Supplementary materials for paper

# Long-term heterogeneity in immigrant naturalisation: the conditional relevance of civic integration and dual citizenship

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**Annex 1. Data and operationalization**

Summary of selection criteria of the study populations in three destination countries:

- Residents of Denmark, the Netherlands and Sweden between 1997 and 2015 who:
    - Were born abroad
    - Whose both parents were born abroad
    - Arrived in the years 1994-2001
    - Are at least 18 years old upon arrival
    - Are not a citizen of the destination country upon arrival
    - Resided at least two years in the destination country
    - Are observed annually from the third year since migration onwards and up to 14 years (cohort 2001) to 21 years (cohort 1994) since migration.

Notes on operationalisation of time-dependent variables (i.e. measured dynamically for each specific observation year):

- *Partner*: we distinguish between migrants with no registered partner, on the one hand, and those with, respectively, either a native-born partner, a foreign-born naturalised partner or a foreign-born non-naturalised partner. We distinguish the foreign-born partner by citizenship status in order to capture household dynamics of naturalisation, as married migrants often naturalise together (Helgertz and Bevelander 2017).
- *Employment*: measured dichotomously as being employed or unemployed, with no working hours threshold (i.e., employed individuals are categorised irrespective of the number of hours they work per week at that time; individuals who are registered as self-employed at the moment of measurement are categorised as employed).
- *EU*: binary variable capturing whether (1) or not (0) in a particular year, a country is a member state of the European Union or one of the associated states with which the EU shares a free movement regime: Iceland, Norway, and Switzerland.
- *Human development*: Human Development Index, which is a three-dimensional measurement of the socio-economic conditions in a country, based on indicators for health, knowledge and standards of living. The composite index provides a score from 0 to 1, where a higher score equals greater development (World Bank 2018).
- *Civic integration*: This is a dummy that is set to unity (1) when civic integration is a requirement for immigrant naturalisation. Civic integration requirements are understood as formal tests of language capabilities and knowledge of the host society. Two of the countries in our study, Denmark and the Netherlands, have had such requirements during parts of the observation period. While the civic knowledge part of the exam is broadly comparable in both countries, focusing on customs, history, and culture, different levels of language proficiency are required. The dummy has a value

one when civic integration requirements are in place, irrespective of the linguistic difficulty of the test. The specific measurements for both countries are as follows:

- In Denmark, from May 2002, an examination certificate proving knowledge of the Danish language, society, culture and history became a requirement for naturalisation. The language test was at Danish level 2, comparable to level B1 of the Common European Framework of Reference for Languages (CEFR) (Ersbøll, 2015: 24-25). Our data from administrative registers do not provide information on the date of application for citizenship. However, given very long processing time and further delays due to the biannual Naturalisation Acts of Parliament, we assume that immigrants who are registered as having acquired Danish citizenship up to 1 January 2004 will have filed their application prior to the policy change. As such, the civic integration dummy has a value of 1 (one) from the observation year 2005 onwards.
- In the Netherlands, a formal civic integration test is required for applications for citizenship from April 2003 onwards. The examination includes, besides knowledge of the Dutch society, culture and history, a language test at level A2 of the CERF. Our data from administrative registers do not provide information on the date of application for citizenship. However, since applications for Dutch citizenship are processed on average after six months but can take up to one year (Böcker and van Oers, 2013: 4) *and* because a peak in applications prior to the policy change resulted in a backlog (IND 2008: 22), we assume that all immigrants newly registered as Dutch citizens from 1 January 2004 onwards (our annual observation moment) are likely to have done so under the liberal pre-reform conditions. The civic integration dummy is thus set to 1 (one) from the observation year 2005 onwards.

- *Dual citizenship*: dyadic coding of dual citizenship acceptance based on information on the citizenship policy in the origin and the destination country, as well as individual circumstances. For origin country dual citizenship policy, this information is derived from the MACIMIDE Global Expatriate Dual Citizenship Dataset (Vink et al 2015), which provides detailed information on nearly all countries in the world over time regarding the loss or renunciation of citizenship after a citizen of a state voluntarily acquires the citizenship of another state. We use the variable 'dualcit_grouped' from the MACIMIDE dataset and combine this with the dual citizenship policies in the three destination countries of our study as summarised in Table A7. The information is dichotomised as follows:
  - No dual citizenship possible (0): for those migrants who automatically lose their origin citizenship upon naturalisation abroad (dualcit_grouped=1) *or* those who are required to renounce their origin citizenship due to a destination country renunciation requirement (observation years DK: 1997-2015; NL for immigrants without citizen partner: 1999-2015; SE: 1997-2001);
  - Dual citizenship possible (1): for those migrants who *either* do not lose their citizenship due to origin country regulations (dualcit_grouped=2) *and* are not required to renounce it by the destination country (observation years NL for

immigrants without citizen partner: 1997-1998; for immigrants with citizen partner: 1997-2015; SE: 2002-2015), *or* those who are from countries that do not allow the renunciation of their citizenship (dualcit_grouped=3).

- *Employment rate:* measures the percentage of employed persons (working at least one hour for pay or profit during the reference week or who were temporarily absent from such work) in relation to the total labour force (active population) aged 20-64 in a given year in a country. The data are drawn from Eurostat (2020).
- *Vote share of far-right parties:* measures the vote share of far-right parties with at least one elected representative in a country in the latest general election. Identification of far-right parties based on Cohen (2019); data from European Election Database (https://nsd.no/european_election_database/about/about_data.html) and national election sources.

Summary statistics on period controls: employment rate as a percentage of the total labour force (active population) aged 20-64 and electoral support for far-right parties.

| | Employment rate (% total labour force) | | | Electoral support for far-right parties (% of votes) | | |
|---|---|---|---|---|---|---|
| | DK | NL | SE | DK | NL | SE |
| 1997 | 94.5 | 95.1 | 90.0 | 6.4 | 2.5 | 0 |
| 1998 | 94.9 | 96.2 | 91.4 | 9.8 | 0.6 | 0.4 |
| 1999 | 94.7 | 97.0 | 92.8 | 9.8 | 0.6 | 0.4 |
| 2000 | 95.5 | 97.5 | 94.7 | 9.8 | 0.6 | 0.4 |
| 2001 | 95.6 | 98.1 | 95.6 | 12.0 | 0.6 | 0.4 |
| 2002 | 95.5 | 97.6 | 95.4 | 12.0 | 18.6 | 1.4 |
| 2003 | 94.8 | 96.7 | 94.7 | 12.0 | 6.1 | 1.4 |
| 2004 | 94.6 | 95.8 | 94.0 | 12.0 | 6.1 | 1.4 |
| 2005 | 95.4 | 94.6 | 93.4 | 13.2 | 6.1 | 1.4 |
| 2006 | 96.5 | 95.5 | 93.9 | 13.2 | 6.1 | 1.5 |
| 2007 | 96.6 | 96.4 | 94.9 | 13.9 | 6.1 | 1.5 |
| 2008 | 96.9 | 96.9 | 94.9 | 13.9 | 6.1 | 1.5 |
| 2009 | 94.2 | 96.2 | 92.7 | 13.9 | 6.1 | 1.5 |
| 2010 | 92.9 | 95.6 | 92.4 | 13.9 | 15.4 | 5.7 |
| 2011 | 93.0 | 95.6 | 93.1 | 12.3 | 15.4 | 5.7 |
| 2012 | 92.8 | 94.8 | 92.9 | 12.3 | 10.1 | 5.7 |
| 2013 | 93.1 | 93.3 | 92.9 | 12.3 | 10.1 | 5.7 |
| 2014 | 93.5 | 93.1 | 93.3 | 12.3 | 10.1 | 12.9 |
| 2015 | 94.0 | 93.6 | 93.7 | 21.1 | 10.1 | 12.9 |

Sources: Eurostat, European Election Database and national election sources.

Notes on operationalisation of time-independent variables:

- *Origin region*: Country or world region of birth. Due to privacy regulations imposed by Statics Sweden, in Sweden, the data we received is grouped by origin region for all origin countries apart from those individual countries with the largest numbers of migrants. To ensure comparability, we group origin countries into similar origin regions in Denmark and the Netherlands as those groupings allowed by the Swedish data. These are: Africa, Asia, South America, North America & Oceania, Europe, (former) Yugoslavia, Poland, Turkey, Germany, Nordic Union.
- *Highest achieved level of education*: operationalised as follows: low educated individuals received only primary or lower secondary education. Middle educated individuals include those with upper secondary, post-secondary and high vocational education, and highly educated individuals finished a postgraduate education or higher. While the level of education technically varies over time within individuals, variation in the host country among foreign-born individuals who migrated after the age of eighteen is minimal. Moreover, registered education data may be based on information from large-scale surveys in specific observation years. We thus focus on the highest achieved education as registered in any observation year. Information on education is missing for substantial groups in Denmark (12%), the Netherlands (41%), and Sweden (13%); in the Cox regression models we include these 'education unknown' groups as a specific category. See also robustness checks for the Netherlands (Tables A15-A16).

Citations (not in reference list of paper):

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Cohen D (2019). Between strategy and protest: how policy demand, political dissatisfaction and strategic incentives matter for far-right voting. *Political Science Research and Methods* 1–15.

Eurostat (2020). Unemployment by sex and age – annual data. Luxembourg: Statline. https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=une_rt_a&lang=en.

Immigratie- en Naturalisatiedienst [IND] (2008). Trendrapportage Naturalisatie 2001-2007. IND Informatie- en Analysecentrum (INDIAC).

PopuList (2020). Vote share of populist, far-right and far-left parties by country. https://popu-list.org/explore-data/.

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World Bank (2018). World Development Indicators database. Washington, DC. http://data.worldbank.org.

**Table A1**. Full sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 20.49 | 36.23 | 51.11 |
| | No | 79.51 | 63.77 | 48.99 |
| Gender | Male | 45.09 | 47.10 | 47.20 |
| | Female | 54.91 | 52.90 | 52.80 |
| Age at migration | 18-30 | 57.52 | 47.81 | 46.75 |
| | 31-40 | 25.07 | 31.19 | 27.27 |
| | 41+ | 17.42 | 21.00 | 25.98 |
| Partner | No partner | 30.31 | 35.30 | 36.71 |
| | Foreign-born foreign partner | 37.63 | 24.20 | 30.92 |
| | Foreign-born naturalised partner | 11.75 | 17.58 | 14.36 |
| | Native-born partner | 20.30 | 22.92 | 18.01 |
| Children < 18 in the household | Yes | 63.06 | 47.11 | 46.67 |
| | No | 36.94 | 52.89 | 53.33 |
| (CPI-adjusted) Log Income from labour | No employment | 50.04 | 52.89 | 44.57 |
| | Lowest quartile | 14.41 | 11.35 | 17.54 |
| | Second quartile | 14.76 | 10.56 | 14.95 |
| | Third quartile | 11.61 | 10.00 | 10.66 |
| | Highest quartile | 9.18 | 12.27 | 12.29 |
| | Unknown | | 2.92 | |
| Highest level of education | Low | 22.03 | 31.22 | 30.18 |
| | Middle | 36.26 | 15.83 | 27.54 |
| | High | 29.27 | 12.21 | 29.73 |
| | Unknown | 12.44 | 40.73 | 12.55 |
| Dual citizenship acceptance | Yes | 4.88 | 38.78 | 43.72 |
| | No | 95.12 | 61.22 | 56.28 |
| Civic integration condition | Yes | 57.59 | 50.86 | |
| | No | 42.41 | 49.14 | |

| | | | | |
|---|---|---|---|---|
| Asylum motive | Yes | 17.49 | 17.08 | 23.17 |
| | No | 39.58 | 76.76 | 58.39 |
| | Unknown | 42.93 | 6.16 | 18.44 |
| EU country of origin | Yes | 23.11 | 27.88 | 34.98 |
| | No | 76.89 | 72.12 | 65.02 |
| Origin regions | Africa | 11.26 | 19.47 | 4.68 |
| | Asia | 30.37 | 22.68 | 24.31 |
| | S America | 1.15 | 3.45 | 3.63 |
| | N America & Oceania | 2.93 | 3.37 | 4.26 |
| | Europe | 13.71 | 21.68 | 20.27 |
| | (fm-)Yugoslavia | 18.81 | 5.08 | 18.09 |
| | Poland | 1.79 | 2.05 | 3.16 |
| | Turkey | 7.16 | 12.41 | 2.85 |
| | Germany | 4.04 | 7.53 | 4.41 |
| | Nordic | 8.74 | 2.27 | 14.34 |
| HDI score country of origin | High | 26.13 | 29.62 | 34.99 |
| | Low | 26.13 | 70.38 | 65.01 |
| Immigration cohort | 1994 | 8.43 | 8.16 | 20.28 |
| | 1995 | 18.94 | 10.12 | 12.75 |
| | 1996 | 13.92 | 12.13 | 10.31 |
| | 1997 | 11.23 | 12.59 | 10.54 |
| | 1998 | 11.68 | 13.70 | 11.19 |
| | 1999 | 10.81 | 13.11 | 10.62 |
| | 2000 | 12.07 | 15.19 | 12.26 |
| | 2001 | 12.92 | 14.98 | 12.05 |
| | | Obs = 1,019,887 | Obs = 2,149,389 | Obs = 1,155,348 |
| | | N = 110,552 | N = 334,613 | N = 197,315 |

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.

**Table A2**. EU sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 2.74 | 4.84 | 22.61 |
| | No | 97.26 | 95.16 | 77.39 |
| Gender | Male | 48.25 | 46.85 | 51.90 |
| | Female | 51.75 | 53.15 | 48.10 |
| Age at migration | 18-30 | 60.22 | 41.42 | 46.35 |
| | 31-40 | 23.82 | 33.86 | 27.48 |
| | 41+ | 15.96 | 24.72 | 26.17 |
| Partner | No partner | 33.25 | 33.73 | 42.61 |
| | Foreign-born foreign partner | 25.31 | 23.37 | 22.31 |
| | Foreign-born naturalised partner | 1.97 | 3.62 | 5.11 |
| | Native-born partner | 39.47 | 39.29 | 29.98 |
| Children < 18 in the household | Yes | 54.74 | 38.45 | 41.97 |
| | No | 45.26 | 61.55 | 58.03 |
| (CPI-adjusted) Log Income from labour | No employment | 33.55 | 37.69 | 33.76 |
| | Lowest quartile | 15.70 | 10.15 | 12.29 |
| | Second quartile | 14.34 | 10.68 | 13.68 |
| | Third quartile | 15.66 | 13.42 | 14.83 |
| | Highest quartile | 20.74 | 26.31 | 25.44 |
| | Unknown | | 1.75 | |
| Highest level of education | Low | 5.67 | 10.66 | 22.53 |
| | Middle | 33.43 | 13.51 | 24.83 |
| | High | 45.01 | 16.45 | 40.60 |
| | Unknown | 15.88 | 59.37 | 12.04 |
| Dual citizenship acceptance | Yes | 2.11 | 35.85 | 52.47 |
| | No | 97.89 | 64.15 | 47.53 |
| Civic integration condition | Yes | 56.45 | 54.81 | |
| | No | 43.55 | 45.19 | |
| Asylum motive | Yes | 0.04 | 0.17 | 0.29 |

| | | | | |
|---|---|---|---|---|
| | No | 43.06 | 93.17 | 51.22 |
| | Unknown | 56.90 | 6.67 | 48.49 |
| EU (origin) | Yes | 100 | 100 | 100 |
| | No | 0 | 0 | 0 |
| Origin regions | Africa | 0 | 0 | 0 |
| | Asia | 0 | 0 | 0 |
| | S America | 0 | 0 | 0 |
| | N America & Oceania | 0 | 0 | 0 |
| | Europe | 39.87 | 59.76 | 40.10 |
| | (fm-)Yugoslavia | 0 | 0 | 0 |
| | Poland | 4.73 | 5.07 | 5.57 |
| | Turkey | 0 | 0 | 0 |
| | Germany | 17.56 | 27.03 | 12.60 |
| | Nordic | 37.80 | 8.14 | 41.72 |
| HDI (origin) | High | 90.02 | 89.57 | 87.65 |
| | Low | 9.98 | 10.43 | 12.35 |
| Immigration cohort | 1994 | 12.82 | 8.67 | 11.53 |
| | 1995 | 11.86 | 10.81 | 11.83 |
| | 1996 | 13.26 | 13.27 | 11.60 |
| | 1997 | 12.63 | 13.64 | 10.05 |
| | 1998 | 12.70 | 13.69 | 11.90 |
| | 1999 | 11.84 | 13.71 | 12.37 |
| | 2000 | 11.75 | 13.28 | 15.03 |
| | 2001 | 13.14 | 12.94 | 15.68 |
| Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden. | | Obs = 235,675<br>N = 36,753 | Obs = 605,544<br>N = 79,199 | Obs = 404,141<br>N = 64,021 |

**Table A3**. Non-EU sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 25.82 | 48.37 | 66.72 |
| | No | 74.18 | 51.63 | 33.28 |
| Gender | Male | 44.14 | 47.19 | 44.68 |
| | Female | 55.86 | 52.81 | 55.32 |
| Age at migration | 18-30 | 56.70 | 50.28 | 46.96 |
| | 31-40 | 25.44 | 30.16 | 27.16 |
| | 41+ | 17.86 | 19.56 | 25.88 |
| Partner | No partner | 29.43 | 35.91 | 33.54 |
| | Foreign-born foreign partner | 41.34 | 24.52 | 35.55 |
| | Foreign-born naturalised partner | 14.69 | 22.98 | 19.34 |
| | Native-born partner | 14.55 | 16.59 | 11.57 |
| Children < 18 in the household | Yes | 65.56 | 50.46 | 50.17 |
| | No | 34.44 | 49.54 | 49.83 |
| (CPI-adjusted) Log Income from labour | No employment | 55.00 | 58.76 | 50.38 |
| | Lowest quartile | 14.02 | 11.82 | 20.36 |
| | Second quartile | 14.89 | 10.52 | 15.63 |
| | Third quartile | 10.39 | 8.69 | 8.41 |
| | Highest quartile | 5.71 | 6.84 | 5.22 |
| | Unknown | | 3.38 | |
| Highest level of education | Low | 26.94 | 39.16 | 34.30 |
| | Middle | 37.11 | 16.73 | 28.99 |
| | High | 24.54 | 10.58 | 23.88 |
| | Unknown | 11.41 | 33.53 | 12.83 |
| Dual citizenship acceptance | Yes | 5.71 | 39.91 | 39.07 |
| | No | 94.29 | 60.09 | 60.93 |
| Civic integration condition | Yes | 57.94 | 49.34 | |
| | No | 42.06 | 50.66 | |
| Asylum motive | Yes | 17.49 | 23.61 | 35.47 |

| | | | | |
|---|---|---|---|---|
| | No | 39.58 | 70.42 | 62.26 |
| | Unknown | 42.93 | 5.96 | 2.28 |
| EU (origin) | Yes | 0 | 0 | 0 |
| | No | 100 | 100 | 100 |
| Origin regions | Africa | 14.65 | 27.00 | 7.20 |
| | Asia | 39.51 | 31.44 | 37.39 |
| | S America | 1.50 | 4.78 | 5.58 |
| | N America & Oceania | 3.81 | 4.68 | 6.56 |
| | Europe | 5.85 | 6.96 | 9.22 |
| | (fm-)Yugoslavia | 24.46 | 7.05 | 27.76 |
| | Poland | 0.90 | 0.89 | 1.92 |
| | Turkey | 9.32 | 17.20 | 4.38 |
| | Germany | 0 | 0 | 0 |
| | Nordic | 0 | 0 | 0 |
| HDI (origin) | High | 4.88 | 6.44 | 6.67 |
| | Low | 95.12 | 93.56 | 96.33 |
| Immigration cohort | 1994 | 7.11 | 8.96 | 24.99 |
| | 1995 | 21.07 | 9.86 | 13.25 |
| | 1996 | 14.12 | 11.70 | 9.62 |
| | 1997 | 10.82 | 12.19 | 10.80 |
| | 1998 | 11.37 | 13.71 | 10.80 |
| | 1999 | 10.50 | 12.89 | 9.68 |
| | 2000 | 12.16 | 15.93 | 10.77 |
| | 2001 | 12.85 | 15.77 | 10.10 |
| Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden. | | Obs = 782,244<br>N = 76,675 | Obs = 1,543,845<br>N = 260,848 | Obs = 751,207<br>N = 148,328 |

**Table A4**. Low education sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 14.52 | 47.06 | 66.49 |
| | No | 85.48 | 52.94 | 33.51 |
| Gender | Male | 39.08 | 43.28 | 48.47 |
| | Female | 60.92 | 56.72 | 51.53 |
| Age at migration | 18-30 | 59.62 | 55.25 | 47.91 |
| | 31-40 | 25.27 | 28.14 | 27.59 |
| | 41+ | 15.11 | 16.61 | 24.50 |
| Partner | No partner | 27.60 | 33.63 | 36.57 |
| | Foreign-born foreign partner | 42.32 | 25.31 | 32.83 |
| | Foreign-born naturalised partner | 16.97 | 27.20 | 17.74 |
| | Native-born partner | 13.11 | 13.86 | 12.86 |
| Children < 18 in the household | Yes | 68.62 | 58.64 | 50.22 |
| | No | 31.38 | 41.36 | 49.78 |
| (CPI-adjusted) Log Income from labour | No employment | 57.22 | 62.28 | 47.53 |
| | Lowest quartile | 13.60 | 12.55 | 20.14 |
| | Second quartile | 15.36 | 11.15 | 17.69 |
| | Third quartile | 9.93 | 7.95 | 9.81 |
| | Highest quartile | 3.30 | 3.28 | 4.83 |
| | Unknown | | 2.79 | |
| Highest level of education | Low | 100 | 100 | 100 |
| | Middle | 0 | 0 | 0 |
| | High | 0 | 0 | 0 |
| | Unknown | 0 | 0 | 0 |
| Dual citizenship acceptance | Yes | 5.95 | 43.87 | 42.51 |
| | No | 94.05 | 56.13 | 57.49 |
| Civic integration condition | Yes | 65.83 | 56.30 | |
| | No | 34.17 | 43.70 | |
| Asylum motive | Yes | 20.63 | 23.57 | 32.01 |

| | | | | |
|---|---|---|---|---|
| | No | 33.45 | 69.97 | 50.95 |
| | Unknown | 45.92 | 6.46 | 17.04 |
| EU (origin) | Yes | 5.95 | 9.52 | 26.11 |
| | No | 94.05 | 90.48 | 73.89 |
| Origin regions | Africa | 14.42 | 28.79 | 5.42 |
| | Asia | 44.20 | 25.84 | 30.26 |
| | S America | 0.49 | 1.19 | 3.83 |
| | N America & Oceania | 0.61 | 2.35 | 1.49 |
| | Europe | 3.96 | 10.10 | 12.81 |
| | (fm-)Yugoslavia | 17.38 | 5.87 | 22.56 |
| | Poland | 0.56 | 1.10 | 2.66 |
| | Turkey | 15.52 | 21.73 | 5.98 |
| | Germany | 0.68 | 2.44 | 2.30 |
| | Nordic | 2.18 | 0.59 | 12.69 |
| HDI (origin) | High | 6.76 | 8.69 | 23.86 |
| | Low | 93.24 | 91.31 | 76.14 |
| Immigration cohort | 1994 | 6.62 | 8.48 | 23.22 |
| | 1995 | 15.17 | 10.37 | 12.07 |
| | 1996 | 12.68 | 12.13 | 8.87 |
| | 1997 | 9.26 | 11.99 | 10.94 |
| | 1998 | 10.43 | 13.65 | 10.75 |
| | 1999 | 14.51 | 13.84 | 10.42 |
| | 2000 | 16.40 | 15.32 | 12.09 |
| | 2001 | 14.93 | 14.22 | 11.63 |
| Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden. | | Obs = 224,638<br>N = 17,228 | Obs = 671,039<br>N = 104,466 | Obs = 348,684<br>N = 59,550 |

**Table A5**. Middle education sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 22.50 | 49.74 | 56.55 |
| | No | 77.50 | 50.26 | 43.45 |
| Gender | Male | 46.96 | 49.39 | 49.47 |
| | Female | 53.04 | 50.61 | 50.53 |
| Age at migration | 18-30 | 61.54 | 59.86 | 52.64 |
| | 31-40 | 26.16 | 28.02 | 29.37 |
| | 41+ | 12.30 | 12.12 | 17.99 |
| Partner | No partner | 27.16 | 36.82 | 35.44 |
| | Foreign-born foreign partner | 38.24 | 20.37 | 27.85 |
| | Foreign-born naturalised partner | 13.33 | 16.23 | 17.87 |
| | Native-born partner | 20.61 | 26.59 | 18.84 |
| Children < 18 in the household | Yes | 68.69 | 49.26 | 52.64 |
| | No | 31.31 | 50.74 | 47.36 |
| (CPI-adjusted) Log Income from labour | No employment | 46.25 | 47.05 | 38.43 |
| | Lowest quartile | 14.36 | 15.40 | 20.93 |
| | Second quartile | 17.42 | 14.31 | 18.85 |
| | Third quartile | 14.07 | 12.23 | 12.49 |
| | Highest quartile | 7.89 | 7.55 | 9.31 |
| | Unknown | | 3.45 | |
| Highest level of education | Low | 0 | 0 | 0 |
| | Middle | 100 | 100 | 100 |
| | High | 0 | 0 | 0 |
| | Unknown | 0 | 0 | 0 |
| Dual citizenship acceptance | Yes | 5.24 | 40.09 | 42.46 |
| | No | 94.76 | 59.91 | 57.54 |
| Civic integration condition | Yes | 58.80 | 51.93 | |
| | No | 41.20 | 48.07 | |
| Asylum motive | Yes | 12.26 | 22.69 | 27.31 |

| | | | | |
|---|---|---|---|---|
| | No | 44.66 | 70.47 | 56.78 |
| | Unknown | 43.08 | 6.84 | 15.92 |
| EU (origin) | Yes | 21.31 | 23.79 | 31.54 |
| | No | 78.69 | 76.21 | 68.46 |
| Origin regions | Africa | 12.25 | 19.66 | 5.55 |
| | Asia | 29.08 | 24.70 | 24.57 |
| | S America | 2.56 | 2.15 | 4.26 |
| | N America & Oceania | 1.26 | 4.06 | 4.42 |
| | Europe | 12.76 | 19.35 | 17.54 |
| | (fm-)Yugoslavia | 22.09 | 7.75 | 20.99 |
| | Poland | 2.23 | 2.90 | 4.00 |
| | Turkey | 7.15 | 10.85 | 1.69 |
| | Germany | 3.93 | 6.98 | 3.78 |
| | Nordic | 6.69 | 1.59 | 13.20 |
| HDI (origin) | High | 23.87 | 23.18 | 31.51 |
| | Low | 76.13 | 76.82 | 68.49 |
| Immigration cohort | 1994 | 8.31 | 9.78 | 22.30 |
| | 1995 | 20.74 | 10.11 | 12.39 |
| | 1996 | 14.47 | 12.06 | 9.79 |
| | 1997 | 11.08 | 11.38 | 11.04 |
| | 1998 | 11.98 | 13.15 | 11.49 |
| | 1999 | 9.89 | 12.74 | 10.16 |
| | 2000 | 11.42 | 15.46 | 11.49 |
| | 2001 | 12.10 | 15.32 | 11.34 |
| Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden. | | Obs = 369,805<br>N = 32,346 | Obs = 340,248<br>N = 52,969 | Obs = 318,183<br>N = 54,341 |

**Table A6**. High education sample: descriptive statistics (cohorts 1994-2001)

| | | DK | NL | SE |
|---|---|---|---|---|
| | | Total | Total | Total |
| Naturalised | Yes | 24.49 | 41.52 | 46.55 |
| | No | 75.51 | 58.48 | 53.45 |
| Gender | Male | 46.43 | 44.37 | 46.03 |
| | Female | 53.57 | 55.63 | 53.97 |
| Age at migration | 18-30 | 58.48 | 52.87 | 52.57 |
| | 31-40 | 28.31 | 32.21 | 32.34 |
| | 41+ | 13.21 | 14.92 | 15.09 |
| Partner | No partner | 27.69 | 32.29 | 34.47 |
| | Foreign-born foreign partner | 33.82 | 22.80 | 25.76 |
| | Foreign-born naturalised partner | 8.56 | 10.66 | 11.52 |
| | Native-born partner | 29.93 | 34.25 | 28.25 |
| Children < 18 in the household | Yes | 32.40 | 44.41 | 52.88 |
| | No | 67.60 | 55.59 | 47.12 |
| (CPI-adjusted) Log Income from labour | No employment | 38.71 | 38.69 | 27.74 |
| | Lowest quartile | 16.46 | 13.91 | 18.09 |
| | Second quartile | 14.49 | 10.16 | 14.11 |
| | Third quartile | 13.15 | 11.76 | 13.68 |
| | Highest quartile | 17.20 | 22.69 | 26.38 |
| | Unknown | | 2.80 | |
| Highest level of education | Low | 0 | 0 | 0 |
| | Middle | 0 | 0 | 0 |
| | High | 100 | 100 | 100 |
| | Unknown | 0 | 0 | 0 |
| Dual citizenship acceptance | Yes | 4.27 | 37.21 | 49.11 |
| | No | 95.73 | 62.79 | 50.89 |
| Civic integration condition | Yes | 57.13 | 54.28 | |
| | No | 42.87 | 45.72 | |
| Asylum motive | Yes | 10.88 | 16.37 | 11.77 |

| | | | | |
|---|---|---|---|---|
| | No | 44.39 | 77.50 | 66.40 |
| | Unknown | 44.72 | 6.13 | 21.84 |
| EU (origin) | Yes | 35.53 | 37.55 | 47.78 |
| | No | 64.47 | 62.45 | 52.22 |
| Origin regions | Africa | 8.32 | 11.11 | 3.97 |
| | Asia | 24.91 | 25.29 | 20.42 |
| | S America | 4.70 | 4.39 | 3.60 |
| | N America & Oceania | 1.66 | 4.63 | 7.17 |
| | Europe | 22.07 | 31.56 | 28.53 |
| | (fm-)Yugoslavia | 13.11 | 3.64 | 5.82 |
| | Poland | 2.41 | 2.60 | 3.04 |
| | Turkey | 2.65 | 3.07 | 0.72 |
| | Germany | 6.25 | 10.43 | 6.84 |
| | Nordic | 13.92 | 3.28 | 19.88 |
| HDI (origin) | High | 40.17 | 40.19 | 49.89 |
| | Low | 59.83 | 59.81 | 50.11 |
| Immigration cohort | 1994 | 9.16 | 8.43 | 15.09 |
| | 1995 | 17.24 | 10.13 | 10.17 |
| | 1996 | 13.48 | 12.01 | 10.61 |
| | 1997 | 12.65 | 11.87 | 10.45 |
| | 1998 | 13.05 | 13.72 | 12.44 |
| | 1999 | 9.67 | 12.42 | 12.23 |
| | 2000 | 11.53 | 16.11 | 14.59 |
| | 2001 | 13.21 | 15.32 | 14.40 |
| Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden. | | Obs = 298,556<br>N = 28,292 | Obs = 262,440<br>N = 40,856 | Obs = 343,485<br>N = 58,662 |

**Table A7.** Main requirements for ordinary naturalisation in Denmark, the Netherlands and Sweden

| | DK | NL | SE |
|---|---|---|---|
| **Time spent in country** | | | |
| - Other | 9 years (before **2002**: 7) | 5 years | 5 years |
| - Married to citizen | 6-8 years | 3 years partner | 2-3 years |
| - Refugees | 8 years (before **2002**: 6) | 5 years | 4 years |
| - Stateless | 8 years (before **2002**: 6) | 3 years | 4 years |
| - Nordic citizens | 2 years | - | 2 years |
| **Renunciation requirement** | No (since **2015**) | Yes (since **1997**, unless NL citizen partner) | No (since **2001**) |
| **Language test** | B1 (**2006**: B2; **2002**: B1) | A2 (**2003**) | No |
| **Knowledge test** | Yes (**2002**) | Yes (**2003**) | No |
| **Criminality** (Max. waiting time after imprisonment) | Waiting period or permanent exclusion (depends on crime) | Waiting period of 5 years | Waiting period, 10 years or more (depends on crime) |
| **Economic requirement** | No social assistance within last year and not more than 6 months within the last 5 years (**2006**) | No | No |
| **Fee** (Individual application, 2019) | 1200 DKK (digital application) or 3800 DKK (in paper) | 881 Euro | 1500 SEK |

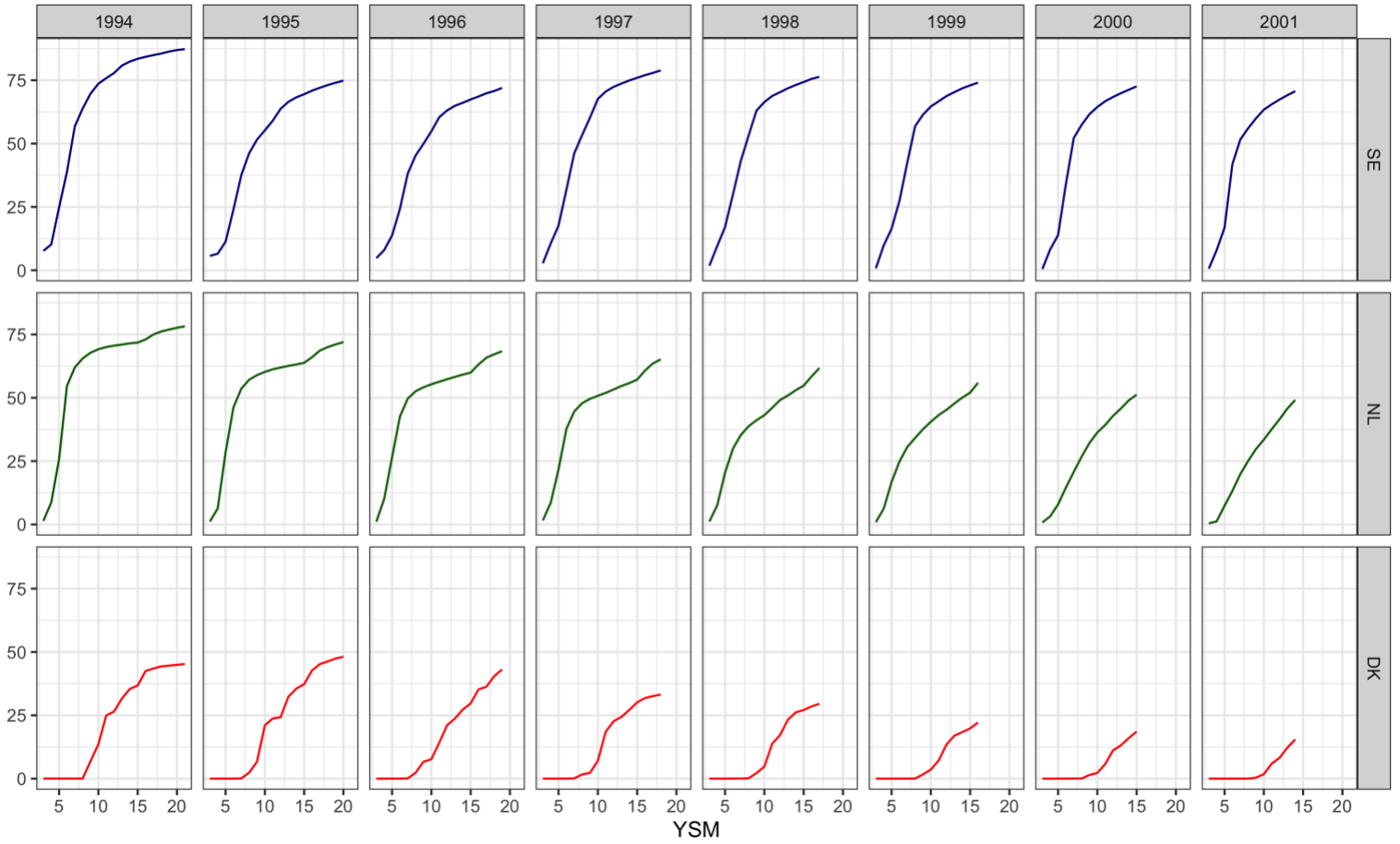


**Figure A1**. Cumulative percentage of naturalised immigrants in Denmark, the Netherlands, and Sweden by years since migration, by migration cohort. Kaplan-Meier failure function curves based on migration cohorts 1994-2001 with observation period 1997-2015.

## Annex 2. Main models

**Table A8**. Cox regression with time-dependent covariates on the risk of naturalisation (cohorts 1994-2001).

| | | DK | | | NL | | | SE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gender | Male | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Female | 1.022 | | (0.016) | 1.017 | ** | (0.006) | 1.225 | *** | (0.007) |
| Age at migration | 18-30 | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | 31-40 | 0.939 | *** | (0.016) | 0.960 | *** | (0.005) | 0.983 | *** | (0.005) |
| | 41+ | 0.676 | *** | (0.020) | 0.927 | *** | (0.007) | 0.956 | *** | (0.005) |
| Child < 18 | Yes | 1.016 | | (0.019) | 1.176 | *** | (0.007) | 1.051 | *** | (0.007) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Education | Low | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Middle | 1.705 | *** | (0.035) | 1.305 | *** | (0.009) | 1.036 | *** | (0.006) |
| | High | 2.315 | *** | (0.050) | 1.344 | *** | (0.010) | 1.048 | *** | (0.008) |
| Income | No employment | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Lowest quartile | 1.352 | *** | (0.029) | 1.330 | *** | (0.009) | 1.209 | *** | (0.008) |
| | Second quartile | 1.392 | *** | (0.028) | 1.474 | *** | (0.011) | 1.331 | *** | (0.009) |
| | Third quartile | 1.656 | *** | (0.034) | 1.581 | *** | (0.013) | 1.484 | *** | (0.013) |
| | Highest quartile | 1.784 | *** | (0.043) | 1.380 | *** | (0.014) | 1.583 | *** | (0.019) |
| Dual citizenship | Yes | 1.010 | | (0.046) | 1.267 | *** | (0.010) | 1.262 | *** | (0.007) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Civic integration | Yes | 0.307 | *** | (0.008) | 0.474 | *** | (0.003) | | | |
| | No | ref. | | ref. | ref. | | ref. | | | |
| Asylum motive | Yes | 1.538 | *** | (0.008) | 1.590 | *** | (0.010) | 1.810 | *** | (0.012) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| EU | Yes | 0.165 | *** | (0.010) | 0.099 | *** | (0.002) | 0.327 | *** | (0.006) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Observations | | 1,019,887 | | | 2,149,389 | | | 1,155,348 | | |
| N | | 110,552 | | | 334,613 | | | 197,315 | | |
| Events | | 19,991 | | | 152,118 | | | 142,775 | | |
| Log pseudolikelihood | | -148,876 | | | -1,320,827 | | | -1,093,307 | | |

**: $p < 0.01$
***: $p < 0.001$

†: Results include a control for annual employment rate and vote shares for far-right parties. All models are stratified by origin region and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.

**Table A9.** Cox regression with time-dependent covariates on the risk of naturalisation (cohorts 1994-2001), without stratification by partner status and origin country/region.

| | | DK | | | NL | | | SE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gender | Male | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Female | 0.976 | *** | (0.012) | 1.000 | | (0.006) | 1.206 | *** | (0.007) |
| Age at migration | 18-30 | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | 31-40 | 0.876 | *** | (0.014) | 0.978 | *** | (0.006) | 0.986 | *** | (0.005) |
| | 41+ | 0.576 | *** | (0.017) | 0.955 | *** | (0.007) | 0.968 | *** | (0.005) |
| Child < 18 | Yes | 1.153 | *** | (0.021) | 1.170 | *** | (0.007) | 1.064 | *** | (0.007) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Education | Low | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Middle | 1.826 | *** | (0.037) | 1.315 | *** | (0.009) | 1.037 | *** | (0.007) |
| | High | 2.521 | *** | (0.052) | 1.352 | *** | (0.010) | 1.049 | *** | (0.008) |
| Income | No employment | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| | Lowest quartile | 1.363 | *** | (0.030) | 1.329 | *** | (0.010) | 1.235 | *** | (0.008) |
| | Second quartile | 1.397 | *** | (0.029) | 1.500 | *** | (0.011) | 1.356 | *** | (0.010) |
| | Third quartile | 1.697 | *** | (0.034) | 1.599 | *** | (0.013) | 1.491 | *** | (0.014) |
| | Highest quartile | 1.759 | *** | (0.042) | 1.364 | *** | (0.014) | 1.582 | *** | (0.020) |
| Dual citizenship | Yes | 1.325 | *** | (0.054) | 1.335 | *** | (0.010) | 1.280 | *** | (0.008) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Civic integration | Yes | 0.248 | *** | (0.006) | 0.481 | *** | (0.003) | | | |
| | No | ref. | | ref. | ref. | | ref. | | | |
| Asylum motive | Yes | 1.940 | *** | (0.040) | 1.654 | *** | (0.010) | 1.863 | *** | (0.012) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| EU | Yes | 0.114 | *** | (0.004) | 0.096 | *** | (0.002) | 0.383 | *** | (0.006) |
| | No | ref. | | ref. | ref. | | ref. | ref. | | ref. |
| Observations | | 1,019,887 | | | 2,149,389 | | | 1,155,348 | | |
| N | | 110,552 | | | 334,613 | | | 197,315 | | |
| Events | | 19,991 | | | 152,118 | | | 142,775 | | |
| Log pseudolikelihood | | -208,987 | | | -1,764,506 | | | -1,483,667 | | |

***: $p < 0.001$

†: Results include a control for annual employment rate and vote share for far-right parties, origin region and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.

**Table A10.** Heterogenous effects of citizenship integration requirements in Denmark and the Netherlands on the risk of naturalisation among migrants across different subsamples, by level of education and by migrant origin.

| | | | DK | | NL | |
|---|---|---|---|---|---|---|
| Civic integration condition (ref = no civic int. condition) | Full sample | All | 0.307 | *** | 0.474 | *** |
| | | | (0.008) | | (0.003) | |
| | Subsamples | Low education | 0.225 | *** | 0.385 | *** |
| | | | (0.016) | | (0.005) | |
| | | Middle education | 0.306 | *** | 0.546 | *** |
| | | | (0.013) | | (0.007) | |
| | | High education | 0.355 | *** | 0.596 | *** |
| | | | (0.015) | | (0.009) | |
| | non-EU | All | 0.301 | *** | 0.463 | *** |
| | | | (0.008) | | (0.003) | |
| | | Low education | 0.223 | *** | 0.382 | *** |
| | | | (0.016) | | (0.005) | |
| | | Middle education | 0.298 | *** | 0.533 | *** |
| | | | (0.012) | | (0.007) | |
| | | High education | 0.350 | *** | 0.571 | *** |
| | | | (0.015) | | (0.009) | |
| | EU | All | 0.563 | *** | 0.594 | *** |
| | | | (0.085) | | (0.023) | |
| | | Low education | 0.652 | | 0.408 | *** |
| | | | (0.430) | | (0.041) | |
| | | Middle education | 0.685 | | 0.601 | *** |
| | | | (0.169) | | (0.047) | |
| | | High education | 0.528 | *** | 0.785 | ** |
| | | | (0.106) | | (0.062) | |

**: $p < 0.01$
***: $p < 0.001$

All models include controls for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, asylum migration motive, dual citizenship acceptance, EU country of origin (for full sample), annual employment rate and vote share for far-right parties. All models are stratified by origin region and partner status. Clustered standard errors in parentheses.

**Table A11. Heterogenous effects of dual citizenship acceptance on the risk of naturalization** in the Netherlands and Sweden **across different subsamples (cohorts 1994-2001).†**

| | | NL | | SE | |
|---|---|---|---|---|---|
| Dual citizenship acceptance (ref = no dual citizenship) | Full sample | 1.267 | *** | 1.262 | *** |
| | | (0.010) | | (0.007) | |
| | Non-EU | 1.250 | *** | 1.237 | *** |
| | | (0.010) | | (0.009) | |
| | EU | 1.829 | *** | 1.712 | *** |
| | | (0.099) | | (0.039) | |
| | Low HDI | 1.261 | *** | 1.253 | *** |
| | | (0.010) | | (0.009) | |
| | High HDI | 2.138 | *** | 1.922 | *** |
| | | (0.121) | | (0.052) | |

***: $p < 0.001$

†: All models include controls for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, civic integration condition, EU country of origin (for full sample), annual employment rate and vote share for far-right parties. All models are stratified by origin region and partner status. Clustered standard errors in parentheses.

**Specification: 2002 v 2006 reform in Denmark**

**Table A12**. Heterogenous effects of the introduction of civic integration requirements in Denmark on the risk of naturalisation across different subsamples, by highest levels of education.†

| | | 2002 policy change | | 2006 policy change | |
|---|---|---|---|---|---|
| Civic integration condition | Full sample | 0.307 | *** | 0.155 | *** |
| (ref = no civic integration condition) | | (0.008) | | (0.005) | |
| | Low education | 0.225 | *** | 0.087 | *** |
| | | (0.016) | | (0.008) | |
| | Middle education | 0.306 | *** | 0.151 | *** |
| | | (0.013) | | (0.008) | |
| | High education | 0.355 | *** | 0.152 | *** |
| | | (0.015) | | (0.008) | |

***: $p < 0.001$

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties. All models are stratified by origin region and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark

## Annex 3. Robustness checks

In this Annex we include the results for the respective robustness checks reported in the paper.

## Robustness check right-censoring / selective out-migration

**Table A13**. Heterogenous effects of the introduction of civic integration requirements in Denmark and the Netherlands and of dual citizenship acceptance in the Netherlands and Sweden on the risk of naturalisation across different subsamples Population includes only migrants who are resident in the destination country for the entire observation period.†

| | | DK | | NL | | SE | |
|---|---|---|---|---|---|---|---|
| Civic integration condition | Full sample | 0.309 | *** | 0.473 | *** | | |
| (ref = no civic integration condition) | | (0.009) | | (0.004) | | | |
| | Low education | 0.215 | *** | 0.370 | *** | | |
| | | (0.018) | | (0.005) | | | |
| | Middle education | 0.312 | *** | 0.536 | *** | | |
| | | (0.014) | | (0.008) | | | |
| | High education | 0.357 | *** | 0.611 | *** | | |
| | | (0.017) | | (0.010) | | | |
| Dual citizenship acceptance | Full sample | | | 1.315 | *** | 1.251 | *** |
| (ref = no dual citizenship) | | | | (0.012) | | (0.008) | |
| | Non-EU | | | 1.295 | *** | 1.224 | *** |
| | | | | (0.012) | | (0.010) | |
| | EU | | | 1.804 | *** | 1.814 | *** |
| | | | | (0.102) | | (0.048) | |
| | Low HDI | | | 1.310 | *** | 1.243 | *** |
| | | | | (0.012) | | (0.010) | |
| | High HDI | | | 2.074 | *** | 2.994 | *** |
| | | | | (0.124) | | (0.062) | |

***: $p < 0.001$

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties. All models are stratified by origin region and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.

## Robustness check 'eligibility': only eligible migrants (conservative at-risk population)

**Table A14**. Heterogenous effects of the introduction of civic integration requirements in Denmark and the Netherlands and of dual citizenship acceptance in the Netherlands and Sweden on the risk of naturalisation across different subsamples, by level of education and country of birth. The population includes only migrants eligible to naturalise.†

| | | DK | | NL | | SE | |
|---|---|---|---|---|---|---|---|
| Civic integration condition | Full sample | 0.262 | *** | 0.506 | *** | | |
| (ref = no civic integration condition) | | (0.008) | | (0.003) | | | |
| | Low education | 0.214 | *** | 0.407 | *** | | |
| | | (0.017) | | (0.005) | | | |
| | Middle education | 0.278 | *** | 0.584 | *** | | |
| | | (0.014) | | (0.008) | | | |
| | High education | 0.274 | *** | 0.643 | *** | | |
| | | (0.014) | | (0.010) | | | |
| Dual citizenship acceptance | Full sample | | | 1.256 | *** | 1.210 | *** |
| (ref = no dual citizenship) | | | | (0.010) | | (0.007) | |
| | Non-EU | | | 1.234 | *** | 1.184 | *** |
| | | | | (0.011) | | (0.007) | |
| | EU | | | 1.897 | *** | 1.726 | *** |
| | | | | (0.109) | | (0.041) | |
| | Low HDI | | | 1.250 | *** | 1.206 | *** |
| | | | | (0.010) | | (0.008) | |
| | High HDI | | | 2.171 | *** | 2.002 | *** |
| | | | | (0.130) | | (0.061) | |

***: $p < 0.001$

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties. All models are stratified by origin regions and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.

**Robustness tests for missing observations 'education' variable in the Netherlands**

In the Netherlands, for 40% of observations we do not have information on the highest educational attainment of a person. In order to test the extent to which these missing observations bias our results, we impute educational attainment based on the following observed characteristics:

- Gender
- Age at migration
- YSM
- Partner
- Children
- Employment/income quartiles
- HDI (in deciles)
- Asylum
- EU
- Censoring (deregistration within the observation period)

Imputation results in the following distribution of educational attainment across all observations in the Netherlands:

**Table A15**. Distribution of observations by highest educational attainment, without and with imputation of missing observations for education, in the Netherlands

| | No imputation | | | Imputation | | |
|---|---|---|---|---|---|---|
| Highest level of education | Total | EU | Non-EU | Total | EU | Non-EU |
| Low | 31.22 | 10.66 | 39.16 | 48.93 | 27.14 | 57.56 |
| Middle | 15.83 | 13.51 | 16.73 | 26.86 | 31.03 | 24.33 |
| High | 12.21 | 16.45 | 10.58 | 24.22 | 41.83 | 18.11 |
| Unknown | 40.73 | 59.37 | 33.53 | | | |

**Table A16**. Heterogenous effects of citizenship integration requirements and dual citizenship in the Netherlands on the risk of naturalisation, by level of education and migrant origin. Model 1 controls for 'unknown' education category; model 2 includes imputed data for unknown educational attainment. †

| | | Control unknown education | | Imputation unknown education | |
|---|---|---|---|---|---|
| Civic integration condition | Full sample | 0.474 | *** | 0.489 | *** |
| (ref = no civic integration condition) | | (0.003) | | (0.003) | |
| | Low education | 0.385 | *** | 0.408 | *** |
| | | (0.005) | | (0.004) | |
| | Middle education | 0.546 | *** | 0.544 | *** |
| | | (0.007) | | (0.006) | |
| | High education | 0.596 | *** | 0.596 | *** |
| | | (0.009) | | (0.008) | |
| Dual citizenship acceptance | Full sample | 1.267 | *** | 1.287 | *** |
| (ref = no dual citizenship) | | (0.010) | | (0.010) | |
| | Non-EU | 1.250 | *** | 1.273 | *** |
| | | (0.010) | | (0.010) | |
| | EU | 1.829 | *** | 1.818 | *** |
| | | (0.099) | | (0.098) | |
| | Low HDI | 1.261 | *** | 1.284 | *** |
| | | (0.010) | | (0.010) | |
| | High HDI | 2.138 | *** | 2.127 | *** |
| | | (0.121) | | (0.122) | |

***: $p < 0.001$

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties. All models are stratified by origin regions and partner status. Clustered standard errors in parentheses.

## Robustness check 'anticipation' policy change: include t-1 dummy (main models)

**Table A17.** Anticipation and post-reform effects of introduction of civic integration requirements in Denmark and the Netherlands and of dual citizenship acceptance in Sweden on the risk of naturalisation across different subsamples, by highest levels of education and migrant origin.†

| | | | DK | | NL | | SE | |
|---|---|---|---|---|---|---|---|---|
| Civic integration condition (ref = no civic int) | Full sample | Year before change | 1.760 | *** | 1.183 | *** | | |
| | | | (0.043) | | (0.040) | | | |
| | | Years after change | 0.715 | *** | 0.469 | *** | | |
| | | | (0.019) | | (0.003) | | | |
| | Education | Low | Year before change | 1.911 | *** | 1.201 | *** | |
| | | | | (0.270) | | (0.042) | | |
| | | | Years after change | 0.539 | *** | 0.381 | *** | |
| | | | | (0.037) | | (0.005) | | |
| | | Medium | Year before change | 1.692 | *** | 1.153 | *** | |
| | | | | (0.120) | | (0.039) | | |
| | | | Years after change | 0.739 | *** | 0.522 | *** | |
| | | | | (0.030) | | (0.007) | | |
| | | High | Year before change | 1.663 | *** | 1.119 | *** | |
| | | | | (0.119) | | (0.035) | | |
| | | | Years after change | 0.820 | *** | 0.590 | *** | |
| | | | | (0.035) | | (0.009) | | |
| Dual cit acceptance (ref = no dual cit) | Full sample | Year before change | | | | | 0.939 | *** |
| | | | | | | | (0.011) | |
| | | Years after change | | | | | 1.231 | *** |
| | | | | | | | (0.007) | |
| | | Non-EU | Year before change | | | | 0.958 | *** |
| | | | | | | | (0.007) | |
| | | | Years after change | | | | 1.212 | *** |
| | | | | | | | (0.007) | |
| | | EU | Year before change | | | | 0.706 | *** |
| | | | | | | | (0.051) | |
| | | | Years after change | | | | 1.643 | *** |
| | | | | | | | (0.036) | |
| | | Low HDI | Year before change | | | | 0.972 | *** |
| | | | | | | | (0.007) | |
| | | | Years after change | | | | 1.235 | *** |
| | | | | | | | (0.007) | |
| | | High HDI | Year before change | | | | 0.710 | *** |
| | | | | | | | (0.052) | |
| | | | Years after change | | | | 1.894 | *** |
| | | | | | | | (0.050) | |

*****: p < 0.001**

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties**.** All models are stratified by origin regions and partner status. Clustered standard errors in parentheses.

## Robustness check period effects: 'placebo' test SE (main models)

**Table A18**. Placebo test for regional effect by using period dummy in SE similar to DK and NL in the main model to estimate effects of the introduction of civic integration conditions on the risk of naturalisation across different subsamples, by migrant origin.†

| | | DK | | NL | | SE | |
|---|---|---|---|---|---|---|---|
| Civic integration condition (ref = no civic integration condition) | Full sample | 0.307 | *** | 0.474 | *** | 0.925 | *** |
| | | (0.008) | | (0.003) | | (0.029) | |
| | Low education | 0.225 | *** | 0.385 | *** | 0.934 | *** |
| | | (0.016) | | (0.005) | | (0.031) | |
| | Middle education | 0.306 | *** | 0.546 | *** | 0.911 | *** |
| | | (0.013) | | (0.007) | | (0.029) | |
| | High education | 0.355 | *** | 0.596 | *** | 0.925 | *** |
| | | (0.015) | | (0.009) | | (0.028) | |

***: $p < 0.001$

†: Results include a control for gender, age at migration, having minor children in the household, highest achieved level of education, (CPI-adjusted) log income from labour, having an asylum migration motive, dual citizenship acceptance, civic integration condition, EU country of origin, annual employment rate and vote share for far-right parties. All models are stratified by origin regions and partner status. Clustered standard errors in parentheses.

Source: Statistics Denmark, Statistics Netherlands & Statistics Sweden.



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