# Marriage Formation, Intra-Household Bargaining, and Tax Unit Reform*

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**Abstract**

This paper studies how a shift from individual- to household-based income taxation affects marriage formation and female labor supply. We develop a collective household model featuring marriage-market search frictions, endogenous bargaining weights, and labor supply on both the extensive and intensive margins. Calibrated to Korean data, we find that introducing a French-style family quotient creates a sharp trade-off: marriage increases modestly, but female labor force participation and tax revenue decline substantially. Restoring revenue requires nearly doubling the marginal tax rate; at that point, the marriage rate falls below the benchmark, and female labor force participation declines even further. A dynamic extension confirms these conclusions along the transition path, while the speed of female labor-force-participation adjustment depends on bargaining-weight adjustments among existing married households. As a suggestive diagnostic, we compare model-implied and empirical spousal labor-supply elasticity, which are more consistent with rigid than fully flexible bargaining-weight adjustment. Overall, introducing household-based income taxation is unlikely to promote marriage.

**JEL Classification:** H24, J12, J22
**Keywords:** Household-based income taxation, Tax unit reform, Marriage formation, Collective household model, Female labor supply

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# 1 Introduction

Can household-based taxation encourage family formation? This question has gained renewed importance as many advanced economies face declining marriage rates and persistently low fertility. France's *quotient familial* provides a leading example: taxable household income is divided by a family-size factor before the tax schedule is applied, thereby reducing the tax burden on larger households. The policy logic is straightforward, but the empirical evidence is not. Existing studies find mixed effects of household-based taxation on marriage (Chen, 2011; Buffeteau and Échevin, 2003; Leturcq, 2012), leaving open the question of which mechanisms determine whether such reforms promote family formation.

We study this question in Korea, where fertility has fallen sharply and childbearing remains concentrated within marriage.[1] Since Korea has never used household-based income taxation, evaluating whether a French-style family quotient would promote marriage—and thereby fertility—requires a structural framework. Standard intuition suggests that household-based taxation encourages marriage by increasing marital surplus. Yet it may also reduce female labor supply by lowering the effective marginal tax rate on primary earners, thereby strengthening incentives for specialization within households. Its effect on marriage depends on how the added surplus is shared between spouses. If gains accrue disproportionately to one gender—for example, because bargaining weights do not adjust to the reform's asymmetric effects—marriage need not rise. Quantifying these channels requires a collective household framework in which intra-household bargaining and labor supply are jointly determined.[2]

In this paper, we develop and calibrate a collective household model featuring search frictions in the marriage market, endogenous intra-household bargaining weights, and labor supply on both the extensive and intensive margins. Men and women with heterogeneous labor productivities meet potential partners randomly. Upon meeting, each individual com-

[1] Korea's total fertility rate fell from 1.30 in 2001 to 0.72 in 2023, the lowest among OECD countries. The share of births outside marriage was 4.7% in 2023, compared with the OECD average of 43% (OECD Family Database, Indicator SF2.4).

[2] See Section A for further details on Korea's income tax system.

pares the utility from marriage—which depends on shared market consumption, jointly produced home goods, and the disutility of work—with the utility from remaining single. The bargaining weight is taken as given within each potential match. In equilibrium, it is determined endogenously through the marriage-market surplus-sharing rule and therefore varies with both partners' productivities and outside options. We calibrate the model to Korean data on marriage patterns, labor supply, home production, and effective tax rates, and use it to evaluate a counterfactual shift from individual-based to household-based income taxation.

Our analysis yields three main findings. First, the reform generates a fundamental trade-off. The marriage rate rises by 2.6 percentage points, but married women's labor force participation drops sharply from 57.2% to 31.5%, and aggregate tax revenue falls by 27%. Once the government raises tax rates to restore revenue, the trade-off tilts decisively against the reform: the marriage rate decreases by 2.4 percentage points relative to the benchmark. Achieving revenue neutrality requires nearly doubling the average marginal tax rate, from 23.5% to 41.4%, which virtually eliminates dual-earner households and reduces aggregate output by nearly 17%. The fiscal cost of the family quotient thus more than offsets its marriage-promoting potential.

Second, we extend the model to a dynamic setting to study the transition path following an unanticipated tax reform. The dynamic extension introduces matching and divorce hazards and allows us to contrast two polar assumptions about how intra-household bargaining weights respond to outside shocks: fixed weights, under which the bargaining weight agreed upon at the time of marriage remains fixed over the lifetime, and flexible adjustment, under which bargaining weights respond immediately to the policy change. Under both assumptions, the marriage rate either remains essentially unchanged or declines during the transition, while married women's labor force participation falls persistently. The distinction matters primarily for the *speed* of adjustment: under fixed weights, labor supply adjusts gradually through cohort turnover, whereas under flexible adjustment, the bulk of the response occurs on impact.

Third, we provide suggestive evidence on which assumption about bargaining-weight adjustment is more empirically relevant by estimating the cross-elasticity of secondary earner labor supply with respect to primary earner earnings using the Korean Labor and Income Panel Study (KLIPS). This elasticity serves as a diagnostic: in the endogenous-weight model, offsetting bargaining-weight adjustments produce a small cross-elasticity ($-0.06$), while the fixed-weight model generates a much larger one ($-0.52$). Our KLIPS estimate of $-0.67$ is far closer to the fixed-weight prediction. Although this comparison is correlational rather than causal, the cross-elasticity is more consistent with the fixed-weight transition path, under which married women's labor force participation declines gradually through cohort turnover rather than dropping discretely at the moment of reform.

Our paper contributes to the literature on family-based taxation by showing that the effects of tax-unit reform depend not only on the fiscal gains from marriage, but also on how those gains are allocated within households. Household-based taxation may raise marital surplus, yet its effect on family formation depends on whether the additional surplus reaches the marginal individuals whose consent is required for a match to form. Using the structural model, we evaluate not only marriage responses, but also the reallocation of market work and home production within households—a margin central to the welfare consequences of family-based taxation but difficult to capture in reduced-form analysis.

We also show that the household commitment structure is central to the dynamic effects of tax-unit reform. Under flexible bargaining-weight adjustment, which captures a polar case of limited commitment, married women's labor force participation falls sharply on impact. Under fixed bargaining weights, which we interpret as a simple form of full commitment, the decline is more gradual and operates through cohort turnover. Thus, similar long-run policy effects can involve very different short-run adjustment costs depending on the degree of within-household commitment. This connects the evaluation of family-based taxation to recent work on intra-household commitment and highlights the importance of bargaining rigidity in family-policy design (Theloudis et al., 2025).

**Related literature.** This paper relates most closely to the literature on taxation, marriage markets, and household decision-making. A central reference is Chade and Ventura (2002), who study tax reform in a marriage-market search model and show that changing the tax unit has sizable effects on married women's labor supply but relatively modest effects on marriage itself. Chade and Ventura (2005) extend this approach by emphasizing how taxation affects marriage formation through both the gains from marriage and equilibrium search behavior on both sides of the market. More recently, Gayle and Shephard (2019) incorporate taxation into an equilibrium collective marriage-market model and show that taxes distort not only labor supply but also marital sorting and intra-household allocations. Relatedly, Obara and Ogawa (2024) study optimal taxation in an endogenous fertility model with non-cooperative couples and show that tax policy can affect fertility through intra-household inefficiencies in childcare provision. While their focus is on optimal fertility policy within existing couples, our analysis studies how tax-unit reform affects the formation of couples themselves and the subsequent allocation of market work and home production. Our paper contributes to this literature by studying a policy-relevant tax-unit reform in Korea.

The paper also relates to the literature on home production and labor supply. Home production has long been recognized as an important margin of household adjustment (Benhabib et al., 1991; Rupert et al., 1995), and recent work shows that complementarities in home production are quantitatively important for marriage and labor-market sorting (Calvo et al., 2024). We build on this insight by allowing market consumption and home-produced goods to be imperfect substitutes and by allowing labor supply to adjust on both the extensive and intensive margins. This enables us to study how tax-unit reform affects not only marriage formation, but also the division of market work and home production within marriage.

Our dynamic extension also connects the paper to recent work on intra-household commitment. Theloudis et al. (2025) develop a life-cycle collective household model that distinguishes among full commitment, limited commitment, and no commitment, and show

that household labor-supply responses depend on how current and past shocks affect intra-household allocations. Our model is complementary: we use two polar cases—fixed and flexible bargaining weights—to quantify how the commitment structure shapes the transition after tax-unit reform. This comparison shows that the same long-run policy can generate very different short-run paths for married women's labor supply and marriage formation, depending on how bargaining weights respond to the reform.

Finally, our paper is related to empirical studies of family-based taxation and tax-unit reform. Existing evidence from France suggests that household-based taxation can affect marriage, fertility, and female labor supply, but the magnitude of these effects remains mixed (Chen, 2011; Kabátek et al., 2014). More broadly, quasi-experimental evidence from reforms that reduced the jointness of taxation shows that lower tax burdens on secondary earners increase married women's labor-force participation (Eissa, 1995; Crossley and Jeon, 2007; Selin, 2014; Fuenmayor et al., 2018). Relative to this empirical literature, our contribution is to provide a structural framework for a country such as Korea, where household-based income taxation has never been implemented and causal evaluation based on policy variation is therefore not feasible.

# 2 Model

This section develops a static collective household model with endogenous marriage decisions, labor supply on both the extensive and intensive margins, and home production. The model builds on the marriage-market framework of Chade and Ventura (2002), while extending it to incorporate collective household decision-making, home production, and non-convex labor supply. The collective-household interpretation follows the tradition of Chiappori (1992, 1997). In addition, the extensive labor-supply margin is introduced through a fixed time cost of market work, following the logic in Chang et al. (2019, 2020).

## 2.1 Environment and Timing

The economy is populated by a unit measure of females and a unit measure of males. Each individual is endowed with exogenous labor productivity $y_j$, where $j \in \{f, m\}$, drawn from the gender-specific distribution $\mu_j(y_j)$. Individuals are initially single and are randomly matched in the marriage market. A match is summarized by the pair $(y_m, y_f)$.

The timing within a period is as follows. First, a female and a male meet through random matching and observe their productivities and preference shocks. Second, each pair decides whether to marry or not, taking the household bargaining weight $\zeta(y_m, y_f)$ as given; this weight is an equilibrium object whose determination we discuss later.[3] If both individuals agree to marry, they form a married household and choose consumption, labor supply, and home production. Otherwise, each remains single and solves an individual decision problem.

## 2.2 Value Function: Singles

We first explain the value function of a single individual. A single individual of gender $j \in \{f, m\}$ with productivity $y$ maximizes the following objective function

$$v_j^s(y) = \max_{c, \ell_{j,mkt}, \ell_{j,home}} \left\{ u(c) - B_0 \frac{(\ell_{j,mkt} + \ell_{j,home})^{1+\eta}}{1+\eta} \right\}, \tag{1}$$

[3] We follow the collective-household tradition of treating $\zeta$ as a primitive of the household problem rather than deriving it from a non-cooperative bargaining protocol. The determination of $\zeta$ as an equilibrium object in two-sided matching markets with transferable or imperfectly transferable utility is studied by Choo and Siow (2006), Chiappori et al. (2018), and Galichon and Salanié (2022), among others.

subject to

$$c = \left[ \alpha_{mkt} c_{mkt}^{\frac{\varepsilon_{m,h}-1}{\varepsilon_{m,h}}} + (1-\alpha_{mkt}) c_{hp}^{\frac{\varepsilon_{m,h}-1}{\varepsilon_{m,h}}} \right]^{\frac{\varepsilon_{m,h}}{\varepsilon_{m,h}-1}}, \tag{2}$$

$$c_{mkt} = \tilde{y} - T(\tilde{y}), \tag{3}$$

$$\tilde{y} = y \cdot \max\{0, \ell_{j,mkt} - \bar{\ell}\}, \tag{4}$$

$$c_{hp} = \omega_j^s \ell_{j,home}, \tag{5}$$

$$\ell_{j,mkt} + \ell_{j,home} \in [0,1]. \tag{6}$$

Here, $c$ is a composite consumption good produced from market consumption $c_{mkt}$ and home-produced consumption $c_{hp}$. The parameter $\varepsilon_{m,h}$ denotes the elasticity of substitution between market goods and home-produced goods, and $\alpha_{mkt}$ governs the relative importance of market consumption. The disutility of total work hours is governed by the scale parameter $B_0$ and the curvature parameter $\eta$, where $1/\eta$ corresponds to the Frisch elasticity of labor supply along the intensive margin. The parameter $\omega_j^s$ captures home-production productivity for singles of gender $j$. We assume this home-production productivity may differ between singles and married households to account for the differential home production hours observed in the data. Regarding the labor market hour choice, there exists a fixed time cost $\bar{\ell}$ of market work. If market hours are below this threshold, effective labor supply is zero. This kink in the budget set generates an extensive labor-supply margin in a parsimonious way. The individual tax schedule is denoted by $T(\cdot)$.

## 2.3 Value Functions: Married Households

If a female with productivity $y_f$ and a male with productivity $y_m$ marry, they form a household. Given $\zeta$, the household chooses market work, home production, and consumption to

maximize a weighted sum of the spouses' utilities:

$$W(y_m, y_f; \zeta) = \max_{\substack{c,\ell_{m,mkt},\ell_{m,home},\\ \ell_{f,mkt},\ell_{f,home}}} \left\{(1-\zeta)v_m^m(c,\ell_m) + \zeta v_f^m(c,\ell_f)\right\}, \tag{7}$$

where

$$v_j^m(c,\ell_j) = u(c) - B_0\frac{(\ell_{j,mkt}+\ell_{j,home})^{1+\eta}}{1+\eta}, \qquad j \in \{f,m\}. \tag{8}$$

The household problem is subject to

$$c = \left[\alpha_{mkt} c_{mkt}^{\frac{\varepsilon_{m,h}-1}{\varepsilon_{m,h}}} + (1-\alpha_{mkt}) c_{hp}^{\frac{\varepsilon_{m,h}-1}{\varepsilon_{m,h}}}\right]^{\frac{\varepsilon_{m,h}}{\varepsilon_{m,h}-1}}, \tag{9}$$

$$c_{mkt} = \tilde{y}_m + \tilde{y}_f - T^m(\tilde{y}_m, \tilde{y}_f), \tag{10}$$

$$\tilde{y}_j = y_j \cdot \max\{0, \ell_{j,mkt} - \bar{\ell}\}, \qquad j \in \{f,m\}, \tag{11}$$

$$c_{hp} = \left[(\omega_m^m \ell_{m,home})^{\frac{\varepsilon_{M,F}-1}{\varepsilon_{M,F}}} + (\omega_f^m \ell_{f,home})^{\frac{\varepsilon_{M,F}-1}{\varepsilon_{M,F}}}\right]^{\frac{\varepsilon_{M,F}}{\varepsilon_{M,F}-1}}, \tag{12}$$

$$\ell_{j,mkt} + \ell_{j,home} \in [0,1], \qquad j \in \{f,m\}. \tag{13}$$

As in the single case, consumption combines market goods and home-produced goods through a CES aggregator. Market consumption is a public good within the household and is enjoyed identically by both spouses, whereas leisure and time allocation are private. Home production is produced jointly by female and male home hours through a CES aggregator with elasticity of substitution $\varepsilon_{M,F}$, which allows the two spouses' home hours to be either complements ($\varepsilon_{M,F} < 1$) or substitutes ($\varepsilon_{M,F} > 1$) in producing the home good. The parameters $\omega_f^m$ and $\omega_m^m$ denote gender-specific productivities in household production within marriage. The household tax schedule $T^m(\tilde{y}_m, \tilde{y}_f)$ may differ from the individual schedule $T(\cdot)$ used in the single problem, depending on whether the tax system treats the household or the individual as the unit of taxation.

Let $v_j^m(y_m, y_f; \zeta)$ denote the indirect utility of spouse $j$ generated by the household problem. Since allocations depend on $\zeta$, all household outcomes and continuation values vary with

the bargaining weight. With a slight abuse of notation, $v_j^m(c, \ell_j)$ denotes the utility index inside the household problem, whereas $v_j^m(y_m, y_f; \zeta)$ denotes the resulting indirect utility.

## 2.4 Marriage Decision

Marriage requires bilateral consent. For a match $(y_m, y_f)$, both individuals compare the value of marriage with the value of remaining single. To avoid a degenerate threshold rule and to allow for non-economic determinants of marriage, we assume idiosyncratic Type-I extreme value preference shocks. Specifically, each potential match is associated with three independent shocks: two private shocks $\theta_m^s$ and $\theta_f^s$ that augment the value of remaining single for the male and female respectively, and a common shock $\theta^m$ that augments the value of the match and is shared by both partners. All three shocks are drawn independently from a Type-I extreme value distribution with common scale parameter $\sigma_\theta$, so that dispersion in non-pecuniary preferences is symmetric across the single and married states. Under this assumption, the probability of marriage conditional on $(y_m, y_f)$ and $\zeta$ is

$$p(y_m, y_f; \zeta) = \frac{1}{1 + \exp\left(\frac{v_m^s(y_m) - v_m^m(y_m, y_f; \zeta) - \lambda}{\sigma_\theta}\right) + \exp\left(\frac{v_f^s(y_f) - v_f^m(y_m, y_f; \zeta) - \lambda}{\sigma_\theta}\right)}. \tag{14}$$

The parameter $\lambda$ captures the average non-pecuniary value of marriage, which may reflect social norms or the average attractiveness of marriage. The parameter $\sigma_\theta$ governs the dispersion of preference shocks and therefore the extent to which marriage patterns are driven by economic fundamentals rather than idiosyncratic tastes. Because the match shock $\theta^m$ enters symmetrically into both partners' marriage values, only the relative dispersion of single versus married shocks matters for the consent decision, which yields the three-term logit structure in equation (14) rather than a product of two independent binary choices.

## 2.5 Determination of Bargaining Weight

We assume that the bargaining weight is determined at the level that maximizes the marriage probability.

$$\zeta(y_m, y_f) = \arg\max_{\zeta \in [0,1]} p(y_m, y_f; \zeta). \tag{15}$$

The intuition behind this rule is as follows. From Equation (14), maximizing $p(y_m, y_f; \zeta)$ is equivalent to minimizing

$$\exp\left(\frac{v_m^s(y_m) - v_m^m(y_m, y_f; \zeta) - \lambda}{\sigma_\theta}\right) + \exp\left(\frac{v_f^s(y_f) - v_f^m(y_m, y_f; \zeta) - \lambda}{\sigma_\theta}\right).$$

Assuming that marriage is on average preferred to singlehood for both spouses, the exponential term for each spouse is decreasing in the marital surplus $v_j^m - v_j^s$. Therefore, the marginal contribution of shifting $\zeta$ toward spouse $j$ is larger when spouse $j$'s surplus $v_j^m - v_j^s$ is smaller. It is therefore optimal to tilt the bargaining weight toward the spouse with the smaller marital surplus. Intuitively, the spouse with larger gains from marriage is willing to concede a more favorable allocation to the other in order to secure the match. At the optimum, the marginal contributions of the two spouses are equalized, which satisfies Equation (15).

## 2.6 Tax Function and Counterfactual Reform

In the benchmark economy, labor income is taxed at the individual level. We adopt the following progressive tax schedule, which follows Ma (2025):

$$T(y) = \tau_0 \left[ y - \kappa \left( 1 - e^{-y/\kappa} \right) \right]. \tag{16}$$

Relative to HSV-type tax functions (Heathcote et al., 2017), this specification is convenient in our setting because it remains strictly positive and isolates the income-tax component

from transfer programs that are already partly household-based in Korea.[4] The marginal tax rate implied by equation (16) is

$$T'(y) = \tau_0 \left(1 - e^{-y/\kappa}\right), \tag{17}$$

which is strictly increasing in $y$, equals zero at $y = 0$, and converges to $\tau_0$ as $y \to \infty$. The parameter $\tau_0 \in (0, 1)$ therefore corresponds to the maximum marginal tax rate. The curvature parameter $\kappa > 0$ governs how rapidly the marginal tax rate rises with income: a smaller $\kappa$ means the schedule approaches its asymptote $\tau_0$ at relatively low income levels, so middle-income earners face marginal rates close to the top rate, whereas a larger $\kappa$ stretches the transition over a wider income range and keeps marginal rates well below $\tau_0$ for the bulk of the income distribution (Right panel of Figure 1). The two parameters are calibrated jointly to match the maximum marginal tax rate and the average marginal tax rate observed in the Korean tax data.

Our counterfactual policy reform replaces individual-based taxation with household-based taxation of the French-style quotient form for married couples:

$$T^m(\tilde{y}_m, \tilde{y}_f) = 2 \times T\left(\frac{\tilde{y}_m + \tilde{y}_f}{2}\right). \tag{18}$$

Thus, the tax liability of a married household is computed by applying the individual tax function to average household income and then multiplying the result by two. Because the tax schedule is progressive, this reform changes the marginal tax burden faced by married couples and can alter both marriage incentives and the within-household allocation of market and home work.

[4]Korea maintains an individual-based income tax system, but the current tax code includes several family-related provisions through deductions, tax credits, and transfer programs for spouses, children, and low-income households. These provisions provide targeted support conditional on household characteristics, but they do not alter the tax unit itself. Since our policy experiment concerns a shift from individual-based to household-based income taxation, further details on the current family-related tax provisions in Korea are summarized in Appendix A.

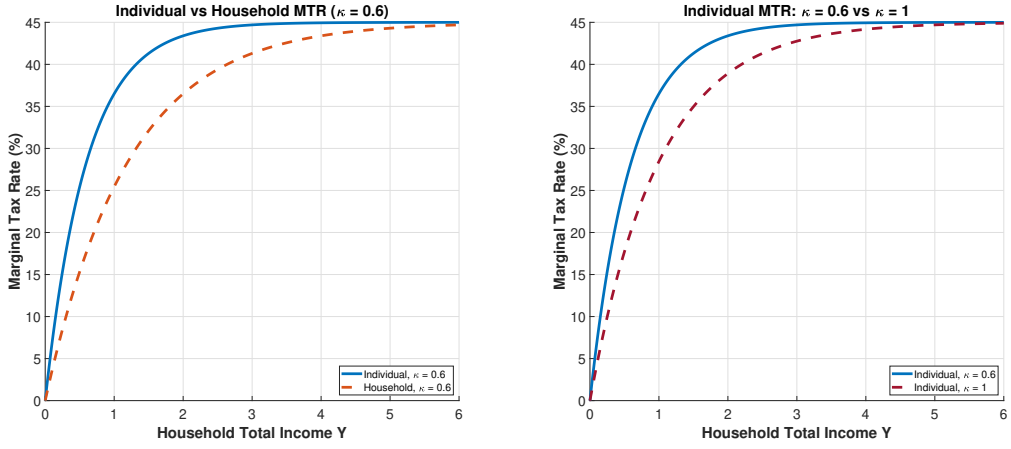



Figure 1: Marginal tax rate. Left: under individual taxation (solid) and household-based taxation (dashed) as a function of total household income $Y$. Under the family quotient, the household tax is computed at average income $Y/2$, yielding a lower marginal rate for married couples. Right: low $\kappa$ (solid) and high $\kappa$ (dashed).

Figure 1 illustrates the marginal tax rate as a function of total household income $Y$. The left panel compares individual taxation with household-based taxation based on the family quotient. Under household-based taxation, the tax schedule is applied to average household income $Y/2$, so a single-earner married household faces a lower marginal tax rate than under individual taxation whenever the tax schedule is progressive. The gap between the two curves captures the tax advantage generated by the family quotient. And the right panel compares marginal tax schedules for different values of the progressivity parameter $\kappa$. A higher $\kappa$ increases the slope of the marginal tax schedule, implying that marginal tax rates rise more rapidly with income.

# 3 Calibration

We calibrate the model to the Korean economy. The model period corresponds to five years, and we target key moments of labor supply, home production, marriage patterns, and effective tax rates from Korean microdata. The calibration proceeds in two steps: a set of parameters is taken directly from the literature, and the remaining parameters are jointly calibrated to match targeted data moments.

Table 1: Calibrated Parameters and Target Moments

| Parameter | Target Moment | Data | Model |
|---|---|---|---|
| $B_0 = 3.56$ | Avg. market hours | 0.500 | 0.490 |
| $\alpha_{mkt} = 0.47$ | Avg. home hours | 0.125 | 0.123 |
| $\omega_f^s/\omega_m^s$ | Female/Male home hours (single) | 2.110 | 2.087 |
| $\omega_f^m/\omega_m^m$ | Female/Male home hours (married) | 2.640 | 2.387 |
| $\bar{\ell} = 0.11$ | Employment rate, married women | 0.600 | 0.572 |
| $\lambda = 0.37$ | Marriage rate | 0.700 | 0.700 |
| $\sigma_\theta = 0.11$ | Marriage rate ratio (top/bottom quintile) | 2.000 | 2.703 |
| $\tau_0 = 0.45$ | Maximum marginal tax rate | 0.450 | 0.450 |
| $\kappa = 0.61$ | Average marginal tax rate | 0.240 | 0.235 |

## 3.1 Externally Set Parameters

Several parameters are set on the basis of prior empirical estimates. The Frisch elasticity of labor supply is set to $\eta = 0.8$ following Chang et al. (2020). The elasticity of substitution between market consumption and home-produced goods is set to $\varepsilon_{m,h} = 1/(1 - 0.363) \approx 1.57$, consistent with estimates in the home-production literature. For home production within marriage, the elasticity of substitution between male and female home hours is set to $\varepsilon_{M,F} = 1/(1 - (-0.54)) \approx 0.65$ following Calvo et al. (2024). This value implies that male and female home production are gross complements and, within the model, that women have a comparative advantage in home production. The log-productivity process is discretized using the Tauchen method with persistence $\rho = 0.95$ and innovation standard deviation $\sigma_x = \sigma_y = 0.15$ for both genders, yielding 15 grid points for each gender. We use log utility for consumption.

## 3.2 Calibrated Parameters and Target Moments

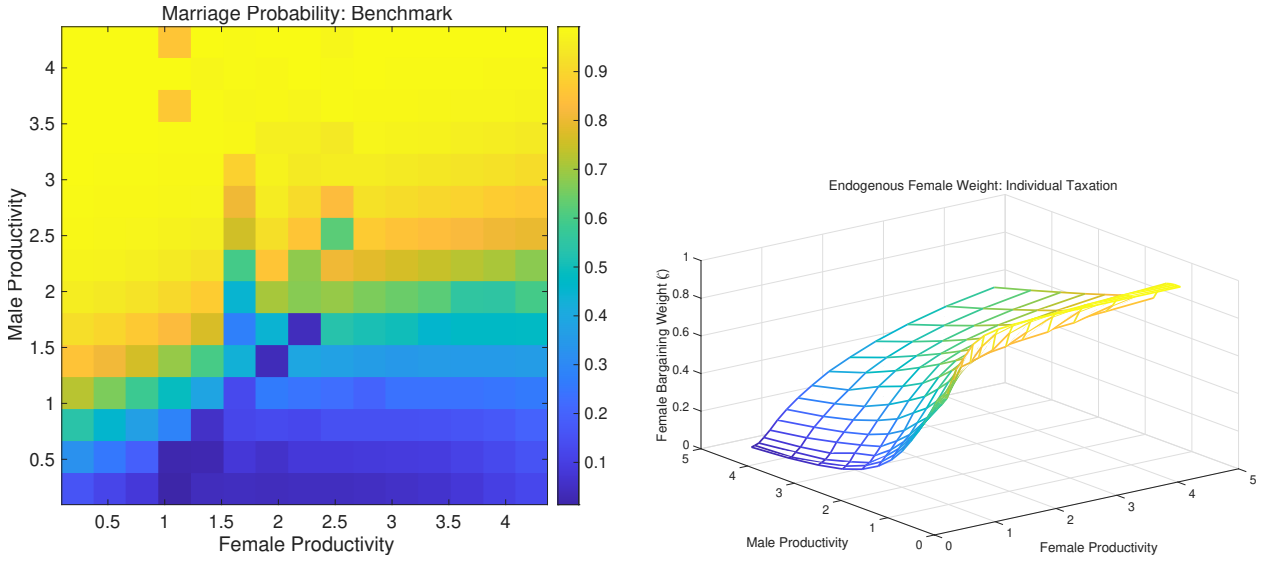
The remaining parameters are calibrated to match a set of moments from Korean data. These parameters and their associated targets are summarized in Table 1.

The disutility of work $B_0$ and the share of market consumption in the composite consumption good, $\alpha_{mkt}$, are jointly calibrated to match the average market and home hours.

In doing so, we normalize 16 hours as one, excluding 8 hours of sleeping from a day. The home-production productivity parameters $\omega_j^s$ and $\omega_j^m$ for $j \in \{f, m\}$ enter the model only through the within-group ratios that govern the gender division of home hours, because the absolute levels are absorbed by the disutility scale $B_0$ and the consumption share $\alpha_{mkt}$. We therefore calibrate two relative-productivity parameters, targeting the female-to-male home-production time ratio separately for singles and for married couples. The fixed time cost of market work, $\bar{\ell}$, is calibrated to match the employment rate of married women in the data. The non-pecuniary value of marriage, $\lambda$, targets the overall marriage rate. We target the rate observed near the end of the potential marriage age range (40∼49), which best corresponds to the long-run marriage outcomes generated by our static model. The two tax parameters $\tau_0$ and $\kappa$ are calibrated to match the maximum and average marginal tax rates in the Korean income tax schedule.

The dispersion of preference shocks, $\sigma_\theta$, is calibrated to match the ratio of marriage rates between high-productivity and low-productivity males. We exploit the fact that $\sigma_\theta$ controls the strength of sorting on productivity in the marriage market. When $\sigma_\theta$ is large, idiosyncratic preference shocks dominate the consent decision and marriage formation becomes nearly random with respect to productivity, so the high-to-low marriage rate ratio approaches one. As $\sigma_\theta$ falls, economic fundamentals carry more weight in the marriage decision, and the higher value of marriage available to high-productivity males translates into a higher marriage rate at the top of the productivity distribution relative to the bottom. The observed cross-sectional ratio of marriage rates by male productivity therefore identifies $\sigma_\theta$ in our setting.

Table 1 reports the calibrated values and the fit of targeted moments. The model matches the marriage rate, average hours allocations, and effective tax rates reasonably well. The employment rate of married women in the model (57.2%) is slightly below the target (60%), reflecting the interaction between the extensive-margin threshold and the endogenous bargaining weight. The model also overstates the marriage-rate ratio between high- and low-




(a) Marriage probability

(b) Female bargaining weight $\zeta(y_m, y_f)$

Figure 2: Benchmark economy: Marriage probability and endogenous female bargaining weight across productivity pairs $(y_m, y_f)$.

productivity males, implying somewhat stronger positive assortative mating in productivity than in the data. This appears to reflect the strong complementarity embedded in home production.

Figure 2 depicts two key features of the calibrated benchmark economy. The left panel shows the marriage probability for each $(y_m, y_f)$ pair: marriage is most likely when both spouses have high productivity, reflecting the complementarity of home production and the gains from joint taxation. The right panel shows the endogenous female bargaining weight $\zeta(y_m, y_f)$ as a function of the productivity pair. The weight is increasing in female productivity and decreasing in male productivity, consistent with the outside-option interpretation of bargaining power.

# 4 Results

We use the calibrated model to evaluate the effects of replacing individual-based income taxation with household-based income taxation of the French-style family quotient form. We

consider two counterfactual economies. In the first, household-based taxation is introduced at the benchmark maximum marginal tax rate, so that single individuals face the same tax schedule while married couples are taxed on average household income (*no revenue neutrality*). Since household-based taxation reduces the tax burden on married couples, holding the schedule fixed at its benchmark parameters mechanically reduces aggregate tax revenue and leaves an implicit fiscal gap. This scenario can be interpreted as one in which this gap is closed by a non-distortionary lump-sum tax, so that the results isolate the pure incentive effects of switching the tax unit, abstracting from how the lost revenue is recovered.

In the second counterfactual, the maximum marginal tax rate $\tau_0$ is adjusted upward to maintain aggregate tax revenue at the benchmark level (*revenue neutrality*), holding the curvature parameter $\kappa$ fixed. This scenario is best understood as one specific way of closing the fiscal gap: the government finances the reform by raising marginal rates proportionally across the income distribution. Comparing the two scenarios therefore separates the behavioral response to the change in tax unit from the additional behavioral response to higher marginal rates needed to keep the budget balanced.

## 4.1 Effects on Marriage and Labor Supply

Table 2 summarizes the main results across the three economies. Under household-based taxation without revenue neutrality, the marriage rate rises from 70.0% to 72.6%, a gain of 2.6 percentage points, or 3.7% relative to the benchmark. At the same time, the reform induces strong specialization within married households: the dual-earner share falls sharply from 57.2% to 31.5%, a decline of 44.9%, as the tax advantage of income pooling encourages one spouse—typically the secondary earner—to exit the labor market. The average female bargaining weight falls from 0.58 to 0.52, indicating that the reform shifts the model-implied allocation weight away from wives.

The shift toward specialization also reshapes marital sorting. The earnings correlation among married couples rises from 0.31 to 0.39, an increase of 26.9%, indicating that

Table 2: Main Results: Benchmark and Counterfactual Economies

| | Benchmark | Household Taxation | |
|---|---|---|---|
| | (Individual) | No Rev. Neutral | Rev. Neutral |
| Marriage rate | 0.700 | 0.726 | 0.676 |
| Married female employment rate | 0.572 | 0.315 | 0.111 |
| Dual-earner share | 0.572 | 0.315 | 0.111 |
| Average female weight $\bar{\zeta}$ | 0.582 | 0.515 | 0.524 |
| Average MTR | 0.235 | 0.244 | 0.414 |
| Aggregate tax revenue | 0.062 | 0.045 | 0.062 |
| Tax revenue / $Y$ | 0.161 | 0.125 | 0.194 |
| Earnings correlation (married) | 0.309 | 0.392 | 0.640 |
| Aggregate output $Y$ | 0.384 | 0.359 | 0.319 |
| **Percent change relative to benchmark (benchmark = 1)** | | | |
| Marriage rate | — | 3.71% | -3.43% |
| Married female employment rate | — | -44.93% | -80.59% |
| Dual-earner share | — | -44.93% | -80.59% |
| Average female weight $\bar{\zeta}$ | — | -11.51% | -9.97% |
| Average MTR | — | 3.83% | 76.17% |
| Aggregate tax revenue | — | -27.42% | 0.00% |
| Tax revenue / $Y$ | — | -22.36% | 20.38% |
| Earnings correlation (married) | — | 26.86% | 107.12% |
| Aggregate output $Y$ | — | -6.51% | -16.93% |

*Note:* "No Rev. Neutral" applies the benchmark tax rate under household-based taxation. "Rev. Neutral" adjusts the maximum marginal tax rate so that aggregate tax revenue equals the benchmark level. The lower panel reports percentage changes relative to the benchmark economy, computed as $(x/x^{bench} - 1) \times 100$.

household-based taxation strengthens positive assortative matching in observed earnings. This pattern reflects the interaction between the tax advantage of income pooling and the endogenous exit of low-productivity secondary earners from the labor market.

The reform also entails a substantial fall in tax revenue of 27.4%. Measured relative to output, the tax-to-output ratio declines from 0.161 to 0.125, a reduction of 22.4%. This revenue shortfall reflects both the mechanical reduction in effective tax rates for married couples and the behavioral response of reduced female labor supply.

Under revenue-neutral household taxation, the maximum marginal tax rate must be raised substantially—from an average of 23.5% to 41.4%, or by 76.2% relative to the benchmark—to compensate for the erosion of the tax base. This higher rate further discourages labor

force participation: married female employment falls to 11.1%, and the dual-earner share declines to the same level, corresponding to a decline of 80.6% relative to the benchmark. Crucially, the marriage rate under revenue neutrality *decreases* from the benchmark level, falling from 70.0% to 67.6%. The 2.4 percentage-point decline, or 3.4% relative to the benchmark, indicates that the marriage-discouraging effect of higher marginal tax rates dominates the marriage-promoting effect of the family quotient when the government must maintain revenue. Although aggregate tax revenue is restored to its benchmark level by construction, output falls from 0.384 to 0.319, a decline of 16.9%. As a result, the tax-revenue-to-output ratio rises from 0.161 to 0.194, an increase of 20.4%, reflecting the combination of revenue neutrality and a smaller tax base.

Figure 3 plots the marriage rate by productivity for males and females across the three economies. The benchmark profiles reveal a significant gender asymmetry. For males, the marriage rate is monotonically increasing in productivity: high-productivity men marry at substantially higher rates than low-productivity men. For females, the profile is non-monotonic, declining over the lower part of the productivity distribution and then flattening out at higher productivities. This asymmetry follows directly from the structure of home production in our calibrated model. The home-production productivity of single females exceeds that of married females ($\omega_f^s > \omega_f^m$), so high-productivity women lose relatively little by remaining single: their high market wage is complemented by a productive home-production technology, and the additional gains from forming a household are modest. High-productivity men, by contrast, face low home-production productivity as singles, so marriage continues to deliver substantial gains even at the top of the male wage distribution.

The tax reform amplifies this asymmetry. For males, the marriage-rate profile changes little under the tax reforms. For females, the response is much larger and more heterogeneous, with a particularly large decline in the marriage rate for high-productivity women under the revenue-neutral case. Because household-based taxation rewards the concentration of market work, the marginal value of marriage to a high-productivity woman is dominated by

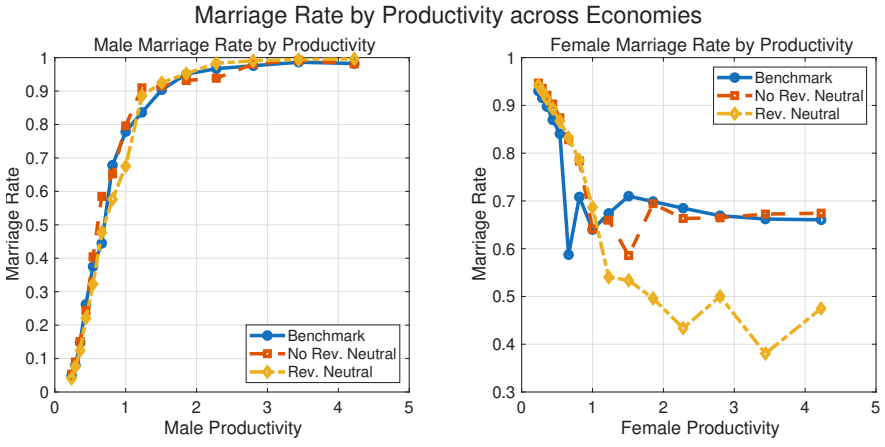



Figure 3: Marriage rate by productivity across economies. Left: male marriage rate by male productivity. Right: female marriage rate by female productivity. Solid: Benchmark; Dashed: No revenue neutrality; Dash-dotted: Revenue neutral.

her likely role as the secondary earner if she marries a still-higher-productivity man, or as the primary earner whose tax burden subsidizes a non-working spouse. These mechanisms make marriage less attractive for high-productivity women relative to the benchmark, especially under revenue neutrality.

Figure 4 displays the labor-supply response to the reform. The singles' response (top row) depends entirely on whether the reform is revenue-neutral. Under the non-revenue-neutral counterfactual, the labor supply of single individuals is unchanged, since the tax schedule they face is identical to the benchmark. Under revenue neutrality, however, the upward adjustment in the maximum marginal tax rate $\tau_0$ depresses market hours noticeably for both single females and single males, with the decline most visible among high-productivity singles for whom the higher marginal rate is most binding. For single males in particular, the labor-supply profile becomes hump-shaped under the revenue-neutral case, as the tax disincentive at high productivities outweighs the income effect of higher wages.

The response of married women (lower-left panel) is the central margin of adjustment under both counterfactuals. Market hours fall sharply across nearly the entire productivity distribution, with the largest absolute declines concentrated among low- and middle-productivity women who face the steepest reductions in effective marginal tax rates from joint

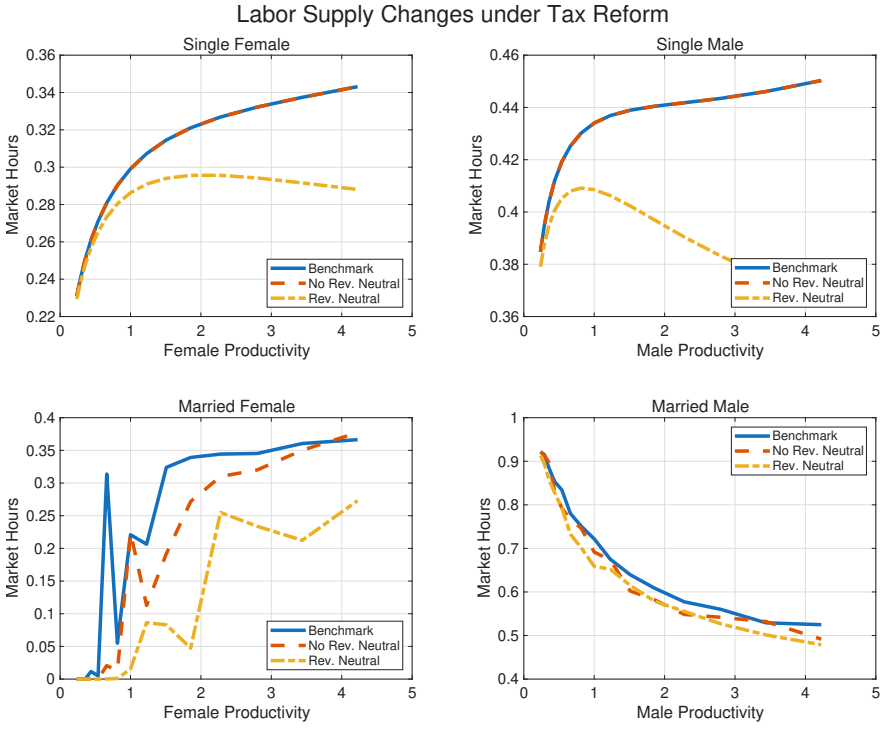



Figure 4: Labor supply by productivity across economies. Top row: single female (left) and single male (right). Bottom row: married female (left) and married male (right).

filing. Under revenue neutrality, the decline is amplified further: the higher $\tau_0$ compounds the specialization incentive already present under the non-tax-neutral scenario. Married men (lower-right panel), by contrast, exhibit only a modest decline in market hours under either counterfactual, with the small downward shift driven by the income effect of household income pooling rather than by any change in their effective marginal tax rate. Taken together, the figure makes clear that the reform's labor-supply consequences operate almost entirely through the response of married women, with the singles' response activated only when revenue neutrality is imposed and the male response remaining a quantitatively secondary margin throughout.

Figure 5 plots the change in the endogenous female bargaining weight $\Delta\zeta = \zeta_1 - \zeta_0$ across productivity pairs $(y_m, y_f)$. The shift is overwhelmingly negative: across nearly the entire productivity grid, the female bargaining weight declines under both counterfactuals, with the magnitude of the decline varying systematically with the relative productivities of the two

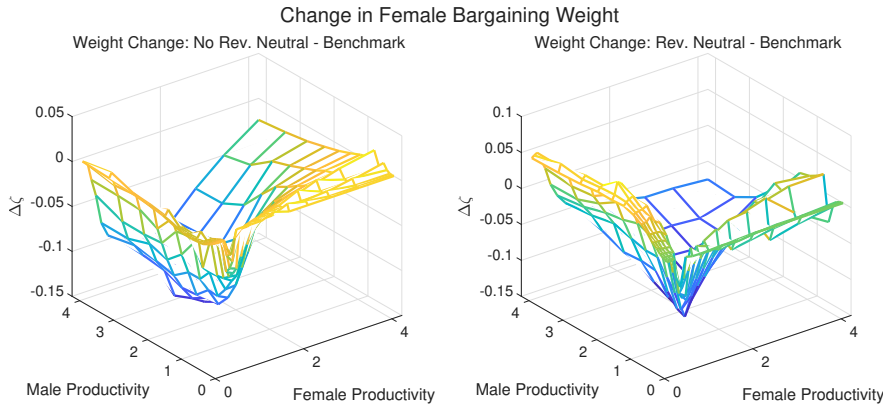



Figure 5: Change in female bargaining weight $\Delta\zeta$ under household-based taxation relative to the benchmark. Left: No revenue neutrality. Right: Revenue neutral.

spouses. The largest reductions in $\zeta$ occur in the region where female productivity is high relative to male productivity—that is, in matches where the wife would be the higher-earning spouse in the absence of household-based taxation.

# 5 A Dynamic Extension

The static model developed in Section 2 characterizes the long-run effects of household-based taxation on labor supply, marriage, and intra-household allocations. To complement these results, this section extends the framework to a dynamic setting that addresses two additional dimensions relevant for policy evaluation. First, the dynamic model traces the speed at which marriage formation, labor supply, and intra-household allocations adjust to the reform. Second, it allows the commitment structure within existing households to shape the transition path: when intra-household bargaining weights are set at the time of marriage and remain fixed thereafter, the reform affects newly formed and existing households asymmetrically, with distinct implications for the short-run and long-run effects of the policy.

To address these questions, we extend the model along a minimal dynamic dimension. We keep the extension deliberately simple—abstracting from savings and life-cycle features—so as to isolate the mechanisms that carry over from the static environment to a dynamic setting and to highlight the distinct role played by commitment in existing marriages.

## 5.1 Model

Time is discrete, and all agents share the same discount factor $\beta \in (0,1)$. Agents are not allowed to accumulate wealth, so the within-period allocation of consumption, market hours, and home-production hours reduces to the static problem described in Section 2.

At each date, the timing of events is as follows. First, at the beginning of the period, each single agent randomly meets a potential partner of the opposite gender with fixed probability $q \in (0,1)$ and, conditional on meeting, decides whether to marry. Next, each married couple receives a redraw of its preference shocks with probability $d \in (0,1)$ and, conditional on a redraw, decides whether to remain married or dissolve the marriage. Finally, at the end of the period, each agent exits the economy at an exogenous rate $\delta$ and is replaced by a newborn clone of the same gender, who enters as single and retains the same productivity draw throughout life.

Two remarks are in order. First, we adopt the same logit structure for both the marriage and divorce decisions. Although new marriage formation and divorce are distinct decisions, both require bilateral consent in our model, which justifies a common specification. Second, the exit shock admits two interpretations: the agent reaching a maximum age beyond which marriages are no longer formed, or the agent's death. When a married agent exits, the household dissolves: the surviving spouse returns to the singles pool, while the exiting spouse is replaced by a newborn clone of the same gender and productivity.

In Appendix B, we define the steady-state value functions and derive the transition dynamics. For the analysis, we need to specify how the bargaining weight $\zeta$ is determined. In the steady-state analysis, we directly adopt the weight obtained from the static model. We make this assumption for tractability. In the dynamic model, the marriage probability for a pair $(y_m, y_f)$ is not determined independently across productivity pairs; instead, it is jointly determined through the steady-state system. This joint dependence complicates both the definition of "maximizing the marriage probability" and its numerical implementation. Rather than pursuing this route, we use the static weight as a parameter, which is equivalent

Table 3: Calibrated Parameters and Target Moments

| Parameter | Target Moment | Data | Model |
|---|---|---|---|
| $q = 0.142$ | Marriage rate (25∼44 years old) | 49.16% | 49.23% |
| $d = 0.027$ | Divorce hazard rate (25∼44 years old) | 0.39% | 0.40% |

Table 4: Steady State Results

| | Benchmark | Household Taxation | |
|---|---|---|---|
| | (Individual) | No Rev. Neutral | Rev. Neutral |
| Marriage rate | 0.4923 | 0.4922 | 0.4834 |
| Married female employment rate | 0.6001 | 0.4517 | 0.2807 |
| **Percent change relative to benchmark (benchmark = 1)** | | | |
| Marriage rate | — | -0.00% | -1.81% |
| Married female employment rate | — | -24.73% | -53.22% |

*Note:* "No Rev. Neutral" applies the benchmark tax rate under household-based taxation. "Rev. Neutral" adjusts the maximum marginal tax rate so that aggregate tax revenue equals the benchmark level. The lower panel reports percentage changes relative to the benchmark economy, computed as $(x/x^{bench} - 1) \times 100$.

to assuming that $\zeta$ is chosen to maximize the static marriage probability.

## 5.2 Calibration and Steady State Result

In the dynamic model, we have four additional parameters, $\beta, \delta, q, d$. The dynamic extension is solved at an annual frequency. This differs from the static calibration only in the interpretation of transition time, while the within-period allocation parameters are kept fixed at their calibrated values. For the discount factor $\beta$, we set a standard value 0.95. For $\delta$, we choose $5\% + 0.062\%$, where the first term captures the life-cycle feature (approximately 20 years of marriage opportunity) and the second term reflects the average mortality hazard rate for prime-aged individuals. The matching probability $q$ and preference redrawing probability $d$ are calibrated to match the steady-state marriage rate and divorce hazard rate, respectively. We retain the other parameter values from the static calibration, with the exception of the preference parameters $\lambda$ and $\sigma_\theta$. We scale these parameters by a factor of $1/(1 - \beta(1 - \delta))$, since our dynamic value function is of this order relative to its static counterpart.

Table 4 presents the steady-state comparison, focusing on the marriage rate and the married female employment rate. In the dynamic environment, we find that the non-revenue-neutral tax reform has no significant effect on the marriage rate, whereas the revenue-neutral reform reduces it, consistent with our earlier findings. Both reforms lower the labor force participation of married women, although the magnitude of these effects is dampened relative to the static model.

## 5.3 Transition Dynamics

In this subsection, we analyze the transition dynamics. In doing so, we consider an unanticipated tax reform as an MIT shock. Incorporating this shock into the model requires specifying how intra-household bargaining weights respond to the policy change. Let $\zeta_0$ denote the pre-reform bargaining weights obtained from the static model, and let $\zeta_1$ denote the post-reform bargaining weights. For newly formed households, it is natural to assume that the bargaining weight is set to $\zeta_1$, since these couples form under the post-reform tax schedule and evaluate their outside options accordingly. For existing households, by contrast, it is not a priori clear whether, or to what extent, the bargaining weight responds to the policy change. If spouses can fully commit within the marriage, any shock that arrives after the household is formed leaves the bargaining weight unchanged. Under limited commitment, however, unanticipated changes in outside options may shift the within-household allocation (Theloudis et al., 2025).

We now turn to the transition dynamics following an unanticipated shift to household-based income taxation. We consider four scenarios that cross the two fiscal regimes—no tax revenue neutrality (NTN) and tax revenue neutrality (TN)—with two assumptions about bargaining-weight adjustment in existing marriages. In the fixed-weight case, which we interpret as a simple form of full commitment, households formed before the reform retain their pre-reform bargaining weights. In the flexible-adjustment case, all households immediately adopt the post-reform weights $\zeta_1$. We treat the fixed-weight case as our preferred

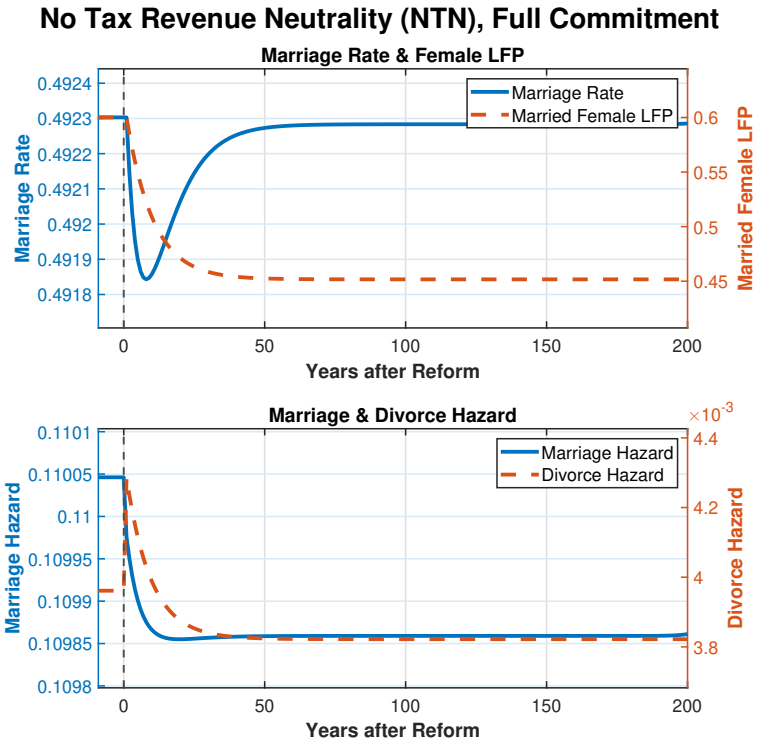



Figure 6: Dynamic Extension: No Tax Neutrality (NTN) under Full Commitment (Fixed Weights)

specification because it is more consistent with the empirical evidence presented in the next subsection.

Under NTN with full commitment (Figure 6), the new steady state features both a lower marriage hazard and a lower divorce hazard than the benchmark, even though the long-run marriage rate is nearly identical. The reform reduces the rate at which new marriages form, but it also stabilizes existing ones by lowering the post-reform tax burden on married couples, and these two forces roughly offset in the stock. The transition itself is non-linear: the marriage rate does not move monotonically toward its new steady state but instead dips noticeably within the first decade before recovering, with full convergence taking roughly 50 years. Married female labor force participation likewise declines smoothly through cohort turnover rather than on impact.

Under TN with full commitment (Figure 7), the new steady state features a substantially lower marriage hazard and a higher divorce hazard than the benchmark, and consequently a

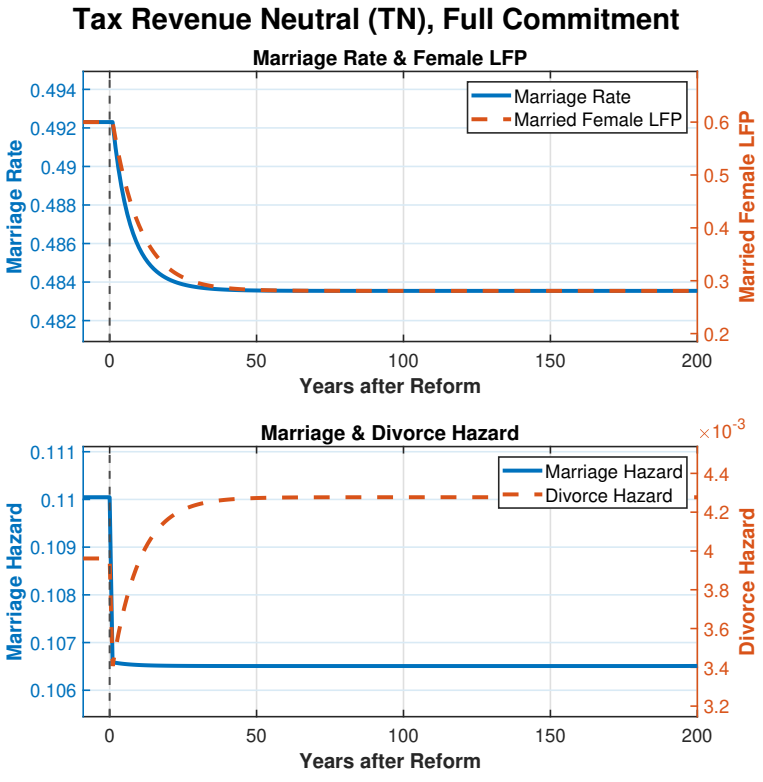



Figure 7: Dynamic Extension: Tax Neutrality (TN) under Full Commitment (Fixed Weights)

noticeably lower marriage rate. Both marriage rate and married female labor force participation decline smoothly over roughly 50 years, which is in contrast to NTN case. The divorce hazard exhibits non-monotonic dynamics: it initially falls because the higher tax burden on singles raises the value of remaining married for existing couples, but eventually rises above the benchmark through a composition effect, as cohort turnover gradually replaces pre-reform couples with newly formed ones whose average match quality is lower.

Figures 8 and 9 show the resulting transition paths under flexible bargaining weights for the NTN and TN reforms, respectively. The qualitative shape of the marriage rate evolution mirrors the full-commitment cases: under NTN the marriage rate dips within the first decade and then recovers to a level close to the benchmark, while under TN it declines monotonically to a substantially lower long-run level. Convergence is somewhat faster than under full commitment, since existing households adjust their allocations immediately rather than waiting for cohort turnover, but the difference in speed is modest along this dimension.

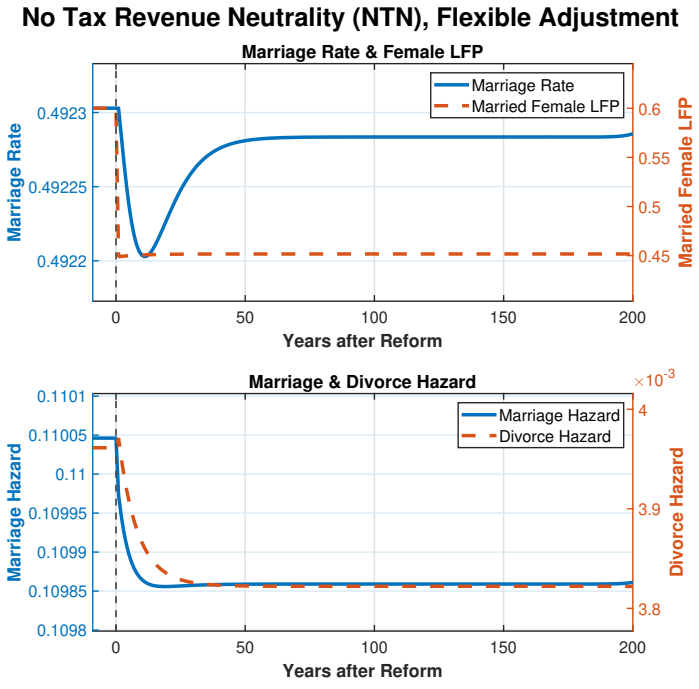



Figure 8: Dynamic Extension: No Tax Neutrality (NTN) under Flexible Adjustment

The most apparent difference between the two commitment structures is in married female labor force participation: rather than declining smoothly through cohort turnover, it drops discretely at the moment of reform. The post-reform bargaining weights shift market hours toward greater specialization in every household, so a large mass of secondary earners exits the labor force on impact.

Comparing the four scenarios yields two broad lessons for policy evaluation. First, the commitment structure within existing marriages is quantitatively important for the speed and magnitude of the transition. Under full commitment, the adjustment in female labor force participation is gradual and driven entirely by cohort turnover, whereas under flexible adjustment, the bulk of the labor-supply response occurs on impact. Second, regardless of the commitment assumption, the marriage rate either remains roughly unchanged (NTN) or declines (TN) during the transition, confirming that the marriage-promoting effect of household-based taxation is limited even outside of steady state. The transition dynamics thus reinforce the main conclusion of the static analysis: the reform is unlikely to deliver a meaningful increase in marriage formation, while generating substantial and persistent

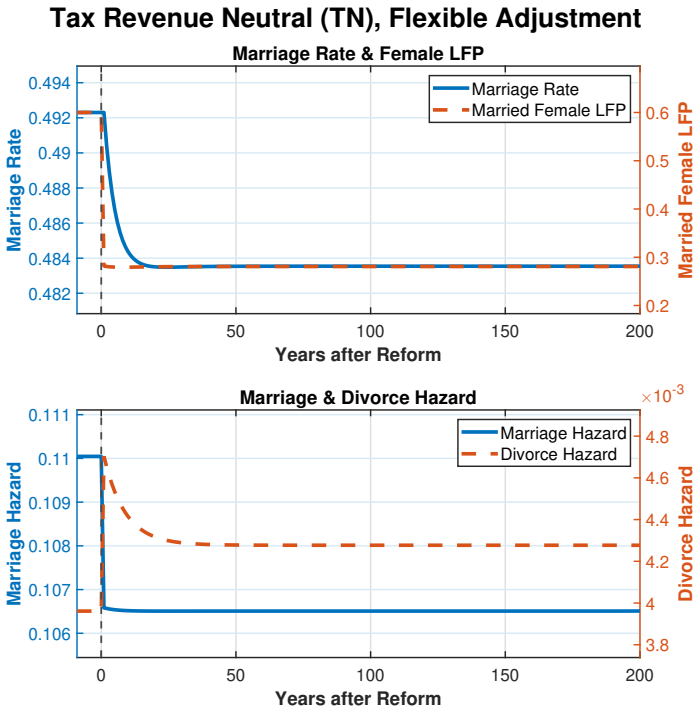



Figure 9: Dynamic Extension: Tax Neutrality (TN) under Flexible Adjustment

declines in married women's labor force participation.

## 5.4 Cross-Elasticity Evidence on Bargaining Weight Adjustment

The cross-elasticity of secondary earner labor supply with respect to primary earner wages provides a diagnostic for the degree of bargaining-weight rigidity. In the model, a decline in the primary earner's wage has two effects on the secondary earner's labor supply. First, through consumption smoothing within the household, it mechanically increases the secondary earner's market hours. Second, if the bargaining weight adjusts endogenously, the decline in the primary earner's outside option raises the secondary earner's weight, which can partially offset the first effect by shifting the household allocation toward the secondary earner's preferences. Because the two regimes generate different cross-elasticities, we use this moment as a consistency check that disciplines our preferred specification in Section 5.3 rather than as a formal identification of the commitment structure. We stress that the comparison is correlational rather than causal, so it can only hint at which modeling assumption

Table 5: Cross-Elasticity of Secondary Earner Labor Supply

| | Cross-Elasticity |
|---|---|
| Data (KLIPS, primary → secondary, age < 56) | −0.673 |
| Model: Endogenous weight | −0.06 |
| Model: Fixed weight | −0.52 |

*Note:* The KLIPS estimate is based on a fixed-effects panel regression of log secondary earner hours on log primary earner earnings for dual-earner couples with primary earner age below 56, using waves 6–27. See Appendix C for details.

is more plausible rather than provide definitive evidence.

Using the Korean Labor and Income Panel Study (KLIPS, waves 6–27), we estimate the cross-elasticity of secondary earner labor supply with respect to primary earner earnings. Our preferred specification, which focuses on working-age couples (age below 56) and uses a fixed-effects panel estimator with robust standard errors, yields a cross-elasticity of −0.673.[5] This estimate is substantially more negative than the cross-elasticity implied by the endogenous-weight model (−0.06) and closer to that implied by the fixed-weight model (−0.52).

Table 5 reports the cross-elasticity under the endogenous-weight and fixed-weight specifications, alongside the empirical estimate from KLIPS. The endogenous-weight model generates a cross-elasticity of only −0.06, far smaller in magnitude than the data estimate. The intuition is that a decline in the primary earner's wage triggers an offsetting adjustment in the bargaining weight, which largely neutralizes the labor-supply response. By contrast, the fixed-weight model generates a cross-elasticity of −0.52, much closer to the KLIPS estimate. Although this comparison falls short of a formal test, it is consistent with the view that intra-household bargaining weights in Korean households are relatively rigid and do not adjust freely to changes in the economic environment.

The implication for the policy experiment is that the marriage-promoting effect of household-based taxation—which relies on endogenous adjustment of bargaining weights to maximize the gains from marriage—is likely to be attenuated in practice. In existing households whose

[5]Further details on the KLIPS estimation methodology, including variable definitions, sample selection, and alternative specifications, are provided in Appendix C. Note that our estimates differ from those in Choi et al. (2023), mainly because we restrict the sample to couples in which both spouses are dual earners at least once during the sample period.

bargaining weights have already been set, the reform may not deliver the increase in marriage probability that the endogenous-weight model predicts.

# 6 Conclusion

This paper asks whether replacing individual-based income taxation with a French-style family quotient would raise marriage rates in Korea. We develop a structural collective household model that embeds search frictions, endogenous bargaining, home production with imperfect substitutability, and labor supply on both the extensive and intensive margins, and calibrate it to Korean microdata.

Three findings emerge. First, the reform creates a stark trade-off. Without a revenue-neutrality constraint, the family quotient modestly raises the marriage rate (by 2.6 percentage points) but sharply reduces married women's labor force participation and erodes the tax base by more than a quarter. When the government restores revenue by raising marginal tax rates—nearly doubling them from 23.5% to 41.4%—the marriage rate actually falls below its benchmark level, dual-earner households are virtually eliminated, and aggregate output contracts by about 17%. The fiscal cost of the reform thus more than offsets whatever marriage-promoting potential it possesses.

Second, the dynamic extension confirms that these conclusions are not artifacts of the static framework. Under both fixed and flexible bargaining-weight adjustment, the marriage rate either remains essentially unchanged or declines along the transition path, while married women's labor force participation falls persistently. The two bargaining-weight adjustment assumptions differ primarily in the speed of labor-supply adjustment—gradual cohort turnover under fixed weight versus a discrete drop on impact under flexible adjustment—but neither delivers a meaningful increase in marriage formation.

Third, the cross-elasticity evidence from the Korean Labor and Income Panel Study is more consistent with the fixed-weight specification. The estimated cross-elasticity of sec-

ondary earner labor supply with respect to primary earner earnings ($-0.67$) lies much closer to the fixed-weight prediction ($-0.52$) than to the endogenous-weight prediction ($-0.06$). Although the comparison is correlational, it suggests that intra-household bargaining weights in Korean households do not adjust freely to changes in economic conditions ¯ precisely the mechanism on which the marriage-promoting effect of the reform relies.

These results carry a clear policy implication. Without a revenue constraint, the modest gains in marriage formation come at the cost of substantial labor-market withdrawal by married women and a sizable erosion of the tax base. Under budget-neutral household-based taxation, the marriage rate falls, while married women's labor force participation and aggregate output decline sharply. A shift from individual-based to household-based income taxation therefore does not appear to be a promising instrument for encouraging marriage formation in Korea. More broadly, our analysis underscores that evaluating family-based tax reforms requires explicitly modeling household behavior, including both marriage formation and the dynamics of intra-household bargaining weights, as these are key determinants of both the magnitude and timing of policy effects.

## Declarations: Generative AI statement

During the preparation of this work the author used ChatGPT and Claude in order to proofread the paper. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the published article.

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# Appendices

## A Current Family-Related Tax Provisions in Korea

This appendix summarizes the main family-related provisions in Korea's current tax and transfer system based on Appendix 1 of Oh et al. (2025). Korea's income tax system is based on the individual rather than the household. Nevertheless, the current tax code contains several provisions intended to support family formation and childrearing through exemptions, deductions, tax credits, and refundable transfers. These provisions do not alter the tax unit itself, but they reduce tax liabilities or provide transfers conditional on the presence of spouses or children. In this sense, Korea's current system may be viewed as providing family-related support within an individual-based income tax framework.

Under the Income Tax Act, some childbirth- and childcare-related benefits are exempt from taxation. These include benefits such as maternity leave benefits, childcare leave benefits, and reduced-hours childcare benefits provided under relevant employment and public-sector laws. In addition, employer-provided childcare-related payments for workers or their spouses are exempt up to a prescribed monthly amount for children below a certain age. These provisions support childbirth and early childrearing by lowering the effective tax burden on eligible households.

Korea also provides family-related support through deductions and tax credits tied to dependents. The comprehensive income tax includes basic personal deductions for the taxpayer, spouse, children, and other qualifying dependent family members who satisfy age and income requirements. Additional deductions are granted for particular categories of dependents, including the elderly, disabled family members, women meeting specific criteria, and single parents. These provisions reflect a limited recognition of household composition in the tax schedule, although they operate through deductions from taxable income rather than through household-based income aggregation.

Further support is provided through child-related tax credits. Taxpayers with qualifying children or grandchildren above the eligible age threshold can claim a child tax credit, with the amount increasing with the number of children. Additional tax credits are also available for childbirth or adoption, with larger amounts for higher-parity births. In addition, the tax code offers special tax credits for medical and education expenditures incurred for the taxpayer and eligible family members. For medical expenses, the applicable credit rate varies by category, with more generous treatment for expenses related to infants with medical needs or fertility treatment. Education expenses for the taxpayer or qualifying dependents are also partially creditable, subject to eligibility conditions and ceilings.

Beyond the Income Tax Act, the Special Tax Treatment Control Act provides two major family-related transfer programs for low-income households: the Earned Income Tax Credit and the Child Tax Credit. The Earned Income Tax Credit differs by household type, with separate schedules for single-person, single-earner, and dual-earner households. Benefit amounts depend on combined household earnings and assets and follow the familiar phase-in, plateau, and phase-out structure. The Child Tax Credit provides additional support to low-income households with dependent children, again based on household income and asset conditions. These programs are explicitly conditioned on household composition and thereby introduce family-based elements into the broader tax-transfer system.

Overall, Korea's current tax and transfer system incorporates multiple provisions that support spouses, children, and low-income families. However, these measures remain embedded in an individual-based tax unit. That is, they provide targeted deductions, credits, and transfers conditional on family characteristics, but they do not fundamentally move the system from individual-based taxation to household-based taxation. This distinction is central to our analysis, since the policy experiment considered in this paper concerns not marginal adjustments to existing family-related tax support, but a shift in the tax unit itself.

# B Dynamic Model

## B.1 Value Functions

The value function of single male is given as follows.

$$\begin{aligned}
\tilde{v}_m^s(y_m, t; \zeta_1) &= q \sum_{y_f} \frac{\mu_f(y_f, t)}{S_f(t)} \left[ p(y_m, y_f, t; \zeta_1) v_m^m(y_m, y_f, t; \zeta_1) \right. && (19) \\
&\quad \left. + \left(1 - p(y_m, y_f, t; \zeta_1)\right) v_m^s(y_m, t; \zeta_1) \right] && (20) \\
&\quad + (1-q) v_m^s(y_m, t; \zeta_1). && (21) \\
v_m^s(y_m, t; \zeta_1) &= \hat{v}_m^s(y_m) + \beta(1-\delta) \tilde{v}_m^s(y_m, t+1; \zeta_1). && (22)
\end{aligned}$$

where $\mu_j(y_j, t)$ denotes the measure of singles of gender $j$ of productivity $y_j$ at period $t$, and $S_j(t) \equiv \sum_{y_j} \mu_j(y_j, t)$ is the total mass of singles of gender $j$ at period $t$. The term $\hat{v}_j^s(y_j)$ refers to the static flow value defined in Section 2; it enters the dynamic value function because, in the absence of savings, the within-period allocation of consumption, market hours, and home-production hours remains a purely static problem identical to the one in Section 2. The beginning-of-period value $\tilde{v}_j^s(y_j, t; \zeta)$ averages over two events: with probability $q$, the single agent meets a potential partner whose productivity is drawn from the conditional distribution $\mu_{-j}(\cdot, t)/S_{-j}(t)$, and with probability $1-q$, no meeting occurs and the agent remains single. After the meeting opportunity is resolved, the end-of-period value $v_j^s(y_j, t; \zeta)$ is the sum of the static flow value $\hat{v}_j^s(y_j)$ and the continuation value, discounted by $\beta$ and adjusted for the survival probability $1-\delta$.

Existing marriages are subject to divorce, which we model as a redrawing of the idiosyncratic preference shocks at rate $d$. Upon such a redraw, the couple re-evaluates the marriage against the outside option of being single: the household continues with probability $p(y_m, y_f, t; \zeta)$ and dissolves otherwise. Note that the bargaining weight applied within an existing household, $\zeta$, may differ from the bargaining weight applied to newly formed households. We therefore distinguish the household-specific state $\zeta$ from the aggregate state

$\zeta_1$, which applies to new households.

The associated value functions for married households are given by

$$\begin{aligned}
\tilde{v}_m^m(y_m, y_f, t; \zeta) &= d \cdot (p(y_m, y_f, t; \zeta) v_m^m(y_m, y_f, t; \zeta) && (23)\\
&\quad + (1 - p(y_m, y_f, t; \zeta)) v_m^s(y_m, t; \zeta_1)) && (24)\\
&\quad + (1-d) v_m^m(y_m, y_f, t; \zeta) && (25)\\
v_m^m(y_m, y_f, t; \zeta) &= \hat{v}_m^m(y_m, y_f; \zeta) + \beta(1-\delta) && (26)\\
&\quad \times [(1-\delta)\tilde{v}_m^m(y_m, y_f, t+1; \zeta) + \delta \tilde{v}_m^s(y_m, t+1; \zeta_1)] && (27)
\end{aligned}$$

where $\hat{v}_j^m(y_m, y_f; \zeta)$ is the static flow value of spouse $j$ in a household with productivity pair $(y_m, y_f)$, as defined in Section 2. The value functions for the female spouse are defined analogously, with the gender indices reversed. The beginning-of-period value $\tilde{v}_j^m(y_m, y_f, t; \zeta)$ averages over two events. With probability $d$, the couple receives a preference-shock redraw and remains married with probability $p(y_m, y_f, t; \zeta)$; otherwise, the marriage dissolves and each spouse returns to singlehood. With probability $1-d$, no redraw occurs and the marriage continues. The end-of-period value $v_j^m(y_m, y_f, t; \zeta)$ then adds the static flow value to the discounted continuation value, accounting for the possibility that the spouse returns to the single pool. When returning to the single pool, the bargaining weight $\zeta_1$ is applied.

## B.2 Law of Motion

This section describes the law of motion for the distribution. When the bargaining weight is fixed within existing households along the transition path, two types of households coexist, each facing a different divorce probability. To distinguish them, we define the distributions as follows:

- $\mu_j(y_j, t)$: measure of gender-$j$ singles with productivity $y_j$ at the beginning of period $t$.

- $\mu_c^0(y_m, y_f, t)$: measure of couples with productivities $(y_m, y_f)$ at the beginning of period $t$ holding the old bargaining weight $\zeta_0$.

- $\mu_c^1(y_m, y_f, t)$: measure of couples with productivities $(y_m, y_f)$ at the beginning of period $t$ holding the new bargaining weight $\zeta_1$.

Under flexible adjustment, all existing households are treated as holding the post-reform bargaining weight $\zeta_1$ immediately after the reform. Equivalently, the initial stock of couples is assigned to $\mu_c^1$, and $\mu_c^0$ is set to zero after the reform. We additionally define $\tilde{\mu}_j(y_j, t)$, $\tilde{\mu}_c^0(y_m, y_f, t)$, and $\tilde{\mu}_c^1(y_m, y_f, t)$ as the corresponding objects measured at the end of each period, just before the exit shock realized between $t$ and $t+1$. Also, we define the single and couple survival probability as $ms = 1 - \delta$, and $hs = (1-\delta)^2$.

The law of motion for male satisfies the following.

$$\mu_m(y_m, t+1) = \tilde{\mu}_m(y_m, t) + (1 - hs) \sum_{y_f} (\tilde{\mu}_c^0(y_m, y_f, t) + \tilde{\mu}_c^1(y_m, y_f, t)) \tag{28}$$

$$\tilde{\mu}_m(y_m, t) = \mu_m(y_m, t) \cdot \left( 1 - q \cdot \sum_{y_f} \frac{\mu_f(y_f, t)}{S_f(t)} p(y_m, y_f, t; \zeta_1) \right) \tag{29}$$

$$+ \sum_{y_f} \mu_c^0(y_m, y_f, t) \cdot d \cdot (1 - p(y_m, y_f, t; \zeta_0)) \tag{30}$$

$$+ \sum_{y_f} \mu_c^1(y_m, y_f, t) \cdot d \cdot (1 - p(y_m, y_f, t; \zeta_1)) \tag{31}$$

Note that different divorce probabilities are applied to different types of households. The

law of motion for households is given as the following.

$$\begin{aligned}
\mu_c^0(y_m, y_f, t+1) &= hs \cdot \tilde{\mu}_c^0(y_m, y_f, t) && (32)\\
\mu_c^1(y_m, y_f, t+1) &= hs \cdot \tilde{\mu}_c^1(y_m, y_f, t) && (33)\\
\tilde{\mu}_c^0(y_m, y_f, t) &= \mu_c^0(y_m, y_f, t) \cdot (1 - d\,(1 - p(y_m, y_f, t; \zeta_0))) && (34)\\
\tilde{\mu}_c^1(y_m, y_f, t) &= \mu_c^1(y_m, y_f, t) \cdot (1 - d\,(1 - p(y_m, y_f, t; \zeta_1))) && (35)\\
&\quad + q\frac{\mu_m(y_m, t)\mu_f(y_f, t)}{S_f(t)} p(y_m, y_f, t; \zeta_1) && (36)
\end{aligned}$$

It is evident from the above equations that there is no inflow into the $\mu_c^0$. For the distributional law of motion, we define meetings from the male side: each single man meets a potential female partner with probability $q$, and the partner's productivity is drawn from the conditional distribution of single women. The same newly formed match mass is removed from both male and female single pools. The law of motion for female singles is defined analogously: the same newly formed match mass is removed from the female single pool, and divorced or separated women return to the female single pool.

The marriage probability $p(y_m, y_f, t; \zeta)$ is determined by the same functional form, but evaluated using the dynamic value functions.

$$p(y_m, y_f, t; \zeta) = \frac{1}{1 + \exp\left(\frac{v_m^s(y_m, t; \zeta_1) - v_m^m(y_m, y_f, t; \zeta) - \lambda}{\sigma_\theta}\right) + \exp\left(\frac{v_f^s(y_f, t; \zeta_1) - v_f^m(y_m, y_f, t; \zeta) - \lambda}{\sigma_\theta}\right)}. \quad (37)$$

# C KLIPS Cross-Elasticity Estimation

This appendix describes the estimation of the cross-elasticity of secondary earner labor supply with respect to primary earner earnings using the Korean Labor and Income Panel Study (KLIPS).

## Data

We use KLIPS waves 6 through 27 (corresponding to the years 2003–2024), a nationally representative longitudinal survey of Korean households. The sample is restricted to married dual-earner couples in which both spouses report positive earnings and positive working hours. We define the primary earner as the spouse with higher annual labor earnings and the secondary earner as the lower-earning spouse, regardless of gender.

## Specification

The baseline specification regresses log secondary earner hours on log primary earner earnings, controlling for individual fixed effects:

$$\log h_{i,t}^{sec} = \alpha_i + \beta \log w_{i,t}^{pri} + \mathbf{X}_{i,t}'\gamma + \varepsilon_{i,t}, \tag{38}$$

where $h_{i,t}^{sec}$ denotes the annual working hours of the secondary earner in household $i$ at time $t$, $w_{i,t}^{pri}$ denotes the annual labor earnings of the primary earner, $\alpha_i$ is a household fixed effect, and $\mathbf{X}_{i,t}$ is a vector of controls including household net worth, whether couples have children or not, quadratic function of female age and year dummies. The parameter of interest is $\beta$, which captures the cross-elasticity of secondary earner labor supply.

We estimate (38) by fixed-effects OLS with robust standard errors clustered at the household level. In our preferred specification, we restrict the sample to households in which the primary earner is below age 56, yielding a sample of 15,415 household-year observations.

## Results

Table 6 reports the estimation results. The preferred specification (column 1) yields a cross-elasticity of $-0.673$, statistically significant at the 0.1% level. Including additional controls (column 2) yields a very similar estimate of $-0.697$. When the sample is expanded to include all ages (columns 3–4), the estimated cross-elasticity is smaller in magnitude ($-0.409$

Table 6: Cross-Elasticity of Secondary Earner Labor Supply (KLIPS)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Age $< 56$ | | All ages | |
| $\log w^{pri}$ | $-0.673^{***}$ | $-0.697^{***}$ | $-0.409^{***}$ | $-0.422^{***}$ |
| | (0.106) | (0.107) | (0.087) | (0.088) |
| $N$ | 15,415 | 15,415 | 19,723 | 19,723 |

*Note:* Dependent variable is log annual hours of the secondary earner. All specifications include household fixed effects. Robust standard errors in parentheses. $^{***}p < 0.001$. Columns (2) and (4) include additional controls.

to $-0.422$), suggesting that the labor-supply response is stronger among working-age households.

As an alternative classification, we also estimate the cross-elasticity using the male–female distinction rather than the primary–secondary distinction. This specification yields a cross-elasticity of $-0.294$ (s.e. 0.031) for the age-restricted sample, which is smaller in magnitude. We use the primary–secondary specification as our preferred estimate because it corresponds more directly to the theoretical mechanism in the model, where the higher-earning spouse's wage affects the lower-earning spouse's labor supply through the bargaining weight.