Stable marriage in the eyes of the law∗

Mikhail Freer† Khushboo Surana‡

October 22, 2021

Abstract

We present a framework to study household consumption under the assumption of marital stability in the presence of divorce legislation. Using this model, we derive nonparametric conditions that allow us to identify the intrahousehold consumption allocation. We study two integral dimensions of divorce legislation. First, we consider a regime governing divorce itself. The legislation either allows partners to divorce unilaterally at will or requires the mutual consent of both partners to dissolve the marriage. Second, for couples with children, we consider the implications of sole and joint custody arrangements for marital stability. Under sole custody, children reside with the custodian parent, whereas under joint custody, both parents equally share the responsibilities of children after the divorce. We illustrate the importance of these legislative aspects of divorce and marriage in the empirical identification of intrahousehold allocations through an application to household data from Russia. Our results suggest that a model incorporating divorce legislation better fits the data than a benchmark model without divorce legislation, especially for couples with children. Next, we show that ignoring the law-based implications results in notably different estimates of intrahousehold resource shares. For example, we find that a model without divorce legislation significantly underestimates the mother’s share of private consumption. Bias in the estimates of intrahousehold allocations can lead to misleading policy implications. We illustrate this by conducting a poverty analysis at the level of individual household members.

1 Introduction

Laws governing divorce can substantially affect individuals’ marital decisions. For instance, the institutional setting for granting a divorce (unilateral or mutual consent) is

∗We thank Arpad Abraham, Laurens Cherchye, Thomas Demuynck, David de la Croix, Bram De Rock, Paula Gobbi, Stefan Hubner, Paola Manzini, Senay Solulu, Christine Valente, Frederic Vermeulen, Yanos Zylberberg, and seminar participants in the RES Annual Conference (Warwick), the Spring Meeting of Young Economists (Brussels), Bristol, Essex, Leuven, and Louvain-la-Neuve for many valuable suggestions.
†Department of Economics, University of Essex, m.freer@essex.ac.uk
‡Department of Economics and Related Studies, University of York, khushboo.surana@york.ac.uk
likely to affect individuals’ divorce decisions and, therefore, their intrahousehold bargaining power. Similarly, child custody laws influence parents’ postdivorce living arrangements. As a consequence, these laws may affect their relative bargaining power and redistribute power in a marriage. This paper proposes a framework for studying household consumption under the assumption of marital stability and different legal regimes. In particular, we consider unilateral versus mutual consent laws and sole versus joint child custody arrangements. We provide a comprehensive framework considering these two dimensions of divorce legislation. An essential aspect of our methodology is that it is nonparametric: as such, it does not impose any functional form assumption on individual utilities or the decision-making process. Through an empirical application to household data taken from the Russian Longitudinal Monitoring Survey (RLMS), we show that divorce laws substantially change the implications of marital stability. First, we show that our model with divorce legislation provides a better empirical fit to the observed behavior than does the model that does not account for the legislation. This difference is more prominent for couples with children. Next, we show that divorce legislation matters for intrahousehold resource identification. The shares of individual resources identified through the models with and without divorce legislation are substantially different. Finally, a poverty analysis at the level of individual household members shows that differences in identified resource shares affect the conclusions inferred from the welfare analysis.

Households consist of multiple decision-makers with potentially different preferences. The past few decades have seen a rise in the use of structural frameworks, like the cooperative bargaining model (or so-called “collective model”; [Chiappori](1988, 1992)), in analyzing intrahousehold allocations of time and resources. In the absence of direct information on “who gets what” in the household, such models help to understand intrahousehold dynamics. Following [Becker](1973), researchers have often combined such analysis with a marital matching framework to exploit individuals’ outside options as threat points in intrahousehold bargaining. A series of recent studies have used a combination of the two theories of “who marries whom” and “who gets what” as a framework for empirical work (see, e.g., [Cherchye et al.](2017); [Goussé et al.](2017); [Weber](2017)). However, a drawback of such work has been that divorce legislation, a critical factor driving individual marital (and divorce) decisions, has received limited attention. We aim to contribute to this strand of the literature by presenting a structural framework to study household consumption under the assumption of marital stability in the presence of divorce legislation.

We consider two main dimensions of divorce legislation that directly affect individuals’ postdivorce options. The first dimension governs the dissolution of the marriage. In

---

1Empirical analyses of intrahousehold allocations show that family laws significantly affect married and divorced individuals’ decisions. Some examples include unilateral versus mutual consent divorce ([Rasul](2006); [Stevenson](2007); [Fernández and Wong](2017)), property-division laws ([Chiappori et al.](2002); [Voena](2015)), spousal alimony ([Rangel](2006); [Chiappori et al.](2017)), child custody ([Foerster](2020)), prenuptial contracts ([Bayot and Voena](2013)), abortion legalization ([Oreffice](2007)), and inheritance rights ([Calvi](2020)).
particular, we focus on unilateral and mutual consent divorce. Under unilateral divorce, individuals can obtain a divorce without specifying any reason and without obtaining their partner’s consent. Under mutual consent, a partner has to consent to dissolve the marriage. Whether the law specifies unilateral or mutual consent divorce is of primary interest in a marital matching framework because it directly affects individuals’ outside options and thus their relative bargaining power. We develop a generalized framework for the characterization of marital stability when a (given) set of couples are governed by mutual consent divorce, while the remaining couples are under the norm of unilateral divorce. If either all or none of the couples are governed by mutual consent divorce, we correspondingly obtain the corner cases representing mutual consent and unilateral divorces. Thus, our framework encompasses these two divorce regimes as extreme cases.

The second dimension of divorce legislation that we consider concerns couples with children. In particular, we study how child custody laws affect parents’ postdivorce options. We consider two child custody regimes implying different living arrangements for children and different mechanisms of providing children’s expenditure upon divorce: sole versus joint custody. Under sole custody, one of the parents (custodian) is awarded legal and physical custody of the children. In contrast, the noncustodial parent monetarily supports the children via transferring money to the custodian. Under joint custody, both parents have (equal) legal and physical custody of children. In this setting, children spend time with both parents, and both parents make major decisions related to their children. We outline the conditions for the stability of marriage markets under both types of child custody arrangements. To model these custody regimes, we follow Becker (1991) in assuming that children are “marital-specific” public goods. Consistent with the collective approach to household behavior, this assumption implies that expenditures on children bring utility to both (biological) parents who care about their children’s welfare (see, e.g., Blundell et al. (2005); Cherchye et al. (2012)). In the matching framework, an important implication of this assumption is that children are crucially different from other public goods, such as housing or transportation. While other public goods remain public no matter whom the individual is married to, expenses on children deliver utility only to the parents of the children. Therefore, they are not public goods in potential remarriages.

We build on the model of Cherchye et al. (2017) by also accounting for divorce legislation when characterizing marital stability in terms of intrahousehold consumption behavior. This modification is particularly relevant as ample empirical evidence highlights the effects of divorce laws on individuals’ decisions (see, e.g., Lundberg and Pollak (1993); Gray (1998); Chiappori et al. (2002); Stevenson and Wolfers (2006), and Voena (2015)). The fundamental aspect of our method is the use of a revealed preference framework in the spirit of Samuelson (1938), Afriat (1967), and Varian (1982). The framework avoids erroneous conclusions due to parametric misspecification of utility functions and

---

2. In what follows, by unilateral divorce, we mean both unilateral and no-fault divorce.
3. Reduced-form results empirically show that the immediate impact of moving from mutual consent to a unilateral regime has resulted in a sharp increase in divorce rates in the United States (Wolfers (2006)), Western Europe (Kneip and Bauer (2009)), and Mexico (Hoehn-Velasco and Penglase (2021)). However, the long-run effect of having a more liberal unilateral divorce regime is not conclusive.
allows for fully heterogeneous individual preferences. Our conditions define testable implications that should hold for every “stable” matching. Notably, the notion of stability will depend on the legislation in place, and, therefore, incorporating divorce laws does change the decision-theoretic and the strategic environment. Interestingly, that the testable conditions are linear in unknowns makes them easy to check in practical applications. As we will explain, these conditions can be used for the nonparametric (set) identification of intrahousehold resource shares.

We emphasize two specific features of our framework. First, our model adopts an imperfectly transferable utility (ITU) framework. We account for intrahousehold consumption transfers but do not assume perfectly transferable utility (TU), which allows exchanging utility between partners at a constant rate. While appealing from a theoretical perspective, the perfectly transferable utility framework imposes substantial restrictions on individuals’ preferences, as is well-documented, and these restrictions may not hold in general (see Chiappori and Gugl (2020)). Our framework contributes to the growing strand of literature that uses an imperfectly transferable utility case to model marriage markets (see Legros and Newman (2007); Choo and Seitz (2013); Chiappori and Reny (2016); Chiappori (2017), and Galichon et al. (2019)).

Second, we focus on static equilibrium conditions for marital stability in a frictionless marriage market (see Shapley and Shubik (1971) and Becker (1973)). This setting allows us to identify intrahousehold allocations even in the limiting case with a single observation per household (cross-sectional data) while accounting for complete heterogeneity in individual preferences and households’ bargaining process. The static nature of our model is a substantial simplification of real-world marital behavior. Intertemporal considerations and ease with which one can meet potential partners are both particularly relevant when analyzing household decisions with long-term consequences (such as fertility). Nonetheless, the equilibrium concept of marital stability that we consider provides a natural starting point from which to analyze individuals’ marital and consumption behavior. It can be used as a building block for more advanced dynamic models (for a review, see Chiappori and Mazzocco (2017)). We use so-called “stability indices” to account for deviations from such implicit assumptions of our model. We interpret these indices as the empirical goodness-of-fit of how far the observed behavior is to the model’s underlying assumptions.

More recently, a series of structural studies have used collective life cycle models to analyze the impact of divorce laws on households’ consumption and labor supply decisions, individuals’ mating decisions, and welfare. For instance, Voena (2015) used a dynamic household model to show that divorce regimes (mutual consent vs. unilateral

Interestingly, the two frameworks (TU and ITU) may lead to quite different conclusions about the stability of marriage under different divorce rules. According to the Becker-Coase theorem, when utilities are perfectly transferable, both during marriage and after divorce, under some additional restrictions, the divorce decision (or the stability of marriage) does not depend on the divorce law (unilateral or mutual consent). However, under imperfectly transferable utility, divorce decisions will crucial depend on whether divorce is unilateral or requires mutual consent. Nevertheless, in both cases, the laws governing divorce will undoubtedly influence the division of household resources (see Browning et al. (2014); Chiappori et al. (2015) for a more detailed discussion).
divorce regimes) and spouses’ property rights significantly affect couples’ intertemporal decisions. Reynoso (2018) used a collective life cycle household model with a matching market to show that reducing the barriers to divorce by replacing mutual consent with a unilateral regime affects marriage market equilibrium patterns in the long run. Foerster (2020) estimated a dynamic model of couples’ decision-making process to study the impact of child support and alimony payments on married and divorced individuals’ decisions. The main difference from the studies above is that we use the nonparametric approach. Hence, there is no risk of functional misspecification. In this light, our contribution complements the parametric methods adopted by these studies.

We illustrate the practical importance of our methodology through an empirical application to the RLMS household data. We consider a labor supply setting in which households spend their total potential income on both spouses’ leisure, the consumption of a Hicksian aggregate private and public good, and a Hicksian aggregate children’s consumption. Russian family law allows unilateral divorce with sole custody for couples with children. Our application focuses on the constraints imposed by these divorce laws by comparing the degree to which observed household behavior satisfies the testable implications for alternative model specifications. First, we show that the model accounting for divorce legislation fits the data better than the model not accounting for it. Then we consider the set identification of intrahousehold allocations using alternative model specifications. Our application shows that divorce legislation is an essential factor affecting intrahousehold sharing. Ignoring the divorce legislation leads to biased intrahousehold allocations. We find that the recovered share of resources for mothers is significantly higher in the model that incorporates divorce laws. Finally, we conduct a poverty analysis at the level of individual household members to show that misidentified resource shares can lead to misleading welfare conclusions.

The remainder of this paper is organized as follows. Section 2 sets the stage by introducing the data and model setup along with the revealed preference condition, which forms a basis of our results. Section 3 presents the general results and shows how to use the general result to model existing legal regimes. Section 4 presents the empirical applications using Russian household data. Section 5 concludes. All proofs are collected in the appendix.

2 Model Setup

We begin by introducing the matching and household consumption setting that we consider for a given marriage market. Next, we discuss the solution concept that defines the stability of marriages. Finally, we present the revealed preference condition that forms the basis of our results in the next section.

Matching. Let $M$ be a set of men and $W$ be a set of women. To ease the use of further notations, we refer to a man as $i \in M$ and to a woman as $j \in W$. Let $\sigma : M \cup W \to M \cup W \cup \{\emptyset\}$ be a matching function describing who is married to whom and satisfying the following properties:
• $\sigma(i) \in W \cup \{\emptyset\}$ for every $i \in M$,
• $\sigma(j) \in M \cup \{\emptyset\}$ for every $j \in W$,
• $j = \sigma(i)$ if and only if $i = \sigma(j)$.

In what follows, we focus our attention on (heterosexual) married couples ($|M| = |W|$).\footnote{Including singles in the theoretical analysis can be achieved in a similar way. Moreover, we will also include singles in our empirical application to allow for the possibility that a married individual may consider an unmarried individual of the opposite gender as a potential outside option.}

**Data.** Following the structure of typical data sets, we assume that aggregate parameters in the observed households are observed, while individual parameters are not. Admittedly, some data sets like the Danish and Japanese data used by Bonke and Browning (2009) and Lise and Yamada (2019), respectively, contain detailed information at the individual level (e.g., assignable private consumption). Such information can be easily included in our framework through appropriately defined constraints.

**Consumption.** We consider three types of consumption goods. The first type consists of goods privately consumed by individual members. Given couple $(i, j)$, let $q_{i,j} \in \mathbb{R}^n_+$ be the vector of total private consumption and $q_{i,j}^i \in \mathbb{R}^n_+$ be the vector of private consumption of $i \in M$ and $j \in W$. We assume that the vectors $q_{i,j}$ are known for the observed couples (i.e., when $j = \sigma(i)$), but not for the potential couples. Moreover, we treat the individual shares of private consumption, $q_{i,j}^i$ and $q_{i,j}^j$, as unknown. The variables $q_{i,j}^i$ and $q_{i,j}^j$ must add up to $q_{i,j}$. The second type of consumption consists of goods publicly consumed by household members. For a given couple $(i, j)$, $Q_{i,j} \in \mathbb{R}^N_+$ denotes the vector of public consumption. Similar to private consumption, we assume that the vectors $Q_{i,j}$ are observed for matched couples only. Finally, the third type of consumption consists of goods consumed by the children in the household. While we do not model children as decision-makers in the household, their well-being (as measured by their consumption) matters for the household’s allocation problem as parents care about their children’s welfare. This remains true whether the parents are married or divorced. This is in line with the Becker (1991) idea of viewing children as a “martial-specific” public good. This means that children’s consumption is a public good for their biological parents, regardless of the parent’s marital status, and stepparents would not internalize their stepchildren’s consumption. A similar assumption has been made by Chiappori and Weiss (2007) and Chiappori et al. (2015). For a given couple $(i, j)$, $C_{i,j}^i \in \mathbb{R}_+$ denotes the consumption of the biological children of $i \in M$, and $C_{i,j}^j \in \mathbb{R}_+$ denotes the consumption of the biological children of $j \in W$.\footnote{We assume that children’s consumption is measured through a one-dimensional Hicksian aggregate rather than a multidimensional vector of goods. This assumption simplifies the derivations; however, we note that it is not very restrictive in that the same results can be obtained without making this assumption.} For simplicity, we assume that all children in the observed matches are biological to both spouses. This implies that
\[ C_{i,\sigma(i)} = C_{i,\sigma(i)} = C_{i,\sigma(i)}. \] Once again, we assume that the vectors \( C_{i,\sigma(i)} \) are observed for matched couples, while \( C_{i,j} \) and \( C_{i,j} \) are treated as unknowns for the potential matches (\( j \neq \sigma(i) \)).

At this point, it is interesting to remark that, although the second and third consumption categories are both public goods that increase the economies of scale in household consumption, a crucial difference emerges between the “publicness” of these two consumption types. While a public good of the second type can be shared with a potential partner, a (marital-specific) public good of the third type can be shared with the current partner only. For instance, someone could transfer a car to a new marriage so that it brings utility to a new partner, but the same is not possible for children whose well-being may not necessarily be internalized by a stepparent. Moreover, even if the biological parents are divorced, the well-being of their children will remain a public good for the parents. This last attribute is crucial in our setup as it implies that even after divorce, decisions related to children’s consumption will be made jointly by the parents. As we will be explain, the specific way in which parents will interact after divorce to decide on their children’s consumption will be determined by the custody law in place.

**Incomes and Prices.** Consumption decisions are made under budget constraints that are defined by prices and income. We assume that the prices and income for every potential match are observed. This allows the researcher to reconstruct budget conditions for any \( (i,j) \in \{ M \cup \emptyset \} \times \{ W \cup \emptyset \} \). Let \( y_{i,j} \in \mathbb{R}_{++} \) denote the income of couple \( (i,j) \), and \( y_{i,\emptyset} \in \mathbb{R}_{++} \) and \( y_{\emptyset,j} \in \mathbb{R}_{++} \) denote the incomes of \( i \in M \) and \( j \in W \) when single. Next, let \( p_{i,j} \in \mathbb{R}^n_{++} \) be the price vector of private goods and \( P_{i,j} \in \mathbb{R}_{++} \) be the price vector of the public goods faced by couple \( (i,j) \). Lastly, for any observed couple \( (i,\sigma(i)) \), let \( P_{i,\sigma(i)} \in \mathbb{R}_+ \) be the cost of their children’s consumption. As this consumption is a marital-specific public good, it is always bought jointly by the parents regardless of their marital status. As such we only need the prices faced by the parents (i.e., the observed couples).

Next, we introduce some further notations related to the public goods in the household. For the (second type of) public goods, \( Q_{i,j} \), let \( P_{i,j} \in \mathbb{R}^N_{++} \) and \( P_{i,j} \in \mathbb{R}^N_{++} \) be the personalized prices representing the willingness-to-pay of \( i \) and \( j \) for the public consumption. These prices are unknown but since we follow [Chiappori (1992)] in assuming that the intrahousehold allocations are Pareto efficient, we can interpret them as Lindahl prices supporting a given Pareto efficient resource allocation such that \( P_{i,j} + P_{i,j} = P_{i,j} \).

Finally, for the (third type of) public good \( C_{i,j} \), we need to consider how the parents will coordinate their decisions upon divorce. Note that even though children’s consumption will be purchased privately at the market, the issue here is essentially about how the costs will be shared between the parents. This complication arises because, in the case of divorce, the parents no longer share a household. Therefore, we need to model the protocol by which the parents contribute to their children’s consumption. Let the cost function of the children’s consumption upon their parents’ divorce be \( F_{i,j}(C) \) and \( F_{i,j}(C) \) for \( i \in M \) and \( \sigma(i) \in W \) if they form a match with \( j \in W \) and \( k \in M \),
respectively. These costs should add to the total expenditure on children’s consumption
\[ F_{i,j}^{C}(C) + F_{k,\sigma(i)}^{(i)}(C) = P_{i,\sigma(i)}^{c}C, \]
for every \( j \in W \) and \( k \in M \). Note that we have allowed for general (nonlinear) individual cost functions that may depend on the amount of \( C \) bought by the parents. However, one of the legislations we consider in this paper, the child custody rule, places specific restrictions on these costs. We will discuss these restrictions in further detail in Section 3.2.

Table 1 provides an overview of the notations introduced so far. The columns represent the observables, unobservables, and balancing constraints as they correspond to consumption, prices, and income. In sum, for a given marriage market, we assume that the data set
\[ D = \{ \sigma, (Q_{i,\sigma(i)}, C_{i,\sigma(i)}, q_{i,\sigma(i)}), (P_{i,j}, P_{i,\sigma(i)}^{c}, P_{\sigma(j),j}, P_{i,j}, y_{i,j}) \}_{i \in M \cup \emptyset, j \in W \cup \emptyset} \]
contains the matching function \( \sigma \), the collection of aggregate quantities of private and public goods for each couple, their children’s consumption \( (Q_{i,\sigma(i)}, C_{i,\sigma(i)}, q_{i,\sigma(i)}) \), the prices for public and private goods and children’s consumption, and incomes for every outside option \( (P_{i,j}, P_{i,\sigma(i)}^{c}, P_{\sigma(j),j}, P_{i,j}, y_{i,j}) \).

Table 1: Summary of notations

| Observables | Unobservables | Balancing constraints |
|-------------|---------------|-----------------------|
| Consumption | Private goods | \( q_{i,\sigma(i)} \) | \( q_{i,j}^{i} + q_{i,j} = q_{i,j} \) |
|             | Public goods  | \( Q_{i,\sigma(i)} \) |                               |
|             | Children      | \( C_{i,\sigma(i)} \) |                               |
| Prices      | Private goods | \( P_{i,j} \) | \( P_{i,j}^{i} + P_{i,j} = P_{i,j} \) |
|             | Public goods  | \( P_{i,j}^{i} \) |                               |
|             | Children      | \( P_{i,\sigma(i)}^{c} \) | \( F_{i,j}^{c}(C); F_{i,j}^{l}(C) \) |
| Income      |               | \( y_{i,j} \) | \( F_{i,j}^{c}(C) + F_{k,\sigma(i)}^{(i)}(C) = P_{i,\sigma(i)}^{c}C \) |

**Core.** Next, we turn to the solution concept which governs both who matches with whom and who gets what within the matches. The standard solution concept for the stability of marriages is the core. We say that a matching is in the core if the intrahousehold allocations are Pareto efficient and there is no blocking coalition that is permissible. Essentially, this requires that households’ behaviors are in line with the collective model (Chiappori (1988, 1992)) and that no group of individuals can (legally) form a union and improve on the matching allocation.

To formally define the core, we need to introduce three main components: (1) the preferences of the individuals; (2) the protocol governing the intrahousehold allocations; and (3) the notion of a permissible coalition. We start by describing the preferences of individuals. Individuals enjoy their private consumption, public consumption, and
the well-being of their children as measured through their children’s consumption. We assume that every individual, \( k \in M \cup W \), is endowed with a continuous, monotone, and concave utility function \( u_k : \mathbb{R}_+^n \times \mathbb{R}_+^N \times \mathbb{R}_+^+ \rightarrow \mathbb{R} \). Next, regarding the allocation of household resources, we follow a collective framework, which assumes that the intrahousehold allocations are Pareto efficient. Pareto efficiency requires that household resources be allocated such that no Pareto improvement is possible. That is, given prices \( p_{i,\sigma(i)}, P_{i,\sigma(i)}, \) and \( P_{i,\sigma(i)}^c \) and income \( y_{i,\sigma(i)} \), no other household allocation exists such that at least one household member is strictly better-off and the other member is no worse-off.

Finally, we turn to the notion of a permissible coalition. In general, a coalition can be formed by an arbitrary subset of individuals in the marriage market. However, when considering the legal setting under which couples seek a divorce, some of the coalitions may no longer be permissible. For instance, when partners can dissolve the marriage at will (unilateral divorce), an individual who is better off as single rather than staying with his or her current partner can form a blocking coalition of size one. However, when a marriage can be dissolved only on agreement of both partners (mutual consent divorce), the same coalition is no longer permitted as the partner can oppose if he or she is worse off after the divorce. To formally define the concept of a permissible coalition, we write \( V \subseteq M \cup W \) as the set of veto couples (i.e., the set of couples in which either partner can block the divorce initiated by the other partner). Let \( S \subseteq M \cup W \) be a coalition. Given the set of veto couples \( V \) and matching \( \sigma \), a coalition \( S \) is permissible if and only if \( k \in S \) and \( (k, \sigma(k)) \in V \) implies \( \sigma(k) \in S \) for every \( k \in M \cup W \). This notion of a permissible coalition is in close spirit to the cooperative games on graphs (see Myerson (1977)). Example 1 illustrates this notion for a simple marriage market.

**Example:** Consider a marriage market consisting of three men and women \( \{m_i, w_i \mid i \in \{1, 2, 3\}\} \). Assume that \( m_1 \) is matched to \( w_1 \) for \( i \in \{1, 2, 3\} \) and that \( V = \{(m_2, w_2)\}. \)

(i) Coalition \( S = \{m_1, w_3\} \) is permissible, because \( \sigma(m_1) \notin V \) and \( \sigma(w_3) \notin V \).

(ii) Coalition \( S = \{m_1, w_2\} \) is not permissible since \( \sigma(w_2) = m_2 \in V \), while \( m_2 \notin S \).

(iii) Coalition \( S = \{m_1, w_1, m_2, w_2\} \) is permissible, since for every \( i \) it includes \( \sigma(i) \).

Before we proceed, let us briefly discuss the practical relevance of defining the set of veto couples, \( V \). At the first glance, one would think that most countries belong to extreme cases in that couples are governed either by unilateral divorce or by mutual consent divorce. These cases correspond to \( V = \emptyset \) and \( V = M \cup W \), respectively. However, looking deeper at the legislation, one can find several exceptions. As a first example, consider a country with unilateral divorce where the rule shifts to mutual consent under special circumstances (e.g., mutual consent divorce if a couple has young children). As another example, consider a country with mutual consent divorce for

---

\(^7\)For the sake of notational simplicity, we ignore the possibility of staying single as an outside option. However, it is straightforward to include these options by considering \( \{\emptyset, i\} \) as a “partner” for \( i \) under singlehood.
married couples but no legal framework for cohabitating couples. Since cohabitation can be dissolved at will, no veto power is attributed to such couples. Hence, more precise modeling of the divorce law would inevitably lead to intermediate cases with $\emptyset \subset \mathcal{V} \subset M \cup W$.8

Having defined the notion of a permissible coalition, we now turn to the concept of blocking coalition. We say that a coalition is blocking if the members of the coalition can improve on the current matching allocation. To define this concept more formally, let us introduce two extra notations. First, let $\tilde{\sigma}$ be a rematching function that specifies how individuals would remarry within the coalition, and, second, let $t_i \in \mathbb{R}$ be the monetary transfer that $i \in M$ pays off to his current partner $\sigma(i) \in W$. Definition 1 formally describes a blocking coalition.

**Definition 1.** A coalition $S$ blocks the matching $\sigma$ if there exist

(i) a matching $\tilde{\sigma} : S \to S$, and

(ii) $t_i \in \mathbb{R}$ is transferred from every $i \in M$ to his partner $\sigma(i) \in W$ such that $t_i = 0$ if $i$ or $\sigma(i) \notin S$;

such that for every $(i,j) \in M \cap S \times W \cap S$ with $i = \tilde{\sigma}(j)$ there is a consumption bundle $(q_{i,j}^i, q_{i,j}^j, Q_{i,j}, C_{i,j}^i, C_{i,j}^j)$ such that

$$p_{i,j}(q_{i,j}^i + q_{i,j}^j) + P_{i,j}Q_{i,j} + F_{i,j}^i(C_{i,j}^i) + F_{i,j}^j(C_{i,j}^j) \leq y_{i,j} - t_i + t_j,$$

and

$$u_i(q_{i,j}^i, Q_{i,j}, C_{i,j}^i) \geq u_i(q_{i,\sigma(i)}^i, Q_{i,\sigma(i)}^i, C_{i,\sigma(i)}^i)$$

and that there is an individual for whom the inequality holds strictly.

In words, a coalition is blocking if under some rematching and intrahousehold bargaining, no member of the coalition is worse-off and at least one member is strictly better-off. We can now use the three pieces of the puzzle introduced above (individual utilities, Pareto efficiency, and permissible blocking coalition) to define the core of the marriage market. We say that a matching is in the core if there exist well-defined individual utilities and intrahousehold allocations such that the households are Pareto efficient and there is no permissible coalition that is blocking. Definition 2 states this formally.

**Definition 2.** Given a set of veto couples, $\mathcal{V}$, a matching $\sigma$ is in the core $C^\mathcal{V}$ if the households are Pareto efficient and there is no blocking permissible coalition.

---

8Mutual consent regimes usually allow a marriage to be dissolved unilaterally provided there is a “fault” of the partner. The fault grounds for divorce usually include domestic abuse, unfaithfulness, desertion, or separation. However, such divorce applications are usually accompanied by complicated and lengthy court proceedings. Given the high costs, fault divorces can not effectively be modelled as unilateral divorces. Moreover, as our framework models divorce as a bargaining threat point, using “fault” grounds for potential divorce in the intrahousehold bargaining does not seem to be feasible.

10
**Revealed Preference Conditions.** So far, we have introduced (a) the matching and household consumption setting and (b) the conditions under which a matching would belong to the core of the marriage market. However, verifying whether an observed matching belongs to the core according to Definition 2 requires the knowledge of unknown utility functions. As indicated in the introduction, our goal is instead to derive the empirical implications of the model that are intrinsically nonparametric. That is, we aim to provide a revealed preference characterization that does not require an explicit reference to individual utility functions but is formulated in terms of the information available in the data set, \( D \).

We start by focusing on the budget set of the potential couples. To determine whether a pair \((i,j)\) could potentially benefit by marrying each other, we need to know if the couple can afford their current consumption bundles given their budget constraint. This is essentially the analog of “cost of the old bundle at the new prices,” which is an elementary part of any revealed preference condition. In particular, the “new prices” in a marriage market setting refer to the prices faced by the pair \((i,j)\) and the “old bundles” refer to the current consumption of \(i\) and \(j\), \((q^{i}_{i,\sigma(i)}, q^{j}_{\sigma(j),j}, Q_{i,\sigma(i)}, Q_{\sigma(j),j}, C_{i,\sigma(i)}, C_{\sigma(j),j})\).

Determining whether this bundle lies within the budget set of the pair \((i,j)\) would be straightforward if their budget constraint were linear in prices. However, our setting includes a marital-specific public good (children’s consumption), an inclusion that makes the postdivorce budget constraints nonlinear. More specifically, the budget constraint of a potential couple \((i,j)\) takes the following nonlinear form:

\[
p_{i,j}(q^{i} + q^{j}) + P_{i,j}Q + F_{i,j}^{i}(C^{i}) + F_{i,j}^{j}(C^{j}) \leq y_{i,j} - t_{i} + t_{j}.
\]

To address the issue of nonlinear budgets, we assume that individual utility functions are concave (and therefore preferences are convex). By taking a convex hull of the nonlinear budgets specified by the tangent lines at the chosen bundles, we can create equivalent linear budgets that would have generated the observed choices (see Forges and Minelli (2009) for a formal derivation). Figure 1 illustrates the above logic in a simple example. The figure shows an example of a (convex) indifference curve that generates the observed choice from the nonlinear budget set. We can see that the same choice would have been generated from a linearized budget formed by the tangent of the nonlinear budget at the chosen point. We exploit this logic to simplify our budget conditions to linear inequalities. We do this by taking the derivatives of the cost functions \(F^{i}_{i,j}\) and \(F^{j}_{i,j}\) (as those define the tangent lines) and treat these derivatives as the prices.

\[
f^{i}_{i,j} = \frac{dF^{i}_{i,j}(C^{i})}{dC} \quad \text{and} \quad f^{j}_{i,j} = \frac{dF^{j}_{i,j}(C^{j})}{dC}.
\]

Now that we have defined the “linearized” prices, we can move on to defining the “cost of the old bundle in the new prices” analog. Considering the new (linearized version of) prices faced by \((i,j)\), that is, \((p_{i,j}^{i}, P_{i,j}^{i}, f^{i}_{i,j}, f^{j}_{i,j})\), the cost of the old bundle in the new prices for the potential couple \((i,j)\) is

\[
p_{i,j}(q^{i}_{i,\sigma(i)} + q^{j}_{\sigma(j),j}) + P_{i,j}^{i}Q_{i,\sigma(i)} + P_{i,j}^{j}Q_{\sigma(j),j} + f^{i}_{i,j}C_{i,\sigma(i)} + f^{j}_{i,j}C_{\sigma(j),j}.
\]
Bringing together all such terms for the outside options, we define the matrix $\Omega(\mathcal{D})$ as follows,

$$\Omega(\mathcal{D}) = (\omega_{i,j})_{i \in M, j \in W}$$

where,

$$\omega_{i,j} = p_{i,j}(q_{i,\sigma(i)} + q_{\sigma(j),j}) + P^{i}_{i,j}Q_{i,\sigma(i)} + P^{j}_{i,j}Q_{\sigma(j),j} + f^{i}_{i,j}C_{i,\sigma(i)} + f^{j}_{i,j}C_{j,\sigma(j)} - y_{i,j}.$$ 

The elements of this matrix, $\Omega(\mathcal{D})$, correspond to the exit options $(i,j) \in M \times W$. Intuitively, these elements indicate whether the potential partners can afford to purchase their current consumption with their new budget. For instance, if $\omega_{i,j} < 0$, then the consumption of $i$ and $j$ in their current marriages lies strictly within the budget set of $(i,j)$. As such, if the law permits, $i$ and $j$ would be better off by marrying each other rather than being with their current partners.

Finally, we define path monotonicity, which will help us formalize our revealed preference conditions in the next section.

**Definition 3.** $\Omega(\mathcal{D})$ satisfies **path monotonicity** if for every coalition $S$ consisting of $\{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\}$ and remarriages $(i_r, \sigma(i_{r+1}))$ for $r = \{1, \ldots, n-1\}$, if

$$\sum_{r=1}^{n-1} w_{i_r, \sigma(i_{r+1})} < 0$$

then

(i) $i_n \neq i_1$, and

(ii) $(i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \in \mathcal{V}$.

First, let us note that path monotonicity is a condition imposed on $\Omega(\mathcal{D})$, which contains both observed and unobserved elements. By saying that $\Omega(\mathcal{D})$ satisfies path monotonicity, we mean that there exist a set of values of the unobservables components,
such that the specified condition is fulfilled. Intuitively, the condition states that if path monotonicity is satisfied, then for any permissible coalition the total sum of the weights cannot be negative. As mentioned in the definition, the sequence \((i_r, \sigma(i_r+1))\) for \(r = \{1, \ldots, n - 1\}\) is a sequence of remarriages within the coalition. Path monotonicity requires that if the sum of the weights \((\omega)\) along this sequence of remarriages is indeed negative, then \(i_n \neq i_1\) and \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \in V\). Essentially, these two principal cases make any such coalition nonpermissible. The first case \((i_n \neq i_1)\) ensures that the coalition does not form a cycle of partner exchanges, since such a coalition would be permissible. The second case \(((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \in V)\) ensures that the coalition is not permissible by ensuring that couples on both ends of the sequence are veto couples. Hence, \(\sigma(i_1)\) and \(i_n\), who are not rematched and have the veto power, can block the coalition.

Two remarks on the sum of the weights presented in the definition of path monotonicity are in order. First, a negative total sum of the weights means that the coalition is potentially blocking. To see the intuition behind this, note that \(\omega_{i,j}\) indicates the desire of \(i \in M\) and \(j \in W\) to marry each other rather than staying with their current partners. If \(\omega_{i,j} < 0\), then \(i\) and \(j\) prefer to marry each other instead of their current partners. This is because together they can afford the bundles they are consuming in the current marriage, so just by increasing upon that they can be better-off. Second, this sum also accounts for the transfers. Recall that \(w_{i,j}\) does not include the (postdivorce) transfers \(t_i\) from \(i\) to \(\sigma(i)\). If we were to include these terms in the definition of \(\Omega\), the new \(\Omega = (\hat{\omega}_{i,j})\) would be defined as follows,

\[
\hat{\omega}_{i_r, \sigma(i_{r+1})} = \omega_{i_r, \sigma(i_{r+1})} + t_{i_r} - t_{i_{r+1}}.
\]

Hence, if we add these updated terms along the sequence of remarriages, we obtain

\[
\sum_{r=1}^{n-1} \hat{\omega}_{i_r, \sigma(i_{r+1})} = \sum_{r=1}^{n-1} \omega_{i_r, \sigma(i_{r+1})} + t_{i_1} - t_{i_n}.
\]

Now, if \(i_1 = i_n\), then \(t_{i_1} = t_{i_n}\) and transfers can be eliminated. Otherwise, if \(i_1 \neq i_n\), then \(\sigma(i_1)\) and \(i_n\) are not in coalition, and, therefore, \(t_{i_1} = t_{i_n} = 0\) by definition. Hence, in both cases, we can get rid of the transfers and obtain the condition for path monotonicity without using the (unobservable) transfers.

In a nutshell, the sum of the weights \((\omega)\), along with the sequence of remarriages within a coalition indicates whether the coalition can be blocking. Path monotonicity ensures that if there exists a coalition that is blocking (with a negative total sum of weight), then it is not permissible. Our main result states that if a given data set, \(D\), represents a stable marriage market, then \(\Omega(D)\) must satisfy path monotonicity. We will discuss this in the next section.

### 3 Results

In this section, we present our theoretical result, which states the empirical implications of the model. We start with the general result for \(C^V\) without any particular specification.
for the divorce rule (which determines $V$) and without imposing any restrictions on the linearized prices ($f_{i,j}^i$ and $f_{i,j}^j$). Next, we model the divorce legislation by specifying the divorce rule (being either unilateral or mutual consent divorce) and the child custody arrangement (being either sole or joint custody).

To present our general result, we denote by $F_{i,j} \subseteq \mathbb{R}_+^2$ a set of feasible $f_{i,j}^i$ and $f_{i,j}^j$, where $F_{i,j}$ specifies all feasible linearized prices given the legislation. We do have to assume such a level of generality as sometimes child custody legislation specifies $f_{i,j}^i$ and $f_{i,j}^j$ precisely enough so that these can be treated as constants, while in other cases these have to be treated as variables.

**Theorem 1.** If a matching is in the $CV$, then there are

- $q_{i,\sigma(i)}^i, q_{i,\sigma(i)}^\sigma \in \mathbb{R}_+^n$ such that
  \[
  q_{i,\sigma(i)}^i + q_{i,\sigma(i)}^\sigma = q_{i,\sigma(i)}
  \]
  for every $i \in M$, and

- $P_{i,j}^i, P_{i,j}^j \in \mathbb{R}_+^N$ such that
  \[
  P_{i,j}^i + P_{i,j}^j = P_{i,j}
  \]
  for every $i \in M$ and $j \in W$,

- $f_{i,j}^i, f_{i,j}^j \in F_{i,j}$ for every $i \in M$ and $j \in W$,

such that $\Omega(D)$ satisfies path monotonicity.

Theorem 1 presents a simple empirical implication for checking whether the observed matching is in the core of the market. Since path monotonicity is a condition on $\Omega(D)$, the theorem essentially requires a search over the unobservables to ensure that path monotonicity is satisfied. Interestingly, the unobservables include the variables that govern the sharing rule, that is, who consumes what within the observed households. As we will discuss later, path monotonicity provides a useful basis for the identification of the individual-level parameters that underlie households’ consumption. In this regard, we remark that the larger is the set of veto couples $V$, the weaker will be the empirical implications. Consequently, as the set of veto couples increases, the identification becomes less informative. This is consistent with the logic that the precision of the identified parameters depends on the number of outside options of each partner. Endowing more individuals with the veto power reduces the number of outside options or their attractiveness.

---

9 We provide an equivalent linear programming version of this condition in Appendix B.
10 We show this empirically through a simulation analysis in Appendix D.3. The simulations show that as the proportion of couples governed by mutual consent regime increases, the bounds on the identified individual private consumption shares are wider.
3.1 Divorce rules

We focus on two types of divorce rules: unilateral and mutual consent divorce. Under unilateral divorce, there are no veto couples, that is, $V = \emptyset$. As such, this divorce rule does not impose any restriction on the set of permissible coalitions. Therefore, we can significantly simplify the test by replacing the path monotonicity condition in Theorem 1 with the edge monotonicity condition given below.

**Definition 4.** $\Omega(D)$ satisfies **edge monotonicity** if for every $i \in M$ and $j \in W$ we have

$$\omega_{i,j} \geq 0.$$ 

The edge monotonicity condition ensures that any potential couple $(i, j) \in M \times W$ is not a blocking pair by restricting the weight $\omega_{i,j}$ to be nonnegative. Intuitively, if this condition is not met, then $i$ and $j$ can allocate their income in a way that both of them are better-off (with at least one strictly better-off) than with their current partners. Note that this case corresponds to the stable marriage market conditions in Cherchye et al. (2017).

Next, under mutual consent divorce, every couple belongs to the set of veto couples, that is, $V = M \cup W$. Therefore, the coalitions that are permissible must include either both partners or neither partner. As such if a permissible coalition is blocking, then it must be that the individuals are involved in a cycle of partner exchange within the coalition. In this case, we can simplify the test by replacing the path monotonicity condition in Theorem 1 to the cyclical monotonicity condition defined below. Interestingly, if a data set satisfies cyclical monotonicity, it also implies that the matchings are Pareto efficient.

**Definition 5.** $\Omega(D)$ satisfies **cyclical monotonicity** if for every coalition $S$ consisting of $\{(i_1, \sigma(i_1)), (i_2, \sigma(i_2)), \ldots, (i_n, \sigma(i_n))\}$ and remarriages $(i_n, \sigma(i_1)) \cup (i_r, \sigma(i_{r+1}))$ for $r = \{1, \ldots, n-1\}$, we have

$$\sum_{r=1}^{n-1} w_{i_r, \sigma(i_{r+1})} + \omega_{i_n, \sigma(i_1)} \geq 0.$$ 

3.2 Child custody rules

The second dimension of divorce legislation that we consider is the child custody arrangement. As mentioned before, custody law will help us structure how the cost of children’s consumption will be shared by the parents upon divorce. We focus on two custody arrangements: sole custody and joint custody.

Under sole custody, the custodian has the main responsibility of purchasing their children’s consumption while the noncustodial parent is restricted to provide for their children by transferring money to the custodian. We assume that for all couples, the mother will be the custodian. This implies that her marginal cost of producing children’s consumption, $f_{k, \sigma(i)}$, is equal to the market price of the children’s consumption, $P_{i, \sigma(i)}$. 


In addition, we assume that all custodians are compliant. This means that the amount of children’s consumption brought by the custodian would be at least as large as the child support transfer received from the noncustodian. This implies that the marginal cost of producing the children’s consumption for the noncustodian, \( f_{i,j}^c \), does not exceed the market price of the children’s consumption, \( P_{i,\sigma(i)}^c \). Under these assumptions, we can place the following restrictions on the marginal costs,

\[
f_{i,j}^c \leq P_{i,\sigma(i)}^c \quad \text{and} \quad f_{k,\sigma(i)}^c = P_{i,\sigma(i)}^c \quad \text{for all} \quad j \in W, k \in M.
\]

We define a matrix \( \Omega^S(D) \) as follows,

\[
\Omega^S(D) = (\omega^S_{i,j})_{i \in M, j \in W},
\]

where

\[
\omega^S_{i,j} = p_{i,j}(q_{i,\sigma(i)}^i + q_{\sigma(j),j}^j) + P_{i,j}^i Q_{i,\sigma(i)} + P_{i,j}^j Q_{\sigma(j),j} + P_{i,\sigma(i)}^c C_{i,\sigma(i)} + P_{\sigma(j),j}^c C_{\sigma(j),j} - y_{i,j}.
\]

Notice that because of the inequalities on the marginal costs shown above, each element of \( \Omega(D) \) is less than or equal to the corresponding element of \( \Omega^S(D) \). Hence, if \( \Omega(D) \) satisfies path monotonicity, then the very same solution would imply that path monotonicity is satisfied by \( \Omega^S(D) \). As such, if the data are rationalizable under sole custody, (i.e., if the matching belongs to the core), then \( \Omega^S(D) \) must satisfy path monotonicity.

Next, under joint custody, both parents share custody of the children. We assume that, upon divorce, parents cooperatively provide for their children. Hence, using the Bowen-Lindahl-Samuelson condition of Pareto efficiency, we know the individualized prices of the children’s consumption sum to the market price. Hence, we can define \( \alpha_i \in [0,1] \), the willingness to contribute to the children’s consumption by \( i \), such that \( f_{i,j}^c = \alpha_i P_{i,\sigma(i)}^c \) and \( f_{k,\sigma(i)}^c = (1 - \alpha_i) P_{i,\sigma(i)}^c \) for every \( i, k \in M \) and \( \sigma(i), j \in W \). We define a matrix \( \Omega^J(D) \) as follows,

\[
\Omega^J(D) = (\omega^J_{i,j})_{i \in M, j \in W},
\]

where,

\[
\omega^J_{i,j} = p_{i,j}(q_{i,\sigma(i)}^i + q_{\sigma(j),j}^j) + P_{i,j}^i Q_{i,\sigma(i)} + P_{i,j}^j Q_{\sigma(j),j} + \alpha_i P_{\sigma(i)}^c C_{i,\sigma(i)} + (1 - \alpha_{\sigma(j)}) P_{\sigma(j),j}^c C_{\sigma(j),j} - y_{i,j}.
\]

Now, if the data are rationalizable under joint custody, (i.e., if the matching belongs to the core), then \( \Omega^J(D) \) must satisfy path monotonicity.

\[\text{To keep the conditions tractable, we assume that the willingness to contribute parameter (} \alpha_i \text{) is independent of the potential rematch of the parents. This is a reasonable assumption considering the legal aspect of joint custody as any legal recommendations on providing the joint expenditure on children would only rely on the wage and income of the parents, not on the match-specific issues.}\]
3.3 Modeling the legal system

Any legal system can be characterized by the possible combinations of the two dimensions of divorce legislation we consider. Table 2 summarizes the rationalizability conditions adapted for each legal system. In each case, a rationalizability test can be obtained by checking that the correct version of \( \Omega(D) \) satisfies the appropriate version of the path monotonicity condition. In particular, we need to use \( \Omega^S(D) \) for sole custody and \( \Omega^J(D) \) for joint custody. Similarly, we need to use edge monotonicity for unilateral divorce and cyclical monotonicity for mutual consent divorce.

|                | Sole custody                                      | Joint custody                                     |
|----------------|--------------------------------------------------|--------------------------------------------------|
| Unilateral     | \( \Omega^S(D) \) satisfies edge monotonicity    | \( \Omega^J(D) \) satisfies edge monotonicity    |
| Mutual consent | \( \Omega^S(D) \) satisfies cyclical monotonicity | \( \Omega^J(D) \) satisfies cyclical monotonicity |

**Stability indices.** So far, the rationalizability conditions we have shown are strict in the sense that the observed household data would either satisfy the constraints or fail to find a feasible solution. Most real-world data sets may not be exactly consistent with the model, for example, if the data contain measurement errors, there are frictions in the marriage market, or other factors, such as match quality, affecting the marital behavior. Following Cherchye et al. (2017), we evaluate the goodness-of-fit of a model by using stability indices. The stability indices measure the minimum loss of postdivorce income that is needed to represent the observed marriages as stable. Essentially, these indices allow us to quantify the degree to which the observed behavior is consistent with the exactly rationalizable behavior.

Formally, for each exit option \((i, j)\), we include the stability index \( s_{i,j} \) in the elements of \( \Omega(D) \) as follows:

\[
\omega_{i,j} = p_{i,j}(q^i_{\sigma(i)} + q^j_{\sigma(j)}) + P^i_{i,j}Q_{\sigma(i)} + P^j_{i,j}Q_{\sigma(j)} + f^i_{i,j}C_{\sigma(i)} + f^j_{i,j}C_{\sigma(j)} - y_{i,j}s_{i,j}.
\]

Further, we add the restriction \( 0 \leq s_{i,j} \leq 1 \). Clearly, imposing \( s_{i,j} = 1 \) for all \((i, j) \in M \times W \) would be equivalent to the original rationalizability restrictions, while \( s_{i,j} = 0 \) would rationalize any behavior. Generally, a lower stability index corresponds to higher income loss, which is associated with a particular outside option. This can be interpreted as a greater violation of the underlying model assumptions. In our empirical application, we will use the stability indices to evaluate the performance of our model. To identify the values of stability indices for a given data set \( D \), we compute

\[
\max \sum_i \sum_j s_{i,j},
\]

subject to the rationalizability conditions. This gives a stability index, \( s_{i,j} \), for each exit option, \((i, j)\). If the original constraints are satisfied, then there is no need for an
adjustment, and our stability indices will be equal to one. Otherwise, a strictly smaller index will be required to rationalize the behavior.

**Set identification.** Using the stability indices defined above, we can construct a new data set that is consistent with the rationalizability restrictions. More specifically, we can use the identified values of $s_{i,j}$ to rescale the original income levels $y_{i,j}$. This defines an adjusted dataset that is consistent with the rationalizability restrictions. After that, we can use this new dataset to identify the unobserved parameters of household allocation (such as individual private consumption, Lindahl prices, and resource shares).

For instance, in our empirical application, one of the parameters that we will identify is the individual private consumption shares ($q^i$ and $q^j$). We will obtain set identification by computing the lower and upper bounds on these quantities subject to the rationalizability restrictions. For example, a lower bound for women’s private consumption share can be obtained by minimizing $q^j$, subject to the stability restrictions. This automatically defines an upper bound for men’s private consumption through the adding up constraint ($q^i + q^j = q$). Effectively, these bounds define feasible values of individual private consumption shares that are compatible with our rationalizability restrictions.

## 4 Empirical Application

In this section, we illustrate the importance of accounting for divorce laws in the empirical identification of intrahousehold allocations. To estimate our model, we focus our attention on households in Russia. There are three main reasons why we choose the Russian context. First, Russia is consistently among the countries with the highest divorce rates in the world (see, e.g., Avdeev and Monnier (2000); Muszynska and Kulu (2007) and Solodnikov (2016)). A high turnover of marriages and divorces in Russia is consistent with our modeling assumption of a frictionless marriage market where outside options are credible threats to the intrahousehold bargaining process. Second, one of the reasons why divorce rates are so high in Russia is because divorce is easy to obtain, and there is a clear, unambiguous legal framework governing marital dissolution. Russia provides a unilateral divorce regime with sole custody over children. The presence of such explicit laws allows us to model the legal system precisely and realistically. Third, because we focus on a static framework, we have not included savings in our household consumption setting. In this aspect, Russia is a good case study for our empirical exercise because of negligible rates of savings and a tiny fraction of disposable income coming from returns on savings/investments (see Gregory et al. (1999) and Ovcharova et al. (2014) for the data corresponding to the period of observations).

Our empirical application considers a labor supply setting where households allocate their entire potential income on both spouse’s leisure, Hicksian aggregate private and

---

12 One of the challenging aspects of modeling any country’s divorce legislation is the child custody law. For instance, countries that have been studied in a similar context (e.g., the US) frequently acknowledge both sole and joint custody. Such systems create ambiguity and require a better knowledge of the legal practice to model the marriage market.
public goods, and their children’s consumption. In what follows, we first discuss the data and our sample selection criteria. After that, we brief on Russia’s divorce legislation and the structural model representing those legal settings. Next, we discuss the goodness-of-fit of the models using the stability indices that we introduced above. Subsequently, we show that the restrictions imposed by divorce legislation matter for the identification of intrahousehold resource allocation. Finally, through a poverty analysis, we illustrate how a biased identification of intrahousehold resource shares can lead to incorrect welfare conclusions.

Data. We use household data drawn from the Russia Longitudinal Monitoring Survey (RLMS). This is a nationally representative survey of individuals and families living in the Russian Federation. The survey, designed to monitor the effects of Russian reforms on economic outcomes and welfare of households, collects detailed information at both individual and household levels on various topics like health and dietary intake, expenditures, education, income and wages, marriage, and fertility. The sample collection, jointly conducted by the Carolina Population Center at the University of North Carolina at Chapel Hill (USA) and the Demoscope team of the Higher School of Economics (Russia), began in 1994, and the same households have been interviewed annually since then. This data source has been previously used in a number of studies (see, e.g., Guariglia and Kim (2004); Cherchye et al. (2009, 2011) and Chiappori et al. (2018)).

Our sample of households is drawn from the 2013 wave of the survey. We use the following selection rules to prepare the final sample. First, we exclude households with members other than the couple (or a single adult) and their (biological) children. Further, we confine our study to households whose adults are between 20 and 50 years old. These bounds are chosen to focus on individuals likely to be active in the marriage market. Next, because we need wage information, we focus on households with adults working at least 10 hours per week in the labor market. We also drop households with important missing information (e.g., wage, time use, expenditure) and the outliers by trimming the households in the 1st and 99th percentiles of wages and nonlabor income distribution. Finally, we also exclude households living in Krasnodar, Kushevkiy Rayon, Krasnodarkij Krai, Georgievskij Rayon, Stavropolskij Krai, Zolskij Rajon, and Kabardino-Balkarija. This selection procedure results in a sample of 1,874 individuals consisting of 740 couples, 113 single males, and 381 single females.

In our data, we only observe aggregate household expenditures on food (at home and restaurants), clothing, transportation, household durables, fuel, utilities, services, rent, and

---

13 We have chosen the 2013 wave as the last relatively normal year of the Russian economy, which started experiencing significant structural changes in 2014. Because of the government’s restriction on food imports, the structure of consumption has changed significantly. In addition, the continuing economic decline has caused a significant growth in the poverty rate and an increasing share of the economy to move to a “gray” area.

14 We remove these regions from the analysis because they are systematically different (e.g., in the legal or economic practices) compared with the rest of Russia. Appendix D.6 explains the motivation behind this sample selection criterion. In addition, we present a robustness check in which we include households from these regions as part of the analysis. Our conclusions are robust to this empirical setting.
entertainment, health, and education. As discussed earlier in Section 2, we assume the availability of information on households’ consumption of public goods, private goods, and children’s goods. However, as is typical with most household data sets, we do not have more granular information on the share of public versus private consumption, children’s expenditures, or the split of private consumption among adult members.

To address this data issue, we adopt the following strategy. First, we use all expenditure information to form a Hicksian good with a price normalized to one. Next, we estimate children’s expenditures using the OECD-modified adult equivalence scale (see Donni (2015)). Table 3 presents these estimates. Further, we assume that of the remaining expenditures, 50% is used for public consumption and the remaining 50% is used for private consumption, which is divided between the adult members. Finally, we assume that leisure is privately consumed. In what follows, we will treat individuals’ private Hicksian consumption as unknowns that will be identified through the structural model.\[15\]

Table 3: Cost of children as a percentage of total expenditure (OECD-modified scale)

| Number of children | Couples | Singles |
|-------------------|---------|---------|
| 1                 | 17%     | 23%     |
| 2                 | 28%     | 37%     |
| 3                 | 37%     | 47%     |

To evaluate an individual’s outside options, we need prices and income for all counterfactual situations (i.e., becoming single or remarrying). For leisure, we take the price to be individual wages. Here, we assume that labor market productivity is independent of an individual’s marital status. Although this assumption may look rather restrictive in light of the literature on marriage premiums and penalties, with additional modeling assumptions, prices in counterfactual situations also can be imputed. For all other consumption categories, which are treated as Hicksian aggregates, the price is normalized to one.

Next, for all observed and unobserved matching pairs, household income is defined as the sum of potential labor income (which is 112 times the individual wage rate) and nonlabor income of the individuals. For observed couples, we use a consumption-based measure of total nonlabor income. More precisely, a household’s nonlabor income

\[15\] In our application, we assume that an individual’s time is either supplied as labor or spent on leisure. However, a significant portion of an individual’s time is spent on household chores. Moreover, if the individual is a parent, then an important component of his or her time is spent on child care. In our setting, the former activity (household chores) would represent a public good that can be shared with a potential partner, while the latter activity (child care) would be a “marital-specific” public good. More detailed information on an individual’s time use would make it possible to analyze the impact of custody laws on intrahousehold (time and consumption) allocations. Unfortunately, the RLMS stopped collecting detailed time-use data after 1998. Our current data from the 2013 wave reports on individuals’ time spent in the labor market only. Hence, this rules out such an analysis.
is defined as total consumption expenditures minus total potential labor income. We treat individual nonlabor income as unknowns that are subject to the constraint that they must add to the household nonlabor income. Further, rather than fixing individual nonlabor to be 50% of household nonlabor income, we allow these unknowns to be endogenously defined by marriage market implications. However, to avoid unrealistic scenarios, we restrict individual nonlabor income to be between 40% and 60% of households’ nonlabor income. Cherchye et al. (2017) adopted the same rule.\textsuperscript{16}

Table 4 presents the summary statistics for all adults under consideration. Wages are hourly wage rates in the Russian ruble (the average 2013 exchange rate for 1 ruble was US$ 0.0341). Leisure is the average hours spent on leisure activities per week. We assume that an individual needs 8 hours per day for sleep and personal care. This defines leisure hours as 168 hours in a week minus 56 hours for sleep and care minus hours worked in the labor market. Nonlabor income, household expenditures, and children’s expenditures are measured in rubles per week. Further, the table also reports ages, education level, presence of children in the household, and the number of children.

**Marriage markets.** To use our models empirically, we require prior specification of marriage markets and individual consideration sets that specify who the individual would consider to be an outside option. First, we divide our sample into eight marriage markets based on the region of residence. Figure 2 provides a map of these markets and gives each market’s corresponding subsample size. There is quite some heterogeneity in the size of the marriage market ranging from 44 to 253. Considering these region-based subsamples allows for the possibility of geographically restricted marriage markets. Next, within each marriage market, we construct individual-specific consideration sets based on age. In particular, we assume that a male (female) individual’s consideration set contains all single and married females (males) who are at most 12 (8) years younger and 8 (12) years older. These age restrictions correspond to the 1st and 99th percentiles of the distribution of age differences of the matched couples in the sample. Appendix D.1 provides more information on each market and the average size of the individual-specific consideration sets within each market.

**The legal setting.** Russia has one of the highest divorce rates in the world.\textsuperscript{17} This is in part because the divorce process in Russia is quick, inexpensive, and straightforward. Russian legislation does not require specifying a reason for divorce. If both spouses

\textsuperscript{16}Russian family law requires an equal division of assets upon divorce. In this light, one can argue that individual nonlabor income should be split equally between spouses. As shown in Appendix C, modifying the restrictions to allow for this divorce law is relatively straightforward. Appendix D.7 reports on the results of a robustness check where we fix the equal division of nonlabor income upon divorce. All our results are robust to this extra consideration. Moreover, allowing for a more flexible assumption in our main empirical specification allows us to account for the fact that some part of the nonlabor income may not be assets that are subject to division upon divorce.

\textsuperscript{17}According to the World Population Review, as of 2021, the crude divorce rate in Russia was the highest in the world (4.7 divorces per 1,000 residents). For further details, see https://worldpopulationreview.com/country-rankings/divorce-rates-by-country
Table 4: Sample summary statistics

|                                   | mean  | sd    | min   | max   |
|-----------------------------------|-------|-------|-------|-------|
| male hourly wage                  | 140.25| 77.52 | 25.00 | 561.80|
| female hourly wage                | 104.57| 64.61 | 17.39 | 400.00|
| male labor hours                  | 44.32 | 11.99 | 10.39 | 110.85|
| female labor hours                | 40.00 | 10.12 | 10.62 | 88.68 |
| male leisure hours                | 67.68 | 11.99 | 1.15  | 101.61|
| female leisure hours              | 72.00 | 10.12 | 23.32 | 101.38|
| male age                          | 36.73 | 7.43  | 20.00 | 50.00 |
| female age                        | 35.84 | 7.60  | 20.00 | 50.00 |
| male has a degree (1 = yes/ 0 = no) | 0.28  | 0.45  | 0.00  | 1.00  |
| female has a degree (1 = yes/ 0 = no) | 0.41  | 0.49  | 0.00  | 1.00  |
| presence of children (1 = yes/ 0 = no) | 0.66  | 0.48  | 0.00  | 1.00  |
| number of children                | 0.88  | 0.77  | 0.00  | 3.00  |
| mean age of children in the household | 10.19 | 5.28  | 1.00  | 24.00 |
| household expenditure             | 14040.01 | 12568.50 | 397.14 | 93479.58 |
| children expenditure              | 2220.16 | 3173.99 | 0.00  | 32266.21 |
| adult expenditure                 | 11819.85 | 10499.41 | 305.79 | 85192.63 |
| non-labor income                  | 6306.41 | 11055.03 | -7472.29 | 81432.29 |

Figure 2: Region-based marriage markets
agree and have no children, the divorce can be conducted as an administrative procedure without the necessity of showing up at court. If one of the spouses is against divorce, then the court may give the couple a cooling-off period of up to 3 months. However, if, after the cooling-off period, any spouse still insists on a divorce, the court will terminate the marriage. If a couple has children, then they would be obliged to go through the court; though, the procedure is simple unless there are custody disputes. With regard to children’s custody, the Russian family code prescribes assigning custody in the “best-interest” of the child. However, the legal practice is such that the mother is most frequently assigned custody rights. The Russian family code does not contain a notion of joint custody.

In what follows, we model Russia’s divorce legislation as unilateral divorce with a sole custody arrangement. We will call this specification the model “with legislation”. To determine whether child custody laws have any empirical significance on the variables of interest, we will compare the results to a model that allows for unilateral divorce but ignores child custody laws. We will call this specification the model “without legislation”. At this point, it is important to remark that, in addition to the divorce laws, another implicit distinction can be made between the two models. The model “with legislation” assumes that children are “marital-specific” public goods, while the model “without legislation” assumes that children are public goods that can be shared with potential partners. We will illustrate the importance of this distinction in the following sections when interpreting our results for stability indices and intrahousehold allocations.

4.1 Stability indices

As explained in Section 3, our characterizations define strict empirical implications for a matching that is in the core. As a first exercise, we measure the degree to which the observed household behavior satisfies the two characterizations: with and without legislation. We measure deviations from these implicit assumptions using stability indices. For each exit option \((i, j) \in \{M \cup \emptyset\} \times \{W \cup \emptyset\}\), the stability index \(s_{i,j}\) takes a value between zero and one, with the lower values indicating larger deviations from the (exact) rationalizability conditions.

We compute the stability indices for two model specifications. The first model “with legislation” allows for unilateral divorce, considers children’s expenditures as a distinct...
consumption category (not shareable with potential partners), and considers sole custody to be the postdivorce custody arrangement. The second model “without legislation” allows for unilateral divorce but does not consider children to be a separate consumption category or to have related custody implications. For each couple, we use stability indices to define two measures: average and minimum stability indices. The average stability index measures a couple’s average income loss that is required to make the marriage stable, and the minimum stability index refers to the highest income loss that is required to rationalize all possible exit options. That is, it is the stability index associated with the most attractive outside option of either spouse. Both measures are expressed as a percentage of the household’s labor income. In what follows, we will interpret higher stability indices as evidence of better goodness-of-fit and greater empirical support for the underlying model assumptions.

Table 5 summarizes the results. Both the average and minimum stability indices suggest that the model with legislation better fits the observed household behavior. Admittedly, the differences in the average stability index between the two models look rather small. However, the minimum stability index reveals some notable differences in the goodness-of-fit of the two models. For example, the mean of the minimum stability index increases from 82.81% to 87.85% when child custody laws are taken into account.

Table 5: Stability indices (in %)

|                | with legislation | without legislation |
|----------------|------------------|---------------------|
|                | average  | minimum | average  | minimum |
| mean           | 99.54      | 87.85     | 99.06      | 82.81    |
| sd             | 0.44       | 6.58      | 0.70       | 8.47     |
| min            | 96.40      | 52.03     | 93.57      | 44.09    |
| p25            | 99.39      | 84.73     | 98.83      | 78.71    |
| p50            | 99.65      | 88.46     | 99.21      | 84.15    |
| p75            | 99.82      | 91.45     | 99.48      | 88.39    |
| max            | 100.00     | 100.00    | 100.00     | 100.00   |

As the key difference between the models with and without legislation is the presence of children, in the next step we investigate the degree to which the observed behavior of couples with children lines up with the rationalizability restrictions from the two models. Figure 3 graphs the mean and 95% confidence intervals of the average and minimum stability indices from the two models by the number of children in the household. We find that the difference in stability indices is largely driven by a better fit of the behavior of couples with children. For example, when focusing on the minimum stability indices among couples with two or more children, the mean value increases from 81.81% to 90.43% when children’s expenditures are taken as a marital-specific public good and the child custody laws are taken into consideration. Moreover, the difference is more striking
as the number of children in the household increases. Intuitively, this can be explained by the role of public goods in the model of stable marriage. Public consumption is an important channel of gain from marriage. As children’s consumption is a “marital-specific” public consumption, this increases the attractiveness of the current marriage for couples with children.

Figure 3: Average (left) and minimum (right) stability indices by the number of children in the household

We conclude from these findings that the model with legislation better fits the observed household behavior. We take this as empirical support in favor of using the model with legislation. Admittedly, these empirical findings can also be explained, to some extent, by the fact that the model with legislation imposes somewhat weaker restrictions on the observed data. However, in what follows, we use both models to identify intrahousehold allocations and to show that the more general model with legislation results in comparable informative identification results as the ones from the model without legislation. Importantly, we also find that identified results have notable differences that can have crucial implications for welfare analysis. We take this as motivation to use the model with divorce legislation for similar empirical applications.

4.2 Intrahousehold consumption

In this section, we focus on the identification of intrahousehold consumption allocations. We begin with the identification of the individual share of private consumption. Subsequently, we use the identified individual private shares to measure the “relative individual cost of equivalent bundle” (RICEB). Finally, we will use RICEB estimates to conduct a poverty analysis directly at the level of individuals members rather than at the level of aggregate households.

20 In Appendix D.2, we further report on the stability indices by gender (Table 12) and number of children in the household (Tables 11 and 13). Table 5 suggests quite some heterogeneity in couples’ stability indices. We investigate this further by relating these stability measures to observed heterogeneity in Table 14.
Private consumption. As explained in Section 3, our models can be used to define upper and lower bounds on intrahousehold consumption quantities. In what follows, we focus on the identification of women’s share of the Hicksian private good \( (q^f/q) \). This automatically identifies men’s private consumption share as \( 1 - (q^f/q) \). We identify women’s private consumption share using two alternative models: with and without legislation. Table C presents the mean values of women’s private consumption share by the number of children present in the household. The “lower” (“upper”) columns report the average lower bounds, and “difference” columns report the difference between the upper and lower bounds. This reflects the identifying power of the model under consideration. We find that both models have substantial identifying power. The average tightness of bounds is 18% for the model with legislation and 12% for the model without legislation. Admittedly, the identifying power of the model with legislation varies considerably across household types. In particular, the bounds widen as the number of children in the household increases. For example, the average tightness of bounds is only 13% for couples without children, while it is 23% for couples with two or more children. This can be explained by the fact that the model with legislation typically imposes less structure on households with more “marital-specific” public consumption. However, despite these differences in identifying power, we find striking dissimilarities in the identified private consumption shares. For couples without children, we find that the identified shares from the two models are quite similar. This is intuitive as the key difference between the two models is due to the presence of children, so there is no direct effect on childless couples. But, for women with children, the identified shares are significantly larger from the model with legislation as compared to the ones from the model without legislation. For example, the average bounds for women with two or more children are 2% to 13% from the model without legislation, while they are 15% to 38% from the model with legislation.

Table 6: Average bounds on females’ private consumption share \( (q^f/q) \)

|                        | with legislation |                        | without legislation |
|------------------------|------------------|------------------------|---------------------|
|                        | lower | upper | difference | lower | upper | difference |
| no children            | 0.12   | 0.24   | 0.13       | 0.12   | 0.24   | 0.12       |
| one child              | 0.15   | 0.32   | 0.17       | 0.07   | 0.19   | 0.12       |
| two or more children   | 0.15   | 0.38   | 0.23       | 0.02   | 0.13   | 0.11       |
| Total                  | 0.14   | 0.32   | 0.18       | 0.07   | 0.19   | 0.12       |

Given the heterogeneity in women’s share of private consumption across households, next we investigate the relationship between the identified resource shares and the observed household characteristics. Table 7 reports the ordinary least squares regression estimates, where we relate the lower and upper bound estimates of female’s private consumption share to observed characteristics. The “lower” (“upper”) columns correspond to the estimates obtained when we use the lower (upper) bound as the dependent vari-
able. We draw two main conclusions. First, except for the number of children, both models with and without legislation show similar relationships between women’s private share and observed characteristics. For example, both models suggest a positive relationship between the wage ratio and women’s share of private consumption. Second, the relationship between the number of children and women’s share of private consumption is notably different. In particular, we find a significant positive correlation between the number of children and the mother’s share estimated from the model with legislation, whereas we find a systematic negative relation when using estimates from the model without legislation. Given the empirical support in favor of the model with legislation, our conclusion from these results is that divorce laws impose important restrictions that must be embedded in economic models for the identification of intrahousehold sharing patterns.

Relative cost of equivalent bundle. To address well-being questions related to intrahousehold poverty, we need to consider both individual private consumption shares and the public goods in the household. Following Cherchye et al. (2020b) we investigate intrahousehold inequality through RICEBs. Formally, these measures are defined as follows

\[
R_{i,j}^i = \frac{p_i q_{i,j} + P_i Q_{i,j} + P_{i}^c C_{i,j}}{y_{i,j}},
\]

\[
R_{j,i}^j = \frac{p_{j} q_{j,i} + P_{j} Q_{j,i} + P_{j}^c C_{j,i}}{y_{i,j}}.
\]

The RICEB measure indicates the fraction of household expenditures that women (men) would need when single \{p_{\emptyset,j}, P_{\emptyset,j}, P_{\emptyset,j}^c\} (resp. \{p_i, P_i, P_i^c\}) to achieve the same level of consumption as in their current marriage. Intuitively, RICEBs capture both the

---

21 A closely related measure to RICEBs is the sharing rule concept, which is defined as an individual’s share of total household expenditures. In the collective household literature, the sharing rule is often used as an indicator of an individual’s bargaining power within the household. A key difference between the RICEB measure and the sharing rule is that RICEB measure uses market prices to evaluate a household’s public consumption, while the sharing rule uses individual-specific Lindahl prices to define an individual’s share. The advantage of using market prices (instead of Lindahl prices) is that the RICEB measure effectively captures gains from sharing consumption. This means that the sum of an individual’s RICEBs may exceed one (indicating that the private equivalent of an individual’s consumption exceeds total household expenditure), while the sum of an individual’s sharing rule is equal to one by construction. Note also that, in both the models, the identification of both the RICEB and the sharing rule measures is entirely driven by the identification of private consumption. Put differently, once we know the bounds on private consumption share, it is straightforward to compute the set of feasible sharing rules or RICEBs. Appendix D.3 provides the results for the sharing rule identification.

22 In our main specification, we include expenditures on children in the definition of both male and female RICEBs. However, one may argue that RICEBs should only reflect the goods that are directly consumed by individuals. In Appendix D.5, we use an alternative definition whereby we consider only leisure, Hicksian aggregate private and public consumption of the household to define the RICEB measure. Evidently, as this excludes a significant portion of a household’s public consumption, our RICEB measure generally decreases for households with children. However, and importantly, our main qualitative conclusions remain robust.
Table 7: Females’ private consumption share and observed heterogeneity

|                              | with legislation | without legislation |
|------------------------------|------------------|---------------------|
|                              | lower            | upper               | lower            | upper               |
| log($w_f/w_m$)               | 0.157***         | 0.221***            | 0.086***         | 0.150***            |
|                              | (0.012)          | (0.013)             | (0.009)          | (0.012)             |
| age male - age female        | -0.001           | 0.001               | -0.001           | 0.001               |
|                              | (0.001)          | (0.002)             | (0.001)          | (0.002)             |
| log(total potential income)  | 0.024*           | 0.202***            | 0.024***         | 0.170***            |
|                              | (0.013)          | (0.018)             | (0.008)          | (0.015)             |
| one child                    | 0.039***         | 0.088***            | -0.047***        | -0.046***           |
|                              | (0.013)          | (0.018)             | (0.011)          | (0.016)             |
| two or more children         | 0.059***         | 0.163***            | -0.078***        | -0.094***           |
|                              | (0.016)          | (0.022)             | (0.011)          | (0.018)             |
| male has a degree            | -0.009           | -0.030*             | -0.004           | -0.031**            |
|                              | (0.013)          | (0.016)             | (0.009)          | (0.014)             |
| female has a degree          | 0.013            | -0.001              | 0.018**          | -0.003              |
|                              | (0.012)          | (0.015)             | (0.008)          | (0.013)             |
| male’s consideration set size| -0.001**         | -0.001***           | -0.001***        | -0.001***           |
|                              | (0.000)          | (0.000)             | (0.000)          | (0.000)             |
| females’ consideration set size| 0.001***       | 0.002***            | 0.001***         | 0.002***            |
|                              | (0.000)          | (0.000)             | (0.000)          | (0.000)             |
| cohabitating                 | 0.021            | 0.030               | 0.009            | 0.017               |
|                              | (0.014)          | (0.019)             | (0.010)          | (0.015)             |
| constant                     | -0.042           | -1.757***           | -0.084           | -1.489***           |
|                              | (0.135)          | (0.194)             | (0.088)          | (0.167)             |
| market fixed effect          | Yes              | Yes                 | Yes              | Yes                 |
| N                            | 739              | 739                 | 739              | 739                 |
| R-squared                    | 0.386            | 0.489               | 0.345            | 0.438               |

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
publicness of household consumption and intrahousehold sharing patterns. For example, if a household spends a larger share of their expenditures on public goods, then the RICEBs of both the man and woman of a given household will increase. Similarly, if a large share of a household’s private consumption goes to the man, then his RICEB will increase and the woman’s RICEB will decrease. In this way, RICEBs capture individuals’ bargaining positions in the household.

Similar to before, we identify the lower and upper bounds of RICEBs using the two models with and without legislation. Table 8 shows the mean values of women’s and men’s lower and upper RICEB estimates by the number of children in the household. The table also reports on the percentage point difference between the upper and lower bounds (see the “difference” columns). Once again, these results show that both models yield informative bounds, though the model without legislation provides a slightly tighter identification. We also find that both sets of female and male RICEB estimates increase with the number of children in the household. This is intuitive as a higher number of children indicates a larger share of public consumption. Importantly, however, we find that RICEB estimates from the two models are significantly different for a household with children. More specifically, female RICEBs are significantly higher, and male RICEBs are lower from the model with legislation as compared to the ones from the model without legislation. For example, for women with two or more children, the model without legislation yields average female RICEB estimates of 53% to 55%, which are substantially smaller than 55% to 59% when identified through the model with legislation.

Table 8: Average bounds on RICEB

|                    | female   |             | male     |             | difference | female   |             | male     |             | difference |
|--------------------|----------|-------------|----------|-------------|------------|----------|-------------|----------|-------------|------------|
|                    | lower    | upper       | lower    | upper       |            | lower    | upper       | lower    | upper       |            |
| no children        | 0.50     | 0.53        | 0.68     | 0.72        | 0.03       | 0.50     | 0.53        | 0.69     | 0.72        | 0.03       |
| one child          | 0.53     | 0.57        | 0.69     | 0.73        | 0.04       | 0.52     | 0.55        | 0.72     | 0.75        | 0.03       |
| two or more children | 0.55    | 0.59        | 0.71     | 0.75        | 0.05       | 0.53     | 0.55        | 0.75     | 0.77        | 0.02       |
| Total              | 0.53     | 0.57        | 0.70     | 0.73        | 0.04       | 0.52     | 0.54        | 0.72     | 0.75        | 0.03       |

Poverty analysis. As a final exercise, we use RICEB estimates to conduct a poverty analysis at the level of individuals, rather than at the level of households. As discussed earlier, the RICEB measure captures both the economies of scale in household consumption and intrahousehold sharing. As such, the poverty analysis will reflect both these aspects of household consumption. To better understand the impact of these channels on poverty rates, we conduct three exercises. In the first exercise, we use a standard method of quantifying the poverty rate. More specifically, a household is labeled as poor if the household income falls below the poverty line, where the poverty line is defined as 60% of the median full income in the sample of households. Moreover, assuming equal sharing of household resources and no economies of scale in consumption, this would also reflect the individual poverty rates. The results of this exercise are reported under
the heading “equal sharing” in Table 9. Using this criterion, we would label around 14% of couples with children and 19% of couples without children as poor.

In the second and third exercises, we compute the poverty rates using the RICEBs identified from the models with and without divorce legislation. Here, we label an individual as poor if the average of his or her lower and upper estimates of the RICEB falls below the individual poverty line, where the individual poverty line is defined as half of the poverty line used for couples in the first exercise. These results are reported in Table 9 under the headings “with legislation” and “without legislation,” respectively. Comparing these poverty rates with the ones under the heading “equal sharing” clearly highlights the importance of households’ economies of scale and intrahousehold allocations when analyzing poverty. As expected, we find a reduction in poverty rates as compared to the ones that ignore the publicness of consumption. However, it is important to remark that virtually all the reductions are mainly driven by a decrease in male poverty. Across the demographic group, male poverty varies between 3% to 9%, while female poverty is substantially higher between 12% to 22%.

Next, comparing the poverty rates derived from the model with and without legislation reflects the role of family laws in intrahousehold allocations. We find that the model without legislation slightly overestimates female poverty and underestimates male poverty as compared to the model with legislation. For example, among couples with two or more children, female poverty falls from 15.82% to 13.78%, while male poverty rises from 3.06% to 3.57% when divorce laws are incorporated into the model. These results can be explained by the fact that the model without legislation underestimates the mother’s share of private consumption as shown in Tables 6 and 8. We conclude from these results that, along with economies of scale and intrahousehold sharing patterns, distribution factors like family laws are important factors that can affect poverty rates through their impact on intrahousehold resource allocation.

5 Conclusion

We presented a novel framework to analyze rational household consumption under the assumption of marital stability given the constraints imposed by divorce laws. In particular, we focused on two dimensions of divorce laws that crucially affect an individual’s postdivorce opportunities and marital stability. First, we considered different regimes under which couples can seek divorce. Under unilateral divorce, a partner’s consent is not required, and, under mutual consent divorce, both partners need to agree to end the marriage. Second, we focused on the role of children and child custody laws on conditions for marital stability. More specifically, we modeled children as “marital-specific” public goods. We studied the implications of a sole custody arrangement in which children

---

23 As is evident from Table 8, our RICEB estimates are quite tightly identified. Hence, using the average of the lower and upper bounds provides a reasonable approximation of poverty rates. Still, in Appendix D.4, we report on the results of a robustness check, where we use both the lower and upper RICEB estimates (instead of the average of the lower and upper bounds) to compute poverty rates. Our conclusions remain the same.
Table 9: Poverty rates (in %)

|                    | equal sharing | with legislation | without legislation |
|--------------------|---------------|------------------|--------------------|
| **no children**    |               |                  |                    |
| female             | 18.99         | 21.79            | 20.67              |
| male               | 18.99         | 9.50             | 9.50               |
| **one child**      |               |                  |                    |
| female             | 13.70         | 12.60            | 13.97              |
| male               | 13.70         | 5.75             | 4.93               |
| **two or more children** |       |                  |                    |
| female             | 13.78         | 13.78            | 15.82              |
| male               | 13.78         | 3.57             | 3.06               |

reside with one parent, the custodian. In contrast, the noncustodial parent provides for their children by transferring money to the custodian. In a joint custody arrangement, both parents share responsibility for their children. Our framework builds on a revealed preference characterization of household behavior, implying that the framework is intrinsically nonparametric. The distinguishing feature of this methodology is its robustness to functional misspecification errors while allowing for fully heterogeneous individual preferences.

We illustrated the applicability of the model using data drawn from RLMS. This application highlights the importance of incorporating divorce law-based constraints in the empirical analysis of household consumption. Using data on a sample of couples and single adults with and without children, we showed that the model incorporating divorce legislation fits the data better than one that does not include legal aspects. Next, we used the models to estimate the share of individual private consumption, as well as the RICEB measure. The difference in estimated resource share is significant (reflecting the importance of law-based constraints). For example, we find that the model without legislation significantly underestimates the share of women’s private consumption for couples with children. These findings are consistent with the existing evidence, which finds a significant impact of divorce law on marriage market dynamics and intrahousehold bargaining. Lastly, we conducted a poverty analysis at the level of individual household members and showed that the welfare analysis is prone to errors if the identified intrahousehold allocations are biased.

In our model, we have made several simplifying choices. Weakening these assumptions can enrich the model and create a more realistic setting. We can mitigate some of the assumptions by integrating our model with existing revealed preference methods. For example, detailed time-use studies often find that couples with children spend a substantial part of their day in joint child care (Cosaert et al. 2020). While we abstracted from household production, it can be included using the framework of Cherchye et al. (2020b). Next, we assumed that the nature of consumption (public or private) is known. To additionally identify the degree of publicness of household consumption, we can adapt
the method of [Cherchye et al. (2020a)]. Finally, we assumed that the researcher knows
individuals’ marriage markets. In the empirical application, we operationalized this by
defining region- and age-based sets of potential partners. Integrating the insights from
the literature that provides a structural explanation of observed matching patterns into
the model would allow for more advanced modeling of individual marriage markets (see,
e.g., [Choo and Siow (2006); Dupuy and Galichon (2014)].

References

Sydney N Afriat. The construction of utility functions from expenditure data. *International economic review*, 8(1):67–77, 1967.

Ahmet Alkan and David Gale. The core of the matching game. *Games and economic behavior*, 2(3):203–212, 1990.

Alexandre Avdeev and Alain Monnier. Marriage in Russia: a complex phenomenon poorly understood. *Population: an English selection*, pages 7–49, 2000.

Denrick Bayot and Alessandra Voena. Prenuptial contracts, labor supply and household investments. 2013.

Gary S Becker. A theory of marriage: Part i. *Journal of Political economy*, 81(4):813–846, 1973.

Gary S Becker. *A Treatise on the Family*. Harvard University Press, 1991.

Richard Blundell, Pierre-André Chiappori, and Costas Meghir. Collective labor supply with children. *Journal of political Economy*, 113(6):1277–1306, 2005.

Jens Bonke and Martin Browning. The allocation of expenditures within the household: A new survey. *Fiscal studies*, 30(3-4):461–481, 2009.

Martin Browning, Pierre-André Chiappori, and Yoram Weiss. *Economics of the Family*. Cambridge University Press, 2014.

Rossella Calvi. Why are older women missing in India? the age profile of bargaining power and poverty. *Journal of Political Economy*, 128(7):2453–2501, 2020.

Marco Castillo and Mikhail Freer. A general revealed preference test for quasi-linear preferences: Theory and experiments. *Available at SSRN 3397767*, 2019.

Laurens Cherchye, Bram De Rock, and Frederic Vermeulen. Opening the black box of intrahousehold decision making: Theory and nonparametric empirical tests of general collective consumption models. *Journal of Political Economy*, 117(6):1074–1104, 2009.

Laurens Cherchye, Bram De Rock, and Frederic Vermeulen. The revealed preference approach to collective consumption behaviour: Testing and sharing rule recovery. *The Review of Economic Studies*, 78(1):176–198, 2011.
Laurens Cherchye, Bram De Rock, and Frederic Vermeulen. Married with children: A collective labor supply model with detailed time use and intrahousehold expenditure information. *American Economic Review*, 102(7):3377–3405, 2012.

Laurens Cherchye, Thomas Demuynck, Bram De Rock, and Frederic Vermeulen. Household consumption when the marriage is stable. *American Economic Review*, 107(6):1507–34, 2017.

Laurens Cherchye, Bram De Rock, Khushboo Surana, and Frederic Vermeulen. Marital matching, economies of scale, and intrahousehold allocations. *Review of Economics and Statistics*, 102(4):823–837, 2020a.

Laurens Cherchye, Bram De Rock, Frederic Vermeulen, and Selma Walther. Where did it go wrong? marriage and divorce in malawi. *Quantitative Economics*, 2020b.

Pierre-André Chiappori. Rational household labor supply. *Econometrica: Journal of the Econometric Society*, pages 63–90, 1988.

Pierre-André Chiappori. Collective labor supply and welfare. *Journal of Political Economy*, 100(3):437–467, 1992.

Pierre-André Chiappori. *Matching with transfers*. Princeton University Press, 2017.

Pierre-André Chiappori and Elisabeth Gugl. Transferable utility and demand functions. *Theoretical Economics*, 15(4):1307–1333, 2020.

Pierre-André Chiappori and Maurizio Mazzocco. Static and intertemporal household decisions. *Journal of Economic Literature*, 55(3):985–1045, 2017.

Pierre-André Chiappori and Philip J Reny. Matching to share risk. *Theoretical Economics*, 11(1):227–251, 2016.

Pierre-Andre Chiappori and Yoram Weiss. Divorce, remarriage, and child support. *Journal of Labor Economics*, 25(1):37–74, 2007.

Pierre-Andre Chiappori, Bernard Fortin, and Guy Lacroix. Marriage market, divorce legislation, and household labor supply. *Journal of Political Economy*, 110(1):37–72, 2002.

Pierre-André Chiappori, Murat Iyigun, and Yoram Weiss. The becker–coase theorem reconsidered. *Journal of Demographic Economics*, 81(2):157–177, 2015.

Pierre-Andre Chiappori, Murat Iyigun, Jeanne Lafortune, and Yoram Weiss. Changing the rules midway: the impact of granting alimony rights on existing and newly formed partnerships. *The Economic Journal*, 127(604):1874–1905, 2017.

Pierre-André Chiappori, Natalia Radchenko, and Bernard Salanié. Divorce and the duality of marital payoff. *Review of Economics of the Household*, 16(3):833–858, 2018.
Eugene Choo and Shannon Seitz. The collective marriage matching model: Identification, estimation, and testing. In *Structural Econometric Models*. Emerald Group Publishing Limited, 2013.

Eugene Choo and Aloysius Siow. Who marries whom and why. *Journal of Political Economy*, 114(1):175–201, 2006.

Sam Cosaert, Alexandros Theloudis, and Bertrand Verheyden. Togetherness in the household. *Luxembourg Institute of Socio-Economic Research (LISER) Working Paper Series*, 1, 2020.

Olivier Donni. Measuring the cost of children. *IZA World of Labor*, 2015.

Arnaud Dupuy and Alfred Galichon. Personality traits and the marriage market. *Journal of Political Economy*, 122(6):1271–1319, 2014.

Raquel Fernández and Joyce Cheng Wong. Free to leave? A welfare analysis of divorce regimes. *American Economic Journal: Macroeconomics*, 9(3):72–115, 2017.

Hanno Foerster. Untying the knot: How child support and alimony affect couples’ decisions and welfare. Technical report, University of Bonn and University of Mannheim, Germany, 2020.

Francoise Forges and Enrico Minelli. Afriat’s theorem for general budget sets. *Journal of Economic Theory*, 144(1):135–145, 2009.

Alfred Galichon, Scott Duke Kominers, and Simon Weber. Costly concessions: An empirical framework for matching with imperfectly transferable utility. *Journal of Political Economy*, 127(6):2875–2925, 2019.

Marion Goussé, Nicolas Jacquemet, and Jean-Marc Robin. Marriage, labor supply, and home production. *Econometrica*, 85(6):1873–1919, 2017.

Jeffrey S Gray. Divorce-law changes, household bargaining, and married women’s labor supply. *The American Economic Review*, 88(3):628–642, 1998.

Paul R Gregory, Manouchehr Mokhtari, and Wolfram Schrettl. Do the russians really save that much?—alternate estimates from the russian longitudinal monitoring survey. *Review of Economics and Statistics*, 81(4):694–703, 1999.

Alessandra Guariglia and Byung-Yeon Kim. Earnings uncertainty, precautionary saving, and moonlighting in russia. *Journal of Population Economics*, 17(2):289–310, 2004.

Lauren Hoehn-Velasco and Dr Jacob Penglase. The impact of no-fault unilateral divorce laws on divorce rates in mexico. *Economic Development and Cultural Change*, 2021.

Thorsten Kneip and Gerrit Bauer. Did unilateral divorce laws raise divorce rates in western europe? *Journal of Marriage and Family*, 71(3):592–607, 2009.
Patrick Legros and Andrew F Newman. Beauty is a beast, frog is a prince: Assortative matching with nontransferabilities. *Econometrica*, 75(4):1073–1102, 2007.

Jeremy Lise and Ken Yamada. Household sharing and commitment: Evidence from panel data on individual expenditures and time use. *The Review of Economic Studies*, 86(5):2184–2219, 2019.

Shelly Lundberg and Robert A Pollak. Separate spheres bargaining and the marriage market. *Journal of political Economy*, 101(6):988–1010, 1993.

Magdalena Muszynska and Hill Kulu. Migration and union dissolution in a changing socio-economic context: The case of Russia. *Demographic Research*, 17:803–820, 2007.

Roger B Myerson. Graphs and cooperation in games. *Mathematics of operations research*, 2(3):225–229, 1977.

Sonia Oreffice. Did the legalization of abortion increase women’s household bargaining power? Evidence from labor supply. *Review of Economics of the Household*, 5(2):181–207, 2007.

Lilia Ovcharova, Biryukova Svetlana, Sergey Ter-Akopov, and Vardanyan E. Changes in incomes and expenditures of Russia citizens. *Published by the Higher School of Economics*, 2014. (in Russian).

Marcos A Rangel. Alimony rights and intrahousehold allocation of resources: evidence from Brazil. *The Economic Journal*, 116(513):627–658, 2006.

Imran Rasul. Marriage markets and divorce laws. *Journal of Law, Economics, and Organization*, 22(1):30–69, 2006.

Ana Reynoso. The impact of divorce laws on the equilibrium in the marriage market. 2018.

Paul A Samuelson. A note on the pure theory of consumer’s behaviour. *Economica*, 5(17):61–71, 1938.

Lloyd S Shapley and Martin Shubik. The assignment game i: The core. *International Journal of Game Theory*, 1(1):111–130, 1971.

Vladimir V Solodnikov. Social research of divorce in USSR and Russia. In *Divorce, Separation, and Remarriage: The Transformation of Family*. Emerald Group Publishing Limited, 2016.

Betsey Stevenson. The impact of divorce laws on marriage-specific capital. *Journal of Labor Economics*, 25(1):75–94, 2007.

Betsey Stevenson and Justin Wolfers. Bargaining in the shadow of the law: Divorce laws and family distress. *The Quarterly Journal of Economics*, 121(1):267–288, 2006.
Hal R Varian. The nonparametric approach to demand analysis. *Econometrica: Journal of the Econometric Society*, pages 945–973, 1982.

Alessandra Voena. Yours, mine, and ours: Do divorce laws affect the intertemporal behavior of married couples? *American Economic Review*, 105(8):2295–2332, 2015.

Simon Weber. Collective models and the marriage market. *Becker Friedman Institute for Research in Economics Working Paper*, (2956114), 2017.

Justin Wolfers. Did unilateral divorce laws raise divorce rates? a reconciliation and new results. *American Economic Review*, 96(5):1802–1820, 2006.
A Proofs

The proof of Theorem 1 proceeds with two supplementary Lemmas. First, we restate the condition of the matching being in the core in terms of conditions on \( \omega_{i,j} + t_i - t_{\sigma(j)} \) instead of unobserved utility functions for every permissible coalition. Second, we show that if the data set satisfies the conditions shown in Lemma 1, then it also satisfies path monotonicity. Together the two lemmas allow us to show that path monotonicity is a necessary condition for the matching to be in the core.

A.1 Lemmata

Lemma 1. Let \( D \) be a data set. If the observed matching is in the core, then there exist

- \( q_{i,\sigma(i)}^i \in \mathbb{R}_+^n \) and \( q_{i,\sigma(i)}^{\sigma(i)} \in \mathbb{R}_+^n \) such that

\[
q_{i,\sigma(i)}^i + q_{i,\sigma(i)}^{\sigma(i)} = q_{i,\sigma(i)}
\]

for every \( i \in M \) and \( \sigma(i) \in W \),

- \( P_{i,j}^i \in \mathbb{R}_+^N \) and \( P_{i,j}^j \in \mathbb{R}_+^N \) such that

\[
P_{i,j}^i + P_{i,j}^j = P_{i,j}
\]

for every \( i \in M \) and \( j \in W \),

such that there is no

- permissible coalition \( S \),

- rematching \( \hat{\sigma} : S \to S \), and

- transfers \( t_i \) for every \( i \in S \cap M \),

such that

\[
\omega_{i,j} + t_i - t_{\sigma(j)} \leq 0,
\]

where \( j = \hat{\sigma}(i) \) and at least one inequality is strict.

Proof. We prove by contradiction. Assume that for any set of vectors personal consumption and personalized prices, there are

- permissible coalition \( S \),

- rematching \( \hat{\sigma} : S \to S \), and

- transfers \( t_i \) for every \( i \in S \cap M \),

...
such that
\[ \omega_{i,j} + t_i - t_{\sigma(j)} \leq 0, \]
where \( j = \hat{\sigma}(i) \) and at least one inequality is strict. Since the matching is the core, there are two potential cases for this permissible coalition. Either some members in the coalition are better off and others are worse off or every member is exactly as well off as they are in the current matching. In case all members are better off and at least one strictly better off, then this permissible coalition would be blocking. This is in contradiction with the assumption that the given matching is in the core.

**Case 1: Someone is strictly worse off**

Given that the matching is in the core and \( S \) is a permissible coalition, there must be a new couple \((i, j)\) where \( j = \hat{\sigma}(i) \) in which at least one member is strictly worse off. If there are no such couples, then the permissible coalition \( S \) would be blocking, which is a contradiction to the fact that the matching is in the core. Consider the optimization problem of this couple \((i, j)\),

\[
\begin{align*}
\{ u_i(q^i, Q, C^i) + \mu u_j(q^j, Q, C^j) & \rightarrow \max_{q^i, q^j, Q, C^i, C^j} \\
p_{i,j}(q^i + q^j) + P_{i,j}Q + F_{i,j}^i(C^i) + F_{i,j}^j(C^j) & \leq y_{i,j} - t_i + t_{\sigma(j)}
\end{align*}
\]

The first-order conditions imply,

\[
\begin{align*}
\nabla_{q^i} u_i(q^i_{i,j}, Q_{i,j}, C^i_{i,j}) &= \lambda_{i,j} p_{i,j}, \\
\mu \nabla_{q^j} u_j(q^j_{i,j}, Q_{i,j}, C^j_{i,j}) &= \lambda_{i,j} p_{i,j}, \\
\nabla_{Q_i} u_i(q^i_{i,j}, Q_{i,j}, C^i_{i,j}) &= \lambda_{i,j} \frac{dF^i(C^i_{i,j})}{dC} = f^i_{i,j}, \\
\mu \nabla_{C^i} u_j(q^j_{i,j}, Q_{i,j}, C^j_{i,j}) &= \lambda_{i,j} \frac{dF^j(C^j_{i,j})}{dC} = f^j_{i,j},
\end{align*}
\]

where consumption bundles marked with the subscript \"i, j\" denote the optimal choices. Let

\[
P^j_{i,j} = \frac{\mu u_j(q^j_{i,j}, Q_{i,j}, C^j_{i,j})}{\lambda_{i,j}} \quad \text{and} \quad P^i_{i,j} = P_{i,j} - P^j_{i,j}.
\]

Since we know that the pair \((i, j)\) can not improve upon their current matches and given that their resulting Pareto frontier is continuous and strictly decreasing, there is a \( \mu > 0 \) such that the optimal consumption vector \((q^i, q^j, Q, C^i, C^j)\) satisfies\(^{24}\)

\[
\begin{align*}
u_i(q^i, Q, C^i) & \leq u_i(q^i_{\sigma(i)}, Q_{\sigma(i)}, C_{\sigma(i)}) , \\
u_j(q^j, Q, C^j) & \leq u_j(q^j_{\sigma(j)}, Q_{\sigma(j)}, C_{\sigma(j)}) ,
\end{align*}
\]

\(^{24}\)This observation follows the idea of the existence of stable matching as in Alkan and Gale (1990).
with at least one inequality being strict, where \((q^i, q^j, Q, C^i, C^j)\) satisfy

\[
p_{i,j}(q^i + q^j) + P_{i,j} Q + F^i_{i,j}(C^i) + F^j_{i,j}(C^j) = y_{i,j} - t_i + t_{\sigma(j)}.
\]

Thus, the following set of inequalities should be satisfied.

\[
u_i(q^i_{i,\sigma(i)}), Q, C^i) \geq u_i(q^i_{i,j}, Q_{i,j}, C^i_{i,j}),
\]

\[
u_{\mu,j}(q^j_{\sigma(j),j}, Q_{\sigma(j),j}, C^j_{\sigma(j),j}) \geq \mu u_j(q^j_{i,j}, Q_{i,j}, C^j_{i,j})
\]

Using concavity of \(u_i\) and \(u_j\), we can write down the following inequalities.

\[
0 \leq u_i(q^i_{i,\sigma(i)}, Q, C^i) - u_i(q^i_{i,j}, Q_{i,j}, C^i_{i,j})
\]

\[
\leq \lambda_{i,j} (p_{i,j}(q^i_{i,\sigma(i)} - q^i_{i,j}) + P^i_{i,j} (Q_{i,\sigma(i)} - Q_{i,j}) + f^i_{i,j} (C_{i,\sigma(i)} - C^i_{i,j}))
\]

\[
0 \leq \mu u_j(q^j_{\sigma(j),j}, Q_{\sigma(j),j}, C^j_{\sigma(j),j}) - \mu u_j(q^j_{i,j}, Q_{i,j}, C^j_{i,j})
\]

\[
\leq \lambda_{i,j} (p_{i,j}(q^j_{\sigma(j),j} - q^j_{i,j}) + P^j_{i,j} (Q_{\sigma(j),j} - Q_{i,j}) + f^j_{i,j} (C_{\sigma(j),j} - C^j_{i,j}))
\]

Next, we can add up the inequalities and simplify them to get

\[
p_{i,j}(q^i_{i,j} + q^j_{i,j}) + P^i_{i,j} Q_{i,j} + f^i_{i,j} C^i_{i,j} + P^j_{i,j} Q_{i,j} + f^j_{i,j} C^j_{i,j}
\]

\[
< p_{i,j}(q^i_{i,\sigma(i)} + q^j_{\sigma(j),j}) + P^i_{i,j} Q_{i,\sigma(i)} + f^i_{i,j} C_{i,\sigma(i)} + P^j_{i,j} Q_{\sigma(j),j} + f^j_{i,j} C_{\sigma(j),j}
\]

Note that the inequality here is strict as for at least one of \(i \in M\) and \(j \in W\) the inequality above is strict. Next, by convexity of \(F^i_{i,j}\), for every \(C\)

\[
F^i_{i,j}(0) \geq F^i_{i,j}(C) + \frac{dF^i_{i,j}(C)}{dC} (0 - C)
\]

Given that \(F^i_{i,j}(0) = F^j_{i,j}(0) = 0\) for every \(i \in M\) and \(j \in W\), we can conclude that

\[
F^i_{i,j}(C^i_{i,j}) \leq f^i_{i,j} C^i_{i,j} \quad \text{and} \quad F^j_{i,j}(C^j_{i,j}) \leq f^j_{i,j} C^j_{i,j}.
\]

Hence,

\[
y_{i,j} - t_i + t_{\sigma(j)} = p_{i,j}(q^i_{i,j} + q^j_{i,j}) + P_{i,j} Q_{i,j} + F^i_{i,j}(C^i_{i,j}) + F^j_{i,j}(C^j_{i,j}) <
\]

\[
p_{i,j}(q^i_{i,\sigma(i)} + q^j_{\sigma(j),j}) + P^i_{i,j} Q_{i,\sigma(i)} + P^j_{i,j} Q_{\sigma(j),j} + f^i_{i,j} C_{i,\sigma(i)} + f^j_{i,j} C_{\sigma(j),j}
\]

Hence, we can conclude that

\[
y_{i,j} - t_i + t_{\sigma(j)} < p_{i,j}(q^i_{i,\sigma(i)} + q^j_{\sigma(j),j}) + P^i_{i,j} Q_{i,\sigma(i)} + P^j_{i,j} Q_{\sigma(j),j} + f^i_{i,j} C_{i,\sigma(i)} + f^j_{i,j} C_{\sigma(j),j}
\]

Or equivalently,

\[
p_{i,j}(q^i_{i,\sigma(i)} + q^j_{\sigma(j),j}) + P^i_{i,j} Q_{i,\sigma(i)} + P^j_{i,j} Q_{\sigma(j),j} + f^i_{i,j} C_{i,\sigma(i)} + f^j_{i,j} C_{\sigma(j),j} - y_{i,j} + t_i - t_{\sigma(j)} > 0,
\]

\[
\omega_{i,j} + t_i - t_{\sigma(j)} > 0.
\]
That is a contradiction to 
\[ \omega_{i,j} + t_i - t_{\sigma(j)} \leq 0. \]

**Case 2: Everyone is indifferent**
Suppose that everyone in the permissible coalition is indifferent between the new matching (\(\hat{\sigma}\)) and the current matches (\(\sigma\)). In this case, we can use the same logic as in the previous case to obtain that
\[ \omega_{i,j} + t_i - t_{\sigma(j)} \geq 0 \]
for every \((i,j) \in S\) where \(j = \hat{\sigma}(i)\). This is a contradiction to the fact that at least for one couple the less than or equal to inequality should hold strictly, i.e.
\[ \omega_{i,j} + t_i - t_{\sigma(j)} < 0. \]

**Lemma 2.** Let \(D\) be a data set. If there is no coalition \(S = \{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1}), \sigma(i_n))\}\) with either \(i_n = i_1\) or \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V\), rematching \(\hat{\sigma} : S \to S\) with \(\hat{\sigma}(i_k) = \sigma(i_{k+1})\) for \(k = 1, \ldots, n - 1\), and vector of transfers \(t_k\) such that
\[ w_{i_k, \sigma(i_{k+1})} + t_i - t_{i_{k+1}} \leq 0 \text{ for every } k = 1, \ldots, n - 1 \]
with at least one inequality being strict, then \(\Omega(D)\) satisfies path monotonicity.

**Proof.** To prove the lemma we show that if path monotonicity is violated then we can find a coalition \(S\) consisting of \(\{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1}), \sigma(i_n))\}\) with either \(i_n = i_1\) or \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V\), rematches \(\hat{\sigma} = (i_k, \sigma(i_{k+1}))\) for \(k = 1, \ldots, n - 1\), and transfers \(t_k\) for \(k \in \{1, \ldots, n\}\) such that
\[ w_{i_k, \sigma(i_{k+1})} + t_i - t_{i_{k+1}} \leq 0 \text{ for every } 1 \leq k \leq n - 1. \]

We consider two cases: (i) when path monotonicity is violated along a cycle \((i_1 = i_n)\), and (ii) when path monotonicity is violated along a path \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V\).

**Case 1: \(i_1 = i_n\)**
Suppose there is a violation of path monotonicity along a cycle. That is, suppose there is a coalition \(S\) consisting of \(\{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1}), \sigma(i_n))\}\) with \(i_1 = i_n\), and rematches \(\hat{\sigma} = (i_k, \sigma(i_{k+1}))\) for \(k = 1, \ldots, n - 1\), such that
\[ \sum_{k=1}^{n-1} w_{i_k, \sigma(i_{k+1})} < 0. \]

Note that when \(i_1 = i_n\), then the rematching \(\hat{\sigma}\) represents a cycle of partner exchange. Since we are considering a cycle we can freely relabel the elements. In particular, we
relabel the individuals such that \( w_{i_1, \sigma(i_2)} \) is the largest positive number. Let \( t_{i_1} = 0 \) and \( t_{i_2} = w_{i_1, \sigma(i_2)} \). This implies,

\[
w_{i_1, \sigma(i_2)} - t_{i_2} = 0.
\]

Next, we define

\[
t_{i_{k+1}} = w_{i_k, \sigma(i_{k+1})} + t_{i_k} \text{ for every } k \in \{2, \ldots, n - 2\}.
\]

By definition, this implies

\[
w_{i_k, \sigma(i_{k+1})} + t_{i_k} - t_{i_{k+1}} = 0 \text{ for every } k \in \{2, \ldots, n - 2\}.
\]

Finally, we know that \( t_{i_n} = t_{i_1} \) since \( i_1 = i_n \). As \( t_{i_1} \) is assumed to be zero, this implies that \( t_{i_n} = 0 \). Note that, by construction, \( w_{i_k, \sigma(i_{k+1})} + t_{i_k} - t_{i_{k+1}} \leq 0 \) for all \( k \in \{1, \ldots, n - 2\} \). We are left to show that that \( w_{i_{n-1}, \sigma(i_n)} + t_{i_{n-1}} - t_n < 0 \).

\[
w_{i_{n-1}, \sigma(i_n)} + t_{i_{n-1}} - t_n = w_{i_{n-1}, \sigma(i_n)} + t_{i_{n-1}},
\]

\[
= w_{i_{n-1}, \sigma(i_n)} + w_{i_{n-2}, \sigma(i_{n-1})} + t_{i_{n-2}},
\]

\[
= w_{i_{n-1}, \sigma(i_n)} + w_{i_{n-2}, \sigma(i_{n-1})} + w_{i_{n-3}, \sigma(i_{n-2})} + t_{i_{n-3}},
\]

\[
\vdots
\]

\[
= \sum_{k=1}^{s} w_{i_{n-k}, \sigma(i_{n-k+1})} + t_{n-s},
\]

\[
= \sum_{k=1}^{n-1} w_{i_k, \sigma(i_{k+1})} < 0 \text{ (by violation of path monotonicity)}.
\]

Summarizing, we have shown that there is a coalition \( S \) consisting of \( \{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\} \) with \( i_1 = i_n \), remarriages \( \hat{\sigma} = (i_k, \sigma(i_{k+1})) \) for \( k = \{1, \ldots, n - 1\} \), and transfers \( t_{i_2}, \ldots, t_{i_{n-1}} \) with \( t_{i_1} = t_{i_n} = 0 \) such that

\[
w_{i_k, \sigma(i_{k+1})} + t_{i_k} - t_{i_{k+1}} \leq 0 \text{ for every } k \in \{1, \ldots, n - 1\}
\]

with one inequality being strict (corresponding to \( k = n - 1 \)).

**Case 2:** \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin \mathcal{V}\)

Suppose there is a violation of path monotonicity along a path. That is, suppose there is coalition \( S \) consisting of \( \{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\} \) with \( (i_1, \sigma(i_1)) \) and \( (i_n, \sigma(i_n)) \notin \mathcal{V} \), and remarriages \( \hat{\sigma} = (i_k, \sigma(i_{k+1})) \) for \( k = \{1, \ldots, n - 1\} \) such that

\[
\sum_{k=1}^{n-1} w_{i_k, \sigma(i_{k+1})} < 0.
\]

\textsuperscript{25}If all the weights are negative, then the proof is trivial, we can simply assume that all transfers are zero.

41
Since \( \sigma(i_1), i_n \notin S \), we have \( t_{i_1}, t_{i_n} = 0 \). Next, let \( t_{i_2} = w_{i_1, \sigma(i_2)} \). This implies that \( w_{i_1, \sigma(i_2)} - t_{i_2} = 0 \). Similarly, we can define

\[
    t_{ik+1} = w_{ik, \sigma(ik+1)} + t_k 
\]

for every \( k \in \{2, \ldots, n-2\} \).

By definition, this implies

\[
    w_{ik, \sigma(ik+1)} + t_k - t_{ik+1} = 0 \quad \text{for every} \quad k \in \{2, \ldots, n-2\}.
\]

Hence, for every \( k \in \{1, \ldots, n-2\} \), we guarantee that there are transfers such that the path contains only negatively-weighted edges. Finally, let us consider \( k = n - 1 \). Since \( i_n \notin S \), it is required that \( t_{i_n} = 0 \). Simplifying, we have that

\[
    w_{i_{n-1}, \sigma(i_n)} + t_{i_{n-1}} - t_{i_n} = w_{i_{n-1}, \sigma(i_n)} + t_{i_{n-1}}
\]

\[
    = w_{i_{n-1}, \sigma(i_n)} + w_{i_{n-2}, \sigma(i_{n-1})} + t_{i_{n-2}}
\]

\[
    = w_{i_{n-1}, \sigma(i_n)} + w_{i_{n-2}, \sigma(i_{n-1})} + w_{i_{n-3}, \sigma(i_{n-2})} + t_{i_{n-3}}
\]

\[
    \vdots
\]

\[
    = \sum_{k=1}^{s} w_{i_{n-k}, \sigma(i_{n-k+1})} + t_{n-s}
\]

\[
    = \sum_{k=1}^{n-1} w_{ik, \sigma(ik+1)} < 0 \quad \text{(by violation of path monotonicity)}.
\]

Summarizing, we have shown that there is a coalition \( S \) consisting of \( \{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\} \) with \( (i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V \), remarriages \( (i_k, \sigma(i_{k+1})) \) for \( k = \{1, \ldots, n-1\} \), and transfers \( t_{i_2}, \ldots, t_{i_{n-1}} \) with \( t_{i_1} = t_{i_n} = 0 \) such that

\[
    w_{ik, \sigma(ik+1)} + t_k - t_{ik+1} \leq 0 \quad \text{for every} \quad k \in \{1, \ldots, n-1\}
\]

with one inequality being strict (corresponding to \( k = n - 1 \)).

\[ \square \]

### A.2 Proof of Theorem 1

**Proof.** We prove by contradiction. Assume that the given matching is in the core yet for every vector of personal consumption and personalized prices, path monotonicity is violated. That is, there is a coalition \( S \) consisting of \( \{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\} \) with either \( i_1 = i_n \) or \( (i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V \) and remarriages \( \tilde{\sigma} = (i_k, \sigma(i_{k+1})) \) for \( k = \{1, \ldots, n-1\} \) such that

\[
    \sum_{k=1}^{n-1} \omega_{ik, \sigma(ik+1)} < 0.
\]

Note that this sequence of remarriages within coalitions \( S \) is permissible. Given that the matching is in the core, by Lemma 1 we know that there exist some vector of personal consumption and personalized prices such that there are no permissible coalition, remarriages, and transfers such that

\[
    \omega_{i,j} + t_i - t_{\sigma(j)} \leq 0.
\]

42
Considering the permissible coalition $S$ endowed with transfers $t_i$, Lemma 2 implies that

$$\sum_{k=1}^{n-1} \omega_{i_k,j_{k+1}} \geq 0.$$ 

This is a direct contradiction to the fact that on $S$ we have

$$\sum_{k=1}^{n-1} \omega_{i_k,j_{k+1}} < 0$$

due to violation of path monotonicity. 

B Linear Programming formulation

Path monotonicity is a nice and intuitive combinatorial condition. However, it is rather impractical, as it requires a search over all potential permissible coalitions. This is indeed a computationally challenging task. In what follows, we restate the combinatorial condition as a linear program which is more computationally tractable. Furthermore, we prove that this linear program is equivalent to the path monotonicity condition.

**Theorem 2.** Given a data set $D$, $\Omega(D)$ satisfies path monotonicity, if and only if there are $x_i \in \mathbb{R}$ for every $i \in M$ such that

$$x_i - x_{\sigma(j)} \leq \omega_{i,j} \text{ if } (i, \sigma(i)) \in V; \quad (\sigma(j), j) \in V$$

$$x_i \leq \omega_{i,j} \text{ if } (i, \sigma(i)) \in V; \quad (\sigma(j), j) \notin V$$

$$-x_{\sigma(j)} \leq \omega_{i,j} \text{ if } (i, \sigma(i)) \notin V; \quad (\sigma(j), j) \in V$$

$$0 \leq \omega_{i,j} \text{ if } (i, \sigma(i)) \notin V; \quad (\sigma(j), j) \notin V$$

for every $i \in M$ and $j \in W$.

**Proof.** ($\Rightarrow$). Suppose there exist vectors of personal consumption vectors and person-alized prices such that $\Omega(D)$ satisfies path monotonicity. We will show that there exist numbers $x_i$ such that the inequalities shown in Theorem 2 are satisfied. Essentially, we are going to construct a solution to the linear programming problem. We consider two cases, (i) $V \subset M \cup W$ and (ii) $V = M \cup W$. The latter case ($V = M \cup W$) is well-studied in the literature on revealed quasi-linear preferences and follows a similar logic as the one shown in Castillo and Freer (2019).

**Case 1:** $V \subset M \cup W$

For any $i \in M$, let

$$x_i = \min \{\omega_{i,j} + \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(r),r} \}$$

where $(\sigma(r), r) \notin V$ and the minimum is taken over all walks$^{26}$ The existence of a minimum is guaranteed by path monotonicity. In particular, since path monotonicity

---

$^{26}$Here, we refer to a walk instead of a path (used in path monotonicity condition), as a walk can include multiple entries of the same couple (vertex), while a path only allows for unique entry. That is, a path does not include cycles, while a walk can include as many cycles as one wants.
guarantees that every cycle is of positive weight, adding a cycle to the walk can only increase the total weight. Therefore, the minimal weight walk is limited to a finite number of entries which implies that the minimum is well-defined. Next, we show that the constructed $x_i$s constitute a solution to the system of inequalities.

Consider $(i, \sigma(i)) \in V$ and $(\sigma(j), j) \in V$. We want to show that

$$x_i - x_{\sigma(j)} \leq \omega_{i,j} \iff x_i \leq \omega_{i,j} + x_{\sigma(j)}.$$ 

By definition of $x_{\sigma(j)}$, we know that there is a walk such that

$$x_{\sigma(j)} = \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r} \text{ with } (\sigma(r), r) \notin V.$$ 

Therefore (by definition of $x_i$),

$$x_i \leq \omega_{i,j} + \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r} \text{ with } (\sigma(r), r) \notin V.$$ 

This means that the construction of $x_i$ for $i \in M$ ensures that

$$x_i - x_{\sigma(j)} \leq \omega_{i,j} \text{ for all } (i, \sigma(i)) \in V \text{ and } (\sigma(j), j) \in V.$$ 

Next, consider $(i, \sigma(i)) \in V$ and $(\sigma(j), j) \notin V$. We wish to show that

$$x_i \leq \omega_{i,j}.$$ 

Similar to before, this inequality holds by the definition of $x_i$. Now consider $(i, \sigma(i)) \notin V$ and $(\sigma(j), j) \in V$. We want to show that

$$-x_{\sigma(j)} \leq \omega_{i,j} \iff 0 \leq \omega_{i,j} + x_{\sigma(j)}.$$ 

By definition of $x_{\sigma(j)}$, we know there is a walk such that

$$x_{\sigma(j)} = \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r} \text{ with } (\sigma(r), r) \notin V.$$ 

Consider the coalition composed by $i$, $j$ and the individuals along this walk, $\{i, (\sigma(j), j), (\sigma(k), k), \ldots, (\sigma(s), s), r\}$. Given that $(i, \sigma(i)), (\sigma(r), r) \notin V$, this coalition is permissible. Hence, path monotonicity implies

$$0 \leq \omega_{i,j} + \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r}.$$ 

This implies,

$$0 \leq \omega_{i,j} + x_{\sigma(j)}.$$ 

Finally, if $(i, \sigma(i)) \notin V$ and $(\sigma(j), j) \notin V$, then the coalition $\{i, j\}$ is permissible. Again, by path monotonicity, we have

$$0 \leq \omega_{i,j}.$$ 

**Case 2:** $V = M \cup W$

Let

$$x_i = \min \{\omega_{i,j} + \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r}\}$$ 

44
where the minimum is taken over all walks. The existence of this minimum is guaranteed by path monotonicity since in particular, path monotonicity implies that every cycle has a positive weight. Hence, adding a cycle to a path can only increase its weight. Since \((i, \sigma(i)) \in \mathcal{V}\) for all \(i \in M\), we want to show that

\[
x_i - x_{\sigma(j)} \leq \omega_{i,j} \iff x_i \leq \omega_{i,j} + x_{\sigma(j)}.
\]

Note that by construction of \(x_{\sigma(j)}\), there is a walk such that

\[
x_{\sigma(j)} = \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r}.
\]

By definition of \(x_i\), it must be that

\[
x_i \leq \omega_{i,j} + \omega_{\sigma(j),k} + \ldots + \omega_{\sigma(s),r}.
\]

Thus, by definition of \(x_i\), we have

\[
x_i - x_{\sigma(j)} \leq \omega_{i,j}.
\]

(\(\iff\)). By contrary, assume that path monotonicity is violated while the linear program has a solution. For the sake of the proof, let \(\delta_i \in \{0, 1\}\) be an indicator variable which is equal to one if \((i, \sigma(i)) \in \mathcal{V}\) and zero otherwise. We can rewrite the inequalities shown in Theorem 2 as

\[
\delta_i x_i - \delta_{\sigma(j)} x_{\sigma(j)} \leq \omega_{i,j} \text{ for all } i \in M, j \in W.
\]

Next, since path monotonicity is violated, there exists a coalition \(S\) consisting of \(\{i_1, (i_2, \sigma(i_2)), \ldots, (i_{n-1}, \sigma(i_{n-1})), \sigma(i_n)\}\) with either \(i_1 = i_n\) or \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin \mathcal{V}\) and remarriages \(\hat{\sigma} = (i_k, \sigma(i_{k+1}))\) for \(k = \{1, \ldots, n-1\}\) such that

\[
\sum_{k=1}^{n-1} \omega_{i_k, \sigma(i_{k+1})} < 0,
\]

Consider the corresponding inequalities of the linear system along the sequence of remarriages defined within the coalition \(S\).

\[
\delta_{i_1} x_{i_1} - \delta_{i_2} x_{i_2} \leq \omega_{i_1, \sigma(i_2)},
\]

\[
\delta_{i_2} x_{i_2} - \delta_{i_3} x_{i_3} \leq \omega_{i_2, \sigma(i_3)},
\]

\[
\vdots
\]

\[
\delta_{i_{n-1}} x_{i_{n-1}} - \delta_{i_n} x_{i_n} \leq \omega_{i_{n-1}, \sigma(i_n)}.
\]
Summing up all these inequalities, we obtain
\[
\delta_{i_1} x_{i_1} - \delta_{i_n} x_{i_n} \leq \sum_{k=1}^{n-1} \omega_{i_k, \sigma(i_{k+1})}.
\]

Given the construction of \( S \), we know that either (i) \((i_1, \sigma(i_1)), (i_n, \sigma(i_n)) \notin V\), therefore \( \delta_{i_1} = \delta_{i_n} = 0 \); or (ii) \( i_1 = i_n \) and therefore, \( \delta_{i_1} x_{i_1} = \delta_{i_n} x_{i_n} \). Considering both the cases, we have
\[
0 \leq \sum_{k=1}^{n-1} \omega_{i_k, \sigma(i_{k+1})}.
\]

However, this is a direct contradiction to the violation of path monotonicity
\[
\sum_{k=1}^{n-1} \omega_{i_k, \sigma(i_{k+1})} < 0.
\]

\[\square\]

C Assets and Transfers (Online Only)

In this section, we consider the divorce laws that deal with transfers between the ex-partners in the case of divorce\(^{27}\) These transfers come in two forms. First are the child support transfers, which are obligatory, especially under the arrangement of sole custody. The second type of transfers deals with the division of assets after marriage.

We start with the child support transfers. In the case of sole custody, the legislation requires that the non-custodial parent transfers some minimum monetary sum to the custodian. Such child support payments are sometimes arranged even under joint custody\(^{28}\) We denote the minimal prescribed transfer by \( T_{i, \sigma(i)} \) which is the amount of money transferred from \( i \) to his current partner \( \sigma(i) \) in the case of divorce. We assume that \( T_{i, \sigma(i)} \) is known as they are specified by the Family Code. This set of transfers modifies the income of the potential couple \((i, \sigma(i))\) from \( y_{i, \sigma(i)} \) to \( y_{i, \sigma(i)} - T_{i, \sigma(i)} + T_{\sigma(i), j} \). That is, \( i \) pays the sum \( T_{i, \sigma(i)} \) to his ex-partner and \( j \) receives \( T_{\sigma(j), j} \) from her ex-partner in case of divorce.

The second type of transfers deals with the division of assets after the marriage. Denote by \( \eta_{i, \sigma(i)} \) the non-labor income that the couple \((i, \sigma(i))\) receive in addition to their labor income \( y_{i, \sigma(i)} \). We allow the non-labor income to be positive or negative. It has to be divided between the partners upon divorce
\[
\eta_{i, \sigma(i)}^j + \eta_{i, \sigma(i)}^\sigma(i) = \eta_{i, \sigma(i)}.
\]

\(^{27}\)Note that these transfers are different from the transfers \( t_i \) included in the definition of blocking coalition.

\(^{28}\)Some countries have joint legal custody in which both parents are equally rightful custodians, though, children still reside with only one of the parents. In this case, the parent with whom the parent resides is still endowed with the child support payments.
where $\eta_i^{(i)}$ and $\eta_{i,\sigma(i)}^{(i)}$ are the shares of non-labor income that $i$ and $\sigma(i)$ receive upon divorce. Assuming that the non-labor income comes directly from the assets, divorce legislation specifies the rule for the division of the assets by specifying the parameter $\beta \in [0, 1]$ such that $\eta_i^{(i)} = \beta \eta_{i,\sigma(i)}^{(i)}$ and $\eta_{i,\sigma(i)}^{(i)} = (1 - \beta) \eta_{i,\sigma(i)}^{(i)}$. We can modify the income of potential couple $(i, j)$ accounting for both child-support transfers and division of non-labor income as follows,

$$y_{i,j} - T_{i,\sigma(i)} + T_{\sigma(j),j} + \beta \eta_{i,\sigma(i)}^{(i)} + (1 - \beta) \beta \eta_{\sigma(j),j}^{(j)}.$$

Finally, accounting for both the types of transfers we can define $\Omega^T(D)$ as follows,

$$\omega_{i,j}^T = p_{i,j} (q_{i,\sigma(i)}^{(i)} + q_{\sigma(j),j}^{(j)}) + P_{i,j} Q_{i,\sigma(i)}^{(i)} + P_{\sigma(j),j} Q_{\sigma(j),j}^{(j)} + f_{i,j} C_{i,\sigma(i)}^{(i)} + f_{\sigma(j),j} C_{\sigma(j),j}^{(j)} - y_{i,j} + T_{i,\sigma(i)} - T_{\sigma(j),j} - \eta_{i,\sigma(i)}^{(i)} - \eta_{\sigma(j),j}^{(j)}.$$

All our results can be restated using the newly defined $\Omega^T(D)$ instead of $\Omega(D)$.

**D Data and robustness checks (Online Only)**

**D.1 Marriage markets**

Table 10 details the regions included in the eight marriage market shown in Figure 2. It also reports the average sizes of males’ and females’ consideration sets within each market.

**D.2 Stability indices**

**Stability indices by demographics.** In this section, we report the stability indices by the number of children in the household and by gender. First, Table 11 summarizes the average and minimum stability indices by the number of children in the household. These values are the same as the ones in Figure 3 shown in the main text. Next, Table 12 summarizes the average and minimum stability indices separately for males and females. These results suggest that the better fit of the model with legislation is driven by higher stability indices of both husbands and wives. However, the difference in stability indices between the models is more striking for males than females. Finally, in Table 13 we report the mean values of average and minimum stability indices by gender and number of children in the household. Once again, we find that the better performance of the model with legislation law is driven by higher stability indices for couples with children. Moreover, the difference is slightly greater among fathers than mothers.

**Stability indices and observed heterogeneity.** Table 5 reveals quite some heterogeneity in the stability indices across households. We investigate this further by relating the average and minimum stability indices to observed household characteristics. Table 14 reports the results for the regression estimates that use the average and minimum
Table 10: Marriage markets

| Marriage market                                                                 | Male   | Female  |
|--------------------------------------------------------------------------------|--------|---------|
| Moscow City, Moscow Oblast                                                     | 63.70  | 58.42   |
| Leningrad Oblast: Volosovkij Rajon, St. Petersburg City                         | 40.96  | 27.22   |
| Kaluzhskaya Oblast: Kuibyshev Rajon, Gorkovskaja Oblast: Nizhniy Novgorod, Tula, | 111.42 | 99.86   |
| Kalinin Oblast: Rzhev C, Lipetskaya Oblast: Lipetsk CR, Smolensk CR             |        |         |
| Perm Oblast: Solikamsk City and Rajon, Tatarskaja ASSR: Kazan, Chuvashskaya ASSR: | 158.37 | 119.35  |
| Shumerla CR, Komi-ASSR: Syktyvkar, Komi-ASSR: Usinsk CR, Udmurt ASSR: Glasov CR|        |         |
| Tambov Oblast: Uvarovo CR, Volgograd Oblast: Rudnjanskiy Rajon, Saratov Oblast: | 110.31 | 86.94   |
| Volskij Gorosovet and Rajon, Penzenskaya Oblast: Zemetchinskij Rajon, Rostov Oblast: Batajsk, Saratov CR | | |
| Kurgan, Orenburg Oblast: Orsk, Cheliabinsk, Cheliabinsk Oblast: Krasnoarmeiskij Rajon | 94.49  | 59.74   |
| Krasnojarskij Kraij: Krasnojarsk, Altaiskij Kraij: Kurinskij Rajon, Krasnojarskij Kraij: Nazarovo CR, Altaiskij Kraij: Biisk CR, Tomsk, Berdsk City and Raion: Novosibirskaya Oblast | | |
| Vladivostok, Amurskaja Oblast: Tambovskii Rajon                                  | 26.56  | 22.70   |
| Total                                                                          | 115.26 | 88.47   |

Table 11: Stability indices (in %) by number of children

|                          | With legislation | Without legislation |
|--------------------------|------------------|---------------------|
|                          | Average | Minimum | Average | Minimum |
| no children              | 99.46   | 86.45   | 99.23   | 84.57   |
| one child                | 99.52   | 87.15   | 99.05   | 82.50   |
| two or more children     | 99.63   | 90.43   | 98.92   | 81.81   |
| Total                    | 99.54   | 87.85   | 99.06   | 82.81   |
Table 12: Stability indices (in %) by gender

|                  | with legislation | without legislation |          |          |          |          |          |          |
|------------------|------------------|---------------------|----------|----------|----------|----------|----------|----------|
|                  | male             | female              | male     | female   | male     | female   | male     | female   |
|                  | average          | minimum             | average  | minimum  | average  | minimum  | average  | minimum  |
| mean             | 99.65            | 95.82               | 99.37    | 88.17    | 98.97    | 88.95    | 99.16    | 84.61    |
| sdl              | 0.63             | 4.03                | 0.53     | 6.73     | 1.16     | 6.71     | 0.68     | 8.91     |
| min              | 93.36            | 73.50               | 96.42    | 52.03    | 89.94    | 51.51    | 95.27    | 44.09    |
| p25              | 99.60            | 93.46               | 99.17    | 84.95    | 98.85    | 85.22    | 98.91    | 80.37    |
| p50              | 99.82            | 96.43               | 99.49    | 88.72    | 99.26    | 88.97    | 99.31    | 86.11    |
| p75              | 99.99            | 99.67               | 99.71    | 91.86    | 99.55    | 93.25    | 99.61    | 90.25    |
| max              | 100.00           | 100.00              | 100.00   | 100.00   | 100.00   | 100.00   | 100.00   | 100.00   |

Table 13: Stability indices (in %) by gender and number of children

|                  | with legislation | without legislation |          |          |          |          |          |          |
|------------------|------------------|---------------------|----------|----------|----------|----------|----------|----------|
|                  | male             | female              | male     | female   | male     | female   | male     | female   |
|                  | average          | minimum             | average  | minimum  | average  | minimum  | average  | minimum  |
| no children      | 99.59            | 93.63               | 99.27    | 87.03    | 99.37    | 91.95    | 98.99    | 85.72    |
| one child        | 99.67            | 95.85               | 99.32    | 87.35    | 98.96    | 88.42    | 99.15    | 84.27    |
| two or more      | 99.68            | 97.76               | 99.55    | 90.73    | 98.61    | 87.19    | 99.33    | 84.23    |
| Total            | 99.65            | 95.82               | 99.37    | 88.17    | 98.97    | 88.95    | 99.16    | 84.61    |
stability indices from the two models as dependent variables. There are two main ob-
servations. First, except for the number of children, both the models with and without
legislation show similar qualitative relationship between stability indices and observed
characteristics. For example, both models suggest that couples with higher wages have
higher stability indices but it decreases if there is a large difference between spousal
wages. Second, we find quite opposite effect of the number of children. The model
without legislation suggests a negative relationship between stability indices and num-
er of children while the model with legislation suggests a strong positive relationship
between stability indices and number of children. This echoes the findings in Table 11
and Figure 3. Overall, the findings from our preferred model with legislation are in-
line with Becker’s (1991) argument that children represent couple-specific public goods
which implies that the value of (expenditures on) children are not transferable to po-
tential partners. In terms of the marriage market mechanism, this implies that children
increase the economies of scale in the current relationship thus making it more stable.

D.3 Sharing rule identification

In the main text, we focused on the identification of individuals’ private consumption
shares and RICEB measures. Another concept closely related to the RICEB measures
is the sharing rule that governs how resources are distributed within households. For an
observed couple \((m, \sigma(m))\), the shares of household resources that \(m\) and \(\sigma(m)\) receive
\((y_{m,\sigma(m)}^m, y_{m,\sigma(m)}^\sigma)\) can be defined as

\[
\begin{align*}
y_{m,\sigma(m)}^m &= p_{m,\sigma(m)} q_{m,\sigma(m)}^m + P_{m}^m Q_{m,\sigma(m)} + P_{m,\sigma(m)}^C C_{m,\sigma(m)}, \\
y_{m,\sigma(m)}^\sigma &= p_{m,\sigma(m)} q_{m,\sigma(m)}^\sigma + P_{m}^\sigma Q_{m,\sigma(m)} + P_{m,\sigma(m)}^C C_{m,\sigma(m)}
\end{align*}
\]

where \(y_{m,\sigma(m)}^m + y_{m,\sigma(m)}^\sigma = y_{m,\sigma(m)}\) by construction. Tables 15 and 16 summarize our
results on the identification of sharing rule expressed as a fraction of household income.
These tables are analogous to Tables 6 and 7 in the main text. Although the identifying
power is relatively weaker, our main conclusion remains the same. It is important to
note that the impact of divorce laws in the identification of sharing rule is less apparent
than in the identification private consumption. This is primarily because of the non-
identification of Lindahl prices and a relatively small budget share of private consumption
in the observed households’ total consumption. In principle, Lindahl prices can be
identified by exploiting the panel dimension of the survey. In those cases, the role of
divorce laws in sharing rule identification may be more significant.

D.4 Poverty rates

Table 17 shows poverty rates similar to the ones shown in Table 9 in the main text, but
now using lower and upper RICEB estimates instead of the average of these estimates.
As expected, we find that poverty rates are higher when lower bound estimates of RICEB
are used for the analysis as compared to the ones when upper bound estimates are used
Table 14: Stability indices and observed heterogeneity

|                                | with legislation | without legislation |
|--------------------------------|------------------|---------------------|
|                                | average          | minimum             | average          | minimum             |
| average wage                   | 0.002***         | 0.028***            | 0.005***         | 0.029***            |
|                                | (0.000)          | (0.005)             | (0.001)          | (0.007)             |
| absolute wage difference       | -0.002***        | -0.015***           | -0.003***        | -0.002              |
|                                | (0.000)          | (0.005)             | (0.001)          | (0.006)             |
| average age                    | 0.005**          | 0.153***            | 0.005            | 0.239***            |
|                                | (0.002)          | (0.036)             | (0.003)          | (0.045)             |
| absolute age difference        | 0.003            | -0.112              | 0.003            | 0.017               |
|                                | (0.005)          | (0.086)             | (0.008)          | (0.110)             |
| one child                      | 0.073*           | 1.181*              | -0.157***        | -1.571**            |
|                                | (0.037)          | (0.653)             | (0.050)          | (0.762)             |
| two or more children           | 0.151***         | 4.797***            | -0.318***        | -2.146**            |
|                                | (0.046)          | (0.749)             | (0.071)          | (0.952)             |
| male has a degree              | -0.016           | -0.493              | -0.051           | -0.287              |
|                                | (0.032)          | (0.504)             | (0.049)          | (0.708)             |
| female has a degree            | 0.018            | 0.084               | 0.088*           | 0.155               |
|                                | (0.030)          | (0.480)             | (0.045)          | (0.668)             |
| male’s consideration set size  | 0.002**          | -0.011              | 0.001            | -0.027*             |
|                                | (0.001)          | (0.013)             | (0.001)          | (0.015)             |
| females’ consideration set size| -0.002***        | -0.047***           | -0.001           | -0.021              |
|                                | (0.001)          | (0.016)             | (0.001)          | (0.018)             |
| cohabitating                   | -0.027           | -0.817              | -0.005           | 0.125               |
|                                | (0.041)          | (0.667)             | (0.056)          | (0.866)             |
| constant                       | 98.730***        | 82.220***           | 98.180***        | 73.462***           |
|                                | (0.114)          | (1.765)             | (0.172)          | (2.279)             |
| market fixed effect            | Yes              | Yes                 | Yes              | Yes                 |

N: 739
R-squared: 0.216

Standard errors in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01
Table 15: Average bounds on females’ sharing rule ($\eta^f$) 

|                        | with legislation |            | without legislation |            |
|------------------------|------------------|------------|---------------------|------------|
|                        | lower | upper | difference | lower | upper | difference |
| no children            | 0.28   | 0.53  | 0.25        | 0.28   | 0.53  | 0.25        |
| one child              | 0.27   | 0.57  | 0.31        | 0.25   | 0.55  | 0.30        |
| two or more children   | 0.25   | 0.59  | 0.35        | 0.23   | 0.55  | 0.32        |
| Total                  | 0.27   | 0.57  | 0.30        | 0.25   | 0.54  | 0.29        |

for the computations. Once again, comparing the poverty rates from the model with and without legislation points to the same conclusion. The poverty rates among males are underestimated while it is overestimated among females when the identified RICEBs do not account for the divorce laws.

D.5 Relative individual cost of equivalent bundle (excluding children’s expenditure)

In the main text, our RICEB measures included expenditures on children as public goods in the households. However, one may argue that individual RICEBs should only include the goods that are directly consumed by the individuals. In this section, we redefine male and female RICEB measures using their own private and public consumption. More specifically, these measure are defined as follows

$$
\tilde{R}_{m,f} = \frac{p_{m,f}\tilde{q}_{m,f} + P_{m,f}Q_{m,f}}{\tilde{y}_{m,f}},
\tilde{R}_{m,m} = \frac{p_{m,m}\tilde{q}_{m,m} + P_{m,m}Q_{m,m}}{\tilde{y}_{m,m}}.
$$

(1)

where $\tilde{y}_{m,f}$ is the total household expenditure on the private and public consumption consumed by the adult members of the household. Similar to before, these RICEB measures indicate the fractions of household expenditures that a women (men) would need as a single at prices $\{p_{\phi,f}, P_{\phi,f}\}$ (resp. $\{p_{m,m}, P_{m,m}\}$) to achieve the same level of (own) consumption as in the current marriage.

Table 18 shows the identified male and female RICEBs as defined by equation 1. When comparing these results with the ones shown in Table 8 in the main text, we find that both male and female RICEBs are now smaller for couples with children as compared to the ones in the main text. This is intuitive as children’s expenditures as public goods increases RICEB for both parents. Moreover, as the number of children in the household increase, expenditures on children form a larger share of household expenditure (see Table 3). However, our main conclusion remains intact. First, male RICEBs are significantly higher than female RICEBs. Second, the model without legislation overestimates male RICEB and underestimates female RICEBs as compared to
Table 16: Females’ sharing rule and observed characteristics

|                           | with legislation |       | without legislation |       |
|---------------------------|------------------|-------|---------------------|-------|
|                           | lower            | upper | lower               | upper |
| log($w_f/w_m$)            | 0.156***         | 0.176*** | 0.145***         | 0.165*** |
|                           | (0.006)          | (0.005) | (0.006)             | (0.005) |
| age male - age female     | 0.001            | 0.001 | 0.001               | 0.001 |
|                           | (0.001)          | (0.001) | (0.001)             | (0.001) |
| log(total potential income)| -0.048***       | 0.088*** | -0.051***         | 0.073*** |
|                           | (0.006)          | (0.008) | (0.006)             | (0.006) |
| one child                 | -0.002           | 0.052*** | -0.018***         | 0.028*** |
|                           | (0.007)          | (0.006) | (0.007)             | (0.005) |
| two or more children      | 0.000            | 0.087*** | -0.021***         | 0.045*** |
|                           | (0.008)          | (0.008) | (0.008)             | (0.007) |
| male has a degree         | 0.007            | -0.007 | 0.008               | -0.008 |
|                           | (0.005)          | (0.006) | (0.006)             | (0.005) |
| female has a degree       | 0.014***         | -0.014** | 0.015***         | -0.013** |
|                           | (0.005)          | (0.006) | (0.005)             | (0.005) |
| male’s consideration set size | -0.000*       | -0.000** | -0.000             | -0.000** |
|                           | (0.000)          | (0.000) | (0.000)             | (0.000) |
| females’ consideration set size | 0.000**     | 0.000* | 0.000*              | 0.000** |
|                           | (0.000)          | (0.000) | (0.000)             | (0.000) |
| cohabitating              | 0.005            | 0.001 | 0.003               | -0.001 |
|                           | (0.007)          | (0.008) | (0.007)             | (0.007) |
| constant                  | 0.847***         | -0.338*** | 0.866***         | -0.196*** |
|                           | (0.063)          | (0.082) | (0.062)             | (0.070) |
| market fixed effect       | Yes             | Yes    | Yes                 | Yes    |
| N                         | 739             | 739    | 739                 | 739    |
| R-squared                 | 0.690           | 0.719  | 0.661               | 0.740  |

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Table 17: Poverty rates (in %); using upper and lower bounds on RICEB

|                         | lower | upper | lower | upper |
|-------------------------|-------|-------|-------|-------|
| **no children**         |       |       |       |       |
| female                  | 18.99 | 22.35 | 20.11 | 22.91 |
| male                    | 18.99 | 9.50  | 8.94  | 9.50  |
| **one child**           |       |       |       |       |
| female                  | 13.70 | 12.60 | 12.05 | 14.25 |
| male                    | 13.70 | 6.03  | 5.48  | 5.21  |
| **two or more children**|       |       |       |       |
| female                  | 13.78 | 14.80 | 13.27 | 15.82 |
| male                    | 13.78 | 4.08  | 3.57  | 3.06  |

the model with legislation. Further, the differences in RICEB estimates from the two models are more pronounced among couples with children.

Table 18: Average bounds on RICEB (excluding children’s expenditure)

|                         | with legislation | without legislation |
|-------------------------|------------------|---------------------|
|                         | female | male | female | male | difference | female | male | difference |
| **no children**         | lower   | upper | lower   | upper |          | lower   | upper |          |
| female                  | 0.50   | 0.53  | 0.68    | 0.72  | 0.03      | 0.50   | 0.53  | 0.69      | 0.72  | 0.03      |
| male                    | 0.50   | 0.54  | 0.67    | 0.71  | 0.04      | 0.48   | 0.51  | 0.70      | 0.73  | 0.03      |
| **one child**           |        |       |         |       |          |        |       |          |       |
| female                  | 0.48   | 0.53  | 0.66    | 0.72  | 0.06      | 0.45   | 0.48  | 0.71      | 0.74  | 0.03      |
| male                    | 0.49   | 0.54  | 0.67    | 0.72  | 0.04      | 0.48   | 0.51  | 0.70      | 0.73  | 0.03      |
| **two or more children**|        |       |         |       |          |        |       |          |       |
| female                  |        |       |         |       |          |        |       |          |       |
| male                    |        |       |         |       |          |        |       |          |       |
| **Total**               |        |       |         |       |          |        |       |          |       |

Next, we use these new RICEB estimates to conduct poverty analysis. Table 19 shows the results from this exercise. Comparing these results with the poverty rates shown in Table 9 we see that poverty rates among both males and females deteriorate when children’s expenditures are excluded from the measures. Moreover, the increase in poverty rate is significantly higher among females as compared to males. For instance, RICEB estimates suggest that poverty rates among females vary from 14% to 27% while it only varies from 6% to 8% among males. However, our main conclusion remains robust. The RICEBs from the model without legislation overestimates female poverty and underestimates male poverty as compared to the ones from the model with legislation.

D.6 Including all regions

In the main text, we excluded households living in any of the following regions: Krasnodar, Kushevkiy Rayon, Krasnodarkij Kraj, Georgievskij Rayon, Stavropol’skij Kraj, Zolskij Rajon, and Kabardino-Balkarija. These regions are dropped for the following reasons. Kabardino-Balkaria is within the group of southern regions of Russia where the legal practice upon divorce is quite different than the rest of the country. While in the majority of the regions after divorce children stay with their mother, in Kabardino-Balkaria...
Table 19: Poverty rates (in %) using average of lower and upper bounds on RICEB (excluding children’s expenditure)

|                        | equal sharing | with legislation | without legislation |
|------------------------|---------------|------------------|---------------------|
| no children            |               |                  |                     |
| female                 | 15.08         | 15.64            | 15.64               |
| male                   | 15.08         | 7.82             | 7.82                |
| one child              |               |                  |                     |
| female                 | 12.60         | 14.79            | 16.99               |
| male                   | 12.60         | 6.30             | 4.66                |
| two or more children   |               |                  |                     |
| female                 | 16.33         | 24.49            | 26.53               |
| male                   | 16.33         | 6.12             | 4.59                |

Children would frequently end up staying with their father’s family. Next, Kushevkiy Rayon and Krasnodarkij Kraj have been ruled by a crime group that has imposed their own rules (in both economic and private life) in the district, this set of rules not only includes the usual racketing but also killing and raping. Even though, the majority of the gang (at least visible part) has been convicted by 2014 the district is still rather abnormal. Finally, Georgievskij Rayon, Stavropolskij Kraj and Krasnodar, and Krasnodarskij Kraj, could be possibly united in a cluster though these districts are extremely different. Georgievskij Rayon is primarily an agricultural district, while Krasnodar is among the biggest cities in Russia which produced about 45% of the Gross Regional Product and 70% of the industrial production of the respective region. As a robustness check, we consider another marriage market consisting of households residing in these regions. Tables 20 and 21 show the results when we draw the sample from all nine marriage markets. These tables are analogous to Tables 11 and 6 of the baseline setting. We find that all our results are robust to considering all regions of Russia.

Table 20: Stability indices (in %); all regions

|                        | with legislation | without legislation |
|------------------------|------------------|---------------------|
|                        | average          | minimum             | average          | minimum             |
| mean                   | 99.55            | 88.06               | 99.07            | 82.99               |
| sd                     | 0.44             | 6.63                | 0.69             | 8.44                |
| min                    | 96.40            | 52.03               | 93.57            | 44.09               |
| p25                    | 99.42            | 84.86               | 98.85            | 78.85               |
| p50                    | 99.66            | 88.60               | 99.21            | 84.26               |
| p75                    | 99.83            | 91.76               | 99.48            | 88.60               |
| max                    | 100.00           | 100.00              | 100.00           | 100.00              |

55
Table 21: Average bounds on females’ private consumption share ($q_f$); all regions

|                      | with legislation |                     | without legislation |                     |
|----------------------|------------------|---------------------|---------------------|---------------------|
|                      | lower  | upper | difference | lower  | upper | difference |
| no children          | 0.11   | 0.24  | 0.12       | 0.11   | 0.23  | 0.12       |
| one child            | 0.15   | 0.32  | 0.17       | 0.07   | 0.19  | 0.12       |
| two or more children | 0.15   | 0.38  | 0.22       | 0.02   | 0.13  | 0.11       |
| Total                | 0.14   | 0.32  | 0.18       | 0.06   | 0.18  | 0.12       |

D.7 Equal split of non-labor income

In our baseline empirical setting, we considered a general scenario where individuals’ non-labor incomes are treated as unknowns subject to the constraint that they lie within 40% to 60% of household’s non-labour income. However, given that the Russian family law provides for equal division of household assets upon divorce, one may argue that household’s non-labour income should be divided equally among the partners. To consider this possibility, we redid our main analyses under the assumption that individual non-labour income is 50% of household non-labour income. Tables 22 and 23 show our main results. These findings can be compared with Tables 11 and 6 of the baseline setting. We conclude that considering this extra dimension of family law in the identification of intrahousehold allocation does not affect our conclusions.

Table 22: Stability indices (in %); with equal split of non-labor income

|                      | with legislation |                     | without legislation |                     |
|----------------------|------------------|---------------------|---------------------|---------------------|
|                      | average | minimum |                 | average | minimum |                 |
| mean                 | 99.49    | 88.03     |               | 98.98    | 82.94    |               |
| sd                   | 0.50     | 6.31      |               | 0.74     | 8.05     |               |
| min                  | 95.58    | 52.03     |               | 93.58    | 45.24    |               |
| p25                  | 99.34    | 85.19     |               | 98.74    | 78.93    |               |
| p50                  | 99.62    | 88.72     |               | 99.13    | 84.27    |               |
| p75                  | 99.81    | 91.34     |               | 99.42    | 88.33    |               |
| max                  | 100.00   | 100.00    |               | 100.00   | 100.00   |               |

D.8 With veto players

Next, we check the sensitivity of our findings with respect to our assumption that no individual in our sample has a veto power to block the divorce. While Russia allows for unilateral divorce, seeking a divorce may be substantially complicated for a husband if
Table 23: Average bounds on females’ private consumption share ($q_f$); with equal split of non-labor income

|                       | with legislation | without legislation | difference | with legislation | without legislation | difference |
|-----------------------|------------------|---------------------|------------|------------------|---------------------|------------|
|                       | lower            | upper               |            | lower            | upper               |            |
| no children           | 0.19             | 0.19                | 0.01       | 0.19             | 0.19                | 0.00       |
| one child             | 0.23             | 0.25                | 0.01       | 0.13             | 0.14                | 0.01       |
| two or more children  | 0.25             | 0.28                | 0.04       | 0.07             | 0.08                | 0.02       |
| Total                 | 0.23             | 0.24                | 0.02       | 0.13             | 0.14                | 0.01       |

either his wife is pregnant or the couple has a child who is less than one year old. For such couples, one can assume that wives have veto power (at least in the short run). Tables 24 and 25 show the results of our robustness check when we consider such wives as veto players. There are 22 such households. Comparing these results with the ones in Table 5 and 6, we find that our main conclusion remains the same.

Table 24: Average stability indices (in %); with veto players

|                   | with legislation | without legislation | difference | with legislation | without legislation | difference |
|-------------------|------------------|---------------------|------------|------------------|---------------------|------------|
|                   | average          | minimum             |            | average          | minimum             |            |
| mean              | 99.52            | 87.80               |            | 99.06            | 82.81               |            |
| sd                | 0.46             | 6.54                |            | 0.70             | 8.47                |            |
| min               | 96.38            | 52.13               |            | 93.57            | 44.09               |            |
| p25               | 99.38            | 84.74               |            | 98.83            | 78.71               |            |
| p50               | 99.64            | 88.42               |            | 99.21            | 84.15               |            |
| p75               | 99.81            | 91.42               |            | 99.48            | 88.39               |            |
| max               | 100.00           | 100.00              |            | 100.00           | 100.00              |            |

D.9 Simulation analysis

In the main text, we briefly discussed that the identifying power of our revealed preference characterization will depend on the size of the set of veto players $V$. In this section, we conduct a simulation analysis to empirically investigate how the identification power of our characterization changes with the share of veto players in the market. For the sake of exposition, we focus on one of the eight marriage markets we created for our main empirical analysis. We assume that some $x\%$ of the observed couples in the data are governed by mutual consent divorce regime (i.e. they are veto couples) and the remaining $(1-x)\%$ are governed by unilateral regime. To analyze the effect of the size of the set of veto players on the informativeness of the results, we vary $x$ from 10% to
Table 25: Average bounds on females’ private consumption share ($\frac{q_f}{q}$); with veto players

|                  | with legislation | without legislation |        |        |        |
|------------------|------------------|---------------------|-------|-------|-------|
|                  | lower | upper | difference | lower | upper | difference |
| no children      | 0.11  | 0.26  | 0.14       | 0.12  | 0.24  | 0.12     |
| one child        | 0.15  | 0.34  | 0.19       | 0.07  | 0.19  | 0.12     |
| two or more      | 0.14  | 0.41  | 0.26       | 0.02  | 0.13  | 0.11     |
| children         |       |       | 0.20       | 0.07  | 0.19  | 0.12     |
| Total            | 0.14  | 0.34  | 0.20       | 0.07  | 0.19  | 0.12     |

100%. Further, for each value of $x$, we simulate 100 marriage markets such that in each of the simulation $x\%$ of couples are randomly drawn and assigned to the set of veto players $\mathcal{V}$. We identify the stability indices and females’ private consumption share for each of the simulated markets.

Figure 4: Average stability indices by the share of veto couples

Figure 4 shows the mean values and 95% confidence intervals of average stability indices by the share of veto couples in the market. The simulations show that the average stability indices increase with the share of veto couples in the market. This can be explained by the fact that the larger is the size of the set of veto players, the weaker is the restrictiveness of the model. Similarly, Figure 5 shows the average tightness of the
identified private consumption share by the share of veto couples in the market. Echoing the same logic, this figure shows that the average tightness of the identified bounds of female’s private consumption share substantially worsens as a larger share of the market is governed by mutual consent regime. For instance, when the share of couples covered by the mutual consent regime increases from 10% to 100%, the average tightness of the bounds increase from 25.78% to 98.71% percentage points. This essentially means that the identifying power of the model is almost nil when the entire market is governed by mutual consent regime.

Figure 5: Average tightness of female’s private consumption share by the share of veto couples