Mapineq

Synthesis on the inequalities across the life course and policy-making levels, and perceptions of inequality

Jani Erola
University of Turku

Mapineq deliverable D7.3 December 2025

Funded by
the European Union

Suggested citation:

Jani Erola. (2025). Report: Synthesis on the inequalities across the life course and policy-making levels, and perceptions of inequality. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. DOI: https://doi.org/10.5281/zenodo.18014104

Summary history		
Version	Date	Comments
1.0	15.12.2025	Manuscript for review
1.1.	22.12.2025	Manuscript reviewed for submission

Mapineq – Mapping inequalities through the life course– is a three-year project (2022-2025) that studies the trends and drivers of intergenerational, educational, labour market, and health inequalities over the life course during the last decades. The research is run by a consortium of eight partners: University of Turku, University of Groningen, National Distance Education University, WZB Berlin Social Science Center, Stockholm University, Tallinn University, Max Planck Gesellschaft (Population Europe), and University of Oxford

Website: www.mapineq.eu

The Mapineq project has received funding from the European Union's Horizon Europe research and innovation programme under the grant agreement No. 101061645.

Acknowledgement:

This document was reviewed as part of Mapineq quality assurance procedures. The content of the document, including opinions expressed and any remaining errors, is the responsibility of the authors.

Publication information:

Executive summary

This report summarises the main findings of the Horizon Europe project **Mapping Inequalities through the Life Course (MapIneq)**, which examined how social inequalities emerge, persist, and transform across different stages of life in Europe. Drawing on comparative survey data, administrative registers, regional indicators, and genetically informed designs, the project analysed inequalities in education, labour markets, health, family life, and later-life outcomes across countries, regions, and cohorts.

A central conclusion is that inequalities are cumulative and multi-domain. Disadvantages arising early in life—particularly those linked to parental education, childhood economic resources, and health—tend to persist and spill over into other domains, shaping educational attainment, labour-market integration, family trajectories, and later-career outcomes. Education plays a pivotal role in these processes, functioning simultaneously as a cause, mediator, and moderator of inequality, but it cannot offset early disadvantages on its own, even in highly egalitarian welfare states.

Local and regional opportunity structures matter greatly, often accounting for a substantial share of inequality that has previously been attributed to national differences. Reductions in within-country regional inequalities—especially in access to higher education—have been a key driver of declining intergenerational educational inequality in Europe. Opportunity barriers linked to place, such as labour-market conditions, environmental exposure, or access to institutions, can reinforce disadvantage. These inequalities can be combated with policies that bring opportunities closer to people.

MapIneq also demonstrates that inequality mechanisms are dynamic across the life course. Poor labour-market conditions at entry have long-term "scarring" effects, particularly for lower-educated individuals, while mid-career mobility and late-career outcomes remain strongly stratified by education, health, gender, and institutional context. Health emerges as a persistent driver of inequality not only in later life, but already in youth and mid-career, increasing risks of non-employment and precarious work.

Genetic differences contribute to educational and occupational outcomes, but their effects are socially mediated and context-dependent. Family resources and institutional arrangements shape how genetic propensities are realised, underscoring that biological inheritance does not undermine the central role of social policy in reducing inequality.

Finally, the project highlights a growing tension between inequality structures and their normative legitimacy. Europeans broadly accept differentiated outcomes, but only within perceived bounds of fairness. As opportunity structures diverge from meritocratic ideals and inequalities become more fragmented across regions and life stages, maintaining the legitimacy of social and economic institutions becomes an increasingly important policy challenge.

Overall, MapIneq shows that reducing inequality requires early, sustained, and place-sensitive policies that address multiple life domains simultaneously. Single-sector interventions are insufficient; effective responses must account for spillovers, cumulative processes, and the regional contexts in which inequalities are produced and experienced.

Funded by the European Union

Abbreviations

UTU University of Turku

UNED National Distance Education University

Funded by the European Union

Content

Tables

Figures

Funded by the European Union

Synthesis on the inequalities across the life course and policy-making levels, and perceptions of inequality

This report synthesises findings from the MapIneq project on how social inequalities develop across the life course in Europe. Inequalities emerge early, accumulate over time, and spill across education, labour markets, health, and family life. Local and regional opportunity structures play a major role alongside national institutions. Education is central but insufficient on its own to offset early disadvantage. Sustaining the legitimacy of inequality-producing institutions requires fair opportunities and shared security across life stages.

Early disadvantages related to family background, health, and place persist across the life course and spill over between education, work, family life, and later-career outcomes.

Local and regional opportunity structures explain a substantial share of inequality. Reducing within-country regional disparities has been crucial for improving equality of opportunity in Europe.

Europeans tolerate inequality within limits, but growing divergence between meritocratic ideals and lived opportunities threatens the legitimacy of social and economic institutions.

1. Introduction

This deliverable summarises the main findings of the Horizon Europe project "Mapping Inequalities through the Life Course" (Mapineq). Mapineq has been a Horizon Europe project between eight European organisations, running from 2022 to 2025. The project stemmed from shared research interests and extensive prior studies by the PIs and co-PIs

Funded by the European Union

of the participating research groups on the changing social inequalities through the life course and between generations across Europe and other developed societies. [1]

Many prominent international organisations and academic scholars have reported the increasing global economic and social inequalities since the 1980s (Atkinson and Bourguignon 2014; Milanovic 2016; Piketty 2014; UN News 2020; Wilkinson and Pickett 2009). The same studies suggested that trends in different educational and socioeconomic outcomes appeared correlated, but could not provide clear answers regarding potential reasons.

These findings on inequalities of outcomes in terms of the distribution of income, wealth and health have emerged with findings suggesting that social mobility - the main indicator for equality of opportunity - is no longer increasing or is even decreasing (Bernardi and Ballarino 2016). Yet the empirical evidence on the links between equality of outcomes and equality of opportunity is still surprisingly weak. While having smaller inequalities of outcomes seems to be associated with a relatively high level of equality of opportunity, it seems that the same level of equality of opportunity can be achieved with varying levels of equality of outcomes (Beller and Hout 2006; Bukodi, Paskov, and Nolan 2020; Esping-Andersen 2015; Hertel and Groh-Samberg 2019).

However, for Mapineq partners, there were clear potential explanations for the observed correlations. First, earlier research indicated that inequalities in one life domain can readily spill over into other domains, with multiple mechanisms by which social inequalities persist and develop across the life course.

Take, for instance, the associations between education, income and wealth. Education, typically the highest level attained by early adulthood, is one of the best predictors of both income throughout the subsequent life course and later-life wealth (Card 1999; Deming 2022; Psacharopoulos and Patrinos 2004). However, education can hardly determine either income or wealth. Most income differences that lead to wealth disparities are attributable to job-related earnings. Labour market rewards for skills acquired through education can be taken as a valuable signal of such skills, or, for instance, of the social connections one may have acquired in education. However, no form of education can guarantee a specific level of earnings, even for jobs that require a particular degree (e.g., a medical doctor).

Education is strongly correlated with cognitive abilities and non-cognitive skills, both of which are rewarded in the labour market, regardless of whether a person holds an educational degree (Anger 2012; Baker et al. 2015; Flynn 2007). But an educational degree also signals other social interactions, such as friendship networks and partnership matching (Blossfeld 2009; Wang and Wellman 2010), both of which may have further impact on job market success, earnings, and wealth accumulation (Blanden, Gregg, and Macmillan 2007). Both cognitive abilities and non-cognitive skills are genetically heritable

[1] University of Turku: Jani Erola & Elina Kilpi-Jakonen, UNED Madrid: Fabrizio Bernardi, WZB Berlin: Heike Solga & Jan Heisig, University of Tallinn: Marge Unt, Stockholm University: Markus Jäntti, Population Europe of Max Planck Society: Andreas Edel & Daniela Del Vono, Uiveristy of Groningen and University of Oxford: Melinda Mills

Funded by the European Union

(Krapohl et al. 2014; Malanchini et al. 2024), which is why the ancestors of a highly able person may have had similar abilities and skills that may have helped them to succeed in their lives, potentially having a positive impact on wealth through financial and material inheritance. If parents already have higher education, they are likely better able to help their children navigate the education system, further increasing their chances of securing a better-paid position themselves (Forster and van de Werfhorst 2020).

Thus, education matters because it plays multiple roles in processes that lead to income and wealth inequalities, functioning as a cause, mediator, moderator, and confounder simultaneously. The researchers in the Mapineq project believed that the same might be true for multiple socioeconomic factors, across life-course stages and domains, often manifesting as unexpected or unintended spillover effects.

Second, evidence from previous studies consistently suggests that institutional contexts matter, as evidenced by country-level differences. But expanding evidence on the importance of within-country, regional, or local-level inequalities in explaining large parts of the changing inequalities (Chetty et al. 2018; Duta and Iannelli 2018; McMullin et al. 2021). Here, local opportunity structures, such as available educational and employment opportunities, were considered essential factors that have often been ignored in previous studies.

It nonetheless became quickly clear to research teams that data on such regional or local-level factors were poorly available and rarely readily organised in a manner that would allow their direct use in research. To overcome this limitation, the project developed the MapineqLink database and web tool, which can be used for both the description and research of such effects (Mills and Leasure 2024). The database will also be updated after the project ends to facilitate further research that requires such information.

Third, the research teams observed that many externalities beyond persistent global mechanisms and institutional or regional factors were important for inequality trends. The research had already extensively examined effects such as economic crises, and the COVID-19 pandemic was still fresh in 2022. There were also persistent externalities that were not expected to disappear any time soon, such as low fertility, population ageing, and global warming. While it was clear that a single research project could not cover all such externalities, our aim was still to study sufficiently many of them to draw conclusions about shared aspects of these factors.

Thus, the research questions of the Mapineq project to be answered were:

1. How do local and national opportunity structures enhance, suppress, or mediate inequalities?
2. How do changes and spillovers across the life domains and over the life course contribute to inequalities?
3. How are inequalities influenced by policies and societal shocks?

The project's findings are primarily derived from European or, on occasion, US data. In most cases, data availability was the most important factor limiting the selection of target countries. However, we believe many of the results are applicable across different country contexts, while accounting for institutional differences.

Key concepts

Opportunity structures

Social institutions, demographic and macroeconomic conditions, and socio-environmental contexts (e.g., education, labour market, family, physical environment), are analysed across countries, regions, and localities.

Spillovers

Unintended consequences or externalities, where changes in one life domain (such as the family) lead to unforeseen changes in another domain (such as the labour market).

Societal transformations

Family complexity, fertility changes, migration, digitalisation, and societal shocks like the global financial crisis and the COVID-19 pandemic.

2. Persistent benefits and barriers

One of the recurring findings in the project was that the intergenerational benefits of parental higher education persist, diminishing with educational expansion but only slowly (if at all) across nations (Bernardi, Lievore, and Valdes 2025; Heiskala et al. 2025). However, institutional context matters, as the selectivity of the education system remains a key factor explaining cross-country differences. In less selective systems, such as those in the UK, Belgium, and Finland, access is broader, and attainment gaps between social groups are smaller. In contrast, more selective systems, such as Austria, Italy, and Hungary, continue to reproduce stronger inequalities (Espadafor et al. 2024).

Many family background factors often considered important are, in fact, largely attributable to differences in parental education. For instance, according to our findings, across Europe, childhood poverty is more likely to result from parental educational differences in labour market returns than from differences in childhood family structures (defined by whether parents remained intact or separated and the number of siblings) (Heiskala et al. 2025). On the other hand, these childhood economic differences, especially mothers' income, still make a (causal) difference for children's educational attainment, even in the highly egalitarian contexts of Finland and Sweden (Jäntti 2025; Jäntti and Karonen 2025). However, stable employment is nearly as important as income, underscoring the potential of both income distribution and employment policies to reduce family background inequalities in educational attainment.

One reason for the persistence of the effects of parental education is that educational attainment is heritable, and genetic effects on education partially overlap with those on occupational status and income (Akimova et al. 2025). However, while the genes children acquire from the parents are fixed, their effects for later attainment (and subsequent trends in social inequalities) are not, but vary according to both social influences related to the family background and the influences related to the non-family environment (Mills and Tropf 2020). Thus, genetic propensities matter, but their effects are conditional on family resources and institutional context. For example, the project's results, using U.S.

data, suggest that high-SES families can sometimes compensate for low genetic propensity at early stages and boost high propensity at later stages, whereas low-SES families lack this capacity (Ghirardi and Bernardi 2025).

Overall, the compensatory and boosting capacities of parental education and associated family resources are central mechanisms of educational inequality across the life course, although to some extent age-specific (Bernardi, Foley, and Sanchez Gelabert 2025). The compensatory advantage of parents predominates at early, less selective educational stages, where high-SES families actively shield children from indicators of poor performance, adverse family events, or environmental stressors. The advantage boost is more pronounced at later, selective transitions (e.g., university entry), where advantaged families amplify favourable predispositions and marginal advantages.

While a specific type of family background can benefit children, certain aspects of the childhood family environment appear to be persistent *barriers* to educational and socioeconomic attainment. The negative association between parental separation and education appears to persist across Europe, despite changes in the normative acceptability of separation (Lehti et al.,(Lehti et al. 2023). The persistence of these effects is underscored by the finding that improving family human capital through parents' further education or repartnering during childhood rarely benefits children in the long run, if at all (Heiskala et al. 2024).

The researchers have not been able to agree on whether the effect is causal, and the socioeconomic gradient associated with the adverse effects cannot always be replicated, even when using data from the same country. For instance, according to the project's results, the loss of family human capital through parental separation or death is similarly detrimental across social strata (Heiskala et al. 2024), contrasting with previous findings from Finland using partially overlapping data but a different approach to address causality (Helske, Erola, and Helske 2024).

Additionally, one reason parental separation matters for children's educational attainment is that it weakens compensatory capacity, particularly among high-SES families with low genetic endowment, demonstrating that genetic advantages are not self-sufficient (Bernardi and Ghirardi 2025).

Some of our results indicate that factors often assumed to be age-specific are, in fact, persistent drivers of inequalities. In particular, this is shown by the results on health. As expected, our findings confirm that health inequalities are crucial for later-age inequalities (Täht and Unt 2025). However, the same applies to mid-career individuals and even to adolescents: the findings suggest that poor health increases the probability of being NEET (not in employment, education, or training) among young adults in Europe by 30% (Hornberg, Heisig, and Solga 2024; König et al. 2025).

Educational attainment, health trajectories, and family responsibilities accumulated earlier in life strongly determine late-career outcomes. Lower-educated workers, women, and those with health limitations face higher risks of early exit, poverty, or prolonged work under poor conditions. Late-career inequality is therefore not a late-life phenomenon but the endpoint of long-term cumulative processes (Täht and Unt 2025).

3. Local Opportunity Structures and Opportunity Barriers

One of the core findings, in response to the project's first research question about the importance of *local opportunity structures*, is that increasing the local availability of higher education across Europe is beneficial and can substantially reduce family background inequalities. From 17% to 30% of educational inequalities are regional, as contrasted to between-country differences, and the reduced within-country inequalities account for most of the improvements in intergenerational inequalities across Europe during the last decades (Bernardi, Lievore, et al. 2025).

It pays off to build opportunity structures where potential students are, not moving families to them. Moving to an area with better higher-education opportunities cannot overcome the negative effects of residential mobility, which are almost always detrimental to children in the long run, even with potential benefits to parents (Erola et al. 2025). Against this backdrop, it is interesting - albeit perhaps merely coincidental – that in another part of the Mapineq, a conjoint analysis on the attractiveness of cities in Finland, Germany, Spain and the UK, higher education institutions do not particularly increase the appeal for a city (Heisig 2025; Vono de Vilhena 2025).

Local opportunity structures also include institutional arrangements for early childhood education. In prior studies, findings on the benefits of ECEC for final education outcomes have remained mixed. Most evidence suggests that children from disadvantaged families benefit most (Esping-Andersen et al. 2012; Ruhm and Waldfogel 2012), but there are exceptions by country, such as Finland and Norway (Drange and Telle 2020; Gruber, Kosonen, and Huttunen 2023). Our results on the regional expansion of daycare in Finland in the 1970s show no evidence of direct benefits of childcare expansion on later educational attainment (Erola et al. 2025).

However, the results of the same study (Erola et al. 2025) suggest universal improvements for the chances to meet genetic potential for educational attainment as a result of better access to ECEC: the increasing number of ECEC places in a municipality in relation to the total number of childcare-aged children leads to a stronger association between the polygenic score for education and final education. Further, the results of other Mapineq studies provide evidence on the benefits of ECEC for families through improving women's labour market attachment (König et al. 2025). This finding is perhaps the best-established overall result of all research on the effects of ECEC conducted in Europe during the last few decades.

Given that most of the progress in reducing family background inequalities has occurred through reductions in educational inequalities across regions, it is easy to understand why *local opportunity barriers* also matter. For instance, it was found that the COVID-19 pandemic widened the urban/rural gap in math and reading skills in PISA (Kilpi-Jakonen et al. 2024). Yet surprisingly, this was not related to school closure lengths or technological preparedness for remote teaching. These findings suggest more complex, perhaps peer-group-related, mechanisms to explain learning deficits during the pandemic.

Sometimes, opportunity barriers take the form of real-life physical obstacles. The results of the project indicate that the introduction of a low-emission zone in Madrid in 2018 improved air quality and led to a significant increase in exam scores in the area (Valdés, Espadafor, and Conte Keivabu 2025). These kinds of opportunity barriers are often dismissed as a thing of the past, but they persist in Europe today. In reality, such impacts may become increasingly common due to climate change. According to our findings, there is a negative association between sustained, long-term heat exposure and academic performance that is particularly pronounced among students from less educated families, suggesting unequal vulnerability to environmental stressors (Bernardi, Foley, et al. 2025).

4. Different mechanisms related to the within and between-country differences

One reason why reduced within-country inequalities in education explain most of the over-time changes is that between-country and within-country inequalities are driven by different mechanisms. These differences are particularly evident in the results on youth labour-market integration, showing that cross-national differences are largely explained by family composition and health, whereas within countries educational composition and urban–rural residence account for much of the regional variation (Hornberg et al. 2024). This implies that regional labour markets determine how opportunities are realised: place of residence matters not because of geography as such, but because it shapes access to jobs, institutions, and mobility pathways.

The importance of opportunities and barriers also varies in time. The regional GDP per capita is the single most consistent correlate of material living conditions. Once the broader economic context is accounted for, local variation in education and employment explains relatively little additional variation (Jäntti 2025).

Still, regional and macroeconomic conditions at the time of labour-market entry have medium- and long-term effects, especially for young adults with lower levels of education. Entering the labour market during periods of high regional unemployment increases the risk of non-employment and low-skilled work 5–10 years later, confirming that early disadvantages are not easily undone. These scarring effects are highly stratified: tertiary-educated individuals are largely shielded, while those with only lower secondary education face persistent penalties. Education thus functions as a powerful buffer, reinforcing inequalities established earlier in the life course (König et al. 2025). Poor entry conditions increase early and higher-parity motherhood among low-educated women, delay family formation, partnership, and residential independence among tertiary-educated women. These results indicate that economic uncertainty reinforces social polarisation, accelerating transitions among disadvantaged groups while postponing them among the advantaged.

Funded by the European Union

5. Values and attitudes towards inequalities

The experiences of inequality are also driving how they are perceived. As shown by the results (Karonen and Lievore 2023), attitudes toward inequality are structured by socioeconomic position. Individuals with higher incomes and more secure labour-market positions are more likely to emphasise opportunity and merit-based rewards, while those facing economic insecurity show greater support for redistributive outcomes. Education alone plays a limited role once income and occupational position are taken into account, which may be considered as surprising, considering the centrality of education in nearly all inequality-related processes we have reported.

Importantly, public attitudes do not map neatly onto objective measures of inequality. High-inequality contexts do not automatically generate strong support for redistribution, nor do low-inequality contexts eliminate acceptance of merit-based differences. Inequality can remain normatively acceptable when embedded in institutional narratives of effort, responsibility, or economic necessity. This helps explain why substantial inequalities documented in MapIneq can persist without immediate legitimacy crises. Inequality is tolerated within bounds, but its legitimacy depends on whether institutions are perceived to deliver fair chances and shared security across the life course. As structural inequalities deepen and fragment, maintaining the legitimacy of social and economic institutions becomes an increasingly central policy challenge.

6. Conclusions

Based on the project's findings, it can be concluded that inequalities in Europe persist and vary across national institutions in education, the labour market, and social policy. There is no uniform pattern in how regional social inequalities unfold—sometimes weaker, sometimes stronger than those between nations, depending on the outcome in question.

At the same time, many mechanisms of inequality are similar across regions, but their manifestations vary with sociodemographic structures (e.g., education, age, and family composition) and with exposure to externalities (e.g., regional economic conditions).

Spillovers illustrate why multi-domain policies are essential. For example, education is an often-ignored social policy tool, but it cannot offset early disadvantages alone – even in egalitarian societies like Finland and Sweden. A combination of education and labour market policies would yield better results, including for children's educational outcomes. Likewise, childhood family structure matters *less* than parental education for both the economic conditions of the family and future educational attainment, but has extensive effects on labour market participation

Educational differences are often both a key consequence and a driving force for other socioeconomic and demographic inequalities. Some education-related inequalities are genetic, but they matter for sociodemographic outcomes alongside social and demographic environmental factors, which is why the consequences of these differences can be both mitigated and exacerbated by policies.

Funded by the European Union

But the project's findings clearly show that considering educational inequalities is not sufficient to reduce all social inequalities. For instance, poor health is a major risk factor for educational and labour market disadvantages across early and mid-life, not only in later life. Additionally, environmental risks remain significant in Europe: traffic-related pollution can substantially affect cognitive development. It seems likely that, due to climate change, the importance of such environmental risks in creating and exacerbating social inequalities will increase.

Societal shocks like the COVID-19 pandemic and financial crises reveal structural vulnerabilities, as they disrupt education and labour markets unevenly. Shocks tend to magnify pre-existing inequalities – and their regional variation. When this is the case, policy resilience becomes critical in safeguarding equity. During crises, policies and interventions should be more targeted than otherwise.

However, in order to do so, both policymakers and researchers need more fine-grained data. Such data sources have turned out to be surprisingly scarce. Our regional database MapineqLink (Mills & Leisure, 2024) has been a massive effort to improve data availability, and will remain a remarkable data asset for cross-national regional analyses for many years, but it cannot change the main problem: despite the efforts, the granularity of the EU data is still often insufficient for both research and policy use, and often missing the correct substantive content. For instance, often urban-rural interaction is more informative than the identification of a region alone.

The project has produced a number of policy recommendations, listed in more detail in the wite paper (for details, see White Paper on Social Inequalities in Europe: From Early Childhood to Retirement). However, some of these recommendations are also worthwhile to repeat here:

- To further reduce the influence of family background, more nuanced approaches are necessary. To reduce such inequalities, societies should implement universal, multi-domain policies with targeted interventions.
- The interventions should be adapted to regional educational, demographic, and economic profiles; although the mechanisms are the same, population distributions and conditions often differ.
- If the key concern is children's opportunities, policies should focus directly on children, rather than on families or parents alone.
- Studies examining contextual variation (including economic downturns and the COVID-19 pandemic) show that external shocks rarely reshape inequality patterns fundamentally, but do reveal structural inequalities that may otherwise remain hidden.
- Policies are rarely implemented in a vacuum, and one should pay attention to spill-overs when implementing them.
- Policy effectiveness depends on informed, dynamic responses that can be verified with reliable data. We need: harmonised, longitudinal, multi-domain and register-based datasets across Europe

7. References

Akimova, Evelina T., Tobias Wolfram, Xuejie Ding, Felix C. Tropf, and Melinda C. Mills. 2025. 'Polygenic Prediction of Occupational Status GWAS Elucidates Genetic and Environmental Interplay in Intergenerational Transmission, Careers and Health in UK Biobank'. *Nature Human Behaviour* 9(2):391–405. doi:10.1038/s41562-024-02076-3.

Anger, Silke. 2012. *The Intergenerational Transmission of Cognitive and Non-Cognitive Skills during Adolescence and Young Adulthood*. *SSRN Scholarly Paper*. ID 2142491. Rochester, NY: Social Science Research Network. https://papers.ssrn.com/abstract=2142491.

Atkinson, Anthony B., and Francois Bourguignon. 2014. *Handbook of Income Distribution*. Elsevier.

Baker, David P., Paul J. Eslinger, Martin Benavides, Ellen Peters, Nathan F. Dieckmann, and Juan Leon. 2015. 'The Cognitive Impact of the Education Revolution: A Possible Cause of the Flynn Effect on Population IQ'. *Intelligence* 49:144–58. doi:10.1016/j.intell.2015.01.003.

Beller, Emily, and Michael Hout. 2006. 'Intergenerational Social Mobility: The United States in Comparative Perspective'. *Future of Children* 16(2):19–36.

Bernardi, Fabrizio, and Gabriele Ballarino. 2016. *Education, Occupation and Social Origin: A Comparative Analysis of the Transmission of Socio-Economic Inequalities*. Edward Elgar Publishing.

Bernardi, Fabrizio, William Foley, and Albert Sanchez Gelabert. 2025. *Final Report: Educational Inequalities*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.17224024.

Bernardi, Fabrizio, and Gaia Ghirardi. 2025. 'Socioeconomic Status, Genotype, and the Differential Effects of Parental Separation on Educational Attainment'. *Demography* 62(3):1109–36. doi:10.1215/00703370-11968557.

Bernardi, Fabrizio, Ilaria Lievore, and Manuel T. Valdes. 2025. 'The Geography of Tertiary Education Inequality in Europe: A within-and Cross-Country Analysis over Time'. European Societies 1–24.

Blanden, Jo, Paul Gregg, and Lindsey Macmillan. 2007. 'Accounting for Intergenerational Income Persistence: Noncognitive Skills, Ability and Education*'. The Economic Journal 117(519):C43–60. doi:10.1111/j.1468-0297.2007.02034.x.

Blossfeld, Hans-Peter. 2009. 'Educational Assortative Marriage in Comparative Perspective'. Annual Review of Sociology 35(1):513–30.

Bukodi, Erzsébet, Marii Paskov, and Brian Nolan. 2020. 'Intergenerational Class Mobility in Europe: A New Account'. Social Forces 98(3):941–72. doi:10.1093/sf/soz026.

Card, David. 1999. 'The Causal Effect of Education on Earnings'. Pp. 1801–63 in Handbook of Labor Economics. Vol. 3. Elsevier.

Chetty, Raj, John N. Friedman, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. 2018. The Opportunity Atlas: Mapping the Childhood Roots of Social

Mobility. Working Paper. 25147. Working Paper Series. National Bureau of Economic Research. doi:10.3386/w25147.

Deming, David J. 2022. 'Four Facts about Human Capital'. *Journal of Economic Perspectives* 36(3):75–102. doi:10.1257/jep.36.3.75.

Drange, Nina, and Kjetil Telle. 2020. 'Segregation in a Universal Child Care System: Descriptive Findings from Norway'. *European Sociological Review* 36(6):886–901. doi:10.1093/esr/jcaa026.

Duta, Adriana, and Cristina Iannelli. 2018. 'Social Class Inequalities in Graduates' Labour Market Outcomes: The Role of Spatial Job Opportunities'. *Social Sciences* 7(10):201. doi:10.3390/socsci7100201.

Erola, Jani, Laura Heiskala, Esa Karonen, and Elina Kilpi-Jakonen. 2025. *Inequalities in Early Childhood and Families*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.17732967.

Espadafor, Mar C., Frabrizio Bernardi, Ilaria Lievore, and Manuel T. Valdés. 2024. *Selectivity and Risks across Educational Transitions in Europe*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.10868079.

Esping-Andersen, Gøsta. 2015. 'Welfare Regimes and Social Stratification'. *Journal of European Social Policy* 25(1):124–34. doi:10.1177/0958928714556976.

Flynn, James R. 2007. *What Is Intelligence?: Beyond the Flynn Effect*. Cambridge (MA.): Cambridge University Press.

Forster, Andrea G., and Herman G. van de Werfhorst. 2020. 'Navigating Institutions: Parents' Knowledge of the Educational System and Students' Success in Education'. *European Sociological Review* 36(1):48–64. doi:10.1093/esr/jcz049.

Ghirardi, Gaia, and Fabrizio Bernardi. 2025. 'Compensating or Boosting Genetic Propensities? Gene-Family Socioeconomic Status Interactions by Educational Outcome Selectivity'. *Social Science Research* 129:103174. doi:10.1016/j.ssresearch.2025.103174.

Gruber, Jonathan, Tuomas Kosonen, and Kristiina Huttunen. 2023. 'Paying Moms to Stay Home: Short and Long Run Effects on Parents and Children'.

Heisig, Jan Paul. 2025. 'What Makes a City Attractive? Insights from the Mapineq Attractive Cities Survey – Mapineq.Eu'. https://mapineq.eu/what-makes-a-city-attractive-insights-from-the-mapineq-attractive-cities-survey/.

Heiskala, Laura, Sanna Kailaheimo-Lönnqvist, Esa Karonen, and Jani Erola. 2024. *Change in Human Capital of the Immediate Family*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.14355337.

Heiskala, Laura, Minna Tuominen, Jani Erola, and Elina Kilpi-Jakonen. 2025. 'Economic Circumstances of Children Living in Higher and Lower-Educated Families and the Contribution of Household Structure: A Cross-Country Comparison with a Child's Perspective'. *Studies of Transition States and Societies* 17(0). doi:10.58036/stss.v17i0.1375.

Helske, Satu, Jani Erola, and Jouni Helske. 2024. 'Education, Family Complexity and Heterogeneous Causal Effects of Parental Separation'.

Hertel, Florian R., and Olaf Groh-Samberg. 2019. 'The Relation between Inequality and Intergenerational Class Mobility in 39 Countries'. *American Sociological Review* 84(6):1099–1133. doi:10.1177/0003122419885094.

Hornberg, Carla, Jan Paul Heisig, and Heike Solga. 2024. *Decomposition of between and Within-Country (Regional) Differences in the Labour Market Attainment of Young Adults*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.13364399.

Jäntti, Markus. 2025. *Intra-Generational Occupational Mobility in Prime Age*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.14627500.

Jäntti, Markus, and Esa Karonen. 2025. *Parental Income and the Achievement of the Higher Education in Sweden and Finland*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.15267325.

Karonen, Esa, and Ilaria Lievore. 2023. *Attitudes toward Equality of Outcomes and Opportunities: A within-Country Analysis*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.10401626.

Kilpi-Jakonen, Elina, Minna Tuominen, Alessandro Ferrara, and Francesca Borgonovi. 2024. *Changes in Inequalities Related to the COVID-19 Pandemic*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.14204806.

König, Christian, Thomas Biegert, Jan Paul Heisig, and Heike Solga. 2025. *Explorative Analysis of the Short- and Longer-Term Effects of Economic Conditions at Labor Market Entry on Leaving the Parental Home and Family Formation*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.15585190.

Krapohl, Eva, Kaili Rimfeld, Nicholas G. Shakeshaft, Maciej Trzaskowski, Andrew McMillan, Jean-Baptiste Pingault, Kathryn Asbury, Nicole Harlaar, Yulia Kovas, Philip S. Dale, and Robert Plomin. 2014. 'The High Heritability of Educational Achievement Reflects Many Genetically Influenced Traits, Not Just Intelligence'. *Proceedings of the National Academy of Sciences* 111(42):15273–78. doi:10.1073/pnas.1408777111.

Lehti, Hannu, Minna Tuominen, Elina Kilpi-Jakonen, and Jani Erola. 2023. *Educational Attainment and Family Composition across Generations, Origin and Place*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.10410735.

Malanchini, Margherita, Andrea G. Allegrini, Michel G. Nivard, Pietro Biroli, Kaili Rimfeld, Rosa Cheesman, Sophie von Stumm, Perline A. Demange, Elsje van Bergen, Andrew D. Grotzinger, Laurel Raffington, Javier De la Fuente, Jean-Baptiste Pingault, Elliot M. Tucker-Drob, K. Paige Harden, and Robert Plomin. 2024. 'Genetic Associations between Non-Cognitive Skills and Academic Achievement over Development'. *Nature Human Behaviour* 8(10):2034–46. doi:10.1038/s41562-024-01967-9.

McMullin, Patricia, Aleksi Karhula, Elina Kilpi-Jakonen, and Jani Erola. 2021. 'Geographical Mobility and Children's Non-Completion of Upper Secondary Education in Finland and Germany: Do Parental Resources Matter?' *British Educational Research Journal* 47(6):1587–1610. doi:10.1002/berj.3745.

Milanovic, Branko. 2016. *Global Inequality*. Harvard: Harvard University Press.

Funded by the European Union

Mills, Melinda C., and Douglas Leasure. 2024. *Mapineq Link: Geospatial Dashboard and Database*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.13864000.

Mills, Melinda C., and Felix C. Tropf. 2020. 'Sociology, Genetics, and the Coming of Age of Sociogenomics'. *Annual Review of Sociology* 46(1):553–81. doi:10.1146/annurev-soc-121919-054756.

Piketty, Thomas. 2014. *Capital in the Twenty First Century*. Belknap Press.

Psacharopoulos, George, and Harry Anthony Patrinos. 2004. 'Returns to Investment in Education: A Further Update'. *Education Economics* 12(2):111–34. doi:10.1080/0964529042000239140.

Täht, Kadri, and Marge Unt. 2025. *Late-Career Inequalities in Europe: Employment, Health, and the Role of Institutions*. Mapineq deliverables. Turku: INVEST Research Flagship Centre / University of Turku. doi:10.5281/zenodo.17225461.

UN News. 2020. 'Rising Inequality Affecting More than Two-Thirds of the Globe, but It's Not Inevitable: New UN Report'. https://news.un.org/en/story/2020/01/1055681.

Valdés, Manuel T., Mar C. Espadafor, and Risto Conte Keivabu. 2025. 'Can a Low Emission Zone Improve Academic Performance? Evidence from a Natural Experiment in the City of Madrid'. *Population and Environment* 47(1):8. doi:10.1007/s11111-025-00477-8.

Vono de Vilhena, Daniela. 2025. 'What Makes a City Attractive? Insights from the Mapineq Attractive Cities Survey'. doi:10.5281/zenodo.15682338.

Wang, Hua, and Barry Wellman. 2010. 'Social Connectivity in America: Changes in Adult Friendship Network Size From 2002 to 2007'. *American Behavioral Scientist* 53(8):1148–69. doi:10.1177/0002764209356247.

Wilkinson, Richard G., and Kate Pickett. 2009. *The Spirit Level: Why More Equal Societies Almost Always Do Better*. Allen Lane.

Funded by the European Union