With a little help from my aunts? – The role of extended family in intergenerational social mobility patterns

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Abstract: Intergenerational social mobility research has a longstanding tradition. More recently, there has been a growing interest in a multigenerational perspective within this context. Our study investigates the role of extended kin using large-scale Swedish register data from 2001-2003. Findings reveal that aunts' and uncles' class does significantly affect someone's class position even when controlling for parental and individual characteristics. Higher class extended kin increases chances for upward social mobility while lower class extended kin decreases them. So far, it remained elusive how such "dynastic" effects come about. Our results favor a sociological explanation that emphasizes the transferal of social and cultural capital across generations: 1) women growing up in lower income neighborhoods benefit more from higher-class kin, and 2) extended kin effects decrease with geographic distance.

Research on intergenerational social mobility patterns – that is individuals' upward, downward or non-mobility on the social ladder in comparison to their parents' social class – has a longstanding tradition within sociological research (Lipset & Bendix 1959; Blau & Duncan 1967; Erikson & Goldthorpe 1992; Wright 1997). Social mobility and the reproduction of social inequalities in general are highly relevant mechanisms for the production of segregation patterns (Musterd and Andersson 2006). More recently, there has been a growing interest in a multigenerational perspective within this context (Mare 2011; Erola & Moisio 2007; Chan & Boliver 2013a, 2013b). There is an ongoing debate about whether grandparents' social class position affects an individual's class position (or prevent downward mobility) in the grandchildren generation (Chan & Boliver 2013a, 2013b) or not (Erola & Moisio 2007). A "Markovian" perspective suggests that only parents-children relations matter for social mobility (Hodge 1966, Ridge 1974, Warren and Hauser 1997, Erola & Moisio 2007). In contrast, some recent studies find correlations of social class positions across three generations (Chan & Boliver 2013b) and between 1st and 2nd grade cousins (Hällsten 2014), net of parental and individual characteristics.

It often remains elusive how such multigenerational patterns of social mobility – generating social "dynasties" in even egalitarian societies such as Sweden (Hällsten 2014) – come about. A sociobiological explanation stresses common genes amongst relatives (van den

Berghe 1979; Behrman and Taubman 1989; Solon 1989, Manski 2011). A sociological perspective emphasizes the transferal of economic, social and cultural capital across generations (Chan & Boliver 2013b).

This article contributes to this line of research in two ways. First, we investigate the role of extended family members – aunts and uncles – for intergenerational social mobility patterns independent of parents' effects. Second, we present a strategy that illuminates the underlying mechanism for social mobility effects of extended kin. When social processes drive results, the following should hold: (1) Extended family members should be able to alleviate disadvantages caused by the social environment during an individuals' upbringing. (2) Helping behavior, acting as role model, transfer of cultural capital requires social exchange. Therefore, extended kind effects should be stronger when family members live nearby because regular visits are more difficult over long distance.

Using multinomial logistic regression, we find that social class position of aunts and uncles has an effect on individuals' social class, even after controlling for class of origin, education of parents, age and sex. Furthermore, our results provide some evidence in support of a sociological explanation. Women who grew up in low-income neighborhoods, and hence disadvantaged starting positions for social upward mobility, benefit more from higher-class extended kin and are more likely to experience upward mobility (and prevent downward mobility) than women who grew up in high-income neighborhoods. Lastly, geographic distance to aunts and uncles matters; extended kin effects on social mobility decrease when aunts and uncles live further away for all but the lowest class.

Theory and hypotheses

Our study builds on previous research on grandparents' effects for social mobility outcomes (Mare 2011; Erola & Moisio 2007; Chan & Boliver 2013a, 2013b). There is a growing number of studies that examine correlations in income and education across generations, siblings and cousins (e.g. Hällsten 2014; Manski 2011; Behrman and Taubman 1989; Solon 1989). Several studies support a "Markovian" view on generational social mobility effects, in which only parents-children relations matter (Hodge 1966; Glass 1974; Warren and Hauser 1997; Erola and Moisio 2007). Often these studies interpret the lack of multigenerational effects in the light of the *industrialization hypothesis* (Duncan 1966; Hodge 1966): with an upgrading of the occupational structure of societies, increased and equal access to higher education and implementation of welfare policies, dynasties that accumulate wealth, privileges and mobility chances across multiple generations cease to exist.

In contrast, Chan and Boliver (2013b) put forth that extended family members have an interest in the promotion of mobility chances of their family members. The endowment of material, social and cultural resources in family networks promotes upward social mobility of young family members. Hällsten (2014) and Chan and Boliver (2013a, 2013b) find that multigenerational effects do exist. For example, cousins are likely to have similar school grades and labor market outcomes, even after controlling for parental effects (Hällsten 2014).

Alternatively, a sociobiological explanation also predicts extended kin effects. From this perspective, family members share genes that are responsible for personality traits that might increase or decrease chances in the labor market. Aunts/uncles and nieces/nephews share 25 percent of their genes. However, previous studies supporting the "Markovian" perspective make it unlikely that genes explain everything. There should be correlations in educational outcomes due to shared genetic variation (Behrman and Taubman 1989), but several studies did not find such effects. The research on nature-nurture effects has been, among other things, strongly criticized for not allowing gene-environment interactions (Hällsten 2014: 2, footnote 2).

Following the sociological perspective, we suggest that aunts and uncles can promote higher social outcomes for nieces and nephews, even when parental resources and/or aspirations are low. Advantaged families can mobilize more resources to prevent downward mobility of family members. This can occur in different ways. For example, aunts and uncles might provide direct financial support that allows individuals to obtain higher educational degrees. Similarly, aunts and uncles might provide information about specific jobs. It is also possible that successful aunts and uncles serve as role models and increase social aspirations of individuals. In order to argue in favor of social processes we suggest that social influences of aunts and uncles on social mobility patterns should (a) interact with environmental conditions, and (b) decrease with geographic distance. More specifically, we hypothesize:

> **H1.1**: *There are independent effects of aunts' and uncles' class position on individuals' class positions, even after taking into account parental characteristics.*

H1.2: *The higher the class position of extended kin, the higher the chances of reaching a higher destination class; the lower the class position of extended kin, the lower the chances of reaching a higher destination class.*

Alleviation of disadvantage & cumulative disadvantage

In order to show that social processes (material, cultural or social resources available in the kinship network) drive effects of extended kin on individuals' social mobility, we propose that higher-class kin should improve mobility chances even more when individuals grew up in disadvantageous environments. Previous research indicates that growing up in poor neighborhoods decreases chances for upward mobility and increases poverty risk (Musterd, Ostendorf, de Vos 2003; Musterd and Andersson 2006; Buck 2001). Based on this we hypothesize that individuals from poor neighborhoods can benefit more from the resources of higher-class extended kin. However the opposite direction is also possible. Those from disadvantaged backgrounds with few resources in the extended kin network might face a cumulative disadvantage, whereas those from wealthier neighborhood environments could potentially experience a cumulative advantage if their extended kin is also from a higher class background. Our hypothesis is

H2: *Net of parental and individual characteristics, there is an interaction effect of the neighborhood environment of origin and the class position of aunts and uncles. The disadvantageous effects of a poor neighborhood environment are alleviated by the existence of higher-class kin; however, they can also be aggravated if the kin network lacks resources (lower class kin).*

Geographical distance hypothesis

Furthermore, when social processes drive effects, social contact should moderate extended kin effects; we investigate this by examining the interactions of kinship effects and geographical distance on social mobility. If positive effects of aunts/uncles are due to their involvement in children's upbringing or because they act as role models, effects should be stronger when they lived nearby to an individual's origin neighborhood. Conversely, effects should decrease with geographical distance because social contact is less likely to occur. Notice that transfer of material resources as well as genetic variation would lead to effects independent of geographic distance.

H3: *The effect of aunts and uncles on social mobility varies with geographical distance. Extended kin effects are stronger when family members lived closer to an individual's neighborhood of origin; they become weaker the further the extended family members lived away.*

Data and Methods

In our study, we draw on Stockholm register data from the years 2001-2003 (LISA–Longitudinell integrationsdatabas för Sjukförsäkrings- och Arbetsmarknadsstudier). Data include every resident of the larger Stockholm Metropolitan Area from the age 16 onwards and contains information on demographic characteristics, income, and place of residence. Furthermore, we constructed extended family networks – including kin who also lived in the Stockholm area – and generate origin class (father's class) and neighborhood characteristics from earlier waves of the data.

We only included individuals with extended family members in the same data. In order to identify aunts and uncles, information on parents and grandparents need to be available – otherwise we cannot identify parents' sibling connections. Moreover, all relevant family members have to live (or have lived) in the Stockholm Metropolitan Area to be in our dataset.[1] These limitations drastically reduce the sample size. We ended up with around 60000 valid cases per year. Immigrants are underrepresented in the data because information on grandparents (and hence extended family members) would only exist if they had immigrated as well. The youngest individuals in our sample were 3 years old in 1990. The average age of individuals is 28 years (see *Table 2*), and therefore quite young; one should keep in mind that class positions might still be subject to change. As the distribution of class positions shows (*Table 2*), we observed a strong over-representation of lower class positions. This could reflect the fact that many individuals are in the early stage of their careers.

Own class, origin class, extended family class

The main variable of interest is the current social class position of individuals (destination class), as well the social class of origin and the class position of aunts or uncles. The data contains ISCO occupation codes for 1990-2003. We recoded these codes into the European Socioeconomic Class scheme (ESeC), which is essentially a nine-fold version of the

[1] Even if these persons only lived temporarily in the Stockholm area, we still have their register information about former places of residence. This is why persons from all over Sweden might be included, yet they must have been resident of Stockholm County at some point.

commonly used Erikson-Goldthorpe-Portocarrero (EGP) class scheme. In order to avoid sparsely populated cells, we further collapsed the nine ESeC classes into a simplified four-category scheme. *Table 1* shows the recoding we use that has been applied successfully before (Bihagen 2008). As class of origin, we use father's class position. For the class position of aunts/uncles we chose only to use the highest (=lowest ordinal number) class position that existed among aunts and uncles. For example, when somebody has three aunts and uncles, we only used information from the aunt/uncle with the highest socioeconomic class. In the analysis including geographical distance, we considered the highest-class family member who lived closest nearby in 1990.[2] We also ran models with different operationalizations (lowest class position, median class position). Results remained the same.

Table 1: *Recodings of occupational class categories.*

Recoded category	ESEC class
1	1 Large employers, higher managers/professionals 2 Lower managers/professionals, higher supervisory/technicians
2	3 Intermediate occupations
3	4 Small employers and self-employed (non-agriculture) 5 Small employers and self-employed (agriculture)
2	6 Lower supervisors and technicians
4	7 Lower sales and service 8 Lower technical 9 Routine occupations (unskilled)

Mother's educational degree

In order to capture the existing educational resources within the immediate family context, we included the highest educational degree of the mother. Using father's education instead did not change results. The education variable has 8 categories: (1) Compulsory education less than 9 years, (2) Compulsory education 9 years, (3) Secondary education 2 years, (4) Secondary education 3 years, (5) Post-Secondary education < 3 years, (6) Post-Secondary education >3years, (7) Postgraduate education, (8) unknown. We created a five categorical scheme from this: (1) Compulsory education and less, (2) Secondary education 2 and 3 years, (3) any Post-Secondary education, (4) Postgraduate education, (5) unknown.

[2] We used the year 1990 as a cut-off point because we observe a relatively young sample of persons (avg. age 29 years). 1990 can therefore still be seen as a point in time at which this age group experienced their formative years.

Table 2: *Summary statistics of variables in the sample.*

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Own class					
ESEC 1-2	178546	0.27	0.44	0	1
ESEC 3&6	178546	0.19	0.39	0	1
ESEC 4-5	178546	0.02	0.14	0	1
ESEC 7-9	178546	0.52	0.50	0	1
Father's class					
ESEC 1-2	178546	0.44	0.50	0	1
ESEC 3&6	178546	0.14	0.34	0	1
ESEC 4-5	178546	0.06	0.24	0	1
ESEC 7-9	178546	0.36	0.48	0	1
Highest class among aunts/uncles					
ESEC 1-2	178546	0.52	0.50	0	1
ESEC 3&6	178546	0.22	0.42	0	1
ESEC 4-5	178546	0.03	0.18	0	1
ESEC 7-9	178546	0.22	0.42	0	1
Mother's educational degree					
Primary degree	178546	0.19	0.39	0	1
Secondary degree	178546	0.45	0.50	0	1
Tertiary degree	178546	0.34	0.48	0	1
Postgraduate degree	178546	0.01	0.09	0	1
Unknown	178546	0.00	0.04	0	1
Female	178546	0.49	0.50	0	1
Age	178546	28.86	6.65	16	54
Low income neighborhood (origin)	178546	0.18	0.39	0	1
Ext. kin distance from origin neighborhood					
<6 km	86291	0.26	0.44	0	1
6-15 km	86291	0.25	0.43	0	1
15-30 km	86291	0.25	0.44	0	1
>30 km	86291	0.24	0.43	0	1
Year 2001	178546	0.30	0.46	0	1
Year 2002	178546	0.31	0.46	0	1
Year 2003	178546	0.40	0.49	0	1

Socio-economic status of origin neighborhood and geographical distance

The data contains information on the place of residence, so-called SAMS areas (SAMS = "Small Area Market Statistics"). We used father's area of residence in 1990 as origin neighborhood to capture the environment, in which an individual had grown up. Furthermore, we calculated the Euclidian distance between the origin neighborhood and the area of residence for aunts and uncles in 1990. (The median distance between origin and extended kin neighborhoods is 15km.) We recoded these distances into quartiles. The first

quartile contains distances up to 6km, the second 6-15km, the third 15-30 km, the fourth more than 30km. To describe the socioeconomic conditions of the origin neighborhood, we used the median disposable household income for each SAMS area in 1990. We defined neighborhoods as "poor" when they belonged to the 50% lowest income neighborhoods and included a dummy variable.

Individual characteristics

We ran our models separately for men and women, controlled for age, and included dummies for each year. Since we were not estimating longitudinal models, we only considered unique individual cases, whereby we kept individuals' highest socioeconomic class. Summary statistics are shown in *Table 2*.

Method

We used multinomial logistic regression to estimate the hypothesized effects on individuals' destination class. For each model, three contrasts have been calculated that reflect the chances of ending up in one of three destination classes rather than being in the baseline category, which we chose to be the lowest socioeconomic class (ESeC 7-9). In all models, we used robust standard errors to account for the clustering of individuals in origin neighborhoods.

Our baseline model only assessed the effects of class of origin on the placement into destination classes, controlling for all other parental and individual characteristics (Model I, *Table 3*). Then we added the effects of aunts'/uncles' class (Model II, *Table 3*) and tested whether extended kin exerts an independent effect. In Model III (*Table 4*) we added the neighborhood socioeconomic effect. Model IV contains the neighborhoodXkin interaction effects (*Table 4*). In the last model (*Table 5*), we included geographical distance and the interactions between distance and extended kin effects. All coefficients are logarithmic odds. In order to assess the strength of the effects, we rely on the analysis of the predicted probabilities from the models, since these are easier to interpret and allow comparisons between the models, which is not usually the case when comparing the raw logistic coefficients of the models (Mood 2010).

Results

Our results show a clear effect of extended kin class on own class position, controlling for a range of parental and individual characteristics. The effect is small in magnitude but robust. In *Model II* (*Table 3*) we see that the set of aunts'/uncles' class dummies are significant and point to the expected direction as hypothesized in H1.1. and H1.2. Low class positions of extended kin decrease the chances for ending up in the highest class (ESeC 1-2). The effect looks similar for men and women. In *Figure 1*, we plot the predicted probabilities for ending up in ESeC 1-2 for both men and women with all other covariates held at their sample mean. The different lines depict the effect of father's class (those with a father belonging to class 1-2 are represented by the uppermost line; those with fathers from class 7-9 are represented by the bottom line). In general, individuals are more likely to end up in ESeC 1-2 when their father has a high-class position. The x-axis (for both men and women) denotes the highest class position of extended family. On the left are individuals with aunts and uncles who belong to the higher classes (1-2), on the right are individuals who have aunts and uncles belonging to classes 7-9. It is notable that men with high-class background (father's class) and extended family with high-class background have a 40% chance of belonging to the highest class themselves. However, men with high-class father but lower-class extended family have only a 32% chance to end up in ESeC class 1-2. This pattern holds for both men and women. Furthermore, the pattern also holds for individuals with different origin classes as well. All lines in Figure 2 decrease.

Hypothesis H2 (alleviation of disadvantage) is tested in *Model III* and *IV* (*Table 4*), that contain effects for low income neighborhoods as well as interaction effects for low income neighborhood and extended kin's class position. First, *Model III* reveals an effect of one's origin neighborhood on destination class. Individuals who grew up in areas that belong to the 50% of neighborhoods with low income have smaller chances to reach a higher destination class. The effect holds for men and women with one exception. Men from low-income neighborhoods have higher a chance to end up self-employed.

Concerning the alleviation of disadvantage hypothesis, we find only modest effects. None of the interaction terms between origin neighborhood and aunts'/uncles' socioeconomic class are significant. Thus, high-class extended kin does not improve chances for upward mobility for men from low-income neighborhoods above what we had observed before. For women, we find that this effect exists to some degree. The effects are only significant for the contrast with the highest destination class and for aunts or uncles with lower class position (except self-employed). Women have smaller chances to end up in the

highest class when their extended-kin is of lower class. At the same time, high-class extended kin increases the relative chances to end up in the highest class for women from low-income neighborhoods. *Figure 2* shows predicted probabilities from *Model IV*.

It becomes clear that for men and women the "main effect" of low-income neighborhoods exists: the probability for reaching destination class EseC 1-2 is lower for all origin groups in the low-income condition (*Figure 2*). We can see that women benefit from the higher class positions of their aunts/uncles. Women with extended kin in the highest socioeconomic class have the same probability for reaching EseC 1-2 regardless of where they grew up. This supports H2, but only for women.

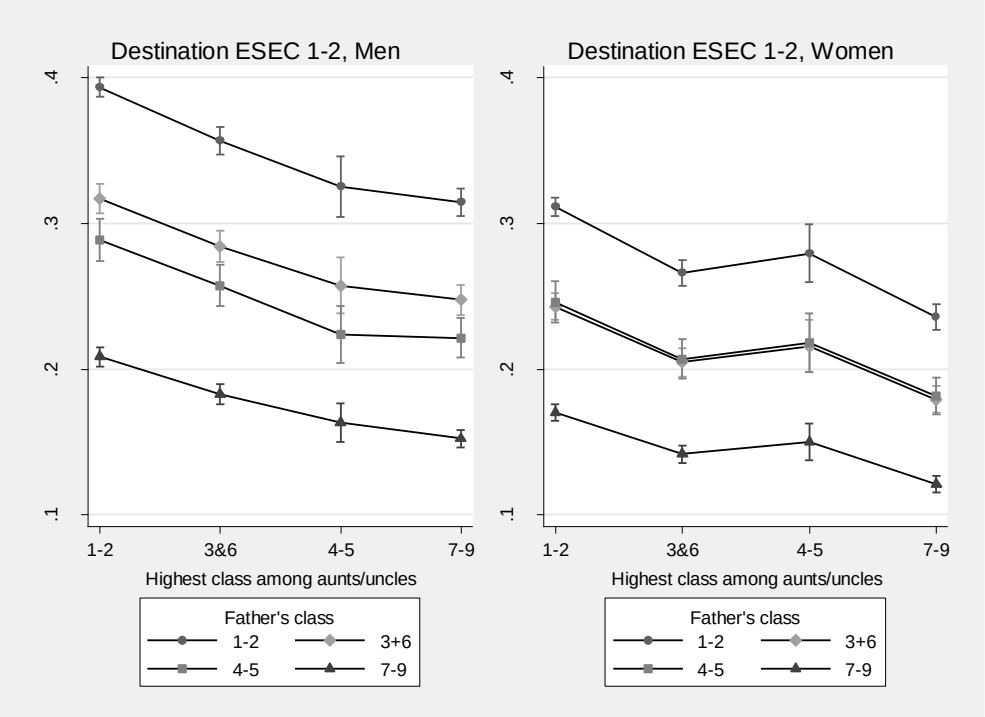

Figure 1: *Predicted probabilities for destination class ESEC 1-2 by sex, conditional on origin class and highest class among aunts and uncles. Results based on Model II ; all other covariates held atheir mean. Vertical bars represent 95% c.i.*

Table 3: *Determinants of individuals' destination class; results of multinomial logistic regression.*

	Men - Model I			**Men - Model II**			**Women - Model I**			**Women – Model II**		
	Contrast vs.ESEC 7-9											
	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5
Father's class												
ESEC 1-2		reference			reference			reference			reference	
ESEC 3&6	-0.35***	0.02	-0.12*	-0.33***	0.03	-0.11	-0.37***	-0.03	-0.05	-0.35***	-0.03	-0.04
	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.09)	(0.03)	(0.03)	(0.09)
ESEC 4-5	-0.44***	-0.10**	1.16***	-0.42***	-0.08*	1.15***	-0.34***	-0.05	0.49***	-0.33***	-0.05	0.49***
	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)	(0.10)	(0.04)	(0.04)	(0.10)
ESEC 7-9	-1.14***	-0.82***	-0.54***	-1.08***	-0.79***	-0.52***	-1.00***	-0.52***	-0.29***	-0.95***	-0.49***	-0.26***
	(0.02)	(0.03)	(0.06)	(0.02)	(0.03)	(0.06)	(0.03)	(0.02)	(0.07)	(0.03)	(0.02)	(0.07)
Aunts'/Uncles' class												
ESEC 1-2		reference			reference			reference			reference	
ESEC 3&6				-0.16***	-0.07***	-0.08				-0.18***	-0.03	0.03
				(0.02)	(0.03)	(0.05)				(0.03)	(0.02)	(0.07)
ESEC 4-5				-0.31***	-0.10*	0.39***				-0.15***	-0.06	0.07
				(0.05)	(0.06)	(0.10)				(0.05)	(0.05)	(0.15)
ESEC 7-9				-0.40***	-0.31***	-0.15**				-0.41***	-0.26***	-0.20***
				(0.02)	(0.03)	(0.06)				(0.03)	(0.02)	(0.08)
Mother's education												
Primary		reference			reference			reference			reference	
Secondary	0.45***	0.27***	0.01	0.42***	0.25***	0.00	0.53***	0.25***	0.21***	0.51***	0.24***	0.20***
	(0.03)	(0.03)	(0.06)	(0.03)	(0.03)	(0.06)	(0.03)	(0.02)	(0.07)	(0.03)	(0.02)	(0.07)
Tertiary	1.00***	0.58***	0.18***	0.93***	0.54***	0.16**	1.19***	0.31***	0.22**	1.12***	0.27***	0.20**
	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.09)	(0.03)	(0.03)	(0.09)
Postgraduate	1.68***	0.84***	0.22	1.58***	0.77***	0.18	1.64***	0.23**	0.46	1.53***	0.18	0.43
	(0.10)	(0.12)	(0.31)	(0.10)	(0.12)	(0.31)	(0.09)	(0.11)	(0.33)	(0.09)	(0.11)	(0.34)
Unknown	0.02	0.27	0.09	-0.02	0.24	0.10	0.34	-0.04	0.64	0.32	-0.05	0.63
	(0.28)	(0.27)	(0.48)	(0.28)	(0.27)	(0.48)	(0.28)	(0.27)	(0.55)	(0.28)	(0.27)	(0.55)
Age	0.13***	0.08***	0.13***	0.13***	0.08***	0.13***	0.15***	0.10***	0.09***	0.15***	0.10***	0.09***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Year 2002	-0.05**	-0.02	0.06	-0.05**	-0.02	0.05	-0.03	-0.06**	-0.01	-0.03	-0.06***	-0.02
	(0.02)	(0.03)	(0.06)	(0.02)	(0.03)	(0.06)	(0.02)	(0.02)	(0.08)	(0.02)	(0.02)	(0.08)
Year 2003	-0.15***	-0.08***	0.00	-0.15***	-0.08***	0.00	-0.03	-0.13***	0.15**	-0.04*	-0.14***	0.15**
	(0.02)	(0.03)	(0.05)	(0.02)	(0.03)	(0.05)	(0.02)	(0.02)	(0.07)	(0.02)	(0.02)	(0.07)
Constant	-4.45***	-3.57***	-7.01***	-4.36***	-3.51***	-6.98***	-5.29***	-3.56***	-6.31***	-5.20***	-3.52***	-6.29***
	(0.06)	(0.06)	(0.15)	(0.06)	(0.06)	(0.15)	(0.07)	(0.05)	(0.18)	(0.07)	(0.05)	(0.18)
Observations		90,371			90,371			88,175			88,175	
Log likelihood		-88136			-87931			-87697			-87528	
Pseudo R^2		0.0899			0.0920			0.0874			0.0891	
BIC		176648.4			176340.4			175770.5			175533.8	

Notes: Robust standard errors in parentheses (clustering within origin neighbourhoods); significance levels: *** p<0.01, ** p<0.05, * p<0.1; coeffients are logarithmic odds, base category: ESEC 7-9.

Table 4: *Determinants of individuals' destination class; results of multinomial logistic regression. Interactions of socio-economic status of origin neighbourhood and extended kin's class.*

	Men - Model III			**Men - Model IV**			**Women - Model III**			**Women – Model IV**		
	Contrast vs.ESEC 7-9											
	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5	ESEC 1-2	ESEC 3&6	ESEC 4-5
Father's class												
ESEC 1-2		reference			reference			reference			reference	
ESEC 3&6	-0.32***	0.04	-0.12	-0.32***	0.03	-0.12	-0.35***	-0.02	-0.04	-0.35***	-0.02	-0.04
	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.09)	(0.03)	(0.03)	(0.09)
ESEC 4-5	-0.39***	-0.05	1.12***	-0.39***	-0.05	1.12***	-0.30***	-0.00	0.49***	-0.30***	-0.00	0.49***
	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)	(0.10)	(0.04)	(0.04)	(0.10)
ESEC 7-9	-1.05***	-0.75***	-0.54***	-1.05***	-0.75***	-0.54***	-0.92***	-0.45***	-0.26***	-0.92***	-0.45***	-0.26***
	(0.02)	(0.03)	(0.06)	(0.02)	(0.03)	(0.06)	(0.03)	(0.02)	(0.07)	(0.03)	(0.02)	(0.07)
Aunts'/Uncles' class												
ESEC 1-2		reference			reference			reference			reference	
ESEC 3&6	-0.16***	-0.07***	-0.08	-0.16***	-0.06**	-0.07	-0.18***	-0.03	0.03	-0.16***	-0.03	0.01
	(0.02)	(0.03)	(0.05)	(0.02)	(0.03)	(0.06)	(0.03)	(0.02)	(0.07)	(0.03)	(0.02)	(0.08)
ESEC 4-5	-0.28***	-0.07	0.37***	-0.28***	-0.03	0.28**	-0.13**	-0.02	0.07	-0.09	0.00	0.02
	(0.05)	(0.06)	(0.10)	(0.06)	(0.06)	(0.12)	(0.05)	(0.05)	(0.15)	(0.06)	(0.05)	(0.19)
ESEC 7-9	-0.39***	-0.29***	-0.16***	-0.37***	-0.27***	-0.16**	-0.40***	-0.24***	-0.20***	-0.37***	-0.23***	-0.16*
	(0.02)	(0.03)	(0.06)	(0.03)	(0.03)	(0.07)	(0.03)	(0.02)	(0.08)	(0.03)	(0.02)	(0.09)
Low income nbhd. (origin)	-0.29***	-0.34***	0.17***	-0.26***	-0.28***	0.17**	-0.26***	-0.34***	-0.01	-0.17***	-0.31***	0.00
	(0.03)	(0.04)	(0.06)	(0.04)	(0.05)	(0.08)	(0.03)	(0.03)	(0.07)	(0.04)	(0.03)	(0.11)
Nbhd. X AU class												
NbhdXESEC 3&6				-0.02	-0.07	-0.05				-0.16**	-0.02	0.08
				(0.06)	(0.07)	(0.13)				(0.07)	(0.06)	(0.17)
NbhdXESEC 4-5				-0.02	-0.21	0.22				-0.17	-0.10	0.15
				(0.13)	(0.14)	(0.21)				(0.13)	(0.12)	(0.32)
NbhdXESEC 7-9				-0.09	-0.14*	-0.02				-0.18***	-0.05	-0.16
				(0.06)	(0.07)	(0.13)				(0.07)	(0.05)	(0.17)

Notes: Robust standard errors in parentheses (clustering within origin neighbourhoods); significance levels: *** p<0.01, ** p<0.05, * p<0.1; coeffients are logarithmic odds, base category of comparison is ESEC 7-9.

-Table continued on next page.-

-Table 2 continued-

Mother's education												
Primary		reference			reference			reference			reference	
Secondary	0.41***	0.24***	0.01	0.41***	0.24***	0.01	0.51***	0.23***	0.20***	0.50***	0.23***	0.20***
	(0.03)	(0.03)	(0.06)	(0.03)	(0.03)	(0.06)	(0.03)	(0.02)	(0.07)	(0.03)	(0.02)	(0.07)
Tertiary	0.91***	0.52***	0.17**	0.91***	0.52***	0.18**	1.11***	0.25***	0.20**	1.11***	0.25***	0.20**
	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.07)	(0.03)	(0.03)	(0.09)	(0.03)	(0.03)	(0.09)
Postgraduate	1.55***	0.74***	0.20	1.55***	0.74***	0.20	1.50***	0.15	0.43	1.51***	0.15	0.43
	(0.10)	(0.12)	(0.31)	(0.10)	(0.12)	(0.31)	(0.09)	(0.11)	(0.34)	(0.09)	(0.11)	(0.34)
Unknown	-0.04	0.21	0.12	-0.05	0.21	0.12	0.30	-0.07	0.63	0.30	-0.07	0.63
	(0.28)	(0.27)	(0.48)	(0.28)	(0.27)	(0.48)	(0.28)	(0.27)	(0.55)	(0.28)	(0.27)	(0.55)
Age	0.13***	0.08***	0.13***	0.13***	0.08***	0.13***	0.15***	0.10***	0.09***	0.15***	0.10***	0.09***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Year 2000	-0.05**	-0.02	0.06	-0.05**	-0.02	0.06	-0.03	-0.06**	-0.02	-0.03	-0.06***	-0.02
	(0.02)	(0.03)	(0.06)	(0.02)	(0.03)	(0.06)	(0.02)	(0.02)	(0.08)	(0.02)	(0.02)	(0.08)
Year 2001	-0.15***	-0.08***	0.00	-0.15***	-0.08***	0.00	-0.04*	-0.13***	0.15**	-0.04*	-0.13***	0.15**
	(0.02)	(0.03)	(0.05)	(0.02)	(0.03)	(0.05)	(0.02)	(0.02)	(0.07)	(0.02)	(0.02)	(0.07)
Constant	-4.33***	-3.48***	-6.99***	-4.34***	-3.49***	-6.99***	-5.18***	-3.49***	-6.28***	-5.19***	-3.50***	-6.28***
	(0.06)	(0.06)	(0.15)	(0.06)	(0.06)	(0.15)	(0.07)	(0.05)	(0.18)	(0.07)	(0.05)	(0.18)
Observations		90,371			90,371			88,175			88,175	
Log likelihood		-87793			-87789			-87407			-87528	
Pseudo R^2		0.0935			0.0935			0.0904			0.0891	
BIC		176100.0			176193.7			175327.0			175533.8	

Notes: Robust standard errors in parentheses (clustering within origin neighbourhoods); significance levels: *** p<0.01, ** p<0.05, * p<0.1; coeffients are logarithmic odds, base category of comparison is ESEC 7-9.

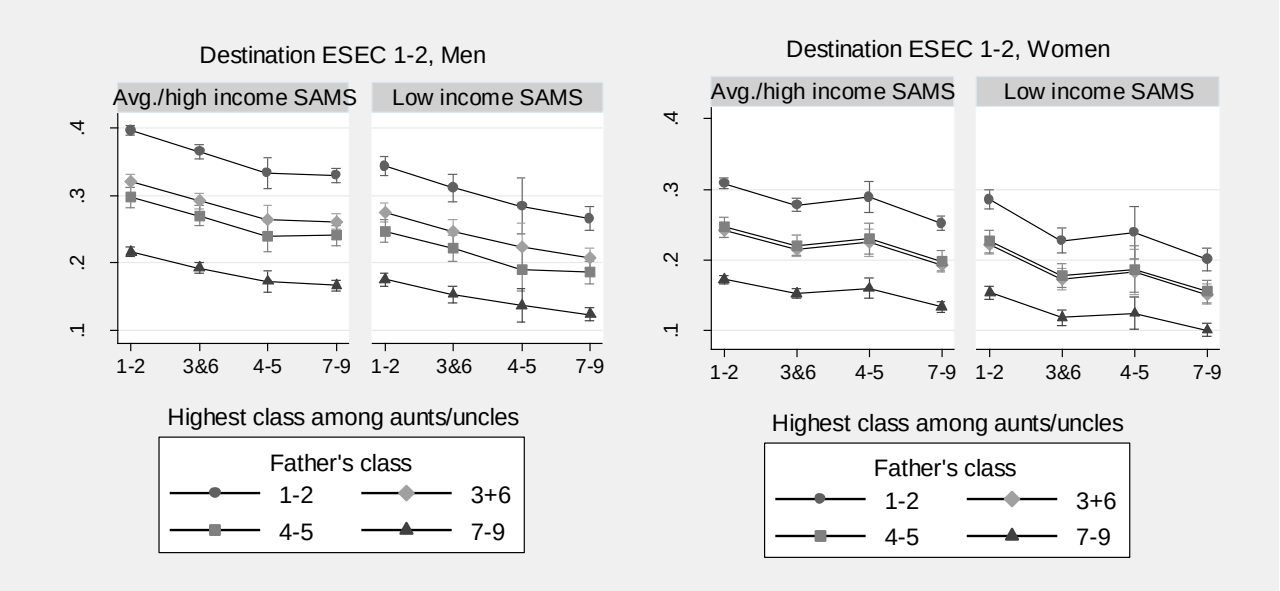

Figure 2: *Predicted probabilities for destination class ESEC 1-2 by sex, conditional on origin class, highest class among aunts/uncles, and socio-economic status of origin neighbourhood. Results based on Model 2; all other covariates held at their mean. Vertical bars represent 95% c.i.*

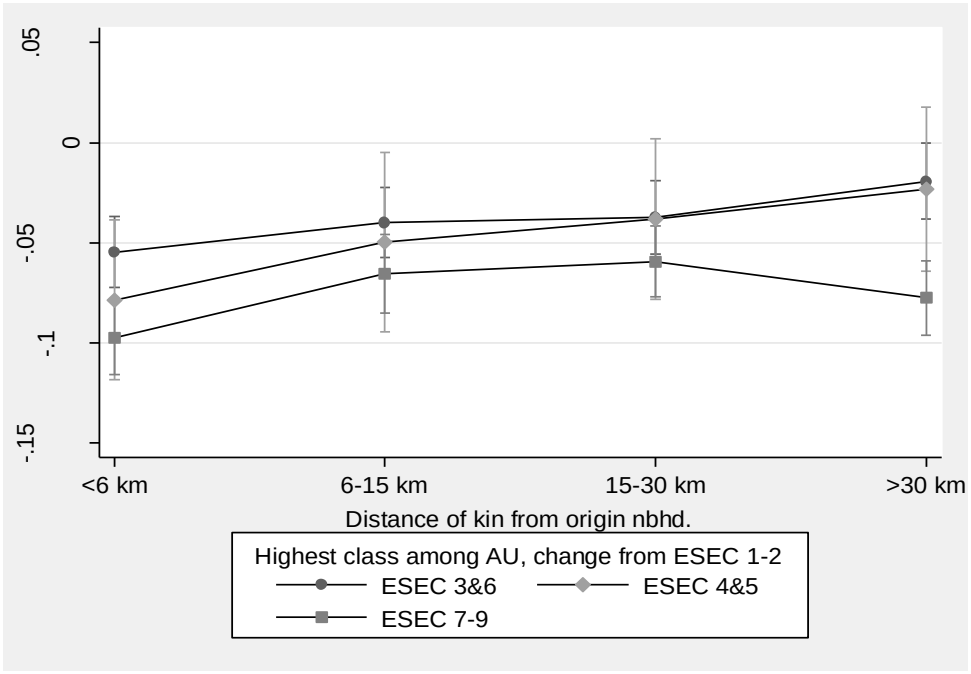

Figure 3: *Marginal effects of aunts'/uncles' class position on destination class ESEC 1-2 conditional on distance from respondent's neighbourhood of origin. All other covariates held at their mean. Effects shown are in comparison to aunts'/uncles' class ESEC 1-2. Vertical bars represent 95% c.i.*

Table 5: *Determinants of individuals' destination class; results of multinomial logistic regression. Interactions of geographical distance of extended kin to origin neighbourhood and extended kin's class.*

	Geographical distance model		
	Contrast vs.ESEC 7-9		
	ESEC 1-2	ESEC 3&6	ESEC 4-5
Father's class			
ESEC 1-2		Reference	
ESEC 3&6	-0.41***	-0.03	-0.15**
	(0.03)	(0.03)	(0.07)
ESEC 4-5	-0.50***	-0.12***	0.74***
	(0.04)	(0.04)	(0.07)
ESEC 7-9	-1.11***	-0.68***	-0.58***
	(0.02)	(0.02)	(0.06)
Aunts'/Uncles' class			
ESEC 3&6	-0.28***	-0.13***	0.01
	(0.05)	(0.05)	(0.11)
ESEC 4-5	-0.35***	-0.08	0.33
	(0.11)	(0.11)	(0.23)
ESEC 7-9	-0.55***	-0.33***	-0.22**
	(0.05)	(0.05)	(0.11)
AU distance			
(1) ≤6 km		Reference	
(2) 6-15 km	-0.05	-0.01	-0.07
	(0.04)	(0.04)	(0.09)
(3) 15-30 km	-0.02	0.03	0.07
	(0.04)	(0.04)	(0.09)
(4) >30 km	-0.08**	-0.11***	-0.12
	(0.04)	(0.04)	(0.10)
AU class x dist.			
ESEC 3&6 X dist2	0.08	0.05	-0.05
	(0.06)	(0.07)	(0.15)
ESEC 3&6 X dist3	0.04	-0.06	-0.22
	(0.06)	(0.07)	(0.15)
ESEC 3&6 X dist4	0.17***	0.05	-0.06
	(0.06)	(0.07)	(0.16)
ESEC 4-5 Xdist2	0.06	-0.10	-0.84**
	(0.16)	(0.16)	(0.36)
ESEC 4-5 Xdist3	0.17	-0.02	0.05
	(0.15)	(0.16)	(0.30)
ESEC 4-5 Xdist4	0.22	-0.04	-0.26
	(0.15)	(0.16)	(0.33)
ESEC 7-9 Xdist2	0.18***	0.09	0.05
	(0.07)	(0.07)	(0.16)
ESEC 7-9 Xdist3	0.17***	0.02	-0.15
	(0.07)	(0.07)	(0.16)
ESEC 7-9 Xdist4	0.12*	0.04	0.08
	(0.07)	(0.07)	(0.15)
Constant	-0.77***	-1.77***	-4.23***
	(0.08)	(0.09)	(0.18)
Observations	86,291	86,291	86,291
Log likelihood	-94281	-94281	-94281
Pseudo R^2	0.0627	0.0627	0.0627

Notes: Robust standard errors in parentheses (clustering within origin neighbourhoods); significance levels: *** p<0.01, ** p<0.05, * p<0.1; coeffients are logarithmic odds, base category of comparison is ESEC 7-9.

Lastly, we examine geographic distance. We hypothesized (H3) that kinship effects should decrease with distance when they are due to social influence (aunts and uncles transmit cultural resources, act as role models or provide social capital). Effects should be more pronounced when extended family members lived nearby; they should be closer to zero or become insignificant the further extended kin lived away. We combined analyses for men and women because fewer cases were available. *Table 5* shows regression results and reveals the positive interaction effect we expect. *Figure 3* depicts the marginal effects of extended kin class at different geographical distances, while holding all other model covariates at their sample mean. When geographical distance increases, the effect size of aunts and uncles class on own class position decreases (gets closer to 0). This pattern is less pronounced for extended kin with low social class. Here, the effect is negative regardless of geographical distance.

Conclusion

Related to the debated issue of multigenerational social mobility (Mare 2011; Erola & Moisio 2007; Chan & Boliver 2013a, 2013b), we investigated whether social class of extended family members – aunts and uncles – matters for own class position and exerts an independent effect on individuals' upward or downward social mobility. Analyzing large-scale register data from the Stockholm Metropolitan Area, we predicted destination classes from father's socioeconomic class, mother's education and extended kin highest class position. Our results show that there is indeed an independent effect of aunts' and uncles' social class background even after controlling for a diverse set of background characteristics. The lower the class position of extended kin, the smaller are the chances for ending up in the highest class. In addition, we suggested two strategies to reveal the mechanism causing the pattern we observe.

First, we conjectured that kinship effects should vary with the social environment of individuals' upbringing when they are based on social processes. Individuals who grew up in low-income neighborhoods should benefit relatively more from the higher class of their aunts and uncles. In contrast, shared genetic factors would lead to no differences across social environments. We found that aunts and uncles indeed alleviate bad starting conditions of individuals. However, the observed effects were small, and did only hold for women. Women from low-income neighborhoods with high-class extended kin had

almost the same chances of reaching a higher destination class than women from high-income neighborhoods with high-class extended.

Second, we conjectured that extended kin effects should vary with geographic distance when they are based on social processes. As social influence requires frequent face-to-face interaction, we hypothesized that the effects of extended kin should decrease with increasing geographic distance between aunts'/uncles' place of residence and individuals' origin neighborhoods. Our results confirmed this hypothesis.

Overall, our findings offer new insights towards multigenerational social mobility effects and highlight the role of cultural and social capital that is located in extended kin networks. Our results support Hällsten's (2014) "dynastic" view on social mobility processes: high-class individuals can mobilize resources from their extended family and secure themselves against social downward mobility. This can lead to increased social closure and prevent those from lower classes to experience upward mobility if they lack such resources in their larger family network. However, aunts and uncles can also act as facilitators for upward mobility of individuals from disadvantaged backgrounds. At the same time, we offer a strategy to distinguish sociobiological from social processes as driving factors for the patterns we observe.

Our results raise the question how the processes we observe relate to segregation processes (Musterd, Ostendorf, de Vos 2003; Musterd and Andersson 2006; Buck 2001). Differences in social mobility patterns across ethnic groups might be driven by differences in family structures and size of available extended kin networks.

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