

Who are the third generation and how are they doing?

How operationalizations of migrant generations affect estimates of educational convergence

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Introduction and Background

Recent research in migration and stratification studies has begun to move beyond the second generation to examine educational and socioeconomic outcomes among the *third generation*, or the grandchildren of immigrants. While this literature is growing, there remains little consensus on what constitutes the third generation. Definitions differ across studies, often depending on data availability or implicit assumptions about ancestry and assimilation. This definitional heterogeneity poses a substantive problem for demographic analysis. Measures of generational attainment and “convergence” are not directly comparable across studies if the underlying definitions differ. I address this gap by formalizing various definitions from the literature and then evaluating how these definitions affect estimates of educational performance across generations using the same underlying data.

A review of the literature reveal several common but often unarticulated approaches to defining the third generation. One of the most common is that an individual is classified as third generation if both parents are native-born and at least one grandparent is foreign-born (see for example Weber, Ferry, and Ichou 2024; Hunkler and Schotte 2023; Duncan et al. 2020). This definition reflects a *minimum rule* of inheritance, where any foreign-born ancestry is sufficient to maintain a migrant origin. Other studies adopt a more conservative approach, which requires that both parents are native-born and that all four grandparents are foreign-born for an individual to be classified as third generation (Dollmann, Jacob, and Kalter 2016; Rudolphi and Salikutluk 2021). Some studies also take a mixed approach, requiring at least two foreign-born grandparents for being classified as third generation (Hunkler and Schotte 2023). Finally, a fourth set of studies use unilineal definitions, tracing generation through either the maternal or paternal line only (Ward 2020; Ekberg, Hammarstedt, and Shukur 2010).

In this study, I formalize these various approaches into a framework of generational inheritance rules. By treating generation as an attribute that is transmitted from parents to children according to specific rules, I can systematically compare how different definitions affect estimates of educational attainment. Using Swedish population register data that link individuals to their parents and grandparents, I construct generational classifications under multiple inheritance rules: minimum, maximum and unilineal (matrilineal and patrilineal). I then estimate differences in compulsory school grade point average (GPA) across generations under each definition.

Theoretical and Conceptual Framework

I conceptualize *generation* as a function of parental generations, formalized as:

$$G_i = \begin{cases} 1, & \text{if individual } i \text{ is foreign-born,} \\ f(G_{p1}, G_{p2}), & \text{otherwise.} \end{cases}$$

where G_i denotes the generational status of the child and G_{p1}, G_{p2} are those of the parents. The function $f(\cdot)$ captures the *inheritance rule*—the social logic by which generational status is transmitted.

I define three inheritance rules following a Markovian approach, where a child’s generation depends solely on parental generations and not on more distant ancestry:

1. Minimum rule:

$$G_i = \min(G_{p1}, G_{p2}) + 1$$

The child advances a generation based on the parent with the lowest generation, reflecting a preservationist criterion. This rule assumes that any foreign-born ancestry suffices to maintain migrant origin and only one immigrant grandparent is necessary to classify as third generation.

2. Maximum rule:

$$G_i = \max(G_{p1}, G_{p2}) + 1$$

The child advances a generation based on the parent with the highest generation, reflecting an assimilationist criterion. This rule requires that all four grandparents are immigrants or that one parent is an immigrant and the other is native-born to two foreign-born grandparents for the child to be classified as third generation.

3. Unilineal (matri/patrilineal) rule:

$$G_{i_m} = G_{p_m} + 1 \text{ or } G_{i_f} = G_{p_f} + 1$$

Generation defined through a specific parental line, analogous to unilineal descent systems. Matrilineal for girls and patrilineal for boys.

These rules formalize distinct sociological assumptions about how migrant origin is maintained or diluted across generations. In addition, to capture definitions used in prior literature, I also implement a non-Markovian rule to allow for cross-generational influence from grandparents directly.

4. Minimum number of grandparents rule:

M_i is the number of foreign-born grandparents (ranging from 0 to 4). Compute G_i using the minimum rule above and then apply the grandparent override:

$$\text{If } G_i = 4 \text{ and } M_i > x, \text{ set } G_i := 3, \text{ where } x \in \{2, 3\}.$$

Thus, if an individual would have been categorized as fourth generation under the conservative minimum rule, but has at least 2 or 3 foreign-born grandparents, they are reclassified as third generation.

In a second step, I apply a similar logic to examine the inheritance of refugee status across generations, comparing how different definitions affect estimates of educational outcomes among descendants of refugees.

Data and Measurement

The analysis uses Swedish population register data linking individuals born between 1996 and 2003 to their biological parents and, through them, to grandparents. These data provide complete coverage of birth country, year, and educational outcomes, enabling the construction of intergenerational genealogies. I classify individuals by generational status under each inheritance rule described above. Parental, grandparental and individual place of birth are used to determine generational status. The main outcome is *compulsory school grade point average (GPA)*, standardized within graduation cohorts. Control variables include gender and birth year.

Analytical Strategy

The analysis proceeds in three steps:

1. **Construct generational classifications** under each inheritance rule, producing parallel measures of generation.
2. **Estimate GPA differences** between generations using linear regression models with cohort and gender controls:

$$GPA_i = \alpha + \beta G_i + X_i' \gamma + \epsilon_i$$

3. **Compare results across rules** to assess the sensitivity of estimated generational differences to definitional choice.

This design isolates how the operational definition of “generation” shapes substantive interpretations of convergence or persistence across migrant descendants.

Preliminary Findings and Discussion

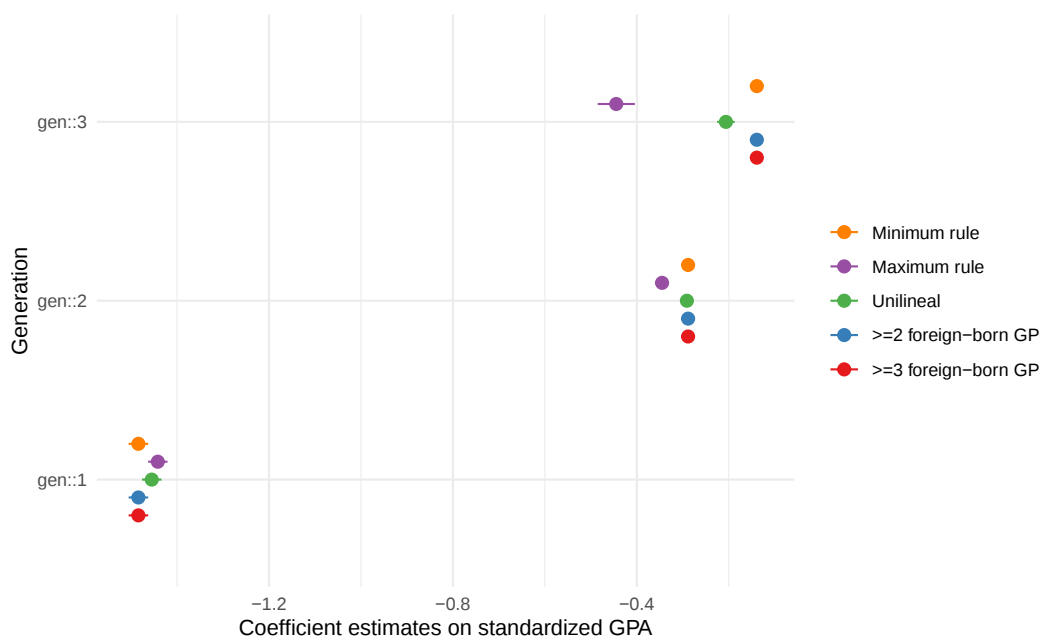


Figure 1: Estimated GPA Differences by Inheritance Rule

Preliminary analyses, presented in Figure 1, suggest that the size of educational performance differences differ depending on the chosen inheritance rule. In particular, under the *maximum rule* (four foreign-born grandparents) the third generation's GPA is lower than that of the second generation. In contrast, all other definitions show a generational convergence pattern with similar effect sizes.

Further analyses will explore if these differences arise simply due to the genealogical composition of the groups, or if they reflect selection mechanisms into particular family structures through processes of homogamy. I will therefore explore how parental and grandparental country of origin composition varies across definitions and how that mediates educational outcomes. I will also apply the framework to the inheritance of refugee status to examine if similar patterns emerge for other inherited attributes.

Conclusion and Contributions

The findings highlight the importance of carefully considering how generational status is defined. Given the sensitivity of results to definitional choices, researchers should be explicit about their operationalization of generation and be clear about why this particular definition is chosen for their analysis. Researchers are recommended to ground their choice of generational definition in theoretical considerations about assimilation and transmission of disadvantage, rather than convenience or data limitations alone.

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