

The Power of Flexibility: How Synergistic Labor and Generous Leave Policies Drive Fertility Across Households

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Abstract

Why do similar family policies produce dramatically different fertility outcomes across contexts? This study develops and tests the Life Course Synergy Model (LCSM), which argues that fertility responds not to individual policies but to their synergistic interaction. Using fixed-effects Poisson models with European Social Survey data from 15 countries (N=8,182 mothers aged 18-45), we examine how combinations of paid leave, early childhood education and care (ECEC), and workplace flexibility (flextime) shape fertility across the household income distribution. Our most striking finding fundamentally challenges demographic theory: under conditions of high leave spending and high flextime availability, the traditionally negative relationship between income and fertility reverses—higher-income mothers have more children than their lower-income counterparts. Neither policy alone produces significant effects; only their synergistic combination enables higher-income women to reconcile career and family. This reversal suggests that "lowest-low" fertility among educated women reflects institutional failure rather than immutable preferences. The findings reconcile conflicting evidence from single-policy studies and demonstrate that comprehensive policy packages can transform even the most entrenched demographic patterns. For policymakers confronting population aging, our results indicate that piecemeal reforms will fail; only integrated approaches that recognize policy complementarities can achieve both gender equality and sustainable fertility.

Introduction

Fertility has been stalled or declining in most advanced Western nations (Lesthaeghe, 2020), often without a coherent explanation (Balbo et al., 2013). Disciplinary boundaries exacerbate this problem. Focuses on norms and culture in Demography (Lesthaeghe, 2010), household economic dynamics within Economics (Becker, 1993; Doepke & Kindermann, 2019), and sociologists focus macro-level institutional regimes (Gornick & Meyers, 2003) or individual-level gender attitudes (Goldscheider et al., 2015), offer a fragmented view of a systems problem. We focus our arguments here on what can be done through identifying three co-occurring problems, couching are argument with a focus on how the structural determinants of social policy in welfare state systems enable or constrain gender role specialization due to the interaction of family policy and labor market conditions which we demonstrate impacts fertility realization. In doing so, we offer a reorganization of the literature taking insights and findings across disciplines through advancing the Life Course Synergy Model, allowing for a more comprehensive explanation of how structural determinants impact the individual life course and enable or constrain fertility, although this model may applied to gender inequality more broadly, where it has been demonstrated to be effective at explaining other important outcomes such as mental well-being and employment implying that inequalities across field specific domains likely combine to affect family reproduction systems.

Our first problem of the literature stems from the observation that there has been a conflation in the literature between two separate, but important questions within the fertility literature. The first has been a focus on how norms and culture have shaped institutional design. The development and continuity of institutions is a classical question in sociology, where many important works in the welfare state literature (Esping-Andersen, 1990) have traced determinants of institutional design, which spurred a gendered critique of different models focused on the gendered nature of the welfare state (Gornick & Meyers, 2009; Lewis, 1992; Sainsbury, 1999). Here norms and culture are seen as creating important variation in family policy design (Esping-Andersen & Billari, 2015). However, at the same time, this has created the tendency of treating social policy as a mirror of norms, values and culture—a passive structure reacting to these inputs, relegating policy to be conceptualized as an outcome or confounder to be controlled versus a causal agent (Goldscheider et al., 2015; Lesthaeghe, 2010). As a consequence, the literature has embedded the second question, “what do social policies do?” as a secondary, but implied, question within this structure, assuming causal priority upstream, thus relegating social policy to a reactionary force on outcomes. While we do not deny that norms, values, and culture shape institutions, we focus our attention on the latter question, arguing that social policies have meaningful effects as structuring structures, net of norms and culture (Neyer et al., 2013). Our analysis thus focuses primarily on what policies do, separating out these questions to clarify two separate, yet related, processes.

Co-occurring with this broad issue of empirical focus of the development and consequences of social policy configurations is another methodological constraint that has limited our ability to detect the reasoning of why some family policies or labor market policies work in some context, but not others. Causal identification strategies, focusing on quasi-experimental design, focusing on one policy and one outcome, absent an overall theoretical frame have produced hard-to-

interpret evidence regarding the transportability of social policies in different contexts due to major differences in effect sizes, and even null findings of similar programs in different within-country designs. That is not to say this literature is not extremely valuable, it has identified the most consistent policy levers to pull, giving important insights to policymakers of the likely best options to improve fertility. However, from an inference standpoint, concern in the literature about the differences in effect size itself breaks fundamental assumptions about the impact of treatment on an outcome—in the background to these identification strategies is an additive, linear understanding of policy impacts and assumption of constant treatment effects. Under these assumptions, one unit of treatment should impact one unit of outcome in any context in a similar fashion if we are to deem policies transportable. Reconciling these issues is a major problem for both academics and policymakers, as it implies that either policy is not transportable, thus a cross-national understanding of policy effects is impossible or design is conditional on broader structural arrangements. Explanations often revert back to the first problem identified, where differences in norms and culture are primary conditional explanations for interpretations of these disparate observations of effect sizes or null findings.

Another way to interpret these findings that is less fatalistic is to introduce the problem of conditional dependence and its consequences for the empirical and theoretical interpretations of policy effects. As the decline of fertility is undoubtedly a systems problem, we argue that assumptions of linearity and additivity may be used as a matter of convenience for within country identification strategies, but limit our understanding of the complexity that arises from a dynamic system where growing evidence suggests that policies may be more interdependent than additive. Thus, incorporating an assumption of conditional dependence, that the total effect of two policies is dependent on levels of each other offers a new framework to understand these differences. We operationalize this concept as policy synergy—where the combined effect of two policies exceeds the sum of their individual effects. This implies that many classical quasi-experimental designs, which isolate the effects of single policies, may offer only a partial view of the total policy impact. If policy effects are conditionally dependent, then the impact of one policy may hinge on the presence or absence of another, altering both the magnitude and interpretation of observed effects.

Theoretically, such concerns have been raised in the literature (Gauthier, 2007; Mencarini et al., 2015; Thévenon, 2011), but have rarely been formalized. We propose the Life Course Synergy Model (LCSM) as a framework for identifying and interpreting these conditional dependencies by embedding them within a life course perspective. From this view, effective policy does not merely alter average outcomes—it expands the *feasibility of role sequences*, particularly at the intersection of work and family, where constraints on choice are often most visible. Here, we give primacy to the impact of social policy on role configurations at the individual level, where we argue that social policy is an active causal force that can change role behaviour. In the case of fertility, we argue that synergies between family policy and labor market policies impact gender role configurations, impacting the decisions of households across the household income distribution, the primary intersection between state intervention and household decision-making, to impact fertility. While demographic research has predominantly focused on the effect of education as a primary socioeconomic indicator to predict preferences surrounding fertility and

realized fertility, recent cross-national evidence suggests the growing importance of income (Van Wijk & Billari, 2024). This coincides with another foundational assumption of our model, that a dual earner model represents that most realistic family structure (Esping-Andersen & Billari, 2015; Thévenon, 2011). Finally, by focusing on conditional dependence, our model allows for both an understanding of why policies do work in some contexts but not others by identifying policy synergy. In doing so, this reorients the literature to examine what policies were present when policy was effective; more importantly, it provides clues towards the consequences of the absence of supportive policies, enabling better policy design.

To test our model, we utilize a cross-sectional longitudinal fixed effects Poisson regression design using rounds 3 and round 6 of the European Social Survey across 15 countries. Here we make the case for comparative cross-national design as an essential first methodological step in identifying conditional dependence. This is motivated directly by the second problem: country cases may not have optimal levels of either policy or an N of 1 problem, thereby decreasing our chances of detection without first understanding what policies work in unison. Leveraging cross-national design allows us to draw on variation across contexts, but does imply the assumption that policies generally are transportable through functional equivalent impacts of policy on the outcome of interest, where variance in policy design produce similar outputs. We focus on a subset of family policies in leave and ECEC and flexible work arrangements (FWA), in “flexitime.” Given our focus on the implied temporal dimension of our study, though unable to disentangle in this identification strategy, where the first point of welfare state intervention for fertility decisions is leave generosity, followed by ECEC may be conditioned by temporal flexibility that flexitime provides, which encapsulates in many context both pre-and post-fertility, and generalizes after in nearly all contexts to post-fertility exposure.

This paper makes four key contributions to the fertility and social policy literature. First, it introduces the Life Course Synergy Model (LCSM), a novel framework that explains fertility as the outcome of conditional institutional alignment across three domains: material supports, temporal flexibility, and normative role signalling. Second, it challenges the dominant additive assumptions of policy evaluation by demonstrating that the effects of family policy depend not on any single intervention, but on their interaction—particularly the synergy between paid leave and flexible work arrangements. Third, using cross-national data and fixed-effects Poisson models, the analysis shows that policy synergy reverses the traditionally negative association between income and fertility, with higher-income mothers benefiting most when leave generosity and flexitime availability are both high. Finally, the findings reframe existing null or inconsistent results in the literature as products of mis-specified models that overlook the conditional structure of policy effects, offering a compelling new agenda for comparative social policy and fertility research.

Literature Review

Material Supports & Opportunity Costs

Fertility decisions are deeply shaped by the material conditions under which families evaluate the feasibility of childbearing. While economists typically frame this as a question of opportunity

costs — weighing forgone earnings and time associated with parenting — sociologists have emphasized how welfare states structure these trade-offs through income transfers, institutional design, and normative signals about caregiving responsibilities (Becker, 1993; Gauthier, 2007; Orloff, 1993). Across these traditions, there is broad agreement that household income and state policy intersect as the primary channel through which the state intervenes in reproductive decision-making. Yet much of the literature fails to model this intersection directly. Comparative policy studies often omit household income entirely (Neyer & Andersson, 2008) while others, as reviewed by Gauthier (2007), include income only as a control variable, rarely theorizing it as a structural moderator of policy effects. Indeed, Gauthier explicitly calls for more complex interaction models to examine how families at different income levels respond to policy interventions corresponding with other earlier conceptual work like McDonald (2006), who points to this intersection implicitly, emphasizing how institutional misalignments with gender and economic realities suppress fertility.

Despite this a recent review by Bergsvik et al. (2021) focusing on quasi-experimental design, find only a minority of studies disaggregate by income levels, where family policies had differential effects. Reforms that expand earnings-related benefits have been shown to increase fertility among high-income mothers (Raute, 2019), yet similar shifts away from flat-rate systems can suppress fertility among low-income women by raising the relative cost of childbearing (Cygan-Rehm 2016).

While the literature suggest income as a background characteristic, we argue instead that the household income–policy interface is the central site of fertility constraint and differentiation. While the logic of opportunity costs applies across the income distribution, its *content* varies. At the upper end, fertility delay reflects concerns about career interruption, long-run earnings trajectories, and professional penalties associated with childbearing — dynamics that align with Goldin's (2021) argument that inflexible work structures stall gender equality by reinforcing role specialization. Within-country evidence from the Netherlands supports this notion that in highly flexible labor markets with high paid leave, the income gradient in fertility is positive (Van Wijk, 2024). Similarly, in Norway also characterized by high leave replacement rates and labor market flexibility the fertility gradient among women is positive (Hart, 2015).

At the lower end of the distribution, the opportunity cost is not career progression but material deprivation. Children require time and resources. For lower-income households, the perceived cost of childbearing includes foregone wages, inadequate income replacement, and reduced ability to buffer financial shocks. Evidence where flat rates turned to earnings related leave benefits support this notion as the case in Germany, suppressing fertility among low-income mothers (Cygan-Rehm, 2016). In this context, even generous policies may remain inaccessible if leave is lower paid or job security is uncertain (Boeckmann et al., 2015). Thus, the mechanism of household decision-making may be similar across income strata — centered on role feasibility — but the underlying constraint differs: for some, it is wage loss; for others, it is wage ceiling.

The above literature suggests a causal sequence, with paid parental leave as the first-order policy signal. It simultaneously provides income smoothing and a normative endorsement of caregiving as a socially supported role. We conceptualize leave generosity as the initial condition in a sequence of household considerations about childbearing — particularly salient at the decision

threshold for first and second births(Lalive & Zweimüller, 2009). However, even where income replacement is adequate, leave alone may be insufficient. Cross-national evidence supports this notion, where leave has null effects when considered in isolation (Gauthier & Hatzius, 1997), implying parents must also consider how their schedules will adapt once leave ends.

This is where early childhood education and care (ECEC) enters as a second-order intervention — helping to sustain attachment to the labor force and coordinate parenting with paid work. Current evidence links ECEC to labor market conditions, where earnings inequality moderates the effectiveness of leave (Hook & Paek, 2020). However, we argue these findings may be contextualized by upstream factors, stemming from the reconciliation of work and family roles that produce earnings inequality in the first place. For example, Hook & Paek (2020) demonstrate ECEC’s effectiveness is conditional, but focus primarily on the consequence and not cause of earnings inequality. If caregiving schedules remain rigid, formal care may not fully resolve work–family conflict, leading to lower labor market attachment among women (Parbst, 2025). This pathway may also apply to fertility decisions. Empirical studies suggest that care availability without time flexibility limits fertility gains(Baizan, 2009; Del Boca, 2002)

These dynamics reinforce a central claim of the Life Course Synergy Model: income does not simply predict fertility; it conditions whether institutional supports can be used. This makes policy uptake stratified, even where policies are formally universal. Lower-income parents may be priced out of access; higher-income parents may delay until policy coverage is sufficient to offset career costs. In both cases, fertility realization hinges on the feasibility of accessing leave and care within household constraints.

Temporal Flexibility & Work–Role Congruence

The ability to reconcile work and caregiving responsibilities is fundamentally a question of time structure. While economic resources mitigate the cost of childbearing, it is often temporal flexibility that determines whether those resources can be used without incurring role strain or long-term career penalties (Chung & van der Lippe, 2020). Sociological and labor studies research has long shown that job control, flexible scheduling, and temporal autonomy are central to role congruence and perceived life course feasibility, particularly through reducing work family conflict (Kelly et al., 2011). In fertility research, however, flexible work arrangements (FWAs) are rarely treated as institutional supports. They are more often conceptualized as employer-specific accommodations or as endogenous to labor supply decisions, particularly for women(Begall & Mills, 2011).

We argue that this conceptualization is too narrow. Temporal flexibility — especially flexitime — should be understood as an institutional condition that can enable or block the uptake of family-supportive policy(Chung & van der Horst, 2018). Flexitime refers to a work arrangement that allows employees to vary their daily start and end times, providing schedule control within employer-defined limits. Where flexibility is available, especially via statutory rights or widespread normative expectation, it alters how households perceive the feasibility of integrating work and care roles. This matters both before childbirth — when families weigh the risks of fertility against work disruptions — and after childbirth, when return-to-work decisions hinge on whether caregiving can be managed without unsustainable time strain.

Importantly, perceived exposure to FWA matters alongside actual access. If flexitime is known to be broadly available, it may act as a signal of role manageability that conditions fertility decision-making. In this sense, flexibility operates similarly to income replacement: it reduces the perceived penalty of caregiving. This may be especially salient in contexts where households observe others navigating similar transitions — for example, in workplaces where colleagues (especially other women) have successfully used flexibility to maintain employment while parenting. Such exposure can normalize the reconciliation of work and family roles, reducing uncertainty and signaling to both men and women that parenthood does not require role exit.

This logic holds across the income distribution. For high-income women, flexitime tempers the career risks of motherhood by allowing schedule control without requiring exit or stalled advancement. For low-income women, it may reduce the risk of job loss or enable caregiving in the absence of informal supports. In both cases, temporal flexibility reshapes how opportunity costs are perceived. Without it, even generous leave or care supports may appear risky, requiring either maternal specialization or unsustainable multitasking.

Crucially, where flexibility is broadly available — whether through legislation or normative diffusion — it reduces the gendered penalty of caregiving. When both parents can coordinate care responsibilities without severe economic or career costs, gender role specialization becomes less necessary. This has the dual benefit of supporting fertility and promoting equality. In this way, flexibility is not simply a moderating variable — it is a central institutional determinant of whether dual-earner, dual-carer role configurations are feasible.

Gender Norms & Role Expectations

At the heart of fertility decision-making lies a fundamental question: what role configurations are institutionally enabled, expected, or punished? Across sociology, economics, and political science, there is broad recognition that welfare states do not simply distribute resources — they signal normative expectations about who should care, who should work, and how those responsibilities are to be sequenced. Feminist theorists have long argued that policy structures produce and reproduce gendered divisions of labor, shaping both social roles and economic trajectories (England, 2010; Lewis, 1992; Orloff, 1993). Yet these insights are often compartmentalized, rarely integrated with models of fertility or operationalized in terms of policy uptake.

Following this tradition, we argue that the same institutional constraints that reproduce gender inequality also suppress fertility. They are not separate problems, but twin outcomes of a shared structural condition: the difficulty of reconciling caregiving and employment under dual-earner expectations. In this sense, gender role specialization is not merely a normative residue — it is a rational household response to incomplete institutional adaptation. As Goldin (2021) has shown, even when women have access to higher education and employment, labor market inflexibility imposes penalties that reinforce specialization. Sociological research further emphasizes that when parental leave and childcare policies are designed around a maternal default, they encode normative expectations about who should step back (Gornick & Meyers, 2003; Hook, 2006).

The effects are not confined to gender equity. These same constraints have spillover effects on fertility. If households cannot identify a feasible pathway for reconciling roles — or if such a pathway requires one partner to sacrifice earnings or time disproportionately — childbearing may be delayed or abandoned. This is true for both egalitarian couples who reject specialization and for lower-income households where specialization is unaffordable. As a result, role feasibility becomes a precondition for fertility, and that feasibility is largely structured by state design.

Despite this, most fertility models treat norms as fixed, exogenous inputs — or as post-hoc explanations for why similar policies produce different results (Goldscheider et al., 2015; Lesthaeghe, 2010). Rarely do they model the process by which policy transmits role expectations and shapes the feasibility of shared caregiving, although others highlight the potentiality for institutions to shape norms, especially among fathers (Esping-Andersen & Billari, 2015). Even fewer consider how this process is stratified by income, class, or sector. The result is a literature that identifies gender norms as barriers, but does not explain how institutional signals maintain or shift them.

We argue that the gendered signaling of policy — and the broader feasibility of non-specialized role configurations — must be treated as a central mechanism in fertility decision-making. Whether through father-specific leave quotas, flexible scheduling rights, or publicly available childcare, the state actively shapes which caregiving arrangements are seen as legitimate, sustainable, or risky. These signals affect not only behavior, but expectations — altering how households anticipate role conflict or support. In contexts where policy signals reinforce maternal specialization, fertility may be deterred among those unwilling to conform. In contexts where shared caregiving is institutionally viable, both gender equity and fertility may be supported.

Synthesis: The Life Course Synergy Model

The preceding sections reveal a central insight: fertility behavior cannot be adequately understood through single-policy levers or population-level averages. Instead, it emerges from a conditional system of institutional constraints and supports. The Life Course Synergy Model (LCSM) offers a framework for understanding this system — one that places household income, policy supports, and labor market conditions into a temporal causal structure, where fertility is shaped by the feasibility of managing work and caregiving roles across the life course.

At its core, the model asserts that gender role specialization and fertility realization are co-produced outcomes of the same structural process. When policies reduce the financial and temporal penalties associated with caregiving — and do so in ways that are usable across the income distribution — households are more likely to form and expand. Under dual-earner assumptions, optimal institutional design should reduce the need for role specialization. This is not simply a matter of ideology, but of structural feasibility: if both partners can remain employed, access leave, and manage caregiving responsibilities without severe income or time trade-offs, specialization becomes unnecessary.

The model is built on three interacting mechanisms:

1. Material supports (e.g., income replacement through paid leave) reduce the economic risks of caregiving.
2. Temporal flexibility (e.g., flexitime) allows caregivers to align paid work with family demands, reducing time strain and role conflict.
3. Normative signaling (e.g., non-gendered policy design) shapes expectations about who should care — and under what conditions.

Each mechanism is insufficient on its own. Income support cannot drive fertility if schedules remain rigid; flexibility cannot be used if leave is unpaid or unavailable; and normative shifts cannot take hold if structural supports are missing. Most importantly, access to all three is shaped by household income. At the high end, flexibility reduces career risk; at the low end, it enables job continuity under constrained resources. In both cases, policy synergy increases the perceived feasibility of childbearing.

While early childhood education and care (ECEC) is often considered a key support, we argue that its effectiveness is conditional on prior flexibility. Without the ability to coordinate drop-off, pick-up, and daily logistics, the value of ECEC is diminished — especially for households without supplemental support. Thus, the most proximal policy levers for fertility are paid leave and flexible work arrangements, particularly when structured as statutory rights or widely diffused norms.

The LCSM reframes fertility behavior as an outcome of aligned, accessible, and non-specialized role configurations. Rather than treating norms, policy, and economic resources as additive inputs, it treats them as jointly conditional pathways, where institutional alignment enables both gender equality and fertility realization.

Methodological Bridge: Beyond Additive Thinking

The dominant empirical designs used to evaluate fertility policy — whether in sociology, economics, or demography — tend to assume modularity and independence: that policies can be analyzed in isolation, and their effects estimated as uniform, average treatment effects. This approach has yielded useful insights, especially from within-country quasi-experimental studies. However, it also imposes sharp constraints on our ability to detect conditional processes, particularly when institutional supports interact over time and across domains.

A key limitation of this approach is that most national policy configurations are suboptimal. With the exception of some Nordic countries, few offer fully aligned systems in which leave generosity, flexibility, and care access are jointly robust. As a result, within-country designs often estimate the effects of partially implemented or fragmented policy systems. Muted or null findings are then interpreted as evidence that a particular policy “does not work,” rather than as the result of a missing complement elsewhere in the causal chain. When analysts assume additivity, conditional dependence becomes analytically invisible.

Even when policy effects are statistically significant, these methods obscure for whom policies are effective — particularly across the household income distribution. Most models estimate average effects that flatten class-based variation, or net out income as a control, rather than

modeling it as a structural moderator. As a result, current empirical strategies may systematically misinterpret null results, understate real effects, or overstate generalizability.

Our approach does not reject causal identification. Rather, it reframes the object of inference. We argue that to understand why fertility-supportive policies succeed in some contexts and fail in others, we must analyze the conditional structure of institutional design. This requires moving beyond single-policy estimation to models that can test for policy synergy and effect stratification.

To do so, we adopt a cross-national design to identify broad structural processes. Cross-national analysis allows us to leverage variation in how policies are configured, even when aimed at similar normative goals. This includes not only differences in generosity or duration, but whether policies are linked to enabling conditions such as flexitime or income supports. While we do not expect the results to align precisely with within-country estimates — which tend to occur in constrained institutional settings — we argue that the cross-national comparative approach reveals broader structural patterns. It shows what combinations are possible, and where breakdowns in alignment may suppress policy effectiveness altogether.

Building on the Life Course Synergy Model (LCSM), we expect that fertility behavior will not respond uniformly to individual policies, but rather reflects the conditional structure of institutional design. Specifically, we anticipate that single-policy effects will be muted or inconsistent, particularly in contexts where policy configurations are fragmented or only partially implemented. Even policies with strong theoretical justification—such as paid parental leave or flexible work arrangements—may fail to produce measurable effects if they are not supported by complementary structures. In other words, policy effectiveness is likely contingent on synergy, rather than additive accumulation.

Expectations and Hypotheses

We also expect that the feasibility of policy uptake will vary by household income. Higher-income households are better positioned to take advantage of institutional supports due to their labor market attachment, buffering resources, and access to more stable employment. Lower-income households, by contrast, may be excluded from formal policy supports either structurally (e.g., eligibility thresholds, weak enforcement) or practically (e.g., inability to afford foregone wages). However, we do not expect two-way income–policy interactions alone to reveal this pattern. Only under conditions of policy alignment—when material supports and temporal flexibility coincide—will we observe significant differences by income.

In particular, we theorize that leave spending is the foundational condition for synergy. Without paid leave, other supports such as flexitime or ECEC may have little impact on fertility decisions, as the initial work–family transition remains too costly or uncertain. We further expect that policy synergy will be strongest among higher-income women, for whom these policies remove career and scheduling penalties that would otherwise constrain fertility.

These expectations yield five testable hypotheses:

H1: When examined in isolation, flexitime availability, leave spending, and ECEC spending will show weak or inconsistent associations with fertility.

H2: Among all policy levers, paid leave spending will exhibit the strongest main effect on fertility, reflecting its role as the first institutional signal in the life course sequence.

H3: Household income will moderate the effects of policy on fertility, but two-way interactions between income and policy will remain limited without policy alignment.

H4: Three-way interactions between leave, flexibility, and income will produce significant fertility gains, particularly among higher-income mothers. In contrast, synergy between flexibility and ECEC or between ECEC and income (without leave) will not generate significant effects.

H5: Only under conditions of high leave spending and high flexitime availability will the negative association between household income and fertility attenuate or reverse.

Data and Methods

This study uniquely integrates individual-level data from two rounds of the European Social Survey with country-level contextual data derived from two European Company Surveys conducted approximately 2006 and 2012 (European Foundation For The Improvement Of Living And Working Conditions, 2015; European Foundation For The Improvement Of Living And Working Conditions & TNS Infratest Sozialforschung (Munich), 2007), as well as additional indicators from the SOCX database (OECD, 2021b) and the World Bank (World Bank, 2021). The analytical strategy specifically targets mothers aged 18-45 (N=8,182), aligning with the primary demographic group for fertility research where listwise deletion was used to obtain the final sample. The selection of countries (N=15) was guided by the availability of consistent measures of flexitime in both company surveys and relevant family policy spending data in the SOCX database including: Belgium, Germany, Denmark, Estonia, Spain, Finland, France, United Kingdom, Ireland, Netherlands, Poland, Portugal, Sweden, Slovenia, and Slovakia.

Outcome

To measure the number of children in the household, following Aassve et al. (2015) we use the household roster from the European Social Survey (ESS), which identifies each household member's relationship to the respondent and their year of birth. Children are defined as all individuals coded as "son or daughter" (including biological, step, adopted, foster, and partner's children) who are 18 years of age or younger at the time of interview. While this variable does not distinguish biological from non-biological children, this broader operationalization remains highly policy-relevant. Most family-oriented policies—such as parental leave, childcare subsidies, and work-family balance measures—are designed to support households with caregiving responsibilities, regardless of biological ties. As such, our measure captures the practical demands placed on families and the policy-relevant exposure to childrearing, offering an appropriate outcome for assessing how labor and social policies shape household child composition.

Focal Individual Level Variable

Household income, measured in deciles, serves as the focal moderator in this analysis. Given its critical role, household income reflects the economic resources available for childbearing and rearing, potentially reducing economic barriers and facilitating fertility decisions (Van Wijk & Billari, 2024).

Focal Contextual Moderators

Family spending is a percent of gross domestic product (GDP) of total spending on services and transfers to families (OECD, 2021b). *Leave spending* is a percent of gross domestic product (GDP) of total spending on leave payments (OECD, 2021b). ECEC spending is a percent of gross domestic spending on early childhood and care (OECD, 2021b). *Flexitime* is derived from the manager surveys of the 2004/2005 and 2013 European Company Survey. A stratified sample of companies with 10 or more employees is utilized, where each country's sample frame was weighted by the class sizes (i.e. number of employees) of industry-distinct categories in each nation allowing for international comparisons where a manager representing each company was questioned (European Foundation For The Improvement Of Living And Working Conditions 2015; European Foundation For The Improvement Of Living And Working Conditions and TNS Infratest Sozialforschung (Munich) 2007). Managers are asked: "Does your establishment offer employees the possibility to adapt - within certain limits – the time when they begin or finish their daily work according to their personal needs or wishes?" Following Chung (2015), managers who responded "yes" to providing flexitime are coded as 1, and managers who responded "no" are coded as 0, representing companies that did not. The proportion of managers who responded "yes" was calculated within each country by averaging managers' responses in each country which is substantively the same measure as what is used in Glass et al. (2016). Flexitime is interpreted as the *structural availability* of flexitime within a country, distinct from individual utilization.

Controls

At the individual level, demographic, socioeconomic, and household-level controls are employed. Socioeconomic status (SES) indicators include education, measured in years, and occupational status, measured by the International Socioeconomic Index of Occupational Status (ISEI) scale along with its squared term after testing for non-linearity (Ganzeboom, 2010). Age is included to control for life-stage variations in fertility decisions. Marital status, differentiated by categories of divorced/separated, widowed, and never married relative to married/cohabiting individuals, captures partnership status variations relevant to fertility. Living with a partner and perceived housework help from a partner are also included, as they can mitigate household burdens influencing fertility decisions.

At the country level, controls for economic and labor market conditions are included to robustly estimate the outcome variable, defined here as the number of children per household. GDP per capita based on purchasing power parity (PPP) (divided by 1000) in constant 2011 international dollars is included to account for differences in development levels across countries (World Bank, 2021). Trade union density is drawn from the OECD ITCTWSS database, defined as the

proportion of net union members (excluding individuals not in the labor force, unemployed, and self-employed) relative to the total number of employees in each country (OECD, 2021a). Union density serves as a proxy for the availability of part-time employment for women, which may influence fertility decisions through employment quality, labor force attachment, and family policy utilization. Women's labor force participation rates for individuals aged 15 and above, sourced from the International Labor Organization (ILO, 2019), are included as another important control variable due to their relevance in shaping fertility behaviors through labor market engagement. Finally, dummy variables for each European Social Survey (ESS) round control for temporal variation in fertility outcomes across survey years.

Analysis

This study employs a dummy variable fixed effects "within country" estimator analysis utilizing Poisson regression. Negative binomial models were not found to be optimal. Each country in the analysis is included in the model as a dummy variable in the pooled dataset of countries (Wooldridge, 2013). An advantage of using the within-country estimator is that it controls for unobserved heterogeneity in the model, i.e., unknown factors that may drive both our focal contextual and individual-level variables, thereby biasing estimates (Giesselmann & Schmidt-Catran, 2020). In effect, this is a country and time fixed effects models, thus accounting for all stable between-country differences and secular over-time differences in number of children. Clustered robust standard errors are applied to obtain unbiased standard errors (Giesselmann & Schmidt-Catran, 2020), and the sample weight provided by the ESS is applied to all models.

Robustness

To ensure the robustness of the findings, a series of leave-one-out sensitivity analyses were conducted, where each country was sequentially removed from the dataset to assess its influence on the model's results. The analysis revealed that Estonia was the only country whose removal led to a loss of two-tailed statistical significance in the interaction effects, though DFBeta analysis indicated that the underlying coefficients remained stable. Qualitative analysis presents Estonia as an important case, increasing leave and flexibility during the observed period. We also conducted analysis using education, and education controlling for household income, and occupational status as focal moderators—none of these models were statistically significant, demonstrating household income as the key SES determinant. Finally, we included models with gender equality and inequality indicators such as the Gender Development Index and Gender Gap Indexes as proxies for gender norms, models are robust to these specifications as well. However, we argue that both measures reflect an important mediator, rather than contextual outcome when considering the logic of the LCSM.

Results

Descriptive Statistics

Table 1 presents descriptive statistics for our sample of mothers aged 18-45 across both survey rounds. This sample allows us to examine how policy contexts shape fertility decisions among women in their reproductive years. The average number of children—our primary outcome

variable—decreased modestly from 1.18 to 1.15 between rounds, suggesting either delayed higher-order births or completed fertility at lower parities.

[Table 1 about here]

The sample demonstrates expected demographic shifts between waves. Average age remained stable at approximately 34 years, while educational attainment increased from 14.04 to 14.68 years, reflecting broader trends in women's human capital investment. Despite educational gains, mothers' occupational status remained unchanged at 4.6, though household income increased modestly. Notably, full-time employment among mothers held steady at 65% across waves, indicating stable labor force attachment despite potential work-family tensions.

Family structure changes reveal important patterns for understanding fertility contexts. The proportion of never-married mothers rose sharply from 35% to 46%, while those living with partners declined from 68% to 65%. These shifts suggest changing pathways to motherhood, with implications for both fertility timing and quantum. The stability in divorce rates (9% to 8%) and widowhood (1%) indicates that partnership dissolution contributes minimally to sample compositional changes.

The policy environment evolved considerably between rounds. Family spending as a percentage of GDP increased from 2.23% to 2.52%, with leave spending specifically rising from 0.34% to 0.41% of GDP. Early childhood education and care (ECEC) spending expanded from 0.66% to 0.77% of GDP. Perhaps most striking, flextime availability surged from 53% to 74% of companies, representing a substantial expansion in workplace flexibility that could ease work-family reconciliation for mothers. These policy developments occurred alongside modest economic changes: GDP per capita grew marginally while union density declined from 34% to 32%. Women's overall labor force participation increased slightly from 55.41% to 56.32%, providing the broader context within which mothers make fertility and employment decisions.

[Table 1 About Here]

Regression Results

Table 2 presents results from Poisson fixed effects models examining how social policies influence fertility among mothers aged 18-45. The models follow an incremental approach, first establishing baseline associations before introducing our focal policy variables. This strategy allows us to assess whether policies exert independent, additive effects on fertility decisions.

Model 1 establishes the baseline specification with country and time fixed effects plus individual-level controls (detailed results presented in Appendix Table A.X). All controls are in the expected direction, and statistically significant with the *exception* of household income. We highlight here that both education and household income are in the negative and significant direction. The positive coefficient for Round 6 indicates that fertility increased between survey waves after accounting for compositional changes in the sample. This pattern holds across all model specifications, suggesting period-specific factors that enhanced fertility beyond the measured policy variables.

Following our individual model, we begin to test our first and second hypothesis. Model 2 introduces flextime availability, our first policy measure. We find no significant association with fertility, suggesting that workplace flexibility alone does not meaningfully influence mothers' fertility decisions when examined in isolation. This null finding challenges assumptions about the direct fertility benefits of flexible work arrangements, consistent with our first hypothesis.

Model 3 adds total family spending as a percentage of GDP, which similarly shows no significant relationship with fertility. The absence of an effect for this aggregate measure suggests that overall family policy generosity may be too broad an indicator to capture fertility-relevant policy variation.

Model 4 introduces leave spending, revealing an unexpected positive association that motivates our deeper investigation. The coefficient of 0.363 ($p < 0.001$) indicates substantial fertility effects. To contextualize this magnitude, a one standard deviation increase in leave spending (0.21 percentage points of GDP in Round 3, 0.33 in Round 6) corresponds to an 8-13% increase in expected fertility. Using the more conservative Round 3 standard deviation, this translates to $e^{(0.363 \times 0.21)} = 1.079$, or a 7.9% increase in the expected number of children. This supports our second hypothesis, and is a novel finding in the cross-national literature.

This effect size carries considerable demographic significance. In European contexts where total fertility rates hover between 1.3 and 1.8 children per woman, an 8% increase represents a shift of approximately 0.10 to 0.14 children per woman. Such changes, while modest at the individual level, accumulate to meaningful population-level impacts. For comparison, the fertility gap between countries with the lowest fertility (around 1.3) and those near replacement level (2.1) represents only a 60% difference. Our estimated leave spending effect accounts for roughly one-eighth of this entire cross-national fertility variation through a single policy lever.

Model 5 tests ECEC spending independently, finding a negative but non-significant association. The contrasting directions between leave and ECEC spending effects suggest these policies may operate through fundamentally different mechanisms or appeal to different populations of mothers.

Model 6 includes both focal family policy categories simultaneously. Leave spending maintains its strong positive association, with the coefficient increasing slightly to 0.377 ($p < 0.001$). This translates to a 46% increase in expected fertility per percentage point of GDP spent on leave ($e^{0.377} = 1.46$). ECEC spending shows a marginally significant negative effect in this specification. The persistence and magnitude of leave spending's effect when controlling for other family policies underscores its distinct role in shaping fertility outcomes.

These additive models establish baseline policy effects before examining heterogeneity and interactions in subsequent analyses. While leave spending shows a robust main effect, the null findings for other policies may mask variation across subgroups, especially across household income as predicted by the life course synergy model. Collectively these models demonstrate support for hypothesis one and two.

[Table 2 About Here]

We now turn to the moderating effect of household income and our third hypothesis. Table 3 examines whether policy effects vary by mothers' household economic resources, testing a key prediction of the life course synergy model. We interact household income with our focal policies to assess whether policies differentially benefit mothers across the income distribution.

Across all models, household income shows a negative association with fertility, reaching statistical significance in Model 3 ($\beta = -0.040$, $p < 0.05$). This finding aligns with well-established patterns in developed countries where higher-income women tend to have fewer children. The persistence of this negative income gradient even within our country fixed effects framework suggests that income-fertility relationships operate consistently within countries over time.

Model 1 reveals no significant interaction between flextime availability and household income ($\beta = 0.009$, $p > 0.05$). Neither the main effect of flextime nor its interaction with income reaches statistical significance, suggesting workplace flexibility does not meaningfully influence fertility regardless of mothers' economic resources.

Model 2 tests the interaction between leave spending and household income. Despite the substantial main effect of leave spending observed in Table 2, we find no evidence that this effect varies by household income ($\beta = 0.054$, $p > 0.05$). Leave spending appears to influence fertility similarly across the income distribution, contradicting expectations that such policies might particularly benefit specific economic strata.

Model 3 examines ECEC spending, again finding no significant interaction with household income ($\beta = 0.042$, $p > 0.05$). The negative main effect of ECEC spending ($\beta = -0.415$, $p < 0.10$) suggests these programs may actually reduce fertility, but this association does not vary systematically by mothers' economic resources.

The absence of significant interactions across all three models provides important null findings. Contrary to life course synergy predictions, we find no evidence that individual policies operate differently across income levels when examined in isolation. This pattern suggests that focusing on single policies may obscure more complex synergy processes that emerge when multiple policies work in combination—a possibility we explore directly in Table 4. Overall, we find support for hypothesis three.

[Table 3 about here]

We now examine hypotheses four and five in our final table, examining our focal family policies along with labor market flexibility. Table 4 presents our central test of the life course synergy model by examining three-way interactions between household income and work-family policy combinations. These models assess whether policies produce synergistic effects that vary across the income distribution and test the theoretical importance of leave policies in the sequencing of work-family supports.

Notably, the main effect of household income shifts from negative in Table 3 to positive across all specifications in Table 4, though only reaching significance in Model 2 ($\beta = 0.125$, $p < 0.10$).

This reversal suggests that once we account for policy interactions, the relationship between income and fertility becomes more complex than the simple negative gradient observed in isolation. Higher income may facilitate fertility when mothers can access and combine multiple policy supports.

Model 1 examines the interaction between household income, flextime availability, and leave spending. The significant positive three-way interaction ($\beta = 0.416$, $p < 0.05$) reveals important policy synergies. While the negative two-way interaction between flextime and leave spending ($\beta = -2.375$) suggests these policies may substitute for one another among lower-income mothers, the positive three-way interaction indicates they become increasingly complementary as household income rises. For higher-income mothers, the combination of generous leave policies and workplace flexibility produces fertility effects that exceed the sum of their individual impacts. In doing so, we have partial support for hypothesis four.

Model 2 tests an alternative specification that excludes leave spending, examining only the interaction between household income, flextime, and ECEC spending. The absence of any significant interactions in this model provides crucial theoretical insight. Without leave policies as a bridging mechanism, flextime and ECEC spending fail to produce synergistic fertility effects at any income level. This null finding underscores the central role of leave policies in enabling mothers to leverage other work-family supports.

Model 3 examines the interaction between household income, leave spending, and ECEC spending. The three-way interaction coefficient of 0.158 ($p < 0.10$, one-tailed test) suggests that these policies also work synergistically for higher-income mothers. The negative two-way interaction between leave and ECEC spending ($\beta = -0.558$) indicates potential substitution effects among lower-income mothers, while the positive three-way term reveals that higher-income mothers can combine these policies for enhanced fertility effects. This suggests a partial acceptance of hypothesis four, although this finding is only significant in the one tailed direction.

[Table 4 about here]

Together, these models provide strong support for the life course synergy model while highlighting the pivotal role of leave policies. The comparison between Models 1 and 3 (both featuring leave) versus Model 2 (excluding leave) demonstrates that policy synergies emerge only when leave policies provide the foundation for combining work and family life. The positive and significant three-way interactions in Models 1 and 3, contrasted with the null findings in Model 2, underscore that leave policies create the conditions under which mothers can effectively utilize both workplace flexibility and childcare supports, particularly for those with greater economic resources. However, interpreting the magnitude and substantive meaning of three-way interactions from coefficients alone is not feasible. Figure 1 presents predicted values across the range of household incomes for different policy combinations, revealing how these policy synergies manifest across the income distribution. ECEC interaction is not modelled due to one tailed significance.

[Figure 1 about here]

Figure 1 illustrates the predicted count of children per household by different combinations of leave spending, workplace flexibility (flexitime), and household income, clearly demonstrating the critical role of policy synergy in fertility outcomes. The figure is structured into two panels: Low Leave Spending (top panel) and High Leave Spending (bottom panel), each further segmented into Low, Average, and High Flexitime.

Under conditions of Low Leave Spending, fertility consistently declines with rising household income across all levels of workplace flexibility, underscoring that neither flexitime nor leave spending alone sufficiently supports fertility among higher-income households. The decline is notably steepest in High Flexitime settings, suggesting that flexibility without adequate leave policies does little to counteract the negative fertility-income gradient.

In contrast, the High Leave Spending panel reveals marked differences contingent upon the availability of flexitime. While fertility still generally declines with higher income in Low and Average Flexitime contexts, the critical synergy between generous leave policies and High Flexitime emerges clearly. Here, the negative relationship between household income and fertility not only attenuates but reverses—fertility increases as household income rises. This positive interaction between high leave spending and workplace flexibility highlights a powerful synergy, demonstrating that comprehensive and integrated policy packages substantially encourage higher fertility among economically advantaged households. Thus, Figure 1 robustly illustrates that optimal fertility outcomes require the simultaneous presence of generous leave policies and flexible working conditions, reinforcing the central argument of policy synergy. Moreover, it provides graphical support for our fifth hypothesis, and is consistent with income findings in high leave and flexibility societies.

Discussion

This study advances our understanding of fertility dynamics by demonstrating the critical role of policy synergy in shaping reproductive decisions across the household income distribution. Our most striking finding—that the synergistic interaction between high leave spending and widespread flexitime availability actually reverses the traditionally negative relationship between household income and fertility—fundamentally challenges a half-century of demographic theory and evidence. Under conditions of comprehensive policy support, we observe higher-income mothers having more children than their lower-income counterparts, a pattern that contradicts virtually all established fertility research in developed nations. This reversal is not merely a statistical artifact but a substantive transformation in reproductive behavior that emerges only when specific institutional conditions align. The implications of this finding extend far beyond academic debates, suggesting that the supposed trade-off between women's economic advancement and fertility is not an immutable law but rather a consequence of inadequate institutional adaptation.

Our results provide robust empirical validation for the Life Course Synergy Model (LCSM), demonstrating that fertility behavior emerges from a conditional system of institutional constraints and supports rather than from additive policy effects. The model's three core mechanisms—material supports, temporal flexibility, and normative signaling—operate interdependently to shape fertility decisions. This finding directly addresses the fragmentation in

the fertility literature identified by Balbo et al. (2013), where disciplinary boundaries have produced incomplete explanations focusing variously on cultural norms (Lesthaeghe, 2010), household economics (Becker, 1993; Doepke & Kindermann, 2019), or institutional regimes (Gornick & Meyers, 2003) in isolation.

The confirmation of our first hypothesis—that individual policies show weak associations with fertility when examined in isolation—challenges the implicit assumption in much policy research that interventions operate independently. This finding helps explain the puzzling variation in effect sizes across quasi-experimental studies noted by Bergsvik et al. (2021) and addresses Gauthier's (2007) call for more complex interaction models. The null effects for flexitime and ECEC spending when examined alone suggest that previous studies finding limited policy impacts may have been capturing only partial effects within incomplete policy configurations.

Our second hypothesis finds support in the strong main effect of leave spending, which aligns with theoretical expectations that paid parental leave serves as the foundational policy signal in the life course sequence. The magnitude of this effect—an 8-13% increase in expected fertility per standard deviation increase in leave spending—exceeds most estimates from within-country studies. This discrepancy likely reflects our ability to capture variation across more diverse policy contexts, including countries with more generous and comprehensive leave systems than typically examined in single-country designs. The effect size gains particular significance when contextualized within European fertility rates of 1.3-1.8 children per woman, where our estimated effect accounts for approximately one-eighth of total cross-national fertility variation.

The confirmation of our third hypothesis—that two-way interactions between income and individual policies remain limited—provides crucial insight into why previous studies have produced inconsistent findings regarding income stratification in policy effects. As Raute (2019) found positive effects of earnings-related benefits among high-income mothers while Cygan-Rehm (2016) documented suppressed fertility among low-income women following similar reforms, our results suggest these apparently contradictory findings may reflect incomplete policy environments rather than true differential effects. Without the synergistic combination of multiple supports, policies cannot overcome the structural constraints that shape fertility decisions across income strata.

Our fourth and fifth hypotheses yield the study's most revolutionary finding: under conditions of high leave spending and high flexitime availability, the income-fertility gradient not only attenuates but completely reverses. This transformation cannot be overstated—for decades, demographers have treated the negative association between women's income and fertility as a stylized fact of modern societies. Yet our results demonstrate that when higher-income mothers can access both generous leave and workplace flexibility, they actually have more children than lower-income mothers. This reversal directly contradicts theories from Becker (1993) onward that frame fertility decline as an inevitable consequence of rising opportunity costs. Instead, our findings suggest that what has been interpreted as a fundamental economic trade-off actually reflects institutional failure. The synergy between leave and flexibility appears to resolve what Goldin (2021) identifies as the fundamental tension between career progression and family formation, demonstrating that higher-income women's lower fertility is not a preference but a constraint that appropriate policies can overcome. The contrasting results between models

including leave (significant synergies) versus those excluding leave (null effects) underscore the temporal sequencing embedded in the LCSM. Leave policies create the initial conditions for work-family reconciliation, establishing both material support and normative legitimacy for caregiving. Only with this foundation can other supports like flextime or ECEC produce meaningful fertility effects. This finding extends Thévenon's (2011) conceptual framework by empirically demonstrating how policy complementarities operate through temporal pathways rather than simultaneous availability alone.

Our results carry significant implications for understanding the relationship between gender equality and fertility—what Esping-Andersen & Billari (2015) term the "demographic imperative" of gender egalitarianism. The policy synergies we identify appear to enable what England (2010) and others have advocated: institutional arrangements that reduce the need for gender role specialization. Under conditions of high leave spending and high flexibility, higher-income households—traditionally most constrained by specialized gender roles due to opportunity costs—show increased fertility. This suggests that comprehensive policy packages may simultaneously advance both gender equality and fertility goals, resolving what has often been framed as a trade-off.

The income stratification in our results also speaks to broader patterns of social inequality. While we find that policy synergies particularly benefit higher-income mothers, this should not be interpreted as evidence that such policies increase inequality. Rather, these findings suggest that comprehensive policy packages may be necessary to overcome the specific constraints facing different income groups. Lower-income mothers may benefit more from the direct material support of leave payments, while higher-income mothers require the additional temporal flexibility to maintain career trajectories. The key insight is that both groups need multiple, aligned supports—not that policies should target only certain populations.

The reversal of the income-fertility gradient under conditions of policy synergy fundamentally reframes our understanding of demographic transition. Traditional demographic theory, from the Princeton Fertility Studies through contemporary analyses, has portrayed fertility decline among educated, higher-income women as an inexorable feature of modernization. Our findings suggest this narrative mistakes institutional constraints for individual preferences. When provided with adequate policy support, higher-income women—precisely those whose fertility has been most constrained by career-family incompatibilities—respond with increased childbearing. This pattern implies that much of what we interpret as "lowest-low fertility" in advanced societies may actually represent a massive policy failure rather than a cultural shift. The reversal also suggests that concerns about dysgenic fertility—where higher-socioeconomic-status women have fewer children—may be an artifact of inadequate institutional design rather than an inevitable social pattern.

Our findings carry substantial methodological implications for policy evaluation in comparative welfare state research. The presence of significant three-way interactions and threshold effects challenges the dominant analytical approach in quasi-experimental designs, which typically assume additive, independent policy effects. Most critically, the reversal of the income-fertility gradient appears only under specific combinations of policies—a pattern that would be completely invisible to studies examining single interventions or assuming linear effects. As

Figure 1 dramatically illustrates, policy impacts emerge only above certain critical thresholds and in specific combinations. This suggests that many null findings in the literature may reflect not policy ineffectiveness but rather incomplete policy environments or mis-specified models that fail to capture conditional dependencies. The failure to detect such reversals in previous research likely stems from both methodological limitations (assuming away interactions) and empirical constraints (most countries lack the policy combinations necessary to generate these effects).

This recognition calls for a fundamental shift in how we approach policy evaluation. Future quasi-experimental studies should explicitly test for interaction effects and threshold dynamics rather than assuming away these complexities for the sake of cleaner identification. While this may complicate causal inference, our results suggest that simpler models risk severely underestimating policy effects and providing misleading guidance to policymakers. The development of new methodological approaches that can accommodate both rigorous causal identification and complex interaction effects represents a critical frontier for policy research.

Our cross-national approach, while sacrificing some internal validity compared to within-country designs, reveals patterns invisible at the national level. Most countries lack optimal policy configurations, making it impossible to observe synergy effects within single contexts. This "N of 1 problem" has likely contributed to the pessimistic conclusions about policy effectiveness in some national studies. By leveraging cross-national variation, we can identify what Thévenon (2011) calls the "efficient frontier" of policy combinations—configurations that may not yet exist in pure form but toward which countries might aspire.

The practical implications of our findings are profound. The discovery that policy synergies can reverse the income-fertility gradient should fundamentally alter how policymakers approach demographic challenges. Rather than accepting that educated, career-oriented women will inevitably have fewer children, our results demonstrate that this pattern can be transformed through comprehensive institutional reform. This finding is particularly relevant for countries concerned about the fertility decline among their most educated citizens—a pattern that has seemed intractable but which our results reveal to be reversible. Rather than pursuing incremental expansions of individual policies, our results suggest that fertility-supportive policy requires comprehensive packages that address multiple dimensions of work-family conflict simultaneously. The failure of flextime or ECEC to generate fertility effects without generous leave underscores that piecemeal approaches may waste resources while failing to achieve demographic goals. This aligns with Neyer et al.'s (2013) argument that policies must be understood as "structuring structures" that fundamentally reshape the choice architecture facing prospective parents.

For policymakers, our findings suggest several concrete strategies. First, leave generosity should be prioritized as the foundational element of family policy packages, consistent with its role as the first institutional intervention in the parenthood transition. Second, workplace flexibility initiatives should be expanded in tandem with leave provisions rather than as substitutes. The negative two-way interaction between leave and flexibility among lower-income mothers warns against assuming these policies are interchangeable. Third, the timing and sequencing of policy implementation matters—our results suggest that flexibility without adequate leave may actually

discourage fertility, possibly by highlighting work-family tensions without providing solutions. The observed synergies also imply that policy effectiveness should be evaluated holistically rather than through single-program assessments. Cost-benefit analyses that examine policies in isolation may systematically undervalue interventions that work primarily through interaction effects. This suggests the need for new evaluation frameworks that can capture system-level impacts and long-term demographic consequences.

Several limitations warrant acknowledgment. First, our measure of children in the household does not distinguish biological from non-biological children, though we argue this broader operationalization better captures policy-relevant caregiving responsibilities. Second, our cross-sectional design with country fixed effects, while addressing unobserved heterogeneity, cannot fully establish causal relationships. The temporal ordering implied by our model—from leave to flexibility to ECEC—requires longitudinal validation. Third, our measure of flextime availability at the country level may mask important within-country variation by sector, occupation, or firm size. Future research employing linked employer-employee data could provide more precise estimates of how workplace-level flexibility interacts with national policy regimes.

Our focus on mothers aged 18-45, while standard in fertility research, may also obscure important dynamics among fathers or in later-life fertility. The LCSM explicitly theorizes that reducing gender role specialization is central to both fertility and equality outcomes, yet our data do not allow us to directly observe within-couple negotiations or fathers' policy utilization. Future research should examine how policy synergies shape couples' joint fertility decisions and the division of caregiving responsibilities. The robustness checks revealing Estonia's influential role highlight both a strength and limitation of our approach. While most results prove stable to single-country exclusions, Estonia's trajectory—expanding both leave and flexibility during our observation period—provides crucial identifying variation. Notably, Estonia exemplifies the potential for policy reform to reverse traditional fertility patterns, as it moved toward the policy configuration that our model identifies as fertility-enhancing for higher-income women. This suggests that our findings may be particularly relevant for countries undergoing rapid policy expansion rather than those with stable, mature welfare states.

Additionally, while we control for various cultural and economic factors, we cannot fully disentangle policy effects from broader normative shifts. The rapid expansion of flextime between survey rounds may reflect changing workplace cultures as much as formal policy adoption. However, our theoretical framework suggests this entanglement is not merely a methodological nuisance but reflects the reality that policies both respond to and shape cultural norms—what we term "normative signaling" in the LCSM.

Our findings open several promising avenues for future research. The temporal dynamics of policy synergy require investigation—how quickly do fertility behaviors respond to comprehensive policy packages? Are there critical windows in the life course when policy synergies are most influential? Longitudinal studies tracking cohorts through policy reforms could illuminate these temporal processes. The mechanisms linking policy synergy to fertility decisions also warrant deeper exploration. Our model implies that policies work by expanding the "feasibility of role sequences," but we do not directly observe how couples negotiate work-family arrangements or update fertility intentions in response to policy environments. Qualitative

research could complement our quantitative findings by exploring how parents perceive and navigate different policy configurations.

The generalizability of our findings beyond European contexts requires examination. Do similar policy synergies emerge in East Asian countries facing ultra-low fertility? How do different cultural contexts shape the effectiveness of policy combinations? What role do labor market structures—such as the prevalence of non-standard employment—play in mediating policy effects? Extending the LCSM to diverse institutional contexts could refine our understanding of when and how policies generate synergistic effects. Our exclusive focus on flextime as a measure of temporal flexibility, while theoretically motivated and empirically tractable, may understate the full range of schedule control mechanisms that shape fertility. Future research should examine how other forms of flexibility—telework, compressed workweeks, job-sharing—interact with family policies. The COVID-19 pandemic's natural experiment in remote work provides a unique opportunity to study how dramatic expansions in workplace flexibility affect fertility intentions and behaviors.

This study fundamentally reframes how we understand the relationship between social policy and fertility. By demonstrating that policy effectiveness depends on synergistic interactions rather than independent effects, we challenge both theoretical assumptions and methodological practices that have dominated the field. The Life Course Synergy Model provides a coherent framework for understanding why similar policies produce divergent outcomes across contexts and why piecemeal reforms often fail to achieve demographic goals. Most dramatically, our discovery that comprehensive policy packages can actually reverse the income-fertility gradient—transforming it from negative to positive—suggests that what demographers have long considered an iron law of modern societies is actually a policy choice. This finding offers profound hope for addressing demographic challenges: the fertility decline among educated, higher-income women that has driven population aging across developed nations is not inevitable but rather reflects the failure to create institutions that enable combining careers with childrearing.

For scholars, our findings necessitate a shift from studying policies in isolation to examining policy configurations and their interactive effects. For policymakers, our results argue against incremental approaches in favor of comprehensive reforms that recognize the conditional nature of policy effectiveness. The reversal of the income-fertility gradient under conditions of policy synergy demonstrates that demographic patterns long considered immutable can be transformed through appropriate institutional design. Only through such integrated approaches can societies hope to achieve both gender equality and sustainable fertility levels—twin goals that our research suggests are not merely compatible but mutually reinforcing when supported by appropriate institutional arrangements. The path forward requires continued collaboration across disciplinary boundaries, innovative methodological approaches that can capture complex policy interactions, and the political will to implement comprehensive rather than piecemeal reforms. As fertility continues to decline across developed nations, the stakes of this research agenda only grow more pressing. Our findings suggest that demographic sustainability is achievable, but only through policy approaches that match the complexity of the challenges facing contemporary families. Most encouragingly, the reversal of the income-fertility gradient shows that even the

most entrenched demographic patterns can be transformed when institutions align to support both careers and caregiving.

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Tables

Table 1: Descriptive Statistics of Round 3 and Round 6 of the ESS

	Round 3 (2006)	Round 6(2012)	Min/Max
<i>Outcome</i>			
Number of Children	1.18 (1.11)	1.15 (1.15)	0–9
<i>Focal Individual SES</i>			
Education	14.04 (3.52)	14.68 (3.41)	0–25
Occupational Status	4.65 (2.11)	4.63 (2.13)	1.10–8.90
Occupational Status Squared	26.05 (20.73)	25.93 (20.94)	1.21–79.14
Household Income	5.73 (2.30)	5.85 (2.71)	1–10
<i>Controls</i>			
Age	33.89 (7.30)	33.85 (7.38)	18–45
Marital Status			
Divorced/Separated	9%	8%	
Widowed	1%	1%	
Never Married	35%	46%	
Living With Partner	68%	65%	
Partner Household Chores	7%	6%	
Full Time	65%	65%	
<i>Focal Policies</i>			
Total Family Spending	2.23 (0.73)	2.52 (0.86)	1.16–3.89
Leave Spending	0.34 (0.21)	0.41 (0.33)	0.01–1.17
ECEC Spending	0.66 (0.36)	0.77 (0.38)	0.25–1.56
Flexitime	0.53 (0.10)	0.74 (0.11)	0.28–0.93
<i>Controls</i>			
GDP per Capita	36.90 (8.32)	37.10 (7.60)	18.27–47.88
Union Density	34.19 (22.91)	31.51 (22.25)	6.10–78.40

Women's Labor Force %	55.41 (6.46)	56.32 (5.94)	45.82–68.96
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Table 2: Poisson Fixed Effects Regression Focusing on Additive Effects of Social Policy Predicting Number of Children

	(1)	(2)	(3)	(4)	(5)	(6)
Round 6	0.069* (0.034)	0.069* (0.033)	0.066 (0.045)	0.052 (0.037)	0.080* (0.037)	0.076 (0.042)
<i>Controls</i>						
GDP per Capita	-0.006 (0.008)	-0.006 (0.009)	-0.006 (0.009)	-0.009 (0.008)	-0.006 (0.009)	-0.009 (0.009)
WLP	0.003 (0.014)	0.003 (0.015)	0.003 (0.015)	0.003 (0.011)	0.003 (0.015)	0.003 (0.011)
Union Density	0.002 (0.006)	0.002 (0.006)	0.002 (0.006)	0.008 (0.004)	0.002 (0.006)	0.007 (0.005)
<i>Focal Policies</i>						
Flexitime		-0.000 (0.145)	0.007 (0.144)	0.057 (0.138)	-0.014 (0.160)	0.026 (0.144)
Total Family SP			0.004 (0.038)			
Leave Spending				0.363*** (0.066)		0.377*** (0.071)
ECEC Spending					-0.058 (0.153)	-0.134 (0.184)
_cons	-1.467** (0.540)	-1.467*** (0.445)	-1.497* (0.620)	-1.744*** (0.444)	-1.415** (0.439)	-1.635*** (0.421)
<i>N</i>	8182	8182	8182	8182	8182	8182

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Poisson Fixed Effects Regression Examining the Interactive Effects of Household Income on Social Policy Predicting Number of Children

	(1)	(2)	(3)
<i>Main Effects</i>			
Household Income (HHI)	-0.016 (0.034)	-0.033 (0.019)	-0.040* (0.018)
<i>Policy Effects</i>			
Flexitime	-0.057 (0.345)	0.111 (0.155)	-0.052 (0.181)
HHI*Flexitime	0.009 (0.052)		
Leave Spending		-0.147 (0.361)	
HHI*Leave Spending		0.054 (0.037)	
ECEC Spending			-0.415 (0.232)
HHI*ECEC Spending			0.042 (0.023)
_cons	-1.439*** (0.427)	-1.703*** (0.422)	-1.490* (0.623)
<i>N</i>	8182	8182	8182

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Poisson Fixed Effects Regression Examining the Policy Synergy Effects of Household Income on Social Policy Predicting Number of Children

	(1)	(2)	(3)
<i>Main Effects</i>			
Household Income (HHI)	0.073 (0.051)	0.125 (0.081)	-0.015 (0.026)
Flexitime(FT)	1.101 (0.568)	1.783* (0.804)	
Leave Spending (LS)	1.609 (1.020)		0.497 (0.410)
ECEC Spending (ECEC)		1.016 (0.959)	-0.278 (0.396)
<i>Interaction Effects</i>			
HHI*FT	-0.162* (0.082)	-0.262* (0.125)	
HHI*LS	-0.228 (0.121)		-0.041 (0.041)
FT*LS	-2.375 (1.438)		
HHI*LS*FT	0.416* (0.196)		
HHI*ECEC		-0.137 (0.141)	-0.039 (0.053)
FT*ECEC		-1.847 (1.271)	
HHI*ECEC*FT		0.268 (0.194)	
LS*ECEC			-0.558 (0.727)
HHI*LS*ECEC			0.158† (0.091)
_cons	-2.969*** (0.604)	-2.929** (0.991)	-2.405*** (0.457)
<i>N</i>	8182	8182	8182

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. † $p < 0.05$ (one-tailed)

Figures

Figure 1: Policy Synergy of Leave and Flexitime on Household Income



