Commitment and the Dynamics of Household Labour Supply

ONLINE APPENDIX

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A Recursive formulation of household problem

This appendix derives the recursive formulation of the household program across the three commitment alternatives. In contrast to the illustration in the paper, which, for brevity, abstracted from the dependence of preferences or the budget set on individual and household characteristics, this and all following appendices show such dependence explicitly. This is important for completeness and for preparing for the empirical implementation of our test.

Let individual period utility be $u_j(q_t, h_{jt}; \boldsymbol{\xi}_{jt})$, where $\boldsymbol{\xi}_{jt}$ is a vector of taste shifters such as education or the (possibly stochastic) presence of non decision-making children. Let the mapping from gross to disposable income be $y_t^D = \tau(y_t; \boldsymbol{\psi}_t)$, which depends on household characteristics $\boldsymbol{\psi}_t$ (e.g. presence of young children).[1] Let $X_t = \{\boldsymbol{\xi}_{1t}, \boldsymbol{\xi}_{2t}, \boldsymbol{\psi}_t\}$ include all individual and household characteristics that affect preferences or the budget set, some of which may be stochastic (e.g. fertility).

Full commitment. The value function at $t = 0$ is given by (3). Pooling terms together and setting $t_0 = 0$ yields

$$V_{t_0}^{\mathrm{FC}}(\Omega_{t_0}) = \max_{\{C_t\}_{t_0 \le t \le \bar{t}, \boldsymbol{\omega}_t \in \Omega_t}} \mathbb{E}_{t_0} \sum_{t=t_0}^{\bar{t}} \beta^{t-t_0} \Big(\mu_1(\Theta_0) u_1(q_t, h_{1t}) + \mu_2(\Theta_0) u_2(q_t, h_{2t}) \Big) \tag{A.1}$$

where $C_t = \{q_t, h_{1t}, h_{2t}, a_{t+1}\}$ is the set of household choice variables in period t and state $\boldsymbol{\omega}_t \in \Omega_t$. $\boldsymbol{\omega}_t$ reflects a particular realisation of the state space at t, which includes (among other things) the individual/household characteristics X_t and wages W_t – more on Ω_t below. Optimal choices out of (A.1) are contingent on $\boldsymbol{\omega}_t$ but we subsequently drop the explicit conditioning on the state of the world to ease the notation. For similar reasons, we no longer show the dependence of utility on the taste shifters.

Splitting the sum in (A.1) in two parts, one for $t_0 = 0$ and another from $t_1 = 1$ through to $\bar{t}$, yields

$$\begin{aligned} V_{t_0}^{\mathrm{FC}}(\Omega_{t_0}) = \max_{C_{t_0}} \; & \mu_1(\Theta_0) u_1(q_{t_0}, h_{1t_0}) + \mu_2(\Theta_0) u_2(q_{t_0}, h_{2t_0}) \\ & + \beta \max_{\{C_t\}_{t_1 \le t \le \bar{t}}} \mathbb{E}_{t_0} \sum_{t=t_1}^{\bar{t}} \beta^{t-t_1} \Big(\mu_1(\Theta_0) u_1(q_t, h_{1t}) + \mu_2(\Theta_0) u_2(q_t, h_{2t}) \Big). \end{aligned}$$

Given (A.1), we may replace the last part with $V_{t_1}^{\mathrm{FC}}$ to obtain

$$V_{t_0}^{\mathrm{FC}}(\Omega_{t_0}) = \max_{C_{t_0}} \; \mu_1(\Theta_0) u_1(q_{t_0}, h_{1t_0}) + \mu_2(\Theta_0) u_2(q_{t_0}, h_{2t_0}) + \beta \mathbb{E}_{t_0} V_{t_1}^{\mathrm{FC}}(\Omega_{t_1}).$$

[1] $\boldsymbol{\psi}_t$ may have common elements with the taste shifters $\boldsymbol{\xi}_{jt}$.

For a generic period t, this Bellman equation generalises to become

$$V_t^{\text{FC}}(\Omega_t) = \max_{C_t} \ \mu_1(\Theta_0)u_1(q_t, h_{1t}) + \mu_2(\Theta_0)u_2(q_t, h_{2t}) + \beta \mathbb{E}_t V_{t+1}^{\text{FC}}(\Omega_{t+1}), \tag{A.2}$$

which is clearly a special case of the general recursive form (6) in the paper if $\mu_{jt} = \mu_j(\Theta_0)$, $j \in \{1, 2\}$, i.e. the familiar time-invariance of the Pareto weight under full commitment.

The policy functions derived from (A.2) vary with individual/household characteristics X_t, wages W_t, and assets a_t, which affect preferences and the budget set, and, through them, they affect the optimal trade-off between consumption, savings, leisure, and work. The policy functions also vary with the applicable Pareto weight $\mu_j(\Theta_0)$; a relatively larger μ_j implies choices more tailored to spouse j, and vice versa. As μ_j only varies with Θ_0, it follows that the full state space in full commitment is given by $\Omega_t = \{X_t, W_t, a_t, \Theta_0\}$.

Limited commitment. The value function at $t = 0$ is given by (4). We can incorporate the participation constraints into the objective function using a Lagrangian multiplier method (Messner *et al.*, 2012; Marcet and Marimon, 2019), which yields

$$\begin{aligned} V_0^{\text{LC}}(\Omega_0) = \max_{\{C_t\}_{0 \le t \le \bar{t}, \boldsymbol{\omega}_t \in \Omega_t}} \ & \mu_1(\Theta_0) \left(\mathbb{E}_0 \sum_{t=0}^{\bar{t}} \beta^t u_1(q_t, h_{1t}) \right) + \mu_2(\Theta_0) \left(\mathbb{E}_0 \sum_{t=0}^{\bar{t}} \beta^t u_2(q_t, h_{2t}) \right) \\ & + \sum_{t=1}^{\bar{t}} \beta^t \sum_j \nu_{jt} \left(\mathbb{E}_t \sum_{\tau=t}^{\bar{t}} \beta^{\tau-t} u_j(q_\tau, h_{j\tau}) - \widetilde{V}_{jt}(X_{jt}, w_{jt}, Z_{jt}, a_t) \right), \end{aligned}$$

where the outside option (for example, the continuation value as single) is given by

$$\begin{aligned} \widetilde{V}_{jt}(\Omega_{jt}) = & \max_{\{q_{j\tau}, h_{j\tau}, a_{j\tau+1}\}_{\tau=t,\ldots,\bar{t}, \boldsymbol{\omega}_{j\tau} \in \Omega_{j\tau}}} \mathbb{E}_t \sum_{\tau=t}^{\bar{t}} \beta^{\tau-t} \widetilde{u}_j(q_{j\tau}, h_{j\tau}) \\ & \text{subject to } \ (1+r)a_{j\tau} + \tau(w_{j\tau}h_{j\tau}; \boldsymbol{\psi}_\tau) = q_{j\tau} + a_{j\tau+1}, \ \forall \tau, \boldsymbol{\omega}_{j\tau}, \text{ and } a_{1t} + a_{2t} = a_t, \end{aligned}$$

while ν_{jt} is the Lagrange multiplier on j's participation constraint at t. As such, ν_{jt} depends on the variables that the underlying constraint depends on, namely $\Omega_{jt} = \{X_{jt}, w_{jt}, Z_{jt}, a_t\}$ that affect the *outside* option,[2] and several variables below that affect the *inside* option.

The individual and household characteristics X_t, wages W_t, and wealth a_t affect optimal

[2]Individual characteristics $X_{jt} \subseteq X_t$ matter for j's life as single through his/her preferences, budget set, and ultimately labour (and possibly remarriage) market future prospects. X_{jt} includes the individual taste shifters $\boldsymbol{\xi}_{jt}$, the single's tax characteristics (in principle a subset of $\boldsymbol{\psi}_t$), and possibly some characteristics of their ex-partner that codetermine alimony or child support (e.g. Foerster, 2020). For example, the ex-partner's wage rate may matter for alimony; for simplicity, we do not explicitly show this here but neither the characterisation of behaviour nor the test for commitment are affected by this.

household choices in limited commitment through their effect on preferences and/or the budget set. The *inside* value of person j reflects such choices, so it varies with X_t, W_t, a_t. The inside value also varies with the applicable Pareto weight in the period/state. However, an important distinction must be made here. Suppose that there is a Pareto weight at the *start* of period t, i.e. after the state of the world manifests but before decisions are made in the period, and a potentially different Pareto weight at the *end* of period t. Let's call the first weight μ_{jt-1}; this determines what share of the marital surplus accrues to j at the *start* of t, i.e. it determines j's inside value at the start of t. Whether the participation constraint binds at the *start* of period t depends on μ_{jt-1}. This is ultimately what matters for decision making later on in the period, so the Lagrange multiplier on spouse j's participation constraint depends on μ_{jt-1}.[3]

Pooling together the variables that affect j's participation constraint in period t, we may express its Lagrange multiplier as $\nu_{jt} = \nu_j(X_t, W_t, Z_{jt}, a_t, \mu_{jt-1})$.[4] Assuming for simplicity that X_t affects the inside and outside options similarly, it follows that X_t does not impact the participation constraints. We thus conclude that $\nu_{jt} = \nu_j(W_t, Z_{jt}, a_t, \mu_{jt-1})$.

Following Marcet and Marimon (2019), we use standard algebra and the law of iterated expectations to pool common terms together and write the value function as

$$\begin{aligned} V_0^{\mathrm{LC}}(\Omega_0) = \max_{\{C_t\}_{0\leq t\leq \bar{t}, \boldsymbol{\omega}_t\in\Omega_t}} \mathbb{E}_0 \sum_{t=0}^{\bar{t}} \beta^t \Big(& \mu_1(W_t, Z_{1t}, a_t, \mu_{1t-1}) u_1(q_t, h_{1t}) \\ & + \mu_2(W_t, Z_{2t}, a_t, \mu_{2t-1}) u_2(q_t, h_{2t}) + g_t(a_t) \Big), \end{aligned} \tag{A.3}$$

where $\mu_{jt} \equiv \mu_j(W_t, Z_{jt}, a_t, \mu_{jt-1}) = \mu_{jt-1} + \nu_j(W_t, Z_{jt}, a_t, \mu_{jt-1})$ with $\mu_{j0} = \mu_j(\Theta_0)$, $j \in \{1, 2\}$, and $g_t(a_t) = -\nu_{1t}\widetilde{V}_{1t}(X_{1t}, w_{1t}, Z_{1t}, a_t) - \nu_{2t}\widetilde{V}_{2t}(X_{2t}, w_{2t}, Z_{2t}, a_t)$ aggregates the spouses' outside options that depend on endogenous assets.

Following similar algebra to the case of full commitment and admitting that bargaining power is relative in the household (therefore $Z_t = \{Z_{1t}, Z_{2t}\}$ enters both spouses' Pareto weights through the implicit constraint $\mu_{1t} + \mu_{2t} = \textit{constant}$), (A.3) has a recursive structure which, for a generic period t, is given by

$$\begin{aligned} V_t^{\mathrm{LC}}(\Omega_t) = \max_{C_t} \; & \mu_1(W_t, Z_t, a_t, \mu_{1t-1}) u_1(q_t, h_{1t}) + \mu_2(W_t, Z_t, a_t, \mu_{2t-1}) u_2(q_t, h_{2t}) \\ & + g_t(a_t) + \beta \mathbb{E}_t V_{t+1}^{\mathrm{LC}}(\Omega_{t+1}). \end{aligned} \tag{A.4}$$

[3]The nature of decision making, as shown subsequently, ensures that the participation constraints are satisfied for the applicable weight μ_{jt} at the end of the period. Moreover, no further updating of the weight takes place before decision making in the following period, therefore μ_{jt} at the end of t is also the applicable weight at the start of $t+1$. By deduction, μ_{jt-1} is therefore the weight that materialised at the end of $t-1$.

[4]Recall that $X_{jt} \subseteq X_t$, so X_t summarises the demographic and tax characteristics of couples and singles.

This is a special case of the general recursive form (6) in the paper if $\mu_{jt} \equiv \mu_j(W_t, Z_t, a_t, \mu_{jt-1})$, subject to the restriction $\mu_{jt} = \mu_{jt-1} + \nu_{jt}$ and $\mu_{j0} = \mu_j(\Theta_0)$, $j \in \{1, 2\}$, i.e. the familiar step function of the Pareto weight in limited commitment (e.g. Mazzocco, 2007; Voena, 2015). By similar arguments as in the case of full commitment, the full state space in limited commitment is given by $\Omega_t = \{X_t, W_t, a_t, Z_t, \mu_{jt-1}\}$.

No commitment. The value function at $t = 0$ is given by (5). Pooling terms together and setting $t_0 = 0$ yields

$$V_{t_0}^{\text{NC}}(\Omega_{t_0}) = \tag{A.5}$$
$$\max_{\{C_t\}_{t_0 \leq t \leq \bar{t}, \boldsymbol{\omega}_t \in \Omega_t}} \mathbb{E}_{t_0} \sum_{t=t_0}^{\bar{t}} \beta^{t-t_0} \Big(\mu_1(\Theta_0, W_t, Z_t, a_t) u_1(q_t, h_{1t}) + \mu_2(\Theta_0, W_t, Z_t, a_t) u_2(q_t, h_{2t}) \Big).$$

Following similar algebra to the case of full commitment, (A.5) has a recursive structure which, for a generic period t, is given by

$$\begin{aligned} V_t^{\text{NC}}(\Omega_t) = \max_{C_t} \; & \mu_1(\Theta_0, W_t, Z_t, a_t) u_1(q_t, h_{1t}) + \mu_2(\Theta_0, W_t, Z_t, a_t) u_2(q_t, h_{2t}) \\ & + \beta \mathbb{E}_t V_{t+1}^{\text{NC}}(\Omega_{t+1}). \end{aligned} \tag{A.6}$$

This is a special case of the general recursive form (6) in the paper if $\mu_{jt} = \mu_j(\Theta_0, W_t, Z_t, a_t)$, $j \in \{1, 2\}$, i.e. the familiar flexible dependence of the no commitment Pareto weight on current information. The full state space is given by $\Omega_t = \{X_t, W_t, a_t, \Theta_0, Z_t\}$.

A note on divorce. We have purposefully abstracted from divorce so far. In all three commitment modes, we can let divorce occur optimally. This will be the case, for instance under limited commitment, when one spouse's participation constraint binds but no feasible allocation can satisfy it without violating the other spouse's constraint.

Different assumptions exist in the literature about the allocation of assets upon divorce or the spouses' post-divorce welfare. For instance, one may assume that the division of assets is exogenously determined by the legal system (e.g. Voena, 2015); alternatively, it may be specified by some prenuptial agreement, which may or may not be optimally designed. Similarly, one may assume that ex-spouses go their separate ways; or they may remain related through future joint decisions (e.g. regarding children, as in Chiappori *et al.*, 2022). Remarriage may be considered; in that case, the (expected) Pareto weights within the future (or contingent) union should be taken into account in the definition of each spouse's reservation utility.

A detailed analysis of these developments is outside the scope of our paper. The crucial

aspect, however, is that they remain orthogonal to our main point, which relates to the type of variables that may affect spousal behaviour at date t. That is, whatever one assumes on the nature and determinants of divorce, the dynamics of Pareto weights *during marriage* for each possible commitment mode remain as described by the previous statements.

B Approximation of static optimality conditions

Baseline model. The easiest way to derive the general problem's static optimality conditions is to fold (6) back to its non-recursive counterpart and form the Lagrangian function. This is given by

$$\mathcal{L} = \mathbb{E}_0 \sum_{t=0}^{\bar{t}} \beta^t \Big\{ \sum_j \mu_{jt} u_j(q_t, h_{jt}; \boldsymbol{\xi}_{jt}) + g_t(a_t) + \lambda_t \big((1+r)a_t + (1-\chi_t) y_t^{1-\kappa_t} - q_t - a_{t+1} \big) \Big\},$$

where λ_t is the multiplier on the sequential budget constraint, in which we have replaced $\tau(y_t; \boldsymbol{\psi}_t)$ by $(1-\chi_t) y_t^{1-\kappa_t}$. Recall that $\boldsymbol{\xi}_{jt}$ is a vector of taste shifters (such as education or the, possibly stochastic, presence of non decision-making children), while $\boldsymbol{\psi}_t$ reflects household tax characteristics (e.g. presence of young children) and, as such, shapes χ_t and κ_t. We leave the restrictions on the Pareto weight in the background. Let period utility be given by $u_j(q_t, h_{jt}; \boldsymbol{\xi}_{jt}) = \ddot{u}_j(\ddot{q}_t, \ddot{h}_{jt})$ where $\ddot{q}_t = q_t \exp(-\boldsymbol{\pi}_j^{q\prime} \boldsymbol{\xi}_{jt})$, $\ddot{h}_{jt} = h_{jt} \exp(-\boldsymbol{\pi}_j^{h\prime} \boldsymbol{\xi}_{jt})$, and $\boldsymbol{\pi}_j^q$ and $\boldsymbol{\pi}_j^h$ are parameters that load the taste observables onto consumption and hours. The static first order condition for hours is given by $-\mu_{jt} \ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt}) \exp(-\boldsymbol{\pi}_j^{h\prime} \boldsymbol{\xi}_{jt}) = \lambda_t (1-\chi_t)(1-\kappa_t) y_t^{-\kappa_t} w_{jt}$ for $j \in \{1, 2\}$; this can be alternatively obtained directly from the Bellman equation (6) for λ_t equal to the costate variable $\beta \mathbb{E}_t \partial V_{t+1} / \partial a_{t+1}$ (expected discounted marginal value of wealth).

Taking logs and a first difference in time yields $\Delta \log \mu_{jt} + \Delta \log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt})) - \boldsymbol{\pi}_j^{h\prime} \Delta \boldsymbol{\xi}_{jt} = \Delta \log \lambda_t + \Delta \log(1-\chi_t)(1-\kappa_t) - \Delta \kappa_t \log y_t + \Delta \log w_{jt}$. Estimation of this expression is impossible outside of a parametrised model because $\ddot{u}_{j[h]}$ is unknown. To make progress, we follow Blundell *et al.* (2016) and expand $\ddot{u}_{j[h]}$ around its arguments one period ago. A first order Taylor approximation of $\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt}))$ around q_{t-1} and h_{jt-1} yields

$$\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt})) \approx \log(-\ddot{u}_{j[h]}(\ddot{q}_{t-1}, \ddot{h}_{jt-1})) + \frac{\ddot{u}_{j[hq]}}{\ddot{u}_{j[h]}} \ddot{q}_{t-1} \Delta \log q_t + \frac{\ddot{u}_{j[hh]}}{\ddot{u}_{j[h]}} \ddot{h}_{jt-1} \Delta \log h_{jt},$$

where we use $\Delta x_t \approx x_{t-1} \Delta \log x_t$ for small changes in x. Plugging this into the log differenced optimality condition and rearranging yields

$$\Delta \log h_{jt} \approx \alpha_j h_{jt-1}^{-1} \big(\boldsymbol{\pi}_j^{h\prime} \Delta \boldsymbol{\xi}_{jt} + \Delta \log(1-\chi_t)(1-\kappa_t) - \Delta \kappa_t \log y_t$$

$$+ \Delta \log \lambda_t - \zeta_j q_{t-1} \Delta \log q_t + \Delta \log w_{jt} - \Delta \log \mu_{jt}\big),$$

where $\alpha_j = \ddot{u}_{j[h]}/(\ddot{u}_{j[hh]} \exp(-\boldsymbol{\pi}_j^{h\prime} \boldsymbol{\xi}_{jt-1}))$, $\zeta_j = (\ddot{u}_{j[hq]} \exp(-\boldsymbol{\pi}_j^{q\prime} \boldsymbol{\xi}_{jt-1}))/\ddot{u}_{j[h]}$, and all first and second order partial utilities are timed at $t-1$. α_j is strictly positive by our regularity assumptions on period utility, while ζ_j is positive if consumption and leisure are substitutes, negative if they are complements, and zero if preferences are separable between consumption and hours. $\alpha_j h_{jt-1}^{-1}$ is approximately equal to spouse j's Frisch elasticity of labour supply and exactly equal if preferences are separable (Blundell *et al.*, 2016).

Writing $\Delta \kappa_t \log y_t \approx \kappa_{t-1}(s_{jt-1} \Delta \log y_{jt} + s_{-jt-1} \Delta \log y_{-jt})$, where $\Delta \log y_{jt}$ is the growth rate of spouse j's earnings and $s_{jt} \geq 0$ is j's share of family earnings, replacing own earnings with $y_{jt} = w_{jt} h_{jt}$, assuming for simplicity that $\kappa_t = \kappa_{t-1}$ (the progressivity tax parameter does not change between proximate periods), and pooling common terms together yields

$$\begin{aligned} \Delta \log h_{jt} = {} & \delta_{jt} \boldsymbol{\pi}_j^{h\prime} h_{jt-1}^{-1} \Delta \boldsymbol{\xi}_{jt} + \delta_{jt} h_{jt-1}^{-1} \Delta \log(1-\chi_t) - \delta_{jt} \kappa_t s_{-jt-1} h_{jt-1}^{-1} \Delta \log y_{-jt} \\ & + \delta_{jt} h_{jt-1}^{-1} \Delta \log \lambda_t - \delta_{jt} \zeta_j q_{t-1} h_{jt-1}^{-1} \Delta \log q_t \\ & + \delta_{jt}(1 - \kappa_t s_{jt-1}) h_{jt-1}^{-1} \Delta \log w_{jt} - \delta_{jt} h_{jt-1}^{-1} \Delta \log \mu_{jt}, \end{aligned} \tag{B.1}$$

where $\delta_{jt} = \left(\alpha_j^{-1} + \kappa_t s_{jt-1} h_{jt-1}^{-1}\right)^{-1} > 0$, $j \in \{1,2\}$, and $-j$ indicates j's partner. This is expression (7) in the main text, including an additional term that accounts for individual cross-sectional heterogeneity through the vector of observables $\boldsymbol{\xi}_{jt}$.

Extended model with home production (Appendix G). The model with home production has the same recursive formulation (6) as the baseline, subject to additional constraints: a home production function for the consumption good and a time budget per spouse. We remove the first constraint replacing consumption q_t with $f(x_t, d_{1t}, d_{2t})$, where x_t is market expenditure and d_{kt} is chores of spouse $k \in \{1,2\}$. We remove the second constraint recasting the utility function to take consumption q_t and leisure $l_{jt} = 1 - h_{jt} - d_{jt}$ as arguments. Now $u_{j[q]} > 0$, $u_{j[l]} > 0$, $u_{j[qq]} < 0$, $u_{j[ll]} < 0$, and the signs of $u_{j[ql]}$ and $u_{j[lq]}$ are determined by the nature of the consumption-leisure complementarity. The Lagrangian and the static first order condition for hours are similar to the baseline. Taking logs and a first difference in time yields $\Delta \log \mu_{jt} + \Delta \log \ddot{u}_{j[l]}(\ddot{q}_t, \ddot{l}_{jt}) - \boldsymbol{\pi}_j^{l\prime} \Delta \boldsymbol{\xi}_{jt} = \Delta \log \lambda_t + \Delta \log(1-\chi_t)(1-\kappa_t) - \Delta \kappa_t \log y_t + \Delta \log w_{jt}$, where $\boldsymbol{\pi}_j^{l}$ loads the taste observables onto leisure.

A first order Taylor expansion of $\log \ddot{u}_{j[l]}(\ddot{q}_t, \ddot{l}_{jt}))$ around x_{t-1}, d_{jt-1}, d_{-jt-1}, h_{jt-1} yields

$$\log \ddot{u}_{j[l]}(\ddot{q}_t, \ddot{l}_{jt}) \approx \log \ddot{u}_{j[l]}(\ddot{q}_{t-1}, \ddot{l}_{jt-1}) + \frac{\ddot{u}_{j[lq]}}{\ddot{u}_{j[l]}} \exp(-\boldsymbol{\pi}_j^{q\prime} \boldsymbol{\xi}_{jt-1}) f_x x_{t-1} \Delta \log x_t$$

$$+ \frac{\ddot{u}_{j[lq]}}{\ddot{u}_{j[l]}} \exp(-\boldsymbol{\pi}_j^{q\prime}\boldsymbol{\xi}_{jt-1}) \sum_k f_{d_k} d_{kt-1} \Delta \log d_{kt}$$
$$- \frac{\ddot{u}_{j[ll]}}{\ddot{u}_{j[l]}} \exp(-\boldsymbol{\pi}_j^{l\prime}\boldsymbol{\xi}_{jt-1}) \left(h_{jt-1}\Delta \log h_{jt} + d_{jt-1}\Delta \log d_{jt}\right),$$

where $f_x = \partial f/\partial x_t > 0$ and $f_{d_k} = \partial f/\partial d_{kt} > 0$, for $k \in \{1,2\}$, are the marginal productivity of market goods and chores. All partial derivatives of the utility and home production functions are timed at $t-1$ given the nature of the log-linearisation. Plugging this into the log differenced optimality condition and following the same steps as in the baseline yields

$$\begin{aligned}\Delta \log h_{jt} = {} & \widetilde{\delta}_{jt}\boldsymbol{\pi}_j^{l\prime} h_{jt-1}^{-1}\Delta\boldsymbol{\xi}_{jt} + \widetilde{\delta}_{jt}h_{jt-1}^{-1}\Delta\log(1-\chi_t) - \widetilde{\delta}_{jt}\kappa_t s_{-jt-1}h_{jt-1}^{-1}\Delta\log y_{-jt} + \widetilde{\delta}_{jt}h_{jt-1}^{-1}\Delta\log\lambda_t \\ & - \widetilde{\delta}_{jt}\widetilde{\zeta}_j f_x x_{t-1}h_{jt-1}^{-1}\Delta\log x_t - \textstyle\sum_k \widetilde{\delta}_{jt}\left(\widetilde{\zeta}_j f_{d_k} - \mathbf{1}[j=k]\widetilde{\alpha}_j^{-1}\right) d_{kt-1}h_{jt-1}^{-1}\Delta\log d_{kt} \\ & + \widetilde{\delta}_{jt}(1-\kappa_t s_{jt-1})h_{jt-1}^{-1}\Delta\log w_{jt} - \widetilde{\delta}_{jt}h_{jt-1}^{-1}\Delta\log\mu_{jt},\end{aligned}$$

where $\widetilde{\delta}_{jt} = \left(\kappa_t s_{jt-1}h_{jt-1}^{-1} - \widetilde{\alpha}_j^{-1}\right)^{-1} > 0$, $\widetilde{\alpha}_j = \ddot{u}_{j[l]}/(\ddot{u}_{j[ll]}\exp(-\boldsymbol{\pi}_j^{l\prime}\boldsymbol{\xi}_{jt-1})) < 0$, $\mathbf{1}$ is the indicator function, $\widetilde{\zeta}_j = (\ddot{u}_{j[lq]}\exp(-\boldsymbol{\pi}_j^{q\prime}\boldsymbol{\xi}_{jt-1}))/\ddot{u}_{j[l]}$, $j,k \in \{1,2\}$, and $-j$ indicates j's partner. $\widetilde{\alpha}_j l_{jt-1}^{-1}$ is approximately equal to j's Frisch elasticity of leisure (exactly equal if preferences are separable). The linearised optimality condition with home production is similar to the baseline up to the additional controls for the production inputs.

Extended model with private consumption (Appendix G). Let individual preferences be given by $u_j(q_t, c_{jt}, h_{jt}; \boldsymbol{\xi}_{jt})$, where c_{jt} is spouse j's private consumption. In addition to the previous regularity conditions on utility, we assume that $u_{j[c]} > 0$, $u_{j[cc]} < 0$ (concavity), while the signs of $u_{j[cq]}$ and $u_{j[ch]}$ are determined by the nature of the complementarity between private and joint consumption or between private consumption and hours.

The model with private consumption has a recursive formulation analogous to (6), subject to a modified budget constraint: $(1+r)a_t + \tau(y_t;\boldsymbol{\psi}_t) = q_t + c_{1t} + c_{2t} + a_{t+1}$. The Lagrangian and the static first order condition for hours are thus analogous to the baseline. Taking logs and a first difference in time yields $\Delta\log\mu_{jt} + \Delta\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{c}_{jt}, \ddot{H}_{jt})) - \boldsymbol{\pi}_j^{h\prime}\Delta\boldsymbol{\xi}_{jt} = \Delta\log\lambda_t + \Delta\log(1-\chi_t)(1-\kappa_t) - \Delta\kappa_t\log y_t + \Delta\log w_{jt}$, where $\ddot{c}_{jt} = c_{jt}\exp(-\boldsymbol{\pi}_j^{c\prime}\boldsymbol{\xi}_{jt})$ and $\boldsymbol{\pi}_j^c$ loads the taste observables onto private consumption.

A first order Taylor expansion of $\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{c}_{jt}, \ddot{H}_{jt}))$ around q_{t-1}, c_{jt-1}, and h_{jt-1} yields

$$\begin{aligned}\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{c}_{jt}, \ddot{H}_{jt})) \approx {} & \log(-\ddot{u}_{j[h]}(\ddot{q}_{t-1}, \ddot{c}_{jt-1}, \ddot{H}_{jt-1})) + \frac{\ddot{u}_{j[hq]}}{\ddot{u}_{j[h]}}\ddot{q}_{t-1}\Delta\log q_t + \frac{\ddot{u}_{j[hc]}}{\ddot{u}_{j[h]}}\ddot{c}_{jt-1}\Delta\log c_{jt} \\ & + \frac{\ddot{u}_{j[hh]}}{\ddot{u}_{j[h]}}\ddot{H}_{jt-1}\Delta\log h_{jt}.\end{aligned}$$

All partial derivatives are timed at $t-1$ given the nature of the log-linearisation. Plugging this into the log differenced optimality condition and following the same steps as in the baseline yields

$$\begin{aligned}\Delta \log h_{jt} = {} & \delta_{jt} \boldsymbol{\pi}_j^{h\prime} h_{jt-1}^{-1} \Delta \boldsymbol{\xi}_{jt} + \delta_{jt} h_{jt-1}^{-1} \Delta \log(1-\chi_t) - \delta_{jt} \kappa_t s_{-jt-1} h_{jt-1}^{-1} \Delta \log y_{-jt} \\ & + \delta_{jt} h_{jt-1}^{-1} \Delta \log \lambda_t - \delta_{jt} \zeta_j q_{t-1} h_{jt-1}^{-1} \Delta \log q_t - \delta_{jt} \iota_j c_{jt-1} h_{jt-1}^{-1} \Delta \log c_{jt} \\ & + \delta_{jt} (1 - \kappa_t s_{jt-1}) h_{jt-1}^{-1} \Delta \log w_{jt} - \delta_{jt} h_{jt-1}^{-1} \Delta \log \mu_{jt},\end{aligned}$$

where $\iota_j = (\ddot{u}_{j[hc]} \exp(-\boldsymbol{\pi}_j^{c\prime} \boldsymbol{\xi}_{jt-1}))/\ddot{u}_{j[h]}$, while δ_{jt} and ζ_j are defined like before. The linearised optimality condition with private production is similar to the baseline up to an additional control for the growth in the (empirically unobserved) private good, $\Delta \log c_{jt}$.

Extended model with endogenous human capital (Appendix G). Let individual hourly wages be given by $w_{jt} = W_{jt}(v_{jt}, e_{jt})$, where v_{jt} reflects a stochastic productivity component (which may be subject to persistence) and e_{jt} indicates spouse j's human capital. We think of e_{jt} as a type of experience, e.g., the cumulative number of hours one has spent working up to time t, though its definition can be broader. To simplify some of the following statements, we let W be multiplicative, i.e., $w_{jt} = v_{jt} e_{jt}$; this restriction is not important for what follows.

Human capital accumulates endogenously through the labour supply choices the individual makes. We express this as

$$e_{jt+1} = f_j(e_{jt}, h_{jt}),$$

where f_j loads current human capital (perhaps after some depreciation) and labour supply onto future human capital. The linear law of motion that is popular in the literature, namely $e_{jt+1} = (1 - \mathit{depr}) e_{jt} + \kappa_j(h_{jt})$, is a special case of this. In that case, κ_j would be a linear function of h_{jt} (a step function if h_{jt} is discrete), while depr would indicate the period depreciation rate of the stock of human capital.

Endogenous human capital affects the couple's problem through the budget constraint and by changing the dynamic incentives of work in the present versus the future. The couple's state space (incl. observable characteristics) thus becomes $\Omega_t = \{X_t, v_{1t}, v_{2t}, e_{1t}, e_{2t}, a_t, \mu_{jt}\}$. Under limited commitment, individual human capital also enters the singles' state space $\Omega_{jt} = \{X_{jt}, v_{jt}, e_{jt}, Z_{jt}, a_t\}$ as human capital affects the continuation value as single. Therefore, e_{jt}, $j \in \{1, 2\}$, is an endogenous state variable that affects both the inside value in marriage and the outside value upon divorce. Unlike financial wealth a_t, however, individual human capital is in principle not shared between spouses, so e_{jt} is perfectly portable from marriage to divorce.

The Lagrangian function of the household problem is

$$\mathcal{L} = \mathbb{E}_0 \sum_{t=0}^{\bar{t}} \beta^t \Big\{ \sum_j \mu_{jt} u_j(q_t, h_{jt}; \boldsymbol{\xi}_{jt}) + g_t(a_t, e_{1t}, e_{2t}) + \lambda_t \big((1+r)a_t + (1-\chi_t) y_t^{1-\kappa_t} - q_t - a_{t+1}\big) + \sum_j \tau_{jt} \big(f_j(e_{jt}, h_{jt}) - e_{jt+1}\big) \Big\},$$

which differs from the Lagrangian of the baseline program in two ways. First, $g_t(a_t, e_{1t}, e_{2t}) = -\nu_{1t}\widetilde{V}_{1t}(X_{1t}, v_{1t}, e_{1t}, Z_{1t}, a_t) - \nu_{2t}\widetilde{V}_{2t}(X_{2t}, v_{2t}, e_{2t}, Z_{2t}, a_t)$ aggregates the spouses' outside options that depend on endogenous assets *and* human capital. Second, the human capital law of motion of each spouse enters the Lagrangian as a standalone constraint in each period t, associated with a multiplier $\tau_{jt} \geq 0$.

Following similar steps as previously, the static first order condition for hours is given by $-\mu_{jt}\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt}) \exp(-\boldsymbol{\pi}_j^{h\prime}\boldsymbol{\xi}_{jt}) = \lambda_t(1-\chi_t)(1-\kappa_t) y_t^{-\kappa_t} w_{jt} + \tau_{jt}\phi_j$, for $j \in \{1,2\}$, where $\phi_j = \partial f_j(e_{jt}, h_{jt})/\partial h_{jt} > 0$. We assume ϕ_j is a constant so, for a given stock e_{jt}, human capital increases linearly with current work hours, e.g., as implied by the linear human capital law of motion above. This assumption simplifies the next statements but it is not otherwise crucial. Taking logs and a first difference in time yields $\Delta \log \mu_{jt} + \Delta \log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt})) - \boldsymbol{\pi}_j^{h\prime}\Delta\boldsymbol{\xi}_{jt} \approx \varsigma_{t-1}(\Delta \log \lambda_t + \Delta \log(1-\chi_t)(1-\kappa_t) - \Delta\kappa_t \log y_t + \Delta \log w_{jt}) + (1-\varsigma_{t-1})\Delta \log \tau_{jt}$, where $\varsigma_{t-1} = \lambda_{t-1}(1-\chi_{t-1})(1-\kappa_{t-1}) y_{t-1}^{-\kappa_{t-1}} w_{jt-1} / (\lambda_{t-1}(1-\chi_{t-1})(1-\kappa_{t-1}) y_{t-1}^{-\kappa_{t-1}} w_{jt-1} + \tau_{jt-1}\phi_j)$. Replacing $\log(-\ddot{u}_{j[h]}(\ddot{q}_t, \ddot{h}_{jt}))$ with its Taylor expansion derived earlier and following the same steps as before, we get

$$\begin{aligned}
\Delta \log h_{jt} = {} & \ddot{\delta}_{jt}\boldsymbol{\pi}_j^{h\prime} h_{jt-1}^{-1}\Delta\boldsymbol{\xi}_{jt} + \ddot{\delta}_{jt}\varsigma_{t-1}h_{jt-1}^{-1}\Delta\log(1-\chi_t) - \ddot{\delta}_{jt}\varsigma_{t-1}\kappa_t s_{-jt-1}h_{jt-1}^{-1}\Delta\log y_{-jt} \\
& + \ddot{\delta}_{jt}\varsigma_{t-1}h_{jt-1}^{-1}\Delta\log\lambda_t - \ddot{\delta}_{jt}\zeta_j q_{t-1}h_{jt-1}^{-1}\Delta\log q_t \\
& + \ddot{\delta}_{jt}\varsigma_{t-1}(1-\kappa_t s_{jt-1})h_{jt-1}^{-1}\Delta\log w_{jt} + \ddot{\delta}_{jt}(1-\varsigma_{t-1})h_{jt-1}^{-1}\Delta\log\tau_{jt} - \ddot{\delta}_{jt}h_{jt-1}^{-1}\Delta\log\mu_{jt},
\end{aligned}$$

where $\ddot{\delta}_{jt} = \big(\alpha_j^{-1} + \varsigma_{t-1}\kappa_t s_{jt-1}h_{jt-1}^{-1}\big)^{-1} > 0$, and the rest is defined as in the baseline.

The linearised optimality condition with endogenous human capital differs from the baseline by the term that involves the unobserved growth in the multiplier on j's human capital. To implement this equation empirically, one may replace $\Delta \log \tau_{jt}$ with a reduced-form function of the growth in human capital as, by the definition of Lagrange multipliers, $\Delta \log \tau_{jt}$ is a function of the change in e_{jt} from $t-1$ to t.[5] This is analogous to our implementation of $\Delta \log \lambda_t$, the Lagrange multiplier on the budget constraint, which is similarly unobserved.

[5]In practice, we let $\Delta \log \tau_{jt} = \varrho_{\Delta e}\Delta \log e_{jt} + \varrho_e \log e_{jt-1}$ to allow $\Delta \log \tau_{jt}$ to depend on the initial value of human capital. ς is unobserved but poses no problem to the simplest implementation of the test, as ς is subsumed in the reduced form coefficients on the various variables, analogously to the coefficients b in (11).

Importantly, the coefficient on the Pareto weight is signed ($-\ddot{\delta}_{jt} < 0$), which allows us to test for commitment in the exact same way as in the baseline. In other words, if we control for individual human capital similarly to how we control for assets, the test retains its original form based on the current and historical values of the variables that enter the Pareto weight.

C Approximation of general Pareto weight

Consider the most general (limited commitment) Pareto weight $\mu_{jt} = \mu_j(W_t, Z_t, a_t, \mu_{jt-1})$, with $\mu_{j0} = \mu_j(\Theta_0)$, $j \in \{1, 2\}$. To simplify the discussion, let μ_{jt} be a function of one stochastic distribution factor $z_t \in Z_t$ and the past Pareto weight only, i.e. $\mu_{jt} = \mu_j(z_t, \mu_{jLt})$, and let μ_{j0} be a function of one initial factor $\theta_0 \in \Theta_0$. Here Lt denotes the first lag before t, so $\mu_{jLt} \equiv \mu_{jt-1}$. Suppose that $\ddot{\mu}_j(z_t, \mu_{jLt})$ is the smooth approximation of $\mu_j(z_t, \mu_{jLt})$. A first order approximation of $\log \ddot{\mu}_j(z_t, \mu_{jLt})$ around z_{t-1} and μ_{jLt-1} yields

$$\begin{aligned}
\log \ddot{\mu}_j(z_t, \mu_{jLt}) &\approx \log \ddot{\mu}_j(z_{t-1}, \mu_{jLt-1}) + \ddot{\mu}_j(z_{t-1}, \mu_{jLt-1})^{-1} \\
&\quad \times \left\{ z_{t-1} \frac{\partial \ddot{\mu}_j}{\partial z}(z_{t-1}, \mu_{jLt-1}) \Delta \log z_t + \mu_{jLt-1} \frac{\partial \ddot{\mu}_j}{\partial \mu_{jL}}(z_{t-1}, \mu_{jLt-1}) \Delta \log \mu_{jLt} \right\} \\
&\approx \log \ddot{\mu}_j(z_{t-1}, \mu_{jLt-1}) + e_{\mu_j,z}(z_{t-1}, \mu_{jLt-1}) \Delta \log z_t + e_{\mu_j,\mu_{jL}}(z_{t-1}, \mu_{jLt-1}) \Delta \log \mu_{jLt},
\end{aligned}$$

where $\Delta \log \mu_{jLt} = \log \mu_{jLt} - \log \mu_{jLt-1} = \log \mu_{jt-1} - \log \mu_{jt-2}$ and we use again $\Delta x_t \approx x_{t-1} \Delta \log x_t$ for small changes in the generic variable x. The elasticities $e_{\mu_j,z}$ and $e_{\mu_j,\mu_{jL}}$ are quasi-structural parameters for the sensitivity of the Pareto weight to the distribution factor and past bargaining power. From the nature of the approximation, these elasticities depend on the *past* levels of *all* the variables that enter $\ddot{\mu}_j$, in this case z_{t-1} and μ_{jLt-1}. By recursive substitution, we can remove the right hand side Pareto weight and obtain

$$\begin{aligned}
\Delta \log \mu_{jt} &\approx \sum_{\tau=0}^{t-1} \left(\prod_{\iota=1}^{\tau} e_{\mu_j,\mu_{jL}}(z_{t-\iota}, \mu_{jLt-\iota}) \right) e_{\mu_j,z}(z_{t-\tau-1}, \mu_{jLt-\tau-1}) \Delta \log z_{t-\tau} \\
&\quad + \left(\prod_{\iota=1}^{t} e_{\mu_j,\mu_{jL}}(z_{t-\iota}, \mu_{jLt-\iota}) \right) e_{\mu_j,\theta} \theta_0 \\
&\approx \sum_{\tau=0}^{t-1} e^{\tau}_{\mu_j,\mu_{jL}}(z_{t-1}, \mu_{jLt-1}) e_{\mu_j,z}(z_{t-\tau-1}, \mu_{jLt-\tau-1}) \Delta \log z_{t-\tau} \\
&\quad + e^{t}_{\mu_j,\mu_{jL}}(z_{t-1}, \mu_{jLt-1}) e_{\mu_j,\theta} \theta_0,
\end{aligned}$$

which is expression (8) in the paper. For the second approximation above, we consolidate the notation to $\prod_{\iota=1}^{\tau} e_{\mu_j,\mu_{jL}}(z_{t-\iota}, \mu_{jLt-\iota}) = e^{\tau}_{\mu_j,\mu_{jL}}(z_{t-1}, \mu_{jLt-1})$ and $\prod_{\iota=1}^{t} e_{\mu_j,\mu_{jL}}(z_{t-\iota}, \mu_{jLt-\iota}) =$

$e^t_{\mu_j,\mu_{jL}}(z_{t-1}, \mu_{jLt-1})$. Despite the consolidation, the coefficient on $\Delta \log z_{t-\tau}$ still depends on the past levels of the distribution factor through $e_{\mu_j,z}(z_{t-\tau-1}, \mu_{jLt-\tau-1})$.

By the law of motion of the limited commitment weight, namely $\mu_{jt} = \mu_{jt-1} + \nu_{jt}$, it follows that $e_{\mu_j,\mu_{jL}} = (1 + \partial\nu_{jt}/\partial\mu_{jt-1}) \times (\mu_{jt-1}/\mu_{jt})$. A larger weight at the start of period t (namely μ_{jt-1}) loosens the constraint, so $\partial\nu_{jt}/\partial\mu_{jt-1} < 0$. It follows that, if the constraint binds, $1 + \partial\nu_{jt}/\partial\mu_{jt-1} < 1$, $\mu_{jt-1} < \mu_{jt}$ (the weight increases), and $e_{\mu_j,\mu_{jL}} < 1$.

Introducing additional stochastic and initial distribution factors $z_{1t}, z_{2t} \in Z_t$ and $\theta_{10}, \theta_{20} \in \Theta_0$, reinstating wages $w_{1t}, w_{2t} \in W_t$ and assets a_t as arguments in the general Pareto weight, and repeating all previous steps, yields the general log-linear formulation

$$\begin{aligned}
\Delta \log \mu_{jt} \approx & \sum_{\tau=0}^{t-1} e^{\tau}_{\mu_j,\mu_{jL}}(\Gamma_{t-1})\Big(e_{\mu_j,w_1}(\Gamma_{t-\tau-1})\Delta \log w_{1t-\tau} + e_{\mu_j,w_2}(\Gamma_{t-\tau-1})\Delta \log w_{2t-\tau}\Big) \\
& + \sum_{\tau=0}^{t-1} e^{\tau}_{\mu_j,\mu_{jL}}(\Gamma_{t-1})\Big(e_{\mu_j,z_1}(\Gamma_{t-\tau-1})\Delta \log z_{1t-\tau} + e_{\mu_j,z_2}(\Gamma_{t-\tau-1})\Delta \log z_{2t-\tau}\Big) \\
& + \sum_{\tau=0}^{t-1} e^{\tau}_{\mu_j,\mu_{jL}}(\Gamma_{t-1})e_{\mu_j,a}(\Gamma_{t-\tau-1})\Delta \log a_{t-\tau} + e^{t}_{\mu_j,\mu_{jL}}(\Gamma_{t-1})\Big(e_{\mu_j,\theta_1}\theta_{10} + e_{\mu_j,\theta_2}\theta_{20}\Big),
\end{aligned}$$

where e_{μ_j,w_k} is the elasticity of j's Pareto weight with respect to k's wage w_{kt}, e_{μ_j,z_k} is the elasticity w.r.t. z_{kt}, $e_{\mu_j,a}$ is the elasticity w.r.t. assets, and e_{μ_j,θ_k} is the elasticity of j's weight at marriage w.r.t. the initial factor θ_{k0}, $k \in \{1, 2\}$. From the nature of the approximation, the elasticities depend on the past levels of *all* arguments of the Pareto weight, namely $\Gamma = \{w_1, w_2, z_1, z_2, a, \mu_{jL}\}$ appropriately timed. The reduced form counterpart is

$$\begin{aligned}
\Delta \log \mu_{jt} \approx & \sum_{\tau=0}^{t-1} \Big(\eta^{w_1}_{j\tau}\Delta \log w_{1t-\tau} + \eta^{w_2}_{j\tau}\Delta \log w_{2t-\tau} + \eta^{z_1}_{j\tau}\Delta \log z_{1t-\tau} + \eta^{z_2}_{j\tau}\Delta \log z_{2t-\tau}\Big) \\
& + \sum_{\tau=0}^{t-1} \eta^{a}_{j\tau}\Delta \log a_{t-\tau} + \eta^{\theta_1}_{jt}\theta_{10} + \eta^{\theta_2}_{jt}\theta_{20},
\end{aligned}$$

which is the general form of expression (9). The $\eta_{j\tau}$'s are reduced form parameters for the response of j's Pareto weight to the distribution factors $\tau \in \{0, \ldots, t\}$ periods in the past.

D Derivation of estimating equation for hours

Let wage growth be $\Delta \log w_{jt} = \boldsymbol{\pi}^{w\prime}_j \mathbf{x}^w_{jt} + \omega_{jt}$, where $\boldsymbol{\pi}^{w\prime}_j \mathbf{x}^w_{jt}$ is a deterministic profile and ω_{jt} is the wage shock. ω_{jt} should not be confused with the bold case $\boldsymbol{\omega}_t$ that we use to describe a realisation of the state space. Let the marginal utility of wealth be $\Delta \log \lambda_t =$

$\ell_{\Delta y}\Delta \log y_t + \ell_{\Delta a}\Delta \log a_t + \ell_y \log y_{t-1} + \ell_a \log a_{t-1}$. Plugging these expressions in (B.1) yields

$$\begin{aligned}
\Delta \log h_{jt} = {} & \delta_{jt}\boldsymbol{\pi}_j^{h\prime} h_{jt-1}^{-1}\Delta\boldsymbol{\xi}_{jt} + \delta_{jt}(1-\kappa_t s_{jt-1})\boldsymbol{\pi}_j^{w\prime} h_{jt-1}^{-1}\mathbf{x}_{jt}^{w} + \delta_{jt}h_{jt-1}^{-1}\Delta\log(1-\chi_t) \\
& + \delta_{jt}\ell_{\Delta y}h_{jt-1}^{-1}\Delta\log y_t + \delta_{jt}\ell_{\Delta a}h_{jt-1}^{-1}\Delta\log a_t + \delta_{jt}\ell_y h_{jt-1}^{-1}\log y_{t-1} + \delta_{jt}\ell_a h_{jt-1}^{-1}\log a_{t-1} \\
& - \delta_{jt}\kappa_t s_{-jt-1}h_{jt-1}^{-1}\Delta\log y_{-jt} - \delta_{jt}\zeta_j q_{t-1}h_{jt-1}^{-1}\Delta\log q_t \\
& + \delta_{jt}(1-\kappa_t s_{jt-1})h_{jt-1}^{-1}\omega_{jt} - \delta_{jt}h_{jt-1}^{-1}\Delta\log\mu_{jt}.
\end{aligned}$$

Assume that the deterministic profile of wages does not enter the Pareto weight; and select BMI and the age-gap-at-marriage as the time-varying and initial distribution factors respectively. Replacing $\Delta\log\mu_{jt}$ with the reduced form expression for the dependence of the Pareto weight on its arguments, and pooling common terms together, yields

$$\begin{aligned}
\Delta \log h_{jt} = {} & \delta_{jt}\boldsymbol{\pi}_j^{h\prime} h_{jt-1}^{-1}\Delta\boldsymbol{\xi}_{jt} + \delta_{jt}(1-\kappa_t s_{jt-1})\boldsymbol{\pi}_j^{w\prime} h_{jt-1}^{-1}\mathbf{x}_{jt}^{w} + \delta_{jt}h_{jt-1}^{-1}\Delta\log(1-\chi_t) \\
& + \delta_{jt}\ell_{\Delta y}h_{jt-1}^{-1}\Delta\log y_t + \delta_{jt}(\ell_{\Delta a}-\eta_{j0}^{a})h_{jt-1}^{-1}\Delta\log a_t + \delta_{jt}\ell_y h_{jt-1}^{-1}\log y_{t-1} + \delta_{jt}\ell_a h_{jt-1}^{-1}\log a_{t-1} \\
& - \delta_{jt}\kappa_t s_{-jt-1}h_{jt-1}^{-1}\Delta\log y_{-jt} - \delta_{jt}\zeta_j q_{t-1}h_{jt-1}^{-1}\Delta\log q_t - \delta_{jt}\sum_{\tau=1}^{t-1}\eta_{j\tau}^{a}h_{jt-1}^{-1}\Delta\log a_{t-\tau} \\
& + \delta_{jt}(1-\kappa_t s_{jt-1}-\eta_{j0}^{w_j})h_{jt-1}^{-1}\omega_{jt} - \delta_{jt}\eta_{j0}^{w_{-j}}h_{jt-1}^{-1}\omega_{-jt} \\
& - \delta_{jt}\sum_{\tau=1}^{t-1}\eta_{j\tau}^{w_j}h_{jt-1}^{-1}\omega_{jt-\tau} - \delta_{jt}\sum_{\tau=1}^{t-1}\eta_{j\tau}^{w_{-j}}h_{jt-1}^{-1}\omega_{-jt-\tau} \\
& - \delta_{jt}\sum_{\tau=0}^{t-1}\eta_{j\tau}^{bmi_j}h_{jt-1}^{-1}\Delta\log BMI_{jt-\tau} - \delta_{jt}\sum_{\tau=0}^{t-1}\eta_{j\tau}^{bmi_{-j}}h_{jt-1}^{-1}\Delta\log BMI_{-jt-\tau} \\
& - \delta_{jt}\eta_{jt}^{young_j}h_{jt-1}^{-1}\mathbb{1}[age_j << age_{-j}] - \delta_{jt}\eta_{jt}^{young_{-j}}h_{jt-1}^{-1}\mathbb{1}[age_j >> age_{-j}].
\end{aligned}$$

Contemporaneous growth in wealth $\Delta\log a_t$ appears as part of the marginal utility of wealth (wealth effect) and in the Pareto weight (bargaining effect); we have pooled both effects together in a single term. We replace the parameters by a single reduced form coefficient b_j or β_j associated with each term. We then absorb the tax intercept $\delta_{jt}h_{jt-1}^{-1}\Delta\log(1-\chi_t)$ in the observables term $b_{j[0]}h_{jt-1}^{-1} + \mathbf{b}'_{j[\Delta\xi_{jt}]}h_{jt-1}^{-1}\Delta\boldsymbol{\xi}_{jt}$. This yields the final compact equation (11) in the paper, here with the additional terms for $Z_{t-\tau} = \{BMI_{1t-\tau}, BMI_{2t-\tau}\}$ that capture the bargaining effects from current and past BMI changes in the couple.

Identification. The coefficient on the partner's earnings $b_{j[\Delta y_{-jt}]} = -\delta_{jt}\kappa_t$ is identified from a regression of hours growth $\Delta\log h_{jt}$ on the partner's earnings growth $\Delta\log y_{-jt}$ interacted with past earnings shares s_{-jt-1} and inverse past hours h_{jt-1}^{-1}, controlling for all other variables that appear in (11). We identify the coefficients on all other terms similarly. Fixing

the tax progressivity parameter $\kappa_t = 0.185$, as in Blundell *et al.* (2016), allows us to identify δ_{jt} from $b_{j[\Delta y_{-jt}]}$. Identification of δ_{jt} subsequently enables the identification of the η_j's, the parameters that describe the reduced form dependence of the Pareto weight on the various distribution factors. For example, $b_{j[w_{-jt}]} = -\delta_{jt}\eta_{j0}^{w_{-j}}$ is the coefficient on the partner's current wage shock; identification of δ_{jt} permits identification of $\eta_{j0}^{w_{-j}}$, etc.

In one case (table E4), we replace the reduced form Pareto weight elasticities η with their structural counterparts from the log-linearised version of the weight in (8). We set $\eta_{j\tau}^{\chi} = (e_{\mu_j,\mu_{jL}})^{\tau} e_{\mu_j,\chi}$ for $\chi \in \{w_1, w_2, bmi_1, bmi_2, a\}$ and $\tau \in \{0,1,2\}$, and $\eta_{jt}^{\theta} = (e_{\mu_j,\mu_{jL}})^{t} e_{\mu_j,\theta}$ for $\theta = \{\mathbb{1}[age_j << age_{-j}], \mathbb{1}[age_j >> age_{-j}]\}$. This effectively imposes proportionality restrictions over the various distribution factors as per Bourguignon *et al.* (2009). In another case (table E6), we allow the elasticities η depend on the immediately *past levels* of distribution factors. For example, when wages are the sole time-varying distribution factor, we specify the Pareto weight coefficients η_{j0} on current wages as

$$\begin{aligned}\eta_{j0}^{w_j} &= \eta_{j0}^{w_j\{0\}} + \eta_{j0}^{w_j\{1\}} w_{jt-1} + \eta_{j0}^{w_j\{2\}} w_{-jt-1} \\ \eta_{j0}^{w_{-j}} &= \eta_{j0}^{w_{-j}\{0\}} + \eta_{j0}^{w_{-j}\{1\}} w_{jt-1} + \eta_{j0}^{w_{-j}\{2\}} w_{-jt-1}.\end{aligned}$$

When BMI serves as an additional time-varying distribution factor, we also add linear terms for male and female BMI. We specify η_{j1} similarly as a function of time $t-2$ wages (and BMI) and η_{j2} as a function of time $t-3$ wages (and BMI). We also linearly include terms for the age-gap-at-marriage variables. Identification is analogous to the baseline.

E Descriptive statistics and detailed results

This appendix presents descriptive statistics for our estimation sample and provides details on our main empirical results in section 6 of the paper. Specifically, we report the complete set of parameter estimates in each of the three main specifications (reduced form, structural, heterogeneity) and provide an in-depth discussion of heterogeneity and the use of BMI as an additional stochastic distribution factor.

Descriptive statistics. Table E1 presents summary statistics in our baseline estimation sample.

Main results in detail. The following tables present detailed estimation results for our first two main specifications:

- Table E2 reports detailed results from the reduced form (first) specification of the

Table E1: *Summary Statistics*

	Male $j = 1$		Female $j = 2$	
	mean	st.dev.	mean	st.dev.
Labour market outcomes				
Earnings (annual, in $1000)	81.74	91.65	47.84	40.25
Hours (annual)	2,231	609	1,758	660
Hours (annual) growth $\Delta \log h_{jt}$	-0.02	0.40	-0.00	0.61
Hourly wage	36.95	37.97	27.32	24.32
Hourly wage growth $\Delta \log w_{jt}$	0.03	0.53	0.04	0.50
Demographics				
Age	43.76	10.46	42.11	10.39
% college education	0.70	0.46	0.77	0.42
BMI	27.80	4.57	24.91	5.49
BMI growth $\Delta \log BMI_{jt}$	0.01	0.07	0.01	0.09
		Household		
		mean	st.dev.	
Consumption (annual, in $1000)		45.08	25.84	
Wealth (annual, in $1000)		417.00	1,269.68	
Number of children		1.00	1.10	
Age gap at marriage (male-female)		1.65	4.04	
Survey waves per household		5.62	2.50	
Observations [households × waves]		13,955		

Notes: The table reports averages and standard deviations of key variables in the baseline estimation sample. All monetary amounts are expressed in 2018 dollars.

commitment test;

- Table E3 reports the parameter estimates from the structural (second) specification of the commitment test;
- Table E4 reports the parameter estimates from the structural (second) specification of the test, letting $\Delta \log \mu_{jt}$ take the log-linear form in (8).

Table E2: *Commitment Test – Reduced Form Results in Detail*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Current shocks (t)											
$\beta_{j[w_{jt}]}$	.	.	.	−30.674	−10.276	−34.751	−15.996	−28.620	−11.409	−63.576	−9.979
				(10.657)	(3.516)	(19.945)	(12.846)	(9.490)	(3.868)	(19.756)	(12.871)
$\beta_{j[w_{-jt}]}$	0	+	+	52.842	−2.564	39.383	−11.350	52.135	5.605	46.089	−5.631
				(26.149)	(6.244)	(30.972)	(18.735)	(24.542)	(9.298)	(31.290)	(19.199)
$\beta_{j[bmi_{jt}]}$	0	+	+					−7.018	67.733	157.212	182.492
								(207.553)	(54.621)	(251.334)	(83.683)
$\beta_{j[bmi_{-jt}]}$	0	−	−					48.146	17.316	398.058	38.377
								(136.648)	(54.047)	(191.855)	(82.919)
Past shocks $(t-1)$											
$\beta_{j[w_{jt-1}]}$	0	0	−	−13.856	−7.338	−11.018	−5.031	−12.662	−9.340	−1.564	−0.067
				(5.284)	(3.441)	(10.115)	(10.305)	(5.880)	(4.202)	(11.918)	(14.176)
$\beta_{j[w_{-jt-1}]}$	0	0	+	41.045	6.011	29.491	−6.877	37.324	6.338	53.021	−11.595
				(20.351)	(7.113)	(34.599)	(17.107)	(18.307)	(7.532)	(30.789)	(17.637)
$\beta_{j[bmi_{jt-1}]}$	0	0	+					151.789	111.962	−3.051	194.269
								(212.888)	(49.458)	(227.631)	(110.201)
$\beta_{j[bmi_{-jt-1}]}$	0	0	−					−23.943	−35.838	−331.573	29.395
								(112.992)	(68.991)	(138.655)	(85.030)
Older shocks $(t-2)$											
$\beta_{j[w_{jt-2}]}$	0	0	−			−32.739	−9.643			−59.360	−0.299
						(16.697)	(6.754)			(17.760)	(8.106)
$\beta_{j[w_{-jt-2}]}$	0	0	+			2.417	24.670			24.988	20.073
						(28.806)	(15.157)			(32.180)	(15.575)
$\beta_{j[bmi_{jt-2}]}$	0	0	+							−438.600	139.456
										(247.282)	(107.369)
$\beta_{j[bmi_{-jt-2}]}$	0	0	−							−255.479	40.950
										(85.833)	(86.437)

Table E2 (continued): *Commitment Test – Reduced Form Results in Detail*

				wage shocks				**wage shocks & BMI**			
				$\geq$ 3 periods		$\geq$ 4 periods		$\geq$ 3 periods		$\geq$ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Initial distribution factors ($t=0$)											
$\beta_{j[young_j]}$	0	0	$-$	-28.064	-14.680	-96.972	-47.766	-38.991	-15.300	-119.846	-43.109
				(26.590)	(6.370)	(33.136)	(11.893)	(28.772)	(7.465)	(36.901)	(14.170)
$\beta_{j[young_{-j}]}$	0	0	$+$	-80.557	10.376	-128.468	20.788	-73.021	10.405	-94.895	12.586
				(30.226)	(4.582)	(40.310)	(10.499)	(30.315)	(5.645)	(37.749)	(13.257)
Other controls											
$b_{j[\Delta y_t]}$				250.018	91.213	320.201	194.669	245.700	97.403	420.873	218.504
				(31.718)	(32.017)	(49.980)	(54.148)	(31.770)	(33.049)	(54.405)	(49.710)
$b_{j[\Delta a_t]}$				-0.835	-4.823	-7.114	-0.077	1.453	-2.227	-32.786	3.751
				(11.700)	(3.403)	(14.276)	(5.422)	(12.165)	(4.582)	(13.840)	(5.771)
$b_{j[y_{t-1}]}$				32.201	2.047	31.384	5.729	32.224	1.359	44.766	4.844
				(7.304)	(2.542)	(8.695)	(6.393)	(6.633)	(2.557)	(8.238)	(5.986)
$b_{j[a_{t-1}]}$				-33.126	-2.523	-30.302	-6.639	-33.096	-2.115	-43.523	-6.159
				(7.355)	(2.247)	(8.509)	(5.644)	(6.459)	(2.264)	(7.730)	(5.425)
$b_{j[\Delta y_{-jt}]}$				-186.371	-85.837	-275.461	-166.237	-171.123	-98.992	-334.140	-197.951
				(40.079)	(29.805)	(65.870)	(44.416)	(37.056)	(32.471)	(63.623)	(40.809)
$b_{j[\Delta q_t]}$				0.001	-0.000	0.001	0.000	0.000	-0.000	0.001	-0.000
				(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
$b_{j[\Delta a_{t-1}]}$				-2.160	-3.104	-4.693	0.289	-1.809	-3.168	-10.137	-0.424
				(3.933)	(1.532)	(5.023)	(2.285)	(4.057)	(1.222)	(4.754)	(2.487)
$b_{j[\Delta a_{t-2}]}$						-3.201	1.998			-2.619	2.839
						(4.008)	(1.966)			(3.870)	(2.632)
p value for $\mathcal{H}_0^{\text{FC}}$				0.000	0.000	0.001	0.000	0.012	0.000	0.000	0.000
p value for $\mathcal{H}_0^{\text{NC}}$				0.001	0.000	0.001	0.000	0.010	0.001	0.000	0.000
Observations				8,513		6,028		7,616		5,294	

Notes: The table reports the coefficient estimates from the reduced form (first) specification of the commitment test with wages (columns 1-4) and wages and BMI (columns 5-8) as time-varying distribution factors. Standard errors clustered at the household level are in brackets.

Table E3: *Commitment Test – Structural Results in Detail*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Pareto weight elasticities w.r.t current factors ($\tau=0$)											
$\eta_{j0}^{w_j}$	0	+	+	1.020	1.007	1.004	1.006	1.018	1.007	1.012	1.000
				(0.010)	(0.010)	(0.011)	(0.012)	(0.009)	(0.008)	(0.010)	(0.011)
$\eta_{j0}^{w_{-j}}$	0	−	−	−0.034	−0.003	−0.026	−0.006	−0.036	−0.019	−0.026	−0.013
				(0.022)	(0.012)	(0.017)	(0.018)	(0.023)	(0.016)	(0.015)	(0.018)
$\eta_{j0}^{bmi_j}$	0	−	−					−0.043	−0.059	−0.104	−0.073
								(0.214)	(0.091)	(0.140)	(0.107)
$\eta_{j0}^{bmi_{-j}}$	0	+	+					0.050	−0.016	−0.130	−0.039
								(0.147)	(0.085)	(0.100)	(0.070)
Pareto weight elasticities w.r.t factors 1 period in the past ($\tau=1$)											
$\eta_{j1}^{w_j}$	0	0	+	0.012	0.009	0.010	0.002	0.012	0.011	0.005	0.002
				(0.006)	(0.008)	(0.006)	(0.010)	(0.007)	(0.008)	(0.006)	(0.012)
$\eta_{j1}^{w_{-j}}$	0	0	−	−0.032	0.000	−0.031	0.002	−0.028	−0.000	−0.033	0.001
				(0.022)	(0.019)	(0.020)	(0.015)	(0.018)	(0.017)	(0.015)	(0.014)
$\eta_{j1}^{bmi_j}$	0	0	−					−0.271	−0.174	−0.077	−0.150
								(0.201)	(0.104)	(0.107)	(0.114)
$\eta_{j1}^{bmi_{-j}}$	0	0	+					0.025	0.051	0.159	0.062
								(0.108)	(0.104)	(0.062)	(0.082)
Pareto weight elasticities w.r.t factors 2 periods in the past ($\tau=2$)											
$\eta_{j2}^{w_j}$	0	0	+			0.010	0.009			0.019	0.004
						(0.012)	(0.005)			(0.012)	(0.008)
$\eta_{j2}^{w_{-j}}$	0	0	−			−0.023	−0.026			−0.029	−0.022
						(0.018)	(0.016)			(0.017)	(0.015)
$\eta_{j2}^{bmi_j}$	0	0	−							0.170	−0.084
										(0.115)	(0.124)
$\eta_{j2}^{bmi_{-j}}$	0	0	+							0.095	0.126
										(0.042)	(0.106)

Table E3 (continued): *Commitment Test – Structural Results in Detail*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Pareto weight elasticities w.r.t initial distribution factors											
$\eta_{jt}^{young_j}$	0	0	+	0.046	0.025	0.062	0.038	0.060	0.023	0.064	0.037
				(0.024)	(0.011)	(0.024)	(0.014)	(0.028)	(0.013)	(0.023)	(0.012)
$\eta_{jt}^{young_{-j}}$	0	0	−	0.096	−0.023	0.077	−0.021	0.086	−0.019	0.053	−0.017
				(0.035)	(0.010)	(0.037)	(0.009)	(0.033)	(0.009)	(0.024)	(0.010)
Frisch elasticity $\alpha_j/\mathbb{E}(h_{jt-1})^{\#}$				0.545	0.330	1.017	0.719	0.536	0.382	1.270	0.817
				(0.164)	(0.136)	(0.347)	(0.263)	(0.143)	(0.150)	(0.372)	(0.267)
Other terms											
$\ell_{\Delta y}$				0.262	0.190	0.218	0.205	0.264	0.175	0.227	0.196
				(0.044)	(0.018)	(0.029)	(0.013)	(0.041)	(0.019)	(0.025)	(0.014)
$\ell_{\Delta a} - \eta_{j0}^{a}$				−0.002	−0.012	−0.009	−0.003	0.000	−0.008	−0.017	−0.002
				(0.010)	(0.009)	(0.007)	(0.006)	(0.011)	(0.009)	(0.007)	(0.007)
ℓ_y				0.033	0.007	0.018	0.005	0.031	0.005	0.020	0.005
				(0.010)	(0.007)	(0.006)	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)
ℓ_a				−0.033	−0.008	−0.017	−0.006	−0.032	−0.006	−0.020	−0.006
				(0.010)	(0.006)	(0.006)	(0.007)	(0.008)	(0.005)	(0.006)	(0.006)
ζ_j ##				−0.006	0.001	−0.006	−0.001	−0.006	0.002	−0.005	0.001
				(0.005)	(0.002)	(0.004)	(0.002)	(0.005)	(0.002)	(0.004)	(0.002)
η_{j1}^{a}				−0.003	−0.005	−0.005	0.001	−0.002	−0.005	−0.006	0.001
				(0.004)	(0.003)	(0.003)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)
η_{j2}^{a}						−0.004	0.003			−0.003	0.002
						(0.002)	(0.002)			(0.002)	(0.002)
p value for $\mathcal{H}_0^{\mathrm{FC}}$				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p value for $\mathcal{H}_0^{\mathrm{NC}}$				0.025	0.032	0.052	0.049	0.025	0.013	0.027	0.008
Observations				8,513		6,028		7,616		5,294	

Notes: The table reports the parameter estimates from the structural (second) specification of the commitment test with wages (columns 1-4) and wages and BMI (columns 5-8) as time-varying distribution factors. Standard errors clustered at the household level are in brackets. See appendix D for details on the parameters. $\ell_{\Delta y}$, ℓ_y, ℓ_a are common across male and female equations in each specification. For simplicity, we estimate the equations separately without imposing cross-equation restrictions. We cannot reject equality of these parameters across equations in most specifications.
#We report the Frisch elasticity at the sample average of hours of work; its standard error is calculated with the delta method.
##We multiply ζ_j by 10^4 for legibility (ζ_j originally multiplies the *level* of consumption so its magnitude is very small).

Table E4: *Commitment Test – Structural Results with Log-Linearised Pareto Weight*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Pareto weight elasticities w.r.t distribution factors											
e_{μ_j,w_j}	0	+	+	1.016	1.007	0.997	0.997	1.012	1.010	0.995	1.003
				(0.010)	(0.009)	(0.004)	(0.006)	(0.007)	(0.010)	(0.004)	(0.005)
$e_{\mu_j,w_{-j}}$	0	−	−	−0.030	−0.003	−0.022	−0.007	−0.026	0.003	−0.024	0.001
				(0.020)	(0.012)	(0.014)	(0.018)	(0.018)	(0.016)	(0.011)	(0.018)
e_{μ_j,bmi_j}	0	−	−					0.017	−0.000	0.027^a	−0.076
								(0.189)	(0.101)	(0.080)	(0.056)
$e_{\mu_j,bmi_{-j}}$	0	+	+					0.094	0.061	-0.212^a	−0.031
								(0.142)	(0.089)	(0.076)	(0.055)
Pareto weight elasticity w.r.t past Pareto weight											
$e_{\mu_j,\mu_{jL}}$	0	0	+	0.015	0.009	0.001	−0.008	0.015	0.015	-0.005^a	−0.001
				(0.007)	(0.008)	(0.002)	(0.006)	(0.007)	(0.010)	(0.003)	(0.007)
Pareto weight elasticities w.r.t initial distribution factors											
$\eta_{jt}^{young_j}$	0	0	+	0.044	0.025	0.057	0.040	0.057	0.030	0.061	0.037
				(0.024)	(0.011)	(0.019)	(0.012)	(0.027)	(0.016)	(0.019)	(0.013)
$\eta_{jt}^{young_{-j}}$	0	0	−	0.088	−0.023	0.058	−0.012	0.102	−0.011	0.072	−0.007
				(0.035)	(0.010)	(0.028)	(0.007)	(0.037)	(0.010)	(0.026)	(0.007)
Frisch elasticity $\alpha_j/\mathbb{E}(h_{jt-1})^{\#}$				0.584	0.329	1.239	0.668	0.526	0.319	0.998	0.770
				(0.178)	(0.133)	(0.371)	(0.214)	(0.128)	(0.143)	(0.262)	(0.207)

Table E4 (continued): *Commitment Test – Structural Results with Log-Linearised Pareto Weight*

	wage shocks				wage shocks & BMI			
	≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Male	Female	Male	Female	Male	Female	Male	Female
FC NC LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Other terms								
$\ell_{\Delta y}$	0.253	0.190	0.202	0.193	0.250	0.191	0.211	0.198
	(0.038)	(0.018)	(0.019)	(0.014)	(0.034)	(0.019)	(0.016)	(0.012)
$\ell_{\Delta a} - e_{\mu_j,a}$	0.000	−0.012	−0.007	−0.002	−0.002	−0.016	−0.012	0.002
	(0.010)	(0.009)	(0.007)	(0.005)	(0.011)	(0.012)	(0.007)	(0.005)
ℓ_y	0.030	0.007	0.015	0.005	0.031	0.008	0.012	0.003
	(0.009)	(0.007)	(0.004)	(0.006)	(0.007)	(0.008)	(0.004)	(0.006)
ℓ_a	−0.030	−0.008	−0.014	−0.005	−0.030	−0.008	−0.011	−0.004
	(0.009)	(0.006)	(0.004)	(0.006)	(0.007)	(0.007)	(0.004)	(0.005)
ζ_j ##	−0.008	0.001	−0.009	0.001	−0.008	−0.000	−0.009	0.001
	(0.004)	(0.002)	(0.003)	(0.002)	(0.005)	(0.002)	(0.003)	(0.001)
η^a_{j1}	−0.002	−0.005	−0.005	0.001	−0.001	−0.005	−0.007	−0.000
	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)	(0.002)
η^a_{j2}			−0.002	0.004			−0.004	0.003
			(0.002)	(0.002)			(0.002)	(0.002)
p value for $\mathcal{H}_0^{\text{FC}}$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p value for $\mathcal{H}_0^{\text{NC}}$	0.016	0.015	0.007	0.012	0.003	0.015	0.002	0.004
Observations	8,513		6,028		7,616		5,294	

Notes: The table reports the parameter estimates from the structural specification of the commitment test with wages (columns 1-4) and wages and BMI (columns 5-8) as time-varying distribution factors, letting $\Delta \log \mu_{jt}$ take the log-linear form in (8). Standard errors clustered at the household level are in brackets. See appendix D for details on the parameters. We estimate each of $\eta_{jt}^{young_j} = (e_{\mu_j,\mu_{jL}})^t e_{\mu_j,young_j}$ and $\eta_{jt}^{young_{-j}} = (e_{\mu_j,\mu_{jL}})^t e_{\mu_j,young_{-j}}$ as a single parameter because we do not consistently observe the length of marriage t. For comparability across specifications, we also estimate each of $\eta^a_{j1} = e_{\mu_j,\mu_{jL}} e_{\mu_j,a}$ and $\eta^a_{j2} = (e_{\mu_j,\mu_{jL}})^2 e_{\mu_j,a}$ as a single parameter because $e_{\mu_j,a}$, the Pareto weight elasticity with respect to assets, is only identified with four periods or more. $\ell_{\Delta y}$, ℓ_y, ℓ_a are common across male and female equations in each specification. For simplicity, we estimate the equations separately without imposing cross-equation restrictions. We cannot reject equality of these parameters across equations in most specifications.

#We report the Frisch elasticity at the sample average of hours of work; its standard error is calculated with the delta method.

##We multiply ζ_j by 10^4 for legibility (ζ_j originally multiplies the *level* of consumption so its magnitude is very small).

[a]In column 7, we obtain a marginally significantly negative $e_{\mu_j,\mu_{jL}}$, which is not consistent with theory. However, the elasticities with respect to BMI have the opposite sign than expected, so the overall partial effect of past BMI is in line with theory (the partial effect is given by $(e_{\mu_j,\mu_{jL}})^\tau e_{\mu_j,bmi_k}$ for $\tau \in \{1,2\}$). We attribute $e_{\mu_j,\mu_{jL}} < 0$ to a local minimum which our optimiser on Stata is unable to overcome.

Heterogeneity. In our third specification, we let the Pareto weight elasticities η_j depend on the *past levels* of distribution factors.[6] Along with the dependence of δ_{jt} on earnings and hours (structural specification), the third specification introduces vast amounts of cross-household heterogeneity in the bargaining effects of wages. As each household has its own bundle of earnings, hours, and wages, we use the parameters to calculate household-specific partial effects of wage shocks, namely $\partial\Delta\log h_{jt}/\partial\omega_{kt-\tau}$ for $j,k\in\{1,2\}$ and $\tau\in\{0,1,2\}$. Figure 1 in the paper plots these partial effects for all households in the sample; table E5 summarises key moments while table E6 reports the parameter estimates.[7]

The average partial effects of older shocks (shocks from period $t-2$ in table E5) are $\mathbb{E}(\partial\Delta\log h_{jt}/\partial\omega_{jt-2})<0$ and $\mathbb{E}(\partial\Delta\log h_{jt}/\partial\omega_{-jt-2})>0$. Away from the average, most households exhibit negative or zero labour supply effects from own shocks (so favourable *own* shocks empower oneself) and positive or zero effects from partner shocks (so favourable *partner* shocks weaken oneself). These effects are consistent with power shifts in limited commitment, in which good past shocks improved the bargaining power of the spouse that received them and, through persistence in the Pareto weight, shift future labour supply. The average partial effects of immediately past shocks (from period $t-1$ in table E5) are $\mathbb{E}(\partial\Delta\log h_{2t}/\partial\omega_{2t-1})<0$ and $\mathbb{E}(\partial\Delta\log h_{1t}/\partial\omega_{2t-1})>0$, exactly as limited commitment requires. The other two average partial effects seem to contradict limited commitment if taken at face value. $\mathbb{E}(\partial\Delta\log h_{1t}/\partial\omega_{1t-1})$ is weakly positive but the underlying parameters are not statistically significant; $\mathbb{E}(\partial\Delta\log h_{2t}/\partial\omega_{1t-1})$ is weakly negative but the majority of households exhibit *positive* effects exactly as limited commitment postulates (figure 1 in the paper). The partial effects of the partner's current shocks (from period t in table E5) are spread around zero; some effects that are economically large concern the partner's current shocks among men and those are consistent with non-full commitment.

Despite the theoretical appeal of the heterogeneity specification, almost none of the heterogeneity-specific parameter estimates are statistically significant (table E6), which prevents us from making strong assertions. This is to a large extent inevitable. This specifi-

[6] We specify the coefficients η_{j0} on current (time t) wages as:

$$\begin{aligned}\eta_{j0}^{w_j} &= \eta_{j0}^{w_j\{0\}} + \eta_{j0}^{w_j\{1\}} w_{jt-1} + \eta_{j0}^{w_j\{2\}} w_{-jt-1},\\ \eta_{j0}^{w_{-j}} &= \eta_{j0}^{w_{-j}\{0\}} + \eta_{j0}^{w_{-j}\{1\}} w_{jt-1} + \eta_{j0}^{w_{-j}\{2\}} w_{-jt-1}.\end{aligned}$$

We do similarly for η_{j1} (as function of $t-2$ wages) and η_{j2} (as function of $t-3$ wages). When BMI is an additional distribution factor, we introduce past $Z_{t-\tau}=\{BMI_{1t-\tau},BMI_{2t-\tau}\}$, $\tau\in\{1,2,3\}$, linearly, e.g. $\eta_{j0}^{w_j}=\eta_{j0}^{w_j\{0\}}+\cdots+\eta_{j0}^{w_j\{3\}}BMI_{jt-1}+\eta_{j0}^{w_j\{4\}}BMI_{-jt-1}$, etc. We also include the age-gap-at-marriage dummies, because the bargaining effects of distribution factors depend through $e_{\mu_j,\mu_{jL}}$ on the past Pareto weight and, therefore, recursively on the variables in Θ_0 (see appendix C).

[7] For brevity, we only show results from the smaller sample over four time periods, i.e. with shocks from $t-2$ in the equation. Results from the baseline sample over three periods offer similar conclusions.

Table E5: *Summary Statistics of Partial Effects of Wage Shocks*

	FC	NC	LC	mean	st.dev.	p10	p50	p90
Partial effects of current shocks (t)								
$\partial\Delta \log h_{1t}/\partial\omega_{1t}$	.	.	.	-0.117	0.247	-0.153	-0.116	-0.085
$\partial\Delta \log h_{2t}/\partial\omega_{2t}$	.	.	.	-0.111	0.563	-0.138	-0.089	-0.060
$\partial\Delta \log h_{1t}/\partial\omega_{2t}$	0	+	+	0.011	0.242	-0.031	-0.019	0.126
$\partial\Delta \log h_{2t}/\partial\omega_{1t}$	0	+	+	-0.007	0.632	-0.043	-0.010	0.021
Partial effects of immediately past shocks $(t-1)$								
$\partial\Delta \log h_{1t}/\partial\omega_{1t-1}$	0	0	−	0.028	0.136	-0.022	0.030	0.051
$\partial\Delta \log h_{2t}/\partial\omega_{2t-1}$	0	0	−	-0.028	0.754	-0.035	-0.008	0.005
$\partial\Delta \log h_{1t}/\partial\omega_{2t-1}$	0	0	+	0.058	0.080	0.024	0.042	0.109
$\partial\Delta \log h_{2t}/\partial\omega_{1t-1}$	0	0	+	-0.008	0.371	-0.034	0.003	0.019
Partial effects of older shocks $(t-2)$								
$\partial\Delta \log h_{1t}/\partial\omega_{1t-2}$	0	0	−	-0.009	0.020	-0.021	-0.004	-0.001
$\partial\Delta \log h_{2t}/\partial\omega_{2t-2}$	0	0	−	-0.028	0.158	-0.043	-0.021	0.007
$\partial\Delta \log h_{1t}/\partial\omega_{2t-2}$	0	0	+	0.047	0.156	0.002	0.045	0.070
$\partial\Delta \log h_{2t}/\partial\omega_{1t-2}$	0	0	+	0.032	0.340	-0.004	0.027	0.057

Notes: The table reports key summary statistics of the distribution of partial effects of wage shocks across households observed for ≥ 4 periods. The parameter estimates are in appendix table E6.

cation introduces five times as many parameters as the structural (second) specification, so the model is too flexible given our rather limited sample sizes. To improve significance, we thus also explore an indirect approach to heterogeneity by estimating the simplest, reduced form specification of our test over a few well defined subsamples.

Table E7 presents results across three different sample splits. In a first split (columns 1-2), we test for commitment among partners who have the same level of education versus those who do not. In a second split (columns 3-4), we compare *older* couples in their *first* marriage to everyone else. In a third split (columns 5-6), we zoom into couples in which the wife is the main earner. In all cases, we focus on households observed for at least three periods, namely our largest sample. To facilitate the interpretation of the results, we interact the current and past wage shocks with a dummy that reflects the applicable sample split in each case; the coefficient on the dummy then picks up how the bargaining effects change along the sample split.

Among couples with *different* levels of education, all past shocks enter with the sign postulated by limited commitment.[8] Specifically, own past shocks reduce future labour supply, while the partner's past shocks increase it; inspect panel B in table E7. However, as

[8]We define four levels of education: high school dropout, high school graduate, (some) college, and more than college.

Table E6: *Commitment Test – Structural Results with Heterogeneity*

	wage shocks, $\geq$ 4 periods			
	Male $j=1$		Female $j=2$	
	(1) estimate	(2) st.error	(3) estimate	(4) st.error
Pareto weight elasticities w.r.t current factors ($\tau=0$)				
$\eta_{j0}^{w_j}$				
constant	0.999	(0.022)	1.004	(0.022)
w_{jt-1}	−0.040	(0.015)	−0.025	(0.008)
w_{-jt-1}	0.061	(0.026)	0.069	(0.035)
$\mathbb{1}[age_j << age_{-j}]$	0.030	(0.030)	−0.014	(0.026)
$\mathbb{1}[age_j >> age_{-j}]$	0.016	(0.034)	−0.020	(0.015)
$\eta_{j0}^{w_{-j}}$				
constant	0.014	(0.025)	0.017	(0.022)
w_{jt-1}	0.021	(0.023)	0.047	(0.026)
w_{-jt-1}	0.009	(0.013)	−0.079	(0.036)
$\mathbb{1}[age_j << age_{-j}]$	−0.023	(0.038)	0.011	(0.026)
$\mathbb{1}[age_j >> age_{-j}]$	−0.148	(0.058)	0.040	(0.045)
Pareto weight elasticities w.r.t factors 1 period in the past ($\tau=1$)				
$\eta_{j1}^{w_j}$				
constant	−0.029	(0.026)	0.008	(0.015)
w_{jt-2}	0.014	(0.010)	−0.050	(0.028)
w_{-jt-2}	−0.054	(0.066)	0.052	(0.031)
$\mathbb{1}[age_j << age_{-j}]$	0.012	(0.030)	−0.012	(0.027)
$\mathbb{1}[age_j >> age_{-j}]$	0.059	(0.045)	−0.003	(0.024)
$\eta_{j1}^{w_{-j}}$				
constant	−0.058	(0.023)	−0.026	(0.023)
w_{jt-2}	0.005	(0.027)	0.073	(0.065)
w_{-jt-2}	0.056	(0.034)	−0.002	(0.015)
$\mathbb{1}[age_j << age_{-j}]$	0.015	(0.040)	0.012	(0.027)
$\mathbb{1}[age_j >> age_{-j}]$	−0.063	(0.064)	0.046	(0.040)
Pareto weight elasticities w.r.t factors 2 periods in the past ($\tau=2$)				
$\eta_{j2}^{w_j}$				
constant	0.001	(0.022)	0.029	(0.008)
w_{jt-3}	0.013	(0.011)	−0.022	(0.012)
w_{-jt-3}	−0.009	(0.050)	0.005	(0.016)
$\mathbb{1}[age_j << age_{-j}]$	0.012	(0.024)	−0.008	(0.017)
$\mathbb{1}[age_j >> age_{-j}]$	0.018	(0.030)	−0.034	(0.011)
$\eta_{j2}^{w_{-j}}$				
constant	−0.067	(0.036)	−0.042	(0.025)
w_{jt-3}	0.047	(0.034)	−0.047	(0.045)
w_{-jt-3}	−0.027	(0.033)	0.052	(0.045)
$\mathbb{1}[age_j << age_{-j}]$	0.061	(0.040)	0.039	(0.024)
$\mathbb{1}[age_j >> age_{-j}]$	0.032	(0.039)	0.026	(0.025)

Table E6 (continued): *Commitment Test – Structural Results with Heterogeneity*

	wage shocks, $\geq$ 4 periods			
	Male $j=1$		Female $j=2$	
	(1) estimate	(2) st.error	(3) estimate	(4) st.error
Pareto weight elasticities w.r.t initial distribution factors				
$\eta_{jt}^{young_j}$	0.083	(0.031)	0.020	(0.012)
$\eta_{jt}^{young_{-j}}$	0.080	(0.042)	−0.019	(0.008)
Frisch elast. $\alpha_j/\mathbb{E}(h_{jt-1})^{\#}$	1.053	(0.375)	1.087	(0.270)
Other terms				
$\ell_{\Delta y}$	0.251	(0.042)	0.205	(0.012)
$\ell_{\Delta a} - \eta_{j0}^{a}$	−0.007	(0.008)	0.000	(0.006)
ℓ_y	0.018	(0.007)	0.006	(0.007)
ℓ_a	−0.017	(0.006)	−0.007	(0.007)
$\zeta_j{}^{\#\#}$	−0.007	(0.003)	0.000	(0.002)
η_{j1}^{a}	−0.008	(0.004)	−0.003	(0.002)
η_{j2}^{a}	−0.006	(0.003)	0.001	(0.001)
p value for $\mathcal{H}_0^{\text{FC}\#\#\#}$	0.042		0.033	
p value for $\mathcal{H}_0^{\text{NC}\#\#\#}$	0.044		0.088	
Observations	6,028		6,028	

Notes: The table reports the parameter estimates from the heterogeneity (third) specification of the commitment test with wages as time-varying distribution factors. The coefficient on each Pareto weight elasticity depends linearly on the immediately past levels of wages and the age-gap-at-marriage dummies. Standard errors clustered at the household level are in brackets. See appendix D for details on the parameters. $\ell_{\Delta y}$, ℓ_y, ℓ_a are common across male and female equations in each specification. For simplicity, we estimate the equations separately without imposing cross-equation restrictions. We cannot reject equality of these parameters across equations. $^{\#}$We report the Frisch elasticity at the sample average of hours of work; its standard error is calculated with the delta method. $^{\#\#}$We multiply ζ_j by 10^4 for legibility (ζ_j originally multiplies the *level* of consumption so its magnitude is very small). $^{\#\#\#}$We assess the null hypotheses at the sample average of wages for partners of similar age.

soon as we interact these wage shocks with the dummy for *same* education, the bargaining effects are pushed towards zero (null bargaining effects). This suggest that those who share the same education behave more in line with full commitment, perhaps due to being a better match than those whose education levels differ. Similar conclusions can be drawn from the bargaining effect from the partner's current shock in panel A. There is evidence for non-full commitment, especially on the men's side, but that bargaining effect is pushed closer to zero among couples who share the same education levels.

Moving to the length of marriage, and focusing on couples in relatively younger marriages, all current and past shocks enter with the sign implied by limited commitment (except ω_{1t} among women). Statistical significance is low but any parameter that *is* significant has the

Table E7: *Commitment Test – Summary Reduced Form Results with Selective Heterogeneity*

	wage shocks, ≥ 3 periods					
Heterogeneity event:	spouses have same education		older couple in first marriage		wife earnings ≥ husband earnings	
	(1) Male $j=1$	(2) Female $j=2$	(3) Male $j=1$	(4) Female $j=2$	(5) Male $j=1$	(6) Female $j=2$
FC NC LC						
A. Current shocks (t)						
$\beta_{j[w_{jt}]}$ . . .						
constant	−24.221	−10.509	−29.202	−9.732	−194.086	−9.710
	(10.324)	(5.367)	(11.160)	(3.202)	(62.210)	(3.534)
$\mathbb{1}$[couples with *event* = true]	−92.206	−0.110	−5.100	15.506	175.603	−87.495
	(28.042)	(7.715)	(59.697)	(27.524)	(62.005)	(45.776)
$\beta_{j[w_{-jt}]}$ 0 + +						
constant	51.278	−35.553	44.810	−7.784	67.600	−1.758
	(32.890)	(19.527)	(26.942)	(6.526)	(32.102)	(6.360)
$\mathbb{1}$[couples with *event* = true]	−16.056	37.500	−48.171	37.017	−88.329	27.377
	(44.399)	(21.301)	(68.809)	(17.592)	(54.995)	(28.889)
B. Past shocks $(t-1)$						
$\beta_{j[w_{jt-1}]}$ 0 0 −						
constant	−9.688	−8.296	−15.101	−6.568	−87.945	−7.844
	(4.983)	(4.539)	(6.911)	(3.122)	(26.928)	(3.593)
$\mathbb{1}$[couples with *event* = true]	0.062	10.389	99.646	50.949	84.647	−7.275
	(16.732)	(6.432)	(29.437)	(49.323)	(27.261)	(29.754)
$\beta_{j[w_{-jt-1}]}$ 0 0 +						
constant	55.615	24.725	30.082	6.972	48.430	6.089
	(29.733)	(13.679)	(23.571)	(7.567)	(38.308)	(7.752)
$\mathbb{1}$[couples with *event* = true]	−78.030	−30.818	90.435	−17.947	−26.773	23.910
	(39.836)	(15.523)	(68.195)	(57.344)	(43.174)	(48.477)
Initial distribution factors $(t=0)$	yes		yes		yes	
Other terms	yes		yes		yes	
Observations	8,513		8,278		8,513	

Notes: The table reports the coefficient estimates from the reduced form (first) specification of the commitment test implemented over three different sample splits. The subsamples are described in the top of the table. Marital history is not observed for everyone in our baseline sample. Standard errors clustered at the household level are in brackets.

sign that limited commitment requires. However, as soon as we switch to older couples in their first marriage (namely marriages that have lasted for longer), almost all coefficients become inconsistent with bargaining ($\beta_{1[w_{2t-1}]}$ being the sole exception) and mostly statistically insignificant. This seems to suggest that older couples in their first marriage behave more in line with full commitment, as one would expect.

Finally, we focus on the gender of the main earner. While the coefficients on almost all current and past shocks are consistent with limited commitment in the baseline in which the husband outearns the wife, an interesting split appears when we compare male and female bargaining effects among couples in which the woman (weakly) outearns the husband. In this case, the bargaining effects on male hours are pushed to zero, while the bargaining effects on female hours become more pronounced and more strongly in line with limited commitment. Though the effects remain statistically insignificant, at face value they suggest that women who outearn their husbands engage in renegotiation more than them, likely (and perhaps eventually) leading to the end of certain marriages.

Use of BMI as additional time-varying distribution factors. We can use additional distribution factors as a means of over-identification. These factors must be assignable and vary over time. Voena (2015) explores changes in divorce and property division laws; but these changes occur mostly in the 1970s and 1980s, which is outside our time frame.[9] Chiappori *et al.* (2012) and Dupuy and Galichon (2014) use anthropometric measures to determine a person's attractiveness. We take up on this and employ the spouses' body mass index as distribution factor, i.e. $Z_t = \{BMI_{1t}, BMI_{2t}\}$. The underlying premise is that one's body mass influences their attractiveness in the marriage market, thus affecting their bargaining power at home.

We re-estimate all specifications activating $Z_{t-\tau} = \{BMI_{1t-\tau}, BMI_{2t-\tau}\}$, $\tau \in \{0, 1, 2\}$, and report results in columns 5-8 in tables E2 (reduced form), E3 (structural), and E4 (proportionality restrictions).[10] The bargaining effects of wages are unchanged from the baseline, pointing again towards limited commitment. The bargaining effects of BMI are also in line with limited commitment: an increase in one's *past* BMI increases his/her hours (as if it weakens one's Pareto weight because that person became relatively less attractive) while, by contrast, an increase in the *partner's past* BMI reduces work (as if the opposite reasons hold). Statistical significance is low but most parameters that *are* significant have the sign that limited commitment postulates.

[9] See also Stevenson (2007). Chiappori *et al.* (2002) use variation in marital sex ratios across states, which are unlikely to vary much over time. Blau and Goodstein (2016) use the receipt of inheritance as distribution factor; this is assignable and time-varying but we do not observe inheritances in the PSID.

[10] Results with heterogeneity lead to similar conclusions. We do not include them for brevity.

The use of BMI as a distribution factor is debatable because shifts in body mass may reflect endogenous choices or affect labour supply directly. But if such shifts exclusively reflected choices, it is unclear why *past* BMI would affect current labour supply, as we find here, beyond its effect on current BMI that we explicitly control for. Moreover, any *direct* effect that BMI has on labour supply would typically be negative (a weight increase limits one's ability to work), which is opposite of what we find here.

F Commitment test and measurement error

Wages and hours in survey data are subject to measurement error. Typically, one will use an instrument for wages, often lagged wages. This is not possible here because lagged wages directly affect hours in limited commitment (they are in fact standalone regressors in our test), so they do not satisfy the exclusion restriction.

We take an alternative route and characterise how measurement error biases the main parameter estimates, namely the coefficients on current and past wages. Consider the estimating equation for male hours given by

$$\Delta h_{1t} = \beta_{1[w_{1t}]}\omega_{1t} + \beta_{1[w_{2t}]}\omega_{2t} + \beta_{1[w_{1t-1}]}\omega_{1t-1} + \beta_{1[w_{2t-1}]}\omega_{2t-1} + \varepsilon_{1t},$$

where $\Delta h_{1t} \equiv \Delta \log h_{1t}$. This corresponds to equation (11) for $j = 1$ (male hours), abstracting from the non-wage terms (that is, we control for household income, wealth, consumption etc). We focus on current (t) and immediate past ($t-1$) wage shocks, as if older shocks do not exist. We maintain that wage shocks and the error term are mean independent. The conclusions we establish for male hours ($j = 1$) hold symmetrically for female hours ($j = 2$), and they hold also after reintroducing shocks from period $t-2$.

Let shocks not co-vary *between* partners, i.e. $\text{Cov}(\omega_{jt}, \omega_{-jt-\tau}) = 0, \forall\tau$. This requires that, first, true male-female shocks are uncorrelated, and second, measurement errors in male-female wages are uncorrelated. We maintain the first assumption to keep this discussion simple but we do *not* impose it in the empirical application. We return to the second assumption below. After these simplifications, the population coefficients are given by

$$\begin{aligned}
\beta_{1[w_{1t}]} &= \big\{V(\omega_{1t-1})C(\Delta h_{1t}, \omega_{1t}) - C(\omega_{1t}, \omega_{1t-1})C(\Delta h_{1t}, \omega_{1t-1})\big\}/D_1 \\
\beta_{1[w_{2t}]} &= \big\{V(\omega_{2t-1})C(\Delta h_{1t}, \omega_{2t}) - C(\omega_{2t}, \omega_{2t-1})C(\Delta h_{1t}, \omega_{2t-1})\big\}/D_2 \\
\beta_{1[w_{1t-1}]} &= \big\{V(\omega_{1t})C(\Delta h_{1t}, \omega_{1t-1}) - C(\omega_{1t}, \omega_{1t-1})C(\Delta h_{1t}, \omega_{1t})\big\}/D_1 \\
\beta_{1[w_{2t-1}]} &= \big\{V(\omega_{2t})C(\Delta h_{1t}, \omega_{2t-1}) - C(\omega_{2t}, \omega_{2t-1})C(\Delta h_{1t}, \omega_{2t})\big\}/D_2,
\end{aligned} \tag{F.1}$$

where $V(\cdot)$ and $C(\cdot,\cdot)$ are the variance and covariance. $D_j = V(\omega_{jt})V(\omega_{jt-1}) - (C(\omega_{jt},\omega_{jt-1}))^2$ is the positive determinant of the covariance matrix of shocks of spouse $j = \{1,2\}$.

We established earlier that $\beta_{1[w_{2t}]} > 0$ (coefficient on the partner's current wage) is indicative of no/limited commitment, while $\beta_{1[w_{1t-1}]} < 0$ (coefficient on own past wage) and $\beta_{1[w_{2t-1}]} > 0$ (coefficient on the partner's past wage) are indicative of limited commitment. We will now assess if measurement error can produce this pattern of signs.

Let $\Delta h^o_{1t} = \Delta h_{1t} + \Delta e^{h_1}_t$ and $\omega^o_{jt-\tau} = \omega_{jt-\tau} + \Delta e^{w_j}_{t-\tau}$ for $j = \{1,2\}$ and $\tau \in \{0,1\}$; that is, the observed variable is equal to the true variable plus measurement error. Let e^{h_1} and e^{w_j} be independent of the true variable and serially uncorrelated. Given the first difference, however, hours/wage growth correlates over time due to mean reversion in the error. Moreover, $e^{w_1} = e^{y_1} - e^{h_1}$, where e^{y_1} is the error in log earnings, as wages are earnings over hours.[11] Therefore, error in hours and wages correlate negatively. Assuming time-invariance of the second moments of measurement error, it follows that (i) $V(\Delta e^{w_j}_t) = 2\sigma^2_{e^{w_j}}$, (ii) $C(\Delta e^{w_j}_t, \Delta e^{w_j}_{t-1}) = -\sigma^2_{e^{w_j}}$, (iii) $C(\Delta e^{h_1}_t, \Delta e^{w_1}_t) = -2\sigma^2_{e^{h_1}}$, (iv) $C(\Delta e^{h_1}_t, \Delta e^{w_1}_{t-1}) = \sigma^2_{e^{h_1}}$, and (v) $C(\Delta e^{h_1}_t, \Delta e^{w_2}_{t-\tau}) = 0$, for $\tau = \{0,1\}$, where $\sigma^2_{e^{h_1}}$ and $\sigma^2_{e^{w_j}}$, $j \in \{1,2\}$, are the variance of the error in hours and wages.

With measurement error, the estimates $\widehat{\beta}_{1[w_{2t}]}$, $\widehat{\beta}_{1[w_{1t-1}]}$, $\widehat{\beta}_{1[w_{2t-1}]}$ may be biased for the true parameters $\beta_{1[w_{2t}]}$, $\beta_{1[w_{1t-1}]}$, $\beta_{1[w_{2t-1}]}$. The bias may operate separately through the denominators in (F.1), or through the numerators. We characterise the two in turn.

Bias towards full commitment. With measurement error, the denominator in (F.1) is given by $\widehat{D}_j = D_j + 3(\sigma^2_{e^{w_j}})^2 + 2\sigma^2_{e^{w_j}}\,(V(\omega_{jt}) + V(\omega_{jt-1}) + C(\omega_{jt},\omega_{jt-1}))$, which is larger than D_j.[12] Measurement error thus inflates the positive denominator, which, ceteris paribus, biases all coefficients towards zero. Null bargaining effects reflect full commitment, so measurement error biases the parameter estimates towards full commitment.

On top of this bias towards full commitment, measurement error biases the numerators in (F.1). Below we discuss this bias starting from the coefficients on the partner's wages.

Coefficient on partner's current wage. The numerator of $\widehat{\beta}_{1[w_{2t}]}$ is given by $\text{num}(\widehat{\beta}_{1[w_{2t}]}) = \text{num}(\beta_{1[w_{2t}]}) + \sigma^2_{e^{w_2}}\,(2C(\Delta h_{1t},\omega_{2t}) + C(\Delta h_{1t},\omega_{2t-1}))$, where $\text{num}(\beta_{1[w_{2t}]})$ is shown in (F.1). How $\text{num}(\widehat{\beta}_{1[w_{2t}]})$ compares with $\text{num}(\beta_{1[w_{2t}]})$ depends on the signs of $C(\Delta h_{1t},\omega_{2t})$ and $C(\Delta h_{1t},\omega_{2t-1})$, so we distinguish four cases:

[11] We use the hourly wage rate variable in the PSID (e.g. variable `ER77414` in 2019), which is calculated as annual earnings over hours, thus is subject to the division bias.

[12] The covariance between consecutive residual wages is typically negative (e.g. in a permanent-transitory process, it is negative due to mean reversion of the transitory shock). However, $|C(\omega_{jt},\omega_{jt-1})|$ is always smaller than the largest standalone variance, so the bracketed term is strictly positive.

1. Let $C(\Delta h_{1t}, \omega_{2t}) > 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) > 0$.
   Then $\text{num}(\beta_{1[w_{2t}]}) > 0$, so true $\beta_{1[w_{2t}]} > 0$, in line with no/limited commitment.[13] It follows that $\text{num}(\widehat{\beta}_{1[w_{2t}]}) > \text{num}(\beta_{1[w_{2t}]})$; that is, measurement error preserves the sign of the numerator and increases its magnitude. However, measurement error inflates the denominator D_2 by much more so measurement error overall biases the estimate downwards towards zero (null bargaining effects, full commitment).[14]

2. Let $C(\Delta h_{1t}, \omega_{2t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) \leq 0$.
   Then $\text{num}(\beta_{1[w_{2t}]}) \leq 0$ and $\beta_{1[w_{2t}]} \leq 0$, which is inconsistent with non-full commitment. The question is then whether measurement error biases $\widehat{\beta}_{1[w_{2t}]}$ towards positive values, making it artificially consistent with no/limited commitment. Clearly not as $\text{num}(\widehat{\beta}_{1[w_{2t}]}) \leq \text{num}(\beta_{1[w_{2t}]})$ in this case, so $\widehat{\beta}_{1[w_{2t}]}$ remains inconsistent with bargaining.

3. Let $C(\Delta h_{1t}, \omega_{2t}) > 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) \leq 0$.

   (a) Let $\beta_{1[w_{2t}]} > 0$, in line with no/limited commitment. The covariance of concurrent hours-wages is empirically larger than the covariance one period apart, i.e. $|C(\Delta h_{1t}, \omega_{2t})| > |C(\Delta h_{1t}, \omega_{2t-1})|$, so $\text{num}(\widehat{\beta}_{1[w_{2t}]}) > \text{num}(\beta_{1[w_{2t}]})$. Measurement error, however, inflates the denominator by more than the numerator (see footnote 14), so $\widehat{\beta}_{1[w_{2t}]}$ is biased towards zero (null bargaining effects; full commitment).

   (b) Let $\beta_{1[w_{2t}]} \leq 0$, contradicting no/limited commitment. It must be $|C(\Delta h_{1t}, \omega_{2t})| << |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures $\text{num}(\beta_{1[w_{2t}]}) \leq 0$. Depending on the sign of $2C(\Delta h_{1t}, \omega_{2t}) + C(\Delta h_{1t}, \omega_{2t-1})$, measurement error could bias the numerator downwards ($\widehat{\beta}_{1[w_{2t}]}$ remains inconsistent with bargaining) or towards zero (full commitment). It would flip its sign to positive only if $|C(\Delta h_{1t}, \omega_{2t})| > |C(\Delta h_{1t}, \omega_{2t-1})|$, which is a contradiction as $\beta_{1[w_{2t}]}$ would have been positive in that case.

4. Let $C(\Delta h_{1t}, \omega_{2t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) > 0$.

   (a) Let $\beta_{1[w_{2t}]} > 0$, in line with no/limited commitment. In this case $|C(\Delta h_{1t}, \omega_{2t})| << |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures that $\text{num}(\beta_{1[w_{2t}]}) > 0$. Depending on the sign of $2C(\Delta h_{1t}, \omega_{2t}) + C(\Delta h_{1t}, \omega_{2t-1})$, measurement error could bias the numerator downwards (thus $\widehat{\beta}_{1[w_{2t}]}$ becomes inconsistent with no/limited commitment) or upwards (remains correctly in line with no/limited commitment).

[13] We treat the first-order covariance between residual wages as negative, as is typically found empirically; e.g. in a permanent-transitory process, it is negative due to mean reversion of the transitory shock.

[14] Note that $\sigma^2_{e^{w_2}}(2V(\omega_{2t}) + V(\omega_{2t-1}))$, which is only part of the increase in the denominator due to the error, is larger than $\sigma^2_{e^{w_2}}(2C(\Delta h_{1t}, \omega_{2t}) + C(\Delta h_{1t}, \omega_{2t-1}))$ in the numerator if the covariances between hours and partner shocks are smaller than the variance of the shocks. This is generally true: a regression of hours on partner shocks, controlling for income, wealth, etc., produces coefficients ≤ 1 in absolute value.

(b) Let $\beta_{1[w_{2t}]} \leq 0$, contradicting no/limited commitment. In this case $|C(\Delta h_{1t}, \omega_{2t})| \geq |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures $\text{num}(\beta_{1[w_{2t}]}) \leq 0$. Measurement error then implies $\text{num}(\widehat{\beta}_{1[w_{2t}]}) < \text{num}(\beta_{1[w_{2t}]})$, so $\widehat{\beta}_{1[w_{2t}]}$ remains inconsistent with bargaining.

In brief: when the true coefficient $\beta_{1[w_{2t}]}$ on the partner's current wage is positive, in line with no/limited commitment, measurement error either preserves the sign or biases the estimate towards zero (full commitment); when it is weakly negative, contradicting no/limited commitment, measurement error does *not* flip its sign. In no case does measurement error erroneously move $\widehat{\beta}_{1[w_{2t}]}$ towards positive values (no/limited commitment) when the true $\beta_{1[w_{2t}]}$ is incompatible with bargaining. Any evidence for no/limited commitment through $\widehat{\beta}_{1[w_{2t}]}$, as we find in practice, is thus not the byproduct of measurement error.

Coefficient on partner's past wage. An analogous discussion applies to the coefficient on the partner's *past* wage. The numerator of $\widehat{\beta}_{1[w_{2t-1}]}$ is given by $\text{num}(\widehat{\beta}_{1[w_{2t-1}]}) = \text{num}(\beta_{1[w_{2t-1}]}) + \sigma^2_{e^{w_2}} \left(C(\Delta h_{1t}, \omega_{2t}) + 2C(\Delta h_{1t}, \omega_{2t-1})\right)$, where $\text{num}(\beta_{1[w_{2t-1}]})$ is shown in (F.1). We distinguish four cases:

1. Let $C(\Delta h_{1t}, \omega_{2t}) > 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) > 0$.
   Then $\text{num}(\beta_{1[w_{2t-1}]}) > 0$, so true $\beta_{1[w_{2t-1}]} > 0$, in line with limited commitment. Then $\text{num}(\widehat{\beta}_{1[w_{2t-1}]}) > \text{num}(\beta_{1[w_{2t-1}]})$; that is, measurement error preserves the sign of the numerator and increases its magnitude. However, measurement error inflates the denominator D_2 by much more (see footnote 14), so measurement error overall biases the estimate downwards towards zero (null bargaining effects, full commitment).

2. Let $C(\Delta h_{1t}, \omega_{2t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) \leq 0$.
   Then $\text{num}(\beta_{1[w_{2t-1}]}) \leq 0$, so $\beta_{1[w_{2t-1}]} \leq 0$, inconsistent with limited commitment. The question is then whether measurement error biases $\widehat{\beta}_{1[w_{2t-1}]}$ towards positive values, making it artificially consistent with limited commitment. Clearly not as $\text{num}(\widehat{\beta}_{1[w_{2t-1}]}) \leq \text{num}(\beta_{1[w_{2t-1}]})$ in this case, so $\widehat{\beta}_{1[w_{2t-1}]}$ remains inconsistent with bargaining.

3. Let $C(\Delta h_{1t}, \omega_{2t}) > 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) \leq 0$.

   (a) Let $\beta_{1[w_{2t-1}]} > 0$, as in limited commitment. Depending on the sign of $C(\Delta h_{1t}, \omega_{2t}) + 2C(\Delta h_{1t}, \omega_{2t-1})$, measurement error could bias the numerator towards zero (full commitment) or upwards ($\widehat{\beta}_{1[w_{2t-1}]}$ remains in line with limited commitment).

   (b) Let $\beta_{1[w_{2t-1}]} \leq 0$, incompatible with limited commitment. In this case $|C(\Delta h_{1t}, \omega_{2t})| << |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures $\text{num}(\beta_{1[w_{2t-1}]}) \leq 0$. Measurement error implies $\text{num}(\widehat{\beta}_{1[w_{2t-1}]}) < \text{num}(\beta_{1[w_{2t-1}]})$, so $\widehat{\beta}_{1[w_{2t-1}]}$ remains inconsistent with bargaining.

4. Let $C(\Delta h_{1t}, \omega_{2t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{2t-1}) > 0$.

   (a) Let $\beta_{1[w_{2t-1}]} > 0$, in line with limited commitment. In this case $|C(\Delta h_{1t}, \omega_{2t})| << |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures $\text{num}(\beta_{1[w_{2t-1}]}) > 0$. Measurement error implies $\text{num}(\widehat{\beta}_{1[w_{2t-1}]}) > \text{num}(\beta_{1[w_{2t-1}]})$, so $\widehat{\beta}_{1[w_{2t-1}]}$ remains consistent with bargaining.

   (b) Let $\beta_{1[w_{2t-1}]} \leq 0$, incompatible with limited commitment. In this case $|C(\Delta h_{1t}, \omega_{2t})| \geq |C(\Delta h_{1t}, \omega_{2t-1})|$, which ensures $\text{num}(\beta_{1[w_{2t}]}) \leq 0$. Depending on the sign of $C(\Delta h_{1t}, \omega_{2t}) + 2C(\Delta h_{1t}, \omega_{2t-1})$, measurement error could bias the numerator downwards ($\widehat{\beta}_{1[w_{2t-1}]}$ remains incompatible with limited commitment) or towards zero (full commitment). It may flip its sign to positive if $|C(\Delta h_{1t}, \omega_{2t})| << |C(\Delta h_{1t}, \omega_{2t-1})|$; however, this is a contradiction as $\beta_{1[w_{2t-1}]}$ would be positive in such case.

In brief: as in the case of $\widehat{\beta}_{1[w_{2t}]}$, in no case does measurement error erroneously move $\widehat{\beta}_{1[w_{2t-1}]}$ towards positive values (limited commitment) when the true $\beta_{1[w_{2t-1}]}$ is incompatible with bargaining. Any evidence for limited commitment through $\widehat{\beta}_{1[w_{2t-1}]}$, as we find in practice, is thus not the byproduct of measurement error.

Coefficient on own past wage. The numerator of $\widehat{\beta}_{1[w_{1t-1}]}$ is given by $\text{num}(\widehat{\beta}_{1[w_{1t-1}]}) = \text{num}(\beta_{1[w_{1t-1}]}) + \sigma^2_{e^{w_1}}(C(\Delta h_{1t}, \omega_{1t}) + 2C(\Delta h_{1t}, \omega_{1t-1})) + \sigma^2_{e^{h_1}}(V(\omega_{1t}) + 2C(\omega_{1t}, \omega_{1t-1}))$, where $\text{num}(\beta_{1[w_{1t-1}]})$ is shown in (F.1). The second bracketed term is positive – under e.g. a permanent-transitory process for ω_{1t}, this term is equal to the variance of the permanent wage shock. By contrast, the first bracketed term may be positive or negative depending on the signs of $C(\Delta h_{1t}, \omega_{1t})$ and $C(\Delta h_{1t}, \omega_{1t-1})$, for which we distinguish four cases:

1. Let $C(\Delta h_{1t}, \omega_{1t}) > 0$ and $C(\Delta h_{1t}, \omega_{1t-1}) > 0$.
   Then $\text{num}(\beta_{1[w_{1t-1}]})$ is positive, and $\beta_{1[w_{1t-1}]} > 0$, contradicting limited commitment. It follows that $\text{num}(\widehat{\beta}_{1[w_{1t-1}]})$ is biased upwards, so measurement error preserves the true sign of the parameter, and the estimate remains inconsistent with limited commitment.

2. Let $C(\Delta h_{1t}, \omega_{1t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{1t-1}) \leq 0$.
   Then $\text{num}(\beta_{1[w_{1t-1}]})$ is negative, so $\beta_{1[w_{1t-1}]} < 0$, in line with limited commitment. Whether $\text{num}(\widehat{\beta}_{1[w_{1t-1}]})$ is biased upwards (towards null bargaining effects; full commitment) or downwards (exaggerating the bargaining effect of past wages in limited commitment) depends on the relative magnitude of the first vs the second (positive) bracketed term, in absolute terms. The overall effect is such that we either erroneously *fail* to reject full/no commitment (upward bias) or correctly reject it in favour of limited commitment. In either case, measurement error does not make us erroneously reject full/no commitment in favour of limited commitment.

3. Let $C(\Delta h_{1t}, \omega_{1t}) > 0$ and $C(\Delta h_{1t}, \omega_{1t-1}) \leq 0$.
   Measurement error may induce upwards or downwards bias, depending on the relative magnitude of the covariances and the relative magnitude of the first vs second bracketed terms in $\text{num}(\widehat{\beta}_{1[w_{1t-1}]})$. Therefore the overall effect is ambiguous.

4. Let $C(\Delta h_{1t}, \omega_{1t}) \leq 0$ and $C(\Delta h_{1t}, \omega_{1t-1}) > 0$: Same as case #3 above.

In brief: in contrast to the coefficients on the partner's wages, the bias induced by measurement error on $\widehat{\beta}_{1[w_{1t-1}]}$ cannot always be signed.

A note on the coefficient on own current wage. While $\beta_{1[w_{1t}]}$ is not part of our test for commitment (see section 4.3), it is interesting to note that $\text{num}(\widehat{\beta}_{1[w_{1t}]}) = \text{num}(\beta_{1[w_{1t}]}) + \sigma^2_{e^{w_1}}(2C(\Delta h_{1t}, \omega_{1t}) + C(\Delta h_{1t}, \omega_{1t-1})) - \sigma^2_{e^{h_1}}(2V(\omega_{1t-1}) + C(\omega_{1t}, \omega_{1t-1})) - 3\sigma^2_{e^{w_1}}\sigma^2_{e^{h_1}}$, with $\text{num}(\beta_{1[w_{1t}]})$ shown in (F.1). For reasonable values of the hours/wage moments, $\text{num}(\widehat{\beta}_{1[w_{1t}]})$ is biased downwards and becomes negative if the variance of measurement error is large. $\widehat{\beta}_{1[w_{1t}]}$ is thus downwards biased, or even negative as we often estimate in the data, due to the negative correlation between error in concurrent hours and wages. This may also help explain the large values for $\widehat{\eta^{w_j}_{j0}}$ (which underlies $\widehat{\beta}_{1[w_{1t}]}$) that we find throughout the paper.

Correlation between error in spousal wages. The characterisation so far assumes uncorrelated errors in spousal wages. If error in male and female wages is positively correlated (as is often implied given that wage shocks typically covary positively between spouses; Blundell *et al.*, 2016), the effects of concurrent spousal wages on labour supply are biased towards having similar signs. Limited commitment requires *asymmetric* effects from the time $t-1$ spousal wages on one's labour supply, as we often find in the empirical application, so measurement error dampens this asymmetry, i.e. it operates against limited commitment.

Summary. Measurement error in wages and hours inflates the denominators in (F.1), pushing all parameters towards zero (null bargaining effects, full commitment). This is a classical consequence of measurement error. In the numerators, measurement error either preserves the true sign of the coefficients on the *partner*'s wages, or it further biases them towards zero (full commitment). By contrast, measurement error can induce arbitrary bias on the coefficients on *own* past wages, potentially erroneously flipping their true sign.

With measurement error, the test for commitment should rely primarily on the coefficients on the *partner's* wage shocks. The results in the paper reveal that the cross-effects from the *partner*'s current and past shocks are strongly in line with limited commitment. Any evidence for limited commitment through those parameters is not the byproduct of measurement

error as in no case does measurement error erroneously flip their sign making them falsely consistent with limited commitment. Conducting the commitment test utilizing only those latter parameters (as opposed to also including the parameters pertaining to own shocks), we still strongly reject full and no commitment in favour of limited commitment.[15]

G Discussion and extensions

Home production. Suppose that, as in Lise and Yamada (2019), the public good q_t is produced domestically via the home production function $q_t = f(x_t, d_{1t}, d_{2t})$, where x_t is money expenditure and d_{kt} is spouse k's housework time. We show in appendix B that the estimating equation for hours is analogous to the baseline (10), namely

$$\begin{aligned}\Delta \log h_{jt} = \quad \ldots \quad & - \widetilde{\delta}_{jt}\widetilde{\zeta}_j f_x x_{t-1} h_{jt-1}^{-1} \Delta \log x_t \\ & - \textstyle\sum_k \widetilde{\delta}_{jt} \left(\widetilde{\zeta}_j f_{d_k} - \mathbf{1}[j=k] \widetilde{\alpha}_j^{-1} \right) d_{kt-1} h_{jt-1}^{-1} \Delta \log d_{kt},\end{aligned} \tag{G.1}$$

with the additive terms for money expenditure and the spouses' housework times replacing the term for q_t. Slightly redefined compared to the baseline, $\widetilde{\delta}_{jt} > 0$ is given by one over $\kappa_t s_{jt-1} h_{jt-1}^{-1} - \widetilde{\alpha}_j^{-1}$, where $\widetilde{\alpha}_j < 0$ is approximately equal to j's Frisch elasticity of leisure scaled by his/her leisure hours. f_x and f_{d_k} denote the marginal productivities of money and time, $\widetilde{\zeta}_j$ reflects the nature of the consumption-leisure complementarity, and $\mathbf{1}$ is the indicator function. In essence, after controlling for shifts in expenditure and spousal chores, in addition to our controls for income, wealth, etc., any effect on hours of current and past distribution factors, including wages, operate exclusively through the Pareto weight. The exclusion restrictions on current and past distribution factors thus remain intact and our test retains its original form.

We re-estimate all specifications allowing for home production and report results in appendix table G1.[16] Our main finding remains: own past wage shocks reduce labour supply while the partner's current and past shocks increase it, in line with limited commitment.

In obtaining the augmented equation in (G.1), we put no restrictions on the spouses' relative productivities at home or on how strongly each of them likes the domestic good (captured by $\widetilde{\zeta}_j$) relative to leisure (captured by $\widetilde{\alpha}_j$). Chores will shift with wages/distribution factors reflecting preferences, productivities, and bargaining – as such, additional predictions arise about the relationship between chores and wage/distribution factor histories. Unlike

[15] Testing in this way, the average p value for $\mathcal{H}_0^{\text{FC}}$ ($\mathcal{H}_0^{\text{NC}}$) is 0.002 (0.003) over the columns of table 1.

[16] We report results from the reduced form specification only; results from the other specifications lead to similar conclusions but we do not show them for brevity. Statistical significance is lower than in baseline because we estimate a more flexible model over a smaller sample (we do not observe housework for everyone).

labour hours, however, we cannot sign these predictions without restricting the sign of $\widetilde{\zeta}_j$ and its magnitude relative to $\widetilde{\alpha}_j$. By using labour supply as outcome variable, our test maintains a level of generality that the use of chores cannot afford: by controlling for income, wealth, expenditure, and chores, all of which would otherwise adjust to the economic environment in a complicated way, we can sign the relationship between hours and the Pareto weight (and the variables therein), based solely on our regularity conditions on period utility.

Private leisure. The regularity conditions on period utility follow in fact from our implicit assumption that labour supply and leisure are negatively related. This allows us to sign the bargaining effects of wages/distribution factors on hours and implement our test empirically using readily available data on labour supply. Any true improvement in bargaining power, however, must be accompanied by an increase in own leisure and a simultaneous decrease in the partner's. While the characterisation of the effects on leisure is straightforward, their implementation is not, because leisure is not observed in our data.

We take an indirect route to define leisure as total hours minus labour supply, commuting, and chores.[17] We run the reduced form and structural specifications of our test using leisure as the outcome variable and report results in tables G2-G3. Own past shocks *increase* leisure while the partner's past shocks *reduce* it, in line with limited commitment. We reject full and no commitment based on female leisure, but we fail to reject no commitment using male leisure as our estimates there lack statistical significance. Yet, any effect of past shock that *is* significant has the sign that limited commitment requires. *Current* partner shocks, by contrast, often produce counterintuitive results (such shocks seem to increase own leisure although they should reduce it), though those results may partly reflect omitted *joint* leisure.

Private consumption, joint leisure. Extensions to private consumption (Lise and Yamada, 2019) and joint leisure (Cosaert *et al.*, 2023) are straightforward: the estimating equation includes terms for own private consumption and joint leisure, but it is otherwise similar to the baseline. The commitment test thus retains its original form based on the (current and past values of the) variables that enter the Pareto weight.

As an illustration, appendix B derives the estimating equation for hours when individual preferences are given by $u_j(q_t, c_{jt}, h_{jt}; \boldsymbol{\xi}_{jt})$, where c_{jt} is spouse j's private consumption. The estimating equation is then given by

$$\Delta \log h_{jt} = \quad \ldots \quad - \delta_{jt} \iota_j c_{jt-1} h_{jt-1}^{-1} \Delta \log c_{jt},$$

[17] We set leisure $l_{jt} = 5840 - h_{jt} - m_{jt} - d_{jt}$, where 5840 is total annual time based on 16 productive hours per day. Commuting m_{jt} is not observed before 2011, so we set $m_{jt} = 0.1 \times h_{jt}$ reflecting the average commuting time in the PSID whenever we observe it.

Table G1: *Commitment Test – Reduced Form Results from Model with Home Production*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Current shocks (t)											
$\beta_{j[w_{jt}]}$	.	.	.	−25.549	−11.152	−30.775	−12.895	−30.152	−11.763	−61.977	−6.541
				(10.023)	(5.021)	(19.661)	(12.542)	(7.169)	(5.008)	(20.434)	(11.797)
$\beta_{j[w_{-jt}]}$	0	+	+	56.635	−14.447	39.899	−22.833	54.620	−10.944	57.254	−16.832
				(31.405)	(10.707)	(31.646)	(19.293)	(23.810)	(10.689)	(34.128)	(19.705)
$\beta_{j[bmi_{jt}]}$	0	+	+					−67.533	70.908	114.434	197.030
								(244.464)	(58.790)	(245.185)	(84.167)
$\beta_{j[bmi_{-jt}]}$	0	−	−					461.408	11.030	480.751	−57.693
								(171.107)	(66.830)	(190.153)	(103.215)
Past shocks $(t-1)$											
$\beta_{j[w_{jt-1}]}$	0	0	−	−7.427	−2.800	−9.589	−2.917	5.743	−3.573	6.232	−0.214
				(6.937)	(3.642)	(11.364)	(9.693)	(7.922)	(4.404)	(12.667)	(13.724)
$\beta_{j[w_{-jt-1}]}$	0	0	+	31.111	4.650	33.291	−14.557	43.115	6.801	52.354	−20.876
				(21.521)	(12.139)	(35.108)	(18.498)	(18.871)	(11.788)	(32.750)	(18.765)
$\beta_{j[bmi_{jt-1}]}$	0	0	+					165.042	120.685	8.008	201.795
								(217.238)	(54.733)	(233.759)	(111.799)
$\beta_{j[bmi_{-jt-1}]}$	0	0	−					−217.787	22.307	−299.162	12.967
								(106.018)	(61.415)	(146.144)	(94.813)
Older shocks $(t-2)$											
$\beta_{j[w_{jt-2}]}$	0	0	−			−26.658	−6.506			−56.900	4.310
						(16.885)	(7.124)			(18.159)	(8.107)
$\beta_{j[w_{-jt-2}]}$	0	0	+			0.310	14.647			33.901	14.740
						(30.527)	(18.766)			(33.748)	(19.389)
$\beta_{j[bmi_{jt-2}]}$	0	0	+							−506.887	147.853
										(265.048)	(103.282)
$\beta_{j[bmi_{-jt-2}]}$	0	0	−							−244.176	42.594
										(84.383)	(87.121)

Table G1 (continued): *Commitment Test – Reduced Form Results from Model with Home Production*

				wage shocks				**wage shocks & BMI**			
				≥ 3 periods		≥ 4 periods		≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Male	Female	Male	Female	Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$	$j=1$	$j=2$
Initial distribution factors ($t=0$)											
$\beta_{j[young_j]}$	0	0	−	−49.788	−28.257	−95.829	−65.286	−59.983	−26.883	−126.686	−60.522
				(32.410)	(9.332)	(37.009)	(14.616)	(33.217)	(10.036)	(39.893)	(17.209)
$\beta_{j[young_{-j}]}$	0	0	+	−64.736	11.741	−120.887	10.585	−44.975	8.848	−97.870	−0.621
				(37.702)	(5.023)	(39.494)	(11.562)	(33.140)	(5.924)	(38.654)	(14.652)
Other controls											
$b_{j[\Delta y_t]}$				310.452	113.351	310.220	192.609	346.924	113.656	429.084	232.623
				(47.264)	(45.884)	(49.267)	(54.192)	(43.983)	(45.847)	(53.484)	(50.342)
$b_{j[\Delta a_t]}$				5.151	−9.304	−2.575	−3.966	4.384	−7.786	−31.149	−0.976
				(12.928)	(4.393)	(15.728)	(6.417)	(12.234)	(4.980)	(15.617)	(7.270)
$b_{j[y_{t-1}]}$				23.440	5.443	33.936	9.473	23.362	1.449	48.163	6.718
				(7.386)	(3.273)	(8.768)	(7.075)	(6.684)	(3.750)	(9.293)	(6.280)
$b_{j[a_{t-1}]}$				−24.879	−5.510	−33.031	−9.323	−25.429	−2.144	−46.819	−7.319
				(7.487)	(2.920)	(8.513)	(6.053)	(6.529)	(3.324)	(8.666)	(5.540)
$b_{j[\Delta y_{-jt}]}$				−300.183	−86.503	−267.806	−161.406	−314.290	−90.450	−339.960	−207.910
				(67.033)	(39.956)	(63.662)	(45.959)	(53.737)	(40.753)	(62.721)	(43.294)
$b_{j[\Delta x_t]}$				0.001	−0.000	0.001	0.000	0.001	−0.000	0.001	0.000
				(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
$b_{j[\Delta d_{jt}]}$				−0.278	0.320	−0.207	0.963	−0.099	0.182	−1.528	0.952
				(0.939)	(0.167)	(1.171)	(0.473)	(0.924)	(0.171)	(1.303)	(0.568)
$b_{j[\Delta d_{-jt}]}$				0.474	0.439	−0.185	−0.341	1.287	0.525	1.420	0.429
				(0.889)	(0.642)	(1.142)	(1.259)	(1.035)	(0.697)	(1.269)	(1.243)
$b_{j[\Delta a_{t-1}]}$				−6.867	−7.170	−5.028	−1.096	−10.163	−5.008	−13.208	0.214
				(3.933)	(2.085)	(5.664)	(3.917)	(4.078)	(2.399)	(5.893)	(4.318)
$b_{j[\Delta a_{t-2}]}$						−3.949	2.850			−3.159	3.804
						(4.073)	(2.286)			(4.030)	(2.932)
p value for $\mathcal{H}_0^{\text{FC}}$				0.028	0.001	0.002	0.000	0.000	0.005	0.000	0.000
p value for $\mathcal{H}_0^{\text{NC}}$				0.055	0.002	0.005	0.000	0.004	0.004	0.000	0.000
Observations				7,673		5,461		6,862		4,785	

Notes: The table reports the coefficient estimates from the reduced form (first) specification of the commitment test with wages (columns 1-4) and wages and BMI (columns 5-8) as time-varying distribution factors. Standard errors clustered at the household level are in brackets.

Table G2: *Commitment Test based on Leisure – Reduced Form Results*

				wage shocks			
				≥ 3 periods		≥ 4 periods	
Dependent variable:				(1) Male	(2) Female	(3) Male	(4) Female
$\Delta \log l_{jt}$	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$
Current shocks (t)							
$\beta_{j[w_{jt}]}$	.	.	.	459.178	569.196	592.072	599.834
				(72.891)	(33.432)	(94.998)	(36.953)
$\beta_{j[w_{-jt}]}$	0	−	−	46.103	96.173	39.169	72.344
				(34.099)	(24.157)	(30.023)	(30.430)
Past shocks $(t-1)$							
$\beta_{j[w_{jt-1}]}$	0	0	+	35.242	91.268	−10.409	72.237
				(40.048)	(20.035)	(45.968)	(26.648)
$\beta_{j[w_{-jt-1}]}$	0	0	−	−22.435	−24.545	−6.118	−84.716
				(24.346)	(16.485)	(29.420)	(22.299)
Older shocks $(t-2)$							
$\beta_{j[w_{jt-2}]}$	0	0	+			−22.233	19.368
						(29.324)	(20.637)
$\beta_{j[w_{-jt-2}]}$	0	0	−			0.996	−59.648
						(29.428)	(17.649)
Initial distribution factors $(t=0)$							
$\beta_{j[young_j]}$	0	0	+	−13.108	29.098	−79.712	22.037
				(52.345)	(21.910)	(65.734)	(24.147)
$\beta_{j[young_{-j}]}$	0	0	−	−5.751	31.320	−24.987	−20.103
				(26.747)	(26.097)	(24.430)	(30.514)
Other controls							
$b_{j[\Delta y_t]}$				−729.919	−806.207	−1087.301	−1098.749
				(135.413)	(78.293)	(118.935)	(81.506)
$b_{j[\Delta a_t]}$				−8.522	39.493	1.672	28.742
				(14.501)	(10.007)	(14.792)	(10.076)
$b_{j[y_{t-1}]}$				−3.398	−28.430	18.362	−19.162
				(18.312)	(8.337)	(10.405)	(9.901)
$b_{j[a_{t-1}]}$				1.710	24.813	−18.205	18.728
				(17.396)	(7.768)	(9.981)	(9.185)
$b_{j[\Delta y_{-jt}]}$				452.830	546.818	692.852	791.918
				(97.529)	(69.182)	(94.012)	(79.334)
$b_{j[\Delta q_t]}$				−0.001	−0.001	0.000	0.000
				(0.001)	(0.000)	(0.001)	(0.000)
$b_{j[\Delta a_{t-1}]}$				0.105	−4.320	15.964	12.856
				(6.650)	(6.121)	(4.175)	(4.370)
$b_{j[\Delta a_{t-2}]}$						7.785	2.907
						(2.912)	(2.901)
p value for $\mathcal{H}_0^{\text{FC}}$				0.589	0.000	0.121	0.000
p value for $\mathcal{H}_0^{\text{NC}}$				0.734	0.000	0.579	0.001
Observations				8,411		5,960	

Notes: The table reports the coefficient estimates from the reduced form (first) specification of the commitment test with wages as time-varying distribution factors, using leisure as the outcome variable. Leisure l_{jt} is defined as 5840 hours (total annual time based on 16 productive hours per day), minus labour supply, chores, and commuting. The sample sizes are smaller than in table 1 because we remove observations with negative leisure. Standard errors clustered at the household level are in brackets.

Table G3: *Commitment Test based on Leisure – Structural Results*

				wage shocks			
				≥ 3 periods		≥ 4 periods	
Dependent variable:				(1) Male	(2) Female	(3) Male	(4) Female
$\Delta \log l_{jt}$	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$
Pareto weight elasticities w.r.t current factors ($\tau=0$)							
$\eta_{j0}^{w_j}$	0	+	+	1.070	1.113	1.047	1.060
				(0.028)	(0.022)	(0.020)	(0.012)
$\eta_{j0}^{w_{-j}}$	0	−	−	0.014	0.029	0.009	0.015
				(0.015)	(0.009)	(0.008)	(0.007)
Pareto weight elasticities w.r.t factors 1 period in the past ($\tau=1$)							
$\eta_{j1}^{w_j}$	0	0	+	−0.002	0.026	−0.014	0.012
				(0.011)	(0.008)	(0.012)	(0.007)
$\eta_{j1}^{w_{-j}}$	0	0	−	−0.007	−0.006	−0.003	−0.017
				(0.009)	(0.005)	(0.006)	(0.005)
Pareto weight elasticities w.r.t factors 2 periods in the past ($\tau=2$)							
$\eta_{j2}^{w_j}$	0	0	+			−0.009	0.002
						(0.008)	(0.004)
$\eta_{j2}^{w_{-j}}$	0	0	−			−0.004	−0.012
						(0.008)	(0.004)
Pareto weight elasticities w.r.t initial distribution factors							
$\eta_{jt}^{young_j}$	0	0	+	−0.005	0.009	−0.023	0.005
				(0.020)	(0.008)	(0.018)	(0.005)
$\eta_{jt}^{young_{-j}}$	0	0	−	−0.002	0.008	−0.007	−0.007
				(0.009)	(0.009)	(0.006)	(0.007)
Frisch elasticity $\alpha_j/\mathbb{E}(l_{jt-1})^{\#}$				−0.960	−1.046	−1.372	−1.547
				(0.210)	(0.138)	(0.197)	(0.165)
Other terms							
$\ell_{\Delta y}$				0.285	0.270	0.288	0.256
				(0.044)	(0.017)	(0.031)	(0.014)
$\ell_{\Delta a} - \eta_{j0}^{a}$				0.001	−0.011	−0.000	−0.005
				(0.005)	(0.004)	(0.004)	(0.002)
ℓ_y				0.004	0.008	−0.004	0.004
				(0.006)	(0.003)	(0.003)	(0.002)
ℓ_a				−0.004	−0.007	0.004	−0.004
				(0.006)	(0.003)	(0.003)	(0.002)
ζ_j ##				−0.002	−0.002	0.000	0.001
				(0.002)	(0.002)	(0.002)	(0.001)
η_{j1}^{a}				−0.001	0.001	−0.004	−0.003
				(0.002)	(0.002)	(0.001)	(0.001)
η_{j2}^{a}						−0.002	−0.001
						(0.001)	(0.001)
p value for $\mathcal{H}_0^{\text{FC}}$				0.000	0.000	0.000	0.000
p value for $\mathcal{H}_0^{\text{NC}}$				0.937	0.024	0.331	0.014
Observations				8,411		5,960	

Notes: The table reports the parameter estimates from the structural (second) specification of the commitment test with wages as time-varying distribution factors, using leisure as the outcome variable. See notes in table G2. #We report the Frisch elasticity of leisure at the sample average of leisure hours; its standard error is calculated with the delta method. ##We multiply ζ_j by 10^4 for legibility.

which is analogous to the baseline (10) up to an additive term for the growth in own private consumption $\Delta \log c_{jt}$. ι_j denotes the nature of the complementarity between hours and private consumption. What is important is that, conditional on private and joint consumption, income, wealth etc., any remaining effects from current and past distribution factors operate *exclusively* through the Pareto weight. This is true without restricting how preferences over private versus public consumption compare between spouses, exactly as we did not restrict how preferences over leisure/joint consumption compared between spouses in the baseline. The case of joint leisure is similar. In addition, private consumption may be used as an additional outcome variable, thus offering additional predictions for the role of current and historical shocks. We do not take these features to the data because the PSID lacks the necessary information on private expenditures or joint leisure.

Endogenous human capital. Suppose that, as in Eckstein and Wolpin (1989), wages depend on human capital that accumulates endogenously over time. Specifically, let individual hourly wages (abstracting from a deterministic profile) be given by $w_{jt} = v_{jt}e_{jt}$, where v_{jt} reflects a stochastic productivity component and e_{jt} indicates spouse j's human capital. We think of e_{jt} as a type of work experience, e.g. the cumulative number of hours one has spent working up to time t, though its definition can be broadened. Human capital accumulates endogenously through the labour supply choices the individual makes. We express this as

$$e_{jt+1} = f_j(e_{jt}, h_{jt}),$$

where f_j loads current human capital (perhaps after some depreciation) and labour supply onto future human capital; we assume the partial derivative of f_j with respect to each of its arguments to be weakly positive. The linear law of motion for e_{jt+1} that is popular in the literature is a special case of this.

Endogenous human capital affects the couple's problem through the budget constraint and by changing the dynamic incentives of work in the present versus the future. Under limited commitment, individual human capital also affects the continuation value as single. Therefore, e_{jt} is an endogenous state variable that affects both the inside value in marriage and the outside value upon divorce. Moreover, and unlike financial wealth, human capital is in principle not directly transferable between spouses.

We show in appendix B that, in this case, the estimating equation for hours at t is similar to the baseline (10) up to two additive terms for the growth in individual human capital between $t-1$ and t and for its level at $t-1$. These terms capture the growth in the unobserved multiplier on j's human capital law of motion, which enters the household

program as a standalone constraint. What is important is that the coefficient on the Pareto weight remains signed, which allows us to test for commitment in the exact same way as in the baseline. That is, if we control for human capital similarly to how we control for assets, the test retains its original form based on the current and historical values of the variables that enter the Pareto weight. In the case of wages, the relevant distribution factor is the shock to the *exogenous* part of wages, namely to v_{jt} in the above notation.

We estimate the reduced form specification of the test accounting for endogenous human capital. We do not fully observe individuals' work history in the PSID, let alone other forms of human capital, so we resort to defining human capital (in years) as age minus years of education minus 6. We report the results in table G4.

Own past shocks from $t-1$ and $t-2$ consistently reduce own labour supply in the future. The effects from the partner's shocks are mixed but mostly non-different from zero. Statistical significance is lower than in the baseline (the model is more flexible), but any coefficient that *is* significant has the sign that limited commitment postulates. Consequently, we reject both full and no commitment. Results for the structural specification are similar but we do not show them in the interest of brevity.

Labour market participation. An extension to the extensive margin of labour supply is straightforward; see Blundell *et al.* (2007) and Voena (2015). We do not model it here because our estimating equations rely on the log-linearisation of the agents' marginal utility, which is not possible with discrete outcomes. We would have to resort to a numerical solution to a fully specified model, subject to the limitation of parameterizing preferences and expectations, thus conducting a joint test of commitment *and* the specification used.

The exclusion restrictions of distribution factors are, however, unrelated to the log-linearisation. Consequently, our test based on the role of current and past shocks remains conceptually intact by the lack of extensive margin. Empirically, our results are sensitive to this choice only to the extent that those *not* participating operate in a different commitment mode than the rest. While full commitment facilitates specialisation (so those not working may operate in full commitment), it is hard to believe that this would meaningfully change our results in light of the high participation rates (among couples who meet all our other selection criteria, 91.6% of men and 80.1% of women work for pay).

Stochastic process for wages. We have conducted the characterisation of behaviour and proposed a test for commitment based (mostly) on shocks to individual hourly wages, without taking a stance on the process governing those shocks. This is because, as we argue below, the test does not require us to take a stance on the stochastic process for ω_{jt}. There

Table G4: *Commitment Test with Endogenous Human Capital – Reduced Form Results*

				wage shocks			
				≥ 3 periods		≥ 4 periods	
	FC	NC	LC	(1) Male $j=1$	(2) Female $j=2$	(3) Male $j=1$	(4) Female $j=2$
Current shocks (t)							
$\beta_{j[w_{jt}]}$	.	.	.	−24.419	−10.167	−25.316	−20.853
				(11.964)	(3.677)	(24.684)	(13.279)
$\beta_{j[w_{-jt}]}$	0	+	+	35.257	0.483	−22.749	−0.129
				(27.717)	(6.467)	(29.808)	(20.705)
Past shocks $(t-1)$							
$\beta_{j[w_{jt-1}]}$	0	0	−	−12.167	−6.270	−0.329	−12.100
				(6.543)	(3.477)	(10.800)	(11.227)
$\beta_{j[w_{-jt-1}]}$	0	0	+	42.610	7.310	7.678	−5.619
				(23.131)	(5.881)	(33.231)	(19.064)
Older shocks $(t-2)$							
$\beta_{j[w_{jt-2}]}$	0	0	−			−37.894	−16.565
						(19.728)	(8.625)
$\beta_{j[w_{-jt-2}]}$	0	0	+			−17.231	17.156
						(27.125)	(14.508)
Initial distribution factors $(t=0)$							
$\beta_{j[young_j]}$	0	0	−	−20.543	−13.395	−68.994	−45.443
				(26.756)	(6.566)	(31.762)	(12.657)
$\beta_{j[young_{-j}]}$	0	0	+	−85.861	6.523	−109.423	16.438
				(29.068)	(5.469)	(41.651)	(11.041)
Other controls							
$b_{j[\Delta y_t]}$				289.839	114.454	411.689	234.134
				(37.516)	(45.863)	(56.714)	(51.533)
$b_{j[\Delta a_t]}$				2.323	−4.338	9.911	2.311
				(13.248)	(3.252)	(15.406)	(5.304)
$b_{j[y_{t-1}]}$				66.091	10.792	97.551	22.962
				(12.527)	(5.575)	(20.762)	(11.452)
$b_{j[a_{t-1}]}$				−35.506	−2.091	−17.629	−5.973
				(10.626)	(2.573)	(12.542)	(5.148)
$b_{j[\Delta y_{-jt}]}$				−181.052	−107.510	−266.163	−201.590
				(42.416)	(44.870)	(59.545)	(42.696)
$b_{j[\Delta q_t]}$				0.000	−0.000	0.001	0.000
				(0.001)	(0.000)	(0.001)	(0.000)
$b_{j[\Delta a_{t-1}]}$				2.965	−3.125	6.118	0.907
				(4.059)	(1.799)	(4.715)	(3.302)
$b_{j[\Delta a_{t-2}]}$						−1.644	−0.044
						(4.717)	(2.271)
$b_{j[\Delta e_{jt}]}$				−1329.544	−151.080	−2996.015	−429.334
				(327.759)	(94.107)	(622.340)	(189.228)
$b_{j[e_{jt-1}]}$				−76.846	−31.467	−211.880	−55.622
				(38.857)	(18.804)	(46.915)	(25.279)
p value for $\mathcal{H}_0^{\text{FC}}$				0.000	0.018	0.049	0.013
p value for $\mathcal{H}_0^{\text{NC}}$				0.001	0.009	0.030	0.008
Observations				8,513	8,505	6,028	6,028

Notes: The table reports estimates from the reduced form (first) specification of the test with wages as distribution factors, accounting for endogenous human capital. $b_{j[\Delta e_{jt}]}$ is the coefficient on $\Delta \log e_{jt}$ and $b_{j[e_{jt-1}]}$ is the coefficient on $\log e_{jt-1}$. The sample sizes are smaller than in table 1 because we remove a few women with negative human capital. Standard errors clustered at the household level are in brackets.

are two somewhat related issues that require discussion in this regard.

The first issue concerns the fact that ω_{jt} may have distinct permanent and transitory components. Unless directly observed, it is impossible to separate the two without imposing some structure. Empirically, our results depend on the extent to which wage shocks truly induce bargaining under no/limited commitment, which may be debatable for transitory or small permanent shocks. As ω_{jt} may partly reflect such 'unimportant' shocks, the test may *fail* to reject full/no commitment, even if limited commitment is the true underlying mode. In practice, we strongly reject full and no commitment despite any 'unimportant' transitory components. This suggests that the rejection would have been even stronger if we had isolated the 'important' persistent/large shocks underlying ω_{jt}.

A second issue is that wages may be correlated over time, reflecting persistence, path dependence, or mean reversion. It is hard to discipline these dynamics without specifying a stochastic process for ω_{jt}. The important question, however, is to what extent such dynamics affect our test. To put differently, if past wages affect future wages, we must make sure that our test correctly picks up bargaining/commitment, rather than these wage dynamics.

Assuming joint taxation and taste observables away, the first-order condition for hours is given by $-\mu_{jt}u_{j[h]}(q_t, h_{jt}) = \lambda_t w_{jt}$ (appendix B). This condition is derived for *any* process underlying w_{jt} (endogenous wages being an exception; see human capital above); it fully characterises optimal behaviour and forms the basis for our estimating equations in the paper. Past wages may affect behaviour through three channels: the Pareto weight μ_{jt} (bargaining; our main point), the current wage w_{jt} (wage persistence), and the marginal utility of wealth λ_t (wealth effects and expectations about future wages). To interpret any effects from past wages as bargaining effects through μ_{jt}, we must control for w_{jt} and λ_t – which we clearly do in (10). In other words, as long as we control for w_{jt} and λ_t, the past plays no other role in the optimality condition for hours, except through μ_{jt}. Clearly the way we control for the unobserved λ_t (polynomial in assets and income – see section 5.3) may be open to debate, but we tried multiple richer specifications (higher-order polynomials, controls for wealth and income in additional time periods) and our results have not been sensitive.

Nonlinear wage effects. A related issue concerns the possibility of nonlinear effects from wages on hours, through bargaining or other channels. The idea is that large wage shocks may induce large shifts in bargaining and/or in wealth, while smaller shocks may leave the Pareto weight and the budget set unchanged. This introduces bias: even if limited commitment is the true underlying mode, our test may *fail* to reject full/no commitment when ω_{jt} consists of small shocks that leave the Pareto weight mostly intact. While, in practice, we strongly reject

full and no commitment despite the presence of any 'unimportant' small shocks underlying ω_{jt}, we also take an alternative route to explicitly allow for nonlinear wage effects.

Assuming joint taxation and taste observables away, the first-order condition for hours after a first difference in logs is given by $\Delta \log \mu_{jt} + \Delta \log(-u_{j[h]}(q_t, h_{jt})) = \Delta \log \lambda_t + \Delta \log w_{jt}$. This equation holds *exactly*, and wage growth $\Delta \log w_{jt}$ enters it *linearly*. However, shocks may enter the Pareto weight μ_{jt} nonlinearly and hours may relate nonlinearly to the marginal utility $u_{j[h]}$. We have carried out log-linear approximations to μ_{jt} and $-u_{j[h]}$, and it is precisely these linearisations that give rise to the bias we mentioned above.

We maintain the log-linear approximation to $-u_{j[h]}$ (the estimating equation is otherwise not in closed-form for hours) but we carry out a *second*-order Taylor approximation to $\log \mu_{jt}$. This is a straightforward generalisation of the approximations in appendix C. It results in writing $\Delta \log \mu_{jt}$ as a quadratic polynomial in wage shocks and all other distribution factors. The estimating equation for hours is similar to the baseline (10), up to additive terms for the square of current and past wage shocks, the square of current and past distribution factors (e.g. BMI), and all pair-wise interaction terms. Wage shocks in this case do not affect hours uniformly; instead, their effect depends on their size and sign.

We estimate the reduced form specification for hours introducing the squared wage shocks over multiple periods as standalone regressors. We drop the interaction terms to keep things tidy. Table G5 presents the results. Although some squared terms are statistically significant, the linear terms remain mostly unchanged from the baseline. We thus strongly reject full and no commitment.

The parameter estimates are hard to interpret, so table G6 reports the partial effects of wage shocks, $\partial \Delta \log h_{jt} / \partial \omega_{kt-\tau}$ for $j, k \in \{1, 2\}$ and $\tau \in \{0, 1, 2\}$, for different magnitudes and signs of the shocks. In most cases, the partial effects have the sign implied by limited commitment. Moreover, negative shocks are often associated with larger shifts in labour supply than positive shocks of the *same* magnitude (inspect e.g. the effects of own and partner shocks at $t - 2$), which is a recurrent empirical finding in the literature on the pass-through of income shocks into consumption/labour supply.

Costly renegotiation. Kato and Ríos Rull (2023) propose a protocol for repeated bargaining in which changing circumstances shift the agents' outside options, but renegotiation costs prevent the spouses from continuously updating their sharing of resources. Their framework is effectively one of no commitment, albeit with renegotiation costs. Intuitively, if renegotiation entails a cost, some minor renegotiations will not take place (e.g. after some minor shock) and the agents will go on with the previous allocation of resources. Behaviour under no commitment will thus not respond to all contemporaneous information and renegotiations

Table G5: *Commitment Test with Nonlinear Wage Effects – Reduced Form Results*

				wage shocks			
				≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)
				Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$
Current shocks (t)							
$\beta_{j[w_{jt}]}$	.	.	.	−46.574	−36.954	−49.674	−44.847
				(14.179)	(8.250)	(22.150)	(17.840)
$\beta_{j[w^2_{jt}]}$	.	.	.	−18.017	−11.310	−13.032	−15.173
				(8.237)	(3.062)	(15.103)	(4.642)
$\beta_{j[w_{-jt}]}$	0	(+)	(+)	24.700	−10.609	−1.665	−9.495
				(29.470)	(8.003)	(32.952)	(19.723)
$\beta_{j[w^2_{-jt}]}$	0			−21.449	−11.623	−42.064	−7.381
				(13.382)	(4.512)	(17.411)	(10.658)
Past shocks $(t-1)$							
$\beta_{j[w_{jt-1}]}$	0	0	(−)	0.310	−7.225	−1.200	−12.060
				(4.072)	(7.063)	(11.708)	(11.318)
$\beta_{j[w^2_{jt-1}]}$	0	0		−14.393	−2.118	−17.420	−3.432
				(5.048)	(3.846)	(14.144)	(4.538)
$\beta_{j[w_{-jt-1}]}$	0	0	(+)	49.496	11.162	37.794	−4.299
				(22.699)	(7.236)	(35.211)	(14.516)
$\beta_{j[w^2_{-jt-1}]}$	0	0		11.062	−2.815	10.049	19.748
				(10.779)	(2.057)	(20.405)	(8.351)
Older shocks $(t-2)$							
$\beta_{j[w_{jt-2}]}$	0	0	(−)			−27.638	−12.827
						(18.882)	(7.139)
$\beta_{j[w^2_{jt-2}]}$	0	0				2.680	2.570
						(7.837)	(2.451)
$\beta_{j[w_{-jt-2}]}$	0	0	(+)			36.626	48.005
						(30.802)	(18.696)
$\beta_{j[w^2_{-jt-2}]}$	0	0				−32.217	−5.251
						(23.404)	(4.660)

Table G5 (continued): *Commitment Test with Nonlinear Wage Effects – Reduced Form Results*

				wage shocks			
				≥ 3 periods		≥ 4 periods	
				(1)	(2)	(3)	(4)
				Male	Female	Male	Female
	FC	NC	LC	$j=1$	$j=2$	$j=1$	$j=2$
Initial distribution factors $(t=0)$							
$\beta_{j[young_j]}$	0	0	$-$	-69.599	-37.408	-133.636	-44.005
				(27.910)	(9.711)	(36.621)	(12.826)
$\beta_{j[young_{-j}]}$	0	0	$+$	-107.822	10.812	-152.297	18.435
				(31.655)	(6.507)	(40.714)	(9.949)
Other controls							
$b_{j[\Delta y_t]}$				272.385	122.285	336.983	195.537
				(37.924)	(46.312)	(57.365)	(61.871)
$b_{j[\Delta a_t]}$				-2.060	-0.594	-4.220	7.221
				(13.083)	(5.111)	(14.021)	(8.538)
$b_{j[y_{t-1}]}$				34.834	5.598	31.902	2.439
				(9.669)	(3.568)	(9.988)	(7.673)
$b_{j[a_{t-1}]}$				-32.307	-5.392	-27.494	-3.418
				(9.044)	(3.122)	(9.179)	(6.894)
$b_{j[\Delta y_{-jt}]}$				-241.594	-103.130	-311.108	-161.300
				(55.143)	(43.989)	(86.238)	(50.358)
$b_{j[\Delta q_t]}$				0.001	-0.000	0.000	0.000
				(0.001)	(0.000)	(0.001)	(0.000)
$b_{j[\Delta a_{t-1}]}$				2.706	-12.297	-3.987	-10.644
				(12.318)	(3.752)	(14.427)	(8.348)
$b_{j[\Delta a_{t-2}]}$						-4.847	1.086
						(6.356)	(2.718)
$b_{j[(\Delta a_t)^2]}$				2.641	4.290	5.264	7.381
				(3.271)	(2.551)	(3.040)	(2.978)
$b_{j[(\Delta a_{t-1})^2]}$				-0.777	1.056	-0.516	0.643
				(1.231)	(0.431)	(1.486)	(0.797)
$b_{j[(\Delta a_{t-2})^2]}$						0.333	0.461
						(0.597)	(0.242)
p value for $\mathcal{H}_0^{\text{FC}\#}$				0.000	0.000	0.000	0.000
p value for $\mathcal{H}_0^{\text{NC}\#}$				0.000	0.000	0.000	0.000
Observations				8,513		6,028	

Notes: The table reports the coefficient estimates from the reduced form (first) specification of the commitment test with wages as time-varying distribution factors, allowing for nonlinear bargaining effects of wages through a second-order Taylor approximation of the Pareto weight. $\beta_{j[w^2_{kt-\tau}]}$ is the coefficient on $\omega^2_{kt-\tau}$ for $k \in \{1,2\}$ and $\tau = \{0,1,2\}$. The sign of the typical bargaining effects under no/limited commitment appears in brackets because, with nonlinear terms, what matters is the sign of the partial effect $\partial \Delta \log h_{jt} / \partial \omega_{kt-\tau}$ for a given level of the wage shock, which we report in table G6. Standard errors clustered at the household level are in brackets. $^{\#}$We assess the null hypotheses at the average wage shock of zero.

will be infrequent depending on the size of the cost. This appears to imply that behaviour under no commitment may look like behaviour under limited commitment, in which renegotiation is occasional following a binding participation constraint. However, the infrequency in Kato and Ríos Rull (2023) is only driven by the size of the current renegotiation cost rather than by alternative histories that drive it in limited commitment.

Our test does *not* rely on the frequency of renegotiation for distinguishing among the commitment alternatives. Instead, it relies on the *sets of variables* that matter for bargaining in each case. While with renegotiation costs some minor shocks do not shift the allocation of resources, (large) current shocks still matter under no commitment while historical shocks do not. Kato and Ríos Rull (2023) admit this themselves by emphasizing that their protocol is attractive for computational reasons in particular, precisely because it does not require "the carryover of a continuous state variable", namely of history, while enabling infrequent updating as in limited commitment. By contrast, historical shocks still matter under limited commitment, so history can still be used to distinguish between the two regimes even in the presence of renegotiation costs. In other words, costly renegotiation does not alter the role of contemporaneous vis-à-vis historical information for behaviour.

Table G6: *Average Partial Effects of Wage Shocks along the Distribution of Shocks*

				wage cut (negative shock to $\Delta \log w_{k\tau}$)				**wage rise** (positive shock to $\Delta \log w_{k\tau}$)			
				wage shock $\omega =$				wage shock $\omega =$			
	FC	NC	LC	-0.5	-0.25	-0.1	-0.01	0.01	0.1	0.25	0.5
Partial effects of current shocks ($\tau = t$)											
$\partial \Delta \log h_{1t} / \partial \omega_{1t}$	.	.	.	-0.020	-0.024	-0.026	-0.027	-0.027	-0.029	-0.031	-0.035
$\partial \Delta \log h_{2t} / \partial \omega_{2t}$	.	.	.	-0.028	-0.035	-0.040	-0.042	-0.043	-0.045	-0.050	-0.057
$\partial \Delta \log h_{1t} / \partial \omega_{2t}$	0	+	+	0.022	0.011	0.004	-0.000	-0.001	-0.006	-0.012	-0.024
$\partial \Delta \log h_{2t} / \partial \omega_{1t}$	0	+	+	-0.002	-0.005	-0.008	-0.009	-0.009	-0.010	-0.012	-0.016
Partial effects of immediately past shocks ($\tau = t-1$)											
$\partial \Delta \log h_{1t} / \partial \omega_{1t-1}$	0	0	$-$	0.009	0.004	0.001	-0.000	-0.001	-0.003	-0.005	-0.010
$\partial \Delta \log h_{2t} / \partial \omega_{2t-1}$	0	0	$-$	-0.008	-0.010	-0.011	-0.011	-0.011	-0.012	-0.013	-0.015
$\partial \Delta \log h_{1t} / \partial \omega_{2t-1}$	0	0	+	0.015	0.018	0.020	0.021	0.021	0.022	0.024	0.026
$\partial \Delta \log h_{2t} / \partial \omega_{1t-1}$	0	0	+	-0.023	-0.013	-0.008	-0.004	-0.004	-0.000	0.005	0.015
Partial effects of older shocks ($\tau = t-2$)											
$\partial \Delta \log h_{1t} / \partial \omega_{1t-2}$	0	0	$-$	-0.017	-0.016	-0.016	-0.015	-0.015	-0.015	-0.014	-0.014
$\partial \Delta \log h_{2t} / \partial \omega_{2t-2}$	0	0	$-$	-0.015	-0.013	-0.013	-0.012	-0.012	-0.012	-0.011	-0.010
$\partial \Delta \log h_{1t} / \partial \omega_{2t-2}$	0	0	+	0.038	0.029	0.024	0.021	0.020	0.017	0.011	0.002
$\partial \Delta \log h_{2t} / \partial \omega_{1t-2}$	0	0	+	0.050	0.048	0.046	0.045	0.045	0.044	0.043	0.040

Notes: The table reports the partial effects of wage shocks in the specification with nonlinear wage effects across households observed for ≥ 4 periods. The partial effects, evaluated at the sample average of hours, are calculate along the marginal distribution of the corresponding wage shock. The table reports average effects following a 50%, 25%, 10%, and 1% reduction in wages ($\omega = \{-0.5, -0.25, -0.1, -0.01\}$), as well as effects following an 1%, 10%, 25%, and 50% increase ($\omega = \{0.01, 0.1, 0.25, 0.5\}$). The parameter estimates are in appendix table G5.

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