Intra-EU migration, public transfers and assimilation

Suari Andreu, E.; Vliet, O.P. van

Accepted: 2 June 2023

DOI: 10.1111/ecca.12484

ORIGINAL ARTICLE

Economica LSE

Intra-EU migration, public transfers and assimilation

Eduard Suari-Andreu[1] | **Olaf van Vliet**[2]

[1]Leiden University, Leiden-Delft-Erasmus Centre Governance of Migration and Diversity, and Netspar, The Netherlands

[2]Leiden University and Leiden-Delft-Erasmus Centre Governance of Migration and Diversity, The Netherlands

Correspondence
Eduard Suari-Andreu, Department of Economics, Leiden University, Steenschuur 25, 2311, Leiden, The Netherlands.
Email: e.suari.andreu@law.leidenuniv.nl

Abstract

In this study, we investigate the assimilation of EU migrants via the receipt of public transfers using high-quality administrative panel data for the Netherlands. Research on this topic has relevant implications for EU expansion policy, migration policy, and perception of migrants in host societies. The data that we employ contain comprehensive information on all public transfers that individuals can receive. Results show that free entry from other EU countries decreases both the share of individuals who receive public transfers and the average amount received. The differences between EU migrants and natives are particularly large during the first years after arrival in the Netherlands, and become indistinguishable from zero after seven years. This indicates a process of gradual assimilation into public transfer receipt. Further exploration using an Oaxaca–Blinder decomposition reveals important composition effects that are due mostly to differences in age and variables related to family structure.

1 | INTRODUCTION

Within the European Union (EU), the free movement of individuals has been the general rule since the establishment of the Schengen Area in 1995. The Schengen Area currently comprises 26 countries with a total population of approximately 420 million inhabitants, and it is a clear contributor to the deepening of economic and political relations among its members (Davis and Gift 2014). Nevertheless, events such as the expansion of the EU towards Central and Eastern Europe in 2004, the arrival of a substantial number of refugees in 2015, the Brexit referendum of 2016, and the ongoing war in Ukraine, have repeatedly brought the debate on migration back to the EU agenda. In recent years, this has been reinforced by the increasing importance of political agendas that favour domestic interests and oppose immigration (Algan *et al.* 2017).

Some of the most contentious issues in the debate about migration relate to the labour market position of migrants, their receipt of public transfers, and their fiscal contribution.[1] This is due to two main opposing reasons. First, according with the welfare magnet hypothesis, the arrival of migrants can put pressure on domestic welfare estates due to potential residual dependence (e.g. Razin and Wahba 2015; Agersnap *et al.* 2020). Second, migration can also be seen as a source of younger labour that can contribute to the balancing of public revenues and expenditures (e.g. Coleman 2008; Dustmann *et al.* 2017). These issues resonate strongly in the political debate. As a result, migrant participation in the economy and the welfare estate are regarded as important indicators of the costs and benefits of migration and of the efficacy of migration and assimilation policies. Besides its implications for migration policy, investigating the receipt of public transfers by migrants has broader implications for EU expansion policy and the perception of migrants in host societies.

Although it is necessary to have a debate about migration and mobility, an important problem is that this debate is usually dominated by misinformation and political interests. Therefore the goal of this study is to provide empirical facts that can help to improve the discussion by focusing on the investigation of the Dutch case. The Netherlands is a country that historically has been open to migration, it has been part of the EU and the Schengen Area since its inception, and in the last decades it has become a popular destination for migrants from other EU countries. However, it is not exempt from the rise of the anti-immigration populist discourse (Vossen 2016). Therefore it represents a very interesting case in point for establishing facts about the assimilation of migrants within the EU context.

In this study, we pay particular attention to the effect that EU migrants have on Dutch public finances.[2] We do so by measuring their receipt of public transfers and comparing it to that of Dutch natives. The focus on EU migration is for two reasons. First, we want to frame this study in the context of the aforementioned mobility debate within the EU, and second, EU migrants have become a very important group in the Netherlands in recent years. As Figure 1 shows, the share of EU migrants out of the total Dutch population has doubled between 2004 and 2019, increasing from approximately 2% to nearly 4%. In 2019, this share has for the first time become larger than the combined share of individuals from the four most important non-western migrant groups in the Netherlands.[3] Figure 1 shows as well that this increase was primarily due to the arrival of individuals from Central and Eastern European (CEE) countries within the EU.[4] Regarding this inflow from CEE countries, van Vliet *et al.* (2021) show that most of the individuals who arrived during these years can be classified as labour migrants.

We acknowledge that the focus on receipt of public transfers leaves an important aspect out of the picture, namely the contribution of migrants to the tax and transfer system via taxes paid and social security contributions. These are not considered in the present study for two reasons. First, as we explain below, we have very detailed and accurate longitudinal data on all public transfers that individuals are potentially entitled to receive in the Netherlands. However, with the data at hand, the calculation of taxes and social security contributions would require relevant assumptions regarding the tax rates and exemptions that apply to each individual in the sample. In addition, we do not have data on VAT and capital taxation. Second, the political debate around migration is focused largely on the direct costs that migrants represent for the tax and transfer system. Therefore our intention here is to exploit the level of detail in our data on public transfers to investigate how EU mobility affects average receipt and amounts received in the Netherlands, leaving a more detailed analysis of the net fiscal position for future work.

Previous literature investigates the public transfer receipt of migrants (e.g. De Giorgi and Pellizzari 2009; Barrett *et al.* 2013; Huber and Oberdabernig 2016; Roman 2019) as well as their net fiscal position (e.g. Gustafsson and Österberg 2001; Boeri 2010; Dustmann and Frattini 2014; Chojnicki and Ragot 2016).[5] A general problem of this literature is that it quickly runs into data limitations. Most contributions employ survey data, which is rather inaccurate when it comes to

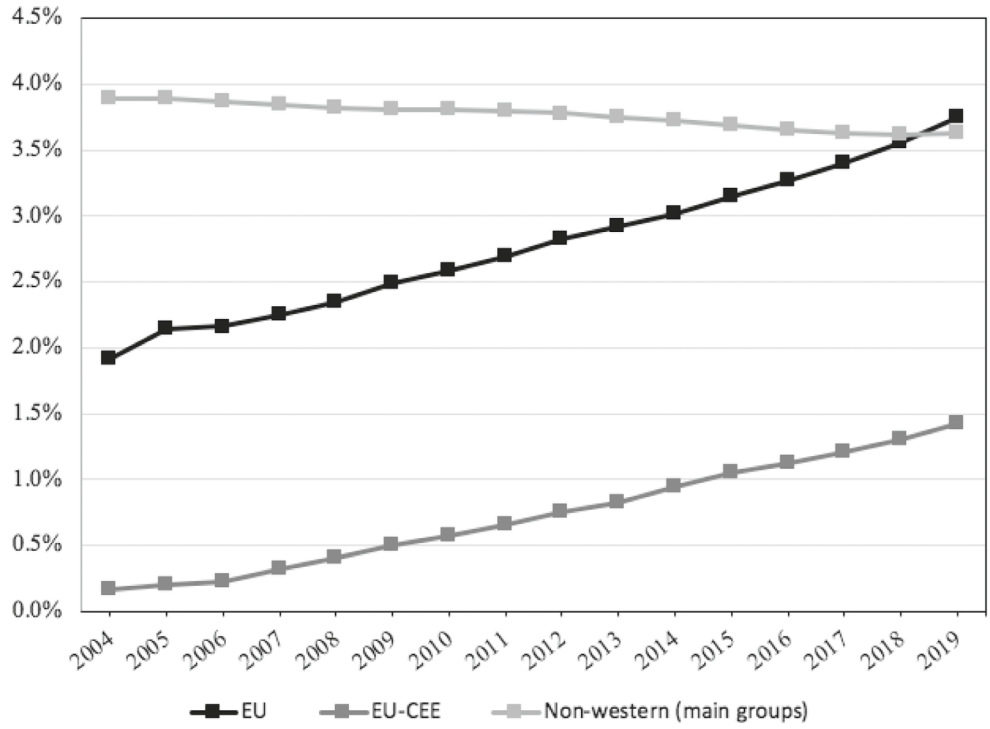

FIGURE 1 Share of EU migrants out of the total Dutch population. *Notes:* The statistics in this figure are based on the total Dutch population. Non-western migrants include individuals from the four historically most important migrant groups in the Netherlands. These are individuals from Morocco, Turkey, Suriname, and the group of countries formerly known as the Netherlands Antilles (i.e. Aruba, Bonaire, Curaçao, Sint Maarten, Sint Eustatius and Saba). Individuals from countries outside the EU that do not belong to these four groups represent a stable share 2–3% throughout the time period considered. Given that we do not have information on nationality, we define EU and non-western migrants by their country of birth. For more details on how we identify the origin of individuals, see the text. Source: Statistics Netherlands.

the measurement of transfer amounts received. Furthermore, it is often cross-sectional and not fully comprehensive regarding the transfers that are covered. A common implication of these problems is that studies typically have to rely on strong assumptions regarding transfer receipts and/or fiscal contributions. In one of the few studies focused on the Netherlands, Zorlu (2013) provides an insightful investigation of the public transfer receipt of migrants in the Netherlands. However, this study uses data only for the year 2005, and focuses on the receipt by non-western migrants of only three different public transfers, namely unemployment, disability and social assistance.

In the present study, we contribute to the branch of the literature that focuses on public transfer receipt by migrants. We do so in three different ways. First, we conduct a detailed analysis of transfers received by employing very accurate and comprehensive administrative data from the *Inkomenspanelonderzoek* (IPO) for a long period of time, from 2004 to 2014. The IPO is a longitudinal dataset, provided by Statistics Netherlands, containing information from the tax authorities on all sources of income for a very large representative sample of the Dutch population. The richness of the data allows us to distinguish between all public transfers that individuals may receive. Second, we exploit the longitudinal dimension of the data by investigating how the probability of receipt and the amount received change with the number of years that a migrant has spent in the Netherlands. For that purpose, we merge the IPO data with data on year of arrival provided by the Dutch Immigration and Naturalisation Service. Third, we couple the exceptionally detailed

data on transfers with a rich set of background information at the individual and household levels. By applying an Oaxaca–Blinder decomposition, we use this information to push the frontier in the exploration of the relevant composition effects that may explain differences in public transfer receipt.

The results of the baseline analysis show that when all transfers are considered together, EU migrants are less likely to receive public transfers compared to Dutch natives. In addition, EU migrants receive, on average, significantly lower amounts conditional on transfer receipt. The exact size, and sometimes also the sign, of the differences between EU migrants and Dutch natives in terms of the receipt of public transfers depend on whether we consider contributory or non-contributory transfers. They often depend as well on the more specific transfer categories that we consider within these two broader categories. For instance, after controlling for observables, EU migrants appear to be more likely to receive contributory transfers, which is due to a higher receipt of unemployment benefits compared to natives. Regarding non-contributory transfers, migrants are less likely to receive them, but they show a higher receipt of some subcategories, that is, social assistance and, most notably, housing benefits.

In addition to the baseline analysis, we use data on year of arrival to investigate whether migrants assimilate into or out of the receipt of public transfers. By assimilation in this context we refer to a process whereby migrants integrate into the host society and become comparable to natives. This is a complex and multidimensional concept that can be measured using different indicators. In the present study, we pay attention to a particular indicator, participation in the public transfer system. This indicator captures a very important dimension of assimilation since differences between migrants and natives can reflect relevant issues such as excess welfare dependence, differences in work experience, and/or differences in the level of familiarity with the system, among others. These are all aspects with a large degree of policy relevance. Our use of the concept of assimilation is very similar to that in Baker and Benjamin (1995), Hansen and Lofstrom (2003), and Sarvimäki (2011), among others, who investigate whether migrants assimilate into or out of welfare participation. Bansak *et al.* (2020) provide a thorough discussion of the concept of migrant assimilation and its use within the economics of migration, a description of its different dimensions, and a summary of the literature on each of these dimensions.

Interestingly, using data for year of arrival, we show that the gap between EU migrants and natives is especially large during the very first years after arrival in the Netherlands. After controlling for observables, this gap in the receipt of public transfers appears to close gradually over time, lasting no longer than seven years, which indicates that EU migrants assimilate into the receipt of public transfers. This assimilation path is especially clear and considerably longer for non-contributory transfers. Assimilation takes only two years for contributory transfers, while it takes six years for non-contributory transfers. In the latter case, before controlling for observables, migrants appear to receive fewer transfers than natives in the first years and then eventually become more likely than natives to receive them. However, this positive difference becomes not significantly different from zero once we control for observables.

The evidence of gradual assimilation into the receipt of public transfers can be attributed to several reasons. First, regarding contributory transfers, recently arrived migrants will always take some time to start receiving them since this type of transfer requires work experience to build eligibility. For instance, Eleveld and van Vliet (2013) explain that during the period of analysis, it took six months of work experience to start receiving unemployment benefits. In addition, the minimum period of three months of benefit receipt was extended by one month for each year worked up to a maximum of three years. Eleveld and van Vliet (2013) provide an extensive description of eligibility rules for all benefits available in the Dutch welfare state during the period of analysis of the present study. For more details on unemployment benefits in particular, see Been *et al.* (2021).

Second, regarding non-contributory transfers, there could be differences in eligibility between migrants and natives. The EU's principle of equal treatment establishes that EU citizens residing in another member state must be treated equally with nationals (Fernandes 2016). However, the EU also recognizes the right of member states to prevent so-called welfare tourism. Pennings (2020) provides a thorough review of migrants' access to non-contributory benefits in the Netherlands. He explains that EU migrants residing there legally have exactly the same rights of access to public benefits as Dutch natives. The only difference is that the Dutch government reserves the right to terminate the legal residence of migrants who receive social assistance, have resided in the Netherlands for less than five years, and cannot prove any potential for labour market integration. This concerns only social assistance benefits, thus no other non-contributory benefits (i.e. child, health, housing and study benefits).

Finally, it may be that migrants take time to start receiving public transfers because they initially lack knowledge about eligibility rules. This would be consistent with Borjas and Hilton (1996), who contend that through integration in local networks and potentially through acquisition of the local language, migrants gradually acquire social capital in the host country, start learning about eligibility rules, and eventually make use of public transfers at a level similar to natives.[6] The fact that we observe longer and clearer assimilation trajectories for non-contributory transfers,[7] combined with the fact that, as explained by Pennings (2020), differences in eligibility for non-contributory transfers between EU migrants and Dutch natives are small, gives plausibility to the argument by Borjas and Hilton (1996) as an explanation for our findings. In line with this, Vethaak *et al.* (2023) show that migrants in the Netherlands experience longer administrative delays than natives when applying for welfare benefits, which the authors attribute to language barriers and lack of familiarity with the system. They base this attribution on the fact that second-generation migrants experience shorter administrative delays than first-generation migrants, and on the fact that first-generation migrants experience shorter delays when they have already applied for benefits in the past.

Both the baseline analysis and the analysis by years since arrival show important composition effects in terms of the background variables that we include as control variables. The latter can be grouped into individual-level variables (age, gender and household position), household variables (household structure, marital status of the household head, and presence and number of children), and time and region variables (level of urbanization, province of residence, and year of observation). An in-depth investigation using an Oaxaca–Blinder decomposition shows that the most important of these composition effects are attributable to differences between migrants and natives in terms of age and variables related to family composition. Age appears to be particularly important for differences in the receipt of contributory transfers, while both age and family composition appear as most important for the dissimilarities in terms of non-contributory transfers.

The remainder of the paper is structured as follows. Section 2 describes the data and provides summary statistics. Section 3 explains the empirical strategy. Section 4 provides the results, and Section 5 concludes the study.

2 | DATA AND SUMMARY STATISTICS

The IPO is a longitudinal dataset that is comprised and made available by Statistics Netherlands. It contains yearly information from the tax authorities on all sources of income for a very large sample of the Dutch population. The level of detail in the data allows us to distinguish between all public transfers that individuals legally residing in the Netherlands are potentially entitled to receive. The sample is representative of all individuals with a social security number, which excludes temporary migrants without an established residency as well as illegal migrants.[8] Since the data are from an administrative source, the only reasons why an individual can leave the IPO

sample are either death or emigration, which reduces the chances of selective attrition. The sample is refreshed every year to compensate for attrition and keep it representative of the population.[9]

We use data for the period from 2004 to 2014 for two reasons. First, the IPO ends in 2014, and second, 2004 is the year in which the EU expanded by including several countries from Central and Eastern Europe. The latter is one of the most important events in recent history sparking debate on migration and mobility at the EU level. As Figure 1 shows, the inflow of individuals from other EU countries to the Netherlands has increased considerably since then. From the sample provided by the IPO for the years between 2004 and 2014, we select individuals who are 18 years of age or older and who are either native Dutch or born in another EU country. We define as native Dutch those individuals who are born in the Netherlands with both parents also born in the Netherlands. We identify individuals born in other EU countries as EU migrants.

After this selection process, the sample that we employ for our analysis contains 192,509 individuals who belong to 96,000 randomly selected households.[10] Each individual is observed for 8.54 periods on average. Out of all of the individuals in the sample, 182,829 (94.97%) are native Dutch, while 9680 (5.02%) are EU migrants. Furthermore, 3693 (1.92%) are part of the subgroup of individuals from CEE countries within the EU. Given their importance in the recent increase in the share of EU migrants living in the Netherlands, and also their relevance in the EU migration debate, we consider individuals from CEE countries as a separate subgroup throughout the entire empirical analysis.

2.1 | Background characteristics

The IPO provides several background characteristics at both individual and household levels. The variables provided at the individual level are age, gender, position in the household, and labour market status. The variables provided at the household level are household structure, marital status of the household head, presence of children, number of children, and household size.[11] In addition, the IPO provides the degree of urbanization and the province of residence. We use these variables to explore relevant composition effects that can explain differences in transfer receipt. Tables 1 and 2 report summary statistics for all variables that we observe at the individual and household levels, respectively. They do so for natives and migrants separately.

Table 1 shows that EU migrants are, on average, younger than Dutch natives and more likely to be female. The difference is especially large when only migrants from CEE countries are considered. Regarding the position within the household, Table 1 shows that EU migrants are more likely to be single, less likely to be married when living with a partner, less likely to be an adult child within the household, and more likely to have a position in the household that is not household head, partner or child. Again, these differences are larger when only migrants from CEE countries are considered. Table 1 also shows that, compared to Dutch natives, EU migrants are less likely to be employed and less likely to be retired, but more likely to be unemployed. Furthermore, they appear to be considerably more likely to not be active in the labour market. For all cases of job market status, except for the share of individuals employed, the differences are larger for CEE migrants. That is especially the case for the share of individuals retired and not active in the labour market. The large share of EU migrants who are registered as not active in the labour market is especially striking: 18.94% for EU migrants, and 24.91% for CEE migrants in particular.

Table 2 takes the origin of the household head to classify all households in the sample in the same groups as in Table 1. It shows that households with a household head who is an EU migrant are less likely to consist of a couple, less likely to include children, more likely to consist of only one individual, and more likely to include household members other than household head, partner and children. In addition, it shows that, on average, these households are smaller in size and have fewer children. It also shows that migrant households are slightly more likely to

TABLE 1 Summary Statistics—Individual Level

	NL	EU	EU-CEE
Age	46.68	44.48	36.98
Female	50.02%	56.22%	63.63%
Position in the household			
Household head (single)	12.41%	19.38%	22.62%
Household head (with partner)	38.61%	31.24%	24.63%
Partner (married)	30.82%	29.75%	28.19%
Partner (not married)	6.86%	11.44%	14.46%
Adult child	9.42%	3.71%	3.47%
Other	1.89%	4.48%	6.62%
Labour market status			
Employed	64.92%	58.96%	64.32%
Unemployed	1.17%	1.50%	1.60%
Disabled	2.96%	3.28%	2.04%
Retired	17.72%	14.79%	4.53%
Student	5.48%	2.54%	2.60%
Not active	7.75%	18.94%	24.91%

Notes: All percentages provide shares out of the total in each demographic group. All non-percentage statistics are group averages. The IPO identifies the household head as the highest-earning person in the household, i.e. the main breadwinner. 'Partner' means partner of the household head.

live in an urban area. For all cases, these differences are larger only when households headed by migrants from CEE countries are considered.

2.2 | Public transfers

The IPO provides detailed information on all sources of income received by individuals. This includes both private income and income from public transfers. The large level of detail of the data allows us to single out each one of the transfers that individuals can potentially receive. To structure our analysis, we first consider all public transfers together, and then classify them as contributory and non-contributory. Contributory transfers require the payment of a premium to become eligible to receive them. For non-contributory transfers, only having a legal residence in the Netherlands is required for eligibility.[12] Furthermore, we consider several subcategories within these two main groups of transfers. Within contributory transfers, we consider the state pension, unemployment benefits, sickness and disability benefits, and other contributory transfers,[13] while within non-contributory transfers, we consider social assistance, child benefits, health benefits, housing benefits and study benefits.[14] For a detailed account of all specific transfers within each subcategory, see Appendix Table A1. All amounts are provided in nominal terms.[15]

Table 3 provides the share of individuals receiving public transfers and the average amounts conditional upon receipt. It shows that, compared with natives, EU migrants are less likely to be a recipient of any transfer by about six percentage points. In case of receipt, they receive slightly less on average. These differences are larger when only migrants from CEE countries are considered, especially when considering the amount received. Regarding the probability of receiving contributory transfers, Table 3 shows that EU migrants are not very different from Dutch natives. However, the picture is quite different if we look only at CEE migrants. The latter are much less

TABLE 2 Summary Statistics—Household Level

	NL	EU	EU-CEE
Household structure			
Couple	29.24%	27.40%	24.97%
Couple with child(ren)	44.10%	33.74%	29.16%
Couple with other member(s)	1.21%	1.71%	1.61%
Couple with child(ren) and other member(s)	1.36%	2.30%	3.36%
One-person household	16.06%	22.82%	24.75%
Single parent with child(ren)	5.50%	7.24%	8.42%
Single parent with child(ren) and other member(s)	0.15%	0.44%	0.96%
Other multi-person household	1.06%	2.97%	5.63%
Institutionalized household	1.32%	1.38%	1.13%
Marital status household head			
Married	62.62%	49.21%	42.16%
Registered partnership	13.97%	17.29%	17.56%
Single (never married)	10.50%	17.34%	27.45%
Single (divorced)	6.64%	9.55%	10.36%
Single (widowed)	6.27%	6.62%	2.47%
Presence of children	49.34%	39.86%	34.75%
Number of children	0.97	0.71	0.55
Household size	2.84	2.58	2.51
Urban area	86.86%	91.50%	92.74%

Notes: All percentages provide shares out of the total in each demographic group. All non-percentage statistics are group averages. Households are classified into each group according with the country of birth of the household head. The IPO identifies the household head as the highest-earning person in the household, i.e. the main breadwinner. An institutionalized household is a household in which all individuals reside in an institution, e.g. a nursing home.

likely to receive a state pension, much more likely to receive unemployment benefit, and considerably less likely to receive contributory transfers when these are all considered together. Both migrant groups receive a lower average amount in contributory transfers conditional on receipt, which is most likely because these transfers increase with years of contribution via premiums.

Regarding non-contributory transfers, Table 3 shows that the overall receipt (i.e. considering all transfers together) is similar in all three columns. However, EU migrants are more likely to receive social assistance and housing benefits, but less likely to receive health benefits and study benefits. In this case, we do not see remarkable differences in amounts received even though, for some of the categories, migrants receive somewhat larger amounts compared to natives. Interestingly, Table 3 does not show important differences in the probability of receiving child benefits or in the amounts received under that category, which is the most popular among non-contributory transfers.[16] In addition, Table 3 also shows that total transfers represent between 24% and 27% of total personal gross income for all three groups considered. For EU migrants, non-contributory transfers represent a larger share of income compared to Dutch natives, while it is the other way around when considering contributory transfers. These differences are considerably larger if we consider only CEE migrants.

2.3 | Years since arrival

As mentioned in the Introduction, the receipt of public transfers by migrants plays an important role in the political debate about migration. Differences in the receipt of public transfers and

TABLE 3 Summary Statistics—Transfer Receipt

		NL	EU	EU-CEE
Total transfers	Share	76.48%	69.91%	69.30%
	Amount	4903	4852	3623
	Share of income	24.89%	26.98%	25.61%
Contributory transfers				
State pension	Share	15.93%	13.10%	3.87%
	Amount	10,107	9056	8700
Disability and sickness benefits	Share	5.43%	6.08%	5.34%
	Amount	11,131	10,253	6613
Unemployment benefit	Share	4.21%	5.82%	8.73%
	Amount	7894	6738	4810
Other contributory	Share	0.93%	0.76%	0.39%
	Amount	9740	10,239	5901
Total contributory	Share	25.02%	24.00%	16.43%
	Amount	10,540	9498	6896
	Share of income	14.16%	12.64%	6.38%
Non-contributory transfers				
Social assistance	Share	2.95%	4.17%	5.87%
	Amount	8667	7093	6543
Child benefits	Share	41.38%	38.74%	41.17%
	Amount	1068	1037	1090
Health benefits	Share	26.32%	23.83%	32.32%
	Amount	739	785	809
Housing benefits	Share	6.39%	10.14%	13.50%
	Amount	1397	1465	1492
Study benefits	Share	7.21%	3.65%	3.17%
	Amount	1819	2195	2580
Total non-contributory	Share	64.68%	59.40%	64.62%
	Amount	1721	1874	2132
	Share of income	10.87%	14.52%	19.37%

Notes: Shares refer to the percentage of individuals within a group that receive a particular transfer. Average amounts are provided in euros and are conditional on receipt. Share of income refers to the average share out of total personal gross income.

amounts received between migrants and natives can reflect policy-relevant issues related to assimilation in the host society, such as residual welfare dependence of migrants, differences in eligibility, and/or differences in knowledge and familiarity with the rules of the benefit system. More specifically, the literature points at the possibility that migrants integrate out of or into receipt of public transfers (Baker and Benjamin 1995; Crossley *et al.* 2001; Hansen and Lofstrom 2003; Sarvimäki 2011). Under the first scenario, there is initially excess dependence of migrants on transfer programs, but they gradually assimilate such that their receipt of transfers eventually becomes comparable to that of natives. Under the second scenario, migrants initially have no access to public transfer programmes, either because they are not eligible or because they lack knowledge about eligibility rules, but their participation in these programmes then gradually converges with that of natives as they assimilate into the host society.

We address empirically the question of assimilation through participation in public assistance programmes by merging the IPO data with data on date of arrival in the Netherlands. The

latter are provided by the Dutch Immigration and Naturalisation Service. The date of arrival provided by the Immigration and Naturalisation Service is the date on which a migrant registered at his/her municipality of residence to obtain a social security number. This may not coincide with the actual date of arrival into the country. However, registration for a social security number is a legal requirement after four months of residence in the Netherlands. This number is required for basic procedures such as renting or buying a property, becoming employed, registering children at a school, registering at a general practitioner, acquiring health insurance, and receiving public benefits or any kind of government aid. The Dutch government is very strict about this requirement. Given these strong incentives for registration, the delay between the actual and registered date of arrival is likely to be minimal.

Regarding the data on date of arrival, it is relevant to note that we observe migrants only for the period between 2004 and 2014, but they may have already arrived before that period. The date of arrival is available only as long as a migrant arrived in the Netherlands in 1995 or later. Out of the 9680 EU migrants (3693 CEE) that we observe, 6124 (3193) have a date of arrival registered in 1995 or later. Therefore we have data on date of arrival for 63.26% (86.46%) of all migrants in our sample. Migrants who arrived before 1995 are excluded from this part of the analysis.

As Figure 1 shows, the stock of EU migrants in the Netherlands has been increasing considerably since 2004, a phenomenon that we also observe in our sample. Figure 2(a) shows the distribution of the year of arrival for all EU migrants in our sample. We see a clear increase in the yearly inflow since 1995, which plateaus in 2008 and then slowly decreases. This plateau is probably related to the prolonged economic crisis that began in 2008. In addition, we observe clear increases in the inflow in 2004 and 2007, the two years in which the CEE countries entered the EU. Figure 2(b) shows how that translates into a variable indicating the years since arrival. For this variable, we assign value 1 to the year in which a migrant arrived in the Netherlands, value 2 to the second year, and so forth until a maximum of 20, that is, the number of years between 1995 and 2014. In Figure 2(b), all individual–year observations in the sample corresponding to migrants are pooled together, showing that the most popular value is one year since arrival. This is followed by progressively lower frequencies up to the maximum value of 20 years since arrival.

3 | EMPIRICAL STRATEGY

To further investigate the differences between Dutch natives and EU migrants in terms of their receipt of public transfers, we estimate the equations

$$receipt_{it} = \beta_1\ origin_i + \mathbf{X}'_{it}\boldsymbol{\beta}_2 + \varepsilon_{it} \tag{1}$$

and

$$amount_{it} = \gamma_1\ origin_i + \mathbf{X}'_{it}\boldsymbol{\gamma}_2 + \upsilon_{it} \quad \text{if} \ \ receipt_{it} = 1, \tag{2}$$

where $receipt_{it}$ is a dummy variable that takes value 1 if individual i receives a particular transfer at year t, $amount_{it}$ measures the amount received in that particular transfer, $origin_i$ is a dummy variable that takes value 1 if an individual is an EU migrant. Also, $\mathbf{X}_{it}$ is a vector of controls that includes a constant, age, gender, position in the household, household structure, marital status, presence of children, number of children, household size, and level of urbanization; in addition, it includes a set of regional dummies controlling for region fixed effects at the provincial level (the Netherlands has 12 provinces), and a set of year dummies controlling for time fixed effects. Note that labour market status is the only variable in Tables 1 and 2 that is not included in $\mathbf{X}_{it}$. That is because in the framework that we consider, labour market status should rather be considered as a dependent variable instead of a control variable.[17] Here, ε_{it} and υ_{it} are the corresponding

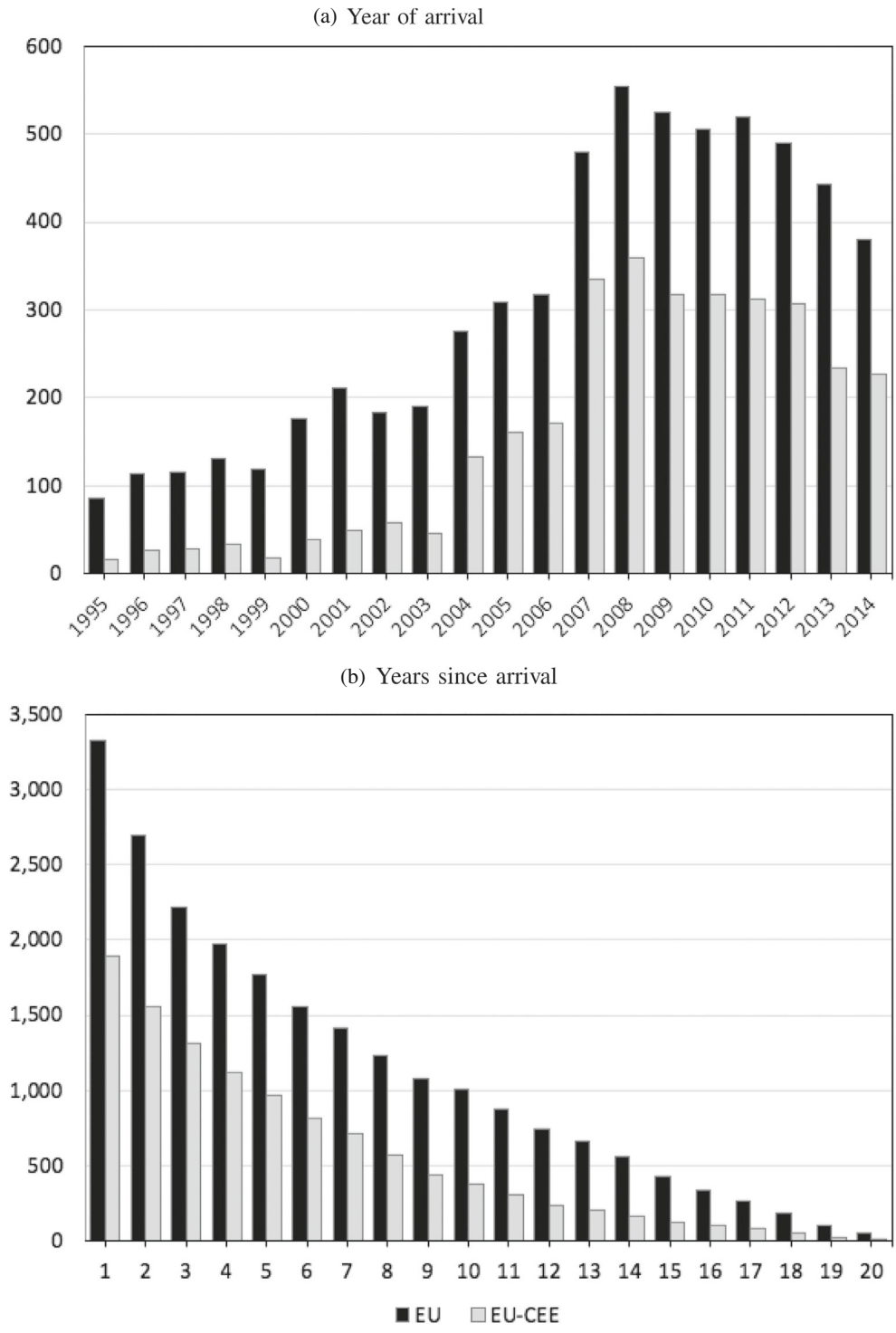

FIGURE 2 Arrival of EU and EU-CEE migrants into the Netherlands. *Notes:* In both bar charts, the vertical axis measures the frequency in the sample. (a) Each migrant contributes only one observation corresponding to his/her year of arrival. (b) All individual–year observations in the sample corresponding to migrants are pooled together. For more details, see main text.

error terms. Equation (1) is a linear probability model that we use to estimate the probability of receiving public transfers, while equation (2) models the amount received conditional on receipt. It is important to estimate the receipt of public transfers and the amount received separately because even if EU migrants and Dutch natives have the same share of receipt of a particular transfer, the amounts received can still differ significantly.

Note that equations (1) and (2) include time and region fixed effects, but do not include individual fixed effects or country-of-origin fixed effects. Individual fixed effects cannot be included in this analysis because the variable $origin_i$ does not vary over time, thus it would be collinear with the individual fixed effects. In addition, we do not control for country effects since country of origin varies only across migrants, meaning that a set of country dummies would also be collinear with the origin variable. Not including individual fixed effects means that there can be time-constant unobserved heterogeneity left in the error term once $\mathbf{X}_{it}$ is included in the regressions. If that is the case, then this heterogeneity will explain at least partially how the estimates of β_1 and γ_1 change once the control variables are included in the regressions. Therefore the relevance of this time-constant unobserved heterogeneity can be gauged by looking at how the estimates of β_1 and γ_1 change once control variables are accounted for.

In our baseline analysis, we estimate equations (1) and (2) for total transfers as well as for contributory and non-contributory transfers. We do so by using OLS with heteroscedasticity-robust standard errors clustered at the household level.[18] As a first extension of the baseline analysis, we re-estimate equations (1) and (2) for all of the disaggregated transfer categories provided in Table 3. As a second extension, we substitute the $origin_{it}$ variable by $\mathbf{YSA}_{it}$, a vector containing a set of dummy variables indicating the number of years since arrival in the Netherlands. Dutch natives are used as the reference category in this set of dummies. Therefore this method allows us to estimate the difference between migrants and natives for each year since arrival. In this way, we test whether migrants assimilate out of or into the receipt of public transfers. Even though there is longitudinal variation in $\mathbf{YSA}_{it}$, it is not possible to apply a fixed effect estimation due to the reference category being a fixed condition over time. However, by including a set of year dummies in the specification, we control for calendar year effects as well as for effects specific to each cohort of arrival. That is because at a particular point in time, migrants that have been in the Netherlands for a determined number of years belong to the same cohort of arrival. Therefore we are exploiting variation in the receipt of public transfers between natives and migrants belonging to particular cohorts of arrival.

As a third extension of our baseline results, we use an Oaxaca–Blinder decomposition to measure the composition effects in terms of all observables included in $\mathbf{X}_{it}$. This method, originally proposed by Blinder (1973) and Oaxaca (1973), allows decomposing the differences between natives and migrants into a part explained by differences in observables and an unexplained part. Furthermore, it allows measuring the contribution of each covariate to each of these two parts. In doing so, we follow Huber and Oberdabernig (2016) and Jakubiak (2020). Both of these studies apply an Oaxaca–Blinder decomposition to explain differences between natives and migrants in the use of social assistance employing survey data at the European level.

The Oaxaca–Blinder decomposition consists of two steps: first, the estimation of the baseline equation separately for migrants and natives, and second, the subtraction in expected value of the equation for the latter from the equation for the former. In their simplest versions, these two steps can be expressed as

$$Y_{sit} = \mathbf{X}'_{sit}\boldsymbol{\beta}_s + \mu_{sit}, \quad \text{for } s \in \{m, n\}, \tag{3}$$

and

$$E(Y_{mit}) - E(Y_{nit}) = E(\mathbf{X}_{mit})'\boldsymbol{\beta}_m - E(\mathbf{X}_{nit})'\boldsymbol{\beta}_n, \tag{4}$$

where Y_{sit} ($s \in \{m, n\}$) is the outcome variable—that is, either $receipt_{sit}$ or $amount_{sit}$—for either migrants (m) or natives (n), $\mathbf{X}_{sit}$ is the vector of observables for each of the two groups, and $\boldsymbol{\beta}_s$ is a vector containing all parameter estimates for each of the two regression equations. Adding and subtracting $E(\mathbf{X}_{mit})'\boldsymbol{\beta}_n$, equation (4) can be rewritten as

$$E(Y_{mit}) - E(Y_{nit}) = [E(\mathbf{X}_{mit}) - E(\mathbf{X}_{nit})]'\boldsymbol{\beta}_n + E(\mathbf{X}_{mit})'(\boldsymbol{\beta}_m - \boldsymbol{\beta}_n). \quad (5)$$

The first summand on the right-hand side of equation (5) captures the part of the difference in the expected outcome corresponding to the differences in observables weighted by the coefficients of the equation for natives. The second summand captures the part of the difference in the expected outcome that corresponds to the differences in coefficients weighted by the expected value of the observables for migrants. The first summand is usually referred to as the explained part of the difference, since it captures the part that is explained by the observables. The second summand is usually referred to as the unexplained part of the difference, since it captures the part that is explained by differences in unobservables.[19]

A problem with the expression in equation (5) is that by using the vector of coefficients for natives as a weight for the effect of the differences in observables, it essentially assumes that the coefficients are the same for both groups. For this reason, we deviate from Huber and Oberdabernig (2016) and Jakubiak (2020), and apply a variation of the decomposition proposed by Oaxaca and Ransom (1994) and applied by Fortin (2006). This variation consists of adding and subtracting $[E(\mathbf{X}_{mit}) - E(\mathbf{X}_{nit})]'\boldsymbol{\beta}_p$, instead of just $E(\mathbf{X}_{mit})'\boldsymbol{\beta}_n$, in equation (4) to get

$$\begin{aligned} E(Y_{mit}) - E(Y_{nit}) = {} & [E(\mathbf{X}_{mit}) - E(\mathbf{X}_{nit})]'\boldsymbol{\beta}_p \\ & + E(\mathbf{X}_{mit})'(\boldsymbol{\beta}_m - \boldsymbol{\beta}_p) - E(\mathbf{X}_{nit})'(\boldsymbol{\beta}_n - \boldsymbol{\beta}_p), \end{aligned} \quad (6)$$

where $\boldsymbol{\beta}_p$ is the vector of coefficients of a pooled model that includes both migrants and natives, and that features in the specification a dummy indicating whether an individual is a migrant. Since equations (1) and (2) provide the pooled models, in equation (6) we can set $\boldsymbol{\beta}_p = \boldsymbol{\beta}_2$ for the probability of receiving transfers, and $\boldsymbol{\beta}_p = \boldsymbol{\gamma}_2$ for the amount received. This has the advantage of creating a direct connection between the baseline equations (1) and (2) and the decomposition in equation (6). As shown in the second line of equation (6), a side effect of that is that the unexplained part of the differences in the outcome is split into two components. However, we are interested only in separating the explained part from the unexplained part, and investigating the composition effects in terms of each of the observables. Therefore in Section 4, we decompose the explained and unexplained parts, and focus on the contribution of each variable in the model only to the explained part.

4 | RESULTS

4.1 | Baseline

The results of the baseline analysis are provided in Table 4, which shows results for total transfers received in panel A, as well as for the subtotals of both contributory transfers in panel B, and non-contributory transfers in panel C. As indicated by equations (1) and (2), we use two dependent variables in each case: a dummy variable indicating transfer receipt, and a continuous variable measuring the amount transferred conditional on receipt. For each category, we regress the dependent variable on a dummy indicating whether an individual is an EU migrant in columns (1) and (2), and separately, on a dummy indicating whether an individual is an EU migrant from a CEE country in columns (3) and (4). In addition, we always perform regressions with and without control variables to investigate the presence of composition effects. When we

TABLE 4 Results—Baseline

	Explanatory variable: EU		Explanatory variable: EU-CEE	
	(1)	(2)	(3)	(4)
Panel A: Total transfers				
Transfer receipt	−0.066***	−0.034***	−0.072***	−0.024***
	(0.014)	(0.005)	(0.029)	(0.007)
Amount received	−50	−195***	−1280***	−281**
	(121)	(66)	(175)	(113)
Controls	No	Yes	No	Yes
Share receipt	0.763	0.763	0.764	0.764
Average amount	4902	4902	4894	4894
Panel B: Contributory				
Transfer receipt	−0.010	0.007**	−0.086***	0.025***
	(0.010)	(0.003)	(0.010)	(0.005)
Amount received	−1042***	−1068***	−3644***	−2432***
	(147)	(109)	(303)	(199)
Controls	No	Yes	No	Yes
Share receipt	0.250	0.250	0.249	0.249
Average amount	10,510	10,510	10,519	10,519
Panel C: Non-contributory				
Transfer receipt	−0.053***	−0.031***	−0.001	−0.021***
	(0.011)	(0.005)	(0.019)	(0.007)
Amount received	153***	42	411***	122
	(48)	(44)	(103)	(96)
Controls	No	Yes	No	Yes
Share receipt	0.645	0.645	0.647	0.647
Average amount	1725	1725	1724	1724

Notes: Standard errors clustered at the household level are provided in parentheses. Regressions for the amount received and the average amounts provided are conditional on receipt. Regressions for EU migrants are estimated with a sample of 1,644,890 observations, while regressions for EU-CEE migrants are estimated with a sample of 1,611,248 observations. *, **, *** indicate significant at the 10%, 5%, 1% level, respectively.

include controls in the analyses, we always refer to the list of controls spelled out in Section 3. Naturally, the coefficients of the regressions without control variables coincide with the raw differences in the corresponding columns in Table 3.

Panel A of Table 4 shows that for both groups considered, the difference in the probability of receiving public transfers vis-à-vis Dutch natives decreases considerably when we control for observables. That is especially the case when only CEE migrants are considered: for EU migrants, the difference changes from −6.6 to −3.4 percentage points once we control for observables, while for EU-CEE migrants, it goes from −7.2 to −2.4 percentage points. This means that even after controlling for the characteristics described in Tables 1 and 2, plus time and province fixed effects, both groups are still less likely to receive transfers. In addition, columns (2) and (4) show that both groups receive around 200 to 300 euros less, conditional on receipt after controlling for observables, that is, about 5% of the average transfer received in the sample. In this case, adding controls increases the difference for EU migrants, while it diminishes it considerably for EU-CEE migrants. The differences between migrants and natives that still remain significant once we control for observables are likely to be explained partially by time-constant unobserved heterogeneity.

We cannot control for this heterogeneity via fixed effects since, as explained in Section 3, the latter would be collinear with our main explanatory variable.

Panel B of Table 4 shows that when considering only contributory transfers, migrants are actually more likely to receive them after controlling for observables. For EU migrants, the difference remains very close to zero and statistically significant only at the 5% level. However, the change in the difference is substantial for EU-CEE migrants, going from −8.6 to 2.5. This higher probability of receiving contributory transfers contrasts with the fact that even after adding control variables to the analysis, both groups receive considerably lesser amounts compared to natives. As indicated in the second subsection of Section 2, this is likely due to the fact that the amount individuals are entitled to receive in these transfers increases with the years of contributions via premiums paid.

Regarding non-contributory transfers, panel C of Table 4 shows that after controlling for observables, migrants are less likely to receive them. In the case of EU-CEE migrants, adding observables makes the difference larger. The raw differences in amounts received in non-contributory transfers indicate that EU migrants receive more than Dutch natives. This is especially the case when we consider only EU-CEE migrants. However, for both groups, the difference becomes not significantly different from zero after observables are accounted for.

4.2 | Disaggregated transfers

Tables 5 and 6 provide the results for the disaggregated categories within contributory and non-contributory transfers, respectively. Table 5 shows that the higher probability for migrants to receive contributory transfers clearly comes from their higher probability of receiving unemployment benefits. Panel C of Table 5 shows that both EU and EU-CEE migrants are significantly more likely to receive unemployment benefits even after controlling for observables.[20] Interestingly, panel A of Table 5 shows that for both EU and EU-CEE migrants, the raw difference in the receipt of a state pension, which is especially large for EU-CEE migrants, is almost fully explained by the observables. This is very likely the case due to the inclusion of age among the observables. Furthermore, panel B of Table 5 shows only very minimal and non-significant differences in the receipt of disability and sickness benefits. Regarding the amounts received, we observe large negative differences for all of the categories considered in Table 6. Relative to the average transfer in the sample, these differences are especially large in the case of unemployment benefits.

Table 6 shows that migrants are not more likely to receive social assistance once controlling for observables; that is, for both groups, the difference vis-à-vis natives becomes not significantly different from zero in columns (2) and (4) of panel A. This result is especially interesting since the receipt of social assistance benefits by migrants is often the most politically sensitive. In addition, panel B shows lower probability for migrants to receive child benefits, even though the discrepancy with natives remains very small compared to the average share of receipt in the sample. Panel C shows that EU migrants are less likely to receive health benefits, but the sign is reversed if we consider only those from CEE countries. Panels D and E show substantially large differences in the receipt of housing benefits (positive difference) and study benefits (negative difference). Regarding the amounts received, immigrants receive remarkably less in social assistance benefits even after controlling for observables. For all other transfers, immigrants receive higher or similar amounts compared to natives, even though the differences are often relatively small.

4.3 | Effects by year since arrival

Figures 3 and 4 expand the baseline results by providing the same results as in Table 4 but differentiated by the years since arrival in the Netherlands.[21] Figure 3 provides the effects for the

TABLE 5 Results—Contributory Transfers

	Explanatory variable: EU		Explanatory variable: EU-CEE	
	(1)	(2)	(3)	(4)
Panel A: State pension				
Transfer receipt	−0.028***	−0.005***	−0.121***	−0.002***
	(0.007)	(0.001)	(0.006)	(0.000)
Amount received	−1051***	−1279***	−1407***	−1713***
	(109)	(90)	(429)	(356)
Controls	No	Yes	No	Yes
Share receipt	0.159	0.159	0.158	0.158
Average amount	10,082	10,082	10,102	10,102
Panel B: Disability and sickness benefits				
Transfer receipt	0.007**	0.004*	−0.001	0.000
	(0.003)	(0.003)	(0.004)	(0.003)
Amount received	−878**	−447	−4518***	−2100***
	(355)	(285)	(526)	(406)
Controls	No	Yes	No	Yes
Share receipt	0.054	0.054	0.054	0.054
Average amount	11,103	11,103	11,093	11,093
Panel C: Unemployment benefits				
Transfer receipt	0.016***	0.0122***	0.045***	0.034***
	(0.002)	(0.002)	(0.004)	(0.004)
Amount received	−1156***	−956***	−3083***	−1900***
	(237)	(169)	(268)	(205)
Controls	No	Yes	No	Yes
Share receipt	0.043	0.043	0.043	0.043
Average amount	7849	7849	7841	7841
Panel D: Other				
Transfer receipt	−0.002*	−0.002**	−0.005***	−0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
Amount received	499	767	−3839***	−2453***
	(1284)	(1259)	(742)	(671
Controls	No	Yes	No	Yes
Share receipt	0.009	0.009	0.009	0.009
Average amount	9752	9752	9726	9726

Notes: See Table 4.

probability of receiving and the amount received in total, contributory and non-contributory transfers for EU migrants, while Figure 4 provides the same results but only for migrants from EU-CEE countries. In all cases, the squares series provides the results without including control variables in the specification, while the circles series provides the results obtained when including control variables. As in the baseline analysis, the reference category is always Dutch natives. All point estimates are provided with 95% confidence intervals.

Figure 3(a) shows that, when not controlling for observables, we find a steady increase by years since arrival, going from a much lower probability for EU migrants of receiving public transfers compared to natives (about 42 percentage points lower) to a probability that is about 5 percentage

TABLE 6 Results—Non-contributory Transfers

	Explanatory variable: EU		Explanatory variable: EU-CEE	
	(1)	(2)	(3)	(4)
Panel A: Social assistance				
Transfer receipt	0.012***	0.002	0.029***	0.006
	(0.002)	(0.002)	(0.004)	(0.006)
Amount received	−1574***	−1157***	−2124***	−1740***
	(375)	(207)	(551)	(294)
Controls	No	Yes	No	Yes
Share receipt	0.030	0.030	0.030	0.030
Average amount	8604	8604	8632	8632
Panel B: Child benefits				
Transfer receipt	−0.026**	−0.012***	−0.002	−0.013***
	(0.013)	(0.003)	(0.026)	(0.005)
Amount received	−31	45***	22	147***
	(15)	(7)	(25)	(16)
Controls	No	Yes	No	Yes
Share receipt	0.413	0.413	0.414	0.414
Average amount	1067	1067	1068	1068
Panel C: Health benefits				
Transfer receipt	−0.025***	−0.022***	0.060***	0.025***
	(0.004)	(0.004)	(0.007)	(0.006)
Amount received	45***	44***	70***	79***
	(13)	(7)	(25)	(11)
Controls	No	Yes	No	Yes
Share receipt	0.262	0.262	0.264	0.264
Average amount	740	740	740	740
Panel D: Housing benefits				
Transfer receipt	0.037***	0.026***	0.071***	0.061***
	(0.004)	(0.004)	(0.010)	(0.008)
Amount received	67**	50**	95**	134***
	(26.826)	(19.797)	(37.215)	(27.875)
Controls	No	Yes	No	Yes
Share receipt	0.065	0.065	0.065	0.065
Average amount	1400	1400	1399	1399
Panel E: Study benefits				
Transfer receipt	−0.036***	−0.020***	−0.040***	−0.041***
	(0.002)	(0.002)	(0.003)	(0.004)
Amount received	377***	117**	762***	272**
	(70.039)	(49.967)	(159.481)	(118.768)
Controls	No	Yes	No	Yes
Share receipt	0.071	0.071	0.072	0.072
Average amount	1824	1824	1821	1821

Notes: See Table 4.

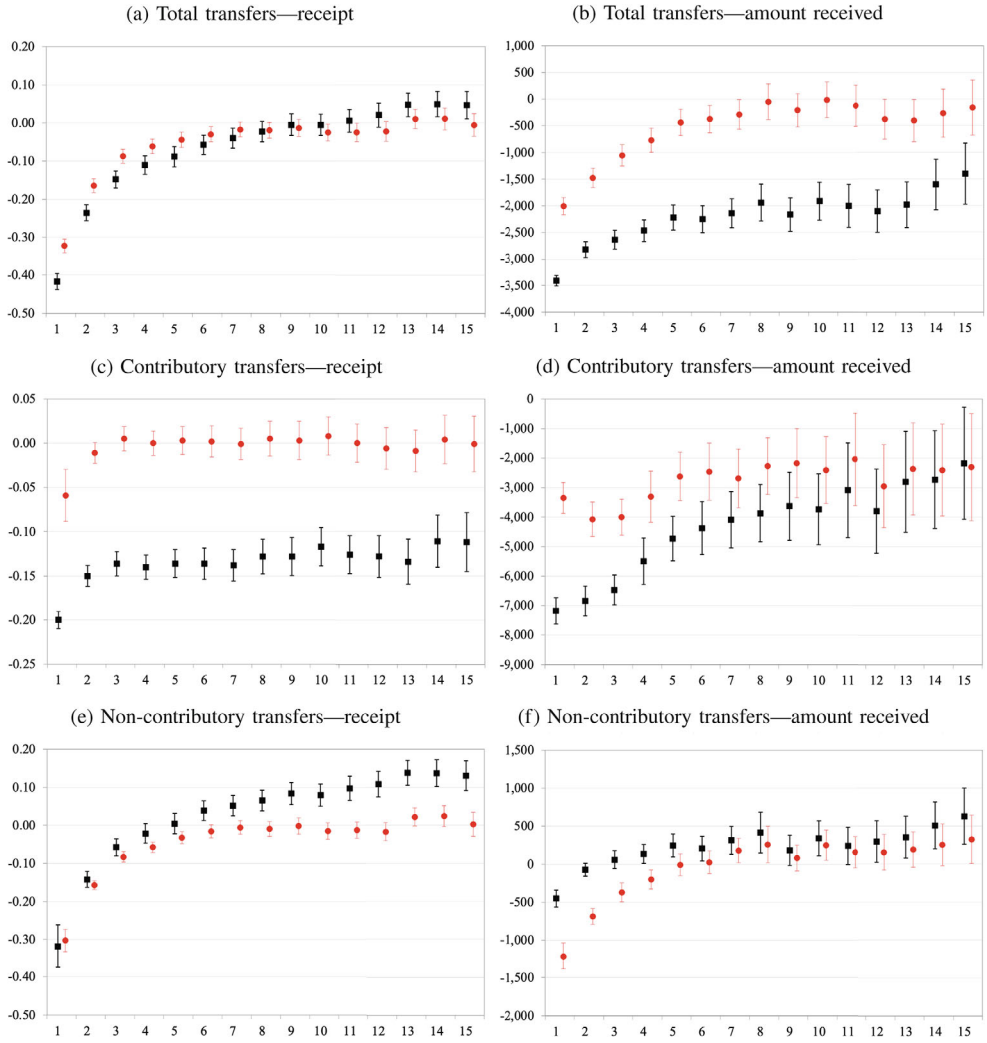

FIGURE 3 Results—transfer aggregates by years since arrival (EU migrants). *Notes:* All results are based on the same regressions as in columns (1) and (2) of Table 4 replacing the EU migrant dummy with a set of dummies for year since arrival. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls. Point estimates are surrounded by the 95% confidence intervals.

points larger. However, when we do control for observables, the curve flattens towards zero: the initial difference is still negative but considerably smaller in absolute terms, and it becomes indistinguishable from zero from the seventh year onward. For the amount received, Figure 3(b) also shows a negative difference that becomes closer to zero the longer migrants are in the Netherlands. In that case, the squares series shows a difference that shrinks over time but remains negative through all of the years considered, while the circles series shows an effect that, as in Figure 3(a), becomes indistinguishable from zero after seven years.

Figures 4(a) and 4(b) show a similar picture for EU-CEE migrants. However, in that case, the differences converge faster to zero, and there are somewhat smaller differences between the squares and circles series. As mentioned in the third subsection of Section 2, there could be a delay between actual arrival in the Netherlands and registration at the municipality of residence. However, for the reasons mentioned in the third subsection of Section 2, this delay is unlikely to

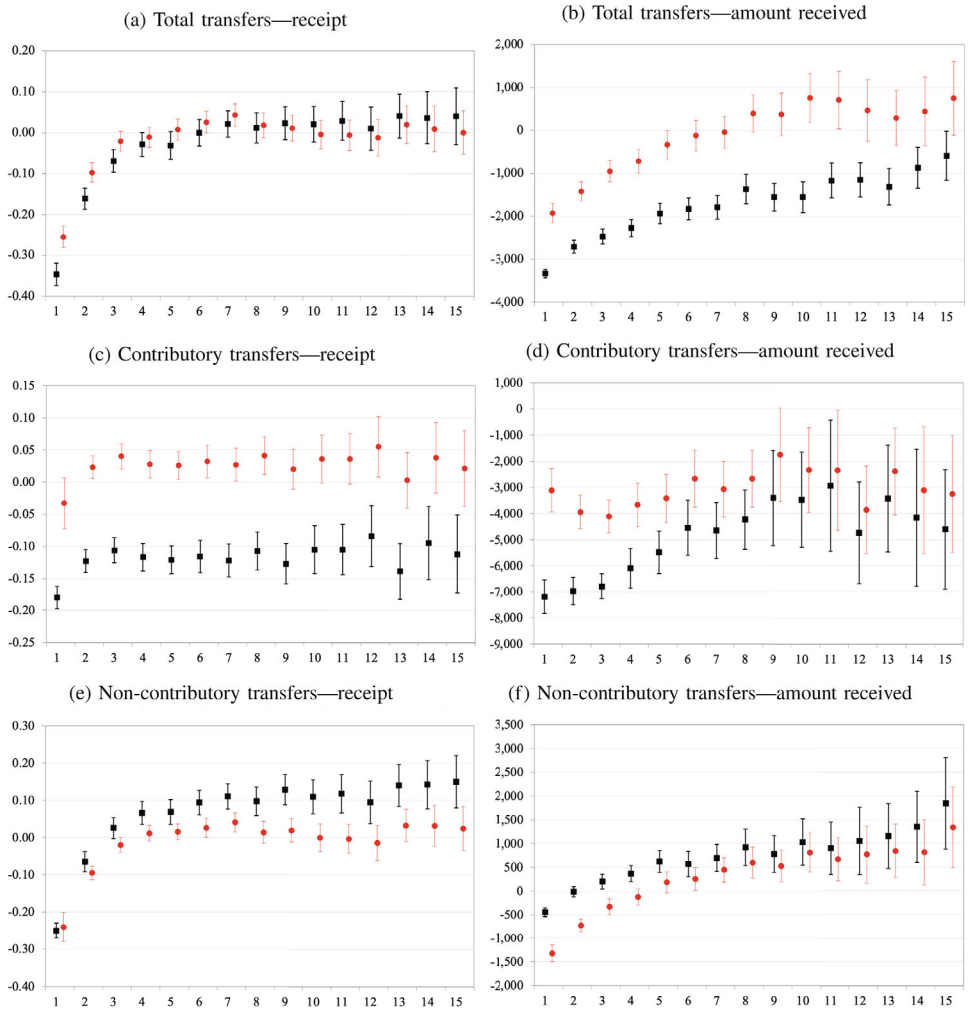

FIGURE 4 Results—transfer aggregates by years since arrival (EU-CEE migrants). *Notes:* All results are based on the same regressions as in columns (3) and (4) of Table 4 replacing the EU migrant dummy with a set of dummies for year since arrival. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls. Point estimates are surrounded by the 95% confidence intervals.

be longer than four months. The presence of a delay would probably mean that we are somewhat underestimating the length of the assimilation process in Figures 3 and 4, since migrants are not able to receive public transfers until they are legally registered in their municipality.

Figures 3(c)–3(f) show what the trends in Figures 3(a) and 3(b) look like when decomposed into contributory and non-contributory transfers. In both cases, we still see an increasing trend that eventually encompasses the zero (or gets close to it) once observables are included in the specification. When considering non-contributory transfers and not controlling for observables, differences in receipt and amounts received become positive after the fifth year. However, controlling for observables closes that positive gap and eventually brings the effect to magnitudes not significantly different from zero. Again, we observe a similar picture with somewhat less clear differences between the circles and squares series when focusing only on EU-CEE migrants in Figure 4. Appendix Figures A5 and A6 show the results by years since arrival disaggregated by subcategories of contributory and non-contributory transfers. Convergence trajectories are

observed for most categories except for state pension and the category grouping all other contributory benefits. Convergence is less clear when looking at amounts received for some of the other benefits.

Overall, both Figures 3 and 4 show migrants catching up with natives over time in terms of public transfer receipt and amounts received. This tendency is most clear when looking at total transfers and non-contributory transfers. It is less so when looking just at contributory transfers. However, in all cases, this tendency indicates that initially, migrants make less use of public transfers and then gradually assimilate into transfer receipt by reaching levels that are indistinguishable compared to those of natives. This shrinking difference suggests that time-constant unobserved heterogeneity between migrants and natives is unlikely to explain the differences that we observe in the baseline analysis. That is because if these differences were at least partially explained by time-constant heterogeneity, then the gap between migrants and natives would be more likely to remain constant by years since arrival and not converge towards zero.

An important caveat to consider is that the results in Figures 3 and 4 could be driven by selective time of arrival and return migration. Regarding selective return migration, it is well documented in the literature that migrants who return to their home country or out-migrate to a third country are likely to be different from those who stay (e.g. Dustmann 2003; Bijwaard *et al.* 2014). According to data from the Immigration and Naturalisation Service, out of the 9680 migrants in our sample, 2727 leave at some point. If migrants who leave are less likely to receive public transfers, then our results by years since arrival could be explained by a gradual change in the composition of the sample. Appendix Figures A1 and A2 show the results that we obtain when rerunning our analysis excluding migrants who leave. Results are not significantly different from those in Figures 3 and 4, and also show assimilation into the receipt of public transfers. The only differences are somewhat wider confidence intervals for some of the estimates, which could also be explained by the smaller sample. In addition, in Figure A2 we see that when considering non-contributory transfers of EU-CEE and controlling for observables, the difference with respect to natives eventually becomes positive and significant, whereas in Figures 3 and 4 it stays not significantly different from zero. Regardless of these differences, the results in Figures 3 and 4 do not appear to be driven by selective out-migration.

Regarding selective time of arrival, Figure 2 shows that arrival by EU migrants into the Netherlands increased substantially after 2004. It is likely, for instance, that migrants who arrived in the 1990s are different from those who arrived later. To further investigate this, we re-estimate the same results provided in Figures 3 and 4 but differentiated by cohort of arrival into the Netherlands. Appendix Figures A3 and A4 show the results that we obtain when considering two-year cohorts. Since we observe migrants who arrive between 1995 and 2014, we are considering ten different cohorts. All estimations in these figures include control variables. Series of lighter dots correspond to younger cohorts, while series of darker dots correspond to older cohorts. Both figures show that the assimilation pattern observed in Figures 3 and 4 is still present even when conducting cohort-specific analyses. Just as in the baseline analysis, this pattern is most clear when considering total transfers and non-contributory transfers. Figures A3 and A4 do show differences across cohorts since, within a particular value for year since arrival, the different data points are often distanced from each other. However, these differences show no clear pattern and are not statistically significant in most cases.

These results by years since arrival contrast with those by Hansen and Lofstrom (2003) and Sarvimäki (2011), who find the opposite tendency. Both studies find that migrants are initially more likely to use social assistance and then gradually assimilate out of welfare. In both cases, they show that this process takes rather a long time, namely 15–20 years. Compared to Sweden and Finland, the Netherlands has a similarly generous welfare state. Therefore the difference in results is most likely due to the fact that we consider EU migrants, while these two studies consider non-western migrants and look at only social assistance. Our results also contrast with those by Zorlu (2013), who using Dutch data finds that migrants receive transfers more often than natives.

However, Zorlu (2013) uses data only for the year 2005, includes only non-western migrants, and considers only unemployment, disability and social assistance. Appendix Figures A5 and A6 show that migrants are eventually slightly more likely to receive unemployment benefits than natives, which is at least partially in line with the results by Zorlu (2013). This is not the case for disability benefits and social assistance. The differences between our results and those by Hansen and Lofstrom (2003), Sarvimäki (2011) and Zorlu (2013) highlight the importance of considering EU and non-western migrants separately, as well as the need to include public transfers other than social assistance.

Regarding possible interaction effects, it may be that integration is faster for individuals who receive some education in the country (Clark and Lindley 2006) and for those employed in high-skilled jobs (Rodríguez-Planas 2012). Unfortunately, we do not have data on educational level and type of employment. However, we have data on labour market status that include a category indicating whether an individual is a student at the time of observation. Furthermore, we can use personal income as a proxy for the type of employment. When comparing migrants who have been a student at some point during the sample period with natives, we find that they are more likely to receive public transfers (6 percentage points) and they receive similar amounts (difference is small and not statistically significant).[22] However, this is due only to differences in non-contributory transfers (7 percentage points positive difference in the probability of receipt, and 486 euros positive difference in amount received). When it comes to contributory transfers, they are less likely to receive them (2 percentage points) and they receive smaller amounts (2240 euros). Similarly to the results in Figures 3 and 4, we find that these differences become not significantly different from zero after no longer than 7–10 years. This means that study migrants assimilate into the receipt of contributory transfers but out of non-contributory transfers.

Regarding the type of employment, we create a variable that takes value 1 if a migrant belongs to the top quartile of the yearly personal income distribution. The assumption is that this variable captures migrants who are employed in high-skilled jobs. When comparing these with natives, we find that they are less likely to receive public transfers (8 percentage points) and they receive smaller amounts conditional on receipt (335 euros). In this case, all differences are negative for both contributory and non-contributory transfers, and they are larger for non-contributory transfers (10 percentage points and 500 euros, respectively). Interestingly, we find that there is convergence with natives over time in contributory transfers but not in non-contributory transfers. This indicates that high-skilled migrants tend to rely less on non-contributory transfers compared to the average native, and that this does not change with years since arrival.

4.4 | Oaxaca–Blinder decomposition

Results in Tables 4–6 and Figures 3 and 4 show relevant composition effects in terms of the background characteristics described in the first subsection of Section 2. On most occasions, these composition effects go in the direction of making differences between migrants and natives closer to zero. In addition, Figures 3 and 4 show that the inclusion of control variables eventually makes the differences indistinguishable from zero once migrants have spent no more than six years in the Netherlands. In this subsection, we provide further insight into these composition effects by reporting the results of the Oaxaca–Blinder decomposition as outlined in equation (6). As explained in Section 3, this method allows investigating the contribution of each background characteristic to the explained part of the differences between migrants and natives.

Since the Oaxaca–Blinder decomposition allows us to measure the contribution of groups of variables, we group several of the background characteristics together for this part of the analysis, and classify them in three groups. The first group includes individual-level variables (i.e. age, gender and household position), the second includes household-level variables (i.e. household structure, marital status of the household head, and children),[23] and the third includes the

TABLE 7 Decomposition Total Transfers

	EU		EU-CEE	
	Transfer receipt (1)	Amount received (2)	Transfer receipt (3)	Amount received (4)
Difference	−0.066***	−50	−0.072***	−1280***
	(0.014)	(121)	(0.029)	(172)
Explained	−0.032***	144*	−0.048***	−999***
	(0.012)	(88)	(0.016)	(109)
Individual-level variables				
Age	−0.005**	−19	−0.023***	−1223***
	(0.003)	(68)	(0.004)	(82)
Gender	−0.001***	−15***	−0.001***	−30***
	(0.000)	(2)	(0.000)	(5)
Household position	0.013***	166***	0.009***	324***
	(0.001)	(44)	(0.002)	(93)
Household-level variables				
Household structure	−0.009***	−61***	−0.001	−161***
	(0.002)	(19)	(0.003)	(32)
Marital status head	0.007**	72***	0.017*	117***
	(0.004)	(20)	(0.007)	(45)
Children	−0.040***	−39	−0.059**	−137
	(0.015)	(53)	(0.025)	(115)
Region and time				
Urban	0.004***	31***	0.005***	34***
	(0.000)	(5)	(0.001)	(5)
Province	−0.004***	−25***	−0.005***	−36***
	(0.000)	(5)	(0.001)	(7)
Year	0.004***	35***	0.012***	115***
	(0.000)	(4)	(0.001)	(6)
Mean dependent variable	0.763	4902	0.764	4893
R^2	0.452	0.436	0.453	0.437
Observations	1,644,890	1,151,649	1,611,248	1,129,326

Notes: Standard errors clustered at the household level are provided in parentheses. 'Difference' refers to the difference in means between natives and migrants without accounting for control variables. 'Explained' refers to the part of that difference that is explained by the control variables. Regressions for the amount received are conditional on receipt. The R^2 corresponds to the regressions including control variables as reported in columns (2) and (3) of Table 4. For more details on the decomposition, see the text. *, **, *** indicate significant at the 10%, 5%, 1% level, respectively.

regional and time variables (i.e. level of urbanization, province and year effects). The contribution of all these variables is captured by the first summand on the right-hand side of equation (6). The other two summands in equation (6) capture the unexplained part of the difference in the outcome. We do not report the contribution of each background characteristics to the unexplained part of the difference since that is beyond the scope of our analysis.

Table 7 provides the decomposition for the regressions in panel A of Table 4, while Tables 8 and 9 respectively provide the decompositions for the regressions in panels B and C of Table 4. The first two rows in each of Tables 7–9 show the raw differences between migrants and natives,

TABLE 8 Decomposition Contributory Transfers

	EU		EU-CEE	
	Transfer receipt (1)	Amount received (2)	Transfer receipt (3)	Amount received (4)
Difference	−0.010	−1041***	−0.086***	−3643***
	(0.010)	(144)	(0.009)	(299)
Explained	−0.017*	27	−0.110***	−1212***
	(0.009)	(82)	(0.008)	(197)
Individual-level variables				
Age	−0.023***	−92	−0.119***	−1449***
	(0.008)	(63)	(0.006)	(167)
Gender	−0.001***	−59***	−0.002***	−154***
	(0.000)	(13)	(0.000)	(25)
Household position	0.009***	47**	0.015***	54
	(0.002)	(23)	(0.003)	(43)
Household-level variables				
Household structure	−0.005***	10	−0.007***	127***
	(0.001)	(18)	(0.002)	(40)
Marital status	0.002**	77***	0.002	41
	(0.001)	(23)	(0.002)	(43)
Children	0.002	−39	0.001	−154**
	(0.002)	(25)	(0.004)	(68)
Region and time				
Urban	0.001***	4	0.001***	5
	(0.000)	(6)	(0.000)	(7)
Province	−0.002***	26***	−0.003***	35***
	(0.000)	(7)	(0.000)	(8)
Year	0.000***	53***	0.001***	284***
	(0.000)	(9)	(0.000)	(20)
Mean dependent variable	0.250	10,511	0.249	10,519
R^2	0.579	0.204	0.580	0.204
Observations	1,644,890	411,085	1,611,248	401,986

Notes: See Table 7.

and the part that is explained by the background characteristics. Since we use the estimates of the pooled models in equation (6), the raw differences correspond to the estimates without control variables in Table 4, while subtracting the second row from the first in each of Tables 7–9 yields the coefficient estimates when accounting for observables. The first two rows are followed by the contribution of each group of variables to the explained part of the difference. The addition of the contributions of each (group of) variable(s) equals the total of the part of the difference that is explained.

Column (1) of Table 7 shows that the largest contributors to the explained portion of the difference between EU migrants and Dutch natives in terms of the receipt of total transfers are household structure and, especially, the presence and number of children in the household. The position in the household also contributes substantially, but its contribution has the opposite

TABLE 9 Decomposition Non-contributory Transfers

	EU		EU-CEE	
	Transfer receipt (1)	Amount received (2)	Transfer receipt (3)	Amount received (4)
Difference	−0.053***	153***	−0.001	411***
	(0.011)	(48.057)	(0.019)	(103.461)
Explained	−0.022***	111***	0.020	289***
	(0.008)	(20)	(0.015)	(34)
Individual-level variables				
Age	0.008	21***	0.049***	82***
	(0.005)	(5)	(0.006)	(7)
Gender	−0.001***	14***	−0.002***	28***
	(0.000)	(2)	(0.000)	(4)
Household position	0.015***	126***	0.012***	207***
	(0.001)	(29)	(0.002)	(57)
Household-level variables				
Household structure	−0.012***	−7	−0.004	−13
	(0.002)	(12)	(0.003)	(18)
Marital status	0.008**	81***	0.016**	204***
	(0.004)	(25)	(0.008)	(47)
Children	−0.046***	−137***	−0.068**	−255***
	(0.017)	(42)	(0.028)	(85)
Region and time				
Urban	0.004***	41***	0.004***	43***
	(0.001)	(4)	(0.001)	(5)
Province	−0.005***	−39***	−0.006***	−41***
	(0.000)	(3)	(0.001)	(5)
Year	0.005***	11***	0.018***	35***
	(0.004)	(2)	(0.001)	(3)
Mean dependent variable	0.645	1724	0.647	1724
R^2	0.534	0.305	0.535	0.310
Observations	1,644,890	856,818	1,611,248	840,829

Notes: See Table 7.

sign compared to the raw difference provided in the first row. That means that this particular variable contributes towards migrants being more likely to receive transfers compared to natives. This effect is outweighed by the variables displaying a negative contribution to the difference. Regarding the amount received in total transfers, the second row of column (2) of Table 7 shows that, overall, the control variables contribute positively towards the raw difference.[24] In this case, we see that the variables with an important contribution with respect to the size of the explained part of the difference are the household position and the marital status of the household head.

The first two rows in columns (3) and (4) of Table 7 show that, for EU-CEE migrants, the control variables have a substantial negative contribution to the raw differences in total transfers vis-à-vis natives. That is the case for both the probability of receipt and the amount received. In the former case, age and children are the largest contributors to the explained part of the difference, while in the latter case, household structure and especially age are most important relative to the size of the explained part of the difference. All columns of Table 7 show that gender,

as well as the region and time variables, does not contribute substantially to explaining the size of the observed differences.

Table 8 shows that when focusing on contributory transfers and the total of EU migrants, the background variables that we consider do not play a very important role in explaining the observed raw differences. However, they do play a much more substantial role when we focus on EU migrants from CEE countries only. In that case, we see again age appearing as the most important factor. That is likely the case because, as shown in Table 1, individuals from EU-CEE countries are much younger on average and thus less likely to receive a state pension. In contrast, Table 9 shows that in the case of non-contributory transfers, household position and marital status are more important compared to the results in Table 8. In addition, we observe in this case an important contribution of differences in the presence and number of children, which make migrants less likely to receive transfers and receive lower transfer amounts. Once again, Table 9 shows age playing an important role. However, in this case, differences in age make migrants more likely to receive transfers and to receive larger amounts. That is very likely the case because younger adults are more likely to be eligible for non-contributory benefits since they are more likely to have small children, they probably have built less eligibility for contributory benefits, and they are not eligible for the state pension.

5 | CONCLUSIONS

In this study, we contribute to the literature on public transfers receipt by migrants and assimilation by focusing on EU migrants in the Netherlands. We do so by employing high-quality administrative panel data containing very accurate and comprehensive information on all public transfers available for a long period of time. The longitudinal dimension of the data allows us to study how the receipt of public transfers by EU migrants changes over time spent in the Netherlands. Furthermore, the availability of a rich set of background characteristics allows us to conduct a detailed study of composition effects using an Oaxaca–Blinder decomposition. The results of the baseline analysis show that when all transfers are considered together, EU migrants are less likely to receive public transfers conditional on receipt. In addition, they receive on average significantly lower amounts conditional on transfer receipt. These main results also hold when we focus only on EU migrants from Central and Eastern European (CEE) countries within the EU. An important caveat to consider here is that our conclusions relate to only a part of a broader picture since, for the reasons mentioned in the Introduction, we do not factor in the fiscal contribution of migrants in the analysis.

The results that we obtain show important differences in the size and sign of the estimated effects depending on whether contributory or non-contributory transfers are considered. For instance, we find that once controlling for observables, EU migrants are more likely to receive contributory transfers than Dutch natives, which is due to their higher probability of receiving unemployment benefits. However, conditional on receipt, EU migrants receive comparatively less in contributory transfers, which is likely due to lower incomes and fewer years of employment in the Netherlands. Furthermore, EU migrants appear to be less likely to receive non-contributory transfers; however, they receive larger amounts conditional on receipt. This is mostly due to migrants being more likely to receive social assistance and, most notably, housing benefits. Our baseline results contrast with those by Zorlu (2013), who, also using administrative data for the Netherlands for the year 2005, finds that migrants receive public transfers more often than natives. However, Zorlu (2013) focuses only on receipt by non-EU migrants of unemployment benefits, disability benefits and social assistance.

As an addition to the baseline results, we find that EU migrants are especially less likely to receive public transfers during the first years spent in the Netherlands. After that, their receipt

of transfers and the amount received gradually increase over time relative to natives. Before controlling for observables, on some occasions we see that migrants eventually become more likely to receive public transfers. This is especially the case for non-contributory transfers. However, when controlling for observables, we find that EU migrants go from receiving less transfers to eventually becoming not significantly different from natives in a process that, in most cases, does not take longer than seven years. These results indicate that EU migrants assimilate into receipt of public transfers over time, which contrasts with the results by Hansen and Lofstrom (2003) and Sarvimäki (2011). These studies find that for Sweden and Finland, respectively, migrants are more likely than natives to receive transfers upon arrival and then undergo a long process of assimilation out of welfare. The difference between their results and ours is very likely because these two studies focus on social assistance receipt by non-western migrants, while we look at a much more comprehensive set of transfers and focus on EU migrants. This stark difference in results indicates how important it is to consider these groups of migrants separately.

Both the baseline analysis and the study of the effects by year of arrival indicate the presence of important composition effects in terms of the background characteristics that we include as control variables. An analysis of these composition effects using an Oaxaca–Blinder decomposition shows that it is mostly differences in age and variables related to family composition that explain the discrepancies that we observe between EU migrants and Dutch natives. In the case of contributory transfers, age plays an important role in explaining why EU migrants are less likely to receive them, and why they receive lower amounts when we do not include control variables in the analysis. That is most probably the case because these migrants are younger on average, which makes them less likely to receive a state pension. That is especially the case for EU migrants from CEE countries. Furthermore, family composition variables, especially household position and marital status, play a relevant role in determining differences in the receipt of non-contributory transfers. Having fewer children importantly contributes to EU migrants being less likely to receive non-contributory transfers. In this case, age has the opposite effect compared to the case of contributory transfers, indicating that younger adults are more likely to receive non-contributory transfers. That is probably because they have built fewer rights to receive contributory transfers and they have not yet reached the state pension age.

The pattern of assimilation into receipt of public transfers that we find is likely for several reasons. Regarding contributory transfers, Eleveld and van Vliet (2013) explain that it takes time to build eligibility for them, and the amount received depends on years of work. This can partially explain the results we find. Regarding non-contributory transfers, which is where the assimilation pattern is most clear, there are two potential explanations.

First, as explained by Fernandes (2016), the EU legal framework ensures that nationals from other EU member states are treated as being equal with nationals, while also giving states the right to protect themselves from welfare tourism. In this context, EU migrants have the same rights as Dutch natives to access non-contributory transfers upon arrival in the Netherlands. However, as explained by Pennings (2020), the Dutch government reserves the right to end the legal residence of EU migrants who receive social assistance benefits while not being economically active during the first five years of legal residence. This is the case only when migrants are not able to prove any potential for labour market integration, and does not apply to non-contributory transfers other than social assistance, that is, child, health, housing and study benefits.

Second, it may be that EU migrants do not immediately have the resources necessary to learn about eligibility rules for public benefits. As argued by Borjas and Hilton (1996), welfare state programmes can have complicated eligibility rules, and migrants may lack sufficient knowledge about them upon arrival. Over time, migrants build social capital through access to local and immigrant networks, thus gaining easier access to information on eligibility rules. That makes them gradually more likely to receive public transfers, until they eventually reach levels similar to natives. The pattern of assimilation that we find is most clear for non-contributory transfers, that is, once controlling for observables assimilation into the receipt of contributory transfers takes

two years, while it takes six years for non-contributory transfers. In addition, as mentioned above, the differences in eligibility between EU migrants and Dutch natives in terms of eligibility for non-contributory transfers are rather small (Pennings 2020). Therefore the argument by Borjas and Hilton (1996) is likely to play an important role in explaining the assimilation pattern that we find. In line with this argument, Vethaak *et al.* (2023) find using Dutch data that once they apply for social assistance, migrants experience longer administrative delays compared to natives. The authors attribute these delays to language barriers and lack of familiarity with the system.

Overall, our results indicate that the policies of free movement of individuals within the EU do not increase average expenditure in public transfers in the Netherlands. This is the case even when the Netherlands is a common destination country within the EU that has seen a considerable increase in the inflow of EU migrants since the very early years of the 21st century. An important question that remains to be studied is the impact of this flow of EU migrants on fiscal contributions via payments to the tax and social security systems. In addition, future work is needed to further explore the relative importance of the combined mechanisms that explain the assimilation patterns that we find.

ACKNOWLEDGMENTS

For providing useful comments and suggestions, the authors would like thank Viola Angelini, Jim Been, Ernest Berkhout, Giacomo Boffi, Paul Bose, Saena Chakkar, Robert Dur, Clare Fenwick, Yajna Govind, Marike Knoef, Bert Kramer, Annikka Lemmens, Vasco Molini, Raymond Montizaan, Henry Redondo, Sigrid Suetens, Heike Vethaak, Maria Zumbuehl and three anonymous referees, as well as members of the Leiden University research programme Social Citizenship and Migration, participants in the work-in-progress seminar of the Department of Economics of Leiden University of 15 December 2020, the CPB (Netherlands Bureau for Economic Policy Analysis) Seminar of 25 May 2021, the KVS (Royal Dutch Economic Association) New Paper Sessions 2021, the International Conference of European Studies 2021, the LAGV International Conference in Public Economics 2021, the Dutch Economists Day 2021, the conference of the Leiden-Delft-Erasmus Centre Governance of Migration and Diversity 2022, and Maastricht University's ROA Learning and Work Seminar of 25 October 2022. This study is part of the Leiden University research programme Social Citizenship & Migration. Financial support from Institute Gak is gratefully acknowledged.

ENDNOTES

[1] For an overview of the economic effects of migration and their impact on policy, see, for example, OECD (2019), Fasani *et al.* (2020) and Dorn and Zweimüller (2021).

[2] EU citizens who move within the EU are not considered officially to be migrants but are EU mobile citizens. In the present paper, we use the term EU migrants as a shorthand for EU mobile citizens.

[3] These are migrants from Morocco, Turkey, Suriname, and the group of countries formerly known as the Netherlands Antilles (i.e. Aruba, Bonaire, Curaçao, Sint Maarten, Sint Eustatius and Saba).

[4] These countries are Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. All countries joined the EU in 2004, with the exception of Bulgaria and Romania, which joined in 2007.

[5] For a review of the literature on the public transfer receipt of migrants, see Giulietti (2014). For a review of the literature on the net fiscal position of migrants, see Hennessey and Hagen-Zanker (2020).

[6] In line with this argument, Yao and van Ours (2015) and Boffi (2020) show the importance of Dutch language skills for the assimilation of migrants in the Netherlands.

[7] In terms of transfer receipt, for non-contributory transfers we observe an assimilation process that takes six years. For contributory transfers, we observe large composition effects, but a much shorter assimilation path taking no longer than two years.

[8] EU citizens from other member states who stay in the Netherlands for less than four months are not required to have a social security number and are considered to be temporary migrants. As shown by Heyma *et al.* (2018), the number of temporary migrants from EU-CEE countries is relatively large: out of a total of 371,000 labour EU-CEE migrants active as employees in the Netherlands in 2016, 183,000 were temporary workers (49%). Since these migrants stay in the Netherlands for only short periods of time, and they lack a social security number, they are rarely entitled to any benefits. Therefore they are beyond the scope of the present study.

[9] For a further explanation of the IPO data and how they compare with survey data, see De Nardi *et al.* (2021).

[10] This means that we observe 1.16% of all individuals who lived in the Netherlands between 2004 and 2014.
[11] The IPO identifies the household head as the highest-earning person in the household.
[12] In accordance with the EU rules explained in detail by Fernandes (2016), the Dutch Immigration and Naturalisation Service reserves the right to end legal residence of EU citizens who receive public benefits while not being economically active.
[13] For all contributory transfers that we consider, contributions via the payment of a premium are required to become eligible. The only exception is the state pension, which is financed via premiums paid by workers, but the amount an individual is entitled to receive depends only on years of legal residence in the Netherlands.
[14] All transfers that we consider are received at the individual level except for child and housing benefits, which are received at the household level. For the latter, we divide the amount received between the household head and the partner (if there is a partner) such that they can also be considered at the individual level.
[15] We do not consider it necessary to adjust for inflation because it was very low during the period of analysis (it was below 2% in all years, and sometimes even below 1%) and because we control for time effects via the inclusion of year dummies in the analyses. When re-estimating our main results adjusting for inflation, the change is negligible.
[16] Note that these are raw differences. Table 1 shows that EU migrants are less likely to have children. Taking this into account, the small raw difference in receipt of child benefits shown in Table 3 would imply that EU migrants are actually more likely to receive child benefits.
[17] Including labour market status as a control variable would create a so-called bad control problem. For more details on this, see Angrist and Pischke (2009). In the context of the present study, labour market status would rather be either a dependent variable or a variable mediating between migration status and receipt of public transfers. Investigating the role of this variable is relevant, but it is beyond the scope of the present study.
[18] For the probability of receipt, we also estimate probit and logit models. The results are not significantly different from those of a linear probability model. For concision, we report only the results of the linear probability model. In addition, when we estimate equation (2) without the $receipt_{it} = 1$ condition, results do not significantly differ between linear and Tobit estimation. Simultaneous estimation via seemingly unrelated regressions reveals a significant correlation between the error terms of the two equations but does not significantly alter the standard errors.
[19] It is common in the literature to refer to the second summand in equation (5) as capturing the effect of discrimination. However, besides potential discrimination, it also subsumes the effects of all group differences in unobserved factors.
[20] This is likely due to the fact that, as shown by Boffi (2020), migrants are more likely to have temporary contracts in the Netherlands.
[21] Figure 2(b) shows that we have values of up to 20 for the years since arrival variable. However, the number of observations at the tail end of the distribution is very small, causing the estimates for the largest values to be too imprecise. For that reason, in Figures 3 and 4 we provide only the estimates for up to 15 years since arrival.
[22] All results conditional on study and high-skill employment reported here are obtained including control variables and considering the group of all EU migrants (thus not only EU-CEE migrants). Results are available on request.
[23] Here, 'household structure' designates a group of variables combining the effects of both the variable called household structure in Table 2 and the household size variable, while 'children' combines the effects of both the presence and the number of children.
[24] As shown in Table 4, this means that in this case, the difference between migrants and natives is even larger once we include the background characteristics as control variables.

REFERENCES

Agersnap, O., Jensen, A. and Kleven, H. (2020). The welfare magnet hypothesis: evidence from an immigrant welfare scheme in Denmark. *American Economic Review: Insights*, **2**(4), 527–42.

Algan, Y., Guriev, S., Papaioannou, E. and Passari, E. (2017). The European trust crisis and the rise of populism. *Brookings Papers on Economic Activity*, **2017**(2), 309–400.

Angrist, J. and Pischke, J.-S. (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Baker, M. and Benjamin, D. (1995). The receipt of transfer payments by immigrants to Canada. *Journal of Human Resources*, **30**(4), 650–76.

Bansak, C., Simpson, N. and Zavodny, M. (2020). *The Economics of Immigration*. Abingdon: Routledge.

Barrett, A., Kahanec, M., Zimmermann, K. and Maître, B. (2013). Immigrant welfare receipt across Europe. *International Journal of Manpower*, **34**(1), 8–23.

Been, J., Suari-Andreu, E., Knoef, M. and Alessie, R. (2021). Consumption and time use responses to unemployment. NETSPAR Design Paper no. 187.

Bijwaard, G., Schluter, C. and Wahba, J. (2014). The impact of labor market dynamics on the return migration of immigrants. *Review of Economics and Statistics*, **96**(3), 483–94.

Blinder, A. (1973). Wage discrimination: reduced form and structural estimates. *Journal of Human Resources*, **8**(4), 436–55.

Boeri, T. (2010). Immigration to the land of redistribution. *Economica*, **77**(308), 651–87.

Boffi, G. (2020). Temporary employment of first-generation migrants in the Netherlands. Leiden University, Department of Economics Research Memorandum 2020/01.
Borjas, G. and Hilton, L. (1996). Immigration and the welfare state: immigrant participation in means-tested entitlement programs. *Quarterly Journal of Economics*, **111**(2), 575–604.
Chojnicki, X. and Ragot, L. (2016). Impacts of immigration on an ageing welfare state: an applied general equilibrium model for France. *Fiscal Studies*, **37**(2), 258–84.
Clark, K. and Lindley, J. (2006). Immigrant labour market assimilation and arrival effects: evidence from the UK Labour Force Survey. IZA Working Paper no. 2228.
Coleman, D. (2008). The demographic effects of international migration in Europe. *Oxford Review of Economic Policy*, **24**(3), 452–76.
Crossley, T., McDonald, J. T. and Worswick, C. (2001). Immigrant benefit receipt revisited: sensitivity to the choice of survey years and model specification. *Journal of Human Resources*, **36**(2), 379–97.
Davis, D. and Gift, T. (2014). The positive effects of the Schengen Agreement on European trade. *World Economy*, **37**(11), 1541–57.
De Giorgi, G. and Pellizzari, M. (2009). Welfare migration in Europe. *Labour Economics*, **16**(4), 353–63.
De Nardi, M., Fella, G., Knoef, M., Paz-Pardo, G. and van Ooijen, R. (2021). Family and government insurance: wage, earnings, and income risks in the Netherlands and the US. *Journal of Public Economics*, **193**, 104327, 1–28.
Dorn, D. and Zweimüller, J. (2021). Migration and labor market integration in Europe. *Journal of Economic Perspectives*, **35**(2), 49–76.
Dustmann, C. (2003). Return migration, wage differentials, and the optimal migration duration. *European Economic Review*, **47**(2), 353–69.
———, Facchini, G. and Signorotto, C. (2017). Population, migration, ageing and health: a survey. In L. Matyas *et al.* (eds), *Economics Without Borders: Economic Research for Economic Policy Challenges*. Cambridge: Cambridge University Press, pp. 113–58.
——— and Frattini, T. (2014). The fiscal effects of immigration to the UK. *Economic Journal*, **124**(580), 593–643.
Eleveld, A. and van Vliet, O. (2013). The Dutch welfare state: recent reforms in social security and labour law. *Diritto Pubblico Comparato ed Europeo*, **4**, 1371–99.
Fasani, F., Llull, J. and Tealdi, C. (2020). The economics of migration: labour market impacts and migration policies. *Labour Economics*, **67**, 101929.
Fernandes, S. (2016). Access to social benefits for EU mobile citizens: tourism or myth? Notre Europe–Jacques Delors Institute Policy Paper no. 168.
Fortin, N. (2006). *Greed, altruism, and the gender wage gap*. Unpublished manuscript, Department of Economics, University of British Columbia.
Giulietti, C. (2014). The welfare magnet hypothesis and the welfare take-up of migrants. *IZA World of Labor*, **2014**(37), 1–10.
Gustafsson, B. and Österberg, T. (2001). Immigrants and the public sector budget—accounting exercises for Sweden. *Journal of Population Economics*, **14**(4), 689–708.
Hansen, J. and Lofstrom, M. (2003). Immigrant assimilation and welfare participation: do immigrants assimilate into or out of welfare? *Journal of Human Resources*, **38**(1), 74–98.
Hennessey, G. and Hagen-Zanker, J. (2020). The fiscal impact of immigration: a review of the evidence. ODI Working Paper no. 573.
Heyma, A., Bisschop, P. and Biesenbeek, C. (2018). De Economische Waarde van Arbeidsmigranten uit Midden-en Oost-Europa voor Nederland. *SEO-Rapport* 2018-37. https://dare.uva.nl/search?identifier=43960809-b1cf-45f8-abde-d5f82172be8b
Huber, P. and Oberdabernig, D. (2016). Decomposing welfare wedges: an analysis of welfare dependence of immigrants and natives in Europe. *Kyklos*, **69**(1), 82–107.
Jakubiak, I. (2020). Are migrants overrepresented among individual welfare beneficiaries? *International Migration*, **58**(5), 103–27.
Oaxaca, R. (1973). Male–female wage differentials in urban labor markets. *International Economic Review*, **14**(3), 693–709.
——— and Ransom, M. (1994). On discrimination and the decomposition of wage differentials. *Journal of Econometrics*, **61**(1), 5–21.
OECD (2019). *International Migration Outlook 2019*. Paris: OECD Publishing.
Pennings, F. (2020). Migrants' access to social protection in the Netherlands. In J. M. Lafleur and D. Vintila (eds), *Migration and Social Protection in Europe and Beyond*, Vol. **1**. Cham: Springer, pp. 313–25.
Razin, A. and Wahba, J. (2015). Welfare magnet hypothesis, fiscal burden, and immigration skill selectivity. *Scandinavian Journal of Economics*, **117**(2), 369–402.

Rodríguez-Planas, N. (2012). Wage and occupational assimilation by skill level: migration policy lessons from Spain. *IZA Journal of European Labor Studies*, **1**(1), 1–20.
Roman, M. (2019). Work and welfare take-up of enlargement migrants in the United Kingdom. *Applied Economics Letters*, **26**(5), 341–4.
Sarvimäki, M. (2011). Assimilation to a welfare state: labor market performance and use of social benefits by immigrants to Finland. *Scandinavian Journal of Economics*, **113**(3), 665–88.
van Vliet, O., Bakker, V. and van Doorn, L. (2021). From social protection to social investment: European responses to globalization, technological change, labour market flexibilization, and migration. In G. Fischer and R. Strauss (eds), *Europe's Income, Wealth, Consumption, and Inequality*. New York: Oxford University Press, pp. 343–94.
Vethaak, H., de Bruijn, E.-J., Knoef, M. and Koning, P. (2023). The effects of application processing times and prepayments on welfare receipt and employment. Unpublished manuscript, Department of Economics, Leiden Univesrity. *IZA Working Paper*.
Vossen, K. (2016). *The Power of Populism: Geert Wilders and the Party for Freedom in the Netherlands*. Abingdon: Routledge.
Yao, Y. and van Ours, J. (2015). Language skills and labor market performance of immigrants in the Netherlands. *Labour Economics*, **34**, 76–85.
Zorlu, A. (2013). Welfare use of migrants in the Netherlands. *International Journal of Manpower*, **34**(1), 83–95.

How to cite this article: Suari-Andreu, E. and van Vliet, O. (2023). Intra-EU migration, public transfers and assimilation. *Economica*, 1–36. https://doi.org/10.1111/ecca.12484

APPENDIX: ADDITIONAL RESULTS

TABLE A1 Individual Transfers per Transfer Category

Contributory transfers	
State pension	*Algemene ouderdomswet* (AOW—State pension)
Disability and sickness benefits	*Wet werk en inkomen naar arbeidsvermogen* (WIA—Disability benefit), *wet op de arbeidsongeschiktheidsverzekering* (WAO—Disability benefit), *ziektewet* (ZW—Sickness benefit)
Unemployment benefit	*Werkloosheidswet* (WW—Unemployment benefit)
Other contributory	*Wet arbeidsongeschiktheidsverzekering zelfstandigen* (WAZ—Disability benefit for self-employed), *algemene weduwen en wezenwet* (AWW—Survivor and orphan's pension), *algemene nabestaandenwet* (ANW—Survivor's pension), *wachtgeld uitkering* (WU—High-ranking civil servant's pension)
Non-contributory transfers	
Social assistance	*Algemene bijstandswet* (ABW—Welfare benefits), *wet werk en bijstand* (WWB—Welfare benefits), *bijstandbesluit zelfstandigen* (BBZ—Welfare benefits for self-employed), *wet inkomensvoorziening oudere en gedeeltelijk arbeidongeschikte werkloze werknemers* (IOAW—Welfare benefits older unemployed), *wet inkomensvoorziening oudere en gedeeltelijk arbeidongeschikte gewezen zelfstandigen* (IOAZ—Welfare benefits older self-employed), *toeslagenwet* (TW—Welfare benefits), *oorlog en verzet pensioen* (OVP—Pension veterans), *wet arbeidongeschiktheidsvoorziening jonggehandicapten* (WAJONG—Welfare benefits for younger disabled)
Child benefits	*Algemene kinderbijslagwet* (AKW—General child benefit), *kindgebonden budget* (KGB—Additional child benefits), *kinderopvangtoeslag* (KOT—Childcare benefits)
Health benefits	*Zorgtoeslag* (ZT—Healthcare benefits)
Housing benefits	*Huursubsidie* (HS—Rental housing benefits), *Rijksbijdrage eigen woning* (RBEW—Homeowner benefits), *Huurtoeslag* (HT—Rental housing benefits)
Study benefits	*Uitkering studietoelage* (US—Study allowance), *tegemoetkoming studiekosten* (TS—Study cost allowance)

Notes: For each individual transfer, the Dutch name is provided followed (in parentheses) by the Dutch acronym and an English clarification. For more information about individual transfers, see Eleveld and van Vliet (2013).

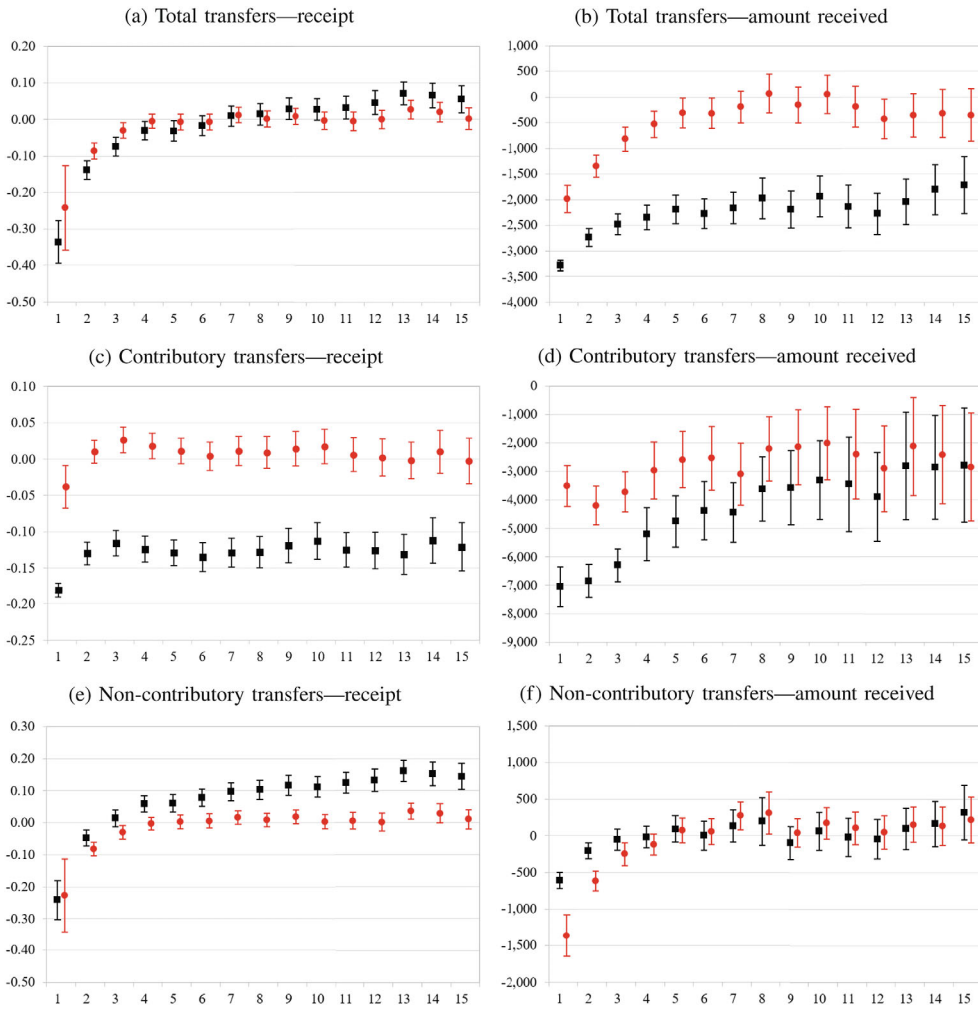

FIGURE A1 Results—transfer aggregates by years since arrival (EU migrants), out-migration excluded. *Notes:* All results are based on the same regressions as in columns (1) and (2) of Table 4 replacing the EU migrant dummy with a set of dummies for year since arrival. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls. Point estimates are surrounded by the 95% confidence intervals.

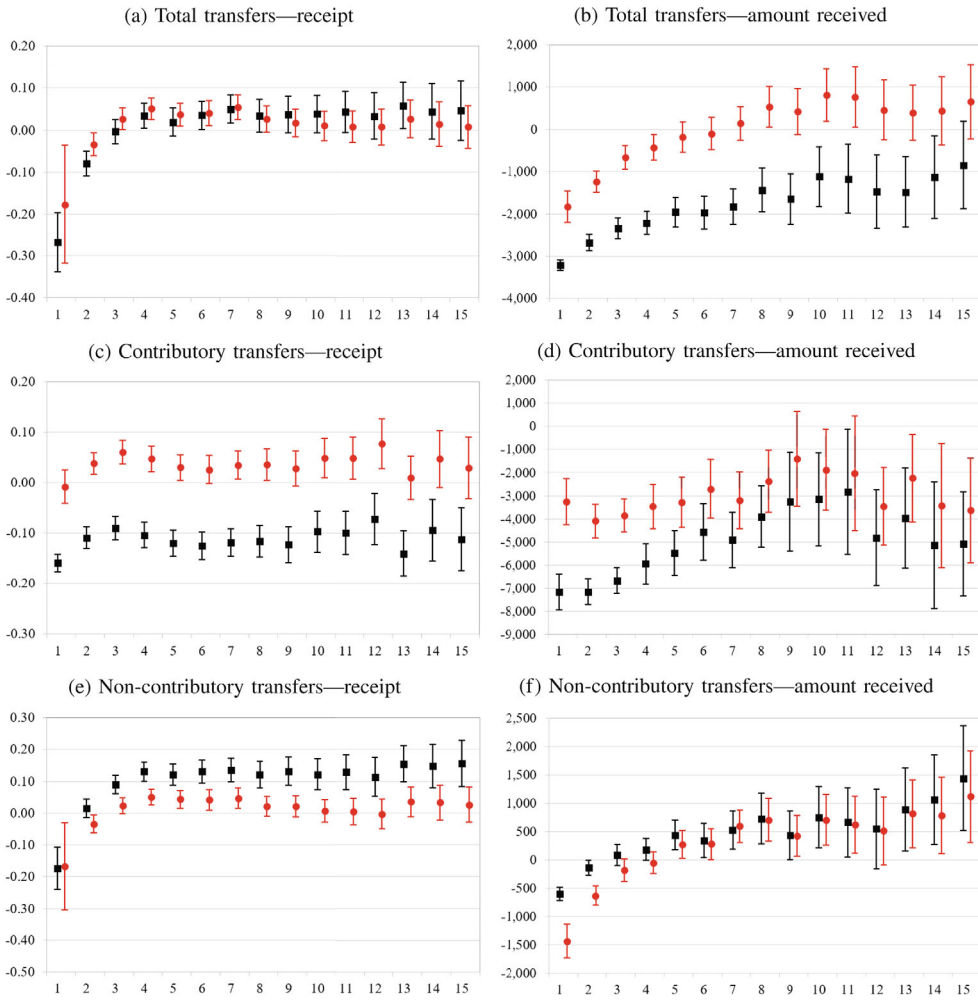

FIGURE A2 Results—transfer aggregates by years since arrival (EU-CEE migrants), out-migration excluded. *Notes:* All results are based on the same regressions as in columns (3) and (4) of Table 4 replacing the EU migrant dummy with a set of dummies for year since arrival. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls. Point estimates are surrounded by the 95% confidence intervals.

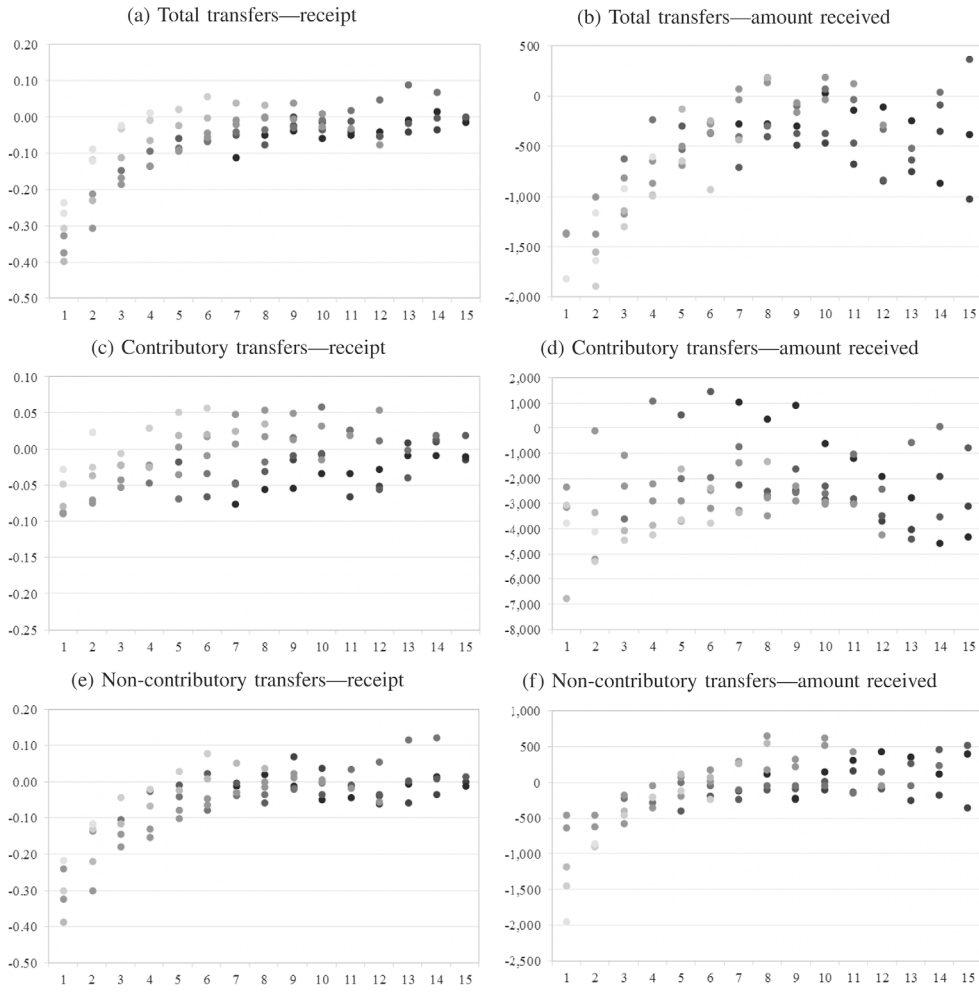

FIGURE A3 Results—transfer aggregates by years since arrival (EU migrants). *Notes:* All results are based on the same regressions as in Figure 3 but estimated per cohort of arrival. Each different shade of grey represents the trajectory for a different two-year arrival cohort. There are ten cohorts ranging from 1995 to 2014. Darker dots represent cohorts that arrive earlier, and lighter dots represent cohorts that arrived later. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival.

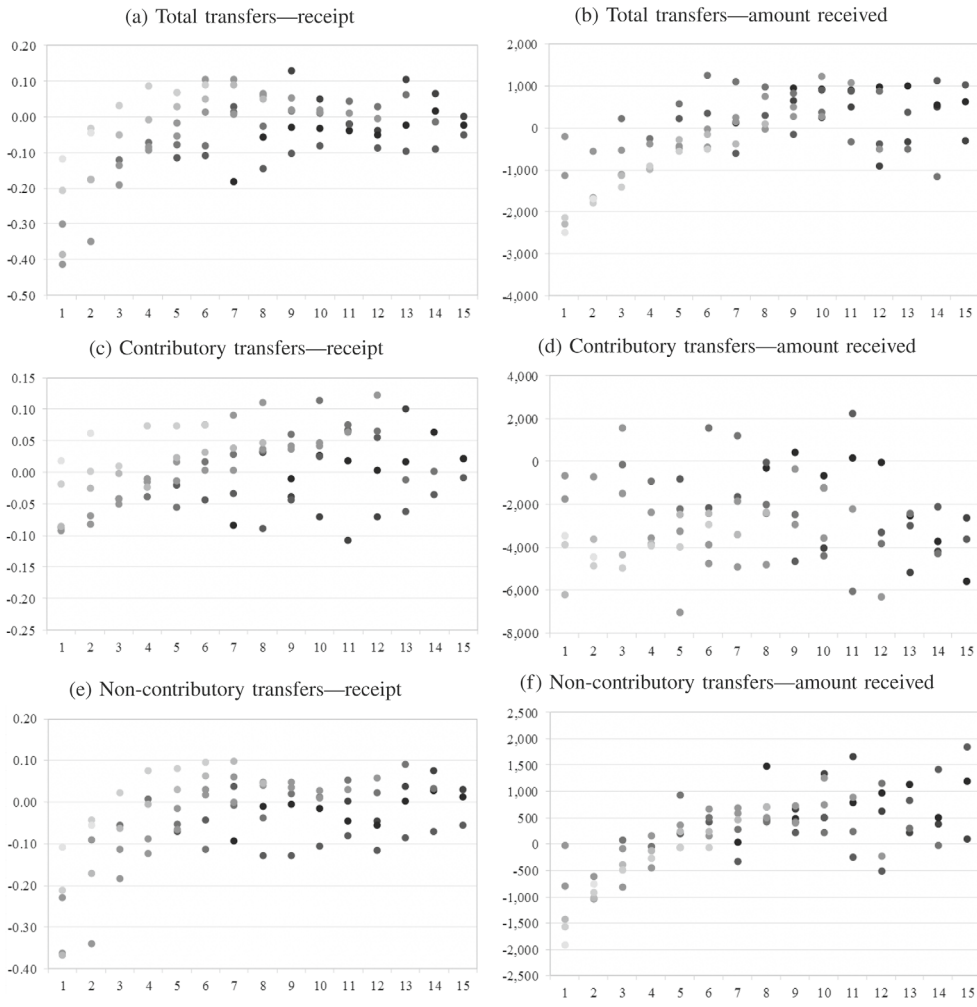

FIGURE A4 Results—transfer aggregates by years since arrival (EU-CEE migrants). *Notes:* All results are based on the same regressions as in Figure 4 but estimated per cohort of arrival. Each different shade of grey represents the trajectory for a different two-year arrival cohort. There are ten cohorts ranging from 1995 to 2014. Darker dots represent cohorts that arrive earlier, and lighter dots represent cohorts that arrived later. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival.

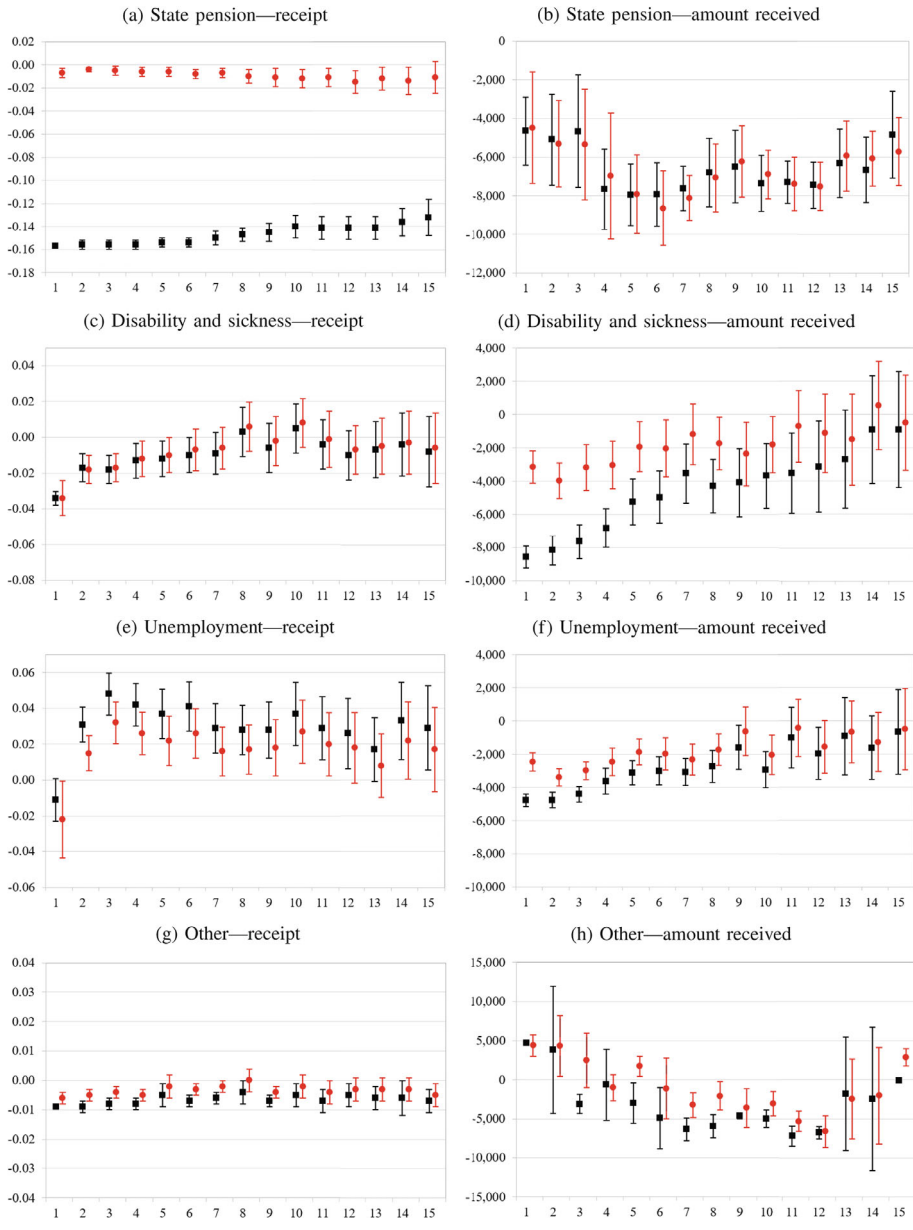

FIGURE A5 Results—contributory transfers by years since arrival (EU migrants). *Notes:* Results are the same as in Figure 3 but disaggregated by subcategory of contributory transfers. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls.

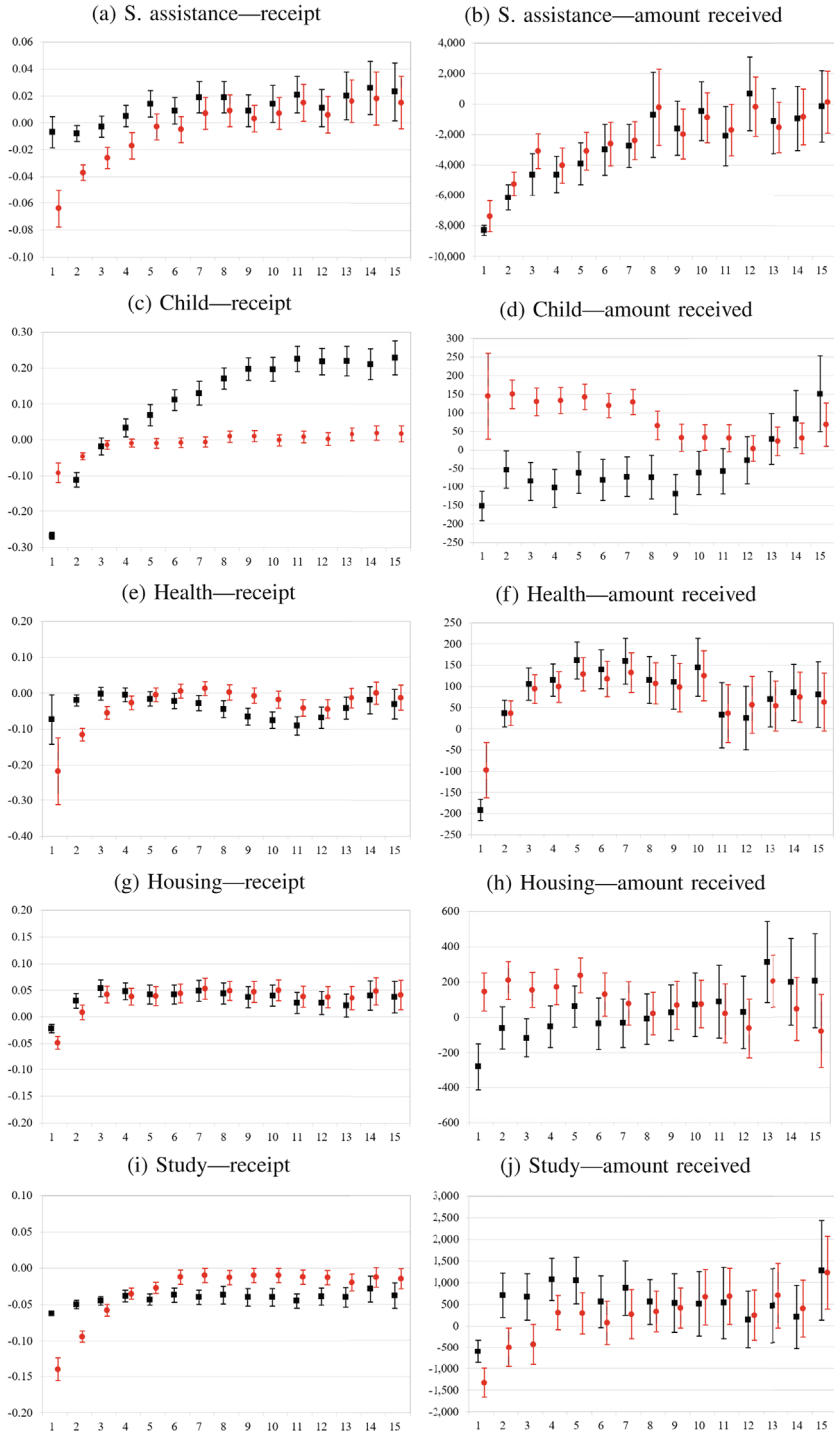

FIGURE A6 Results—non-contributory transfers by years since arrival (EU migrants). *Notes:* Results are the same as in Figure A1 but disaggregated by subcategory of non-contributory transfers. The vertical axis provides the value of the estimates for each dummy, while the horizontal axis provides the year since arrival. Squares indicate without controls, circles indicate with controls.