

Summary of the thesis

Assessing theories and mechanisms in sociology: Insights from empirical studies on segregation, education, fertility, and class

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How can we assess theories and test theoretical mechanisms in sociology and the social sciences? This thesis presents five articles attempting to answer difficult sociological research questions using methods drawn from economics and behavior genetics, to assess theories and proposed mechanisms in the sociological research literature. These relate to the effects of segregated schools on native flight, the impact of local educational institutions on gender equality, social mobility and fertility patterns, and the role of genetic heritability in processes of class attainment. The articles represent a common approach to social science; critical rationalism, combined with the counterfactual approach to causality and causal inference, and a critical approach to theory.

All articles combine the use of high-quality population-wide administrative register data with other, new, or less common data sources, and they are written with the aim of making valuable, though incremental contributions to ongoing debates in sociology, by confronting sociological theories with new research questions, new data, and new methods.

Article 1 studies one of the potential causes of residential segregation and school segregation; native flight, and specifically addresses the question of whether out-mobility among native parents with young children, from neighborhoods with high concentrations of ethnic minority residents, may in part be driven by characteristics of schools.

Several theories attempt to explain patterns of ethnic or racial neighborhood segregation and school segregation. One of these is the theory of white or native flight. Essentially, this theory suggests that members of the ethnic or racial majority population respond to high or increasing proportions of minorities in schools and neighborhoods by moving out, thus exacerbating segregation patterns. Previous studies have documented such patterns of residential mobility in both the US and Europe. Some of these studies point to parents of young children as particularly prone to move out of neighborhoods with a high minority concentration, suggesting that school choice plays an important role.

To assess this mechanism, we employ a geographic regression discontinuity design to highly detailed geographic data on families' place of residence in relation to school catchment area boundaries. The individual-level data are drawn from administrative registers and linked to geocodes for place of residence. These geocodes provide fine-grained information on place of residence. We sample residents in the municipality of Oslo who have children aged 2-5, belong to the native majority population. We also use data on school catchment area boundaries obtained from the Municipality of Oslo.

Studying families who reside near school catchment area boundaries allows us to then study statistical neighbors who reside in similar neighborhoods, but on different sides of the school catchment area boundary of their local schools. With some assumptions, this allows us to estimate the effect of local schools with high minority concentrations on out-mobility among native families.

Along the borders of schools with the largest differences in the minority concentration (the top quartile), we find a 7-percentage point higher probability of moving out in a given year on the side of the border that has the highest minority concentration at the local school. Given a baseline out-mobility rate of 19 %, this effect is quite substantive. Our results suggest that local schools play an important role in producing patterns of native flight.

Articles 2-4 can be seen as one 'project' using the same research designs and data to investigate the impact of major educational expansion reforms that took place in Norway between 1969 and 1993. These reforms provided better educational opportunities for broad segments of the population and had a major impact on higher educational attainment. These and similar educational expansion reforms in other national

contexts coincided with major societal changes in many different areas, such as increased gender equality, increased absolute educational mobility and the reduction in fertility levels following the post-war baby boom. They have therefore been central in many sociological theories explaining such trends.

These articles focus on the local impacts of these reforms, by studying the establishment and institutional upgrading of educational institutions. The main methodological issue associated with studying the impact of local educational institutions is that the localization of colleges is not random but may be systematically related to characteristics of the local population. Additionally, people may move selectively to attend college, which may bias results in naïve estimation strategies. To overcome these issues, and a set of quite technical and intricate issues related to comparisons with already-treated units in differences-in-differences designs with multiple treatment groups and time periods and potentially dynamic and heterogeneous treatment effects, we use a type of event study models that can produce unbiased estimates in research designs like ours. Essentially, we study whether the establishment or institutional upgrading of such institutions affected cohorts in the local population that reached college attendance age after a local educational institution was established, relative to older cohorts, and relative to regions where no such changes occurred.

In doing so, we use administrative register data covering the full birth cohorts 1950-1974. In addition, we have collected detailed data on the establishment, institutional upgrading, and growth of approximately 200 higher educational institutions in Norway. These allow us to identify with high accuracy who had access to post-secondary, non-tertiary, or tertiary educational institutions locally during the period we study, and when the establishment or upgrading of such institutions occurred. Linking these two data sources by municipality codes then allows us to study the impact of the establishment of educational institutions, and of the upgrading of such institutions to college status.

Article 2 uses these reforms to study the impact of local college institutions on educational attainment among young men and women, and to assess whether the opening of local colleges was an important factor contributing to the reversal of the gender gap in educational attainment. It also assesses whether local colleges offering educations in specific fields of study impacted gendered field of study choices and thus horizontal gender segregation in higher education.

The results suggest that the establishment and institutional upgrading of such institutions had little impact on educational attainment in the local population. Such effects were small and non-significant for women, and practically zero for men. Studying the impact of local field of study opportunities on field of study choices, we also find that local colleges did not shift individuals between fields of study, and thus that they also did not impact on gender segregation patterns in higher education. Overall, our findings point to the conclusion that although the aggregate student capacity was a prerequisite for increases in educational attainment in this period, the location of colleges mattered very little. We discuss the policy implications of these findings.

Article 3 uses these reforms to study the impact of local college institutions on intergenerational educational mobility. Despite large increases in educational attainment, and thus absolute educational mobility in this period, evidence on the impacts of such reforms on relative mobility is mixed. Researchers have found some increases in relative mobility in Scandinavian countries, but large inequalities in educational attainment persist.

Educational expansion reforms like those studied here have been central to sociological research and theorizing on intergenerational persistence in educational attainment and class positions, and several theoretical mechanisms have been proposed as explanations for why inequalities in educational attainment persist in spite of substantial improvements in educational opportunities.

Prior sociological studies have mostly focused on studying aggregate trends in educational expansions and mobility, and have not investigated the role of local educational institutions in these processes, nor used research designs suitable for causal inference. Additionally, effects of educational expansion reforms may be stronger at the local than national level.

The results suggest that the establishment and institutional upgrading of local post-secondary, non-tertiary and college institutions did not substantively impact the educational attainment of any social origins group, relative to regions where no such changes occurred, and thus that these institutions did not impact on educational mobility locally. I further discuss potential explanations for persisting inequalities in educational attainment, including explanations drawn from sociology, economics, and behavioral genetics.

Article 4 studies the impact of the same higher educational expansion reforms on fertility and family formation patterns. Higher educational attainment among women has been seen as a key factor to explaining the drop in fertility levels following the post-war baby boom, together with changing gender norms, female emancipation, and increased female labor market participation. Both theory and empirical research in sociology, demography, and economics links higher education to postponement of childbearing and reductions in preferred family size among women.

This article assesses whether the establishment of local educational institutions may have affected fertility, measured by cohort fertility at age 40, and age at childbearing, effectively indicating both postponement and childlessness. We also assess whether the establishment of educational institutions impacted on age at marriage, as partnership formation is potentially an important mechanism linking educational institutions and fertility outcomes.

We find no evidence that these institutions affected completed fertility by age 40, age at birth, nor age at marriage. Although increasing educational attainment may have been an important factor in driving the fertility decline in this period, our results suggest that access to local educational institutions was not.

Article 5 investigates whether classical sociological theories are correct in asserting that social origins is an important factor important for class attainment, and that mechanisms linking family background to class attainment are primarily social.

The background for writing this article is that several different sociological theories explain class and occupational status outcomes in terms of social origins and social mechanisms of transmission. These theories differ with regard to which aspects of social background they see as important and which mechanisms are the most salient, but do not incorporate genetic heritability as a partial explanation of variation in class and occupational status outcomes.

Recent evidence from studies using various genetically informed research designs has generally found that much of the intergenerational associations in socioeconomic outcomes is due to selection effects, or that genetic heritability plays an important role in explaining variation in such outcomes. However, such studies have not used sociological class-based indicators of social positions, and few have engaged directly with classical sociological theories of class mobility and reproduction. We argue that results from genetically informed studies may also be directly relevant for theory and research based on class schemes.

To assess this, we estimate twin-based ACE models to examine how much of the variation in people's attained class position can be attributed to environmental factors shared by twins (C), unshared environmental factors (E), and additive genetics (A), using three different operationalizations of class and a scale measuring occupational prestige.

Our results suggest that about 50% of the variation in class positions can be ascribed to unshared environmental factors (E). Genetic factors (A) explain approximately 40% of the variation. The shared environment (C, which we argue captures the impact of social origins) explains around 10%. We discuss what implications our results, and results from similar studies, may have for sociological theory and research on social mobility and reproduction.