

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

- | | |
|-------------------------------------|--|
| n/a | Confirmed |
| ☐ | ☒ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement |
| ☒ | ☐ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly |
| ☐ | ☒ The statistical test(s) used AND whether they are one- or two-sided
<i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i> |
| ☐ | ☒ A description of all covariates tested |
| ☐ | ☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons |
| ☐ | ☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals) |
| ☐ | ☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
<i>Give P values as exact values whenever suitable.</i> |
| ☒ | ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings |
| ☒ | ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes |
| ☒ | ☐ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated |

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

- | | |
|-----------------|--|
| Data collection | Researchers were not involved in data collection. The data used in the study are derived from restricted-access administrative records from national statistical agencies. The project focuses on drawing high-level insights about demographic groups of people, rather than individuals. |
| Data analysis | We used the statistical software Stata (v.18.0) for our data analyses. The code that supports the findings of this study is available on the Open Science Framework repository (https://doi.org/10.17605/osf.io/tjeun). |

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

The data used in this study are available on the Open Science Framework repository (<https://doi.org/10.17605/osf.io/tjeun>).

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender

The main analyses present results for pooled samples of men and women. Additional analyses presented in the Extended Data and Supplementary Information report results separately for men and women.

Reporting on race, ethnicity, or other socially relevant groupings

In five countries (Canada, Denmark, Netherlands, Norway, and Sweden), we can identify the country of birth of individuals and their parents. Immigrants are defined as persons who were born abroad, while children of immigrants are defined as persons who were born in their current country of residence to two foreign-born parents; both groups are compared to natives, defined as individuals who were born in their country of residence and had at least one native-born parent. In three countries (France, Spain, and the United States), only an individual's country of birth is available (i.e., information on their parents' country of birth is not available), allowing us to compare immigrants (i.e., those born abroad) to natives (in this case, those born in their country of residence). For Germany, information on the country of birth is unavailable, and so we identify immigrants and children of immigrants using longitudinal data on citizenship status, nationality, and name-based information derived from social security records. See country-specific information in Supplementary Information for details. The results reported in the main analysis adjusts for sex, age, educational attainment, and geographic region of employment.

Population characteristics

See description of "Behavioural & social sciences study design" below.

Recruitment

No participants were recruited for this study.

Ethics oversight

This research was conducted following University of California, Irvine regulations for the ethical conduct of research (Protocol #5287). We followed the relevant guidance and country-specific regulations to ensure the confidentiality and privacy of the administrative records used to create the publicly available meta-analytic data. Access to country-specific administrative records was authorized by: Statistics Canada (Canada); Statistics Denmark (Denmark); the French Comité du Secret Statistique (France); the German Institute for Employment Research (Germany); the Central Bureau of Statistics of the Netherlands (Netherlands); Statistics Norway (Norway); the Ministry of Labor, Migration and Social Security of Spain (Spain); Statistics Sweden (Sweden); and the U.S. Census Bureau (United States of America). The U.S. Census Bureau has ensured appropriate access and use of confidential data and has reviewed these results for disclosure avoidance protection (Project 7526852: CBDRB-FY2022-CES010-014, CBDRB-FY23-CES014-017, CBDRB-FY25-CES005-004).

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences

☒ Behavioural & social sciences

☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description

This is a quantitative study which analyses the overall and within-industry, within-occupation, within-establishment, and within-job immigrant--native pay differences in nine countries.

Research sample

Workers aged 25--60 years in Canada, Denmark, France, Germany, the Netherlands, Norway, Spain, Sweden, and the United States.

Sampling strategy

We created and analyzed a public-use dataset containing information about the overall and within-industry, within-occupation, within-establishment, and within-job immigrant--native pay differences in Canada, Denmark, France, Germany, the Netherlands, Norway, Spain, Sweden, and the United States.

Data collection

Researchers were not involved in collecting data from individual workers. Researchers created a public-use dataset from restricted-access administrative records from Canada, Denmark, France, Germany, the Netherlands, Norway, Spain, Sweden, and the United States.

Timing

We created our public use meta-analytic dataset from the most recent annual administrative records from each country at the start of the study. These data cover the years 2016 (Canada), 2017 (Germany, United States of America), 2018 (France, Spain, Sweden), and 2019 (Denmark, Netherlands, Norway).

Data exclusions

No valid data were excluded; see Methods section and country-specific descriptions in the Supplementary Information for details.

Non-participation

Because our data are derived from administrative records, non-participation is not an issue.

Randomization

This is not a randomized controlled trial and participants were not randomized into experimental groups. This is an observational study comparing differences in pay between immigrants, children of immigrants, and natives who work in the same occupation for the

same employer (i.e., occupy the same job), where randomization was not feasible. Key findings are robust to the use of different subsamples; alternative job definitions, covariate adjustments, and sample restrictions; and an alternative longitudinal modeling strategy; see the Methods, Extended Data, and Supplementary Information for details.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☒	☐ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Plants

Seed stocks	Report on the source of all seed stocks or other plant material used. If applicable, state the seed stock centre and catalogue number. If plant specimens were collected from the field, describe the collection location, date and sampling procedures.
Novel plant genotypes	Describe the methods by which all novel plant genotypes were produced. This includes those generated by transgenic approaches, gene editing, chemical/radiation-based mutagenesis and hybridization. For transgenic lines, describe the transformation method, the number of independent lines analyzed and the generation upon which experiments were performed. For gene-edited lines, describe the editor used, the endogenous sequence targeted for editing, the targeting guide RNA sequence (if applicable) and how the editor was applied.
Authentication	Describe any authentication procedures for each seed stock used or novel genotype generated. Describe any experiments used to assess the effect of a mutation and, where applicable, how potential secondary effects (e.g. second site T-DNA insertions, mosaicism, off-target gene editing) were examined.