The Impact of Income and Job-Related Wellbeing on Short-Term Fertility Intentions

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Research focusing on fertility intentions has largely ignored income. However, recent work on fertility outcomes suggests that ignoring income highly biases results. Questions persist of which type of income, if any, is associated with fertility intentions: personal, household, relative, changes from previous year, subjective income or job-related wellbeing (subjective perception of the source of income). This project aims to study how different types of income and wellbeing measures influence short-term fertility intentions. Data from the United Kingdom Household Longitudinal Study (Understanding Society) 2009-2020 allows me to study how (perceived) income may be linked to a decline in British fertility. I use regression and decomposition techniques to assess which type of income has the strongest association with fertility intentions. Initial findings indicate that higher personal income and income satisfaction are associated with individuals who respond to fertility intention as probably yes. Feeling a low level of job-related depression negatively impacts the likelihood of answering definitely yes. Moving forward, I plan to further investigate by considering educational attainment, parity and employment characteristics. The household design of the survey also allows me to take a dyadic approach to fertility intention, the level in which most fertility decisions are taken. Initial findings confirm the relevance of the subject. I seek to contribute to the academic discourse surrounding the role that income plays in individual and couple's short-term fertility intentions specifically considering recent literature that suggests definitely and probably positive and negative intentions are clearly differentiated by respondents.

1. Introduction and background

The total fertility rate (TFR) in the UK has continuously declined since the Great Recession (TFR of 1.89 in 2009 to 1.68 in 2018) (Human Fertility Database, 2021). The decline in TFR in the UK is largely due to a decrease in first births (Ermisch, 2021). The mechanisms behind this decline in TFR, particularly by low educated individuals, are still not well understood. Since less than 10% of pregnancies in the UK are unplanned (Wellings et al., 2013), studying fertility intentions allows researchers to see how socioeconomic variables directly affect the decision-making process for childbearing as they are the direct antecedent to fertility behaviors (Schoen et al., 1999; Toulemon & Testa, 2005). This paper aims to examine the relationship between income and short-term fertility decisions and if this relationship is mediated by of an individual's subjective perception of their income.

Early work on the micro-level ties unemployment to fertility via the income effect (Becker, 1960). The effect unemployment and fixed-term contracts have on reducing fertility outcomes in Europe has become stronger over the last few decades (Alderotti et al. , 2021). The authors note that studies that did not account for income overestimated the influence of employment on fertility outcomes. Rather than income, most previous studies focus on the negative effect that fixed-term contracts have on fertility outcomes (Adsera, 2011; Golsch, 2003; Vignoli et al., 2012). However, recent evidence suggest income mediates the effects of fixed-term contracts (van Wijk et al., 2021). Modena et al. (2014) show that low levels of household wealth causes a postponement of the first child while intentions to have additional children are negatively influenced by household income insecurity. Despite these important findings, there remains a gap in the literature surround the effect that income has on fertility intentions.

Employment status, unemployment, fixed-term contracts and part-time work can impact fertility intentions (Busetta et al., 2019; Modena et al., 2014; Novelli et al., 2020). While objective measures of employment uncertainty negatively impact fertility intentions, additional research suggests that it is the subjective perception of employment uncertainty or the perceived ability to overcome employment difficulty that has a larger impact on fertility intentions (Fahlén & Oláh, 2018; Gatta et al., 2021; Hanappi et al., 2017; Vignoli et al., 2020a). Qualitative research indicates that short-term fertility intentions are based on individuals feeling that they are at the right time in their life that have a child (Perrier, 2013). However, these effects are highly heterogenous and differ by educational attainment with the high educated more likely to be focused on practical concerns and the low educated on having desire and feeling ready (Rijken & Knijn, 2009). This implies that the objective capacity (i.e. income) is mitigated by one's perceptions of subjective capacity, desire and readiness to have a(nother) child.

Attempts to capture subjective income's impact on fertility intentions are primarily with subjective wellbeing (SWB). Previous studies indicate that higher SWB is associated with higher intentions (Billari et al., 2009; Parr, 2010). Vignoli et al. (2020b) uses SWB to capture the point in the life course where employment uncertainty starts to detrimentally impact fertility intentions. However, SWB captures many aspects of a person's life. The specific negative effects of strenuous employment are hard to parse from SWB. It fill this gap, Begall and Mills (2011) build a model

that incorporates aspects of perceived work control, job strain and work-family conflict in an effort to capture the effect that job specific characteristics have on fertility. They find women with higher levels of perceived work control increase their fertility intentions while job strain lowered them. What has not been previously used in fertility research are measures of job-related wellbeing (JWB). The Job-related Wellbeing Scale, originally devised by Warr (1990), incorporates individual feelings towards their jobs: tense, uneasy, worried, depressed, gloomy or miserable. The scores of these questions can be added together to build a scale that gives a picture of how employment affects one's wellbeing.

Finally, individuals do not make fertility decisions alone but inside a context. Many models overstate the effect of different measures on fertility intentions because they do not include the dyadic (partner) effect (Brehm & Schneider, 2019). Competing intentions stunt the transition to additional children (Testa & Rampazzo, 2018). This project aims to incorporate importance aspects of the decision-making level into more traditional micro-level analysis.

Research Aims:

1. Investigate the role that different measures of income have on short-term fertility intentions.
2. Examine if the effect of income on short-term fertility intentions is mitigated by subjective income and/or job-related wellbeing.
3. Determine if subjective income or job-related wellbeing more accurately capture the heterogenous effect of subjective perception of wellbeing on fertility intentions

2. Data and Method

Starting in 2009, Understanding Society (formally known as the United Kingdom Household Longitudinal Study) is a yearly panel survey focusing on household and family issues. It is conducted by the University Of Essex (2020) and is the successor to the British Household Panel Study and follows around 40,000 households. Understanding Society is generally representative of British society (Benzeval et al., 2020). The educational and ethnic distribution of the select sample mirrors that of the 2011 census.

Individuals answer questions about employment status, partnership, family additions and subjective wellbeing each wave and job characteristics and job-related wellbeing during even numbered waves. Personal and household income data is extracted from linked tax records. The household-level design permits couple-level analysis. Long-term fertility intentions were collected in waves one, five and ten. Short-term intentions are first asked in wave ten to those individuals who answered *yes* to ever wanting (more) children in the future (5,361 individual, 55.5% women). Short-term fertility intentions are coded as *definitely yes*, *probably yes*, *unsure*, *probably no* and *definitely no.* Of those individuals who answered the short-term fertility intention

questions, most are childless (68.8%)[1]. There are also descriptive relationships between age, income, employment status, partnership status and short-term fertility intentions (see Table A1). There is very likely a high correlation between age and these other factors.

We intend to use regression techniques with the goal of exploring mediation effects to observe how income influences short-term fertility intentions and how different types of subjective income may interact (Figure 1). An upcoming publication compares short-term fertility intention with five categorical options to one with a continuous answer and demonstrates that respondents clearly differentiate between each category (Raybould & Mynarska, 2021). This abstract will compare the initial findings of an ordinal logistic regression and five binary logit regressions to illustrate how the methods fit the data and research aims. In the future, if we have strong results, we will consider doing a Shapley Decomposition of our results to answer our third research aim.

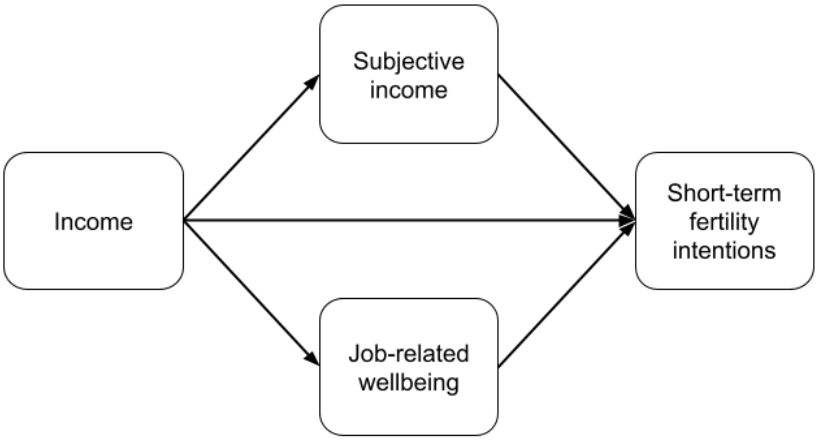

Figure 1 Mediation model of the influence of income and subjective income and job-related wellbeing on short-term fertility intentions

3. Initial Findings and Next Steps

Initial findings from the ordinal logistic regression models indicate that being in higher categories (i.e. Definitely yes) is positively associated with higher personal income, after controlling for sex, age, age-squared, employment status and partnership status (Table 1). The association between personal income and fertility intentions is stronger for those who responded to employment

[1] A significant number of individuals have missing data information about if they have ever had a child (18.3%). There are additional sources of fertility histories available in the Understanding Society database that may help reduce this number.

questions. However, subjective income does not seem to have any association with short-term fertility intentions while experiencing job-related depression does.

Table 1 Ordinal Logistic results for five categories of short-term fertility intentions. The highest category is "Definitely yes".

Ordinal Logistic Regression		
	Full Sample (N=5299)	**Employed Sample** (N=3713)
Log Personal Income	**-0.06*** **	**-0.28*** **
Income Satisfaction	0.00	-0.02
Job- related wellbeing		
Anxiety		0.00
Depression		**0.29+**
Pseudo r-squared	0.524	0.476

*** p < 0.001; ** p < 0.01; * p < 0.05; + p < 0.1.
(1) Controlled for Sex, Age, Age-squared, Employment Status and Partnership Status

While the ordinal logistic regression results show a strong relationship between income and likelihood of being in a higher fertility intention category, interpreting the coefficients is difficult. We also run a series of binomial logistics regressions. We regress log personal income, subjective income and job-related wellbeing on a binary variable of being in each category (1 if the respondent stated that their fertility intention was one of the five categories otherwise 0).

Table 2 Binomial logistic regression results for each category of short-term fertility intentions.

Binomial Logistic Regression					
Full Sample					
	Prob. yes	**Prob. yes**	**Unsure**	**Prob. no**	**Def. no.**
Log Personal Income	0.00	**0.06***	0.01	0.03+	-0.02
Income Satisfaction	0.02	**-0.04****	0.00	-0.01	**0.04****
Pseudo r-squared	0.280	0.300	0.094	0.140	0.537
N = 1	624	1145	949	879	1716
Employed Sample					
	Prob. yes	**Prob. yes**	**Unsure**	**Prob. no**	**Def. no.**
Log Personal Income	0.06	**0.16***	-0.05	0.06	-0.06
Income Satisfaction	0.02	**-0.03***	0.01	-0.02	0.02
Job- related wellbeing					
Anxiety = low	0.21	-0.07	-0.17	0.22	0.06
Depression = low	**-0.567***	0.23	-0.14	0.05	0.27
Pseudo r-squared	0.255	0.256	0.077	0.183	0.469
N = 1	524	947	725	628	889

*** p < 0.001; ** p < 0.01; * p < 0.05; + p < 0.1.
(1) Controlled for Sex, Age, Age-squared, Employment Status and Partnership Status

The initial findings indicate that for both the full and employed sample income is positively associated with answering the *probably yes* (Table 2). When we calculate standardized coefficients, it is clear that income for this group has a similar association with the likelihood of answering *probably yes* as partnership or employment status. However, there are several issues regarding the measurement choice for income yet to be considered (see Section 4). Satisfaction with income is negatively related to responding *probably yes* and positively associated with responding *definitely no.* Finally, having a low-level of job-related depression is strongly negatively associated with answering *definitely yes.* This is an interesting insight and one that suggests that people who feel depressed in their employment may be looking to family life as an alternative.

4. Next Steps

The variables in Understanding Society that link individuals with their total number of children are incomplete. The next step is recreating the fertility histories of the sample to get an accurate account of the parity of each fertility intention. Next, we will examine possibilities to refine our dependent variable and explore alternative to the two regression methods we are currently using. Additionally, many of our independent variables are highly correlated (e.g., personal income and age). As such, we need to examine options and alternatives to our current variables. We also want to look at the difference between types of income (i.e. household, partner's, relative personal income, previous year's, before and after accounting for benefits). There are additional variables surrounding employment which may be important when discussing income and job-related wellbeing (working hours, contract length, occupational sector) as well as educational attainment. So far, we have used the SWB question focusing on satisfaction with income, but there are also SWB question available that look at satisfaction with overall life, health and amount of leisure time. Finally, we would also like to consider couple's competing and complimentary fertility intentions.

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Appendix

Table A3 Descriptive results of individuals who answered positively that they would like to have more children in the future - Understanding Society Wave 10

	Def. yes (N=630)	**Prob. yes** (N=1155)	**Unsure** (N=956)	**Prob. not** (N=888)	**Def. not** (N=1732)	**Total** (N=5361)
Sex						
Men	248 (39.4%)	484 (41.9%)	429 (44.9%)	420 (47.3%)	806 (46.5%)	2387 (44.5%)
Women	382 (60.6%)	671 (58.1%)	527 (55.1%)	468 (52.7%)	926 (53.5%)	2974 (55.5%)
Any children?						
Yes	183 (29.0%)	290 (25.1%)	167 (17.5%)	36 (4.1%)	15 (0.9%)	691 (12.9%)
No	388 (61.6%)	773 (66.9%)	718 (75.1%)	724 (81.5%)	1087 (62.8%)	3690 (68.8%)
Missing	59 (9.4%)	92 (8.0%)	71 (7.4%)	128 (14.4%)	630 (36.4%)	980 (18.3%)
Age						
Mean (SD)	31.7 (6.2)	30.8 (6.4)	28.0 (6.8)	23.0 (4.6)	19.8 (3.8)	25.6 (7.3)
Range	17 - 58	16 - 64	16 - 60	16 - 45	16 - 63	16 - 64
Employed						
Yes	548 (87.3%)	997 (86.7%)	765 (80.4%)	610 (68.9%)	721 (41.9%)	3641 (68.2%)
No	80 (12.7%)	153 (13.3%)	187 (19.6%)	275 (31.1%)	999 (58.1%)	1694 (31.8%)
Total net monthly personal income - No deductions						
Mean (SD)	1719.57 (1340.00)	1706.95 (1265.35)	1354.05 (1073.15)	1044.51 (837.78)	575.29 (726.63)	1170.17 (1125.99)
Range	0.00 - 13511.36	0.00 - 15099.15	-3333.33 - 17250.00	-592.96 - 5572.90	0.00 - 7174.42	-3333.33 - 17250.00
Log Income						
Mean (SD)	6.897 (1.757)	6.930 (1.704)	6.528 (1.981)	5.879 (2.476)	4.422 (2.944)	5.870 (2.573)
Range	0.000 - 9.511	0.000 - 9.622	0.000 - 9.756	0.000 - 8.626	0.000 - 8.878	0.000 - 9.756
Job-related wellbeing - anxiety						
High	43 (8.1%)	75 (7.8%)	61 (8.3%)	34 (5.4%)	48 (5.4%)	261 (7.0%)

Low	486 (91.9%)	881 (92.2%)	670 (91.7%)	601 (94.6%)	848 (94.6%)	3486 (93.0%)
Missing	101	199	225	253	836	1614
Job-related wellbeing - depression						
High	36 (6.8%)	45 (4.7%)	46 (6.3%)	31 (4.9%)	40 (4.5%)	198 (5.3%)
Low	493 (93.2%)	911 (95.3%)	685 (93.7%)	604 (95.1%)	856 (95.5%)	3549 (94.7%)
Missing	101	199	225	253	836	1614
Subjective wellbeing						
Mean (SD)	5.4 (1.3)	5.2 (1.3)	5.0 (1.4)	5.2 (1.3)	5.2 (1.4)	5.2 (1.4)
Range	1 - 7	1 - 7	1 - 7	1 - 7	1 - 7	1 - 7
Partnership Status						
Single	116 (18.5%)	329 (28.7%)	586 (61.7%)	745 (84.8%)	1628 (94.8%)	3404 (64.0%)
Cohabitating	145 (23.2%)	283 (24.7%)	180 (19.0%)	99 (11.3%)	67 (3.9%)	774 (14.6%)
Married	365 (58.3%)	533 (46.6%)	183 (19.3%)	35 (4.0%)	22 (1.3%)	1138 (21.4%)