Changing Associations Between Parental, Extended Kin's Education and Children's Educational Attainment Across Cohorts

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1. Theoretical Framework and Research Question

Examining temporal changes in the association between children's educational attainment and parental status has long been one of the central concerns of stratification research. Education is crucial because it enables individuals to pursue rewarding careers and accumulate wealth, and is often regarded as a universal avenue of opportunity. If access to such opportunities is systematically determined by the family into which one is born, this constitutes a serious social problem. Stratification scholars have focused on how inequalities in educational opportunity have shifted in response to major social changes such as educational expansion, industrialization, economic fluctuations, and the development of welfare states (Blau & Duncan, 1967; Treiman, 1970; Breen & Jonsson, 2005; Breen et al., 2009). To date, however, research has produced mixed findings regarding whether educational inequality—typically measured by parental education—has remained stable or declined over time (e.g., Shavit & Blossfeld, 1993; Breen et al., 2009).

Most prior studies, however, have measured family status solely based on parents, thereby overlooking the role of grandparents and uncles/aunts in shaping children's educational attainment. There are two advantages to considering these relatives. First, it allows for a more precise assessment of the association between parents' and children's educational attainment over time. When family origin is measured solely by parents' status, observed trends may partly reflect the influence of other relatives. Because uncles and aunts are known to provide resources for children's education independently of parents—especially when parents are disadvantaged (Erola et al., 2018; Jæger, 2012)—the observed parent–child association may thus incorporate the influence of uncles and aunts. Similarly, grandparents, as the generation preceding the parents, can affect children's educational attainment beyond parental influences, through both direct contact and the provision of resources (Mare, 2011; Sheppard & Monden, 2018; Song & Mare, 2019).

Second, incorporating the educational attainment of extended kin not only refines our understanding of how the intergenerational transmission of educational advantage has changed over time but also accounts for demographic shifts. Grandparents have become increasingly important in recent decades, owing to longer life expectancy and changes in family structure (Bengtson, 2001; Mare, 2014). Likewise, uncles and aunts may play a growing role as declining fertility reduces the availability of kinship resources within families. Taken together, unlike the parent–child association, which has often been argued to remain stable or even decline, the associations between extended kin and children may have increased over time. Thus, an approach that includes parents, grandparents, and uncles/aunts is well suited to

examining how kin-based inequalities have evolved in the face of demographic transformations.

This study applies the extended-kin perspective to contemporary Japanese society. Japan offers an especially suitable case, as dramatic changes—including extended life expectancy, declining birth rates, and rapid educational expansion—have occurred over a relatively short span of time compared with Western societies, thereby allowing clearer observation of these transformations.

2. Data and Methods

The data for this study were compiled from three nationally representative surveys in Japan: NFRJ2008, NFRJ2019, and ESSM2013. These surveys were conducted using nationwide random sampling and contain information on the educational attainment of respondents, their siblings, parents, and children. The datasets are hierarchically structured, with children's information nested within respondents. For the present analysis, I reconstructed the dataset using respondents' children aged 19 or older as the unit of analysis. The age threshold of 19 was chosen because it is the minimum age for entry into higher education in Japan. Moreover, given that the dropout rate in Japanese higher education is below 10%, enrollment almost invariably implies eventual degree attainment. After restructuring the data based on children as the reference unit and excluding cases with missing values on the variables used in the analyses (described below), the final sample consisted of 8,616 cases (cluster size N = 4,269).

The outcome variable was whether the grandchildren were enrolled in tertiary education. The key explanatory variables were the educational levels of parents, grandparents, and uncles/aunts, with the child's birth cohort serving as the primary control variable. Parental and uncle/aunt educational background was coded as whether at least one among them had enrolled in tertiary education. In contrast, grandparents' educational attainment was defined as whether at least one had completed upper secondary education, reflecting the historical context of their schooling period. The grandchildren's birth cohorts were grouped into four categories: the 1960s, 1970s, 1980s, and 1990s or later. Additional control variables included the child's gender, number of siblings, birth order, respondent's gender, number of siblings, an indicator for whether the respondent had no siblings, respondent's age at survey, and survey dummy.

I employed binary logistic regression and constructed four models. Model 1 included only the interaction between parents' educational background and children's birth cohort. Model 2 included only the interaction between the educational background of uncles/aunts and children's birth cohort. Model 3 included only the interaction between grandparents' educational background and children's birth cohort. Model 4 incorporated all three first-order interactions: (a) between parents' education and cohort, (b) between uncles'/aunts' education and cohort, and (c) between grandparents' education and cohort. These interactions allow us to identify whether the association between relatives' education and children's educational attainment has changed over time. All models included the full set of control variables. For interpretation, I examined whether the differences in log-odds associated with each type of kinship widened or narrowed across cohorts. To aid interpretation, I presented figures using the highly educated group as the

reference category.

3. Results and Preliminary Conclusion

The results of the analysis are presented in the figures (see Figures 1, 2, and 3). The effect of parents appears stable when considered alone, but once the influence of uncles/aunts and grandparents is taken into account, the educational gap associated with parents decreases across successive cohorts (Figure 1). The effect of uncles and aunts appears stable when considered in isolation, but after controlling for parents and grandparents, it takes on a U-shaped pattern, indicating that children born in the 1970s and 1980s experienced differences in educational attainment depending on the educational level of their uncles and aunts (Figure 2). The effect of grandparents appears to widen when considered without other relatives, but after controlling for parents and uncles/aunts, differences by grandparents' education remain only among children born in the 1990s (Figure 3).

These results, however, should be interpreted with caution. According to the regression tables, the interactions between parental education and the 1990s cohort, as well as between uncles'/aunts' education and the 1980s cohort, are statistically significant only at the 0.1 level (Table 1). Thus, the observed decline in the association between parents' and children's education may have been a temporary trend, and the effect of uncles and aunts may have been limited to children born in the 1970s.

Even so, the findings suggest a shift in the relative importance of kinship ties for children's educational attainment—from uncles/aunts to grandparents. The significance of uncles and aunts was greater in earlier periods, when higher education was relatively scarce and having a highly educated sibling of one's parent could be advantageous. However, with declining sibship size and the general expansion of higher education, differences among siblings have diminished, and parental education may now be sufficient to capture family effects. By contrast, the role of grandparents has grown in importance alongside increases in life expectancy, though this is evident only among children born since the 1990s.

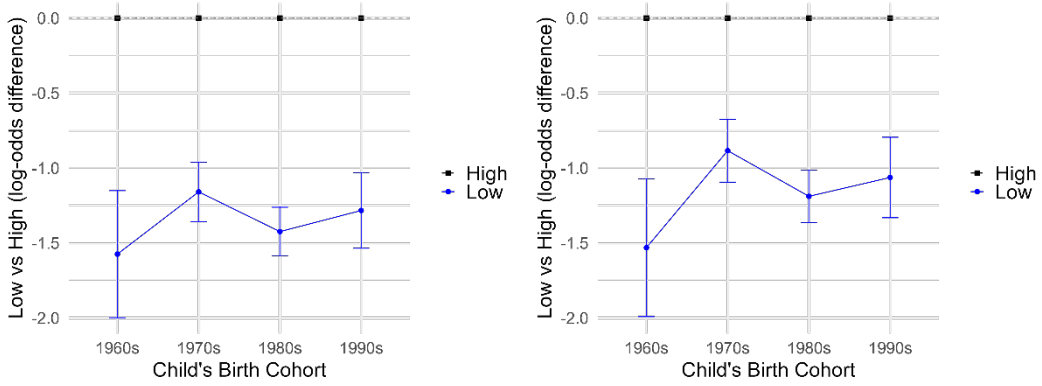

Figure 1. Differences in coefficients for parental education (Model 1 on the left, Model 4 on the right)

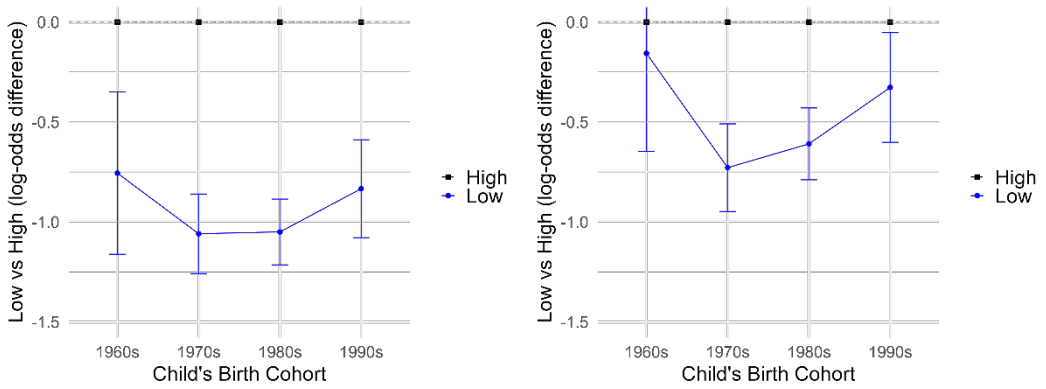

Figure 2. Differences in coefficients for uncles'/aunts' education (Model 2 on the left, Model 4 on the right)

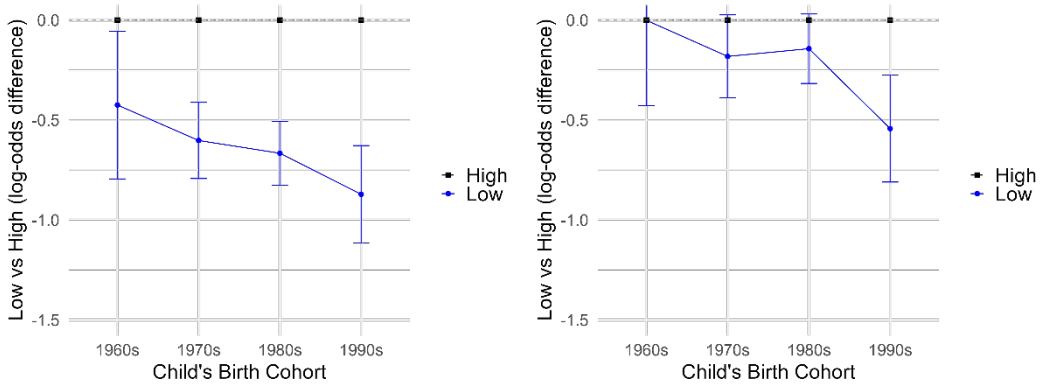

Figure 3. Differences in coefficients for grandparents' education (Model 3 on the left, Model 4 on the right)

Table 1. Results of binary logit

	Model1		Model2		Model3		Model4	
Parents' education	1.574	***					1.531	***
Aunts'/Uncles' education			0.756	***			0.156	
Grandparents' educaiton					0.425	*	0.001	
Child's birth Cohorts (ref; 1960s)								
1970s	0.320	*	0.210		0.368	**	0.144	
1980s	0.689	***	0.834	***	1.039	***	0.540	**
1990s	1.209	***	1.470	***	1.476	***	0.942	***
Parents' education x Child's birth Cohorts								
Parents' education x 1970s	-0.415	†					-0.647	*
Parents' education x 1980s	-0.150						-0.343	
Parents' education x 1990s	-0.291						-0.468	†
Aunts'/Uncles' education x Child's birth Cohorts								
Aunts'/Uncles' education x 1970s			0.303				0.572	*
Aunts'/Uncles' education x 1980s			0.294				0.453	†
Aunts'/Uncles' education x 1990s			0.078				0.171	
Grandparents' educaiton x Child's birth Cohorts								
Grandparents' educaiton x 1970s					0.177		0.181	
Grandparents' educaiton x 1980s					0.241		0.142	
Grandparents' educaiton x 1990s					0.447	*	0.542	*
Log-Likelihood	-5138.648		-5308.216		-5415.587		-5054.365	
McFadden R^2	0.127		0.098		0.079		0.141	

Notes; † < 0.1, * < 0.05, ** < 0.01, *** < 0.001 (two-tailed tests). I use cluster-robust standard errors. The constant and control variables were omitted. *N*=8,616.

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