indonesian families are Pareto efficient.

### 3. Model

Family, a group of kin-related individuals who are presumably linked by strong emotional and social ties, includes the traditional nuclear family of a couple and their children, as well as close relatives, such as the couple's parents, their own siblings, aunts, uncles and cousins. Blended families and step-parents add a further layer of complexity. Following Altonji et al (1992), we define family based on the data used in the empirical analyses and include in a family those people who were co-resident in any of the three waves of MxFLS. The survey collects information on parents and siblings of each adult respondent and that information is used below to discuss potential selection effects of this empirical implementation of family. We do not attempt to model household formation or geographic location and ignore intra-household resource allocations.<sup>2</sup>

Following Chiappori (1988), Chiappori (1992) and Browning and Chiappori (1998), let  $W$  represent family welfare, a function of the utility  $U^h$  of each household  $h=1, \dots, H$ , with  $H$  the number of households in the family. Let  $q$  be the vector of private and household-level public consumption goods,  $q_i^h$  denote consumption of good  $i$  by household  $h$ . Let  $Q$  be a vector of markers of well-being, such as human capital outcomes of family members, including children. These elements are not goods directly purchased in the market, but produced by the household with a given technology,  $f$ , a vector of inputs,

---

<sup>2</sup> We can still think of the household as a group of individuals with individual preferences, and subsequently household outcomes as the result of some decision process among household members. For our analysis to hold we need to assume that, for the marginal changes we evaluate, the distribution of power within the household is held constant. Formally, we can think of household preferences as defined by:  $U^h(q, \alpha) = \max_q \{\alpha^1 u^1(q^1) + \dots + \alpha^N u^N(q^N)\}$  (Collective household utility function defined in Chiappori et al. (2011), where  $q$  is a vector of consumption goods,  $u^k$  is the utility function of individual  $k$ ,  $N$  is the total number of individuals in household  $h$ , and  $\alpha^k$  is the weight assigned to individual  $k$ , weight that is correlated with her bargaining power. Since  $\alpha$  will be assumed to be constant throughout the analysis, we simplify the household utility function to be  $U^h(q)$ .

$d$ , individual and family endowments,  $\sigma$ , and technological parameters,  $\delta$ . Let  $p^h$  be the vector of prices of both consumption goods and inputs, expressed in location-1 units, and  $\alpha$  and  $\epsilon$  denote vectors of observable and unobservable preference factors. Assume for the moment that income is exogenous, and let  $y_h$  be income from household  $h$  expressed in location-1 units, and  $Y = \sum_{h=1}^H y_h$  denote total family resources.<sup>4</sup>

The family solves the following problem:

$$(1) \quad \begin{aligned} & \max_{v = (q, d)} W(U^1(q^1, \dots, q^H, Q^1, \dots, Q^H; \alpha, \epsilon), \dots, U^H(q^1, \dots, q^H, Q^1, \dots, Q^H; \alpha, \epsilon); \alpha, \epsilon) \\ & \text{s. t.} \quad \sum_h p^h \cdot v^h \leq \sum_h y_h = \\ & \quad \quad \quad Q_j^h = f_j^h(d_j^h; \sigma, \delta) \end{aligned}$$

Where  $f_j^h$  is a household specific technology for outcome  $j$ . Solving this problem would lead to reduced-form demand functions of consumption goods  $q$  and human capital outcomes  $Q$ . Denote the vector including both by  $\varphi$ .

The model includes household-specific prices to incorporate the idea that the geographic location of the household and its extended family determines the set of prices available to each household. With transport costs added when applicable, one can think of the household as facing an envelope of prices among those faced by family members. It is natural to think that families arbitrage and take advantage of geographic differences. While non-tradable goods cannot be consumed at different places, differences in their prices will be connected to differences in wages, and the migration decision was in itself a way to access those wages. Once location decisions are set, household-specific prices are taken as given.<sup>5</sup>

If family behavior is fully altruistic, solving (1), demand for good  $h$  depends only on total family resources:

$$\varphi^h = g^h(p^h, Y; \alpha, \epsilon, \sigma, \delta)$$

and the distribution of resources within the family does not affect allocation decisions. Thus, the marginal effect of income is the same, irrespective of which family member controls the resources:

$$\frac{\partial \varphi_i^h}{\partial y_k} = \frac{\partial \varphi_i^h}{\partial y_l}$$

---

<sup>4</sup> Labor supply decisions are treated as exogenous at the inter-household level and we ignore inter-temporal behaviors. Extending this static model to a dynamic setting is not straightforward without also modelling imperfect commitment which would make Pareto weights time-varying (Mazzocco 2007).

<sup>5</sup> Note that the main difference with the intra-household literature is not that prices are endogenous to location and past decisions. The price set faced by households is also determined by location and past investment decisions such as schooling. The only difference is that all household members face the same price set, while here prices can vary within families. For that reason, in equilibrium, marginal rates of substitution (which are set equal to prices) will not be the same across households within the family.

The model of full altruism is observationally equivalent to a “unitary” model of the family which can be motivated by assuming there is a single decision-maker in the family or all family members have the same preferences.

We turn to a model that imposes relatively mild restrictions on preferences and assumes that family decisions result in a Pareto efficient allocation such no other feasible allocation strictly improves the wellbeing of at least one household without making any other household worse-off. That is, the family will solve:

$$(2) \quad \begin{aligned} & \max_{v^1, \dots, v^H} U^1(\varphi^1, \dots, \varphi^H; a, \epsilon) \\ & s. t. \quad \sum_h p^h \cdot v^h \leq \sum_h y_h = Y \quad (2a) \\ & \quad \quad U^h(\varphi^1, \dots, \varphi^H; a, \epsilon) \leq \bar{U}^h \quad h = 2, \dots, H \quad (2b) \\ & \quad \quad Q_j^h = f_j^h(d_j^h; \sigma, \delta) \quad (2c) \end{aligned}$$

for some pre-specified utility level  $\bar{U}^h$  for each household  $h=2, \dots, H$ , level that depends on the weight  $W$  associated with each household’s utility.

Alternatively, there is a one-to-one relationship between the Lagrange multipliers on constraints (2b), and  $\mu^h$  in the following representation of the problem:<sup>6</sup>

$$(3) \quad \begin{aligned} & \max_{v^1, \dots, v^H} \mu^1 U^1(\varphi^1, \dots, \varphi^H; a, \epsilon) + \dots + \mu^H U^H(\varphi^1, \dots, \varphi^H; a, \epsilon) \\ & s. t. \quad \sum_h p^h \cdot v^h \leq \sum_h y_h = Y \\ & \quad \quad Q_j^h = f_j^h(d_j^h; \sigma, \delta) \\ & \quad \quad \sum_{h=1}^H \mu^h = 1 \end{aligned}$$

where  $\mu^h(p, y, z, a, \epsilon)$  represents the Pareto weight attached to household  $h$ , which is a function of prices  $p = (p^1, \dots, p^H)$ , income  $y = (y_1, \dots, y_H)$ , preference factors  $(a, \epsilon)$ , and distribution factors  $z$ , these last ones defined to be variables that do not affect preferences nor do they affect the budget constraint but have an impact on family demand through their effect on the distribution of power within the family.

Thus far, no restrictions have been placed on household preferences  $U^h$ ; if allocations are Pareto efficient, there must be some inter-dependence (or altruism) among family members. We assume “caring preferences”:

---

<sup>6</sup> Programs (2) and (3) are equivalent if utility functions  $U$  are strictly concave. Furthermore, under strict concavity of preferences one can assume without loss of generality that  $W$  in program (1) is indeed linear.

$$(4) \quad U^h = F^h(\omega^1(\varphi^1; a, \epsilon), \dots, \omega^H(\varphi^H; a, \epsilon); a, \epsilon)$$

where the consumption of non-co-resident family members enters household welfare only through the “felicity function”  $\omega$ . In this case, (3) can be solved in two stages. In the first stage, the family agrees on a *sharing rule*  $\theta$  that assigns to each household a share of total family resources. The distribution of resources will be a function of the distribution of power across households, which in turn is reflected in the Pareto weight  $\mu^h$  assigned to each household in problem (3). In the second stage, each household takes the resources given to it and solves the following problem:

$$(5) \quad \begin{aligned} & \max_{v^h} \quad \omega^h(\varphi^h; a, \epsilon) \\ & \text{s. t.} \quad p^h \cdot v^h \leq y_h^* = \theta_h(p, y, z, a, \epsilon)Y \\ & \quad \quad Q_j^h = f_j^h(d_j^h; \sigma, \delta) \\ & \quad \quad \theta_h \in (0,1) \quad \sum_h \theta_h = 1 \end{aligned}$$

Denote the solution to these ‘individual problems’ with  $\varphi^{h*} = g^h(p^h, y_h^*; a, \epsilon)$  then

$$(6) \quad \frac{\partial \varphi_i^{h*} / \partial y_k}{\partial \varphi_i^{h*} / \partial y_l} = \frac{\partial g_i^h / \partial y_h^* \cdot \partial y_h^* / \partial y_k}{\partial g_i^h / \partial y_h^* \cdot \partial y_h^* / \partial y_l} = \frac{\partial \varphi_j^{h*} / \partial y_k}{\partial \varphi_j^{h*} / \partial y_l}$$

for any two goods  $i$  and  $j$ , and any two households  $k, l$  in family  $f$ . That is, the ratio of marginal income effects for any two sources of income is the same across all goods (the ratio is independent of good  $i$ ) if allocations are Pareto efficient: this will be tested below.

A more general model can incorporate family production, family-level public goods and durable goods in which case the family would decide on the production plan in the first stage, and total income would be allocated to savings, consumption of public goods and durable goods, and the remaining resources assigned to each household.<sup>7</sup>

#### 4. Data and Descriptive Analysis

MxFLS is ideally suited for this research. Every household member interviewed in the 2002 baseline and their children born after 2002 are eligible for tracking; we refer to them as “panel” members and to the 2002 household as the “original” or “root” household. In later rounds, any panel member that is not part of the original household at the time of the follow-up is sought for interview, and if found is interviewed together with her/his new household members. By linking split-offs from the origin household, we create a set of non co-resident family members.

---

<sup>7</sup> We should note that whenever we allow for family-level production, family-level public goods, or caring preferences, the existence of a sharing rule  $\theta$  is only a necessary condition for efficiency. Conditional on the production plan, consumption of public good, and distribution of income across households, household demands can be consistent with constrained Pareto efficiency. However, the overall allocation of resources to production, consumption of public goods and household consumption may not be efficient.



A distinctive feature of the data that is essential to this analysis is the fact that panel members living in the U.S. at the time of the follow-up are also followed and interviewed in their new household.<sup>8</sup> Many studies collect information on international migrants from other household members, but few large-scale surveys have tried to follow migrants across international borders.

Without much experience with international tracking, the U.S. component of MxFLS2 was an experiment to test whether such endeavor was feasible. Great effort was put into designing tracking strategies that would lead to finding and interviewing all baseline respondents. This effort paid off, as 91% of those believed to be in the U.S. at the time were interviewed. Due to its experimental nature, interviews were done both in person and by phone, and the questionnaire was shorter than the one applied in Mexico. Nevertheless, the U.S. component of MxFLS2 still includes a very comprehensive set of modules that follow those applied in Mexico, while incorporating specific changes to capture the relevant aspects of the life of Mexicans in the United States. In the third wave, MxFLS3, the questionnaire was expanded and we interviewed over 90% of the panel migrants living in the US.

#### **4.1. Data structure**

Table 1 illustrates the structure of MxFLS. The baseline sample, in the top panel, comprises 8,440 households which constitute our original sample of families from which some members will split over time. Of those original households, some are no longer eligible for tracking because all household members died. This leaves 8,386 families in MxFLS2 and 8,335 in MxFLS3.

The middle and bottom panels present the number of households and families interviewed in the second and third rounds. In MxFLS2 we interviewed 8,940 households, 28% of which have related households in the data. By MxFLS3 almost half of the 9,928 households interviewed have related households in the data. This leaves a sample of 1,117 families in MxFLS2 and 1,959 families in MxFLS3. In terms of location, 38% of the families in MxFLS2 and 27% of those in MxFLS3 have at least one household interviewed in the U.S.

To explore whether the impact of family resources on household outcomes changes as a function of the geographic dispersion among related households, families are classified in three groups: families that have all households interviewed in the same locality in Mexico (*neighbor families*), families that have members spread across different localities within Mexico (*spread across Mexico*), and families with households interviewed both in Mexico and the U.S. (*spread across Mexico and the U.S. / international families*).

Out of the 1,117 families there are in MxFLS2, 563 have all their households located in the same locality, 137 have households spread across Mexico, and 417 have households spread across Mexico and

---

<sup>8</sup> Virtually all Mexican migrants remain in Mexico or go to the United States. In our data, we only have 18 individuals who migrated outside of these two destinations (specifically Canada and the United Kingdom).

the U.S. In MxFLS3 the 1,959 families are divided into 1,047 neighbor families, 390 families spread across Mexico and 522 international families.<sup>9</sup>

#### ***4.2 Defining the family***

In the absence of family-based sampling designs, our definition of family is based on members of the same household at baseline. This raises two issues: determining the relationships among individuals in linked households in subsequent waves and dealing with the fact that the entire family is not enumerated at baseline.

First, it is straightforward to identify the relationship between the head of the original, baseline household and panel members interviewed in split-off households in the second and third waves. Essentially every split-off panel member is a close relative of the original head with almost 80% of them being children or grandchildren. This information is used to identify the sample of families that are connected across households through a parent-child relationship. About 87% of the families in MxFLS2 and 81% of the families in MxFLS3 have at least one such connection across households. Including siblings and grandparents/grandchildren, 97% of MxFLS2 families and 87% of MxFLS3 families have at least one such connection. The remaining families are linked through individuals that were mostly cousins, aunt/uncle, and nephew/niece. The main analyses use all these families, regardless of the relationship connecting households. Restricting the sample to those in which connections involve only parents and children has no impact on the inferences about family decision-making.

The second issue, that some families are incomplete, is a limitation that is inherent in household-based sampling designs. It is difficult to predict the likely magnitude and direction of bias in our analyses. On one hand, it could be that we are biased towards cooperation if our sample has those family members who are more likely to be connected, as they lived together at some point in the last 10 years. On the other hand, it could be that interactions across households are more important once those who split are more established, which are more likely to be the links we are missing.

MxFLS is, however, designed to provide information on the extent to which families are complete since each adult respondent provides a roster listing every co-resident sibling, children and parent along with basic demographic information. In addition, the respondent provides information about one dimension of connectedness, whether he/she received help from or provided help to each of these relatives in the last 12 months, differentiating between help in the form of monetary transfers, goods, or time. This information will be used to measure the number of missing links and their potential

---

<sup>9</sup> There are 8 families in MxFLS2 and 13 families in MxFLS3 that have all their households living in the same region in the U.S., when the U.S. is divided in 5 regions: California, Texas & South, Illinois & Northeast, Midwest & West. These families are treated as living apart from each other. None of the results change if the families are treated as neighbor families or as international families.

importance as indicated by the self-reported intensity of interactions in the last year and we will determine whether the extent of missingness in family drives the empirical results.

#### ***4.3. Interactions among non-co-resident family members***

Even though families can operate under a common agreement without any specific transaction taking place in the time window covered by the survey, such as a monetary transfer, it is useful to have an idea of how much interaction there is among family members. In the data we ask every adult member about help provided to and/or received from each non-co-resident family member, differentiating among children, parents, siblings, and other relatives. We collect information on transfers, which can be in cash or in kind, and for the subsample interviewed in Mexico we also ask about the time individuals spent assisting other family members (e.g. taking care of children). These individual reports are used to construct household-level statistics on the incidence and magnitude of help provided across non-co-resident family members and presented in Table 3, differentiating family group and locations within families. For families spread across Mexico, those interviewed in the baseline location (in 2002), and those interviewed somewhere else are distinguished. For families across the border, those interviewed in Mexico and those interviewed in the U.S. are distinguished. All statistics correspond to the 12 months previous to the interview date.

First, in over half of the households there was at least one individual who either helped or received help from outside the household. The share of households who did not interact with non-co-resident family members is 45% among neighbor families, 44% among families spread across Mexico, and 29% among international families.

Second, the sample of neighbor families and the sample of families spread across Mexico look very similar to each other, as do households interviewed in different locations within the latter group of families.<sup>10</sup> In contrast, international families are, on average, very different from the rest. Furthermore, within these families, household interviewed in Mexico and those interviewed in the U.S. present very different statistics regarding incidence, direction and magnitude of transfers.

With respect to the two samples of families with all households in Mexico, about 26% reported both helping and receiving help from non-co-resident family members, 18% only provided some help, and 12% only received some help. In terms of how they helped each other, households are more likely to transfer money or gifts rather than dedicating time to assist others (about 40% and 10% of households respectively). Finally, the magnitude of transfers sent and received are pretty similar. On average, households sent about US\$2,000 in the last 12 months to non-co-resident family members

---

<sup>10</sup> The only difference within families spread across Mexico is that individuals interviewed in a new location are more likely to have sent transfers to non-co-resident siblings relative to individuals who remained in the original location (both conditional on having siblings outside the household).

(US\$4,500 conditional on having sent some), and received about US\$1,700 from non-co-resident family members (US\$4,500 conditional on having received some). These magnitudes represent between 40% and 50% of total household expenditures. If we compute net transfers by subtracting the amount received from the amount sent, households sent on average about US\$500 to non-co-resident members (conditional on either sending or receiving some help).

With respect to international families, the distribution of those who only provided help, only received help, or both, is substantially different between households across the border. In Mexico, 29% reported providing and receiving help from non-co-resident family members, 21% only received help and 15% only provided help. In contrast, in the U.S. only 4% reported only receiving some help while 57% reported only providing some help (and 17% did both). Similarly, the net help received is significantly different across the border. On average, households in Mexico are net receivers. They received, in the 12 months prior to the interview, about US\$3,000 worth of transfers. In contrast, households in the U.S. sent on average US\$3,000 in the same time period.

Appendix Table 4 provides additional summary statistics on international remittances sent by Mexican migrants in the U.S. In terms of the intended use of the transfers, we see that conditional on having sent some, the majority of the migrants sent remittances for the final consumption or use of the recipient, and only a few reported having sent some amount for saving or investment purposes (92% versus 14%). We also ask each migrant to identify the beneficiaries of the transfers. Using that information we get that 40% of the migrants reported having sent transfers to more than one individual in Mexico, with roughly half of them helping two individuals and half of them helping three or more individuals.

Finally, we collect detailed information on the magnitude, means and cost of the last transaction. Using information on the total value of transfers sent in the last 12 months, and the amount sent in the last transaction, we can infer the frequency with which migrants sent transfers home. Assuming that the last transaction represents a regular transaction, as suggested by the testimony we got while doing the pilot interviews, migrants make on average 17 transfers a year (median of 10). Most of these transactions are made through a financial institution, with only 7% of the migrants using relatives, friends or themselves to take the money to Mexico.<sup>11</sup> Finally, we asked about the cost paid to make the transaction. The reported distribution has a high density at two values: 10% reported 0, and 63% reported US\$10. On average, these costs represent 6.5% of the value of the transfer (median of 5%).

---

<sup>11</sup> We collect information on both monetary and in kind transfers. On average, 17% of the value transferred to Mexico was in kind.

#### **4.4. Outcomes**

Two classes of outcomes are examined: household spending and child human capital outcomes in order to provide a comprehensive view of family behavior. This is potentially important in the context of the spatial distribution of family members. Those who live far apart have higher costs of monitoring the behavior of other family members in which case those families may limit co-operation to readily observed outcomes or to outcomes that are very important to them.

Household expenditures have been widely used in the literature on household decision-making and provide information about household and possibly individual welfare. Expenditures are likely to be relatively easy to monitor, at least with regard to semi-durable and durable spending. We also examine outcomes of investments in the next generation; while the outcomes are easy to measure, inputs may be substantially more costly to observe and monitor and it is difficult to attribute poor outcomes to insufficient inputs in the absence of a well-specified individual-specific human capital production function.

##### ***Budget shares***

The analyses use monthly expenditure on five sub-aggregates: food, including food consumed at home and meals outside; personal care, clothing, health, education and recreation; transport and communication; semi-durables, cleaning supplies, insurance and car or house repairs; and housing, which includes the rental value of the dwelling and utilities. Table 3 presents summary statistics for all families and by family type. Appendix Table 3 differentiates within family groups among households interviewed in different locations (i.e. international families are split into those interviewed in Mexico and those interviewed in the U.S.), and test whether differences across families, and within families, are statistically different.

##### ***Child human capital***

Three markers of child human capital are examined: height-for-age z-scores, which are a marker of longer-term nutrition; years of education; and scores on the Ravens colored progressive matrix test, a marker of cognitive ability. Height for age is measured for all children in Mexico and, in the third wave, for those in the U.S. by trained personnel using the same instruments and following the same protocol in both waves and in both countries.<sup>12</sup> Height-for-age z-scores are created using the 2000 CDC Growth Charts which is based on a representative sample of well-nourished children in the U.S. Children are restricted to ages 12 to 59 months at the time of measurement. Evidence from the nutritional literature suggests that nutritional inputs affect child height only during the first years of life. While there is some controversy around the exact age cut-off over which height is no longer sensitive to nutritional inputs,

---

<sup>12</sup> Height was not measured in the U.S. in MxFLS2.

there is a consensus that it ranges between the ages of two and four. Based on this evidence, we allow for current household and other family resources to affect child height up to the age of four. Taking into account the relatively small sample size and the high measurement error involved in measuring very young children we exclude those younger than one at the time of measurement.

With respect to years of schooling and Ravens scores, the analytical sample includes children age six to sixteen years in the first case (since school begins at age 6) and children age five to sixteen (since age 5 is the youngest administered the Ravens assessment) The Ravens assessment was not conducted in the U.S. in either wave.<sup>13</sup>

Table 4 presents summary statistics on the outcomes, household and parent characteristics for each sample children, differentiating by family group. Differences in mean outcomes within families among those interviewed in different locations, and tests of whether differences between families and within families are statistically significant are presented in Appendix Table 3.

## 5. Empirical Specification

The conditional demand function that solves the optimization problem in section 3

$$(11) \quad q^{h*} = g(p, y_h^*(p, y, z, a, \epsilon, Y); a, \epsilon), \text{ with } y = (y_1, \dots, y_H)$$

is linearized

$$(12) \quad \theta_{khf}^i = \alpha^i + \tau_1^i(y_h) + \tau_2^i(y_e) + x'_{khf}\gamma^i + \varepsilon_{khf}^i,$$

and, in most general form, relates  $\theta_{khf}^i$ , outcome  $i$  of individual  $k$  in household  $h$  in family  $f$  to a flexible function of household resources  $\tau_1^i(y_h)$ , resources of other non co-resident family members (which we shall call “extended family resources”),  $\tau_2^i(y_e)$  and a vector of individual, household and family socio-demographic controls  $x'_{khf}$ . Unobserved heterogeneity is given by  $\varepsilon_{khf}^i$ . In the demand system, we adopt a Working-Leser specification and examine the share of the budget allocated to each good  $i$  by household  $h$  in family  $f$ ,  $\theta_{hf}^i$ . Total family resources comprise own household resources and extended family resources.

Let  $\beta_1^i$  be the marginal effect of household resources, and  $\beta_2^i$  the marginal effect of other family resources on demand for  $i$ , then if families are fully altruistic,  $\beta_1^i = \beta_2^i$  for every outcome  $i$ . If allocations are Pareto efficient, then  $\beta_1^i/\beta_2^i = \beta_1^j/\beta_2^j$  for each pair of outcomes  $i, j$ .

---

<sup>13</sup> Contrary to the case of height-for-age, the sample lost due to lack of measurement is considerably larger, as it includes children age 5 to 16 either in MxFLS2 or MxFLS3. To mitigate concerns related to sample selection in a robustness analyses presented in Section 8 restrict the sample to children interviewed in Mexico for the three outcomes and find that conclusions are not substantively affected.

The demand system is estimated by seemingly unrelated regression with standard errors clustered at the family level. Tests of Pareto efficiency are non-linear Wald tests calculated using the delta method allowing for clustering at the family level. The p-values associated with testing each pair of ratios of income effects are equal are presented along with the p-value for the overall joint test that all pairs of ratios of income effects are equal. The pair-wise tests are of interest for two reasons: the overall test may lack power (and depends critically on the number of goods included in the demand system) and the pair-wise tests provide information about specific departures from efficiency.

We begin with a demand system that is linear in resources but explore linear splines that allow the marginal effect of own household and extended family resources to differ across the distribution of resources. In the latter cases, equality tests are conducted locally and across the entire distribution of resources. Resources are measured using the logarithm of household per capita expenditure (PCE) with all values expressed in 2009 U.S. dollars using annual PPP exchange rates to convert Mexican pesos to dollars, and national inflation rates to express magnitudes in 2009 U.S. dollars. Differences in price levels are taken into account by including location and interview date controls. Within family transfers complicates interpretation of household PCE; using PCE inclusive of net transfers does not change our conclusions. Table 3 presents household, extended family, and total family PCE for all families and for each family group separately. Appendix Table 3 also differentiates households according to their location.

In the models of household budget shares, the vector of controls include: household size and composition (number of children, prime-age males, senior males, senior females, with prime-age females as the omitted category); age, gender and years of education of household head; household location (dummy of whether the household is in the US, region within the U.S., state within Mexico and whether the place is rural if the household is in Mexico); interview date (quarter-year dummies); MxFLS wave (dummy if observation is from MxFLS2, and interaction between U.S. and MxFLS2); and family characteristics (age of family head; maximum years of education, height and cognitive score among adult males; maximum years of education, height and cognitive score among adult women; family size, number of children, prime-age males, senior females and senior males; log of per-capita wealth at baseline in 2002, its square, and its cube).

Models of child human capital outcomes include age and gender indicators, whether the household is in rural place, household size and number of children under the age of 15, State in Mexico, quarter-year interview dummies, family size, number of kids under 15 and number of female adults in family, U.S. dummy, MxFLS2 dummy, and the interaction of U.S and MxFLS2.

## 6. Results: Household Budget Shares

Panel A of Table 4 presents estimates of household and extended family resources on household budget shares for each of the five sub-aggregates. The share of the budget spent on food is 4.13% lower when household PCE increase by 1% and while it is only 1.3% lower when other family PCE rises by 1%, both income effects are statistically significant. This suggests that household food shares do vary with other family resources. Extended family resources are also significant predictors of housing and semi-durable spending. As shown in the first row of Panel B, taken together, extended family resources are significant predictors of budget allocations.

The difference in the marginal effects of household and extended family resources on food shares, 2.83%, is statistically significant: own and extended family resources do not have the same impact on food shares which is not consistent with the unitary model of family behavior. As shown in the second row of Panel B, the unitary model is rejected for each of the five sub-aggregates.

The ratios of income effects are reported in the final row of the table along with the p-value for the test that they all the pairs of ratios are equal. That test is rejected: in this model, family decisions are not Pareto efficient. As shown below, this conclusion turns out to depend on model specification.

### ***6.1 Neighbor families: all households interviewed in the same locality in Mexico***

Table 5 presents results of models that allow income effects to be non-linear and differ depending on spatial dispersion of family members. Own household and extended family resources are specified as spline with knots at the 25<sup>th</sup> and 75<sup>th</sup> percentiles of the distribution of family resources (which varies as spatial proximity varies in the columns of the table). Linear effects of  $\ln PCE$  are rejected for own resources but not for family resources. Even after controlling for household resources in a flexible way, resources of non-co-resident family members have a significant influence on household budget allocations. In particular, they are statistically significant for food, personal goods and housing budget shares. With respect to food shares, higher extended family resources are associated with lower food shares. Even though this non-linear specification does not show significant effects, the hypothesis that the effect is linear cannot be rejected, and the linear model shows a negative and highly significant point estimate of -1.41 (see Appendix Table 6). With respect to personal goods (personal care, clothing, health, education and recreation), other family resources are significant at the top of the distribution, increasing the budget allocation towards such goods. Finally, other family resources below the 25<sup>th</sup> percentile seem to be positively associated with a higher housing share, although we cannot reject that this effect is constant across the entire distribution. In a linear specification, the positive effect remains positive and significant (see Appendix Table 6).



The bottom panel of the table shows p-values associated with the unitary and Pareto efficiency tests derived before. Overall, the unitary model is rejected for all outcomes. Only in a few cases, when we focus on specific parts of the distribution are the marginal effect of household and other family resources statistically indistinguishable. These are: for food budget shares if resources are very low or very high, and for the expenditure share on personal goods if resources are very high.

As mentioned before, testing for Pareto efficiency in a non-linear model is less straightforward. Table 6 presents the p-values associated with the test that any two ratios are the same, for each pair of goods and each possible combination regarding the position of household and other family resources. For example, for the case that both household and other family resources lie below the 25<sup>th</sup> percentile, we test whether the ratio of marginal effects is the same across any two budget shares. Similarly, for the case where household resources lie below the 25<sup>th</sup> percentile, but other family resources lie above the 75<sup>th</sup> percentile, we also test whether ratios are the same for each pair of goods. And the same follows for any other combination of resources. The p-value for the overall test across all pairs of goods and all resource combinations is presented at the bottom of Table 5. That test is not rejected for all families or for each sub-set of families distinguishing spatial dispersion indicating that, in these more flexible models, Pareto efficiency of family allocations is not rejected. It is worth noting that inspection of the individual tests indicates there are more rejections than what would be randomly expected are statistically significant. Counting the number of cases that are statistically significant at the 5% level, and weight each case by the share of households that are in the corresponding household/other family resources cell, 7% of the tests are statistically significant.

## ***6.2 Families spread across Mexico***

We turn next to examine the effect of family resources when households are spread across different locations in Mexico. With respect to household resources, the general patterns we saw on neighbor families remain, though some point estimates are not statistically significant when resources are above the 75<sup>th</sup> percentile. In contrast, the effect of family resources from outside the household is less clear than what we find for the other two family groups. Resources in the hands of non-co-resident family members are only statistically significant for two outcomes, food and semi-durables, and only at the bottom of the distribution. When we test whether these effects are statistically significant across the three segments of the distribution, we only reject the null that they are not at the 10% significance level when it comes to food shares (p-value of .07). Finally, we fail to reject that these resources do not matter for household allocations when we test across the five outcomes.<sup>14</sup>

---

<sup>14</sup> For this group of families, we fail to reject that the effect of resources from non-co-resident family members is linear. Nevertheless, even if we impose a linear specification these resources are not statistically significant (See Appendix Table 6).

Once again, we reject the unitary model of the family. The only case in which we fail to reject that marginal effects are the same is for personal goods. As to whether allocations are consistent with Pareto efficiency, we fail to reject that they are when we test that all ratios across any two goods are the same, regardless of where household and other family resources lie in the distribution (see bottom panel in Table 6). However, looking at the individual tests, the null is rejected in 5.1% of the cases.

### ***6.3 International families: households spread across Mexico and the United States***

Finally, budget allocations among international families are examined. The general shape of the effect of household resources on budget shares remains similar to the previous cases. As household resources increase, household budget shares on personal goods, semi-durables and transport and communication increase. At low and high levels of household resources, these increases take place at the cost of decreasing housing expenditures. At middle levels, resources are mostly shifted away from food. As resources from non-co-resident family members increase, households allocate more towards housing, and allocate less towards food, personal goods, and transport and communication. Once again, overall the unitary model of the family is rejected and Pareto efficiency cannot be rejected. Counting the number of individual tests that are significant, equality of ratios is rejected in 6.5% of the cases.

The analysis of household budget shares suggests three conclusions. First, resources in the hands of non-co-resident family members influence household allocation decisions (at least for neighbor and international families). Second, changes in household resources and changes in resources from non-co-resident family member have different effects on household allocation decisions indicating family decisions are not unitary. Third, we cannot reject that family allocations are Pareto efficient, at least when we take into account the entire demand system although there are some sub-groups of shares for which efficiency does not appear to hold.

## **7. Results: Child Human Capital**

Table 7 presents results for child human capital outcomes. When pooling children from all family groups together, as household and extended family resources increase, children are taller, have more years of education and higher scores on the Ravens assessment. While the effects of own household resources are larger, they are not significantly different from the effects of extended family resources. With regard to child human capital outcomes, family allocations are consistent with the unitary model. Consequently, the efficient model is also not rejected.

### **7.1 Families in Mexico**

The second and third panels of Table 7 report results for families in Mexico who live in the second panel and for those who live in different localities in the third panel. In both groups of families, the unitary model is not rejected.

### **7.2 International families**

This is not the case for children living in international families. Household PCE is a significant and positive predictor of the three human capital outcomes. However, controlling household PCE, PCE of non-co-resident family members is not a significant predictor of any of the human capital outcomes. The unitary model is rejected for height and education but not the Ravens scores (for which extended family resource effects are estimated imprecisely). Since the demographic composition and levels of resources of households in Mexico and those in the U.S. are substantially different, two additional models are presented in Table 9. In panel A, the effect of household and extended family resources are allowed to differ depending on whether the child is living in Mexico or the U.S. This distinction is not material. Panel B of the table distinguishes resources generated in Mexico from those generated in the U.S. In this case, only extended family resources generated in Mexico are significant predictors of height-for-age.

Another concern is that household PCE reflects resource availability after intra-family transfers are made – a concern of particular relevance for families that straddle the Mexico-U.S. border as shown in Table 2 which established substantial flows of resources from the U.S. to Mexico. Table 10 present results from three additional models. The first panel reports result that use income and wealth as instruments for household expenditures under the assumption that income and wealth are better measures of relative ‘power’ in the family. These results should be interpreted with caution since the first stage is weak with two of the F-statistics fall below 10 (household resources in height-for-age, and other family resources in cognitive scores). Nevertheless, under this specification family resources from outside the family do impact child height. In panels 2 and 3, household PCE is re-defined taking into account transfers across non-co-resident family members. In panel 2, all transfers out of the household are included in PCE. In panel 3, only transfers provided to non-co-resident family members are included in PCE. The results are very similar to those in Table 9: measurement error in PCE does not appear to be driving our main result that extended family resources have little impact on child human capital in families that straddle the international border. The next sub-section explores the impact of allowing the effects of resource to be non-linear and examines other health-related outcomes.

## **8. Robustness checks: Child Human Capital**

### ***8.1 Additional controls***

Appendix Table 5 presents four specifications with a more extensive set of controls than in the baseline model. Panels A, B and C add different sets of household or family covariates, and panel D controls mother's height. Panel A displays estimates that control the age, gender, years of education and marital status of the household head which results in smaller point estimates that are less precisely estimated. However, the changes affect primarily the estimated effect of household resources and not the estimated effect of other family resources. Two point estimates on the log of household per-capita expenditures decrease substantially and are no longer significant: the effect of household resources on years of education for neighbor families, and the effect on cognitive scores for international families. Conclusions on whether the unitary model of the family holds do not change, although the rejection of the model for international families now comes from rejecting the test on one, instead of two of the three outcomes. Panel B presents the estimated effects when the model also includes the household head's height, cognitive score, and risk preferences. Estimated effects are little affected and the unitary model is not rejected for families in Mexico but is rejected for international families.

Panel C reports estimate that include a set of family characteristics measured at baseline. These are: the log of household per-capita expenditure, and age and years of education of the household head. The changes in point estimates relative to the baseline specification are similar to those in Panel A. Additionally, results are virtually the same when the full set of family characteristics included in the analysis of household budget shares are included.

Finally, Panel D also controls mother's height which is a good predictor of child height. The estimated effects of both household and extended family resources decrease. The effect of household resources on cognitive scores is also reduced among international families and is no longer statistically significant. However, the overall conclusions regarding family decision-making are not affected.

### ***8.2 Alternative samples***

In Appendix Table 11 I present the estimated effects with different subsamples of children.

Panel A presents the estimated effects when I restrict the sample to children interviewed in MxFLS3. While the results are less precise, the differences across family types identified in the baseline specification remain.

Panel B addresses the concern that cognitive ability is only measured in Mexico by examining the impact on our inferences of restricting the samples to only those living in Mexico for the other two child human capital outcomes. The results at the bottom of the table show that the estimated effects barely changed for either height-for-age or years of education.

### **8.3 Non-linear effects**

This sub-section presents two specifications that show that the conclusions reached previously are not driven by the linear assumptions imposed in the baseline model. The results are shown in Appendix Table 12.

In panel A, the effect of resources from non-co-resident family members are allowed to be nonlinear by including a linear spline with a knot at the 75<sup>th</sup> percentile of PCE. Linearity is not rejected (p-values are shown in the last row). The same conclusion is drawn if the knot is at median PCE. Importantly, the lack of significance in the group of international families is not driven by imposing linear effects.

In panel B, the effect of resources from non-co-resident family members are allowed to differ across the distribution of PCE by including a line spine with a knot at median PCE. The estimated effects are neither substantively or statistically different across these two groups of households.

### **8.4 Alternative outcomes (*international families*)**

Finally, we evaluate whether the lack of significance in the effect of resources from non-co-resident family members generalizes beyond the three child human capital outcomes. For example, for the case of cognitive scores, we only have information collected in Mexico. With respect to child height, we know that there is a short window over which resources can affect it, as the nutrition and biological literatures have established that the growth path is pretty much established by age 4.

To see whether the results carry through to other health outcomes, we examine weight-for-age, a marker of shorter-run nutritional status, body mass index (BMI, which is weight in kg divided by height in meters squared) and hemoglobin in the blood. We also examine whether BMI is low (<18.5), hemoglobin is low (12mg/dL) and whether a child is stunted (>2 standard deviations below the norm). Results are displayed in Appendix Table 13. Resources from non-co-resident family members are not significant in any of the models except for the indicator of hemoglobin, where the coefficient on other family resources is marginally significant.

## **9. Conclusion**

This paper contributes to the literature that examines interactions among family members who are not co-resident and advances the literature in two dimensions. First, we take explicit account of spatial dispersion with families and, importantly, distinguish those families that straddle the U.S. and Mexico border. Second, we examine both the allocation of expenditures and child human capital outcomes. These distinctions turn out to be key are likely reflect the role of observability and monitoring costs in family decisions.

With respect to household budget shares, resources in the hands of non-co-resident family members have a significant impact on household allocations. Since this impact is significantly different from the impact of own resources, the unitary model of the family is rejected. However, we cannot reject the model that family allocations are Pareto efficient. These conclusions apply to all family types, regardless of the spatial dispersion among their members.

Results for child human capital outcomes are different. For the two groups of families that have all households in Mexico, family resources from outside the household have a significant impact on child human capital. Furthermore, their effect is indistinguishable from the effect of within-household resources. In other words, the unitary model of the family is not rejected and, therefore, allocations are also Pareto efficient. In contrast, among families with members that straddle the Mexico and U.S. border, resources from non-co-resident family members do not have a significant effect on child human capital. This result is robust to multiple specification checks.

Overall, the results establish that reaching beyond the household will enrich understanding of the well-being of individuals although the intra-family linkages are complex and nuanced. Two main findings emerge from this analysis. First, families seem to be able to achieve cooperation even when spread across international borders. Second, families with all households in Mexico seem to behave as a single unit when it comes to investing in child human capital.

## References

- Albarran, P. and Attanasio, O.P. (2002), "Do public transfers crowd out private transfers? Evidence from a randomized experiment in Mexico", Discussion paper 2002-6, World Institute for Development Economics, Helsinki, Finland
- Altonji, Joseph G., Fumio Hayashi and Laurence J. Kotlikoff (1997), "Parental Altruism and Inter Vivos Transfers: Theory and Evidence", *Journal of Political Economy*, vol. 105, No. 6, pp. 1121-1166
- Altonji, Joseph G., Fumio Hayashi, and Laurence J. Kotlikoff (1992), "Is the Extended Family Altruistically Linked? Direct Tests Using Micro Data", *The American Economic Review*, vol. 82, No. 5, pp. 1177-1198
- Angelucci, Manuela, Orazio Attanasio and Vincenzo Di Marco (2012), "The Impact of Oportunidades on Consumption, Savings and Transfers", *Fiscal Studies*, vol. 33(3), pp. 305-334
- Angelucci, M., G. DeGiorgi, M. Rangel, and I. Rasul (2010), "Family Networks and School Enrollment: Evidence from a Randomized Social Experiment", *Journal of Public Economics*, 94(3-4), pp. 197-221
- Angelucci, M., G. DeGiorgi, M. Rangel, and I. Rasul (2009), "Insurance and investment within Family Networks", Bread Working Paper No. 260
- Attanasio, O., and V. Lechene (2002), "Tests of Income Pooling in Household Decisions", *Review of Economic Dynamics*, Vol. 5, pp. 720-748
- Ashraf, N., E. Field, and J. Lee (2012), "Household Bargaining and Excess Fertility: An Experimental Study in Zambia", under revision
- Ashraf, N. (2009), "Spousal Control and Intra-Household Decision Making: An Experimental Study in the Philippines", *American Economic Review*, Vol. 99(4), pp. 1245-1277
- Bianchi, Suzanne M., V. Joseph Hotz, Kathleen McGarry, and Judith A. Seltzer (2007), "Intergenerational Ties: Alternative Theories, Empirical Findings and Trends, and Remaining Challenges", *Caring and Exchange Within and Across Generations*, ed. by Alan Booth, Ann C. Crouter, Suzanne Bianchi and Judith A. Seltzer, Urban Institute Press, Washington, D.C.
- Bobonis, Gustavo J., and Frederico Finan (2006). "Endogenous peer effects in school participation". University of Toronto, Ontario, Canada and UC-Berkeley, CA.
- Bourguignon, F., M. Browning, and P.A. Chiappori (2009), "Efficient Intra-Household Allocations and Distribution Factors: Implications and Identification", *The Review of Economic Studies*, vol. 76, pp. 503-528
- Browning, M. and P.A. Chiappori (1998), "Efficient Intra-Household Allocations: A General Characterization and Empirical Tests", *Econometrica*, Vol. 66(6), pp. 1241-1278
- Browning M., P.A. Chiapori, and Y. Weiss (2011), "Family Economics"

- Castilla, C., and T. Walker (2013), "Is Ignorance Bliss? The Effect of Asymmetric Information between Spouses on Intra-Household Allocations", *American Economic Review*, Vol. 103(5), pp. 263-268
- Castilla, C. (2010), "Show me the money: Intra-household allocation under incomplete information", working paper
- Chen, J. (2013), "Identifying Non-cooperative Behavior among Spouses: Child Outcomes in Migrant-Sending Households", *Journal of Development Economics*, Vol. 100, pp. 1-18
- Chen, J. (2006), "Migration and Imperfect Monitoring: Implications for Intra-Household Allocation", *American Economic Review: Papers & Proceedings*, vol. 96(2), pp.227-231
- Chiappori, Samphantharak, Schulhofer-Wohl and Townsend (2010), "Heterogeneity and Risk Sharing in Thai Villages"
- Cox, Donald, and Marcel Fafchamps (2008), "Extended Family and Kinship Networks: Economic Insights and Evolutionary Direction", *Handbook of Development Economics*, Vol. 4, ed. T. Paul Schultz and John Strauss, chap. 58, Amsterdam: Elsevier Science
- Cox, Donald, and Emmanuel Jimenez (1990), "Achieving Social Objectives through Private Transfers", *World Bank Research Observer*, Vol. 5, no. 2, pp. 205-218
- Cox Donald (1987), "Motives for Private Income Transfers", *Journal of Political Economy*, Vol. 95. No. 3, pp. 508-546
- Dalton, M., V.J. Hotz, and D. Thomas (2012), "The Family that Shares is the Family that Cares: Are Extended Families Efficient?", working paper
- De Laat, J. (2005), "Moral Hazard and Costly Monitoring: The Case of Split Migrants in Kenya", Job Market Paper
- Duflo, E. (2003), "Grandmothers and Granddaughters: Old-Age Pensions and Intrahousehold Allocation in South Africa", *The World Bank Economic Review*, Vol. 17(1), pp.1-25
- Foster & Rosenzweig (2001), "Imperfect Commitment, Altruism and the Family: Evidence from Transfer Behavior in Low-Income Rural Areas", *The Review of Economics and Statistics*, Vol. 83(3), pp.389-407
- Hamoudi, A. (2010), "Risk Aversion, Household Partition, and Consumption Smoothing in Rural Mexico", Working Paper
- Hayashi, F., J. Altonji & L. Kotlikoff (1996), "Risk-sharing between and within families", *Econometrica*, Vol. 64(2), pp. 261-294
- Kaplan, R. and D. Saccuzzo (1997), *Psychological testing: Principles, Applications, and Issues*, 4<sup>th</sup> ed., Pacific Grove, CA: Brooks/Cole
- Kinnan and Townsend (2012), "Kinship and Financial Networks, Formal Financial Access, and Risk Reduction", *American Economic Review: Papers & Proceedings*, 102(3), pp.289-293



- LaFerrere A. and F.-C. Wolff (2006) Microeconomic models of family transfers, in (eds) S.-C. Kolm and J Ythier (eds.) *Handbook of the Economics of Giving, Altruism and Reciprocity*, North Holland:Amsterdam.
- LaFave, D. and D. Thomas (2014), "Extended families and child well-being", NBER working paper w20702.
- Manser, M., and M. Brown (1980), "Marriage and Household Decision-Making: A Bargaining Analysis", *International Economic Review*, Vol. 21(1), pp. 31-44
- Mazzocco, M. (2007), "Household Intertemporal Behaviour: A Collective Characterization and a Test of Commitment", *Review of Economic Studies*, Vol. 74, pp. 857-895
- McElroy. M., and M. Horney (1981), "Nash-bargained Household Decisions: Toward a Generalization of the Theory of Demand", *International Economic Review*, Vol. 22(2), pp. 333-347
- Munshi, K., and M. Rosenzweig (2009), "Why is mobility in India so low? Social insurance, inequality and growth", NBER Working Paper No. 14850
- Raven, J. (2000), "The Raven's Progressive Matrices: Change and stability over culture and time", *Cognitive Psychology*, 41,1,48
- Rosenzweig, M.R., and O. Stark (1989), "Consumption Smoothing, Migration, and Marriage: Evidence from Rural India", *Journal of Political Economy*, Vol. 97(4), pp.905-926
- Rubalca, Luis, and Graciela Teruel (2008). *User's Guide for the Mexican Family Life Survey: Second Wave*. <http://www.ennvih-mxfls.org>.
- Rubalca, Luis, and Graciela Teruel (2006). *User's Guide for the Mexican Family Life Survey: First Wave*. <http://www.ennvih-mxfls.org>.
- Strauss and Thomas (1995), "Human Resources: Empirical Modeling of Household and Family Decisions", *Handbook of Development Economics*, Vol. 3, ed. J. Behrman and T.N. Srinivasan, chap. 34, Elsevier Science
- Thomas, D., F. Witoelar, E. Frankenberg, B. Sikoki, J. Strauss, C. Sumantri, and W. Suriastini (2012), "Cutting the costs of attrition: Results from the Indonesia Family Life Survey", *Journal of Development Economics*, Vol. 98, pp.108-123
- Thomas D. and E. Frankenberg (2007), "Household Responses to the Financial Crisis in Indonesia: Longitudinal Evidence on Poverty, Resources and Well-Being", in Ann Harrison, ed., *Globalization and Poverty*, University of Chicago Press
- Thomas, Frankenberg and Smith (2001), "Lost but Not Forgotten: Attrition and Follow-up in the Indonesia Family Life Survey", *The Journal of Human Resources*, Vol. 36, No. 3 (Summer, 2001), pp. 556-592
- Thomas, D. (1994), "Like Father, Like Son; Like Mother, Like Daughter: Parental Resources and Child Height", *The Journal of Human Resources*, Vol. 29(4), pp. 950-988

Thomas, D. (1990), "Intra-Household Resource Allocation: An Inferential Approach", *The Journal of Human Resources*, Vol.25(4), pp. 635-664

Townsend (1994), "Risk and Insurance in Village India", *Econometrica*, Vo. 62(3), pp. 539-591

Witoelar (2013), "Risk Sharing within the Extended Family: Evidence from the Indonesia Family Life Survey", *Economic Development and Cultural Change*, Vol. 62., No.1, pp. 65-94

Table 1. MxFLS Structure

	HOUSEHOLDS		FAMILIES	
<b>MxFLS1</b>				
At baseline	8,440		8,440	
At least one member alive*				
By MxFLS2	8,386		8,386	
By MxFLS3	8,335		8,335	
<b>MxFLS2</b>				
All households in sample			#	%
In MX	8,437			
In US	503			
<b>Total</b>	<b>8,940</b>	<b>Total</b>	<b>7,563</b>	<b>90%</b>
Households with extended family in sample				
In MX	1,965	All hhs in Mx	692	
In US	503	At least one hh in US	425	
<b>Total</b>	<b>2,468</b>	<b>Total</b>	<b>1,117</b>	
<b>MxFLS3</b>				
All households in sample				
In MX	9,202			
In US	740			
<b>Total</b>	<b>9,942</b>	<b>Total</b>	<b>7,210</b>	<b>87%</b>
Households with extended family in sample				
In MX	3,992	All hhs in Mx	1,424	
In US	688	At least one hh in US	535	
<b>Total</b>	<b>4,680</b>	<b>Total</b>	<b>1,959</b>	

\* Eliminate households for which all members have died by the time of the follow-up

Table 2. Help provided across households within families

Family group	Sample of families								Test differences between <sup>†</sup> ...			
	All families	Same locality neighbor	Spread across Mexico			Spread across Mx & US international families			Neighbor Across Mx	Across Mx Int.	Across Mx: Orig/New	Int: Mx/US
			All	in orig loc	in new loc	All	in Mx	in US				
<b>Households</b>												
<b>Provided and/or received help</b>												
<i>% Households ...</i>												
neither provided nor received		0.45	0.44	0.41	0.47	0.29	0.35	0.22				
only received help		0.12	0.11	0.14	0.09	0.13	0.21	0.04				
only provided help		0.18	0.19	0.2	0.19	0.35	0.15	0.57				
both		0.26	0.26	0.26	0.26	0.23	0.29	0.17				
<b>Provided help</b>												
<i>% Households sent</i>												
\$/gifts	0.48	0.44	0.45	0.46	0.44	0.58	0.44	0.74	0.46	0.00	0.60	0.00
time*	0.12	0.12	0.11	0.11	0.09	0.11	0.11	N/A	0.22	0.72	0.00	N/A
<b>Amount sent</b>												
Unconditional	1,976	1,922	1,996	1,837	2,161	2,056	1,767	2,370	0.71	0.77	0.35	0.00
Conditional on sending	4,146	4,476	4,476	4,058	4,921	3,550	4,075	3,214	1.00	0.02	0.22	0.02
<b>Share over (cond. on sending)</b>												
Total expenditures	37.91	44.38	39.64	36.86	42.71	28.03	44.09	16.17	0.26	0.00	0.40	0.00
Total income	48.48	55.28	51.30	48.68	54.18	37.64	68.28	18.91	0.41	0.00	0.49	0.00
<b>Received help</b>												
<i>% Households received</i>												
\$/gifts	0.37	0.37	0.37	0.40	0.35	0.36	0.50	0.21	0.99	0.47	0.10	0.00
time*	0.08	0.09	0.07	0.07	0.08	0.08	0.08	N/A	0.18	0.88	0.00	0.00
<b>Amount received</b>												
Unconditional	1,789	1,650	1,774	1,722	1,827	2,039	3,823	128	0.52	0.26	0.75	0.00
Conditional on sending	4,915	4,496	4,803	4,385	5,294	5,747	7,735	622	0.51	0.10	0.27	0.00
<b>Share over (cond. on receiving)</b>												
Total expenditures	55.35	47.09	49.31	55.02	42.84	75.54	99.42	2.74	0.69	0.00	0.21	0.00
Total income	84.04	77.90	78.60	88.44	66.85	100.48	135.63	2.19	0.94	0.05	0.16	0.00
<b>Net help: amount sent - amount received</b>												
Unconditional	214	292	221	117	328	74	-1,955	2,255	0.78	0.61	0.64	0.00
Conditional on sending or rec	361	539	396	199	620	104	-3,041	2,913	0.76	0.54	0.61	0.00

Table 2 Cont. Help provided across households within families

Family group	Sample of families								Test differences between <sup>†</sup> ...			
	All families	Same locality neighbor	Spread across Mexico			Spread across Mx & US international families			Neighbor Across Mx	Across Mx Int.	Across Mx: Orig/New	Int: Mx/US
			All	in orig loc	in new loc	All	in Mx	in US				
<i>Location of interview</i>												
<b>Individuals</b>												
<b>Provided help to ...</b>												
<i>children (cond on ch outside the hh)</i>												
\$/gifts	0.18	<b>0.18</b>	<b>0.18</b>	0.16	0.21	<b>0.18</b>	0.14	0.28	0.99	0.98	0.28	0.00
time*	0.02	<b>0.03</b>	<b>0.02</b>	0.02	0.01	<b>0.02</b>	0.02	N/A	...	...	...	N/A
<i>parent (cond on parent outside the hh)</i>												
\$/gifts	0.31	<b>0.27</b>	<b>0.28</b>	0.26	0.29	<b>0.45</b>	0.26	0.79	0.52	0.00	0.28	0.00
time*	0.05	<b>0.06</b>	<b>0.05</b>	0.05	0.05	<b>0.05</b>	0.05	N/A	...	...	...	N/A
<i>sibling (Mx: cond - US: uncond.)</i>												
\$/gifts	0.09	<b>0.08</b>	<b>0.08</b>	0.06	0.10	<b>0.12</b>	0.07	0.23	0.83	0.00	0.01	0.00
time*	0.02	<b>0.02</b>	<b>0.02</b>	0.02	0.02	<b>0.02</b>	0.02	N/A	...	...	...	N/A
<i>other (uncond)</i>												
\$/gifts	0.06	<b>0.05</b>	<b>0.06</b>	0.05	0.07	<b>0.08</b>	0.05	0.19	0.07	0.01	0.11	0.00
time*	0.01	<b>0.01</b>	<b>0.01</b>	0.01	0.01	<b>0.00</b>	0.00	N/A	...	...	...	N/A
<i>other (cond on having sent some transfers)</i>												
\$/gifts	0.20	<b>0.19</b>	<b>0.22</b>	0.22	0.21	<b>0.20</b>	0.21	0.19	0.15	0.30	0.79	0.50
time*	0.12	<b>0.12</b>	<b>0.14</b>	0.15	0.12	<b>0.09</b>	0.09	N/A	...	...	...	N/A
<i>spouse (US sample)</i>												
\$/gifts	0.87	N/A	N/A	N/A	N/A	<b>0.87</b>	N/A	0.87	N/A	N/A	N/A	N/A

Notes: MxFLS3 sample. Shares conditional on having sent/received help. All magnitudes correspond to the 12 months previous to the interview date.

\* Help in time only available for households interviewed in Mexico.

<sup>†</sup> p-values associated with the test that means are statistically different, taking into account clustering at the family level.

Table 3: Summary statistic of main variables, by family type

	All families			Same locality neighbor families			Spread across Mexico			Spread across Mx & US international families		
	mean	sd	median	mean	sd	median	mean	sd	median	mean	sd	median
<b>Sample of households</b>												
food share	50.05	15.95	50.43	51.41	15.32	51.76	50.70	16.39	51.10	46.00	16.53	45.53
personal goods share	11.50	8.90	9.56	11.44	8.75	9.55	11.87	9.41	9.94	11.36	8.86	9.38
semi-durables share	5.30	6.68	3.11	5.20	6.46	3.04	5.60	7.39	3.17	5.33	6.67	3.26
transport and communication sh	9.21	9.81	6.83	8.04	8.83	5.71	8.36	8.97	6.28	12.88	11.76	11.25
housing share	23.95	13.06	21.58	23.91	12.99	21.53	23.47	12.85	21.01	24.44	13.41	22.15
log household pce	5.45	0.87	5.41	5.31	0.75	5.31	5.39	0.83	5.38	5.81	1.03	5.84
log family pce	5.46	0.65	5.45	5.31	0.63	5.29	5.40	0.66	5.33	5.86	0.52	5.85
log extended-family pce	5.45	0.81	5.43	5.30	0.72	5.29	5.39	0.79	5.37	5.83	0.88	5.86
# observations	4,371			2,677			756			938		
<b>Sample of children</b>												
<b>height-for-age</b>												
height-for-age	-0.46	1.25	-0.48	-0.54	1.21	-0.54	-0.42	1.32	-0.41	-0.24	1.30	-0.29
log household pce	5.15	0.77	5.13	5.08	0.70	5.08	5.15	0.74	5.15	5.35	0.95	5.29
log family pce	5.26	0.61	5.25	5.15	0.59	5.13	5.19	0.60	5.18	5.68	0.47	5.71
log extended-family pce	5.33	0.75	5.29	5.21	0.71	5.21	5.20	0.66	5.19	5.85	0.75	5.82
interviewed in MxFLS2	0.21	0.41	0.00	0.25	0.43	0.00	0.12	0.33	0.00	0.15	0.36	0.00
interviewed in the U.S.	0.08	0.28	0.00	0.00	0.00	0.00	0.02	0.14	0.00	0.39	0.49	0.00
mother in household	0.99	0.12	1.00	0.98	0.13	1.00	0.99	0.09	1.00	0.99	0.10	1.00
father in household	0.85	0.35	1.00	0.86	0.35	1.00	0.87	0.33	1.00	0.82	0.39	1.00
mother's height	155	6	154	154	6	154	155	6	154	155	6	154
mother's education	8.52	3.27	9.00	8.52	3.35	9.00	8.84	3.22	9.00	8.25	3.02	9.00
household size	4.97	2.41	4.00	4.95	2.34	4.00	4.95	2.94	4.00	5.05	2.12	4.00
number of kids in household	2.18	1.22	2.00	2.16	1.22	2.00	2.18	1.28	2.00	2.28	1.18	2.00
family size	11.40	4.21	11.00	11.00	3.96	10.00	11.99	4.18	12.00	12.14	4.80	11.00
number of kids in family	4.11	2.18	4.00	3.99	2.18	4.00	4.47	2.22	4.00	4.18	2.10	4.00
rural	0.37	0.48	0.00	0.37	0.48	0.00	0.39	0.49	0.00	0.36	0.48	0.00
# observations	2,071			1,289			366			416		
<b>years of education</b>												
years of education	6.35	3.08	4.00	4.48	3.08	4.00	4.46	3.13	4.00	4.81	3.06	5.00
log household pce	5.18	0.77	4.95	4.93	0.70	4.94	4.94	0.78	5.02	5.01	0.90	4.98
log family pce	5.35	0.62	5.25	5.08	0.59	5.07	5.19	0.63	5.16	5.67	0.48	5.70
log extended-family pce	5.45	0.83	5.47	5.23	0.70	5.22	5.38	0.78	5.38	6.17	0.77	6.13
interviewed in MxFLS2	0.34	0.46	0.00	0.33	0.47	0.00	0.18	0.38	0.00	0.34	0.47	0.00
interviewed in the U.S.	0.10	0.23	0.00	0.00	0.00	0.00	0.02	0.14	0.00	0.20	0.40	0.00
mother in household	0.46	0.32	1.00	0.89	0.32	1.00	0.88	0.33	1.00	0.88	0.32	1.00
father in household	0.37	0.48	1.00	0.64	0.48	1.00	0.67	0.47	1.00	0.64	0.48	1.00
mother's height	153	6	153	153	6	153	153	6	153	152	6	153
mother's education	5.96	3.69	6.00	6.51	3.73	6.00	6.36	3.78	6.00	5.80	3.49	6.00
household size	4.98	2.57	5.00	5.86	2.62	5.00	5.65	2.69	5.00	5.92	2.37	5.00
number of kids in household	1.64	1.52	2.00	2.41	1.59	2.00	2.25	1.37	2.00	2.47	1.42	2.00
family size	10.36	4.25	10.00	11.08	4.21	10.00	11.10	4.25	10.00	11.02	4.35	10.00
number of kids in family	3.29	2.27	4.00	4.14	2.36	4.00	4.12	2.28	4.00	3.79	2.00	4.00
rural	0.38	0.50	0.00	0.39	0.49	0.00	0.45	0.50	0.00	0.52	0.50	1.00
# observations	2,699			2,176			614			909		
<b>raven score</b>												
raven score	51.17	21.30	55.56	56.40	21.56	58.33	53.96	20.06	55.56	54.47	21.34	55.56
log household pce	5.18	0.70	4.93	4.95	0.68	4.96	4.96	0.73	5.03	4.74	0.73	4.78
log family pce	5.35	0.59	5.23	5.10	0.58	5.09	5.18	0.54	5.18	5.62	0.48	5.63
log extended-family pce	5.45	0.83	5.47	5.24	0.70	5.23	5.35	0.70	5.40	6.32	0.69	6.25
interviewed in MxFLS2	0.34	0.46	0.00	0.33	0.47	0.00	0.18	0.39	0.00	0.36	0.48	0.00
interviewed in the U.S.	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
mother in household	0.46	0.31	1.00	0.90	0.31	1.00	0.90	0.30	1.00	0.89	0.31	1.00
father in household	0.37	0.47	1.00	0.67	0.47	1.00	0.71	0.46	1.00	0.65	0.48	1.00
mother's height	153	6	153	153	6	153	153	6	153	152	6	153
mother's education	5.96	3.68	6.00	6.64	3.72	6.00	6.52	3.70	6.00	5.47	3.44	6.00
household size	4.98	2.53	5.00	5.75	2.51	5.00	5.64	2.61	5.00	6.18	2.50	6.00
number of kids in household	1.64	1.48	2.00	2.40	1.53	2.00	2.28	1.31	2.00	2.59	1.46	2.00
family size	10.36	4.17	10.00	11.02	4.12	10.00	11.08	4.20	10.00	11.06	4.31	10.00
number of kids in family	3.29	2.22	4.00	4.11	2.30	4.00	4.07	2.19	4.00	3.82	2.02	4.00
rural	0.38	0.50	0.00	0.38	0.49	0.00	0.43	0.50	0.00	0.63	0.48	1.00
# observations	3,504			2,176			553			775		

Source: MxFLS2 & MxFLS3. Households with non-missing expenditure. Children with non-missing height-for-age, years of education, raven score.

**Table 4. Estimated effect of family resources on household budget shares**

Family type	All families				
	food (at home & meals out)	personal care clothing health education recreation	semi durables cleaning insurance repair	transport communication	housing (rent & utilities)
<i>log pce</i>					
<b>household (<math>\beta_1</math>)</b>	-4.13	2.55	2.09	4.96	-5.48
	[0.538]***	[0.269]***	[0.224]***	[0.330]***	[0.419]***
<b>other family members (<math>\beta_2</math>)</b>	-1.30	-0.05	0.32	-0.20	1.22
	[0.393]***	[0.233]	[0.181]*	[0.237]	[0.330]***
<b>Family Resources Matter</b>					
Joint p-value ( $\beta_2$ )	<b>0.00</b>				
<b>Unitary Test</b>					
$\beta_1 - \beta_2$	-2.83	2.60	1.77	5.16	-6.70
p-value	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>					
$\beta_1 / \beta_2$	3.18	-56.01	6.47	-24.92	-4.49
Joint p-value <sup>+</sup>	<b>0.00</b>				
# observations	4,371	4,371	4,371	4,371	4,371

Notes: MxFLS2 & MxFLS3. Additional controls: household size and composition (number of children, prime-age males, senior males, senior females, with prime-age females as the omitted category); age, gender and years of education of household head; household location (dummy of whether the household is in the US, region within the U.S., state within Mexico and whether the place is rural if the household is in Mexico); interview date (quarter-year dummies); MxFLS wave (dummy if observation from MxFLS2, and interaction of U.S. and MxFLS2); and family characteristics (age of family head; maximum years of education, height and cognitive score among adult males; maximum years of education, height and cognitive score among adult women; family size, number of children, prime-age males, senior females and senior males; log of per-capita wealth at baseline in 2002, its square, and its cube).

<sup>+</sup> Corresponds to last row Appendix Table 8

Table 5. Estimated effect of family resources on household budget shares, by family-type. Non-linear specification

Family type	All families					Same locality neighbor families				
	food (at home & meals out)	personal care clothing health education recreation	semi durables cleaning insurance repair	transport communication	housing (rent & utilities)	food (at home & meals out)	personal care clothing health education recreation	semi durables cleaning insurance repair	transport communication	housing (rent & utilities)
<i>log pce</i>										
<i>household (β1)</i>										
<i>spline - 0025</i>	-2.42 [0.935]***	2.92 [0.472]***	1.69 [0.294]***	4.83 [0.414]***	-7.01 [0.756]***	-2.89 [1.302]**	3.72 [0.583]***	1.45 [0.383]***	4.39 [0.475]***	-6.66 [1.066]***
<i>spline - 2575</i>	-8.94 [0.943]***	1.98 [0.527]***	2.78 [0.448]***	7.22 [0.596]***	-3.03 [0.801]***	-7.99 [1.149]***	1.67 [0.698]**	2.57 [0.578]***	6.54 [0.698]***	-2.79 [1.042]***
<i>spline - 7500</i>	0.08 [1.322]	2.88 [0.665]***	1.71 [0.652]***	2.16 [0.835]***	-6.82 [0.817]***	-3.82 [1.795]**	3.99 [1.274]***	2.33 [0.795]***	3.68 [1.223]***	-6.18 [1.262]***
<i>other family members (β2)</i>										
<i>spline - 0025</i>	-1.53 [0.875]*	-0.30 [0.534]	0.22 [0.334]	-0.45 [0.509]	2.06 [0.758]***	-1.58 [1.110]	-0.33 [0.701]	-0.23 [0.412]	0.06 [0.606]	2.08 [1.002]**
<i>spline - 2575</i>	-1.12 [0.856]	-0.22 [0.500]	0.19 [0.414]	-0.12 [0.531]	1.26 [0.754]*	-0.93 [1.105]	-0.64 [0.644]	0.43 [0.514]	0.56 [0.670]	0.58 [0.969]
<i>spline - 7500</i>	-1.11 [0.872]	0.50 [0.506]	0.62 [0.462]	-0.13 [0.583]	0.11 [0.741]	-2.22 [1.626]	2.03 [1.033]**	0.11 [0.669]	-1.10 [0.918]	1.18 [1.333]
<b>Non-linearity Test</b>										
<b>p-value β1</b>	0.00	0.49	0.21	0.00	0.00	0.03	0.13	0.21	0.05	0.04
<b>p-value β2</b>	0.92	0.44	0.74	0.88	0.16	0.85	0.10	0.65	0.41	0.62
<b>Family Resources Matter</b>										
<b>p-value β2</b>	0.06	0.28	0.22	0.61	0.00	0.22	0.08	0.43	0.74	0.01
<b>Joint p-value</b>			<b>0.00</b>					<b>0.04</b>		
<b>Unitary Test</b>										
<b>β1 - β2</b>										
<i>spline - 0025</i>	-0.89	3.21	1.46	5.28	-9.07	-1.31	4.04	1.68	4.34	-8.75
<i>spline - 2575</i>	-7.82	2.19	2.59	7.33	-4.29	-7.07	2.31	2.15	5.97	-3.37
<i>spline - 7500</i>	1.18	2.39	1.09	2.28	-6.94	-1.60	1.95	2.22	4.78	-7.36
<b>p-value</b>										
<i>spline - 0025</i>	0.54	0.00	0.00	0.00	0.00	0.50	0.00	0.01	0.00	0.00
<i>spline - 2575</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.03
<i>spline - 7500</i>	0.49	0.01	0.24	0.03	0.00	0.56	0.28	0.05	0.01	0.00
<b>Joint p-value</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b>β1 / β2</b>										
<i>spline - 0025</i>	1.58	-9.82	7.56	-10.69	-3.41	1.83	-11.33	-6.33	78.83	-3.20
<i>spline - 2575</i>	7.97	-9.19	14.68	-61.15	-2.39	8.62	-2.61	6.02	11.61	-4.81
<i>spline - 7500</i>	-0.07	5.80	2.76	-17.26	-59.84	1.72	1.96	20.65	-3.33	-5.24
<b>Joint p-value<sup>+</sup></b>			<b>0.13</b>					<b>0.44</b>		
# observations	4,371	4,371	4,371	4,371	4,371	2,677	2,677	2,677	2,677	2,677



Table 5 Cont. Estimated effect of family resources on household budget shares, by family-type. Non-linear specification

Family type	Spread across Mexico					Spread across Mx & US international families				
	food (at home & meals out)	personal care clothing health education recreation	semi durables cleaning insurance repair	transport communication	housing (rent & utilities)	food (at home & meals out)	personal care clothing health education recreation	semi durables cleaning insurance repair	transport communication	housing (rent & utilities)
<i>log pce</i>										
<i>household (β1)</i>										
<i>spline - 0025</i>	-1.88 [2.186]	2.81 [1.444]*	1.24 [0.730]*	4.92 [1.265]***	-7.09 [1.641]***	-1.60 [1.916]	0.87 [1.001]	2.44 [0.727]***	5.24 [1.151]***	-6.95 [1.521]***
<i>spline - 2575</i>	-8.45 [2.345]***	0.78 [1.380]	3.06 [1.081]***	9.07 [1.374]***	-4.47 [2.062]**	-11.28 [2.420]***	4.26 [1.457]***	2.12 [1.014]**	8.13 [1.787]***	-3.22 [1.593]**
<i>spline - 7500</i>	2.13 [3.518]	1.14 [1.751]	-0.45 [1.857]	2.51 [1.553]	-5.32 [1.985]***	2.64 [2.205]	2.17 [0.906]**	2.17 [1.056]**	1.23 [1.508]	-8.21 [1.346]***
<i>other family members (β2)</i>										
<i>spline - 0025</i>	-3.71 [2.203]*	0.12 [1.052]	2.13 [0.785]***	-0.17 [1.214]	1.63 [1.368]	1.61 [2.030]	-1.23 [1.214]	1.06 [1.127]	-3.78 [1.936]*	2.36 [2.087]
<i>spline - 2575</i>	1.15 [2.262]	-0.17 [1.275]	-0.89 [1.205]	-0.55 [1.291]	0.45 [1.832]	-4.11 [2.138]*	0.28 [1.267]	-0.47 [1.040]	0.25 [1.609]	4.05 [1.908]**
<i>spline - 7500</i>	-1.92 [2.594]	1.46 [1.504]	0.93 [2.169]	1.17 [1.220]	-1.63 [1.636]	-0.06 [1.236]	-1.47 [0.759]*	0.40 [0.578]	0.67 [0.956]	0.46 [1.097]
<b>Non-linearity Test</b>										
<b>p-value β1</b>	0.11	0.58	0.39	0.02	0.59	0.00	0.25	0.96	0.01	0.06
<b>p-value β2</b>	0.40	0.72	0.13	0.60	0.30	0.26	0.58	0.72	0.10	0.23
<b>Family Resources Matter</b>										
<b>p-value β2</b>	0.07	0.39	0.12	0.14	0.37	0.14	0.20	0.29	0.17	0.01
<b>Joint p-value</b>			<b>0.11</b>					<b>0.01</b>		
<b>Unitary Test</b>										
<b>β1 - β2</b>										
<i>spline - 0025</i>	1.83	2.69	-0.90	5.09	-8.72	-3.21	2.10	1.38	9.03	-9.30
<i>spline - 2575</i>	-9.59	0.94	3.95	9.62	-4.92	-7.17	3.98	2.59	7.88	-7.27
<i>spline - 7500</i>	4.05	-0.32	-1.38	1.34	-3.69	2.70	3.64	1.78	0.57	-8.67
<b>p-value</b>										
<i>spline - 0025</i>	0.61	0.13	0.43	0.01	0.00	0.25	0.20	0.33	0.00	0.00
<i>spline - 2575</i>	0.01	0.65	0.03	0.00	0.10	0.03	0.04	0.07	0.00	0.00
<i>spline - 7500</i>	0.43	0.89	0.71	0.53	0.19	0.30	0.00	0.16	0.75	0.00
<b>Joint p-value</b>	<b>0.04</b>	<b>0.31</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b>β1 / β2</b>										
<i>spline - 0025</i>	0.51	24.22	0.58	-29.84	-4.35	-1.00	-0.71	2.31	-1.39	-2.95
<i>spline - 2575</i>	-7.36	-4.67	-3.44	-16.65	-9.83	2.74	15.31	-4.56	32.91	-0.79
<i>spline - 7500</i>	-1.11	0.78	-0.49	2.15	3.26	-47.83	-1.47	5.49	1.85	-17.81
<b>Joint p-value*</b>			<b>0.78</b>					<b>0.32</b>		
# observations	756	756	756	756	756	938	938	938	938	938

Notes: MxFLS2 & MxFLS3. Additional controls: household size and composition (number of children, prime-age males, senior males, senior females, with prime-age females as the omitted category); age, gender and years of education of household head; household location (dummy of whether the household is in the US, region within the U.S., state within Mexico and whether the place is rural if the household is in Mexico); interview date (quarter-year dummies); MxFLS wave (dummy if observation from MxFLS2, and interaction of U.S. and MxFLS2); and family characteristics (age of family head; maximum years of education, height and cognitive score among adult males; maximum years of education, height and cognitive score among adult women; family size, number of children, prime-age males, senior females and senior males; log of per-capita wealth at baseline in 2002, its square, and its cube).

\* Corresponds to last row Table 6

**Table 6. Pareto efficiency test. Household budget shares. Main specification**

Family type		All families			Same locality			Spread across Mx			Spread across Mx & US			
<b>Individual tests of pairwise ratios</b>														
<b>household in ...</b>		<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	
<b>extended family in ...</b>		<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	
food	personal goods	0.03	0.21	0.59	0.07	0.27	0.61	0.12	0.25	0.24	0.85	0.12	0.88	
	semi-durables	0.20	0.56	0.79	0.11	0.68	0.33	0.91	0.55	0.70	0.27	0.14	0.17	
	transport/communications	0.03	0.40	0.40	0.15	0.74	0.10	0.04	0.10	0.24	0.83	0.05	0.17	
	housing	0.03	0.32	0.57	0.07	0.47	0.25	0.07	0.13	0.23	0.64	0.04	0.19	
personal goods	semi-durables	0.37	0.24	0.21	0.83	0.31	0.50	0.10	0.67	0.64	0.23	0.07	0.06	
	transport/communications	0.97	0.25	0.51	0.67	0.11	0.03	0.84	0.22	0.89	0.66	0.95	0.08	
	housing	0.29	0.69	0.73	0.25	0.51	0.03	0.46	0.14	0.70	0.41	0.31	0.02	
semi-durables	transport/communications	0.31	0.67	0.09	0.60	0.89	0.29	0.01	0.26	0.64	0.04	0.79	0.33	
	housing	0.05	0.28	0.12	0.61	0.48	0.46	0.01	0.21	0.52	0.11	0.26	0.37	
transport/communications	housing	0.12	0.21	0.57	0.07	0.15	0.56	0.45	0.80	0.37	0.28	0.12	0.73	
<b>household in ...</b>		<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	
<b>extended family in ...</b>		<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	
food	personal goods	0.41	0.33	0.63	0.46	0.17	0.18	0.85	0.96	0.52	0.92	0.35	0.39	
	semi-durables	0.12	0.71	0.15	0.03	0.81	0.68	0.81	0.68	0.87	0.44	0.21	0.09	
	transport/communications	0.01	0.16	0.43	0.26	0.84	0.05	0.02	0.76	0.72	0.08	0.12	0.12	
	housing	0.01	0.08	0.75	0.06	0.46	0.43	0.09	0.95	0.85	0.28	0.02	0.18	
personal goods	semi-durables	0.81	0.54	0.57	0.44	0.21	0.17	0.92	0.96	0.67	0.53	0.60	0.07	
	transport/communications	0.60	0.73	0.43	0.96	0.25	0.03	0.54	0.92	0.49	0.21	0.92	0.08	
	housing	0.03	0.34	0.98	0.17	0.70	0.04	0.41	0.94	0.65	0.21	0.06	0.03	
semi-durables	transport/communications	0.68	0.62	0.10	0.23	0.74	0.31	0.06	0.58	0.78	0.18	0.63	0.30	
	housing	0.02	0.08	0.53	0.46	0.33	0.50	0.09	0.71	0.97	0.19	0.24	0.54	
transport/communications	housing	0.01	0.10	0.41	0.05	0.39	0.99	0.22	0.91	0.64	0.89	0.03	0.46	
<b>household in ...</b>		<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	<b>spl3</b>	
<b>extended family in ...</b>		<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	<b>spl1</b>	<b>spl2</b>	<b>spl3</b>	
food	personal goods	0.06	0.25	0.21	0.28	0.08	0.88	0.89	0.93	0.39	0.65	0.09	0.41	
	semi-durables	0.09	0.53	0.26	0.04	0.79	0.25	0.29	0.29	0.82	0.91	0.10	0.74	
	transport/communications	0.07	0.38	0.25	0.36	0.93	0.08	0.32	0.40	0.39	0.29	0.46	0.61	
	housing	0.04	0.31	0.20	0.08	0.24	0.17	0.12	0.17	0.38	0.43	0.10	0.93	
personal goods	semi-durables	0.82	0.21	0.58	0.29	0.28	0.28	0.71	0.42	0.67	0.55	0.87	0.09	
	transport/communications	0.33	0.63	0.50	0.96	0.20	0.06	0.58	0.40	0.59	0.07	0.87	0.32	
	housing	0.04	0.98	0.29	0.11	0.70	0.02	0.53	0.15	0.47	0.48	0.24	0.07	
semi-durables	transport/communications	0.42	0.63	0.30	0.39	0.80	0.38	0.64	0.96	0.65	0.08	0.92	0.68	
	housing	0.12	0.16	0.17	0.42	0.23	0.49	0.13	0.55	0.67	0.17	0.20	0.38	
transport/communications	housing	0.73	0.56	0.88	0.14	0.15	0.72	0.61	0.67	0.78	0.06	0.60	0.42	
<b>Simultaneous tests of pairwise ratios</b>														
<b>household in ...</b>	<b>extended family in ...</b>													
spl1 (0-25)	spl1	<b>0.29</b>			<b>0.54</b>			<b>0.09</b>			<b>0.44</b>			
	spl2	<b>0.69</b>			<b>0.60</b>			<b>0.65</b>			<b>0.51</b>			
	spl3	<b>0.67</b>			<b>0.27</b>			<b>0.86</b>			<b>0.18</b>			
spl2 (25-75)	spl1	<b>0.13</b>			<b>0.32</b>			<b>0.37</b>			<b>0.61</b>			
	spl2	<b>0.63</b>			<b>0.83</b>			<b>1.00</b>			<b>0.31</b>			
	spl3	<b>0.65</b>			<b>0.25</b>			<b>0.95</b>			<b>0.20</b>			
spl3 (75-00)	spl1	<b>0.38</b>			<b>0.45</b>			<b>0.67</b>			<b>0.47</b>			
	spl2	<b>0.78</b>			<b>0.60</b>			<b>0.77</b>			<b>0.67</b>			
	spl3	<b>0.72</b>			<b>0.26</b>			<b>0.95</b>			<b>0.48</b>			
<b>All ratios</b>	<b>0.13</b>			<b>0.44</b>			<b>0.78</b>			<b>0.32</b>				

Notes: p-values associated with PE test based on model in Table 5

Table 7. Estimated effect of family resources on child human capital indicators, by family-type

Family type	All families			Same locality neighbor families			Spread across Mexico			Spread across Mx & US international families		
	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)
<i>log pce</i>												
<i>household (β1)</i>	0.25	0.19	3.12	0.17	0.14	3.36	0.27	0.38	1.91	0.39	0.25	2.31
	[0.0527]***	[0.0482]***	[0.702]***	[0.0631]***	[0.0625]**	[0.956]***	[0.139]*	[0.0996]***	[1.429]	[0.126]***	[0.100]**	[1.263]*
<i>other family members (β2)</i>	0.15	0.09	1.71	0.18	0.14	1.92	0.27	0.19	3.21	0.03	-0.02	0.99
	[0.0513]***	[0.0419]**	[0.628]***	[0.0643]***	[0.0541]***	[0.838]**	[0.146]*	[0.0939]**	[1.416]**	[0.0995]	[0.0750]	[1.451]
<b>Family Resources Matter</b>												
<b>Joint p-value (β2)</b>		<b>0.00</b>			<b>0.00</b>			<b>0.00</b>			<b>0.81</b>	
<b>Unitary Test</b>												
<b>β1 - β2</b>	0.10	0.10	1.41	-0.01	-0.01	1.44	0.01	0.18	-1.30	0.37	0.27	1.32
<b>p-value</b>	0.21	0.16	0.18	0.90	0.95	0.32	0.98	0.22	0.58	0.05	0.05	0.51
<b>Pareto Efficiency Test</b>												
<b>β1 / β2</b>	1.70	2.05	1.82	0.93	0.96	1.75	1.02	1.96	0.60	15.14	-11.47	2.33
<b>Joint p-value<sup>+</sup></b>		<b>0.99</b>			<b>0.75</b>			<b>0.60</b>			<b>0.86</b>	
# observations	2,071	3,699	3,504	1,289	2,176	2,176	366	614	553	416	909	775

Notes: MxFLS2 & MxFLS3. Additional controls: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adult in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.

<sup>+</sup> Corresponds to last row Table 8

**Table 8. Pareto efficiency test. Child human capital indicators. Main specification**

<i>Family type</i>		All families	Same locality	Spread across Mx	Spread across Mx & US
<b>Individual tests of pairwise ratios</b>					
height-for-age	yrs of education	0.76	0.93	0.50	0.67
	cognitive score	0.82	0.34	0.66	0.61
yrs of education	cognitive score	0.93	0.36	0.20	0.43
<b>Simultaneous tests of pairwise ratios</b>					
<b>All Ratios</b>		<b>0.99</b>	<b>0.75</b>	<b>0.60</b>	<b>0.86</b>

Notes: p-values associated with PE test based on model in Table 8

Table 9. Estimated effect of family resources on child human capital indicators for international families.

By location of the child or location of resources						
Family type	All families			Spread across Mx & US international families		
Child outcomes	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)
<b>PANEL A: interactions w/location of the child</b>						
<i>log pce</i>						
<i>household (β1)</i>						
<i>child in Mexico</i>	0.23 [0.0540]***	0.19 [0.0485]***		0.39 [0.144]***	0.25 [0.105]**	
<i>child in U.S.</i>	0.44 [0.173]**	0.24 [0.212]		0.38 [0.192]**	0.13 [0.204]	
<i>other family members (β2)</i>						
<i>child in Mexico</i>	0.16 [0.0551]***	0.10 [0.0431]**		-0.09 [0.164]	-0.04 [0.0858]	
<i>child in U.S.</i>	0.07 [0.108]	-0.02 [0.123]		0.12 [0.116]	0.05 [0.145]	
<b>Test equal marginal effects across locations</b>						
<b>p-value (β1)</b>	0.26	0.80		0.96	0.62	
<b>p-value (β2)</b>	0.46	0.34		0.29	0.60	
<b>PANEL B: location of resources</b>						
<i>log pce</i>						
<i>household (β1)</i>						
<i>resources in Mexico</i>	0.23 [0.0537]***	0.18 [0.0481]***	3.10 [0.711]***	0.41 [0.148]***	0.25 [0.106]**	2.42 [1.300]*
<i>resources in the U.S.</i>	0.40 [0.173]**	0.19 [0.219]	0.00 0.00	0.34 [0.195]*	0.12 [0.213]	0.00 0.00
<i>other family members (β2)</i>						
<i>resources in Mexico</i>	0.183 [0.0532]***	0.138 [0.0448]***	1.630 [0.684]**	0.215 [0.123]*	0.089 [0.118]	-0.245 [1.847]
<i>resources in the U.S.</i>	-0.145 [0.152]	-0.140 [0.0695]**	0.220 [1.177]	-0.185 [0.151]	-0.113 [0.0724]	0.320 [1.320]
<b>Test equal marginal effects across resource sources</b>						
<b>p-value (β1)</b>	0.33	0.95		0.74	0.60	
<b>p-value (β2)</b>	0.04	0.00	0.29	0.05	0.12	0.80
# observations	2,071	3,699	3,504	416	909	775

Notes: MxFLS2 & MxFLS3. Additional controls: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adult in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.

**Table 10. Estimated effect of family resources on child human capital indicators for international families.**  
**Alternative measures of resources**

<i>Measure of resources</i> <i>Estimation</i>	Per-capita expenditure <sup>+</sup> (IV)			Expenditure net of transfers <sup>**</sup> (OLS)			Expenditures plus transfers sent <sup>***</sup> (OLS)		
	<i>height-for-age</i>	<i>years of education</i>	<i>cognitive score (%)</i>	<i>height-for-age</i>	<i>years of education</i>	<i>cognitive score (%)</i>	<i>height-for-age</i>	<i>years of education</i>	<i>cognitive score (%)</i>
<i>log pce</i>									
<b>household (β1)</b>	0.233 [0.330]	0.374 [0.231]	10.97 [4.354]**	0.04 [0.0940]	0.21 [0.0672]***	3.01 [1.155]***	0.09 [0.0880]	0.14 [0.0542]**	2.71 [1.045]**
<b>other family members (β2)</b>	0.375 [0.171]**	-0.044 [0.157]	-5.694 [4.141]	-0.06 [0.0689]	-0.05 [0.0636]	-0.60 [1.105]	0.03 [0.0692]	-0.06 [0.0921]	-0.24 [1.388]
# observations	416	909	775	352	635	493	352	635	493

Notes: All models have controls specified in notes Table 7.

<sup>+</sup> MxFLS2 & MxFLS3. Instruments: log per-capita income, log per-capita wealth, log per-capita wealth at baseline. The two F-statistics below 10 are for household resources in hfa, and for other family resources in cognitive scores (8.61 and 5.62 respectively)

<sup>\*\*</sup> Only MxFLS3. Resources: Expenditure plus transfers sent minus transfers received.

<sup>\*\*\*</sup> Only MxFLS3.

**Appendix Table 1. Household structure in Mexico and the U.S.**

Households in MxFLS wave	United States						Mexico					
	MxFLS2			MxFLS3			MxFLS2			MxFLS3		
<b>Living arrangements</b>												
	<b>mean</b>	<b>sd</b>	<b>median</b>	<b>mean</b>	<b>sd</b>	<b>median</b>	<b>mean</b>	<b>sd</b>	<b>median</b>	<b>mean</b>	<b>sd</b>	<b>median</b>
# individuals in dwelling	5.94	2.86	5	4.93	2.72	5	NA	NA	NA	NA	NA	NA
# relatives in dwelling	NA	NA	NA	3.77	2.44	4	NA	NA	NA	NA	NA	NA
household size	2.61	1.78	2	2.71	1.64	3	3.95	2.03	3	4.1	2.13	4
Total households	503			602			1,965			3,992		
<b>Relationship to head of household</b>												
	<b>Freq.</b>	<b>Percent</b>		<b>Freq.</b>	<b>Percent</b>		<b>Freq.</b>	<b>Percent</b>		<b>Freq.</b>	<b>Percent</b>	
Head	503	40.6		602	36.87		1,965	24.16		3,992	24.52	
Spouse	144	11.62		318	19.47		1,420	18.18		2,974	18.41	
Son/Daughter	183	14.77		558	34.17		3,123	39.99		6,363	39.38	
Step child	8	0.65		36	2.2		91	1.17		137	0.85	
Son/Daughter in law	10	0.81		9	0.55		189	2.42		428	2.65	
Parent	16	1.29		8	0.49		66	0.85		136	0.84	
Parent in law	6	0.48		7	0.43		24	0.31		101	0.63	
Sibling	94	7.59		31	1.9		54	0.69		130	0.8	
Sibling in law	32	2.58		14	0.86		37	0.47		82	0.51	
Grandchild	15	1.21		15	0.92		644	8.25		1,496	9.26	
Grandparent	2	0.16		0	0		3	0.04		18	0.11	
Uncle/Aunt	25	2.02		1	0.06		6	0.08		19	0.12	
Nephew/Niece	45	3.63		19	1.16		85	1.09		162	1	
Cousin	40	3.23		6	0.37		5	0.06		14	0.09	
Not relative	.	.		5	0.31		10	0.13		25	0.34	
Other	116	9.36		4	0.24		17	0.21		75	0.47	
Missing	0	0		0	0		71	1.92		6	0.04	
Total individuals	1,239	100		1,633	100		7,810	100		16,158	100	

Source: MxFLS2 & MxFLS3. Mexican sample restricted to families that split by second or third wave respectively  
Sample sizes are smaller than in table 1 due to missing information on household composition

Appendix Table 2. Family structure

Family group	Sample of families							Test differences between <sup>+</sup> ...			
	Same locality Neighbor fam.	Spread across Mexico			Spread across Mexico & U.S. International families			Neighbor vs. Across Mx	Across Mx vs. International	Across Mx: Orig vs. New	International: Mx vs. US
		All	in orig loc	in new loc	All	in Mx	in US				
Location of interview	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Household socio-demographic characteristics</b>											
household size	<b>3.97</b>	<b>3.93</b>	4.36	3.47	<b>3.64</b>	4.21	2.54	<b>0.61</b>	<b>0.00</b>	0.00	0.00
# children 0-14	<b>1.21</b>	<b>1.21</b>	1.15	1.26	<b>1.04</b>	1.17	0.78	<b>0.93</b>	<b>0.00</b>	0.17	0.00
# adults (15+)	<b>2.76</b>	<b>2.72</b>	3.20	2.21	<b>2.49</b>	2.88	1.75	<b>0.50</b>	<b>0.00</b>	0.00	0.00
# prime age female adults	<b>1.25</b>	<b>1.23</b>	1.38	1.08	<b>1.09</b>	1.32	0.66	<b>0.71</b>	<b>0.00</b>	0.00	0.00
# prime age male adults	<b>1.15</b>	<b>1.13</b>	1.25	1.00	<b>1.09</b>	1.11	1.05	<b>0.53</b>	<b>0.27</b>	0.00	0.19
# senior females	<b>0.18</b>	<b>0.16</b>	0.25	0.07	<b>0.15</b>	0.22	0.01	<b>0.26</b>	<b>0.44</b>	0.00	0.00
# senior males	<b>0.18</b>	<b>0.19</b>	0.32	0.06	<b>0.16</b>	0.23	0.03	<b>0.38</b>	<b>0.05</b>	0.00	0.00
rural locality	<b>0.35</b>	<b>0.38</b>	0.51	0.25	<b>0.33</b>	0.51	N/A	<b>0.11</b>	<b>0.04</b>	0.00	N/A
household head [...]											
age	<b>40.95</b>	<b>40.01</b>	48.22	31.25	<b>39.27</b>	43.71	30.74	<b>0.05</b>	<b>0.17</b>	0.00	0.00
female	<b>0.28</b>	<b>0.29</b>	0.22	0.36	<b>0.29</b>	0.39	0.10	<b>0.52</b>	<b>0.93</b>	0.00	0.00
years of education	<b>7.13</b>	<b>7.42</b>	6.01	8.92	<b>6.46</b>	5.64	8.02	<b>0.11</b>	<b>0.00</b>	0.00	0.00
married	<b>0.13</b>	<b>0.18</b>	0.17	0.20	<b>0.29</b>	0.12	0.63	<b>0.00</b>	<b>0.00</b>	0.30	0.00
<b>Family socio-demographic characteristics</b>											
# households	<b>2.23</b>	<b>2.34</b>	N/A	N/A	<b>2.50</b>	N/A	N/A	<b>0.00</b>	<b>0.00</b>	N/A	N/A
# individuals	<b>8.93</b>	<b>9.26</b>	N/A	N/A	<b>9.04</b>	N/A	N/A	<b>0.13</b>	<b>0.42</b>	N/A	N/A
# children 0-14	<b>2.71</b>	<b>2.84</b>	N/A	N/A	<b>2.57</b>	N/A	N/A	<b>0.29</b>	<b>0.05</b>	N/A	N/A
# adults (15+)	<b>6.14</b>	<b>6.36</b>	N/A	N/A	<b>6.19</b>	N/A	N/A	<b>0.11</b>	<b>0.33</b>	N/A	N/A
maximum [...] among male adults											
years of education	<b>9.43</b>	<b>9.26</b>	N/A	N/A	<b>8.87</b>	N/A	N/A	<b>0.11</b>	<b>0.00</b>	N/A	N/A
height	<b>168.4</b>	<b>168.1</b>	N/A	N/A	<b>167.6</b>	N/A	N/A	<b>0.12</b>	<b>0.03</b>	N/A	N/A
raven score	<b>65.96</b>	<b>65.91</b>	N/A	N/A	<b>64.94</b>	N/A	N/A	<b>0.93</b>	<b>0.16</b>	N/A	N/A
maximum [...] among female adults											
years of education	<b>9.56</b>	<b>9.35</b>	N/A	N/A	<b>8.94</b>	N/A	N/A	<b>0.03</b>	<b>0.00</b>	N/A	N/A
height	<b>157.0</b>	<b>156.8</b>	N/A	N/A	<b>155.9</b>	N/A	N/A	<b>0.37</b>	<b>0.00</b>	N/A	N/A
raven score	<b>66.23</b>	<b>66.36</b>	N/A	N/A	<b>64.27</b>	N/A	N/A	<b>0.81</b>	<b>0.00</b>	N/A	N/A
% of families with [...]											
children 0-14	<b>0.91</b>	<b>0.89</b>	N/A	N/A	<b>0.81</b>	N/A	N/A	<b>0.30</b>	<b>0.00</b>	N/A	N/A
ch in hfa sample	<b>0.55</b>	<b>0.50</b>	N/A	N/A	<b>0.40</b>	N/A	N/A	<b>0.03</b>	<b>0.00</b>	N/A	N/A
ch in edu sample	<b>0.68</b>	<b>0.70</b>	N/A	N/A	<b>0.71</b>	N/A	N/A	<b>0.40</b>	<b>0.62</b>	N/A	N/A
ch in cog sample	<b>0.68</b>	<b>0.65</b>	N/A	N/A	<b>0.63</b>	N/A	N/A	<b>0.30</b>	<b>0.55</b>	N/A	N/A
% households within family with [...]											
children 0-14	<b>0.67</b>	<b>0.63</b>	N/A	N/A	<b>0.48</b>	N/A	N/A	<b>0.03</b>	<b>0.00</b>	N/A	N/A
ch in hfa sample	<b>0.31</b>	<b>0.26</b>	N/A	N/A	<b>0.18</b>	N/A	N/A	<b>0.00</b>	<b>0.00</b>	N/A	N/A
ch in edu sample	<b>0.40</b>	<b>0.38</b>	N/A	N/A	<b>0.36</b>	N/A	N/A	<b>0.35</b>	<b>0.13</b>	N/A	N/A
ch in cog sample	<b>0.40</b>	<b>0.36</b>	N/A	N/A	<b>0.29</b>	N/A	N/A	<b>0.02</b>	<b>0.00</b>	N/A	N/A
Number of [...]											
ch in hfa sample	<b>0.85</b>	<b>0.78</b>	0.33	0.45	<b>0.61</b>	0.42	0.18	<b>0.19</b>	<b>0.00</b>		
ch in edu sample	<b>1.46</b>	<b>1.39</b>	0.92	0.47	<b>1.58</b>	1.33	0.25	<b>0.33</b>	<b>0.01</b>		
ch in cog sample	<b>1.44</b>	<b>1.27</b>	0.83	0.43	<b>1.34</b>	1.34	0.00	<b>0.01</b>	<b>0.33</b>		

Notes: MxFLS2 &amp; MxFLS3.

+ p-values associated with the test that means are statistically different, taking into account clustering at the family level.



Appendix Table 3. Family resources and outcomes of the analysis

Family group	Sample of families							Test differences between <sup>+</sup> ...			
	Same locality <i>Neighbor fam.</i>	Spread across Mexico			Spread across Mexico & U.S. <i>International families</i>			Neighbor vs. Across Mx	Across Mx vs. International	Across Mx: Orig vs. New	International: Mx vs. US
		All	in orig loc	in new loc	All	in Mx	in US				
<i>Location of interview</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Household resources</b>											
log wealth in 2002	<b>11.13</b>	<b>10.98</b>	10.96	11.00	<b>10.90</b>	10.87	10.95	<b>0.20</b>	<b>0.53</b>	0.50	0.28
log total expenditure	<b>6.57</b>	<b>6.64</b>	6.53	6.77	<b>6.91</b>	6.63	7.44	<b>0.03</b>	<b>0.00</b>	0.00	0.00
log total income	<b>6.15</b>	<b>6.10</b>	6.11	6.10	<b>6.45</b>	6.03	7.21	<b>0.39</b>	<b>0.00</b>	0.87	0.00
log wealth	<b>8.89</b>	<b>8.82</b>	8.98	8.66	<b>8.92</b>	9.12	8.69	<b>0.49</b>	<b>0.35</b>	0.02	0.00
log per-capita expenditures	<b>5.31</b>	<b>5.39</b>	5.18	5.61	<b>5.81</b>	5.33	6.71	<b>0.04</b>	<b>0.00</b>	0.00	0.00
log per-capita income	<b>4.87</b>	<b>4.83</b>	4.73	4.94	<b>5.33</b>	4.70	6.48	<b>0.49</b>	<b>0.00</b>	0.01	0.00
log per-capita wealth	<b>7.59</b>	<b>7.52</b>	7.61	7.43	<b>7.61</b>	7.43	7.95	<b>0.47</b>	<b>0.38</b>	0.20	0.00
<b>Correlation between household (pce) and other family resources (epe)<sup>++</sup></b>											
% hhs w/ pce & epe in same portion of the distribution	<b>0.48</b>	<b>0.44</b>	0.44	0.44	<b>0.25</b>	0.23	0.25				
correlation btw pce & epe	<b>0.43</b>	<b>0.32</b>	0.38	0.40	<b>-0.36</b>	0.07	0.03				
<b>Outcomes analyzed in the paper</b>											
<b>Household budget shares</b>											
food	<b>51.41</b>	<b>50.70</b>	52.73	48.53	<b>46.00</b>	52.81	35.48	<b>0.32</b>	<b>0.00</b>	0.00	0.00
personal goods	<b>11.44</b>	<b>11.87</b>	10.99	12.82	<b>11.36</b>	12.00	10.35	<b>0.23</b>	<b>0.20</b>	0.00	0.00
semi-durables	<b>5.20</b>	<b>5.60</b>	4.83	6.42	<b>5.33</b>	4.83	6.09	<b>0.15</b>	<b>0.37</b>	0.00	0.00
transport and comm.	<b>8.04</b>	<b>8.36</b>	7.95	8.80	<b>12.88</b>	9.35	18.33	<b>0.37</b>	<b>0.00</b>	0.13	0.00
housing	<b>23.91</b>	<b>23.47</b>	23.50	23.43	<b>24.44</b>	21.01	29.74	<b>0.41</b>	<b>0.10</b>	0.90	0.00
<b>Child outcomes</b>											
height-for-age	<b>-0.54</b>	<b>-0.42</b>	-0.54	-0.34	<b>-0.24</b>	-0.33	-0.09	<b>0.21</b>	<b>0.08</b>	0.19	0.07
years of education	<b>4.48</b>	<b>4.46</b>	4.99	3.48	<b>4.81</b>	4.99	4.07	<b>0.87</b>	<b>0.04</b>	0.00	0.00
raven score	<b>56.40</b>	<b>53.96</b>	53.02	55.49	<b>54.47</b>	54.47	0.00	<b>0.03</b>	<b>0.70</b>	0.23	0.00

Notes: MxFLS2 & MxFLS3.

<sup>+</sup> p-values associated with the test that means are statistically different, taking into account clustering at the family level.

<sup>++</sup> pce: log of household per-capita expenditures, epe: log of extended family per-capita expenditures. Both distributions are divided in three portions, based on the cut-offs used in the main specification in the paper: percentile 25th and percentile 75th of the log of family per-capita expenditure distribution.

**Appendix Table 4. Remittances by adult migrants interviewed in the US**

	mean	sd	median
<b>Transfers sent to Mexico</b>			
Percent sent transfers	0.65	0.48	1.00
<b>Conditional on sending...</b>			
Percent sent for consumption	0.92	0.27	1.00
Percent sent for savings/business	0.14	0.34	0.00
Amount sent	3,229	4,802	1,453
Amount sent for consumption	2,563	3,665	1,240
Amount sent for savings/business	3,216	3,694	1,908
Amount sent for consumption/total sent	0.83	0.32	1.00
Am. sent for cons/total sent (cond on sending for both)	0.52	0.28	0.50
Amount sent in cash/total sent in cash or goods	0.83	0.32	1.00
<b>Transfers received from Mexico</b>			
Percent received transfers	0.09	0.29	0.00
<b>Conditional on receiving...</b>			
Amount received	384	1,197	54
<b>Net transfers</b>			
Net transfers (sent - received)	2,069	4,176	492
<b>Beneficiaries in Mexico</b>			
Percent sent to one recipient	0.60	0.49	1.00
Percent sent to two recipients	0.21	0.41	0.00
Percent sent to three or more recipients	0.19	0.39	0.00
<b>Last transaction</b>			
Amount sent	270	359	150
Implied frequency of transfers	17	32	10
Cost paid for the transaction	9	7	10
Cost / total sent	0.065	0.073	0.050
Percent used a financial institution (not bank)	0.70	0.46	1.00
Percent used a bank	0.22	0.41	0.00
Percent took it herself/friend	0.07	0.26	0.00
<b>Time in the US</b>			
Year first arrived to the US	2002	7	2004
Percent arrived on or before 2002	0.37	0.48	0.00
Percent arrived between 2002 and 2005	0.34	0.47	0.00
Percent arrived after 2005	0.30	0.46	0.00
<b>Expected time in the US</b>			
Probability of living in the US in three years	64.17	33.58	70
Probability of living in the US in ten years	45.64	35.08	50
Probability of coming back to Mexico at some point	59.47	47.74	50
Expected number of years in the US before coming back	6.80	12.53	3
<b>Other individual characteristics</b>			
Age	30	11	27
Female	0.40	0.49	0.00
<b>Household resources</b>			
Log per-capita expenditures	6.55	0.57	6.51
Log per-capita income	6.35	0.86	6.42
Log per-capita wealth	7.95	1.73	7.86

Notes: MxFLS3.

All statistics on transfers correspond to transfers sent/received in the 12 months previous to the interview date.

**Appendix Table 5. Number of pairwise tests statistically different from zero. Household budget shares. Main specification**

Family type		All families		Same locality		Spread across Mx		Spread across Mx & US	
		count	weights <sup>+</sup>	count	weights <sup>+</sup>	count	weights <sup>+</sup>	count	weights <sup>+</sup>
<b>Ratios significant at the 5% level</b>									
household	ext family								
spl1 (0-25)	spl1 (0-25)	4	0.13	0	0.18	3	0.13	1	0.01
	spl2 (25-75)	0	0.12	0	0.15	0	0.15	2	0.06
	spl3 (75-100)	0	0.07	2	0.03	0	0.04	1	0.18
spl2 (25-75)	spl1 (0-25)	5	0.11	2	0.14	1	0.12	0	0.03
	spl2 (25-75)	0	0.18	0	0.21	0	0.20	2	0.08
	spl3 (75-100)	0	0.1	3	0.08	0	0.09	1	0.16
spl3 (75-100)	spl1 (0-25)	2	0.06	1	0.03	0	0.05	0	0.14
	spl2 (25-75)	0	0.12	0	0.09	0	0.09	0	0.19
	spl3 (75-100)	0	0.11	1	0.09	0	0.11	0	0.15
<b>Sum</b>		11		9		4		7	
<b>Weighted sum</b>		10.71		6.3		4.59		5.67	

Notes: numbers correspond to main specification used in the paper (see Table 5)

<sup>+</sup> % of households in the sample with household and other family resources in each spline, as defined in main specification

Appendix Table 6. Estimated effect of family resources on household budget shares, by family-type. Linear specification

Family type	All families					Same locality neighbor families				
	food	personal care clothing health education	semi durables other	transport communication	housing	food	personal care clothing health education	semi durables other	transport communication	housing
<i>log pce</i>										
<i>household</i> ( $\beta_1$ )	-4.13 [0.538]***	2.55 [0.269]***	2.09 [0.224]***	4.96 [0.330]***	-5.48 [0.419]***	-5.20 [0.685]***	2.95 [0.358]***	2.11 [0.256]***	5.10 [0.383]***	-4.97 [0.595]***
<i>other family members</i> ( $\beta_2$ )	-1.30 [0.393]***	-0.05 [0.233]	0.32 [0.181]*	-0.20 [0.237]	1.22 [0.330]***	-1.41 [0.534]***	0.02 [0.337]	0.11 [0.223]	0.02 [0.302]	1.26 [0.464]***
<b>Family Resources Matter</b>										
<b>Joint p-value (<math>\beta_2</math>)</b>	<b>0.00</b>					<b>0.04</b>				
<b>Unitary test</b>										
<b><math>\beta_1 - \beta_2</math></b>	-2.83	2.60	1.77	5.16	-6.70	-3.78	2.93	2.01	5.08	-6.23
<b>p-value</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b><math>\beta_1 / \beta_2</math></b>	3.18	-56.01	6.47	-24.92	-4.49	3.68	128.82	19.92	238.50	-3.94
<b>Joint p-value<sup>+</sup></b>	<b>0.00</b>					<b>0.10</b>				
# observations	4,371	4,371	4,371	4,371	4,371	2,677	2,677	2,677	2,677	2,677
<i>Family type</i>	Spread across Mexico					Spread across Mx & US international families				
<i>Budget share</i>	food	personal care clothing health education	semi durables other	transport communication	housing	food	personal care clothing health education	semi durables other	transport communication	housing
<i>log pce</i>										
<i>household</i> ( $\beta_1$ )	-3.20 [1.291]**	1.53 [0.645]**	1.44 [0.561]**	5.75 [0.780]***	-5.52 [0.912]***	-2.39 [1.313]*	2.30 [0.554]***	2.24 [0.505]***	4.33 [0.865]***	-6.48 [0.828]***
<i>other family members</i> ( $\beta_2$ )	-1.43 [1.118]	0.41 [0.531]	0.69 [0.538]	0.05 [0.541]	0.28 [0.667]	-0.93 [0.716]	-0.90 [0.419]**	0.27 [0.351]	-0.42 [0.585]	1.97 [0.693]***
<b>Family Resources Matter</b>										
<b>Joint p-value (<math>\beta_2</math>)</b>	<b>0.75</b>					<b>0.02</b>				
<b>Unitary test</b>										
<b><math>\beta_1 - \beta_2</math></b>	-1.77	1.12	0.75	5.70	-5.79	-1.46	3.20	1.97	4.74	-8.45
<b>p-value</b>	<b>0.38</b>	<b>0.19</b>	<b>0.41</b>	<b>0.00</b>	<b>0.00</b>	<b>0.31</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b><math>\beta_1 / \beta_2</math></b>	2.24	3.75	2.09	110.75	-19.91	2.57	-2.56	8.21	-10.40	-3.29
<b>Joint p-value<sup>+</sup></b>	<b>0.59</b>					<b>0.10</b>				
# observations	756	756	756	756	756	938	938	938	938	938

Notes: MxFLS2 & MxFLS3. Additional controls listed in notes Table 5.

<sup>+</sup> Corresponds to last row Appendix Table 8

Appendix Table 7. Estimated effect of family resources on household budget shares, by family-type. Non-linear specification

Family type	All families					Same locality neighbor families				
	food	personal care clothing health education	semi durables other	transport communication	housing	food	personal care clothing health education	semi durables other	transport communication	housing
<i>log pce</i>										
<i>household (β1)</i>										
<i>spline - 0050</i>	-4.86 [0.713]***	2.58 [0.356]***	2.04 [0.238]***	5.97 [0.360]***	-5.72 [0.578]***	-4.53 [0.981]***	3.07 [0.470]***	1.71 [0.322]***	5.31 [0.422]***	-5.56 [0.823]***
<i>spline - 5000</i>	-3.28 [0.919]***	2.54 [0.467]***	2.16 [0.442]***	3.81 [0.594]***	-5.22 [0.619]***	-6.06 [1.082]***	2.76 [0.711]***	2.64 [0.497]***	4.84 [0.742]***	-4.18 [0.877]***
<i>other family members (β2)</i>										
<i>spline - 0050</i>	-1.27 [0.608]**	-0.39 [0.362]	0.07 [0.250]	-0.42 [0.368]	2.00 [0.524]***	-1.24 [0.797]	-0.69 [0.498]	-0.17 [0.317]	0.23 [0.443]	1.87 [0.697]***
<i>spline - 5000</i>	-1.29 [0.633]**	0.34 [0.369]	0.61 [0.324]*	-0.01 [0.410]	0.35 [0.549]	-1.68 [0.985]*	1.10 [0.612]*	0.53 [0.425]	-0.30 [0.568]	0.36 [0.857]
<b>Non-linearity test</b>										
p-value β1	0.20	0.95	0.83	0.00	0.56	0.32	0.74	0.15	0.60	0.26
p-value β2	0.99	0.19	0.24	0.51	0.05	0.75	0.04	0.23	0.51	0.22
<b>Family Resources Matter</b>										
p-value β2	0.03	0.51	0.07	0.38	0.00	0.10	0.24	0.13	0.84	0.00
Joint p-value			<b>0.00</b>					<b>0.03</b>		
<b>Unitary test</b>										
<b>β1 - β2</b>										
<i>spline - 0050</i>	-3.59	2.97	1.97	6.38	-7.72	-3.30	3.76	1.88	5.08	-7.42
<i>spline - 5000</i>	-1.99	2.19	1.55	3.82	-5.57	-4.38	1.67	2.11	5.14	-4.54
<b>p-value</b>										
<i>spline - 0050</i>	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
<i>spline - 5000</i>	0.10	0.00	0.01	0.00	0.00	0.01	0.11	0.00	0.00	0.00
Joint p-value	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b>β1 / β2</b>										
<i>spline - 0050</i>	3.83	-6.59	27.57	-14.38	-2.86	3.67	-4.45	-9.87	22.78	-2.98
<i>spline - 5000</i>	2.55	7.40	3.56	-381.46	-15.13	3.60	2.52	5.00	-16.25	-11.71
Joint p-value <sup>†</sup>			<b>0.02</b>					<b>0.25</b>		
# observations	4,371	4,371	4,371	4,371	4,371	2,677	2,677	2,677	2,677	2,677

Appendix Table 7 Cont. Estimated effect of family resources on household budget shares, by family-type. Non-linear specification

Family type	Spread across Mexico					Spread across Mx & US international families				
	food	personal care clothing health education	semi durables other	transport communication	housing	food	personal care clothing health education	semi durables other	transport communication	housing
<i>log pce</i>										
<i>household (B1)</i>										
<i>spline - 0050</i>	-4.33 [1.562]***	1.94 [0.954]**	2.10 [0.627]***	6.62 [0.961]***	-6.33 [1.240]***	-5.41 [1.497]***	1.83 [0.741]**	2.33 [0.510]***	6.69 [0.958]***	-5.43 [1.058]***
<i>spline - 5000</i>	-1.89 [2.316]	1.10 [1.105]	0.67 [1.147]	4.86 [1.135]***	-4.74 [1.408]***	0.21 [1.963]	2.70 [0.814]***	2.17 [0.867]**	2.34 [1.353]*	-7.42 [1.209]***
<i>other family members (B2)</i>										
<i>spline - 0050</i>	-1.82 [1.656]	0.17 [0.854]	0.97 [0.680]	-0.59 [0.892]	1.28 [1.018]	-0.69 [1.396]	-0.50 [0.788]	0.41 [0.701]	-2.65 [1.203]**	3.43 [1.387]**
<i>spline - 5000</i>	-0.82 [1.788]	0.66 [0.945]	0.28 [1.283]	0.74 [0.954]	-0.85 [1.165]	-0.98 [1.036]	-1.11 [0.618]*	0.20 [0.496]	0.76 [0.783]	1.13 [0.963]
<b>Non-linearity test</b>										
<b>p-value β1</b>	0.41	0.61	0.34	0.22	0.41	0.02	0.43	0.88	0.01	0.21
<b>p-value β2</b>	0.70	0.74	0.69	0.38	0.22	0.88	0.59	0.83	0.03	0.22
<b>Family Resources Matter</b>										
<b>p-value β2</b>	0.74	0.86	0.59	0.23	0.34	0.46	0.15	0.15	0.10	0.01
<b>Joint p-value</b>			<b>0.68</b>					<b>0.01</b>		
<b>Unitary test</b>										
<b>β1 - β2</b>										
<i>spline - 0050</i>	-2.51	1.77	1.13	7.21	-7.61	-4.72	2.33	1.92	9.34	-8.86
<i>spline - 5000</i>	-1.07	0.44	0.39	4.12	-3.89	1.20	3.80	1.97	1.59	-8.55
<b>p-value</b>										
<i>spline - 0050</i>	0.34	0.17	0.26	0.00	0.00	0.02	0.02	0.03	0.00	0.00
<i>spline - 5000</i>	0.76	0.76	0.86	0.01	0.06	0.58	0.00	0.07	0.29	0.00
<b>Joint p-value</b>	<b>0.57</b>	<b>0.32</b>	<b>0.35</b>	<b>0.00</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>
<b>Pareto Efficiency Test</b>										
<b>β1 / β2</b>										
<i>spline - 0050</i>	2.38	11.66	2.17	-11.22	-4.96	7.89	-3.65	5.74	-2.52	-1.58
<i>spline - 5000</i>	2.30	1.67	2.40	6.59	5.58	-0.22	-2.44	10.99	3.09	-6.55
<b>Joint p-value<sup>+</sup></b>			<b>0.79</b>					<b>0.29</b>		
# observations	756	756	756	756	756	938	938	938	938	938

Notes: MxFLS2 &amp; MxFLS3. Additional controls listed in Notes Table 5.

<sup>+</sup> Corresponds to last row Appendix Table 9

**Appendix Table 8. Pareto efficiency test. Household budget shares. Linear specification**

<i>Family type</i>		<b>All families</b>	<b>Same locality</b>	<b>Spread across Mx</b>	<b>Spread across Mx &amp; US</b>
<b>Individual tests of pairwise ratios</b>					
food	personal goods	0.00	0.03	0.62	0.05
	semi-durables	0.17	0.09	0.94	0.37
	transport/communications	0.00	0.02	0.11	0.11
	housing	0.00	0.00	0.22	0.08
personal goods	semi-durables	0.17	0.78	0.69	0.02
	transport/communications	0.83	0.98	0.43	0.22
	housing	0.04	0.04	0.36	0.66
semi-durables	transport/communications	0.05	0.72	0.19	0.28
	housing	0.00	0.03	0.14	0.01
transport/communications	housing	0.01	0.01	0.68	0.16
<b>Simultaneous tests of pairwise ratios</b>					
<b>All ratios</b>		<b>0.00</b>	<b>0.10</b>	<b>0.59</b>	<b>0.10</b>

Notes: p-values associated with PE test based on model in Appendix Table 6

Appendix Table 9. Pareto efficiency test. Household budget shares. Non-linear specification

Family type		All families		Same locality		Spread across Mx		Spread across Mx & US	
<b>Individual tests of pairwise ratios</b>									
<b>household in ...</b>		<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>	<b>spl1</b>
<b>extended family in ...</b>		<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>
food	personal goods	0.01	0.29	0.01	0.48	0.45	0.71	0.33	0.21
	semi-durables	0.14	0.25	0.10	0.68	0.92	0.90	0.88	0.13
	transport/communications	0.01	0.19	0.19	0.06	0.09	0.95	0.05	0.47
	housing	0.00	0.37	0.02	0.15	0.16	0.97	0.08	0.70
personal goods	semi-durables	0.30	0.07	0.59	0.83	0.51	0.78	0.38	0.04
	transport/communications	0.60	0.88	0.16	0.18	0.68	0.62	0.80	0.06
	housing	0.17	0.90	0.50	0.10	0.49	0.71	0.48	0.04
semi-durables	transport/communications	0.45	0.03	0.49	0.17	0.08	0.93	0.10	0.27
	housing	0.01	0.02	0.27	0.13	0.06	0.88	0.03	0.22
transport/communications	housing	0.00	0.95	0.01	0.83	0.55	0.82	0.32	0.89
<b>household in ...</b>		<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>	<b>spl2</b>
<b>extended family in ...</b>		<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>	<b>spl1</b>	<b>spl2</b>
food	personal goods	0.01	0.21	0.04	0.60	0.66	0.90	0.26	0.53
	semi-durables	0.02	0.62	0.01	0.70	0.69	0.99	0.24	0.33
	transport/communications	0.01	0.04	0.43	0.07	0.33	0.75	0.71	0.37
	housing	0.00	0.08	0.01	0.27	0.35	0.82	0.38	0.36
personal goods	semi-durables	0.65	0.51	0.77	0.51	0.67	0.95	0.61	0.13
	transport/communications	0.99	0.46	0.25	0.08	0.72	0.59	0.05	0.14
	housing	0.03	0.20	0.10	0.09	0.78	0.63	0.05	0.28
semi-durables	transport/communications	0.65	0.14	0.13	0.23	0.49	0.89	0.04	0.59
	housing	0.02	0.04	0.16	0.27	0.27	0.90	0.03	0.30
transport/communications	housing	0.01	0.62	0.01	0.91	0.51	0.92	0.24	0.16
<b>Simultaneous tests of pairwise ratios</b>									
<b>household in ...</b>	<b>extended family in ...</b>								
spl1 (0-50)	spl1	<b>0.03</b>		<b>0.16</b>		<b>0.48</b>		<b>0.41</b>	
	spl2	<b>0.38</b>		<b>0.51</b>		<b>1.00</b>		<b>0.25</b>	
spl2 (50-00)	spl1	<b>0.05</b>		<b>0.10</b>		<b>0.91</b>		<b>0.16</b>	
	spl2	<b>0.41</b>		<b>0.55</b>		<b>1.00</b>		<b>0.52</b>	
<b>All ratios</b>		<b>0.02</b>		<b>0.25</b>		<b>0.79</b>		<b>0.29</b>	

Notes: p-values associated with PE test based on model in Appendix Table 7



Appendix Table 10. Child human capital indicators. Additional controls

Family type	All families			Same locality neighbor families			Spread across Mexico			Spread across Mx & US international families		
	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)
<b>PANEL A</b>												
Additional controls: household head's age, sex, years of education and marital status												
<i>log pce</i>												
<i>household</i> (β1)	0.22 [0.0556]***	0.12 [0.0519]**	1.97 [0.725]***	0.14 [0.0646]**	0.06 [0.0646]	2.12 [0.969]**	0.27 [0.154]*	0.33 [0.109]***	1.68 [1.624]	0.36 [0.136]***	0.19 [0.111]*	1.28 [1.303]
<i>other family members</i> (β2)	0.13 [0.0516]**	0.08 [0.0415]*	1.34 [0.621]**	0.17 [0.0650]**	0.11 [0.0529]**	1.39 [0.827]*	0.25 [0.147]*	0.18 [0.0933]*	3.34 [1.432]**	0.02 [0.0981]	0.00 [0.0729]	0.79 [1.451]
Unitary Test												
β1 - β2	0.09	0.04	0.64	-0.02	-0.05	0.73	0.02	0.15	-1.66	0.34	0.19	0.49
p-value	0.27	0.58	0.55	0.81	0.56	0.62	0.92	0.30	0.50	0.07	0.17	0.81
<b>PANEL B</b>												
Additional controls: household head's height, cognitive score and risk preferences												
<i>log pce</i>												
<i>household</i> (β1)	0.24 [0.0534]***	0.17 [0.0476]***	2.67 [0.693]***	0.16 [0.0640]**	0.12 [0.0623]*	2.74 [0.928]***	0.25 [0.140]*	0.36 [0.101]***	1.81 [1.458]	0.37 [0.121]***	0.23 [0.0922]**	1.65 [1.203]
<i>other family members</i> (β2)	0.13 [0.0508]**	0.10 [0.0408]**	1.64 [0.612]***	0.18 [0.0636]***	0.15 [0.0528]***	2.10 [0.815]***	0.20 [0.152]	0.17 [0.0876]*	3.32 [1.456]**	0.02 [0.102]	-0.03 [0.0735]	0.09 [1.384]
Unitary Test												
β1 - β2	0.11	0.07	1.03	-0.02	-0.04	0.63	0.05	0.19	-1.51	0.36	0.25	1.55
p-value	0.18	0.33	0.32	0.86	0.68	0.65	0.83	0.19	0.53	0.05	0.05	0.42
<b>PANEL C</b>												
Additional controls: log per-capita expenditures in 2002, age and education of household head in 2002												
<i>log pce</i>												
<i>household</i> (β1)	0.23 [0.0554]***	0.11 [0.0497]**	2.04 [0.755]***	0.14 [0.0674]**	0.06 [0.0643]	2.27 [1.011]**	0.26 [0.150]*	0.38 [0.106]***	2.06 [1.686]	0.36 [0.129]***	0.17 [0.101]	1.22 [1.334]
<i>other family members</i> (β2)	0.14 [0.0545]**	0.07 [0.0420]	1.18 [0.617]*	0.16 [0.0688]**	0.10 [0.0548]*	1.22 [0.829]	0.26 [0.152]*	0.19 [0.0954]**	3.35 [1.431]**	0.00 [0.106]	0.01 [0.0712]	1.11 [1.385]
Unitary Test												
β1 - β2	0.10	0.04	0.86	-0.03	-0.05	1.05	0.00	0.19	-1.29	0.35	0.16	0.11
p-value	0.24	0.52	0.41	0.79	0.58	0.46	0.98	0.19	0.59	0.06	0.24	0.96
<b>PANEL D</b>												
Additional controls: mother's height												
<i>log pce</i>												
<i>household</i> (β1)	0.17 [0.0498]***	0.17 [0.0464]***	2.86 [0.689]***	0.13 [0.0617]**	0.13 [0.0613]**	3.31 [0.950]***	0.13 [0.134]	0.35 [0.107]***	1.14 [1.409]	0.29 [0.114]**	0.21 [0.0926]**	1.33 [1.223]
<i>other family members</i> (β2)	0.12 [0.0493]**	0.09 [0.0412]**	1.63 [0.621]***	0.17 [0.0619]***	0.14 [0.0530]**	1.88 [0.836]**	0.20 [0.138]	0.18 [0.0932]**	3.07 [1.405]**	0.02 [0.0961]	-0.01 [0.0738]	0.93 [1.383]
Unitary Test												
β1 - β2	0.05	0.08	1.23	-0.04	-0.01	1.43	-0.07	0.16	-1.93	0.27	0.22	0.40
p-value	0.52	0.24	0.23	0.71	0.95	0.32	0.75	0.29	0.40	0.10	0.08	0.84
# observations	2,071	3,699	3,504	1,289	2,176	2,176	366	614	553	416	909	775

Notes: MxFLS2 & MxFLS3. Controls in all specifications: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adult in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.

Appendix Table 11. Child human capital indicators. Alternative samples

Family type <i>Child outcomes</i>	All families			Same locality <i>neighbor families</i>			Spread across Mexico			Spread across Mx & US <i>international families</i>		
	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)
<b>PANEL A: only children in MxFLS3</b>												
<i>log pce</i>												
<i>household (β1)</i>	0.25 [0.0602]***	0.24 [0.0560]***	3.77 [0.860]***	0.15 [0.0718]**	0.16 [0.0777]**	3.94 [1.157]***	0.26 [0.156]*	0.41 [0.103]***	1.85 [1.670]	0.32 [0.146]**	0.27 [0.110]**	4.71 [1.848]**
<i>other family members (β2)</i>	0.14 [0.0567]**	0.06 [0.0518]	1.75 [0.779]**	0.18 [0.0729]**	0.11 [0.0670]*	2.10 [0.994]**	0.21 [0.154]	0.18 [0.110]*	2.67 [1.654]	0.08 [0.0963]	0.00 [0.113]	1.66 [2.126]
<b>Unitary Test</b>												
<b>β1 - β2</b>	0.11	0.17	2.02	-0.03	0.05	1.84	0.05	0.22	-0.82	0.24	0.28	3.05
<b>p-value</b>	0.21	0.03	0.12	0.80	0.66	0.28	0.82	0.18	0.77	0.21	0.11	0.28
# observations	1,637	2,591	2,397	964	1,451	1,452	321	505	452	352	635	493
<b>PANEL B: only children interviewed in Mexico</b>												
<i>log pce</i>												
<i>household (β1)</i>	0.24 [0.0543]***	0.19 [0.0490]***	3.12 [0.702]***				0.27 [0.141]*	0.38 [0.100]***	1.91 [1.429]	0.40 [0.148]***	0.24 [0.105]**	2.31 [1.263]**
<i>other family members (β2)</i>	0.15 [0.0558]***	0.10 [0.0440]**	1.71 [0.628]***				0.25 [0.147]*	0.19 [0.0947]*	3.21 [1.416]**	-0.11 [0.186]	-0.03 [0.0909]	0.99 [1.451]
<b>Unitary Test</b>												
<b>β1 - β2</b>	0.09	0.09	1.41				0.02	0.20	-1.30	0.50	0.27	1.32
<b>p-value</b>	0.32	0.21	0.18				0.91	0.19	0.58	0.06	0.08	0.51
# observations	1,900	3,544	3,504				359	602	553	252	766	775

Notes: MxFLS2 & MxFLS3. Controls in all specifications: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adult in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.

Appendix Table 12. Child human capital indicators. Non-linear specifications

Family type	All families			Same locality neighbor families			Spread across Mexico			Spread across Mx & US international families		
	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)	height-for-age	years of education	cognitive score (%)
<b>PANEL A: non-linear effects</b>												
<i>log pce</i>												
<i>household (β1)</i>	0.24 [0.0528]***	0.18 [0.0475]***	3.11 [0.700]***	0.16 [0.0633]**	0.13 [0.0617]**	3.36 [0.943]***	0.27 [0.139]**	0.38 [0.0989]***	1.90 [1.420]	0.39 [0.127]***	0.24 [0.0997]**	2.32 [1.284]*
<i>other family members (β2)</i>												
<i>spline - 0075</i>	0.18 [0.0682]***	0.19 [0.0607]***	1.91 [0.940]**	0.18 [0.0853]**	0.17 [0.0758]**	1.89 [1.156]	0.31 [0.182]*	0.18 [0.141]	2.09 [1.926]	0.15 [0.183]	0.00 [0.178]	2.77 [4.945]
<i>spline - 7500</i>	0.08 [0.103]	-0.04 [0.0686]	1.38 [1.007]	0.23 [0.147]	0.09 [0.111]	1.99 [1.796]	0.15 [0.396]	0.20 [0.187]	5.90 [2.962]**	-0.08 [0.156]	-0.03 [0.0936]	0.55 [1.676]
<b>Test linear effect (constant β2)</b>												
<b>p-value</b>	<b>0.46</b>	<b>0.02</b>	<b>0.72</b>	<b>0.76</b>	<b>0.57</b>	<b>0.97</b>	<b>0.74</b>	<b>0.92</b>	<b>0.34</b>	<b>0.40</b>	<b>0.89</b>	<b>0.69</b>
<b>PANEL B: interaction with household position in the pce distribution</b>												
<i>log pce</i>												
<i>household (β1)</i>	0.22 [0.0674]***	0.18 [0.0665]***	2.94 [0.911]***	0.11 [0.0834]	0.10 [0.0844]	3.62 [1.262]***	0.28 [0.169]*	0.40 [0.128]***	3.60 [1.860]*	0.41 [0.153]***	0.25 [0.134]*	0.13 [1.634]
<i>other family members (β2)</i>												
<i>if household log pce &lt; p50</i>	0.147 [0.0512]***	0.096 [0.0418]**	1.678 [0.628]***	0.18 [0.0638]***	0.14 [0.0542]***	1.95 [0.839]**	0.269 [0.149]*	0.189 [0.0938]**	3.374 [1.389]**	0.027 [0.104]	-0.021 [0.0746]	0.848 [1.451]
<i>if household log pce &gt; p50</i>	0.154 [0.0521]***	0.100 [0.0428]**	1.747 [0.640]***	0.20 [0.0647]***	0.16 [0.0540]***	1.86 [0.843]**	0.266 [0.146]*	0.180 [0.0932]*	2.726 [1.446]*	0.019 [0.102]	-0.026 [0.0802]	1.827 [1.525]
<b>Test equal marginal effects (below and above p50)</b>												
<b>p-value</b>												
# observations	2,071	3,699	3,504	1,289	2,176	2,176	366	614	553	416	909	775

Notes: MxFLS2 & MxFLS3. Additional controls: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adult in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.

Panel A: Results are similar if we estimate splines for the bottom 50th and top 50th percentile. There is no evidence for non-linearities in β1 (we only reject the test for cognitive scores on the sample of migrant families).

Appendix Table 13. Child human capital indicators. Alternative outcomes

Family type	Spread across Mx & US international families						
	height for age	=1 if stunted (hfa<-2)	bmi for age	=1 if bmi<18.5	weight for age	hemoglobin level	=1 if hb<12
<b>PANEL A: linear specification</b>							
<i>log pce</i>							
<i>household</i> (β1)	0.39 [0.128]***	-0.05 [0.0370]	-0.11 [0.0760]	0.03 [0.0223]	0.06 [0.0666]	0.11 [0.108]	-0.01 [0.0144]
<i>other family members</i> (β2)	0.02 [0.100]	-0.02 [0.0266]	0.00 [0.0635]	0.00 [0.0207]	-0.05 [0.0670]	-0.17 [0.104]*	0.03 [0.0152]*
<b>Unitary Test</b>							
β1 - β2	0.36	-0.03	-0.11	0.03	0.11	0.29	-0.04
p-value	0.05	0.52	0.31	0.39	0.25	0.06	0.06
<b>PANEL B: non-linear specification</b>							
<i>log pce</i>							
<i>household</i> (β1)							
<i>spline - 0050</i>	0.41 [0.165]**	-0.07 [0.0551]	-0.21 [0.0946]**	0.05 [0.0278]*	0.00 [0.0823]	-0.04 [0.121]	0.02 [0.0158]
<i>spline - 5000</i>	0.35 [0.193]*	-0.02 [0.0372]	0.17 [0.154]	-0.04 [0.0450]	0.21 [0.145]	0.63 [0.282]**	-0.10 [0.0405]**
<i>other family members</i> (β2)							
<i>spline - 0050</i>	0.32 [0.289]	-0.13 [0.0824]	-0.12 [0.197]	-0.02 [0.0726]	-0.01 [0.198]	-0.41 [0.412]	0.04 [0.0557]
<i>spline - 5000</i>	-0.07 [0.136]	0.01 [0.0260]	0.02 [0.0790]	0.01 [0.0238]	-0.06 [0.0841]	-0.14 [0.122]	0.03 [0.0195]
<b>Test linear effect</b>							
p-value (β1)	0.80	0.51	0.06	0.11	0.24	0.04	0.02
p-value (β2)	0.29	0.13	0.55	0.75	0.84	0.55	0.87
# observations	416	420	1,331	1,331	1,338	811	811

Notes: MxFLS2 & MxFLS3. Additional controls in all specifications are: age, sex, household size and number of children under 15, family size, number of children under 15 and number of female adultst in family, location (U.S. and Mexican state dummies), MxFLS2 dummy, MxFLS2 interacted with U.S. dummy, interview date.