



# DEMOGRAPHIC RESEARCH

*A peer-reviewed, open-access journal of population sciences*

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## ***DEMOGRAPHIC RESEARCH***

**VOLUME 53, ARTICLE 31, PAGES 1003–1044**

**PUBLISHED 27 NOVEMBER 2025**

<https://www.demographic-research.org/Volumes/Vol53/31/>

DOI: 10.4054/DemRes.2025.53.31

*Research Article*

### **Uncertainty, resilience, and fertility: Perceived capacity to overcome loss of employment and fertility intentions in Sweden, 2021**

**Oskar Lindström**

This publication is part of the Special Collection on “Families’ resilience and the well-being of children and youth in contexts of global socioeconomic crises,” organized by Guest Editors Anna Baranowska-Rataj, Wiebke Schulz, and Pablo Gracia.

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# **Uncertainty, resilience, and fertility: Perceived capacity to overcome loss of employment and fertility intentions in Sweden, 2021**

**Oskar Lindström<sup>1</sup>**

## **Abstract**

### **BACKGROUND**

Fertility declines in Western countries following the Great Recession have spurred interest in the role of subjective economic uncertainty for fertility. While previous research has largely focused on perceived employment stability, recent studies suggest resilience to employment loss may be a more critical factor in shaping fertility intentions.

### **OBJECTIVE**

The study examines the relationship between perceived resilience and fertility intentions among childless couples in Sweden and how this association differs across sociodemographic factors, perceptions of employment stability, and risk attitudes.

### **METHODS**

Using data from the 2021 Swedish Generations and Gender Survey, logistic regression models assess the association between perceived resilience – measured as the perceived likelihood of finding equivalent employment after job loss – and fertility intentions.

### **RESULTS**

Uncertainty regarding resilience is linked to lower fertility intentions for men, with no clear association observed for women. This association is particularly notable among foreign-born individuals. While a clear relationship between low resilience and fertility intentions was not found across the entire sample, such links appear more evident among economically vulnerable groups.

### **CONCLUSIONS**

The findings suggest that uncertainty about one's resilience can inhibit fertility planning, particularly among certain subgroups. This indicates that a fundamentally unpredictable future may be more disruptive to intentions than a future perceived as risky but knowable – at least in the context of employment resilience.

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<sup>1</sup> Stockholm University, Sweden. Current affiliation: University of Florence, Italy. Email: [oskar.lindstrom@unifi.it](mailto:oskar.lindstrom@unifi.it)

## **CONTRIBUTION**

This study contributes empirically to understanding the role of resilience in fertility decision-making and theoretically by showing that genuine uncertainty may play a key role in how economic conditions shape fertility beyond perceived risks.

## **1. Introduction**

In the aftermath of the Great Recession, high-income countries have faced persistent fertility declines – remarkably uniform across otherwise heterogeneous contexts. This trend has puzzled demographers and attracted widespread media attention. While the onset of these fertility declines is seemingly connected to the recession, this relationship is not straightforward, and recently some have argued that the causes of fertility decline should be sought in subjective perceptions of the future rather than in objective economic measures (Vignoli et al. 2020b; Comolli et al. 2021; Neyer et al. 2022). The process of globalization has been argued to have introduced a new age of uncertainty – marked by increasingly precarious economic conditions for young adults and, consequently, ambivalence toward long-term commitments such as childrearing (Mills and Blossfeld 2003; Kreyenfeld, Andersson, and Pailhé 2012; Brauner-Otto and Geist 2018).

When attempting to explain these fertility trends in relation to perceptions of uncertainty, research has primarily focused on subjective measures of employment stability. However, this focus risks oversimplifying the relationship by neglecting individual agency – particularly individuals’ varying perceptions of their capacities to overcome adverse economic events. To remedy this, Gatta et al. (2022) recently proposed a multidimensional concept of economic uncertainty understood as including perceptions of both employment stability and resilience – finding empirical support for an association between resilience and fertility intentions in Italy.

Building on this distinction between employment stability and resilience, this study investigates how perceptions of resilience – understood as an individual’s capacity to overcome adverse economic events and measured as the perceived likelihood of finding an equivalent job in case of job loss – are related to fertility intentions among childless couples in Sweden. Sweden, often held up as a model of gender equality and social policy supporting work–family reconciliation, has nonetheless experienced a steady decline in fertility in recent years – reaching an all-time low of 1.45 children per woman in 2023 (Statistics Sweden 2024).<sup>2</sup> Register-based research has found that the Swedish decline is

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<sup>2</sup> As have the other Nordic countries, with Finland and Norway recording even lower fertility rates than Sweden in 2023 – 1.26 and 1.40 children per woman, respectively – challenging the long-standing view of the Nordic

not primarily linked to changes in union formation (Cantalini, Ohlsson-Wijk, and Andersson 2024). Rather, recent evidence suggests that it is driven by a reduced propensity for first births among childless couples, with surprisingly similar patterns across most sociodemographic groups – though those with weaker labor market attachments and lower incomes have experienced the sharpest declines (Neyer et al. 2022; Ohlsson-Wijk and Andersson 2022).

While previous research has suggested that resilience may be less influential in shaping fertility intentions in Sweden compared to Italy (Neyer et al. 2022), its impact remains underexplored. This study therefore revisits the role of resilience for fertility intentions and seeks to further our knowledge through an investigation of differences in this relationship across other individual characteristics, most importantly gender.

To do this, microdata from the Swedish Generations and Gender Survey (GGS) 2021 are analyzed to estimate how fertility intentions differ depending on individuals' perceived resilience, and to examine how such differences vary across sociodemographic and socioeconomic groups and interact with perceptions of employment stability and aspects of an individual's personality.

Empirically, the study contributes to existing research by considering employment resilience in the Swedish context and by providing further evidence of the potential role of subjective determinants in the country's fertility decline.

Further, the study makes a theoretical contribution by proposing and investigating a distinction between uncertainty as *risk* and as *genuine uncertainty* in the context of employment resilience. While much of the literature conceptualizes uncertainty as a probability of future hardship, less attention has been paid to the unpredictability of future outcomes that individuals feel they cannot meaningfully anticipate.<sup>3</sup> In this sense, economic uncertainty is typically treated as *risk* (a probability distribution of expectations) rather than as *genuine uncertainty* (an unpredictability of expectations) (Orbell 1993; Friedman, Hechter, and Kanazawa 1994). This study provides initial empirical evidence that genuine uncertainty may also play an important role in shaping fertility intentions, thereby inviting future research to conceptualize and measure different modalities of uncertainty more explicitly.

Finally, as the GGS data were collected during the COVID-19 pandemic – a period marked by heightened employment uncertainty and an increased unpredictability of the future – this paper contributes to broader discussions on family resilience by providing insight into how crises shape not only the behavior of existing families but also the decision to form families in the first place and, by extension, who becomes a parent and under what conditions.

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region as a high and stable fertility regime (Hellstrand et al. 2021; Statistics Finland 2023; Statistics Norway 2024).

<sup>3</sup> For further discussion on this topic, see van Wijk and Billari (2024).

## **2. Theory and previous research**

In this section, the argument linking resilience to fertility intentions is developed by an examination of the literature on economic uncertainty and fertility and an explication of how resilience is situated within this literature. Further, the purpose of studying intentions as both an indicator of fertility outcomes and an essential part of childbearing decision-making is discussed.

### **2.1 Economic uncertainty**

In fertility research, economic uncertainty has generally been studied either as an aggregate phenomenon or as an individual-level risk factor (Kreyenfeld, Andersson, and Pailhé 2012). At the aggregate level, economic uncertainty is evident during recessions, which lead to delays in life commitments, such as family formation, due to rising macro uncertainties (Comolli et al. 2021). Although fertility is generally pro-cyclical in developed countries, this relationship is complex, with recessions causing short-term fertility declines followed by recovery, depending on welfare and policy contexts (Sobotka, Skirbekk, and Philipov 2011).

This pro-cyclical tendency has further been called into question during fertility developments in the 21st century. Contemporary fertility declines cannot reasonably be explained by the most common economic indicators but might be explained by uncertainties regarding the future that are disconnected from the current state of the economy (Vignoli et al. 2020b). Such an alternative explanation is that the homogeneous fertility decline in the Western world is linked to the process of globalization.

Globalization is, according to Giddens (1990), a process interlinking spaces – not necessarily uniformly shaping localities but increasing their interdependencies. More concretely, globalization can be thought to encompass a distinct set of social and economic processes: internationalized markets, intensified competition, expanded social networks via information and communication technologies, and an increasing importance of markets (Mills and Blossfeld 2003). According to Mills and Blossfeld (2003), these processes lead to increased uncertainty for individuals due to both an increased reliance on markets and the increased volatility of such markets. For the individual making decisions under such conditions, it becomes increasingly hard to predict the consequences of their decisions, and this is perhaps especially pronounced for such a life-changing decision as childbirth – one of few decisions in contemporary society that does not appear easily reversible. Increasing uncertainties are further expected to disproportionately affect individuals who are already at risk of precariousness, such as young people and migrants.

To understand how these changes in modern society affect family formation, research has progressively turned its attention to studying economic uncertainty through micro-level data, conceptualizing economic uncertainty as an individual-level risk factor connected to objective measures of precariousness, such as unemployment or part-time employment (Kreyenfeld, Andersson, and Pailhé 2012). Such objective economic uncertainty has generally been found to have a negative influence on fertility intentions in the Western world, though the effects tend to be modest in size (Alderotti et al. 2021).

Another stream of research has instead focused on subjective perceptions of economic uncertainty, arguing that objective indicators may not necessarily be good proxies of individuals' perceived economic conditions and that it is this perception that affects individuals' fertility plans (Kreyenfeld 2015; Vignoli et al. 2020b; Buh 2023). Further, the effect of subjective perceptions of economic uncertainty may be of particular interest in cases where fertility declines do not correspond to economic indicators. Empirical research has suggested that such perceived economic uncertainties add to the negative effect of the more common objective indicators (Hofmann and Hohmeyer 2013; Kreyenfeld 2015; Brauner-Otto and Geist 2018; Fahlén and Oláh 2018).

Research presents conflicting views on gender differences in the link between economic uncertainty and fertility. Some suggest that fertility intentions are more influenced by men's labor market positions due to their perceived economic importance within the family unit, while others argue that fertility outcomes are more sensitive to women's economic concerns, as fertility decisions often fall within the female sphere of influence and having children commonly affects women's economic and private lives more than men's (Fahlén and Oláh 2018; Hofmann and Hohmeyer 2013). Theoretically, the role of perceived economic uncertainty in shaping fertility intentions and behavior has been fruitfully developed in the Narrative Framework (Vignoli et al. 2020a, 2020b).

## **2.2 The Narrative Framework**

The Narrative Framework posits that fertility plans and outcomes are not mechanically determined by past and present economic and social conditions but are further shaped by actors' expectations, imaginaries, and narratives of the future. Assuming that childbearing, as an irreversible event, is always done under conditions of fundamental uncertainty, personal narratives – combining an imagined future with a hypothetical course of action leading to that future – enable individuals to act and form intentions despite this uncertainty (Vignoli et al. 2020b).

While fundamental uncertainty is viewed as an intrinsic feature of childbearing, the volatility connected to globalization is argued to add another layer of uncertainty – representing “a game-changer in contemporary fertility dynamics” (Vignoli et al. 2020a:

2). Conditions of economic uncertainty exacerbate individuals' already uncertain futures, inhibiting the possibility of imagining futures and the ability to orient action in relation to imagined futures (Vignoli et al. 2020b). While economic uncertainty has been argued to lead to reduced fertility rates in contemporary societies, its impact is complex and has been argued to potentially lead individuals to childbearing as well – since the perception of an uncertain future could motivate some individuals to have children to counteract that uncertainty (Friedman, Hechter, and Kanazawa 1994; Vignoli et al. 2020a). In this respect, the Narrative Framework calls for an exploration of how expectations related to childrearing are formed and their implications within specific societal settings. While previous studies on economic uncertainty have effectively considered certain expectations regarding future economic risks, they have largely neglected individuals' expected ability to handle such risks – what can be conceptualized as resilience.

### **2.3 Resilience**

The concept of resilience describes a broad range of institutional and individual capacities to adapt to and overcome adverse events. In recent years, it has become an often-discussed focus in policymaking, most notably in the European Union (see European Commission 2020). In this context, resilience is not viewed as a fixed psychological characteristic but rather as a dynamic ability to adapt and change in the face of adversity (Luthar, Cicchetti, and Becker 2000).

This study focuses on employment resilience – an individual's perceived capacity to overcome potential loss of employment – and conceives it as an aspect of economic uncertainty, following Gatta et al. (2022). In their study, Gatta et al. argue that previous empirical research on the impact of perceived employment uncertainty on fertility too often focuses exclusively on employment stability – potentially leading to inconclusive results. Contrary to this, a multidimensional conceptualization of employment uncertainty incorporating resilience as an additional dimension is argued for. A loss of employment may not affect individuals in uniform ways; rather the effect of losing employment should vary depending on how detrimental such a loss is perceived to be. On the one hand, resilience could then have moderating effects on the association between employment stability and fertility intentions. On the other hand, resilience can be thought to entail a direct effect on fertility intentions. For the Italian case, resilience was found to be a strong predictor of fertility intentions while employment stability had only a limited impact, suggesting that fertility intentions were “more responsive to the perception that recovery will be possible even in the case of job loss, rather than being a function of the perception of having stable employment” (Gatta et al. 2022: 388). When analyzing men and women separately, however, a significant effect was found only for

men. Similarly, in Australia, employment resilience has been found to be positively associated with union formation – particularly for men (Bolano and Vignoli 2021).

In line with the Narrative Framework, resilience may provide a straightforward way of empirically investigating future-oriented agency. Resilience reflects both an expectation of the future and the perceived agency of individuals within the expected future. In this sense, a perceived high degree of resilience should be expected to enable individuals to act, despite fundamental uncertainty, by enabling them to construct wishful hypothetical fertility plans – regardless of whether having a child is part of those plans or not. While a high degree of resilience would not automatically lead to more positive fertility intentions for any given individual, we would expect it to on a population level – given that most children in Western contraceptive regimes are intended (Lesthaeghe 2010; Ajzen and Klobas 2013) and fertility plans are easier to formulate through wishful imagined futures.<sup>4</sup>

While the results from Gatta et al. (2022) have piqued interest in resilience in fertility research, there is currently scarce and partly conflicting evidence regarding its importance for contemporary fertility dynamics. Analyzing Swedish childless couples, Neyer et al. (2022) similarly found a positive association between resilience and fertility, though it was not as striking as in the Italian case. This is speculated to be due to the very high employment rates and comprehensive social security in Sweden, making employment loss seem unlikely and reemployment likely (Neyer et al. 2022).<sup>5</sup> But while their analysis indicated a positive effect of resilience on childbearing, it did not differentiate this effect across genders or investigate differences across income groups or nativity.

Further, the analysis did not address some of the theoretical aspects of resilience, such as its relationship to employment stability and personality factors. If we contend that resilience has a distinct impact on fertility and aim to assess the extent of this impact, it appears crucial to analytically differentiate it from the impact of employment stability, since these concepts are closely intertwined. Hypothetically, we would anticipate a correlation between a low level of perceived employment stability and low levels of resilience, potentially causing confounding effects, and a stronger impact of resilience on fertility intentions among individuals with lower levels of employment stability. Further, the theoretical interest in resilience lies in its potential to capture a dimension of economic uncertainty beyond employment stability. This makes it important to compare both

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<sup>4</sup> On the other hand, uncertainty may generally also motivate individuals to bear children as an anti-uncertainty reduction measure, where narratives relating to childbirth are constructed as an antidote to perceived uncertainties – consistent with Friedman, Hechter, and Kanazawa's (1994) Uncertainty Reduction Framework (Vignoli et al. 2020a). Understood as one dimension of economic uncertainty, a lack of resilience might thus theoretically also motivate individuals to have children.

<sup>5</sup> This is consistent with research comparing the effects of employment uncertainty in Sweden and Italy; the impact of unemployment was found to be stronger in Italy (Alderotti, Mussino, and Comolli 2023).

effects, as the value of resilience depends in part on whether it offers explanatory insight above and beyond that of stability. Therefore a comprehensive examination of resilience should include employment stability in the model and explore how employment stability moderates the effects of resilience.

Regarding personality, Huinink (2015) argues that neglecting to control for personality factors, specifically risk attitudes, might have led to biased results in earlier research on the impact of employment uncertainty on fertility intentions, as individuals differ in their willingness to engage with risk. In this sense, risk attitudes are important to account for to mitigate confounding. At the same time, individual risk orientations may also shape how resilience influences fertility intentions, potentially moderating this relationship – an aspect not addressed in previous research. This analysis therefore aims to provide additional insight into how resilience is related to fertility, how this compares to the effects of perceived employment stability, and how perceptions of employment stability and individual risk attitudes moderate this relationship.

In the study by Gatta et al. (2022), resilience was measured on a continuous scale from 1 to 10. Treating qualitatively different perceptions of resilience as quantitative degrees, however, might obscure the difference between individuals' expectations of a predictable future risk and unpredictable, or genuine, uncertainty (Orbell 1993; Friedman, Hechter, and Kanazawa 1994). When respondents assess the likelihood of finding an equivalent job, they seem to be assessing a future risk. But what if this likelihood is perceived as unknown? We might suspect that such an uncertain perception of resilience exerts a distinct influence on fertility intentions compared to the perception of future risk. Due to the design of the survey utilized in this study – including a response for those unsure regarding their likelihood of finding equivalent employment – this distinction is possible to investigate.

## **2.4 Fertility intentions**

The analysis focuses on fertility intentions – an integral part of childbearing decision-making, often conceived as the link between fertility desires and behavior (Billingsley and Ferrarini 2014). Following changes in family norms and the institution of the modern contraceptive regime, often termed the Second Demographic Transition (Lesthaeghe 2010), such intentions are increasingly important for understanding changes in fertility trends, given individuals' greater degree of control over their fertility outcomes and the increased expectation that they make informed decisions regarding childbearing.

When attempting to explain fertility declines, it might seem preferable to analyze fertility outcomes. However, in this case, the impact of resilience on such outcomes is reasonably mediated by intentions to have children. Further, positive short-term fertility

intentions, defined as intentions to have a child within three years, provide reasonable indications of fertility outcomes, being associated with an increased likelihood of subsequent childbirth.<sup>6</sup>

In analyzing individuals in relationships, reported fertility intentions can further be deemed more realistic (Neyer, Lappegård, and Vignoli 2013).

## 2.5 Hypotheses

The purpose of this paper is to study the association between employment resilience and fertility intentions among childless couples and how such an association might differ across the population. As outlined, resilience is expected to support fertility planning under conditions of uncertainty by enabling individuals to imagine viable futures and act upon them. Accordingly, individuals with low resilience may struggle to form such intentions, leading to the first hypothesis:

*H1: Individuals with low resilience are less likely to have positive fertility intentions.*

Furthermore, the ability to adapt to an uncertain employment future is hypothesized to be more influential for fertility intentions than a perceived risk of unemployment:

*H2: Resilience has a more substantial impact on fertility intentions than perceived employment stability.*

Given the generally higher earnings of men within couples, their fertility intentions are hypothesized to be more strongly tied to their perceived ability to withstand employment shocks:<sup>7</sup>

*H3: Men's childbearing intentions are more affected by low resilience than women's.*

Furthermore, the effect of resilience may be more pronounced among economically and socially vulnerable groups. For individuals with low income or low perceived employment stability, limited economic resources may heighten the perceived consequences of job loss, rendering resilience particularly consequential for the

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<sup>6</sup> For the GGS round performed in 2012, Carlsson (2023) found that 45% of native-born women in Sweden and Norway with positive fertility intentions had a child within three years, compared to just 3% among those with negative intentions. However, the proportion of individuals realizing positive fertility intentions was slightly lower for men and migrants, who also had slightly higher proportions of unintended births.

<sup>7</sup> Consistent with the findings from Gatta et al. (2022) concerning Italy.

formulation of fertility intentions. Among foreign-born individuals, a lack of economic and social resources may similarly increase the relevance of perceived resilience, as such perceptions can offer a subjective counterweight to structural uncertainty and support the construction of imagined futures in which childbearing remains feasible:

*H4: The association between resilience and fertility intentions is stronger for individuals with lower income than for those with higher income.*

*H5: The association between resilience and fertility intentions is stronger for foreign-born individuals than for native-born individuals.*

*H6: The association between resilience and fertility intentions is stronger for individuals with low perceived employment stability than for those with high perceived employment stability.*

Finally, the association between resilience and fertility intentions is hypothesized to be stronger for risk-averse individuals due to a stronger inclination to avoid the risks associated with childrearing in the face of uncertain prospects:

*H7: The association between resilience and fertility intentions is stronger for risk-averse individuals than for risk-takers.*

### **3. Data and methods**

#### **3.1 Data**

The analysis is based on individual-level cross-sectional data from the GGS 2021. The GGS forms part of the international Generations and Gender Programme, with the goal of supplying comparative and longitudinal demographic research data (Statistics Sweden 2021). Data collection, carried out from May to August 2021, was the responsibility of Statistics Sweden and was commissioned by Stockholm University. The survey is linked to register data covering respondents' past life course events (see Neyer, Andersson, and Dahlberg 2024).

GGS 2021 is uniquely suited for this analysis as it includes questions on both perceived employment stability and perceived resilience to employment loss, enabling an examination of how these characteristics relate to fertility intentions across the population in 2021.

Due to the cross-sectional nature of the data, changes in variables over time cannot be observed. Consequently, the analysis evaluates associations between variables, arguing for causal interpretations theoretically. Accordingly, the role of resilience in the fertility decline cannot be analyzed precisely, though the analysis might provide insight into the potential impacts of increasing economic uncertainties in current fertility developments.

The survey sample consists of 8,082 individuals aged 18–59. Although the response rate was relatively low (27%), the dataset includes weights designed to reduce bias from nonresponse. Potential uncertainty is primarily related to nonresponse, while sampling, coverage, processing, and measurement are considered to have a smaller impact (Statistics Sweden 2021). Despite these limitations, the GGS is currently one of the most important sources of data for exploring subjective determinants of the Swedish fertility decline and has been found to represent the population well with regard to common fertility indicators (Neyer, Andersson, and Dahlberg 2024).

### **3.2 Model specification**

All regression analyses are logistic with a binary dependent variable (reported short-term fertility intentions). The main model was constructed additively – starting with a simple model including only resilience as a predictor – guided by likelihood ratio tests and AIC/BIC estimates. Most control variables included improved goodness-of-fit, but this was not true for household income, nativity, and risk attitudes. However, these variables were deemed to be of theoretical interest and were therefore retained.

### **3.3 Sample selection and data cleaning**

The sample is limited to individuals aged 20–40 who are (self-)employed, have no registered children, and report having a partner. Living-apart-together (LAT) couples are therefore included, as well as individuals with partners who have children from previous relationships.<sup>8</sup> Further, individuals who reported being “definitely” unable to have children or who at the time of the interview reported that they were expecting a child were not included in the sample.

Cases with missing information regarding fertility intentions, as well regarding as resilience, were removed prior to analysis. For most other variables, missing cases were put in separate categories or given imputed values, but the missing cases in risk attitude

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<sup>8</sup> Individuals over 30 in LAT relationships may perceive their economic situation as less certain than cohabiting individuals (Oláh, Karlsson, and Sandström 2023) – motivating the inclusion of LAT couples in the sample.

predicted failure perfectly and were therefore removed. Table 1 summarizes the removed cases.

**Table 1: Stepwise omissions for sample selection**

Original sample: 8,082 individuals									
Not in relationship	-1,868	-1,868	-1,868	-1,868	-1,868	-1,868	-1,868	-1,868	-1,868
Not aged 20–40*		-4,009	-4,009	-4,009	-4,009	-4,009	-4,009	-4,009	-4,009
Already parent*			-1,088	-1,088	-1,088	-1,088	-1,088	-1,088	-1,088
Not (self-)employed				-319	-319	-319	-319	-319	-319
Unable to have children					-33	-33	-33	-33	-33
Expecting child						-60	-60	-60	-60
Missing data (intentions)							-21	-21	-21
Missing data (resilience)								-1	-1
Missing data (risk attitude)									-2
<b>Total</b>	<b>6,214</b>	<b>2,205</b>	<b>1,117</b>	<b>798</b>	<b>765</b>	<b>705</b>	<b>684</b>	<b>683</b>	<b>681</b>

Notes: Criteria where omissions were based on register data are marked with an asterisk (\*). Omissions for all other criteria were based on survey items.

### 3.4 Variables

The dependent variable is short-term *fertility intentions* derived from the survey question “Do you intend to have a/another child during the next three years?” From this, a dichotomous variable differentiating between *positive fertility intentions* (including responses “definitely yes” and “probably yes”) and *negative fertility intentions* (including responses “probably not” and “definitely not”) was constructed. Further, individuals who reported attempting to have a child at the time of interview were categorized as having positive intentions.

The primary independent variable is *resilience*, derived from the survey question “If you did lose your job, how likely do you think it is that you would find an equivalent job within twelve months?” Responses were categorized into *low resilience* (“very unlikely” and “unlikely”), *unsure* (“unsure”), and *high resilience* (“likely” and “very likely”).

Gatta et al. (2022) operationalized resilience as a continuous variable, not including a response directly equivalent to “unsure.” However, one could argue that including an “unsure” response might allow for a more nuanced interpretation of the relationship between resilience and fertility intentions. Although a respondent’s choice of “unsure” is not always straightforward to interpret, in this context it likely reflects a perceived inability to assess the consequences of job loss – that is, not knowing whether they would be able to find equivalent employment.

*Employment stability* was included to control for potential confounding effects and to assess its moderating role in the relationship between resilience and short-term fertility intentions. It was derived from the survey question “How likely is it that you will lose your job in the next twelve months?” and categorized into *low employment stability* (“very likely” and “likely”), *unsure* (“unsure”), and *high employment stability* (“unlikely” and “very unlikely”).<sup>9</sup> In this analysis, employment stability refers to individuals’ *perceived* employment situation.

Other control variables include *age*, which was accounted for using both linear and squared terms, as well as *gender* and *nativity*. *Education*, indicating the highest level of education completed by 2020, was categorized as *primary* (including secondary education shorter than three years), *secondary*, *lower tertiary* (up to a bachelor’s degree), and *higher tertiary* (beyond a bachelor’s degree), with an additional category for missing data. All individuals with missing data had migrated to Sweden after 2013.

*Household income* for 2019 was categorized as *low income* (less than 250,000 SEK), *middle income* (250,000–599,999 SEK), and *high income* (600,000 SEK or more), with an additional category for missing data. All individuals with missing data had migrated to Sweden in late 2019 or after.<sup>10</sup>

Lastly, *risk attitude* was based on responses to the question “Would you describe yourself as someone who tries to avoid risk (risk-averse) or someone who likes to take chances (a risk-taker)?” Responses were categorized as *risk-averse* (responses 1 and 2 on a 5-point Likert scale), *neither* (response 3), and *risk-taker* (responses 4 and 5).

### 3.5 Analytical strategy

The analysis consisted of two parts: a descriptive analysis and a logistic regression analysis. The descriptive analysis consisted of univariate analyses of frequency distributions and bivariate analyses of associations between the independent variables and fertility intentions.

The regression analysis comprised main effects models and four interaction models. The main effects models analyzed the association between resilience and fertility intentions for the full population and by gender, accounting for potential gender-based interaction effects. The interaction models explored this association across socioeconomic groups (household income, nativity) and examined how perceptions of

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<sup>9</sup> Two cases in the sample had missing values and received imputed values based on the median employment stability for their contract type. Both had permanent contracts, and 90% of individuals with permanent contracts perceived job loss within 12 months as (very) unlikely.

<sup>10</sup> It can be noted that the use of household income may be problematic due to the inclusion of LAT couples in the sample. They would generally have a lower household income than cohabitating couples.

employment stability and risk attitude moderated the relationship. Due to the limited sample size, the interaction models were not separated by gender.

While the descriptive analysis used weights calculated by Statistics Sweden (accounting for education, gender, country of birth, and age), the regression models were unweighted. The main regression results are displayed through odds ratios and predicted probabilities.<sup>11</sup> The interaction model results are displayed through plots of predicted probabilities, with corresponding tables in Appendix C. All plots of predicted probabilities display confidence intervals at the 95% level.

## **4. Results and discussion**

### **4.1 Descriptive statistics**

Overall, 61% of the study population of childless (self-)employed individuals in partnerships report positive fertility intentions.

Regarding resilience, 75% have high perceived resilience, and the proportion reporting positive fertility intentions is highest among those with high resilience, at 63%, and lowest among those who are unsure regarding their resilience, at 50%. Similarly, 82% perceive it as unlikely that they will lose their employment. The proportion with positive fertility intentions is also largest among those with high perceived employment stability (63% intend to have a child within three years) and smallest for those with perceived unstable employment (35% report positive intentions). Combined, these results suggest that individuals in the population perceive their employment as relatively stable – possibly indicating that perceived employment uncertainty is unlikely to have major effects on fertility trends in Sweden. Further, this was the case despite survey interviews being conducted during the COVID-19 pandemic, when we would expect employment uncertainties to be more pronounced. However, those who do perceive their employment situation as more uncertain are also less prone to childbearing in the short term.

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<sup>11</sup> With stepwise tables included in Appendix B.

**Table 2: Number and weighted proportion of individuals who reported positive fertility intentions**

	Positive intentions		Sample proportion	
	N	Weighted %	N	Weighted %
<b>Resilience</b>				
Low	33	55.7	59	9.1
Unsure	54	50.4	104	15.6
High	329	63.2	518	75.3
<b>Employment stability</b>				
Low	12	34.9	37	5.6
Unsure	46	54.4	81	12.9
High	358	63.3	563	81.5
<b>Gender</b>				
Male	178	58.5	309	50.4
Female	238	62.6	372	49.6
<b>Education</b>				
Primary	12	37.7	43	8.0
Secondary	83	53.7	158	28.7
Lower Tertiary	203	62.1	326	39.2
Higher Tertiary	107	76.4	137	19.0
Missing	11	63.8	17	5.1
<b>Household income</b>				
Low	94	52.3	180	26.4
Middle	254	68.7	366	52.8
High	59	46.4	123	17.7
Missing	9	72.4	12	3.1
<b>Nativity</b>				
Native-born	361	60.4	591	78.7
Foreign-born	55	61.0	90	21.3
<b>Risk attitude</b>				
Risk-averse	187	61.8	297	41.2
Neither	157	62.2	251	37.3
Risk-taker	72	55.1	133	21.6
<b>Total</b>	<b>416</b>	<b>60.5</b>	<b>681</b>	<b>100</b>

Note: Calculations by author.

Source: Swedish GGS 2021.

The proportion reporting positive fertility intentions tends to increase with higher education levels. Individuals with primary education (including secondary education shorter than three years) especially stand out as unlikely to intend childbearing within three years, partly due to their younger average age. Individuals with middle income make up the majority of the sampled population and are most likely to report positive fertility intentions. There are only small differences in the distribution of reported fertility intentions across nativity and gender. The proportion reporting positive fertility intentions tends to increase with age until the early 30s and then decrease in the late 30s – indicating a nonlinear association with fertility intentions, which corresponds well to observed patterns of age-specific first-birth rates (see Appendix A).

Risk-takers had slightly lower proportions of positive intentions in comparison to the risk-averse and those who were neither risk-averse nor risk-takers.

#### **4.2 Regression analysis of the association between resilience and fertility intentions**

The results for the total sample population do not indicate any clear association between resilience and fertility intentions (see Table 3). Overall, the odds for individuals with low perceived resilience are almost as high as those for individual with high resilience in Model 1, while the odds for unsure individuals (though not significant) are estimated at 0.67 times those of the highly resilient.

On the other hand, Model 1 does suggest an association between employment stability and fertility intentions for the total population, estimating that individuals with low perceived employment stability have less than half the odds of having positive fertility intentions compared to individuals who perceive their employment as stable, when controlling for all variables.

Age was found to be a strong predictor of fertility intentions, and women were found to be significantly more likely to have positive intentions than men (with 1.46 times higher odds in Model 1). The estimated odds of having positive fertility intentions tended to increase with an increased level of education. However, no categories significantly differ from the reference category, *secondary education*, at the 5% level. Similarly, estimates for income tended to suggest that low-income individuals were less likely to have positive fertility intentions than those with middle income. These estimates were quite uncertain, however, with confidence intervals ranging from 0.44 to 1.01.

While the foreign-born were estimated to be less likely to have positive intentions than the native-born, this difference was not significant. Finally, there were no significant differences associated with risk attitudes, though the estimates suggest that the risk-averse are most likely to have positive intentions whereas risk-takers are least likely.

**Table 3: Main effects models for childless women and men in couples in Sweden**

	<b>Model 1</b> (Total sample)	<b>Model 2</b> (Men)	<b>Model 3</b> (Women)
<b>Resilience</b>			
Low	0.93 (0.50–1.70)	0.88 (0.37–2.05)	0.92 (0.35–2.38)
Unsure	0.67 (0.41–1.09)	0.44 (0.20–0.98)	0.91 (0.48–1.74)
High	1	1	1
<b>Gender</b>			
Male	1	–	–
Female	1.46 (1.03–2.08)	–	–
<b>Age</b>	1.613 (1.355–1.920)	1.856 (1.371–2.513)	1.535 (1.213–1.944)
<b>Age<sup>2</sup></b>	0.981 (0.973–0.989)	0.977 (0.965–0.990)	0.982 (0.971–0.993)
<b>Education</b>			
Primary	0.67 (0.29–1.56)	1.50 (0.37–6.11)	0.37 (0.11–1.20)
Secondary	1	1	1
Lower tertiary	0.98 (0.63–1.52)	0.75 (0.39–1.46)	1.32 (0.72–2.44)
Higher tertiary	1.65 (0.91–2.98)	1.07 (0.47–2.45)	3.02 (1.21–7.56)
Missing	1.12 (0.22–5.69)	964346 (0–)	0.27 (0.02–3.23)
<b>Nativity</b>			
Native-born	1	1	1
Foreign-born	0.78 (0.44–1.37)	0.68 (0.30–1.55)	0.81 (0.35–1.87)
<b>Income</b>			
Low	0.67 (0.44–1.01)	0.64 (0.34–1.23)	0.77 (0.43–1.36)
Middle	1	1	1
High	0.73 (0.45–1.17)	0.44 (0.22–0.89)	1.21 (0.59–2.50)
Missing	1.78 (0.27–11.77)	2.6e-6 (0–)	4.17 (0.27–63.77)
<b>Employment stability</b>			
Low	0.44 (0.20–0.98)	0.51 (0.18–1.46)	0.38 (0.10–1.41)
Unsure	1.05 (0.60–1.84)	1.34 (0.48–3.74)	1.08 (0.54–2.17)
High	1	1	1
<b>Risk attitude</b>			
Risk-averse	1	1	1
Neither	0.91 (0.62–1.33)	0.82 (0.44–1.51)	1.00 (0.59–1.69)
Risk-taker	0.72 (0.45–1.16)	9.66 (0.34–1.29)	0.79 (0.38–1.61)
<b>Intercept</b>	0.15 (0.06–0.39)	0.08 (0.02–0.41)	0.22 (0.06–0.74)
<b>Degrees of freedom</b>	17	16	16
<b>Log likelihood</b>	–398.2	–177.9	–209.6
<b>Pseudo-R<sup>2</sup></b>	0.125	0.155	0.138
<b>Observations</b>	681	309	372

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

### 4.3 Gender differences in the association between resilience and fertility intentions

Separated by gender, the image gets more complex. As can be seen in Table 3, men who are unsure regarding their resilience are significantly less likely to have positive fertility intentions compared to men who have a high perceived resilience to employment loss (with less than half the estimated odds in Model 2). However, no clear association was

found between low resilience and fertility intentions, suggesting that men's fertility intentions may be influenced not by a perceived lack of capacity to overcome employment loss but rather by an uncertainty regarding this capacity.

No significant association is found between employment stability and fertility intentions, though the odds of having positive intentions are estimated to be roughly half as large for individuals with low perceived employment stability compared to those with high perceived employment stability. Age is found to be a significant predictor of fertility intentions for men – and men with high incomes are found to have significantly lower odds of having positive intentions compared to men with middle incomes, by a factor of 0.44 in Model 2.

The *missing* categories in income and education were estimated to have unreasonably divergent relative odds. These cases showed near-perfect predictions of observed intentions, likely due to a high correlation between missing values in education and income, causing small variations to have an exaggerated impact on effect sizes.

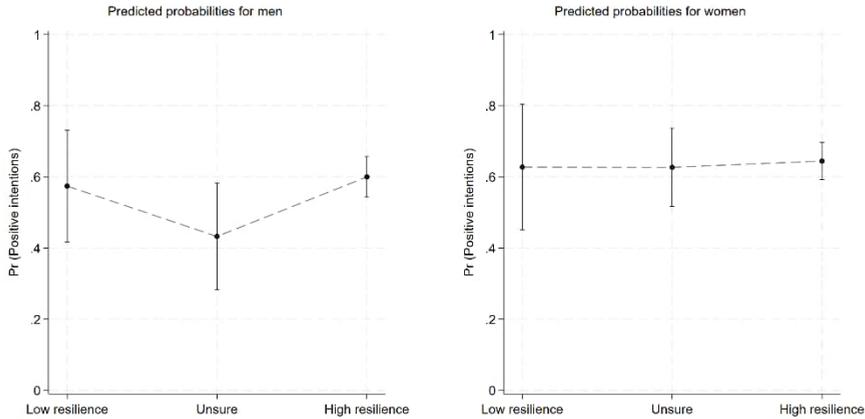
For women, there was no clear association between resilience and fertility intentions. Interestingly, there is also no significant association between employment stability and fertility intentions, though the estimated odds for women with low employment stability are quite markedly lower than the odds for women with high employment stability.

Similar to previous models, there is a significant association between age and fertility intentions. Women with higher tertiary education are also significantly more likely to have positive fertility intentions than women with secondary education, with odds three times higher.

The predicted probabilities in Figure 1 further show no substantial difference in women's probability of having positive intentions across resilience categories (63%–64%) but show a significant difference, of 17 percentage points, between men who are unsure and men with high resilience.

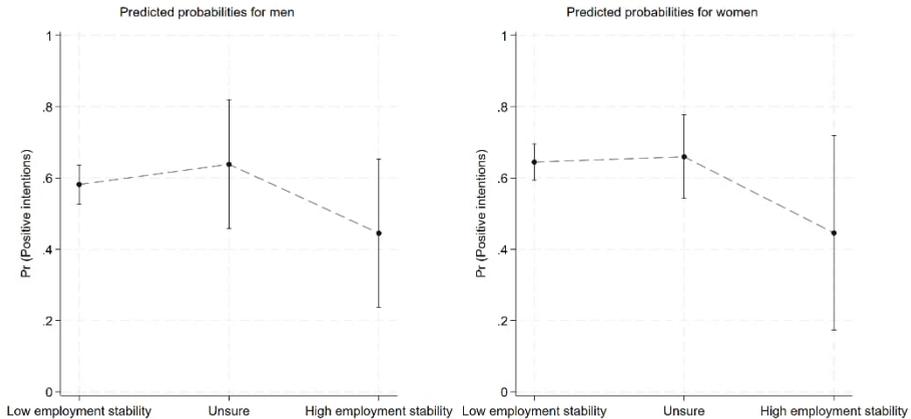
Following the debate regarding resilience versus employment stability, these probabilities can be compared with those for employment stability (Figure 2). While the estimated probabilities for women differ more across employment stability categories than they do for resilience categories (specifically due to the low probability of approximately 45% for women with perceived low stability), patterns need to be interpreted with caution, as no cross-category differences are significant at the 5% level.

**Figure 1: Predicted probabilities by perceived resilience**



Notes: Calculated from gender-separated models controlling for age, education, household income, nativity, employment stability, and risk attitudes. Confidence intervals of 95%.  
Source: Swedish GGS 2021.

**Figure 2: Predicted probabilities by perceived employment stability**



Notes: Calculated from gender-separated models controlling for age, education, household income, nativity, resilience, and risk attitudes. Confidence intervals of 95%.  
Source: Swedish GGS 2021.

Men with low employment stability are similarly estimated to be least likely to have positive fertility intentions, but no significant differences are found at the conventional 5% level. This could lend support to the notion that resilience has a higher predictive power for men's fertility intentions than employment stability does, though the opposite would be suggested for women. However, the limited sample sizes in resilience categories and the corresponding uncertainty in estimates would make such conclusions tentative.

And while the association between resilience and fertility intentions for men seems clear, it is important to note that the estimates are derived from quite limited sample sizes in the resilience categories: 32 men perceive their resilience as low, and 39 are unsure regarding their resilience. Therefore we should be careful in drawing general conclusions. To look further into this, interaction models decomposing the relation between resilience and fertility intentions are presented next.

#### **4.4 Differences in the association across income groups**

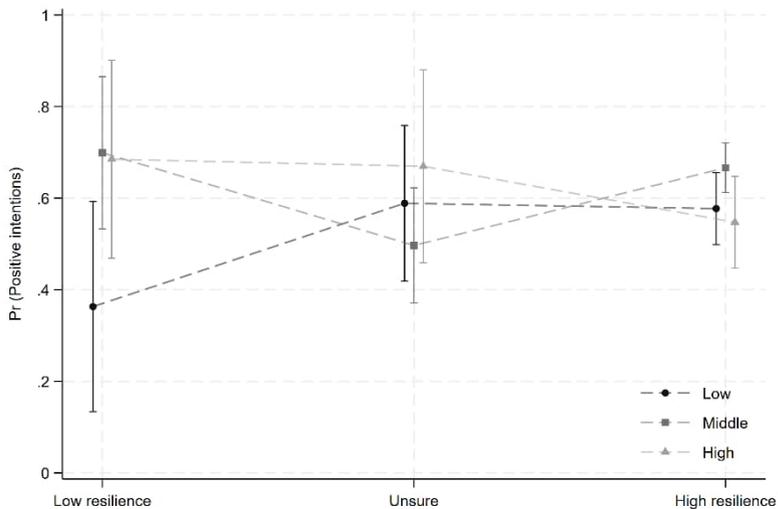
The first interaction model tests how the association between resilience and fertility intentions varies across income groups. The missing income category was excluded from the model due to very few observations. The results are displayed in Figure 3.<sup>12</sup>

Individuals with high incomes are estimated to have the lowest probability of positive intentions if they perceive themselves as highly resilient (55%). However, there are no significant differences in probability across categories of perceived resilience – suggesting no clear association between resilience and fertility intentions among individuals with a high household income.

On the other hand, having low income and low perceived resilience is estimated to be associated with a low probability of positive intentions, with a predicted probability of 36%. Compared to the estimate for individuals with low income and high resilience (69%), this would suggest that having low resilience might be negatively associated with fertility intentions among individuals with low income. But at the 5% level, this difference is not statistically significant. However, comparing the probabilities associated with having low resilience across income groups, it can be noted that having a low income is significantly associated with a lower probability of positive intentions compared to having either a middle or a high income. While these estimates are uncertain, and conclusions should be made with caution, they might suggest that low resilience does have some impact on the fertility intentions of economically vulnerable individuals, possibly by amplifying the negative impact already associated with having a low income.

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<sup>12</sup> Regression tables for all interaction models can be found in Appendix B.

**Figure 3: Predicted probabilities for income groups**

Notes: Calculated from Model 4, interacting resilience and household income while controlling for age, gender, education, nativity, employment stability, and risk attitudes. Confidence intervals of 95%.  
Source: Swedish GGS 2021.

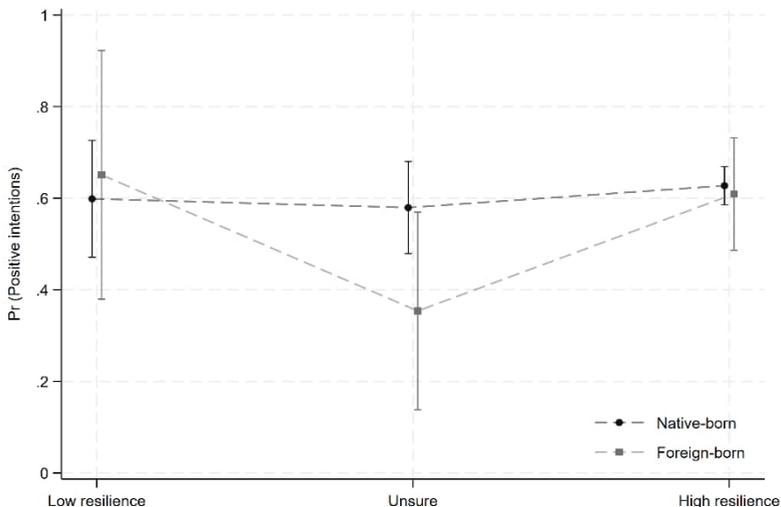
For middle-income individuals, the estimates associated with having low and high resilience are approximately the same, at 70% and 67%, respectively, suggesting that low resilience is not related to fertility intentions for individuals with middle incomes. However, individuals with middle incomes who are unsure regarding their resilience have a markedly lower probability of having positive intentions, at 50%. While this does not differ significantly from the probability for middle-income individuals with low resilience, it does differ significantly from the probability for highly resilient middle-income individuals.

While it is difficult to draw clear conclusions from such uncertain estimates, the results seem to suggest that individuals with low income might be negatively impacted by low resilience while primarily individuals with middle income are affected by being uncertain regarding their resilience. Hypothetically, this might further suggest that the degree of perceived resilience and uncertainty regarding one's resilience affect fertility intentions through different mechanisms.

#### 4.5 Differences in the association between native-born and foreign-born

As depicted in Figure 4, there are no indications that low resilience is negatively associated with fertility intentions among the foreign-born population. On the other hand, this model suggests that the negative association between being unsure about one's resilience and fertility intentions is mainly isolated to foreign-born individuals, with the foreign-born who are unsure regarding their resilience having a probability of positive intentions of 35%. This probability significantly differs from the probabilities for the foreign-born with high resilience and for the native-born who are unsure regarding their resilience. While being unsure regarding one's resilience is then seemingly negatively associated with fertility intentions for the foreign-born, it should be noted that only 18 foreign-born respondents are unsure regarding their resilience, meaning that the data underlying this are quite limited.

**Figure 4: Predicted probabilities by nativity**



*Notes:* Calculated from Model 5, interacting resilience and nativity while controlling for age, gender, education, household income, employment stability, and risk attitudes. Confidence intervals of 95%.

*Source:* Swedish GGS 2021.

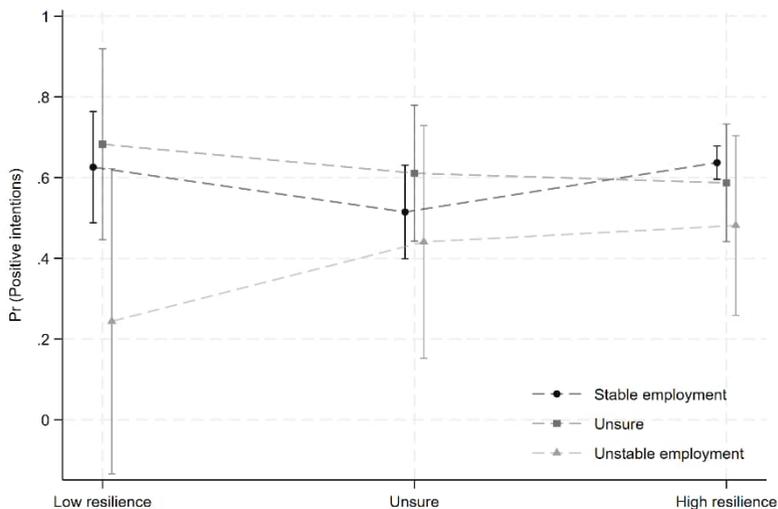
There is no clear association between resilience and fertility intentions among native-born individuals, who are estimated to have roughly a 60% probability of positive intentions regardless of their perceived resilience.

#### 4.6 Differences in the association over perceptions of employment stability

While the hypothesis that low resilience is associated with depressed fertility intentions is not evidenced in the previous models, the argument that resilience moderates effects of perceptions of employment stability might be more evident. However, in the model interacting employment stability with resilience, no product terms are estimated to be significant at the 5% level (see Table C-3 in Appendix C).

The predicted probabilities shown in Figure 5 suggest that having low resilience and low employment stability is associated with a very low probability (24%) of having positive intentions. However, the estimated probabilities are generally quite low for individuals with low employment stability regardless of perceived resilience, and the estimates further have large confidence intervals. Therefore differences across categories of perceived resilience are not significant for individuals with low perceived employment stability.

**Figure 5: Predicted probabilities by perceived employment stability**



*Notes:* Calculated from Model 6, interacting resilience and employment stability while controlling for age, gender, nativity, education, household income, and risk attitudes. Confidence intervals of 95%.

*Source:* Swedish GGS 2021.

For individuals who are unsure regarding their employment stability or perceive their intentions as stable, there are no significant differences in the probability of

having positive intentions across categories of perceived resilience, suggesting that resilience might not be associated with fertility intentions for these individuals.

While resilience does thus not seem to noticeably impact fertility intentions across any category of perceived employment stability, the combination of low resilience and low employment stability appears to be connected to depressed fertility intentions. Specifically, individuals who perceive themselves as likely to lose their employment and unlikely to find an equivalent job in case of employment loss show a significantly lower probability of positive intentions – 40 percentage points lower ( $\pm 38$  with 95% confidence) – compared to those who feel secure in both aspects.<sup>13</sup> While the connection between fertility intentions and uncertain resilience was found to be more evident than the connection to low resilience in the main effects models, this model suggests that the combination of low resilience and low employment stability may be strongly related to individuals' fertility intentions. One interpretation could be that individuals with very dire outlooks on their economic prospects are less likely to commit to childbearing because of this, whereas this effect is not as relevant for individuals who experience only one dimension of economic uncertainty. For them, it might rather be general uncertainty or perceived ignorance about what the future holds that affects childbearing plans.

#### **4.7 Differences in the association across self-identified risk attitude**

The last interaction model studied differences in the association between resilience and fertility intentions depending on risk attitude. The results from this model are displayed in Figure 6.

For risk-takers and those who are neither risk-averse nor risk-takers, there are no significant differences in the probability of having positive intentions across resilience categories.

For the risk-averse, the predicted probabilities associated with having low resilience and high resilience are close to identical, at 67% and 66%, respectively. However, among the risk-averse, individuals who are unsure about their resilience have a significantly lower probability (51%) than those with high resilience. Overall, this seems to suggest that risk-averse individuals are more affected by uncertainty regarding resilience in their childbearing intentions than others.

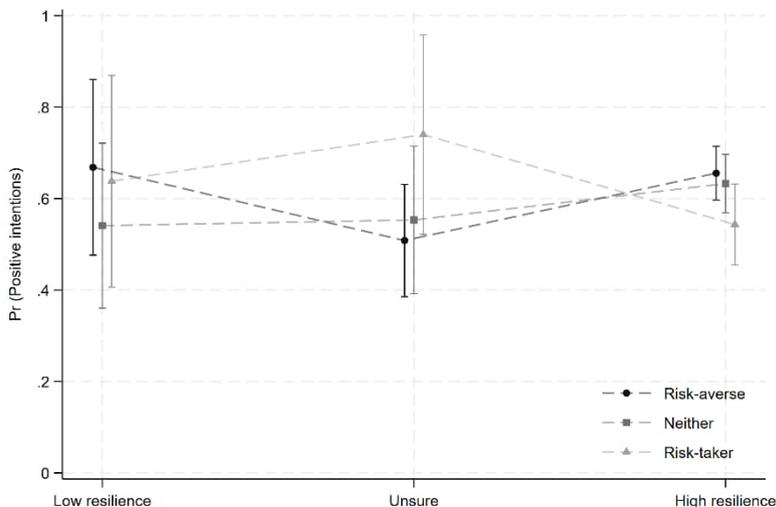
To conclude, these decompositions tend to suggest two different ways in which resilience might impact fertility intentions. First, uncertainty regarding one's capacity to overcome possible employment loss is mainly negatively associated with fertility

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<sup>13</sup> Due to the small proportion of individuals with both low resilience and low employment stability (approximately 1% of the weighted sample or seven individuals in the unweighted sample), these estimates are highly uncertain.

intentions for foreign-born individuals and those from middle-income households and is further primarily noticeable for the risk-averse. Second, these results tend to support the notion that low resilience might influence fertility intentions – but only among those with an already weak economic outlook, either having a low income or perceiving their employment as unstable. In such cases, low resilience seems to further lessen intentions of childrearing – consistent with the notion that low resilience may amplify the effects of other perceived economic uncertainties. However, for individuals who perceive their general economic situation as stable, having low resilience may not be a relevant factor for childbearing at all.

**Figure 6: Predicted probabilities by risk attitude**



*Notes:* Calculated from Model 7, interacting resilience and risk attitudes while controlling for age, gender, nativity, education, household income, and employment stability. Confidence intervals of 95%.

*Source:* Swedish GGS 2021.

#### 4.8 Limitations of the analysis and sensitivity checks

The association between resilience and fertility intentions among men is generally stable across these models when variables are excluded (see Table A-2 in Appendix B). However, these results depend on a very limited sample of individuals who do not perceive themselves as highly resilient. So even the significant association between being

unsure regarding one's resilience and fertility intentions among men should be interpreted with caution, especially since the extreme odds ratios associated with *missing* categories for income and education might indicate problems with the model. Therefore a sensitivity check was conducted to investigate how excluding individuals with missing information on education and income affected the results for Models 1–3. For men, such an exclusion resulted in a loss of significance at the 5% level for the association between being unsure regarding one's resilience and fertility intentions, although the direction and magnitude of the association remained similar.<sup>14</sup> Whether the loss of significance is due to a smaller sample size, a smaller proportion of foreign-born, or previously biased estimates is unclear.

Including LAT couples in the sample without controlling for cohabitation may have biased estimates for the association between resilience and fertility intentions, as they might perceive their economic futures as more uncertain (Oláh, Karlsson, and Sandström 2023) and be less likely to have positive fertility intentions for reasons unrelated to employment uncertainty. To test this, a model including cohabitation as a control variable was fitted. Bivariate analyses suggested that LAT individuals on average had a higher relative risk of reporting low resilience or uncertainty regarding their resilience than cohabiting individuals and were less likely to have positive intentions. However, including cohabitation as a control variable for the gender-separated models yielded highly similar results, with the negative association between being unsure regarding one's resilience and fertility intentions remaining significant for men.<sup>15</sup>

A model accounting for partner characteristics related to employment uncertainty was discarded due to a large proportion of missing data, despite the potential benefits of analyzing fertility decisions within the context of couples' combined economic circumstances. Further, the limited sample size prevented any deeper analysis of variation across ages, which was suggested to be of importance in earlier research regarding economic uncertainty and fertility intentions (Kreyenfeld 2015).

## 5. Discussion

This study aimed to analyze the relationship between employment resilience and fertility intentions among Swedish childless couples. Building on discussions of resilience as a missing link in the literature on economic uncertainty and fertility behavior in a globalized world, the core hypothesis of the study was that fertility intentions are positively associated with resilience. While the descriptive analysis did suggest that individuals with low resilience are generally less likely to have positive fertility

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<sup>14</sup> Results are available upon request.

<sup>15</sup> Results are available upon request.

intentions, there was no clear association between low resilience and fertility intentions when controlling for differences in sociodemographic, socioeconomic, and personality factors.

On the other hand, an association between resilience and fertility intentions was found for men. However, these results do not suggest that men are affected by low resilience but rather suggest a potential impact of uncertainty regarding future employment prospects on fertility intentions, as reflected in the negative association between being unsure regarding one's resilience and positive fertility intentions. This might be thought to reflect the distinction between risk and genuine uncertainty. Being unsure regarding one's resilience may affect the perceived ability of individuals to perform risk calculations for future scenarios, while having low resilience would rather affect the imagined outcomes in risk calculations regarding the future. Interestingly, the deeper uncertainty, when calculations of risk are left aside, might then have a more prominent impact on fertility intentions among men.

These results were unexpected and partly differ from earlier research on the Italian case, which found a general positive association between resilience and fertility intentions (Gatta et al. 2022). The results do, however, align well with the previous analysis by Neyer et al. (2022) regarding Swedish childless couples and further provide support for gender differences regarding how resilience affects fertility intentions – in line with Hypothesis 3 and previous research regarding both resilience and other aspects of economic uncertainty (Fahlén and Oláh 2018; Gatta et al. 2022). In this sense, resilience might play a role in shaping men's fertility intentions – and the analysis further may indicate that resilience has a more substantial effect on the fertility intentions of men than does employment stability, providing partial support for Hypothesis 2. Due to the limited data, however, we cannot draw any clear conclusions regarding this.

The analysis indicated that the negative association between uncertainty regarding future capabilities to overcome employment loss and fertility intentions was seemingly isolated to the foreign-born – providing partial support for Hypothesis 5. The reasoning behind the hypothesis was that socially vulnerable groups tend to be more impacted by perceived risks, but these results rather suggest that vulnerability leads individuals to difficulties in decision-making when the future is perceived as unknowable. This suggests that uncertainty regarding capabilities to overcome employment loss is not inhibiting family formation among the native-born, for whom such a perception might be partly remedied by perceived capabilities to construct alternative narratives through other social resources. But the social vulnerabilities associated with immigration might make the construction of alternative narratives in the face of a truly uncertain economic future more difficult for the foreign-born.

Further, the results suggested that low resilience may be related to a lower likelihood of positive fertility intentions among at least a small portion of the study population with

especially dire economic prospects. While this provides support for Hypotheses 4 and 6, the findings are uncertain and should be regarded as speculative.

The negative association between being unsure regarding one's resilience and positive fertility intentions was further suggested to be most pronounced among the risk-averse, providing partial support for Hypothesis 7.

Viewed together, these findings raise questions about what resilience is intended to operationalize: the perceived ability of individuals to find new employment or uncertainty regarding their abilities? In some sense, these two aspects of resilience may impact individuals' fertility decision-making in qualitatively different ways. Theoretically, this suggests that resilience might not primarily influence fertility intentions through risk calculation but rather as a form of genuine uncertainty.

In contrast, uncertainty regarding employment stability was not suggested to be negatively associated with fertility intentions. Instead, a perceived risk of unemployment seemed to lower the likelihood of positive intentions. This suggests that the immediate threat of losing a job might have a clearer effect compared to the more abstract risk of not finding an equivalent job. For example, low perceived employment stability might lead individuals to postpone childbirth until they are in more stable employment – while low resilience may be irrelevant for those who do not find it likely that they will lose their job. On the other hand, uncertainty about one's resilience may reflect deeper difficulties in planning for the future, whereas uncertainty about job loss may not directly impede future planning – especially if the perceived resilience is high.

It is notable that a large proportion of respondents reported both high employment stability and high resilience, despite the survey being conducted during the COVID-19 pandemic – a period marked by heightened uncertainty and economic disruption. If uncertainty was perceived as relatively low even during this exceptional period, it was likely even less pronounced in pre-pandemic times, raising questions about whether economic uncertainty can fully explain the broader fertility decline in Sweden. Moreover, this context makes the weak or nonexistent associations between perceptions of low resilience and fertility intentions somewhat surprising. One might expect that, in a period of acute uncertainty, individuals' evaluations of their ability to handle an employment shock would play a more central role in fertility decision-making. At the same time, this context may instead have amplified the effect of genuine uncertainty about resilience. When broader uncertainty increases, individuals who are unable to form expectations or plan strategies for navigating employment shocks may be more strongly affected.

## **6. Conclusion and implications**

The main contribution of this paper lies in the emerging hypotheses concerning the differentiated effects of perceptions of risk and perceptions of genuine uncertainty. While this has been developed in the context of employment resilience, this distinction conceptually extends to other forms of uncertainty – economic and beyond. Thus these findings have important theoretical and methodological implications for future research. Theoretically, the study underscores the need to further conceptually develop and differentiate modalities of uncertainty and their consequences. Mills and Blossfeld's (2003) reflections on market volatility and its impact on foresight, together with insights from the Narrative Framework, offer a useful starting point.

Methodologically, the study highlights the need to develop new tools for measuring and modeling uncertainty – not just the expectations of specific outcomes but also the degree of certainty with which those expectations are held. In terms of data collection, this may involve including “unsure” response categories in survey items dedicated to future expectations or designing items that directly ask about the perceived predictability of adverse events. In terms of analysis, this points to the need for frameworks that distinguish between different modalities of uncertainty – treating expectations and the perceived predictability of those expectations as analytically separate dimensions.

Beyond these conceptual contributions, the study also adds to the empirical literature on economic uncertainty and fertility. It supports the idea that perceptions of resilience exert a distinct influence on fertility intentions, beyond the effects of employment stability. While the high proportion of individuals who perceive both high resilience and employment stability may limit the broader demographic impact in Sweden, the results nonetheless underscore the role of subjective uncertainty in shaping fertility intentions.

Finally, this study suggests that incorporating resilience into analyses of not only economic uncertainty but also other domains of uncertainty may help illuminate how individuals imagine and form families. In this regard, resilience in its broader sense may be a key concept for understanding how prospective parents respond to crises by postponing – or possibly forgoing – family formation.

## **7. Acknowledgments**

I am grateful for the helpful comments from and discussions with Gunnar Andersson, Gerda Neyer, and Philip Rehnberg, as well as for the valuable suggestions provided by the anonymous reviewers. Financial support from Riksbankens Jubileumsfond (Project P20-0517: Fertility Intentions and Fertility Decline in Sweden) is also gratefully acknowledged.

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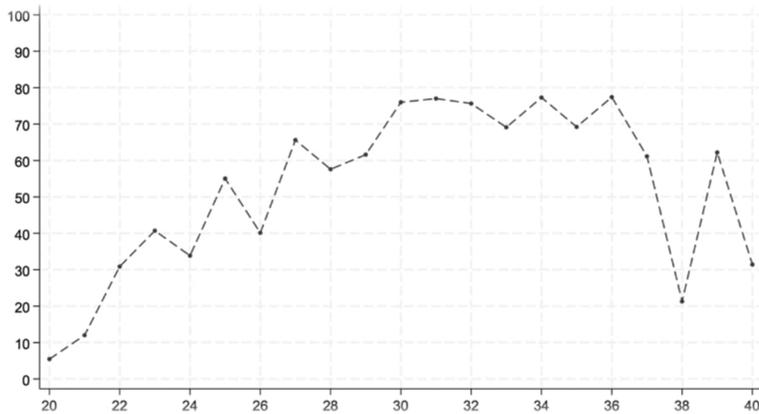
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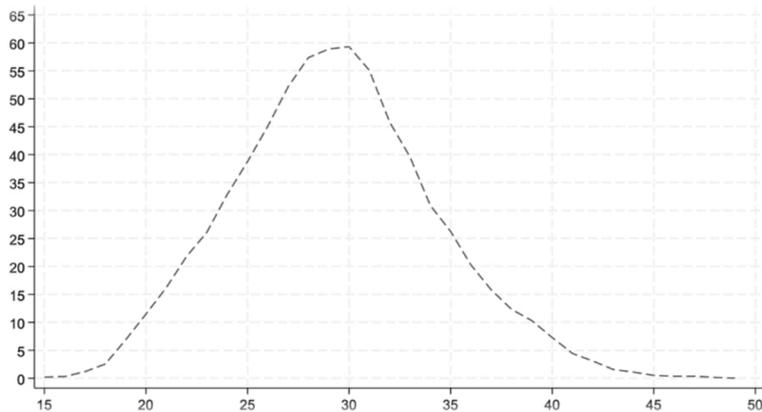
## Appendix A: Survey-based fertility intentions and observed first-birth rates in the Swedish population 2021

**Figure A-1: Proportion (%) with positive fertility intentions over age in the analyzed sample**



Note: Calculations by author using weighted proportions.  
Source: Swedish GGS 2021.

**Figure A-2: Age-specific first-birth rates in the Swedish population 2021**



Note: Number of first births per 1,000 women.  
Source: Data from Statistics Sweden, provided by Human Fertility Database.

## Appendix B: Stepwise main effects models

**Table A-1: Main effects model for the total sample of childless women and men in couples in Sweden**

	Model 1a	Model 1b	Model 1c	Model 1d	Model 1
<b>Resilience</b>					
Low	0.73 (0.42–1.26)	0.84 (0.46–1.52)	0.88 (0.48–1.60)	0.92 (0.50–1.69)	0.93 (0.50–1.70)
Unsure	0.62 (0.41–0.95)	0.67 (0.42–1.07)	0.66 (0.42–1.06)	0.70 (0.43–1.13)	0.67 (0.41–1.09)
High	1	1	1	1	1
<b>Gender</b>					
Male		1	1	1	1
Female		1.54 (1.09–2.17)	1.58 (1.12–2.22)	1.50 (1.06–2.13)	1.46 (1.03–2.08)
<b>Age</b>		1.685 (1.424–1.994)	1.632 (1.374–1.939)	1.608 (1.352–1.912)	1.613 (1.355–1.920)
<b>Age<sup>2</sup></b>		0.980 (0.972–0.987)	0.981 (0.973–0.988)	0.981 (0.973–0.990)	0.981 (0.973–0.989)
<b>Education</b>					
Primary		0.68 (0.29–1.58)	0.70 (0.30–1.63)	0.66 (0.29–1.54)	0.67 (0.29–1.56)
Secondary		1	1	1	1
Lower tertiary		0.96 (0.62–1.47)	1.01 (0.65–1.55)	1.02 (0.97–3.13)	0.98 (0.63–1.52)
Higher tertiary		1.74 (0.97–3.09)	1.67 (0.93–2.99)	1.74 (0.97–3.13)	1.65 (0.91–2.98)
Missing		1.73 (0.50–5.96)	1.25 (0.25–6.33)	1.22 (0.24–6.21)	1.12 (0.22–5.69)
<b>Nativity</b>					
Native-born		1	1	1	1
Foreign-born		0.72 (0.42–1.24)	0.76 (0.44–1.31)	0.75 (0.43–1.32)	0.78 (0.44–1.37)
<b>Income</b>					
Low			0.63 (0.42–0.95)	0.68 (0.45–1.02)	0.67 (0.44–1.01)
Middle			1	1	1
High			0.72 (0.45–1.16)	0.74 (0.46–1.19)	0.73 (0.45–1.17)
Missing			1.43 (0.22–9.27)	1.69 (0.26–11.24)	1.78 (0.27–11.77)
<b>Employment stability</b>					
Low				0.43 (0.20–0.93)	0.44 (0.20–0.98)
Unsure				1.06 (0.61–1.85)	1.05 (0.60–1.84)
High				1	1
<b>Risk attitude</b>					
Risk-averse					1
Neither					0.91 (0.62–1.33)
Risk-taker					0.72 (0.45–1.16)
<b>Intercept</b>	1.74 (1.46–2.08)	0.08 (0.04–0.20)	0.12 (0.05–0.30)	0.13 (0.05–0.34)	0.15 (0.06–0.39)
<b>Degrees of freedom</b>	2	10	13	15	17
<b>Log likelihood</b>	–452.4	–404.3	–401.6	–399.1	–398.2
<b>Pseudo-R<sup>2</sup></b>	0.006	0.112	0.118	0.123	0.125
<b>Observations</b>	681	681	681	681	681

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

**Table A-2: Main effects model for the sample population of childless men in couples**

	Model 2a	Model 2b	Model 2c	Model 2d	Model 2
<b>Resilience</b>					
Low	0.74 (0.35–1.55)	0.73 (0.32–1.63)	0.81 (0.36–1.86)	0.85 (0.37–1.97)	0.88 (0.37–2.05)
Unsure	0.50 (0.25–1.00)	0.47 (0.22–0.99)	0.46 (0.22–1.00)	0.47 (0.22–1.04)	0.44 (0.20–0.98)
High	1	1	1	1	1
<b>Age</b>		1.941 (0.454–2.591)	1.836 (1.364–2.470)	1.842 (1.364–2.489)	1.856 (1.371–2.513)
<b>Age<sup>2</sup></b>		0.976 (0.964–0.988)	0.978 (0.970–0.991)	0.978 (0.965–0.991)	0.977 (0.965–0.990)
<b>Education</b>					
Primary		1.30 (0.32–5.22)	1.40 (0.35–5.57)	1.44 (0.36–5.80)	1.50 (0.37–6.11)
Secondary		1	1	1	1
Lower tertiary		0.72 (0.38–1.36)	0.78 (0.40–1.49)	0.79 (0.41–1.52)	0.75 (0.39–1.46)
Higher tertiary		1.04 (0.46–2.31)	1.09 (0.48–2.46)	1.14 (0.50–2.60)	1.07 (0.47–2.45)
Missing		5.402 (0.54–54.15)	3.1e+6 (0–)	1.4e+6 (0–)	964346 (0–)
<b>Nativity</b>					
Native-born		1	1	1	1
Foreign-born		0.66 (0.30–1.45)	0.65 (0.29–1.45)	0.66 (0.29–1.49)	0.68 (0.30–1.55)
<b>Income</b>					
Low			0.60 (0.32–1.11)	0.65 (0.34–1.23)	0.64 (0.34–1.23)
Middle			1	1	1
High			0.44 (0.22–0.89)	0.44 (0.22–0.90)	0.44 (0.22–0.89)
Missing			7.3e-7 (0–)	1.8e-6 (0–)	2.6e-6 (0–)
<b>Employment stability</b>					
Low				0.51 (0.18–1.42)	0.51 (0.18–1.46)
Unsure				1.35 (0.48–3.73)	1.34 (0.48–3.74)
High				1	1
<b>Risk attitude</b>					
Risk-averse					1
Neither					0.82 (0.44–1.51)
Risk-taker					9.66 (0.34–1.29)
<b>Intercept</b>	1.53 (1.18–1.99)	0.04 (0.01–0.18)	0.07 (0.01–1.45)	0.07 (0.01–0.33)	0.08 (0.02–0.41)
<b>Degrees of freedom</b>	2	9	12	14	16
<b>Log likelihood</b>	–208.5	–183.6	–179.8	–178.6	–177.9
<b>Pseudo-R<sup>2</sup></b>	0.010	0.128	0.146	0.152	0.155
<b>Observations</b>	309	309	309	309	309

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

**Table A-3: Main effects model for the sample population of childless women in couples**

	Model 3a	Model 3b	Model 3c	Model 3d	Model 3
<b>Resilience</b>					
Low	0.75 (0.33–1.67)	0.92 (0.37–2.31)	0.92 (0.36–2.33)	0.91 (0.35–2.35)	0.92 (0.35–2.38)
Unsure	0.68 (0.39–1.18)	0.95 (0.51–1.75)	0.92 (0.50–1.70)	0.93 (0.49–1.77)	0.91 (0.48–1.74)
High	1	1	1	1	1
<b>Age</b>		1.582 (1.262–1.984)	1.574 (1.249–1.985)	1.536 (1.215–1.943)	1.535 (1.213–1.944)
<b>Age<sup>2</sup></b>		0.980 (0.970–0.991)	0.980 (0.970–0.991)	0.981 (0.971–0.992)	0.982 (0.971–0.993)
<b>Education</b>					
Primary		0.36 (0.11–1.17)	0.40 (0.12–1.28)	0.36 (0.11–1.19)	0.37 (0.11–1.20)
Secondary		1	1	1	1
Lower tertiary		1.21 (0.67–2.18)	1.32 (0.72–2.41)	1.36 (0.74–2.49)	1.32 (0.72–2.44)
Higher tertiary		3.09 (1.27–7.49)	3.11 (1.26–7.69)	3.17 (1.28–7.85)	3.02 (1.21–7.56)
Missing		0.55 (0.09–3.20)	0.28 (0.02–3.29)	0.30 (0.03–3.50)	0.27 (0.02–3.23)
<b>Nativity</b>					
Native-born		1	1	1	1
Foreign-born		0.80 (0.36–1.78)	0.81 (0.36–1.83)	0.77 (0.34–1.76)	0.81 (0.35–1.87)
<b>Income</b>					
Low			0.77 (0.44–1.34)	0.79 (0.44–1.39)	0.77 (0.43–1.36)
Middle			1	1	1
High			1.18 (0.58–2.41)	1.24 (0.60–2.55)	1.21 (0.59–2.50)
Missing			3.22 (0.23–45.38)	3.95 (0.26–59.63)	4.17 (0.27–63.77)
<b>Employment stability</b>					
Low				0.36 (0.10–1.33)	0.38 (0.10–1.41)
Unsure				1.10 (0.55–2.20)	1.08 (0.54–2.17)
High				1	1
<b>Risk attitude</b>					
Risk-averse					1
Neither					1.00 (0.59–1.69)
Risk-taker					0.79 (0.38–1.61)
<b>Intercept</b>	1.95 (1.52–2.49)	0.17 (0.06–0.49)	0.18 (0.05–1.83)	0.20 (0.06–0.67)	0.22 (0.06–0.74)
<b>Degrees of freedom</b>	2	9	12	14	16
<b>Log likelihood</b>	–242.0	–212.5	–211.2	–209.8	–209.6
<b>Pseudo-R<sup>2</sup></b>	0.004	0.126	0.131	0.137	0.138
<b>Observations</b>	372	372	372	372	372

Note: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

## Appendix C. Regression tables for interaction models

**Table A-4: Model interacting resilience and household income**

		<b>Model 4</b>
<b>Resilience</b>		
	Low	1.19 (0.45–3.16)
	Unsure	0.44 (0.23–0.84)
	High	1
<b>Employment stability</b>		
	Low	0.45 (0.20–1.02)
	Unsure	0.96 (0.55–1.69)
	High	1
<b>Gender</b>		
	Male	1
	Female	1.46 (1.02–2.09)
<b>Age</b>		1.624 (1.360–1.940)
<b>Age<sup>2</sup></b>		0.981 (0.973–0.989)
<b>Education</b>		
	Primary	0.65 (0.28–1.51)
	Secondary	1
	Lower tertiary	1.02 (0.65–1.58)
	Higher tertiary	1.71 (0.94–3.12)
	Missing	1.56 (0.25–9.56)
<b>Nativity</b>		
	Native-born	1
	Foreign-born	0.76 (0.43–1.35)
<b>Income</b>		
	Low	0.64 (0.40–1.03)
	Middle	1
	High	0.56 (0.32–0.96)
<b>Risk attitude</b>		
	Risk-averse	1
	Neither	0.93 (0.63–1.38)
	Risk-taker	0.72 (0.45–1.16)
<b>Resilience#Income</b>		
	Low#Low	0.31 (0.07–1.40)
	Low#Middle	1
	Low#High	1.66 (0.34–8.16)
	Unsure#Low	2.39 (0.82–6.96)
	Unsure#Middle	1
	Unsure#High	4.13 (1.06–16.06)
	High#Low	1
	High#Middle	1
	High#High	1
<b>Intercept</b>		0.15 (0.06–0.40)
<b>Degrees of freedom</b>		20
<b>Log likelihood</b>		–387.7
<b>Pseudo-R<sup>2</sup></b>		0.134
<b>Observations</b>		669

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

**Table A-5: Model interacting resilience and nativity**

		<b>Model 5</b>
<b>Resilience</b>		
	Low	0.87 (0.45–1.68)
	Unsure	0.79 (0.46–1.35)
	High	1
<b>Employment stability</b>		
	Low	0.43 (0.19–0.95)
	Unsure	1.06 (0.60–1.85)
	High	1
<b>Gender</b>		
	Male	1
	Female	1.44 (1.01–2.05)
<b>Age</b>		1.617 (1.359–1.923)
<b>Age<sup>2</sup></b>		0.981 (0.973–0.989)
<b>Education</b>		
	Primary	0.65 (0.28–1.54)
	Secondary	1
	Lower tertiary	0.98 (0.64–3.09)
	Higher tertiary	1.70 (0.94–3.09)
	Missing	0.96 (0.19–4.96)
<b>Nativity</b>		
	Native-born	1
	Foreign-born	0.91 (0.47–1.76)
<b>Income</b>		
	Low	0.69 (0.45–1.04)
	Middle	1
	High	0.73 (0.45–1.18)
	Missing	0.96 (0.32–16.40)
<b>Risk attitude</b>		
	Risk-averse	1
	Neither	0.92 (0.63–1.36)
	Risk-taker	0.73 (0.46–1.17)
<b>Resilience#Nativity</b>		
	Low#Native-born	1
	Low#Foreign-born	1.43 (0.28–7.34)
	Unsure#Native-born	1
	Unsure#Foreign-born	0.38 (0.10–1.37)
	High#Native-born	1
	High#Foreign-born	1
<b>Intercept</b>		0.15 (0.06–0.38)
<b>Degrees of freedom</b>		19
<b>Log likelihood</b>		–396.8
<b>Pseudo-R<sup>2</sup></b>		0.128
<b>Observations</b>		681

Note: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

**Table A-6: Model interacting resilience and employment stability**

		Model 6
<b>Resilience</b>		
	Low	0.95 (0.46–1.94)
	Unsure	0.56 (0.31–1.00)
	High	1
<b>Employment stability</b>		
	Low	0.48 (0.17–1.35)
	Unsure	0.78 (0.38–1.63)
	High	1
<b>Gender</b>		
	Male	1
	Female	1.46 (1.02–2.08)
<b>Age</b>		1.603 (1.346–1.908)
<b>Age<sup>2</sup></b>		0.981 (0.974–0.989)
<b>Education</b>		
	Primary	0.66 (0.28–1.55)
	Secondary	1
	Lower tertiary	0.98 (0.63–1.52)
	Higher tertiary	1.68 (0.93–3.05)
	Missing	1.07 (0.22–5.31)
<b>Nativity</b>		
	Native-born	1
	Foreign-born	0.80 (0.45–1.41)
<b>Income</b>		
	Low	0.66 (0.43–1.00)
	Middle	1
	High	0.72 (0.44–1.17)
	Missing	1.82 (0.28–11.93)
<b>Risk attitude</b>		
	Risk-averse	1
	Neither	0.90 (0.61–1.33)
	Risk-taker	0.71 (0.45–1.14)
<b>Resilience#Employment stability</b>		
	Low#Low	0.32 (0.03–4.20)
	Low#Unsure	1.72 (0.34–8.67)
	Low#High	1
	Unsure#Low	1.49 (0.25–8.74)
	Unsure#Unsure	2.02 (0.61–6.71)
	Unsure#High	1
	High#Low	1
	High#Unsure	1
	High#High	1
<b>Intercept</b>		0.16 (0.06–0.42)
<b>Degrees of freedom</b>		21
<b>Log likelihood</b>		–396.8
<b>Pseudo-R<sup>2</sup></b>		0.128
<b>Observations</b>		681

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.  
Source: Swedish GGS 2021.

**Table A-7: Model interacting resilience and risk attitude**

		<b>Model 7</b>
<b>Resilience</b>		
	Low	1.07 (0.36–3.16)
	Unsure	0.49 (0.25–0.94)
	High	1
<b>Employment stability</b>		
	Low	0.40 (0.18–0.90)
	Unsure	1.05 (0.60–1.85)
	High	1
<b>Gender</b>		
	Male	1
	Female	1.43 (1.00–2.04)
<b>Age</b>		1.616 (1.354–1.928)
<b>Age<sup>2</sup></b>		0.981 (0.973–0.989)
<b>Education</b>		
	Primary	0.68 (0.29–1.62)
	Secondary	1
	Lower tertiary	1.01 (0.65–1.57)
	Higher tertiary	1.70 (0.93–3.08)
	Missing	1.23 (0.23–6.46)
<b>Nativity</b>		
	Native-born	1
	Foreign-born	0.75 (0.43–1.32)
<b>Income</b>		
	Low	0.70 (0.44–1.02)
	Middle	1
	High	0.72 (0.44–1.17)
	Missing	1.61 (0.22–11.66)
<b>Risk attitude</b>		
	Risk-averse	1
	Neither	0.89 (0.57–1.39)
	Risk-taker	0.57 (0.34–0.97)
<b>Resilience#Risk attitude</b>		
	Low#Risk-averse	1
	Low#Neither	0.60 (0.14–2.46)
	Low#Risk-taker	1.48 (0.28–7.73)
	Unsure#Risk-averse	1
	Unsure#Neither	1.39 (0.48–3.99)
	Unsure#Risk-taker	5.79 (41.22–27.51)
	High#Risk-averse	1
	High#Neither	1
	High#Risk-taker	1
<b>Intercept</b>		0.16 (0.06–0.42)
<b>Degrees of freedom</b>		21
<b>Log likelihood</b>		–394.9
<b>Pseudo-R<sup>2</sup></b>		0.132
<b>Observations</b>		681

Notes: Coefficients in odds ratios; 95% confidence intervals in parentheses.

Source: Swedish GGS 2021.

