

Consumption Dynamics and Labor/ Non-Labor Incomes^{*}

Abstract

This paper examines the transmission of labor and non-labor income to household consumption. To do so, we develop a dynamic model of collective household behavior, and estimate consumption Euler equations using cross-country data from the EU-SILC for 11 European countries over 2006–2019. Results indicate different consumption dynamics depending on the source of the income and the identity of the recipient, which reflects separate preferences over goods among husbands and wives. The household economic environment affects consumption with persistence, as predicted by models with limited commitment. We find small consumption responses to non-labor incomes, which tend to be transitory and infrequent payments. The results also suggest that women are more risk averse, as the consumption response to wife wages is smaller than the response to husband wages. These findings contribute to the literature on consumption dynamics by providing harmonized cross-country evidence for Europe.

JEL classification

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Keywords

dynamic collective model, limited commitment, consumption, wages, income, EU-SILC

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1 Introduction

Understanding how households respond to changes in economic resources is essential for the design and welfare evaluation of economic policies targeting households' budget constraints. In this context, several branches of economics, mostly from macroeconomics and labor economics, have examined how changes to income or wealth are transmitted to household decisions over the life-cycle, such as household consumption spending or labor supply (for reviews see [Jappelli and Pistaferri, 2010](#) and [Crawley and Theloudis, 2026](#)). However, such household decisions can be analyzed under different theoretical frameworks, each relying on distinct behavioral assumptions. The choice of model is therefore not neutral, as it determines both the questions that can be addressed and the derived results ([Chiappori and Mazzocco, 2017](#)).

In standard consumer theory, the theoretical model most widely used to study intertemporal consumption decisions is the so-called unitary household model. According to this model, the household is assumed to behave as a single decision-making entity that maximizes a well-behaved utility function subject to a common budget constraint. Within this setting, household responses to economic changes, such as changes in household disposable income or wages, are typically interpreted as aggregate adjustments to total resources, with wealth and income changes that cannot be smoothed intertemporally enabling greater consumption. Although important economic questions have been addressed within this framework, this approach precludes the analysis of intra-household issues, such as how individual-specific changes in resources or economic policies targeting certain household members only may alter the distribution of bargaining power and welfare between partners.

In contrast, the collective model of household behavior ([Chiappori, 1988, 1992](#)) relaxes the strong restriction of a single decision-making agent, assumes Pareto efficiency, and accounts for heterogeneous individuals within the household who may have different preferences.¹ Traditional static collective household models assume that household decisions are Pareto-efficient outcomes of a bargaining process among household members. Dynamic collective household models, by contrast, do not necessarily assume ex-ante efficiency. For example, models without full intertemporal commitment may lead to inefficiencies or second-best efficiency, since divorce is a possible way out of the current marriage at any time ([Voena, 2015](#)). This is especially relevant in many developed countries, where partners cannot commit to future allocations of resources for life ([Theloudis et al., 2025](#)).² Extending these analyses to an

¹The collective model is now among the workhorse approaches to analyze consumer behavior; see [Donmi and Chiappori \(2011\)](#), [Chiappori and Mazzocco \(2017\)](#), [Almås et al. \(2023\)](#), and [Donmi \(2026\)](#) for surveys of the literature.

²Private information within the household is also a source of inefficiency for couples' observed behavior

intertemporal setting, however, poses both theoretical and empirical challenges, particularly given the need for time-varying exogenous variables that can shift bargaining power independently of income and wealth effects, the so-called stochastic distribution factors (Mazzocco, 2007).

A large strand of literature has examined how distribution factors shape household decisions (e.g., labor supply or consumption) in cross-sectional settings (Browning et al., 2014). Although distribution factors may be difficult to identify in practice, this line of work has proven largely fruitful, and many examples have been proposed. For instance, Chiappori et al. (2002) show that when women are relatively scarce and marriage legislation is more favorable toward them, the wife’s bargaining power within the household increases. By contrast, Cherchye et al. (2012) focus on the fraction of household non-labor income accruing to each spouse, showing that the identity of the income recipient matters. This suggests that many targeted programs, such as cash or in-kind transfers, may shift intra-household decisions depending on who is targeted as recipient. Other authors have considered how outside options in the marriage market affect the intra-household allocation of time and expenditures (Chiappori and Meghir, 2015), proposing alimony payments upon divorce (Foerster, 2025) or the receipt of individually held assets (Belloc et al., 2025a) as distribution factors, among others. However, most of this work focuses on cross-sectional variation, that is, the empirical applications are based on static environments and cannot address intertemporal issues.

In this paper, we analyze how household consumption in Western and Southern European countries responds to wage rates and relative non-labor income within the household, adopting a dynamic collective household framework and using the semi-structural approach of Mazzocco (2007) based on the estimation of the Euler equation for consumption. Both wages and non-labor incomes are assignable within the household, and vary over time, so they may be promising stochastic distribution factors to analyze how improvements in relative bargaining position inside the household translate into changes in household decision-making. Wages are of particular interest, as they can simultaneously affect total household resources and the relative bargaining position of each spouse (Theloudis et al., 2025). Workers are exposed to substantial idiosyncratic wage risk over the life-cycle, and an unexpected job promotion (impending layoff) may empower (weaken) the affected spouse, with the opposite effect on the partner, ultimately affecting intra-household consumption shares if renegotiation is feasible (Lise and Yamada, 2019). On the other hand, variations in non-labor income, not directly linked to labor effort, can in turn represent exogenous shifts in spousal contributions to total income that influence intra-household allocation. This ultimately shifts the balance of consumption toward that spouse’s preferences (Jayachandran and Voenä, 2026). Another example is domestic abuse.

2026). We interpret these variables as stochastic distribution factors, affecting intertemporal household decisions only through their impact on individual decision power over time.

Our empirical analysis focuses on total household consumption, rather than distinguishing between private and public components, since neither individual consumption nor assignable consumption goods are typically observed in most household surveys.³ However, total household consumption remains relevant, as it captures adjustments in the aggregate behavior of the household following individual-level changes that alter the relative decision power of household members. For instance, this allows us to infer individual preferences for the consumption of different goods between spouses. We build on the quasi-reduced-form developed in recent intertemporal studies of household behavior (Mazzocco, 2007; Chiappori et al., 2020), and extend it to a comparative European setting using harmonized microdata from the European Union Statistics on Income and Living Conditions, the main European cross-country dataset on individual income.

Our results show that these labor and non-labor incomes are transmitted to household spending, and that the size of this response depends on the source of the income and on which spouse receives it. Specifically, current and past distribution factors impact consumption both cross-sectionally and longitudinally. In addition, the history matters, indicating that the household economic environment appears to modify consumption decisions with persistence over time, as intertemporal collective models with limited commitment predict (Mazzocco, 2007; Lise and Yamada, 2019; Theloudis et al., 2025). We also find that which household member experiences the income change does indeed matter for consumption choices, consistent with husbands and wives exhibiting different consumption behavior. For instance, the consumption response to a positive wage deviation experienced by the wife is generally smaller than the response to an equivalent wage deviation experienced by the husband, consistent with the evidence that women tend to be more risk averse than men (Croson and Gneezy, 2009; Dohmen et al., 2011; Voena, 2015; Jung et al., 2018; Cortés et al., 2023). This asymmetry in observed consumption dynamics in response to shifts in bargaining power points to underlying differences in consumption preferences between husbands and wives. Finally, we show that consumption responses to these income sources also differ across the household consumption distribution, with better-off households exhibiting larger responses.

³For some exceptions in developed economies, see Bonke and Browning (2011), Cherchye et al. (2012), Menon et al. (2012), Lise and Yamada (2019), or Browning et al. (2024). Similar consumption data for some assignable goods exist for expenditure surveys in developing countries (Dunbar et al., 2013; Brown et al., 2021; Bargain et al., 2022; Lechene et al., 2022; Botosaru et al., 2023; Blundell et al., 2025). A different strand of the literature has relied on the consumption of goods *at the household level* to distinguish private and public expenditures, but without distinguishing who consumes what; that is the path followed by Mazzocco (2007), Theloudis (2017), Bredemeier et al. (2023) and many others in the literature.

The contribution of the paper is twofold. *First*, it contributes to the literature on the dynamics of intra-household allocation by providing new evidence on the transmission of individual economic resources, stochastic distribution factors in our context, to household consumption in Europe. To do so, we consider intra-household issues in a dynamic framework, complementing prior research mostly concentrated on aggregate consumption insurance and unitary frameworks in the US (Mazzocco, 2007; Blundell et al., 2016; Theloudis, 2021; Commault, 2022; Arellano et al., 2024; Ghosh and Theloudis, 2025). Specifically, it offers comparative insights across Western and Southern Europe, regions characterized by markedly different welfare regimes. To our knowledge, we are the first to study these dynamics in a comparative European setting.

Second, by analyzing different income measures, it highlights the importance of the income recipient’s identity, showing whether aggregate household consumption responses differ depending on which spouse receives the income, as well as on the nature of the income itself. In doing so, it contributes to the vast literature on the income pooling hypothesis (Thomas, 1990; Lundberg et al., 1997; Duflo, 2003) in an intertemporal setting.⁴ In its simplest form, it makes no distinction between different components of the household budget constraint and, specifically, between different types of income. There are, however, a number of reasons why changes in different income sources might have a different impact on consumption. Specifically, changes in individual non-labor income are usually one-shot realizations, suggesting that they may have a smaller impact on consumption than changes in labor income, which typically combine permanent and transitory components. Relatedly, non-labor income tends to be less volatile and already partially insured against. Taken together, these features suggest that non-labor incomes may have a smaller impact on household consumption than labor incomes.⁵

The remainder of the paper is structured as follows. Section 2 describes the theoretical framework developed by Mazzocco (2007), and derives the estimating equations we use to link household consumption to wage deviations and relative non-labor income. Section 3 describes the data and variables, while Section 4 presents the econometric strategy related to the estimation of the consumption Euler equation. Section 5 reports and discusses the main results. Additional results are provided in the Appendix. Finally, Section 6 concludes.

⁴Much effort of the collective household model literature has gone into testing the income pooling hypothesis. Recent reviews emphasize the importance of control over resources within the household and that this evidence mostly comes from low- and middle-income settings (Jayachandran and Voen, 2026).

⁵Some research has examined the impact of certain non-labor income components on consumption, such as cash transfers (Angelucci et al., 2024), lottery wins (Golosov et al., 2024), or inheritances (Belloc et al., 2025b). Despite their temporary nature, estimated consumption responses are still positive and statistically significant.

2 Theoretical framework

The collective model of household behavior considers the household as a group of individuals with potentially distinct preferences (Chiappori, 1988, 1992), and assumes that observed household choices reflect some form of intra-household decision process so that intra-household allocations are Pareto efficient. Under this efficiency assumption, household decisions can be represented as the solution to a standard weighted maximization problem. In its simplest static form (e.g., Chiappori et al., 2002), the household maximizes a weighted sum of individual utilities, where the Pareto weights capture intra-household bargaining power, i.e., the relative influence of each member in the decision process.⁶

A central implication of the collective model is that household demand functions satisfy a set of testable restrictions. In particular, conditional on prices, total resources, and preference shifters, behaviors depend on *distribution factors*, i.e., variables that affect the intra-household allocation of resources and bargaining power, without directly entering preferences or the household budget constraint, such as relative wages or non-labor income received by one spouse (Browning et al., 1994; Lewbel and Pendakur, 2008; Bourguignon et al., 2009; Bargain and Donni, 2012; Cherchye et al., 2012; Browning et al., 2014; Gobbi et al., 2018). The presence of such distribution factors allows the econometrician to identify individual behavior within the household without observing the Pareto weights directly (e.g., Chiappori et al., 2002). However, in an intertemporal setting, the assumption of Pareto efficiency is not straightforward, as allocations are chosen over time and Pareto weights may change across time periods in response to changes to the household economic environment (Mazzocco, 2007; Lise and Yamada, 2019; Theloudis et al., 2025).

2.1 The dynamic collective model with limited commitment

2.1.1 Setting and household problem

Our theoretical framework is a life-cycle collective model with limited commitment as in Mazzocco (2007) and Theloudis et al. (2025).⁷ Households consist of a male ($j = 1$) and a female ($j = 2$) that get married at time $t = 0$ and live for T periods. Spouses enjoy utility from consumption (Q_t), and disutility from work hours (h_{jt}), and are subject to idiosyncratic

⁶See Chiappori et al. (2022) for a recent survey of collective models of family labor supply.

⁷Commitment in the household has received some attention in the recent years. For example, Voena (2015) and Fernández and Wong (2017) study commitment and divorce, Goussé et al. (2017) study home production, Lise and Yamada (2019) analyze time allocation, Bredemeier et al. (2023) estimate labor supply elasticities, Reynoso (2024) studies the marriage market, and Theloudis et al. (2025) test for commitment using household labor supply.

wage risk. The household faces a standard budget constraint as in [Theloudis et al. \(2025\)](#), and solves the following problem:

$$\begin{aligned} \max_{\{\mathbf{C}_t\}_{t=0}^T} \quad & \sum_{t=0}^T \mathbb{E}_0 \sum_{j=1}^2 \beta^t \mu_{jt} u_j(Q_t, h_{jt}) \\ \text{s.t.} \quad & \text{period budget constraints, and} \\ & \text{marital participation constraints,} \end{aligned} \tag{1}$$

where $\mathbf{C}_t = \{Q_t, h_{1t}, h_{2t}\}$ is the set of household choice variables in period t .

The terms μ_{jt} are the so-called Pareto weights, which summarize the intra-household contract and represent how spouses allocate resources between them.⁸ Besides, under limited commitment, Pareto weights may evolve with time. Specifically, limited commitment implies that spouses commit at $t = 0$ to future allocations up to the point that one person is better off outside the household, captured by marital participation constraints ([Ligon et al., 2002](#)). As long as participation constraints are satisfied (i.e., the optimal allocation makes household members better off than their outside option), Pareto weights remain constant over time. However, when a participation constraint is violated, the bargaining power of the constrained spouse increases for him/her to be indifferent between the continuation of the relationship or the outside option ([Mazzocco, 2007](#); [Chiappori and Mazzocco, 2017](#)), so that the Pareto weights used to make decisions in period t may differ from the Pareto weights with which the two spouses entered the period.

2.1.2 Dynamics of the Pareto weight and consumption

[Theloudis et al. \(2025\)](#) show that the dynamics of the Pareto weight under limited commitment depend on the past weight, and on variables that can make participation constraints binding, namely wages w_{jt} , and stochastic distribution factors $\mathbf{Z}_t$. Thus, the Pareto weight can be expressed as:

$$\mu_{jt} = \underbrace{\mu_{jt}(w_{1t}, w_{2t}, \mathbf{Z}_t)}_{\text{news at } t} \underbrace{\mu_{jt-1}(w_{1t-1}, w_{2t-1}, \mathbf{Z}_{t-1}, \underbrace{\mu_{jt-2}(\dots)}_{\text{weight at } t-2})}_{\text{past weight at } t-1}. \tag{2}$$

Pareto weights are not observed. However, the literature has long established that the optimal behavior that solves (1) depends on the Pareto weights. Thus, the optimal consumption

⁸Because power within households is relative and normalized to a constant value, $\mu_{1t} + \mu_{2t} = \text{constant}$, one can refer to the Pareto weight in singular.

of households at date $t \geq 1$ can be expressed as:

$$\begin{aligned} Q_t &= Q_t^*(y_t, a_t, \mu_{jt}(w_{1t}, w_{2t}, \mathbf{Z}_t, \mu_{jt-1})), \text{ substituting recursively} \\ &= Q_t^*(y_t, a_t, \mu_{jt}(w_{1t}, w_{2t}, \mathbf{Z}_t, w_{1t-1}, w_{2t-1}, \mathbf{Z}_{t-1}, \dots)), \end{aligned} \quad (3)$$

where y_t is household disposable income and a_t represents household wealth. Equation (3) illustrates that some variables impact behavior both directly and through bargaining (i.e., through the Pareto weight). In words, wages affect behavior through income effects (changes in total household resources), price effects (changes in relative wages and opportunity costs of time), and bargaining power shifts, and disentangling these effects requires either a fully specified model (e.g., [Lise and Yamada, 2019](#)) or a partially specified approach ([Theloudis et al., 2025](#)). On the other hand, distribution factors $\mathbf{Z}_t$ and *past* wages impact behavior only through bargaining through their impact on μ_{jt} ([Mazzocco, 2007](#); [Theloudis et al., 2025](#)).

Stochastic distribution factors $\mathbf{Z}_t$ include variables that change over the course of the marriage, and shift the intra-household allocation of resources. This refers to, e.g., laws governing divorce ([Chiappori et al., 2002](#); [Voena, 2015](#)), characteristics of the marriage market such as the sex ratio ([Chiappori et al., 2002](#)), spouses' income ratio ([Cherchye et al., 2012](#); [Bargain and Donni, 2012](#)), or physical attractiveness ([Chiappori et al., 2012](#)). In this context, we define $z_{2t} \in \mathbf{Z}_t$ as the ratio of the non-labor income of the wife over the family non-labor income.⁹

2.1.3 A note on other commitment regimes

There are two other prominent commitment regimes: full commitment and no commitment. Under full commitment, spouses fully commit at $t = 0$ to all future allocations. Then, full commitment assumes ex-ante efficiency, and Pareto weights negotiated at the time of household formation last forever and are time-invariant. In no commitment, spouses do not commit to future allocation. Therefore, no commitment is ex-ante inefficient, and Pareto weights are renegotiated each period t in terms of the prevailing information at t , but all past information (i.e., past wages, distribution factors, and Pareto weights) does not matter.

The intuition is as follows. Full commitment is an extreme model in which intra-household allocations are negotiated once at the beginning of the marriage, and Pareto weights remain fixed over time. This means that partners commit to a Pareto weight at household formation and such weight will not change during the marriage. This is a very strong efficiency as-

⁹The 2 sub-index denotes the spouse who is empowered within the household as the z_{2t} stochastic distribution factor increases.

sumption, and has been rejected by prior works (Mazzocco, 2007; Lise and Yamada, 2019).¹⁰ No commitment is the opposite scenario, a weaker efficiency assumption in which family members can never commit to future allocations. Thus, intra-household allocations need to be renegotiated in every period. Limited commitment is an intermediate efficiency assumption in which intra-household allocation at t may be the past allocation at $t - 1$ if marital participation constraints do not bind, or may be renegotiated if a spouse’s participation constraint binds due to changes in wages or distribution factors and such renegotiation is feasible. Otherwise, if the renegotiation is not feasible, the partners choose the outside option, i.e., divorce. Despite this intuition, Theloudis et al. (2025) show that limited commitment is the most general framework *in terms of the variables that enter Pareto weights*, no commitment is nested within limited commitment, and full commitment is in turn nested within no commitment, as follows:

$$\text{FC: } \mu_{jt} = \mu_{j0}, \quad t \geq 0$$

$$\text{NC: } \mu_{jt} = \mu_{jt}(w_{1t}, w_{2t}, \mathbf{Z}_t), \quad t \geq 0$$

$$\text{LC: } \mu_{jt} = \mu_{jt}(w_{1t}, w_{2t}, \mathbf{Z}_t, w_{1t-1}, w_{2t-1}, \mathbf{Z}_{t-1}, \dots), \quad t \geq 1$$

2.2 Estimating equations

Following Equation (3), we derive an equation that can be estimated directly from observed variables, eliminating the unobservable Pareto weight μ_{jt} without specifying a structural parametrization of preferences or Pareto weights, but preserving the structural implications of the model through interactions between resources and distribution factors.

We mimic the quasi-reduced-form approach developed by Mazzocco (2007) for household expenditure. In this framework, household behavior is characterized through log-linearized Euler equations derived from the dynamic collective model. Specifically, Mazzocco (2007) derive estimating equations by log-linearizing household private and public consumption Euler equations under full commitment and under no commitment. Chiappori et al. (2020) extend these log-linearized Euler equations. They theoretically distinguish limited commitment from no commitment, by exploiting that past distribution factors also enter Pareto weights through the past Pareto weight, as shown in (2). Besides, they derive their estimating equations from a model with labor supply and household total consumption, rather than the baseline approach of public and private consumption in Mazzocco (2007). We then

¹⁰The early tests of commitment in Mazzocco (2007) and Lise and Yamada (2019) are tests of full vs. non-full commitment, but they cannot distinguish no vs. limited commitment, since they do not take into account the persistence of Pareto weights (Theloudis et al., 2025).

follow [Chiappori et al. \(2020\)](#).

First, we recast Problem (1) recursively ([Marcet and Marimon, 2019](#)), so that the Lagrangian can be expressed as:

$$\mathcal{L} = \mathbb{E}_0 \sum_{t=0}^T \left\{ \beta^t (\mu_{1t} u_1(Q_t, h_{1t}) + \mu_{2t} u_2(Q_t, h_{2t})) - g_t + \lambda_t (y_t + (1+r)a_t - Q_t - a_{t+1}) \right\},$$

where g_t represents the outside options ([Theloudis et al., 2025](#)) and r is the deterministic interest rate. [Mazzocco \(2007\)](#) shows that the individual Euler equations are $\partial u_j(Q_t, h_{jt}) / \partial Q_t = \beta r \mathbb{E}_t [\partial u_j(Q_{t+1}, h_{jt+1}) / \partial Q_{t+1}]$, for $j \in \{1, 2\}$. This produces the following household Euler equation for consumption:

$$\sum_{j=1}^2 \mu_{jt} \frac{\partial u_j(Q_t, h_{jt})}{\partial Q_t} = \beta r \mathbb{E}_t \left[\sum_{j=1}^2 \mu_{jt+1} \frac{\partial u_j(Q_{t+1}, h_{jt+1})}{\partial Q_{t+1}} \right], \quad t \geq 0$$

which is analogous to Equation (7) in [Mazzocco \(2007\)](#).

[Mazzocco \(2007\)](#) and [Chiappori et al. \(2020\)](#) log-linearize the household Euler equation using Taylor expansions.¹¹ Under full commitment, distribution factors enter the Euler equations only through interactions with consumption growth, which produces the following estimating equation:

$$\begin{aligned} \Delta \log Q_t = & b_0 + \underbrace{\beta_1 \hat{w}_{1t} \Delta \log Q_t + \beta_2 \hat{w}_{2t} \Delta \log Q_t + \beta_3 z_{2t} \Delta \log Q_t}_{\text{cross-sectional variation in intra-household bargaining power}} \\ & + \underbrace{b_{[Q]} \log Q_{t-1} + b_{[Q^2]} (\log \hat{Q}_t^2 - \log \hat{Q}_{t-1}^2)}_{\text{controls for past consumption}} \\ & + \underbrace{b_{[h_{1t}]} \log h_{1t} + b_{[h_{2t}]} \log h_{2t} + b_{[h_{1t-1}]} \log h_{1t-1} + b_{[h_{2t-1}]} \log h_{2t-1}}_{\text{complementarities from work hours}} \\ & + \underbrace{b_{[y_t]} \log y_t + b_{[y_{t-1}]} \log y_{t-1} + b_{[a_t]} \log a_t + b_{[a_{t-1}]} \log a_{t-1}}_{\text{income and wealth effects}} \\ & + b'_{[\mathbf{x}]} \mathbf{x}_t + \varepsilon_t, \end{aligned} \tag{4}$$

where Δ is the first-difference operator (that is, $\Delta x_t = x_t - x_{t-1}$), $\hat{w}_{jt}$ is spouse j 's deviation from expected wage and $\hat{Q}_t$ is demeaned consumption. In contrast, under no commitment, the Pareto weights vary over time, implying that wages and the distribution factor also

¹¹See Propositions 4 and 5 in [Mazzocco \(2007\)](#).

appear directly and interacted with current consumption:

$$\begin{aligned}
\Delta \log Q_t = & b_0 + \beta_1 \widehat{w}_{1t} \Delta \log Q_t + \beta_2 \widehat{w}_{2t} \Delta \log Q_t \\
& + \underbrace{\delta_1 \widehat{w}_{1t} + \delta_2 \widehat{w}_{1t} \log \widehat{Q}_t + \delta_3 \widehat{w}_{2t} + \delta_4 \widehat{w}_{2t} \log \widehat{Q}_t + \delta_5 z_{2t} + \delta_6 z_{2t} \log \widehat{Q}_t}_{\text{bargaining effects of current "news"}} \\
& + \text{all other controls in (4)} \\
& + \underbrace{b_{[\mathbb{E}_1]} \mathbb{E}_t w_{1t+1} + b_{[\mathbb{E}_2]} \mathbb{E}_t w_{2t+1}}_{\text{continuation of marital contract}} + b'_{[\mathbf{x}]} \mathbf{x}_t + \varepsilon_t.
\end{aligned} \tag{5}$$

The intuition is as follows. In (4) behavior is compatible only with cross-sectional variation in bargaining across households, but the Pareto weight does not vary longitudinally within households. That is, Pareto weights remain constant over time, which is the defining property of full commitment (Mazzocco, 2007; Theloudis et al., 2025). On the other hand, Equation (5) illustrates that, under no commitment, the Pareto weights change longitudinally in terms of contemporary information only. Chiappori et al. (2020) show that the estimating equations for household consumption under limited commitment, when past wages and distribution factors also matter, are:

$$\begin{aligned}
\Delta \log Q_t = & b_0 + \beta_1 \widehat{w}_{1t} \Delta \log Q_t + \beta_2 \widehat{w}_{2t} \Delta \log Q_t \\
& + \underbrace{\delta_1 \widehat{w}_{1t} + \delta_2 \widehat{w}_{1t} \log \widehat{Q}_t + \delta_3 \widehat{w}_{2t} + \delta_4 \widehat{w}_{2t} \log \widehat{Q}_t + \delta_5 z_{2t} + \delta_6 z_{2t} \log \widehat{Q}_t}_{\text{bargaining effects of current "news"}} \\
& + \underbrace{\eta_1 \widehat{w}_{1t-1} + \eta_2 \widehat{w}_{1t-1} \log \widehat{Q}_t + \eta_3 \widehat{w}_{2t-1} + \eta_4 \widehat{w}_{2t-1} \log \widehat{Q}_t + \eta_5 z_{2t-1} + \eta_6 z_{2t-1} \log \widehat{Q}_t}_{\text{bargaining effects of past "news"}} \\
& + \text{all other controls in (4)} \\
& + b_{[\mathbb{E}_1]} \mathbb{E}_t w_{1t+1} + b_{[\mathbb{E}_2]} \mathbb{E}_t w_{2t+1} + b'_{[\mathbf{x}]} \mathbf{x}_t + \varepsilon_t,
\end{aligned} \tag{6}$$

where $\widehat{w}_{jt-1}$ is spouse j 's deviation from expected wage at date $t - 1$. Because limited commitment is the most general framework *in terms of the variables that induce bargaining effects*, (6) represents our estimating equation.¹²

Alternative empirical approaches We follow a *quasi-reduced-form* approach similar to Mazzocco (2007) and Chiappori et al. (2020). This approach differs from a structural approach in that it does not impose the full set of equilibrium and optimality conditions implied by the dynamic collective model (Chiappori and Mazzocco, 2017). A structural estimation

¹²Equations (5) and (6) could be expanded to include non-linear bargaining effects. However, we find that non-linear terms are generally not significant at standard levels. Results including non-linear terms are available upon request.

would require specifying and estimating individual preferences, the Pareto weight μ_{jt} , and the intertemporal constraints governing savings, consumption and labor supply, typically through the system of first-order conditions for each spouse and a parametric representation of μ_{jt} (see, e.g., [Lise and Yamada, 2019](#)). Such a structural framework allows recovering welfare-relevant objects, such as individual marginal utilities, but at the cost of strong functional form and distributional assumptions. In contrast, the quasi-reduced-form approach retains the key empirical implication of limited commitment (that current consumption depends on both contemporaneous and lagged distribution factors and resources), without specifying preferences or the unobserved μ_{jt} .¹³

3 Data and variables

3.1 The EU-SILC data

Our empirical analysis relies on the longitudinal samples from the European Union Statistics on Income and Living Conditions (EU-SILC), covering the years 2006-2019.¹⁴ The EU-SILC is an annual harmonized survey coordinated by Eurostat within the European Statistical System, designed to provide cross-country comparable microdata on income, employment, and living standards. It contains rich information at both the household and individual levels, including variables on income components, labor market behavior, demographic characteristics, and material conditions. The longitudinal component of the EU-SILC consists of rotating four-year panels, in which the same households are observed for up to four consecutive years.

The EU-SILC longitudinal samples do not have information for Albania, Andorra, Belarus, Bosnia, Liechtenstein, Macedonia, Moldova, Monaco, Montenegro, San Marino, Ukraine, and Vatican City. Germany only appears in the data since 2018, while Denmark, Finland, Iceland, the Netherlands, Norway, Slovenia and Sweden have samples of persons, not of households, so we cannot include them in the sample because of missing key information. Finally, we focus on Western European countries and Southern countries, so we omit information from Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, and Slovakia. This leaves information for the following countries: Austria, Belgium, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Switzerland, and the United Kingdom (UK).

¹³A similar approach is that of [Blundell et al. \(2016\)](#) and [Theloudis et al. \(2025\)](#), who log-linearize the optimality conditions instead of Euler equations. However, such approach is appealing only to assignable behaviors such as spouses' labor supplies or leisure times ([Theloudis et al., 2025](#)).

¹⁴Data access granted under Contract RPP 119/2018.

3.2 Sample requirements

From the countries in the initial sample, we keep individuals living in the associated family unit who are respondents (i.e., who have valid information). Next, we keep only the reference person in each household, and his/her married or unmarried partner (Chiappori et al., 2002), meaning that we retain only two-member households. To avoid confounding effects of early-life and retirement transitions, the sample is limited to individuals aged 21 to 65 (Mazzocco, 2007). We retain only observations with complete information on key variables such as demographics, labor income, wages, working hours, non-labor income, wealth, and household consumption. In doing so, we mimic Mazzocco (2007) and Theloudis et al. (2025) and keep spouses who are active in the labor market with non-missing information on wages, earnings, work hours, family income, wealth, and consumption.

We also require valid information for the variables of interest, and we remove extreme and censored values, as well as outliers using the Blocked Adaptive Computationally Efficient Outlier Nominators algorithm (Billor et al., 2000; Weber, 2010). Finally, we require households to be followed for at least two consecutive years. The resulting dataset contains 154,905 household×year observations, corresponding to 55,078 distinct households. Table 1 shows the sample composition, by country, including the number of distinct households, the number of household×year observations, and the number of observations that enter the estimating equation (6).

Table 1: Sample composition

Countries	Observations	Households	Obs. for (6)	Years
Austria	11,640	3,924	7,716	2007-2019
Belgium	13,442	4,523	8,911	2006-2019
France	7,418	2,646	4,711	2013-2019
Greece	16,661	5,661	11,000	2007-2019
Ireland	6,130	2,320	3,810	2007-2019
Italy	33,407	11,394	22,013	2007-2019
Luxembourg	8,582	2,968	5,587	2007-2019
Portugal	11,179	4,721	6,221	2007-2019
Spain	22,704	8,374	14,306	2007-2019
Switzerland	8,640	2,953	5,687	2011-2019
United Kingdom	15,102	5,594	9,488	2007-2018

Notes: The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years.

3.3 Variables

We require information on household consumption, spouses’ earnings and wages, household wealth and total income, the distribution factor, and household demographics. For each household fulfilling the sample requirements, the EU-SILC allows us to define the following variables. First, we define household consumption expenditure. Consumption expenditure is defined in the EU-SILC as the “net monthly income that your household would have to have in order to make ends meet, that is to pay its usual necessary expenses”. We thus define household annual expenditures from this variable by multiplying its value by 12.

We define wages as the ratio of annual earnings over annual hours of work,¹⁵ while family income is defined as the sum of annual labor and non-labor income of all household members. Wealth is not directly included in the EU-SILC data. We define wealth as the sum of interests, dividends, and profits from capital investment (referring to the amount of interest from assets such as bank accounts, certificates of deposit, bonds, etc., dividends, and profits from capital investment in an unincorporated business, in which the person does not work). We acknowledge that this does not represent wealth, but *returns to wealth*, which we use as a proxy for wealth in the empirical analysis.

Regarding the distribution factor, we define the ratio of wives’ non-labor income to both spouses’ non-labor income (Browning et al., 1994; Cherchye et al., 2012; Bargain and Donni, 2012; Bargain et al., 2022; Flores, 2026). Spouses’ non-labor incomes are defined as the sum of free or subsidized meals, reimbursement or payment of housing-related expenses, goods and services provided free by employers, individual unemployment benefits, old age benefits, survivor benefits, sickness benefits, disability payments, and education benefits. When both spouses report zero non-labor income, we assign the distribution factor the value 0.5. All monetary variables are deflated and measured in €2019, using country-specific deflators from the Eurostat data (the annual average index, all items HICP).

Finally, the EU-SILC allows us to define some household and spouse demographics. We define spouses’ ages, measured in years, age squared, spouses’ education level, whether spouses are legally married (as opposed to being unmarried partners), the number of individuals in the family unit, and the number of children. For education, we identify three categories: those who have completed the compulsory secondary education but have not achieved a secondary non-compulsory education degree, those who have completed a non-

¹⁵For employees, annual earnings are measured as “the monetary component of the compensation of employees in cash payable by an employer to an employee”. For the self-employed, earnings are measured as the cash profits from self-employment, that is, “as the income received, during the income reference period, by individuals, for themselves or in respect of their family members, as a result of their current or former involvement in self-employed work.” Both variables represent annual earnings in the EU-SILC database.

compulsory secondary education degree but do not have a university degree, and those who have a university degree.

3.4 Summary statistics

Table 2 reports the main summary statistics, by country. Average annual work hours of husbands range from 2,094 in Ireland to 2,256 in Switzerland, and are systematically higher than those of wives in every country, which range from 1,530 in Switzerland to 2,022 in Portugal. The largest within-country gaps between husbands and wives are observed in Switzerland, where husbands work on average 726 hours more per year than wives, while the smallest gap is observed in Portugal, where husbands work on average 193 more hours per year than wives.

Average hourly wages also display substantial cross-country heterogeneity. Husbands' wages range from €10.12 in Portugal to €42.43 in Switzerland, and wives' wages range from €8.24 in Portugal to €35.02 in Switzerland. Husbands earn higher average wages than wives in every country in the sample. Annual non-labor income is, on average, low relative to labor income for both spouses, and exhibits large standard deviations in all countries. This suggests that non-labor income is concentrated at low values for most households, but with a long upper tail, so that a small fraction of households accounts for a substantial share of the aggregate non-labor income in each country. On the other hand, annual family income ranges from €41,920 in Portugal to €164,600 in Switzerland, while returns to wealth ranges from €2,506 in Portugal to €11,890 in Luxembourg. Finally, annual household expenditures range from €22,280 in Portugal to €70,320 in Switzerland.

4 Econometric strategy

4.1 Wage process

The following strategy is adopted to estimate Equation (6). First, we demean consumption $\hat{Q}_t$ by country following Chiappori et al. (2020). Second, deviations from expected wages are not observed. There are several ways to model wage dynamics and separate the deterministic component that agents can anticipate from the stochastic component (i.e., the wage's regression error term). We do this by using a Mincer-style model, as follows:

$$w_{ijt} = \alpha_{ij} + \alpha_{j1}(\text{educ}_{ij}, \text{country}_{ij}) \times \text{age}_{ijt} + \hat{w}_{ijt},$$

Table 2: Main summary statistics

	Austria	Belgium	France	Greece	Ireland	Italy	Luxemb.	Portugal	Spain	Switz.	UK
Work hours husband	2,242 (0.441)	2,171 (0.476)	2,162 (0.474)	2,222 (0.524)	2,094 (0.484)	2,168 (0.392)	2,245 (0.389)	2,215 (0.393)	2,182 (0.383)	2,256 (0.431)	2,233 (0.493)
Work hours wife	1,628 (0.578)	1,731 (0.512)	1,852 (0.467)	1,927 (0.540)	1,627 (0.534)	1,771 (0.448)	1,766 (0.579)	2,022 (0.390)	1,884 (0.468)	1,530 (0.643)	1,670 (0.624)
Wage husband	25.51 (14.77)	23.84 (10.58)	20.00 (10.20)	12.40 (10.21)	26.62 (16.76)	19.79 (13.25)	31.16 (18.57)	10.12 (8.73)	15.37 (10.02)	42.43 (18.51)	21.60 (14.12)
Wage wife	18.69 (10.66)	21.25 (9.39)	16.67 (8.68)	10.26 (7.69)	24.14 (13.87)	15.76 (9.49)	27.74 (16.64)	8.24 (6.82)	13.04 (8.31)	35.02 (17.19)	16.94 (10.77)
Non-labor income husband	0.461 (2.399)	0.511 (4.162)	0.739 (3.799)	0.105 (1.116)	0.901 (5.354)	1.213 (5.426)	0.353 (3.297)	0.118 (1.002)	0.539 (3.133)	0.997 (6.372)	0.944 (5.169)
Non-labor income wife	0.314 (1.509)	0.522 (2.845)	0.544 (2.832)	0.093 (0.556)	0.738 (3.063)	0.766 (3.544)	0.374 (2.686)	0.080 (0.591)	0.444 (2.519)	0.602 (4.140)	0.429 (2.457)
Family income	100.1 (46.00)	94.65 (36.39)	82.56 (37.89)	49.15 (32.59)	105.2 (53.76)	77.55 (42.04)	130.1 (63.15)	41.92 (29.73)	62.53 (34.03)	164.6 (63.04)	86.28 (47.32)
Wealth	6,008 (4.285)	8,641 (4.044)	8,619 (5.982)	4,897 (3.555)	8,682 (6.658)	8,198 (4.133)	11.89 (9.874)	2,506 (2.715)	6,949 (3.585)	5,213 (6.970)	4,580 (5.064)
Expenditures	34.64 (12.92)	41.77 (15.34)	46.96 (17.25)	35.21 (13.74)	40.36 (18.25)	32.58 (13.35)	53.42 (20.73)	22.28 (12.09)	34.74 (12.89)	70.32 (24.46)	29.93 (14.78)
# households	3,924	4,523	2,646	5,661	2,320	11,394	2,968	4,721	8,374	2,953	5,594
# observations	11,640	13,442	7,418	16,661	6,130	33,407	8,582	11,179	22,704	8,640	15,102

Notes: The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years. Standard deviations in parentheses. Work hours, non-labor income, family income, wealth, and expenditures are divided by 1,000 for legibility. Additional summary statistics are shown in Table A1 in the Appendix.

where the wage of spouse j in household i at date t is modeled in terms of an individual-specific term α_{ij} that captures individual heterogeneity, and a slope coefficient on age that varies across education categories and country of residence (i.e., education- and country-specific age profiles of wages).

We model wages in levels and not in logs as this was the approach of [Mazzocco \(2007\)](#). [Chiappori et al. \(2020\)](#) show that a log approach as well as allowing for an individual-specific slope produce similar results.¹⁶ The stochastic component of wages may be subject to complex dynamics. For example, it may be divided into a permanent and a temporary change ([Guvenen, 2007](#); [Meghir and Pistaferri, 2011](#); [Blundell et al., 2016](#)). However, doing this requires higher order moments of wages and long time series per household, which the EU-SILC does not provide given its rotating design. Thus, we acknowledge that this is a limitation of the data.

4.2 Consumption equation

Next, we estimate Equation (6) using the generalized method of moments (GMM), separately for each country in the sample. We use GMM, which provides consistent estimates under heteroskedasticity and potential model misspecification, and we use the GMM optimal weighting matrix. As wage deviations are predicted in a prior stage, robust standard errors or cluster-robust standard errors may be inconsistent because they ignore the sampling variation from the first-stage. Thus, we also bootstrap standard errors (1,000 bootstrap replications per country) to capture the uncertainty due to predicted wage deviations and produce asymptotically valid standard errors ([Cameron et al., 2008](#); [Cameron and Miller, 2015](#)).

[Mazzocco \(2007\)](#) and [Chiappori et al. \(2020\)](#) use a similar approach to estimate public and private consumption on the one hand, and spouses' work hours, on the other. In their setting, two sources of endogeneity arise. First, their equations include endogenous consumption controls (i.e., public consumption enters private consumption endogenously and vice-versa in [Mazzocco, 2007](#)) and endogenous partner hours (wife hours enter male hours endogenously and vice-versa in [Chiappori et al., 2020](#)). Second, wage deviations may also be endogenous. To address the first issue, they adopt an IV approach. Our setting here differs from theirs in that we focus on household *total* consumption, without separating public from private components and without modeling spousal labor supply. Hence, we are not exposed to the first source of endogeneity.

Regarding the second source of endogeneity, we treat all our right-hand-side variables as

¹⁶This is also the approach of [Bredemeier et al. \(2023\)](#).

exogenous, including wage deviations. The main reason is that finding a valid instrument for wage deviations is difficult. A suitable instrument would need to satisfy three demanding requirements: *i*) it should be correlated with wage deviations but not enter the consumption equation, *ii*) it should vary over time within individuals, as the wage model already absorbs time-invariant individual heterogeneity, and *iii*) it should not be a determinant of wages itself, as otherwise it would belong in the wage equation. Candidates would be historical wages as in [Chiappori et al. \(2020\)](#), but due to the rotating panel structure of the dataset, these are not available, as this would reduce sample sizes considerably.¹⁷ Thus, we follow [Blundell et al. \(2016\)](#) and [Theloudis et al. \(2025\)](#), and treat wage deviations as exogenous.

5 Results

5.1 Estimation results

Table 3 shows the results of estimating Eq. (6) by country, distinguishing the cross-sectional variation in intra-household bargaining power from the bargaining effects of the current and past household economic environment, i.e., of contemporaneous and lagged deviations in wages and the relative non-labor income of wives. Additional country-level results appear in Table A2 in the Appendix.

Results suggest that deviations in wages and the wife’s relative non-labor income enter the consumption Euler equation in three different ways: *(i)* interacted with consumption growth, *(ii)* directly, and *(iii)* interacted with the log of consumption at t . That is, both contemporaneous and lagged wage deviations and relative non-labor income affect consumption growth, so individual incomes are transmitted to household spending beyond their effect on total household resources. Coefficients *(ii)* and *(iii)* capture the longitudinal component of this transmission, which would be absent if the intra-household allocation were fixed over the marriage. These coefficients are significant, so the relative decision power of the spouses responds to the prevailing economic environment, and the lagged terms show that this response persists for at least one year. Models with limited commitment predict this pattern ([Mazzocco, 2007](#); [Theloudis et al., 2025](#)).

This pattern is remarkably consistent across countries for wives’ relative non-labor income, whose coefficients are positive and statistically significant at the 1% level in nearly every specification, both contemporaneously and with a one-year lag. This is consistent with the bargaining intuition that greater control over household resources raises a spouse’s

¹⁷The number of observations entering Equation (6) would be reduced from 99,450 to only 15,446 if we used wages at $t - 2$ and $t - 3$ as instruments for wages at t and $t - 1$, respectively.

Pareto weight (Jayachandran and Voena, 2026), thereby shifting observed household choices. By contrast, the evidence for wage deviations is more heterogeneous across countries.

All in all, changes that alter the relative intra-household bargaining power over time affect household consumption decisions in a way that is consistent with dynamic bargaining effects within the household. In addition, both current and past changes in the household economic environment, such as deviations in wages or the relative non-labor income, affect consumption behavior longitudinally. This evidence thus suggests that the relative decision power inside the household changes over time, as predicted by limited commitment models.¹⁸

5.2 Partial effects

The estimated coefficients of the distribution factors in Table 3 are not directly interpretable as the marginal effect on consumption growth, because wage deviations and the relative non-labor income induce bargaining effects both linearly and interacted with $\log \hat{Q}_t$ in (6). For instance, the interaction term allows the marginal bargaining effects to depend on the household's position in the consumption distribution. As a consequence, the magnitude and the sign of the response of consumption growth to a given wage and non-labor income ratio depend on the level of $\log \hat{Q}_t$ at which the partial derivative is evaluated. Hence, computing partial effects at relevant points of the $\log \hat{Q}_t$ distribution provides a more transparent summary of the magnitudes implied by the estimates.

Differentiating Eq. (6) with respect to each wage deviation and distribution factor yields the following partial effects:¹⁹

$$\begin{aligned} \partial \Delta \log Q_t / \partial \hat{w}_{1t} &= \delta_1 + \delta_2 \log \hat{Q}_t, & \partial \Delta \log Q_t / \partial \hat{w}_{1t-1} &= \eta_1 + \eta_2 \log \hat{Q}_t, \\ \partial \Delta \log Q_t / \partial \hat{w}_{2t} &= \delta_3 + \delta_4 \log \hat{Q}_t, & \partial \Delta \log Q_t / \partial \hat{w}_{2t-1} &= \eta_3 + \eta_4 \log \hat{Q}_t, \\ \partial \Delta \log Q_t / \partial z_{2t} &= \delta_5 + \delta_6 \log \hat{Q}_t, & \partial \Delta \log Q_t / \partial z_{2t-1} &= \eta_5 + \eta_6 \log \hat{Q}_t. \end{aligned} \quad (7)$$

Each partial effect is the sum of a linear coefficient and an interaction coefficient multiplied by $\log \hat{Q}_t$, so it varies across households according to the level of consumption. We evaluate these expressions at the country-specific 10th, 25th, 75th and 90th percentiles of $\log \hat{Q}_t$, which allows us to characterize the response at the lower and upper tails as well as around the bulk

¹⁸The main results in Table 3 are robust to three alternative specifications, reported in the Appendix. First, Table A3 restricts the sample to prime-age couples (between 30 and 60 years old), reducing the working sample by approximately 10% in most countries. Second, Table A4 replaces wage deviations with log-wages, leaving the sample size unchanged. Finally, we restrict the sample to legally married couples in Table A5, versus married and cohabiting in the baseline. Most of the coefficients preserve their sign and remain statistically significant at standard levels.

¹⁹We hold $\Delta \log Q_t$ fixed, i.e., we disregard the cross-sectional variation in intrahousehold bargaining power and focus on bargaining effects of current and past wage deviations and distribution factors.

Table 3: Main GMM estimates

	(1) Austria	(2) Belgium	(3) France	(4) Greece	(5) Ireland	(6) Italy	(7) Luxembourg	(8) Portugal	(9) Spain	(10) Switzerland	(11) UK
<i>Cross-sectional variation in intra-household bargaining power:</i>											
$\hat{w}_{1t}\Delta \log Q_t$	-2.402*** (0.431)	-4.223*** (1.248)	-6.144*** (1.009)	-0.031 (0.269)	-3.118*** (0.792)	0.25 (0.279)	-0.262** (0.131)	0.211 (0.210)	-3.237*** (0.767)	-2.230*** (0.314)	3.872*** (0.459)
$\hat{w}_{2t}\Delta \log Q_t$	-3.778*** (0.421)	-5.907*** (1.200)	-6.267*** (1.247)	1.741*** (0.437)	-1.838** (0.881)	5.540*** (0.446)	-0.975*** (0.250)	2.882*** (0.549)	0.679 (0.613)	-0.771*** (0.208)	6.879*** (0.742)
$z_{2t}\Delta \log Q_t$	0.483*** (0.044)	0.695*** (0.047)	0.733*** (0.059)	1.269*** (0.065)	0.512*** (0.041)	0.657*** (0.022)	1.027*** (0.103)	0.623*** (0.090)	0.608*** (0.034)	0.525*** (0.074)	0.530*** (0.038)
<i>Bargaining effects of news at t:</i>											
$\hat{w}_{1t}$	-0.379 (0.249)	0.097 (0.323)	-0.17 (0.408)	0.209 (0.185)	1.066** (0.523)	-0.109 (0.176)	-0.065 (0.119)	-0.018 (0.264)	0.697** (0.333)	0.146 (0.158)	0.225 (0.310)
$\hat{w}_{1t} \log \hat{Q}_t$	-0.435 (0.494)	-1.127 (0.693)	0.608 (0.904)	-0.407 (0.271)	0.462 (1.188)	0.651 (0.401)	0.262 (0.232)	0.008 (0.505)	-2.045** (0.964)	-0.215 (0.390)	0.624 (0.422)
$\hat{w}_{2t}$	-0.380* (0.222)	0.564* (0.296)	-0.525 (0.569)	-0.352 (0.230)	0.212 (0.356)	-0.071 (0.225)	0.096 (0.091)	-0.255 (0.384)	0.743*** (0.267)	0.09 (0.108)	0.133 (0.333)
$\hat{w}_{2t} \log \hat{Q}_t$	-0.362 (0.610)	-2.253 (1.424)	-0.335 (1.026)	0.781 (0.572)	-0.725 (0.961)	1.035 (0.630)	-0.493** (0.211)	-0.1 (0.921)	-0.277 (0.570)	-1.459*** (0.406)	0.819 (0.651)
z_{2t}	0.053*** (0.011)	0.012* (0.007)	0.029** (0.013)	0.007 (0.020)	0.035*** (0.012)	0.050*** (0.006)	0.029 (0.027)	0.162*** (0.031)	0.050*** (0.008)	0.044*** (0.015)	0.057*** (0.013)
$z_{2t} \log \hat{Q}_t$	0.328*** (0.044)	0.189*** (0.035)	0.203*** (0.044)	0.045 (0.058)	0.291*** (0.036)	0.294*** (0.022)	0.256*** (0.089)	0.504*** (0.068)	0.367*** (0.034)	0.307*** (0.076)	0.111*** (0.035)
<i>Bargaining effects of news at t - 1:</i>											
$\hat{w}_{1t-1}$	0.431* (0.261)	0.497 (0.344)	0.930** (0.450)	-0.176 (0.173)	0.804 (0.538)	-0.149 (0.174)	0.177 (0.125)	-0.414 (0.255)	0.466 (0.318)	0.124 (0.182)	-0.747*** (0.246)
$\hat{w}_{1t-1} \log \hat{Q}_t$	-2.387*** (0.569)	-1.845** (0.802)	-4.042*** (0.998)	0.07 (0.255)	-3.985*** (1.388)	-1.123** (0.438)	-0.546** (0.245)	0.008 (0.524)	-2.560** (1.091)	-1.431*** (0.433)	1.656*** (0.412)
$\hat{w}_{2t-1}$	0.005 (0.211)	0.275 (0.250)	0.925** (0.441)	0.233 (0.230)	1.082** (0.447)	0.14 (0.202)	0.087 (0.085)	0.134 (0.347)	0.084 (0.246)	0.031 (0.122)	-0.726*** (0.256)
$\hat{w}_{2t-1} \log \hat{Q}_t$	-2.438*** (0.651)	0.206 (1.528)	-2.689** (1.117)	0.251 (0.569)	-2.112* (1.126)	3.521*** (0.561)	0.175 (0.234)	2.117** (0.846)	0.39 (0.609)	-0.208 (0.326)	2.796*** (0.598)
z_{2t-1}	0.061*** (0.009)	0.048*** (0.008)	0.037*** (0.009)	0.070** (0.016)	0.066*** (0.010)	0.072*** (0.006)	0.067*** (0.017)	0.145*** (0.023)	0.078*** (0.007)	0.035*** (0.013)	0.095*** (0.014)
$z_{2t-1} \log \hat{Q}_t$	0.576*** (0.045)	0.521*** (0.042)	0.352*** (0.040)	0.533*** (0.052)	0.415*** (0.029)	0.628*** (0.019)	0.535*** (0.062)	0.730*** (0.055)	0.705*** (0.030)	0.524*** (0.062)	0.396*** (0.041)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,716	8,911	4,711	11,000	3,810	22,013	5,587	6,221	14,306	5,687	9,488

Notes: Bootstrap standard errors in parentheses. The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years. Wage deviations are divided by 1,000 for legibility. *** significant at the 1%; ** significant at the 5%; * significant at the 10%.

of the consumption distribution. Table 4 reports the resulting partial effects, by country.

In this context, the estimated signs of the wage deviations and distribution factors at different points of the $\log \hat{Q}_t$ distribution (p10, p25, p75, p90) provide important insights into spouses' preferences within the household. Overall, consumption responses to income increase with total household expenditures, suggesting that precautionary savings motives and consumption-smoothing behavior are less prevalent among better-off households. Some differences nonetheless emerge across countries and according to the recipient's identity. For instance, the negative derivatives estimated for husbands' wages in Austria and Portugal point to a lower preference among husbands for increasing current consumption. Comparing wage deviations across spouses, we find that the transmission of wives' wages to consumption is lower than that of husbands' in nearly all countries, with a few exceptions such as Belgium, Italy, Luxembourg, and the UK. These gender asymmetries are consistent with the idea that spouses hold different preferences, lending support to a collective framework in which the identity of the income recipient matters, and with the broader finding that women tend to be more risk averse than men (Mazzocco, 2007). Turning to the non-labor income, the transmission coefficients are smaller across all consumption moments, consistent with the more stable nature of this source of income. Moreover, the negative derivative estimated for the lower tail of the distribution is consistent with life-cycle models featuring precautionary savings, suggesting that non-labor income received by households at the bottom of the consumption distribution is more likely to be allocated to debt repayment or savings rather than to current consumption. One year later, these derivatives increase substantially in absolute values, pointing to persistence in the transmission of the non-labor income, although the direction of the effect remains identical.

5.3 Discussion

In ten of the eleven countries, the consumption response to the wife's relative non-labor income is negative at the bottom of the consumption distribution and positive at the top, both at t and at $t - 1$. The interaction between z_{2t} and $\log \hat{Q}_t$ is significant at the 1% level in those ten countries, and both lagged terms are significant at the 1% level in the eleven. Greece is the exception, as the contemporaneous coefficients are not statistically significant and the associated partial effects are close to zero, but the lagged coefficients are significant and the response follows the same pattern as in the remaining countries. These results are consistent with the bargaining intuition that a greater control over household resources raises a spouse's Pareto weight, thereby shifting observed household choices according to that spouse's preferences. In addition, the position of the household in the consumption

Table 4: Bargaining effects of wage deviations and distribution factors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Austria	Belgium	France	Greece	Ireland	Italy	Luxembourg	Portugal	Spain	Switzerland	UK
$\partial \Delta \log Q_t / \partial \hat{w}_{1t}$											
p10 of $\log \hat{Q}_t$	-0.744	-0.659	-0.780	-0.006	0.915	-0.635	-0.159	-0.304	-0.142	0.122	-0.427
p25 of $\log \hat{Q}_t$	-0.706	-0.324	-0.463	0.054	1.139	-0.348	-0.082	-0.279	0.413	0.183	-0.237
p75 of $\log \hat{Q}_t$	-0.630	0.469	-0.156	0.162	1.832	0.166	0.058	-0.226	1.619	0.326	0.155
p90 of $\log \hat{Q}_t$	-0.592	0.822	0.040	0.236	2.057	0.387	0.107	-0.204	2.329	0.394	0.354
$\partial \Delta \log Q_t / \partial \hat{w}_{2t}$											
p10 of $\log \hat{Q}_t$	-0.795	-0.207	-0.792	-0.957	0.406	-0.379	-0.098	-1.093	0.604	-0.654	-0.155
p25 of $\log \hat{Q}_t$	-0.652	0.152	-0.726	-0.752	0.509	-0.069	0.042	-0.850	0.686	-0.252	-0.034
p75 of $\log \hat{Q}_t$	-0.366	1.002	-0.623	-0.447	0.828	0.487	0.449	-0.325	0.864	0.686	0.215
p90 of $\log \hat{Q}_t$	-0.220	1.381	-0.516	-0.279	0.931	0.725	0.670	-0.106	0.969	1.132	0.342
$\partial \Delta \log Q_t / \partial z_{2t}$											
p10 of $\log \hat{Q}_t$	-0.138	-0.070	-0.078	0.036	-0.126	-0.147	-0.204	-0.320	-0.137	-0.080	-0.042
p25 of $\log \hat{Q}_t$	-0.054	-0.037	-0.017	0.037	-0.075	-0.056	-0.103	-0.133	-0.050	-0.014	0.001
p75 of $\log \hat{Q}_t$	0.112	0.036	0.042	0.038	0.083	0.108	0.082	0.272	0.097	0.124	0.091
p90 of $\log \hat{Q}_t$	0.195	0.067	0.080	0.039	0.134	0.178	0.146	0.440	0.165	0.183	0.137
$\partial \Delta \log Q_t / \partial \hat{w}_{1t-1}$											
p10 of $\log \hat{Q}_t$	-0.355	0.006	-0.658	-0.076	-1.162	-0.724	0.070	-0.624	-0.344	-0.713	-1.778
p25 of $\log \hat{Q}_t$	0.306	0.325	0.153	-0.031	-0.337	-0.455	0.131	-0.549	0.042	-0.352	-1.360
p75 of $\log \hat{Q}_t$	1.626	1.080	1.429	0.050	2.217	0.170	0.310	-0.388	0.882	0.492	-0.491
p90 of $\log \hat{Q}_t$	2.297	1.417	2.747	0.104	3.043	0.519	0.406	-0.321	1.377	0.892	-0.050
$\partial \Delta \log Q_t / \partial \hat{w}_{2t-1}$											
p10 of $\log \hat{Q}_t$	-0.737	0.108	0.131	0.398	-1.683	-2.446	-0.103	-0.689	0.080	-0.080	-2.398
p25 of $\log \hat{Q}_t$	-0.225	0.181	0.612	0.460	-0.744	-1.352	-0.036	-0.401	0.107	-0.046	-1.675
p75 of $\log \hat{Q}_t$	0.797	0.353	1.367	0.552	2.160	0.605	0.088	0.220	0.166	0.024	-0.176
p90 of $\log \hat{Q}_t$	1.316	0.429	2.147	0.603	3.099	1.444	0.131	0.479	0.201	0.054	0.586
$\partial \Delta \log Q_t / \partial z_{2t-1}$											
p10 of $\log \hat{Q}_t$	-0.235	-0.199	-0.166	-0.269	-0.188	-0.333	-0.233	-0.468	-0.337	-0.181	-0.194
p25 of $\log \hat{Q}_t$	-0.106	-0.094	-0.044	-0.102	-0.094	-0.142	-0.088	-0.228	-0.134	-0.080	-0.077
p75 of $\log \hat{Q}_t$	0.146	0.142	0.074	0.146	0.195	0.200	0.181	0.288	0.211	0.132	0.164
p90 of $\log \hat{Q}_t$	0.273	0.242	0.149	0.283	0.288	0.346	0.273	0.504	0.369	0.222	0.287

Notes: The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years.

distribution, and not the country in which it lives, seems more relevant to whether an additional unit of relative non-labor income raises current spending. Under the collective interpretation, the shift in the Pareto weight operates in the same direction everywhere, whereas whether the additional resources are consumed or saved depends on the household’s level of consumption.

Our estimates also speak to the income pooling hypothesis. With income pooling, only the total amount of non-labor income enters the household budget constraint, and its distribution between spouses should leave consumption unaffected. We estimate significant coefficients on z_{2t} in ten of the eleven countries and on z_{2t-1} in all the countries, so the identity of the income recipient matters for aggregate household spending. Most of the evidence on this question comes from cross-sectional settings and from low and middle income countries (e.g., [Thomas, 1990](#); [Lundberg et al., 1997](#); [Duflo, 2003](#); [Jayachandran and Voena, 2026](#)). Our results extend that evidence to a longitudinal European cross-country setting, where the allocation of non-labor income one year earlier still affects current spending.

The transmission of relative non-labor income to consumption is smaller than that of wages in most countries and at most points of the consumption distribution. The transitory nature of these payments accounts for the difference, since non-labor income arrives as one-shot realizations that are less volatile and then partly insured against, while wage deviations combine permanent and transitory variations. Our estimates are consistent with the responses reported for cash transfers, lottery wins and inheritances ([Angelucci et al., 2024](#); [Goloso et al., 2024](#); [Belloc et al., 2025b](#)), which are positive but modest relative to labor income.

The change of sign along the consumption distribution has a further implication. A given shift in decision power raises spending in households at the top of the distribution and reduces it at the bottom, so an average transmission coefficient combines two opposite responses. Bargaining effects and precautionary motives operate at the same time, and estimates that do not allow the response to vary with the level of consumption average both ([Blundell et al., 2016](#); [Commault, 2022](#); [Arellano et al., 2024](#)).

Finally, the smaller consumption response to wife wages, relative to husband, is consistent with two interpretations. Women may be more risk averse than men ([Croson and Gneezy, 2009](#); [Dohmen et al., 2011](#)), and spouses may hold different preferences over goods. Both cases imply a smaller adjustment of aggregate spending when the wife’s decision power increases. Total household consumption cannot separate them, and doing so requires data on the separate consumption of goods among household members, which we do not have in the EU-SILC (see, e.g., [Cherchye et al., 2012](#); [Lise and Yamada, 2019](#)).

6 Conclusions

This paper studies the transmission of income to total household consumption. To this end, we develop a dynamic collective model with limited commitment, in which married households make joint decisions on consumption and labor supply. We focus on two different stochastic distribution factors: wage deviations, defined as the residual from a Mincer-style wage regression, and relative non-labor income. The underlying idea is that when a distribution factor favors one partner and renegotiation is successful, that partner’s influence over household preferences and decision-making increases accordingly. We estimate consumption Euler equations derived from the model using harmonized cross-country data from the EU-SILC for 11 European countries over the period 2006–2019.

Our results show that deviations in individual wages and the relative non-labor income of spouses are transmitted to household consumption dynamics, and that this transmission persists one year. This feature is in line with limited commitment models. Our results are also consistent with models incorporating precautionary savings motives, as well as with the broader finding that women tend to display greater risk aversion than men. In particular, we find that the consumption responses to deviations in wife wages are systematically smaller in absolute value than those of husbands, which may reflect underlying differences in risk preferences between men and women. Furthermore, our results show that the relative non-labor income also impacts household consumption decisions, although this response is smaller than that associated with deviations in labor income. We interpret this differential pass-through as reflecting the lower uncertainty and more transitory nature typically associated with non-labor income, relative to the more persistent and harder-to-insure nature of labor income changes.

A limitation of this paper concerns the nature of our consumption measure, which is a subjective continuous indicator targeting household basic needs. In addition, our dataset does not allow us to distinguish between assignable private goods (e.g., men’s and women’s consumption) and public goods (e.g., children-related consumption and spouses’ joint consumption), which would allow us to further identify differences in consumption preferences between husbands and wives.²⁰ This requires individual-level consumption information on the separate consumption of each household member, which is generally not available (Cherchye et al., 2026), and is left for future research. Finally, although we focus on several countries within a harmonized design, we suggest further research on consumption dynamics in developing countries, where incomes tend to be more volatile, workers face substantially

²⁰A recent article uses machine learning techniques to distinguish female and male products from household-level consumption data in the US (Gihleb et al., 2026).

greater risk, and access to financial instruments to insure against consumption fluctuations is limited. However, we are not aware of any dataset containing the necessary variables (joint information on consumption, income, and wealth for the same set of households over time) for such a demanding intertemporal analysis.

Despite these limitations, our results have implications for the design of policies that transfer resources to households. The share of non-labor income accruing to the wife affects household consumption both contemporaneously and one year later, so the identity of the recipient of a benefit matters for observed spending choices. Programs that pay one spouse rather than the other therefore affect intra-household bargaining, even when they are designed with other objectives, and such an effect may persist in time. Two remarks follow. First, the consumption response to the relative non-labor income is smaller than the response to labor income, so a transfer does not translate into spending at the same rate as earnings of the same amount. Second, the response varies with the position of the household in the consumption distribution and is negative in the lower tail, which suggests that households at the bottom of the distribution may allocate additional non-labor income to debt repayment or to savings rather than to current expenses. For the evaluation of transfer programs, this implies that effects evaluated only in the year of receipt, or averaged across households, underestimate the persistence of the response and mask differences along the consumption distribution.

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Appendix: Additional results

Table A1: Additional summary statistics

	Austria	Belgium	France	Greece	Ireland	Italy
Husband age	46.40 (8.37)	43.30 (9.21)	45.72 (8.58)	45.89 (8.14)	44.81 (9.53)	46.63 (8.21)
Wife age	43.82 (8.29)	41.27 (9.17)	43.80 (8.69)	42.30 (7.55)	42.89 (8.99)	43.95 (7.99)
Husband % University	0.40 (0.49)	0.51 (0.50)	0.42 (0.49)	0.42 (0.49)	0.62 (0.49)	0.22 (0.41)
Wife % University	0.32 (0.47)	0.61 (0.49)	0.49 (0.50)	0.48 (0.50)	0.69 (0.46)	0.28 (0.45)
Married couple	0.83 (0.38)	0.72 (0.45)	0.69 (0.46)	0.98 (0.15)	0.87 (0.33)	0.90 (0.30)
Family size	3.27 (1.06)	3.45 (1.09)	3.51 (1.02)	3.53 (0.92)	3.52 (1.11)	3.40 (0.91)
# kids	1.20 (1.01)	1.42 (1.08)	1.50 (1.02)	1.45 (0.88)	1.48 (1.10)	1.35 (0.88)
# observations	11,640	13,442	7,418	16,661	6,130	33,407
	Luxemb.	Portugal	Spain	Switz.	UK	
Husband age	43.16 (8.51)	40.22 (8.07)	44.41 (8.41)	46.03 (9.88)	44.40 (10.18)	
Wife age	41.00 (8.41)	38.27 (7.88)	42.40 (8.31)	43.81 (9.75)	42.57 (10.06)	
Husband % University	0.33 (0.47)	0.32 (0.47)	0.48 (0.50)	0.51 (0.50)	0.48 (0.50)	
Wife % University	0.39 (0.49)	0.46 (0.50)	0.57 (0.49)	0.41 (0.49)	0.54 (0.50)	
Married couple	0.84 (0.37)	0.88 (0.32)	0.87 (0.34)	0.77 (0.42)	0.81 (0.39)	
Family size	3.39 (1.04)	3.61 (0.95)	3.36 (0.97)	3.11 (1.07)	3.15 (1.01)	
# kids	1.33 (1.01)	1.44 (0.86)	1.28 (0.92)	1.09 (1.06)	1.12 (1.00)	
# observations	8,582	11,179	22,704	8,640	15,102	

Notes: The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years. Standard deviations in parentheses.

Table A2: Additional GMM estimates

	(1) Austria	(2) Belgium	(3) France	(4) Greece	(5) Ireland	(6) Italy	(7) Luxembourg	(8) Portugal	(9) Spain	(10) Switzerland	(11) UK
$\log Q_{t-1}$	-0.591*** (0.023)	-0.455*** (0.024)	-0.408*** (0.028)	-0.317*** (0.032)	-0.550*** (0.027)	-0.553*** (0.012)	-0.427*** (0.051)	-0.646*** (0.044)	-0.621*** (0.018)	-0.597*** (0.042)	-0.426*** (0.020)
$\log \hat{Q}_t^2 - \log \hat{Q}_{t-1}^2$	-0.057*** (0.011)	-0.029* (0.016)	-0.006 (0.008)	-0.021** (0.010)	-0.043*** (0.012)	-0.098*** (0.008)	-0.013*** (0.004)	-0.013*** (0.005)	-0.042*** (0.009)	-0.008 (0.008)	-0.064*** (0.006)
$\log y_t$	0.027** (0.012)	-0.003 (0.009)	0.008 (0.012)	0.006 (0.005)	-0.007 (0.017)	0.018*** (0.006)	-0.001 (0.007)	0.017*** (0.006)	-0.012 (0.009)	0.001 (0.011)	0.014 (0.010)
$\log y_{t-1}$	-0.013 (0.010)	-0.016* (0.010)	-0.009 (0.011)	0.002 (0.005)	-0.045** (0.018)	0.005 (0.006)	-0.007 (0.007)	-0.004 (0.005)	-0.003 (0.007)	-0.014 (0.015)	0.020** (0.009)
$\log a_t$	0.000 (0.001)	0.000 (0.001)	-0.002* (0.001)	0.000 (0.000)	0.000 (0.001)	0.001 (0.001)	0.000 (0.000)	0.001 (0.001)	0.002* (0.001)	0.001 (0.000)	-0.001* (0.000)
$\log a_{t-1}$	-0.001 (0.001)	-0.001 (0.001)	0.003*** (0.001)	0.000 (0.000)	0.001 (0.001)	0.000 (0.001)	0.000 (0.000)	0.000 (0.001)	-0.002* (0.001)	-0.001** (0.000)	0 (0.000)
$\log h_{1t}$	-0.021** (0.010)	0.006 (0.010)	-0.017 (0.012)	-0.001 (0.006)	0.028 (0.018)	0.014* (0.007)	-0.002 (0.009)	-0.008 (0.010)	0.032*** (0.010)	0.004 (0.008)	0.015 (0.010)
$\log h_{1t-1}$	0.021** (0.010)	0.012 (0.011)	0.023* (0.013)	0.006 (0.005)	0.014 (0.017)	-0.013* (0.007)	0 (0.008)	0.005 (0.011)	-0.002 (0.009)	0.002 (0.009)	-0.023*** (0.008)
$\log h_{2t}$	-0.004 (0.007)	-0.001 (0.006)	-0.014 (0.014)	0.000 (0.005)	0.002 (0.011)	0.013** (0.006)	0.002 (0.004)	0.006 (0.006)	0.013** (0.006)	0.005 (0.004)	-0.001 (0.005)
$\log h_{2t-1}$	0.008 (0.006)	0.014** (0.007)	0.017 (0.013)	0.001 (0.004)	0.002 (0.011)	-0.007 (0.006)	0.001 (0.004)	-0.003 (0.006)	0.002 (0.006)	0.002 (0.005)	-0.008* (0.005)
$\mathbb{E}_t w_{1t+1}$	0.107 (0.528)	-0.161 (0.813)	0.291 (0.751)	-0.126 (0.838)	1.509* (0.831)	1.501* (0.778)	0.147 (0.157)	-0.994* (0.520)	4.120** (1.658)	0.662 (0.520)	-2.932** (1.246)
$\mathbb{E}_t w_{2t+1}$	0.173 (0.413)	-0.433 (0.659)	-0.109 (2.280)	-0.117 (0.596)	2.518 (1.871)	1.406 (2.713)	0.456 (0.393)	-3.409 (4.940)	-0.047 (4.430)	-0.497* (0.296)	-0.739 (1.984)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.878*** (0.231)	4.688*** (0.262)	4.296*** (0.289)	3.150*** (0.337)	5.812*** (0.345)	5.334*** (0.146)	4.670*** (0.563)	6.200*** (0.425)	6.205*** (0.212)	6.577*** (0.471)	4.053*** (0.201)
Observations	7,716	8,911	4,711	11,000	3,810	22,013	5,587	6,221	14,306	5,687	9,488

Notes: Bootstrap standard errors in parentheses. The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years. *** significant at the 1%; ** significant at the 5%; * significant at the 10%.

Table A3: GMM estimates - prime age couples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Austria	Belgium	France	Greece	Ireland	Italy	Luxembourg	Portugal	Spain	Switzerland	UK
<i>Cross-sectional variation in intra-household bargaining power:</i>											
$\hat{w}_{1t}\Delta \log Q_t$	-2.057*** (0.226)	-4.246*** (0.334)	-5.719*** (0.356)	0.155 (0.164)	-3.049*** (0.290)	0.422** (0.195)	-0.172* (0.093)	0.169 (0.157)	-4.048*** (0.332)	-2.868*** (0.142)	2.574*** (0.161)
$\hat{w}_{2t}\Delta \log Q_t$	-4.091*** (0.252)	-6.997*** (0.343)	-7.124*** (0.461)	1.302*** (0.163)	-3.156*** (0.502)	5.516*** (0.288)	-0.865*** (0.163)	2.143*** (0.412)	0.820** (0.400)	-0.970*** (0.130)	4.403*** (0.212)
$z_{2t}\Delta \log Q_t$	0.462*** (0.017)	0.721*** (0.015)	0.819*** (0.021)	1.318*** (0.012)	0.458*** (0.021)	0.646*** (0.010)	0.903*** (0.023)	0.534*** (0.020)	0.601*** (0.012)	0.454*** (0.020)	0.758*** (0.016)
<i>Bargaining effects of news at t:</i>											
$\hat{w}_{1t}$	-0.533*** (0.201)	-0.099 (0.226)	-0.020 (0.289)	0.178 (0.145)	1.617*** (0.358)	0.110 (0.167)	0.046 (0.121)	-0.225 (0.257)	0.713*** (0.264)	0.366** (0.158)	0.119 (0.153)
$\hat{w}_{1t} \log \hat{Q}_t$	-0.712** (0.335)	-1.681*** (0.367)	0.887* (0.487)	-0.535** (0.231)	0.451 (0.551)	0.883*** (0.277)	0.289 (0.223)	0.026 (0.336)	-2.015*** (0.488)	-0.551* (0.293)	0.400** (0.195)
$\hat{w}_{2t}$	-0.504** (0.213)	0.727*** (0.197)	-0.515** (0.258)	-0.768*** (0.153)	0.479 (0.344)	0.406** (0.194)	0.256** (0.106)	-0.269 (0.297)	0.717*** (0.240)	0.116 (0.117)	0.068 (0.149)
$\hat{w}_{2t} \log \hat{Q}_t$	-0.739** (0.363)	-1.818*** (0.357)	0.425 (0.434)	1.181*** (0.290)	1.212** (0.591)	1.316*** (0.378)	-0.860*** (0.204)	0.338 (0.499)	-0.236 (0.460)	-1.889*** (0.216)	0.519** (0.232)
z_{2t}	0.046*** (0.007)	0.008* (0.005)	0.025*** (0.008)	0.030*** (0.005)	0.023** (0.010)	0.045*** (0.004)	-0.012 (0.009)	0.138*** (0.009)	0.035*** (0.005)	0.060*** (0.008)	0.054*** (0.008)
$z_{2t} \log \hat{Q}_t$	0.360*** (0.020)	0.128*** (0.015)	0.164*** (0.023)	-0.063*** (0.013)	0.302*** (0.025)	0.318*** (0.012)	0.404*** (0.024)	0.582*** (0.022)	0.322*** (0.014)	0.296*** (0.024)	0.183*** (0.017)
<i>Bargaining effects of news at t - 1:</i>											
$\hat{w}_{1t-1}$	0.706*** (0.202)	0.873*** (0.227)	0.725** (0.288)	-0.311** (0.139)	0.536 (0.365)	-0.431** (0.168)	0.196 (0.119)	-0.325 (0.242)	0.450* (0.266)	-0.032 (0.159)	-0.715*** (0.150)
$\hat{w}_{1t-1} \log \hat{Q}_t$	-2.353*** (0.321)	-1.536*** (0.372)	-3.793*** (0.512)	0.279 (0.219)	-3.312*** (0.546)	-1.051*** (0.273)	-0.399* (0.223)	0.166 (0.324)	-2.224*** (0.471)	-1.639*** (0.285)	1.134*** (0.186)
$\hat{w}_{2t-1}$	0.077 (0.203)	0.110 (0.198)	1.025*** (0.259)	0.476*** (0.144)	0.596* (0.337)	-0.248 (0.187)	0.009 (0.105)	0.175 (0.283)	0.165 (0.234)	0.091 (0.116)	-0.525*** (0.147)
$\hat{w}_{2t-1} \log \hat{Q}_t$	-2.159*** (0.337)	-0.377 (0.349)	-2.781*** (0.445)	-0.234 (0.279)	-5.582*** (0.556)	3.628*** (0.336)	0.349* (0.193)	0.595 (0.444)	-0.262 (0.429)	-0.137 (0.220)	1.655*** (0.211)
z_{2t-1}	0.050*** (0.007)	0.037*** (0.005)	0.017** (0.007)	0.023*** (0.005)	0.066*** (0.009)	0.069*** (0.004)	0.064*** (0.008)	0.106*** (0.009)	0.071*** (0.005)	0.038*** (0.007)	0.082*** (0.009)
$z_{2t-1} \log \hat{Q}_t$	0.548*** (0.016)	0.509*** (0.013)	0.350*** (0.019)	0.615*** (0.011)	0.469*** (0.020)	0.624*** (0.009)	0.526*** (0.016)	0.775*** (0.014)	0.759*** (0.012)	0.461*** (0.019)	0.420*** (0.016)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,031	7,739	4,269	10,099	3,366	20,294	4,844	5,370	13,252	4,750	7,708

Notes: Robust standard errors clustered at the household level in parentheses. The samples (EU-SILC longitudinal) are restricted to couples between 30 and 60 years old, with complete data on key variables, and observed at least for two consecutive years. *** significant at the 1%; ** significant at the 5%; * significant at the 10%.

Table A4: GMM estimates - log wage deviations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Austria	Belgium	France	Greece	Ireland	Italy	Luxembourg	Portugal	Spain	Switzerland	UK
<i>Cross-sectional variation in intra-household bargaining power:</i>											
$\hat{w}_{1t}\Delta \log Q_t$	-0.005 (0.005)	-0.073*** (0.007)	-0.132*** (0.007)	-0.020*** (0.003)	-0.126*** (0.009)	0.031*** (0.004)	-0.001 (0.004)	-0.019*** (0.003)	-0.106*** (0.005)	-0.059*** (0.004)	0.086*** (0.004)
$\hat{w}_{2t}\Delta \log Q_t$	-0.112*** (0.005)	-0.074*** (0.007)	-0.093*** (0.006)	0.011*** (0.002)	-0.043*** (0.011)	0.084*** (0.004)	-0.027*** (0.004)	0.030*** (0.004)	-0.008* (0.005)	-0.016*** (0.003)	0.077*** (0.003)
$z_{2t}\Delta \log Q_t$	0.408*** (0.016)	0.798*** (0.014)	0.787*** (0.019)	1.279*** (0.012)	0.568*** (0.02)	0.611*** (0.01)	0.963*** (0.022)	0.612*** (0.019)	0.551*** (0.011)	0.678*** (0.019)	0.542*** (0.013)
<i>Bargaining effects of news at t:</i>											
$\hat{w}_{1t}$	-0.011** (0.005)	-0.007 (0.005)	0 (0.005)	0.010*** (0.002)	0.011 (0.01)	0.000 (0.004)	0.003 (0.004)	0.012*** (0.004)	0.012*** (0.004)	0.004 (0.006)	0.011*** (0.004)
$\hat{w}_{1t} \log \hat{Q}_t$	-0.004 (0.008)	-0.041*** (0.008)	0.027*** (0.009)	-0.012*** (0.004)	0.082*** (0.014)	0.038*** (0.006)	0.001 (0.006)	0.009* (0.005)	-0.034*** (0.006)	-0.045*** (0.011)	0.014*** (0.005)
$\hat{w}_{2t}$	-0.013*** (0.004)	0.004 (0.004)	0.002 (0.004)	0 (0.002)	0.013 (0.008)	0.007** (0.003)	0.003 (0.003)	0.013*** (0.003)	0.011*** (0.003)	-0.001 (0.004)	0.008*** (0.003)
$\hat{w}_{2t} \log \hat{Q}_t$	-0.037*** (0.007)	-0.031*** (0.007)	-0.037*** (0.008)	0.006 (0.004)	0.001 (0.013)	0.033*** (0.006)	-0.027*** (0.005)	0.002 (0.005)	-0.007 (0.006)	-0.059*** (0.006)	0.032*** (0.005)
z_{2t}	0.048*** (0.007)	0.008 (0.005)	0.018** (0.007)	0.036*** (0.005)	0.027*** (0.01)	0.047*** (0.004)	0.005 (0.008)	0.143*** (0.009)	0.036*** (0.005)	0.087*** (0.008)	0.059*** (0.008)
$z_{2t} \log \hat{Q}_t$	0.309*** (0.019)	0.160*** (0.015)	0.171*** (0.022)	0.005 (0.013)	0.228*** (0.024)	0.300*** (0.011)	0.347*** (0.022)	0.561*** (0.02)	0.262*** (0.013)	0.414*** (0.024)	0.127*** (0.015)
<i>Bargaining effects of news at $t-1$:</i>											
$\hat{w}_{1t-1}$	0.009* (0.005)	-0.001 (0.005)	-0.004 (0.005)	-0.008*** (0.002)	-0.020** (0.009)	0.005 (0.004)	0.002 (0.003)	-0.013*** (0.003)	-0.013*** (0.003)	-0.015** (0.006)	0.001 (0.004)
$\hat{w}_{1t-1} \log \hat{Q}_t$	-0.042*** (0.007)	-0.020*** (0.007)	-0.091*** (0.009)	-0.005 (0.003)	-0.145*** (0.014)	-0.027*** (0.005)	0.002 (0.006)	-0.015*** (0.005)	-0.084*** (0.006)	0.015 (0.01)	0.064*** (0.004)
$\hat{w}_{2t-1}$	0.002 (0.003)	-0.001 (0.003)	-0.001 (0.004)	0.001 (0.002)	-0.018** (0.007)	0.009*** (0.003)	-0.001 (0.002)	-0.008*** (0.003)	-0.004 (0.003)	0 (0.004)	0.002 (0.003)
$\hat{w}_{2t-1} \log \hat{Q}_t$	-0.044*** (0.006)	0.037*** (0.007)	0.009 (0.008)	0.005 (0.003)	-0.062*** (0.012)	0.055*** (0.005)	-0.001 (0.004)	0.012*** (0.005)	-0.008 (0.005)	0.041*** (0.006)	0.037*** (0.004)
z_{2t-1}	0.053*** (0.006)	0.055*** (0.005)	0.029*** (0.007)	0.043*** (0.005)	0.091*** (0.009)	0.073*** (0.004)	0.069*** (0.007)	0.119*** (0.008)	0.068*** (0.004)	0.064*** (0.008)	0.085*** (0.008)
$z_{2t-1} \log \hat{Q}_t$	0.517*** (0.015)	0.602*** (0.013)	0.395*** (0.018)	0.601*** (0.011)	0.438*** (0.019)	0.632*** (0.009)	0.499*** (0.015)	0.724*** (0.013)	0.665*** (0.011)	0.595*** (0.019)	0.389*** (0.014)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,716	8,911	4,711	11,000	3,810	22,013	5,587	6,221	14,306	5,687	9,488

Notes: Robust standard errors clustered at the household level in parentheses. The samples (EU-SILC longitudinal) are restricted to couples between 21 and 65 years old, with complete data on key variables, and observed at least for two consecutive years. $\hat{w}_{j,\tau}$ refers to the log-wage deviation of spouse $j \in \{1, 2\}$ at date $\tau = t, t-1$. *** significant at the 1%; ** significant at the 5%; * significant at the 10%.

Table A5: GMM estimates - married couples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Austria	Belgium	France	Greece	Ireland	Italy	Luxembourg	Portugal	Spain	Switzerland	UK
<i>Cross-sectional variation in intra-household bargaining power:</i>											
$\hat{w}_{1t}\Delta \log Q_t$	-2.178*** (0.242)	-4.748*** (0.367)	-6.728*** (0.437)	0.100 (0.164)	-2.977*** (0.290)	0.471** (0.202)	-0.198** (0.093)	0.093 (0.180)	-4.123*** (0.340)	-2.979*** (0.148)	2.485*** (0.170)
$\hat{w}_{2t}\Delta \log Q_t$	-4.255*** (0.271)	-6.261*** (0.379)	-7.590*** (0.558)	1.238*** (0.163)	-3.506*** (0.515)	5.406*** (0.295)	-0.860*** (0.163)	2.060*** (0.472)	0.835** (0.409)	-0.673*** (0.134)	4.301*** (0.228)
$z_{2t}\Delta \log Q_t$	0.447*** (0.019)	0.718*** (0.016)	0.777*** (0.024)	1.346*** (0.012)	0.498*** (0.023)	0.639*** (0.011)	0.755*** (0.025)	0.562*** (0.022)	0.577*** (0.013)	0.469*** (0.021)	0.737*** (0.017)
<i>Bargaining effects of news at t:</i>											
$\hat{w}_{1t}$	-0.409* (0.216)	-0.205 (0.245)	-0.311 (0.349)	0.165 (0.146)	1.151*** (0.354)	0.122 (0.171)	0.000 (0.118)	-0.178 (0.290)	0.831*** (0.272)	0.257 (0.163)	0.115 (0.163)
$\hat{w}_{1t} \log \hat{Q}_t$	-1.086*** (0.376)	-1.701*** (0.401)	1.416** (0.590)	-0.516** (0.231)	0.984* (0.540)	0.857*** (0.290)	0.609*** (0.217)	-0.067 (0.379)	-2.988*** (0.506)	-0.521* (0.309)	0.393* (0.208)
$\hat{w}_{2t}$	-0.544** (0.230)	0.620*** (0.213)	-0.763** (0.302)	-0.821*** (0.155)	-0.079 (0.355)	0.398** (0.200)	0.175* (0.103)	-0.450 (0.331)	0.794*** (0.248)	0.044 (0.118)	-0.020 (0.160)
$\hat{w}_{2t} \log \hat{Q}_t$	-0.203 (0.403)	-0.682* (0.392)	1.108** (0.526)	1.335*** (0.296)	1.853*** (0.643)	1.213*** (0.390)	-0.727*** (0.200)	0.694 (0.548)	-0.234 (0.472)	-1.991*** (0.220)	0.450* (0.246)
z_{2t}	0.047*** (0.008)	0.010* (0.006)	0.010 (0.010)	0.035*** (0.005)	0.029*** (0.010)	0.045*** (0.005)	-0.026*** (0.009)	0.121*** (0.010)	0.039*** (0.005)	0.061*** (0.009)	0.046*** (0.009)
$z_{2t} \log \hat{Q}_t$	0.359*** (0.022)	0.116*** (0.016)	0.174*** (0.028)	-0.086*** (0.013)	0.292*** (0.026)	0.335*** (0.013)	0.490*** (0.026)	0.568*** (0.024)	0.327*** (0.015)	0.266*** (0.027)	0.184*** (0.019)
<i>Bargaining effects of news at t - 1:</i>											
$\hat{w}_{1t-1}$	0.687*** (0.217)	0.922*** (0.245)	0.958*** (0.344)	-0.298** (0.140)	0.920** (0.363)	-0.439** (0.172)	0.240** (0.118)	-0.386 (0.267)	0.335 (0.274)	-0.042 (0.163)	-0.732*** (0.161)
$\hat{w}_{1t-1} \log \hat{Q}_t$	-2.071*** (0.361)	-1.178*** (0.413)	-4.318*** (0.617)	0.293 (0.219)	-3.490*** (0.534)	-1.006*** (0.285)	-0.664*** (0.216)	0.347 (0.370)	-1.261** (0.493)	-1.513*** (0.296)	1.294*** (0.197)
$\hat{w}_{2t-1}$	0.189 (0.218)	0.178 (0.215)	1.249*** (0.304)	0.543*** (0.148)	1.044*** (0.350)	-0.232 (0.194)	0.011 (0.102)	0.275 (0.313)	0.086 (0.244)	0.129 (0.117)	-0.397*** (0.158)
$\hat{w}_{2t-1} \log \hat{Q}_t$	-2.543*** (0.372)	-1.864*** (0.389)	-3.383*** (0.539)	-0.372 (0.287)	-5.754*** (0.629)	3.659*** (0.350)	0.315* (0.186)	0.092 (0.496)	0.078 (0.435)	0.017 (0.225)	1.539*** (0.224)
z_{2t-1}	0.048*** (0.007)	0.031*** (0.006)	0.015* (0.009)	0.023*** (0.005)	0.055*** (0.009)	0.066*** (0.004)	0.040*** (0.008)	0.095*** (0.009)	0.059*** (0.005)	0.019*** (0.008)	0.074*** (0.010)
$z_{2t-1} \log \hat{Q}_t$	0.550*** (0.018)	0.529*** (0.015)	0.347*** (0.024)	0.612*** (0.011)	0.464*** (0.020)	0.621*** (0.010)	0.626*** (0.017)	0.768*** (0.016)	0.794*** (0.012)	0.497*** (0.020)	0.447*** (0.018)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,942	5,957	3,000	9,900	3,012	18,414	4,105	4,601	11,852	3,899	6,559

Notes: Robust standard errors clustered at the household level in parentheses. The samples (EU-SILC longitudinal) are restricted to married couples, with complete data on key variables, and observed at least for two consecutive years. *** significant at the 1%; ** significant at the 5%; * significant at the 10%.