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Limbo or Leverage? Asylum waiting and refugee integration

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February 2022

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Limbo or leverage? Asylum waiting and refugee integration[a]

by

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February 03, 2022

Abstract

We study the impact of asylum waiting, exploiting a rapid increase in processing times for asylum seekers to Sweden. Longer waiting slows down integration. Accumulated earnings during the first four years after application are 2.3 percent lower per added month of waiting. The impact is due to delay rather than negative effects of waiting per se. There is no evidence of detrimental effects on psychiatric or other forms of health. From the date of asylum, those who have waited longer perform better in the labor market and are more likely to start advanced language training and labor market programs.

Keywords: Asylum waiting, labor market, health
JEL-codes: F22, J15, J68

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1 Introduction

How to handle refugee and migrant flows is a major concern for policy makers in many countries and has for long been one of the most contested policy areas in the EU (Dustmann et al., 2017; Phillimore, 2011). In 2015, the unprecedented surge in asylum seekers to Europe increased pressure on asylum reception systems and brought the issue to the top of the political agenda. Political developments in Afghanistan and other parts of the Middle East as well as in north-east Africa suggest that the issue is poised to remain highly relevant in the coming years. The need for effective integration policies is particularly strong, as many refugees often struggle to integrate into the labor market in host societies (Brell et al., 2020; Dustmann et al., 2017). Furthermore, the COVID-19 pandemic is projected to especially affect the employment prospects of migrants and refugees (Borjas & Cassidy, 2020; Fasani & Mazza, 2021).

This paper considers a potentially important and readily adjustable policy margin: asylum application processing time. Governments taking decisions about targets for average processing times face delicate considerations. A shorter waiting time has a humanitarian value in itself irrespective of the decision and might also be beneficial for the integration and well-being of people ultimately granted asylum. On the other hand, shorter waiting times come at the cost of increased funding and/or decreased legal certainty, and might affect the inflow of asylum seekers (as discussed in (Dustmann et al., 2017)). More evidence on the effects of waiting time on subsequent integration for individuals granted asylum would reduce the uncertainty under which governments balance these considerations.

We add to a small but growing economic and medical literature on the consequences of asylum application processing time for the economic integration and well-being of individuals granted asylum. Recent research using high-quality data and innovative empirical approaches shows that long processing times negatively affect the labor market prospects of refugees (Hainmueller et al., 2016; Hvidtfeldt et al., 2018; Ukrayinchuk & Havrylchyk, 2020). In the medical literature, several studies document a negative association between having to wait long and indicators of mental health (Bakker et al., 2014; Hallas et al., 2007; Hvidtfeldt et al., 2019; Laban et al., 2007; Ryan et al., 2008). Although many studies in the latter literature use very rich data, causal evidence is

scarce.[1] In addition to complementing the relatively limited existing literature with causal evidence from a new context (Sweden), we contribute to the understanding of the mechanisms through which asylum waiting may affect individuals by analyzing a broad set of integration-related outcomes evaluated at different points in time relative to the date of application and decision.

Our empirical analysis exploits a rapid increase in processing times for asylum applications submitted in Sweden during April–September 2014, caused by an increase in the number of applications received. Before this period, processing times had hovered around 180 days for a long time, but then more than doubled within a few months. Observationally similar asylum seekers who arrived a little later had to wait much longer for a decision. We use application date as an instrument for waiting time and show that the development did not coincide with any major changes in observed characteristics among the refugees.[2] To give a broad picture of the impact of asylum waiting and its interaction with integration policy, we use rich administrative data to investigate effects on an array of outcomes: employment, earnings, language training, active labor market policies, and health.

Sweden is an interesting case to study for several reasons. First, it is an experienced country in terms of refugee reception. In 2009–2015, the country had by far the largest number of asylum seekers per capita in Europe (Dustmann et al., 2017), and has for decades received a large number of refugees (Ruist, 2015). Second, Sweden stands out as inclusive and ambitious in policies aimed at promoting activity and the chances of successful integration. It ranked number one on the 2014 MIPEX index for integration policies and is acclaimed by the OECD for the system design in this area (OECD, 2016). Third, during the waiting period there were no formal restrictions on where asylum seekers can reside, claimants are not obliged to stay at reception centers or other forms of collective accommodation. Also, asylum seekers to Sweden face no general employment restrictions and the average length of the waiting period is modest in comparison with many other countries.[3] Arguably, we are therefore estimating the effects of asylum application processing time in an environment that is relatively favorable for asylum

[1] Higher prevalence of psychiatric disorders among refugees is well-documented in the medical literature (Giacco, 2020; Hynie, 2018; Ryan et al., 2008; Satinsky et al., 2019).
[2] Nor do we find any indications that general time effects affect our results.
[3] See Dustmann et al. (2017) for a more thorough discussion on asylum reception systems and how they differ across countries.

seekers. Thus, our estimates could potentially be interpreted as an upper bound of the effect of waiting time in an international perspective.

It is easy to presume that waiting time should have a negative effect on individual outcomes. But the effect can actually go in both directions, partly depending also on conceptual issues regarding follow-up times (Hvidtfeldt et al., 2018). Consider the case where two people apply for asylum the same day, but one of them has to wait an extra month before the application is approved. If we measure outcomes *t* months after being granted asylum, the difference in "treatment" will be one month of waiting. Outcome differences then reflect the impact of waiting per se, which depends on conditions and policies during the waiting period. If asylum seekers are strengthened by activation measures we might expect a positive impact on e.g. accumulated earnings. If, instead, the waiting time does not facilitate integration into the host society and/or negatively affects e.g. (mental) health and skills because of uncertainty and inactivity, the effect will go in the opposite direction.[4]

If one instead measures outcomes at a fixed point in time after application, to capture the overall effect of longer processing times, there is also the extra post-decision month for the person waiting shorter. The comparison then captures: (i) the net impact of waiting in itself (described above) and (ii) a delay effect stemming from not yet having experienced the "latest" month after granted asylum.[5] As long as outcomes improve with time after immigration, (ii) will be negative. The sign of the combined impact of (i) and (ii) is ambiguous. Decomposing the impact is thus essential to separate the fundamental impacts of waiting time on individuals from the more mechanical delay effect of processing time. In this paper, we perform both types of analyses to trace out the relative importance of the two types of effects which crucially matters for policy decisions.

We find that the overall impact of longer waiting on labor market outcomes is negative and economically significant. An additional month of waiting decreases the probability of being employed (defined as having positive earnings) at some point within the first two years after the application was filed by 2.7 percentage points and lowers accumulated earnings by 7.5 percent. After four years, the employment difference was 1 percentage

[4] Many studies report that inactivity in the form of unemployment causes poor health (Browning & Heinesen, 2012; Eliason & Storrie, 2009; Kuhn et al., 2009). Time out of work in general has also been shown to decrease skills (Edin & Gustavsson, 2008).

[5] Hvidtfeldt et al. (2018) use the terms time since application (TSA) and time since decision (TSD).

point and earnings were 2.3 percent lower. Effects are present for both men and women, for asylum seekers of different age, and across regions of birth.

Qualitatively, these effects are similar to what has been found in the few previous studies performed in other European countries. It is difficult to compare effect magnitudes because of differences in outcome definitions, but our effects appear to be somewhat larger than the earlier findings.[6] Extending the sample back to 2011 applications, using an OLS estimator that gives results similar to the IV estimator for the main sample, we find that over the first seven years after application, one more month of waiting resulted in an average earnings loss of SEK (Euro) 8,300 (755), or 1.6 percent. Considering that waiting increased by around 6 months during our main study period April–September 2014, this is a substantial effect.

Next, we investigate the mechanisms, i.e., how waiting relates to components of integration policy and how processing times affect individuals in absence of the delay effect. Participation in some policy measures are conditional on being granted asylum and thus becoming a resident. It is therefore not surprising that waiting causes a delay in enrolment at the Swedish Public Employment Service (SPES), which organizes the introduction program for refugees, and in language training (Swedish for immigrants, SFI). Participation in subsidized employment and other types of labor market programs is also lower throughout our follow-up period for individuals waiting longer.

But our analysis also suggests that asylum seekers forced to wait longer emerge unhurt from the experience and that the additional waiting time offers opportunities for important preparations for the life post-asylum. There are no indications of deteriorating health due to longer processing times, as reflected by drug prescriptions or hospitalizations. In particular, the prevalence of prescriptions of drugs commonly used to treat mental conditions, or hospitalizations because of mental or behavioral disorders, do not rise because of longer waiting times.[7]

[6] Hainmueller et al. (2016) study asylum seekers to Switzerland and find that an additional year of waiting decreases employment by 3–5 percentage points the year after being granted refugee status. In Denmark, an additional year of waiting decreases subsequent employment by 3 percentage points (Hvidtfeldt et al. 2018). These findings are, on a more general level, also in line with recent work suggesting that improving labor market access for asylum seekers and recent refugees has positive effects (Fasani et al., 2020; Marbach et al., 2018; Slotwinski et al., 2019). Rooth (1999) finds mixed associations between waiting time and economic outcomes among refugees to Sweden.

[7] In fact, estimates suggest that accumulated drug use and hospital visits decrease slightly with months waiting in models evaluating the overall impact of processing times. In specifications focusing on the impact of waiting per se, estimates are close to zero. The absence of negative health effects stands in contrast to a recent Danish study documenting a positive association between waiting and psychiatric disorders (Hvidtfeldt, Petersen, and Norredam

We also find several indications that the process of economic integration to some degree starts already during the waiting period. Evaluated at a specific time after decision, employment is more common and earnings are higher among those who waited longer. There are also indications that these individuals are considered more "ready" by case workers, teachers, and employers involved in integration measures. For example, entry into subsidized employment (a common way into the labor market among refugees to Sweden) is somewhat faster, and the probability of starting a more advanced language course is higher at a given point after decision.

The rest of the paper is organized as follows: We proceed by describing the asylum process and the inflow of asylum seekers to Sweden in Section 2. In Section 3 and 4 we describe our dataset and the empirical strategy. Our results and robustness checks follow in Section 5. We conclude by discussing the implications of our findings in Section 0.

2 Asylum seekers to Sweden

We will here first give a brief account of the asylum application process in Sweden, and of the integration policies targeted at those recently granted asylum. Then, we provide descriptive statistics and point to areas where the country's experiences stand out in an international perspective. The presentation draws on previous work providing richer and more complete characterizations and discussions (Fratzke, 2017; OECD, 2016; Parusel, 2016). For details and supplementary information, see also the website of the Swedish Migration Agency (SMA) (Migrationsverket, 2020). The description below focuses on adult asylum seekers, and on those who are ultimately granted asylum, which is the group considered in this study.

2.1 How to apply for asylum

Asylum applications in Sweden are processed by the SMA. Upon arrival, asylum seekers can contact the border police at, e.g., international airports, ferry terminals or other entry points to Sweden. Applications from abroad are generally not accepted.[8] The border police refer applicants to the SMA. Asylum seekers already in the country should contact the SMA themselves. When seeking asylum, the following information must be

2019). This difference signals the potential importance of separating correlation from causation, but could of course also be due to differences between the refugee reception systems in the two countries.

[8] The exemption is quota refugees applying through the UNHCR from a remote location.

submitted: name, age, nationality and identification documents such as passports (if missing, birth certificate, family or military registration documents or marriage certificate could be submitted). The applicant will be photographed, fingerprints will be taken, and a short meeting with an investigator will be held. The asylum seeker will have to state why he/she is applying for asylum and will be informed about different aspects of the asylum screening process (e.g. asylum regulations, the Dublin convention, rights and duties during the waiting period, and different practical issues). After these initial steps, the asylum-seeker waits for the asylum investigation to be completed.

2.2 Waiting for a decision

The waiting time can vary depending on the complexity of the case and the number of applications that the SMA has received. While waiting, asylum seekers can either stay in accommodation arranged by the SMA (reception centers or rented apartments) or arrange their own accommodation; asylum seekers can e.g. stay with relatives, friends or rent an apartment/room themselves. Housing arranged by the SMA is paid for by the authorities and the applicant may not choose where to live in Sweden. Asylum seekers choosing to arrange their own accommodation pay for housing themselves and could during our observation period settle wherever they wanted.[9]

Asylum seekers who cannot support themselves through labor earnings or other means (see below on employment regulations) are entitled to financial support to cover basic needs. Amounts are determined at the national level, fixed for certain characteristics (household composition) and differentiated depending on whether food is included in the housing arrangements (e.g. in a reception center). The level of support is lower than the one offered by social assistance, which is the last resort welfare system for residents (Parusel, 2016).

An important aspect for our study is the degree to which the economic and social integration process may start during the waiting period. Asylum seekers have the right to work during the asylum process. In 2014 as well as in 2015, granted exemptions from working permits (so-called AT-UND) numbered over 25,000. However, only a small fraction of those with the right to work were reported as employed; 494 individuals in 2015 (Migrationsverket, 2015; Tillväxtverket, 2016).

[9] About a third of the asylum seekers arranged their own accommodation in 2012–2014, the period of interest in this study. From 2020, asylum seekers settling in areas classified as socially exposed are not eligible for economic benefits.

Since the 1990s the SMA has had the responsibility to organize measures aimed at promoting activity and the chances of successful integration.[10] The scope of the measures has varied over time, and the level of ambition appears to have been positively correlated with waiting times. Language training and basic information about Sweden are common components, but assessment of qualifications and work experience programs are also among the measures. Civil society organizations (charities, churches, sports associations etc.) are important providers of these services. However, the National Audit Office has argued that in many instances the measures are not very extensive and/or effective (Riksrevisionen, 2012, 2014).

Adult asylum seekers are entitled to emergency health care and dental care, and "health care that cannot wait". Upon arrival to Sweden all asylum seekers are also offered a health assessment.[11]

2.3 After the asylum decision

After the asylum investigation is closed a meeting is held and the asylum seeker will be informed whether the application was approved or refused, and what happens next. If the application is rejected the asylum seeker can either accept the decision and return to the country of origin, or appeal.

Applicants granted residence permits are eligible for integration efforts that are considered extensive in international comparison (OECD, 2016) and are offered assistance in finding permanent housing.[12] Since December 2010, the SPES has the primary responsibility for coordinating and providing measures for refugees and their families. The initial two-year integration program includes language training, job search assistance, and opportunities for subsidized employment. The individual is supported by a targeted benefit, which is conditional on participation. The SPES collaborates with the municipalities, the SMA, and other public and private organizations. For many, the labor market position is still poor after two years (Åslund et al., 2017; Hernes et al., 2019), and there is then a transition into national and local education and activation programs.

[10] In 2017 (i.e. after our study period), this responsibility was transferred from the SMA to regional boards.
[11] Asylum seekers also have access to childbirth care, abortion care, advice on contraception, maternity care and health care under the Swedish Communicable Diseases Act.
[12] Even though the receipt of the residence permit is a central event, it is in our context worth pointing out that the individual may remain in the "asylum seeking context" for some period of time. In 2014, the average number of days between residence permit and placement/reception in a municipality was 129 (102) for those living in provided (own) housing.

2.4 Flows and characteristics of asylum seekers

Sweden has been a major receiver of asylum seekers over the last decades (Ruist, 2015) and had the by far largest number of asylum seekers per capita in Europe during the 2009–2015 period (Dustmann et al. 2017). Applicants come from many countries. Syrians, Iraqis, Afghans and Somalis comprise 47% of the claims between 2000–2019 (see Figure 1). The number of applications rose steadily from 2012 and onwards, and then more dramatically during the refugee crisis in 2015. That year alone, the SMA registered over 163,000 applications. Following policy changes internationally and in Sweden, the number of applications fell sharply in 2016. During the period, 66% of the applicants were males and 32% younger than 18.

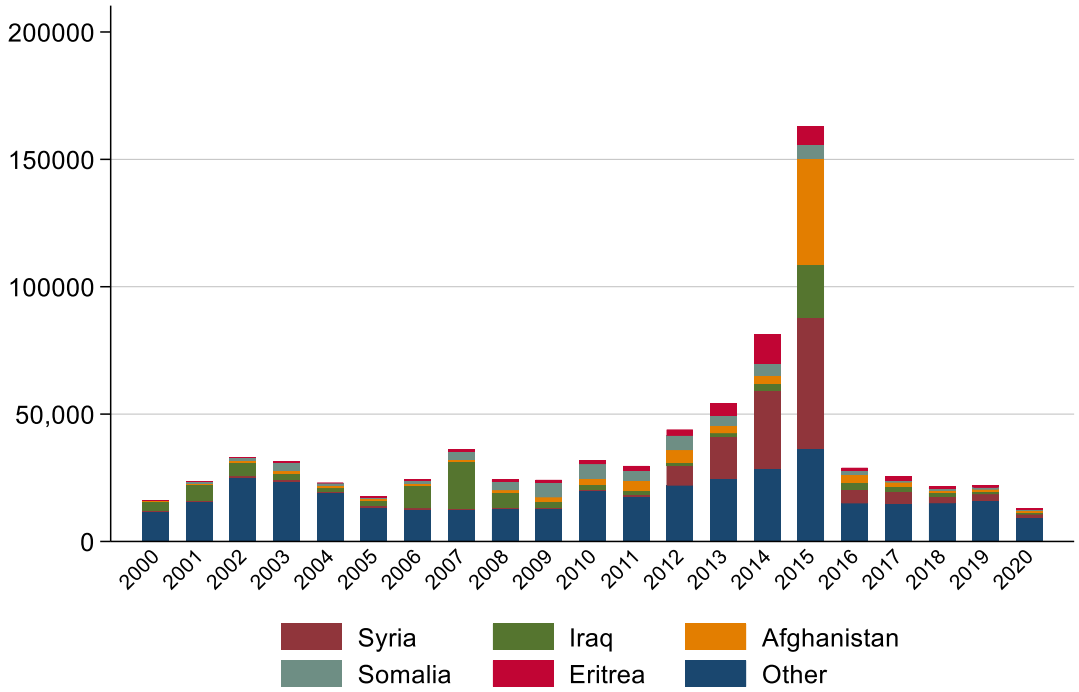

Figure 1: Asylum applications in Sweden, by year and selected nationalities, 2000-2019

Source: Swedish Migration Agency

Due to the large number of asylum claims, processing times began to rise in 2014 (see Figure 2). From having hovered around 120 days in 2010–2013, it rose to exceed 600 days for those receiving their decisions in 2018. Interviews with SMA officials confirm the view that there were no major institutional or organizational changes that could have contributed to the increase in 2014. Rather, the development appears to be driven by the

increased inflow of applications. Note, however, that the variation we use is limited compared to processing times seen for decisions made in 2017 and 2018.

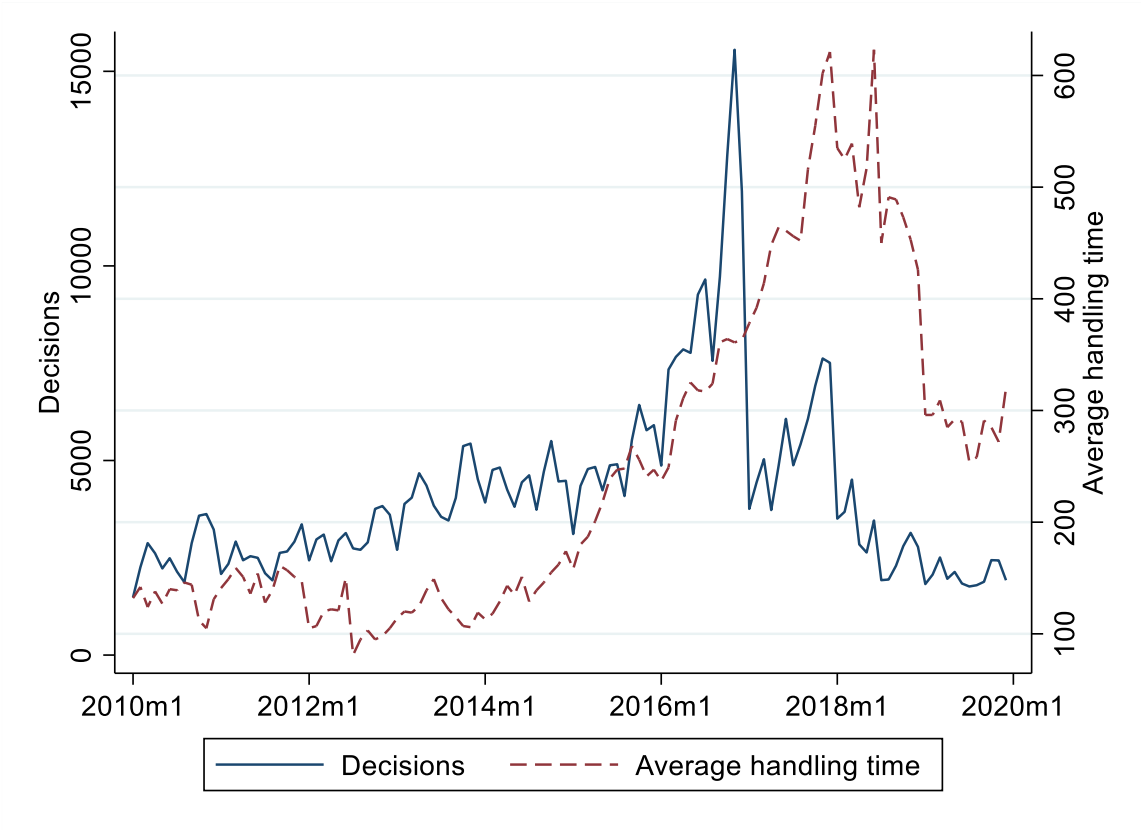

Figure 2: Number of asylum decisions and average handling time in days, by month of decision

Source: Swedish Migration Agency

3 Data and descriptive statistics

We use Swedish administrative data compiled for research by Statistics Sweden. The dataset contains information from multiple registers (originally held by different authorities) linked by a pseudonymized personal identification number. A central component is information about the asylum process from the SMA, including dates for asylum applications and decisions, as well as the type of residence permits granted, for all individuals with an approved application. Inclusion in the data is thus conditional on being granted asylum. This information is linked to several registers including information from the tax authorities, the SPES, and registers on hospitalization and drug prescriptions from the National Board of Health and Welfare (Socialstyrelsen).

Our sample contains individuals who: (i) applied for asylum 2011–2014; (ii) were 20–60 years old at the time of immigration; (iii) were for the first time registered as a Swedish resident in 2011 or later; (iv) received a residence permit in one of the following categories: refugee protection, subsidiary protection or humanitarian protection; (v) received a permit with processing time no longer than 2 years.

The period of study is limited for practical reasons; 2011 is the first year the SMA can provide complete information about the length of the processing time, and we cut the data in 2014 to get a reasonable time frame to follow outcomes. The age restriction is set to focus on individuals in working age at arrival. The requirement that an individual should be registered in Sweden for the first time at some point between 2011–2014 excludes circular migrants, i.e. migrants that could have resided in Sweden earlier. The permit types include the full set of permits based on "protection". Refugee protection can be granted individuals fleeing persecution as defined by the Refugee convention and European Union (EU) Qualification Directive. Subsidiary protection is for those fleeing the risk of "serious harm" such as torture or violence following the EU Qualification Directive. Humanitarian protection is granted because of "exceptionally distressing circumstances" (e.g. severe health conditions) (Fratzke, 2017). Finally, the restriction on the length of the asylum process excludes the rare cases with extremely long processing times (for Sweden in the time period considered).[13]

As described further below, the main analysis uses individuals applying for asylum during April–September 2014. In supplementary analyses we use the full 2011–2014 sample. Table 1 presents descriptive statistics measured at the point of immigration. In the main sample, the average applicant was 32 years, 71 percent were males, and about 40 percent had at most the equivalent of completing elementary school (9 years of recorded schooling). The country of birth information is in many cases aggregated at a regional level by Statistics Sweden for confidentiality reasons. The "Middle East and North Africa" category, to which Syria belongs, makes up 63 percent of the sample, whereas the "Horn of Africa" category including Somalia and Eritrea accounts for another 31 percent. In other words, these two source regions dominate the sample.

[13] The restriction to include only refugees that received a permit with processing time no longer than 2 years appears not to be a strong restriction as revealed by the distribution of waiting times in Figure A1 in the Appendix. The fraction of cases taking longer than 600 days is small: 2,4 % in the capped sample (Panel A). For applications submitted 2011–2012 (and thus possible to follow for a longer time period), Figure A1 shows there is no peak in processing times after two years (Panel B).

The average wait time between application and asylum was 268 days in the main sample. This is somewhat longer than the 213 days observed in the full 2011–2014 sample. As evident from Figure 3, the difference is explained by the sharp increase for those applying during 2014. Before that, waiting times were quite stable during the included period. Refugees granted asylum in accordance with the refugee convention constitute somewhat less than half the sample, whereas those with permits based on subsidiary protection fall slightly above 50 percent. The third category, receiving a residence permit on humanitarian grounds, is only a small fraction.[14] Figure 3 shows that by and large, the fluctuations in the number of applicants in our sample mirrors those for all asylum applicants.

Table 1: Description of sample

	Main sample: April–September 2014		Full sample: 2011–2014	
	Mean	**SD**	**Mean**	**SD**
Processing time (in days)	267.99	154.81	213.19	157.85
Convention refugee	0.45	0.50	0.40	0.49
Subsidiary protection	0.52	0.50	0.56	0.50
Humanitarian ground	0.03	0.16	0.04	0.19
Age	32.31	9.25	33.09	9.49
Male	0.71	0.45	0.66	0.47
Married	0.52	0.50	0.54	0.50
Children 0-17 in household	0.24	0.43	0.29	0.45
Middle East and North Africa	0.63	0.48	0.58	0.49
Horn of Africa	0.31	0.46	0.26	0.44
Other countries	0.06	0.24	0.16	0.37
Education missing	0.07	0.25	0.09	0.28
< 9 years of schooling	0.25	0.43	0.26	0.44
Compulsory school (9 years)	0.15	0.36	0.13	0.34
Upper secondary school	0.22	0.41	0.20	0.40
Post-upper secondary school < 2 years	0.05	0.23	0.05	0.21
Post-upper secondary school>= 2 years	0.26	0.44	0.27	0.44
Number of individuals	20,720		62,694	

Notes: The full sample includes all refugees that: (i) applied for asylum 2011–2014; (ii) were 20–60 years old at the time of immigration; (iii) were for the first time registered as a Swedish resident in 2011–2014; (iv) received a residence permit in one of the following categories: refugee protection, subsidiary protection or humanitarian protection; (v) received a permit with processing time no longer than 2 years. The main sample is restricted to individuals applying for asylum between April–September 2014.

We can follow individual outcomes at least through 2018. This means that there is a four-year window from asylum application for everyone included. Some outcome

[14] For applicants receiving permits in this category, wait times tend to be longer and the increase in 2014 is less pronounced. Results do not change if we exclude this group from the sample, like Hvidtfeldt et al. (2018).

measures are readily available in the dataset (employment, labor earnings, etc.), others are constructed from different registers (registration and program participation at the SPES, hospitalization, and drug prescriptions). We use several outcome variables: employment, earnings, registered unemployment and participation in labor market programs, language training, and health. In most cases, we construct cumulative outcomes that are evaluated at 1, 2, 3, or 4 years after application or decision. For more details on data sources and definitions, see Appendix A1.[15]

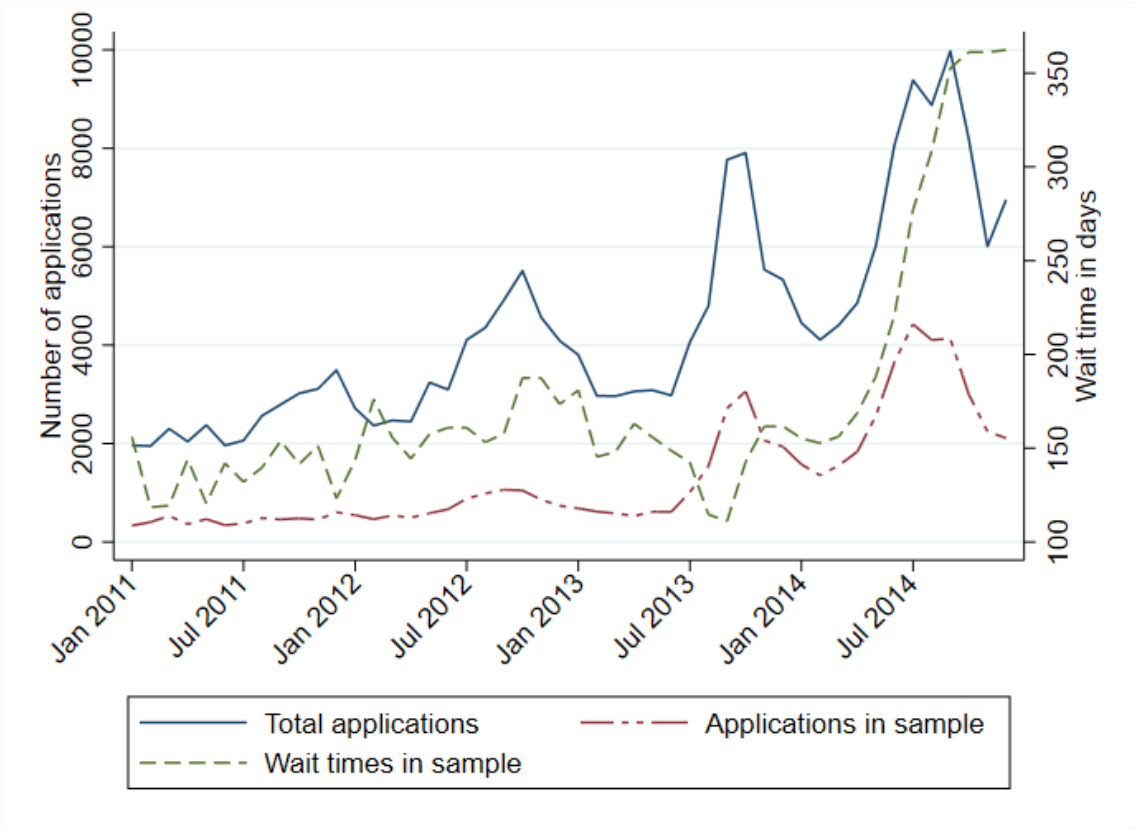

Figure 3: Applications filed 2011-2014 and average handling time, by month

Notes: "Total applications" refer to the number of asylum applications that the SMA received each month irrespective of whether the application was approved or not. "Applications in sample" refer to the number of later approved applications (which we can observe in our data).

Source: Own tabulations based on data from SMA and data sources described in Section 3.

[15] A shortcoming of our data, and indeed of register data from most countries, is that individuals only appear in the registers after being granted asylum. Thus, we do not observe, e.g., earnings generated in the waiting period, which leads to an underestimate of the positive aspects of additional waiting time. However, aggregate data show that very few asylum seekers work in the waiting period (see Section 2.2), suggesting that the problem of unobserved pre-asylum outcomes is limited. We will also present robustness checks confirming the baseline results.

4 Empirical strategy

4.1 Conceptual considerations

As discussed in the introduction, it is not obvious that waiting time must have a negative effect on individual outcomes. From a conceptual perspective it is also important to separate different components making up the total impact of asylum processing time.

Consider the following example with two identical asylum seekers (A and B) who file for asylum on the same day. By random chance asylum seeker A is granted asylum after exactly five months whereas asylum seeker B must wait six months before receiving a positive decision. We want to estimate the effect of the extra waiting month on accumulated income between the application date and one year after application. For asylum seeker A (B) this period consists of five (six) waiting months and seven (six) post-decisions months. Thus, asylum seeker A lacks the sixth waiting month and asylum seeker B lacks the seventh post-decision month.

The effect of waiting time in the example can be separated into two parts (as discussed in Hvidtfeldt et al. 2018). First, we remove the seventh post-decision month from asylum seeker A's profile so that the only difference between the asylum seekers is B's additional waiting month. For asylum seeker A (B) the follow-up period now consists of five (six) waiting months and six (six) post-decision months. The effect of waiting time evaluated this way, which purges the analysis of delay effects and captures the effect of "waiting time per se", could be positive or negative depending on conditions and policies during the waiting period. If asylum seekers, e.g., are supported by activation measures and have good access to the labor market during the waiting period, we might expect a positive effect of the extra waiting month on the accumulated income during the relevant period. If, instead, the waiting time is more akin to a period of incarceration with very limited interaction with the outside host society (potentially affecting mental health and other forms of human capital), asylum seeker B might have poorer accumulated outcomes than asylum seeker A, even though person B has spent one more month in the host country at measurement.[16] Thus, this first part of the overall waiting time effect is informative about the conditions under which asylum seekers wait.

[16] Actual incarceration combined with human capital investments can bring positive net effects at the individual level (Bhuller et al., 2020).

Second, there is the effect of asylum seeker B not yet having experienced the seventh post-decision month. For outcomes such as accumulated earnings, the impact will obviously be negative (non-positive). This second effect is a pure delay effect (i.e. if you wait longer you are always one step behind in the crucial post-decision period). This effect is akin to the lock-in effects typically found in evaluations of labor market programs (Vooren et al., 2019). Furthermore, if outcomes develop convexly during the first few years (i.e. the integration profile becomes steeper with time), the negative delay effect may be substantial and increasing with time.

The direction of the combined overall impact is thus at least theoretically ambiguous. But at least for labor market outcomes it may seem unlikely that a potential positive net impact of waiting in itself would offset the negative consequences of "lagging behind" those waiting shorter. Even though it is possible to work during the waiting period, institutions and statistics suggest that labor market access improves discontinuously and dramatically after asylum is granted. For other outcomes, expectations may be less clear. If, e.g., there are resources in the asylum reception context for handling health issues that often go untreated among those already granted asylum, the combined impact on health may be positive. Our empirical analysis outlined below aims to identify the overall effect and sort out its components for an array of outcomes.

4.2 Empirical specification and concerns

The goal of the analysis is to study how an outcome at the individual level is affected by the amount of time spent waiting for asylum. Identifying such effects is not trivial. The stylized equation (1) below presents a possible approach: regressing the outcome for individual i on waiting time and other covariates (X') (see Table 1 for the covariates in our data):

$$\text{Outcome}_i = \alpha_0 + X_i'\alpha_1 + \alpha_2 * \text{Waiting time}_i + e_i \qquad (1)$$

A fundamental challenge is then of course that the error term is likely to be correlated with waiting time, so that the regression coefficient cannot be given a causal interpretation. Such a correlation may stem from many sources: unobserved asylum seeker characteristics affecting both waiting times and outcomes, selection in who applies

when, applicant investigation difficulties that are also related to outcome potential etc. Such concerns are the reason why recent papers (Hainmueller et al., 2016; Hvidtfeldt et al., 2018; Ukrayinchuk & Havrylchyk, 2020) employ strategies based on institutional features and rich data to isolate arguably exogenous variation in waiting time.[17]

Our approach exploits a rapid increase in waiting time for applications submitted April–September 2014. The blue dots in Figure 4 show the average waiting time by date of application. There is a substantial gradual increase from about 180 days on average in April, to 380 days from October. We will exploit the linear component (applications submitted April–September) in the increase in waiting time by using application date as an instrument for waiting time. Thus, we use 2SLS and first regress individual waiting time on application date (linearly) and covariates (Equation (2)), and then the predicted waiting time is included along with covariates in the outcome equations (Equation (3)).[18]

$$\text{Waiting time}_i = \beta_0 + X_i'\beta_1 + \beta_2 * \text{Application date}_i + u_i \tag{2}$$

$$\text{Outcome}_i = \gamma_0 + X_i'\gamma_1 + \gamma_2 * \widehat{Wait\ time}_i + \varepsilon_i \tag{3}$$

As shown by the first stage estimates in Table A1 in the appendix, application date is strongly correlated with wait time: applying 1 day later meant that you would have a 1.3 day longer wait on average.[19] The F-statistic of the first stage regression is 4,890. In other words, the first stage is strong.

The rise in waiting time could be due to various factors, some more worrying than others. First, it could be that individuals with longer expected waiting time, based on their

[17] Hainmueller et al. (2016) pioneered an approach relying on "batch processing" to identify the impact of waiting. The basic idea is that there is no systematic sorting on labor market potential between those who are lucky enough to be among the last to apply for asylum before a batch is processed, compared to observationally similar individuals who arrive just a few days later and become the first in a new pile. The approach implicitly assumes that all variation in waiting times between people sharing origin and arriving in the same week is due to this process. It is e.g. of course difficult to rule out the possibility that "problematic cases" fall outside the ordinary batches. Hainmueller et al. (2016) show that a very large fraction of the variation in wait times can be explained by the waiting times for migrants of the same origin arriving on the same day, which is indeed what one would expect under batch processing. But given that the "cell size" is then very small, it is not clear that cases are not somehow related (e.g. extended families arriving together). Similarly, the "shale-like" patterns interpreted as suggestive of batch processing by Hvidtfeldt et al. (2018) do not say anything about how much of the variation in wait time batch processing accounts for. A somewhat stricter test of batch processing (as far as we know not performed in previous studies) would be to investigate to what extent people of the same origin arriving later in a week are observed to be waiting shorter than people arriving earlier during the week. Under batch processing, this should be uncommon.

[18] We use robust standard errors. Clustering on application date or "family" has very little impact on the standard errors (results available on request).

[19] Wait time is expressed in months, thus multiplying the point estimate with 30 gives the wait time in days.

characteristics, systematically arrived later during the period. Indeed, Table A1 shows that there are several individual characteristics that correlate with waiting time. The predicted crosses in Figure 4, however, show that applicant composition was not driving the increase. The prediction was generated by regressing waiting times for applications filed 2011–2013 on the individual covariates included in the first stage model (see Table A1), and then using the estimates on the 2014 applicants. Our reading of the graph is that there was not much variation in the expected waiting time due to changes in observed individual background characteristics. In fact, the change in predicted waiting time was only 1 day per 100 days later application.[20] Of course, this result does not strictly rule out the possibility that there was sorting on unobserved characteristics related to expected waiting time across application dates. But one could argue that it is unlikely that such sorting would not at all be visible in the composition of observed characteristics.

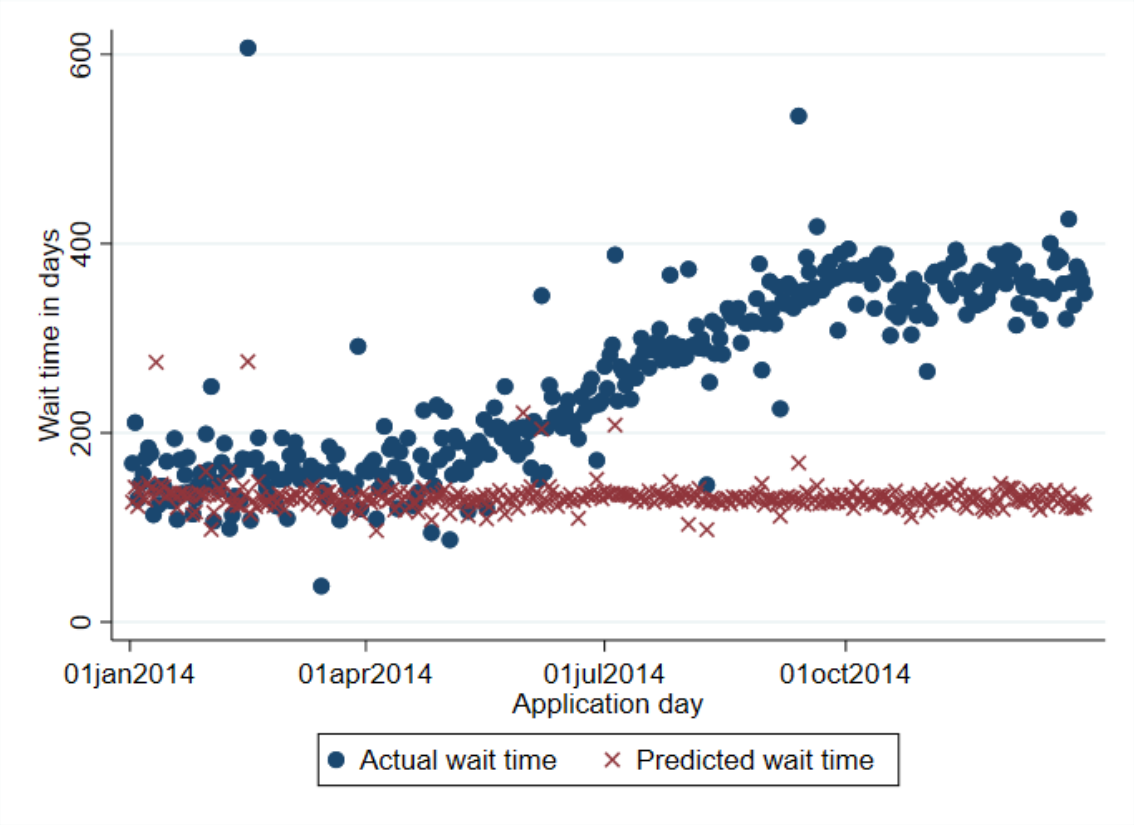

Figure 4: Actual and predicted wait times 2014

Notes: Predictions for 2014 applicants using regression estimates for 2011–2013. Specifications include individual characteristics of Table 1 plus calendar month dummies. Calendar month is set to 6 for all observations in the predictions.

[20] We include the residence permit category among the covariates since this is likely informative about expected outcomes. A potential criticism is that permit category is endogenous to the asylum process. However, recall that the entire sample is conditional on being granted asylum and thus dependent on the outcome of the asylum process.

But even though expected waiting times did not change, it may still be the case that those who arrive later are different with respect to outcome potential. The balance tests of Table A1 and Table A2 suggest that several individual background characteristics correlate with application date. Figure 5 presents a similar exercise as above, but now with the cumulated earnings over four years from application as dependent variable. Here, we find that actual outcomes decrease somewhat particularly for application days from April and onwards. This pattern is consistent with an impact of longer waiting times (but not proof of it). The more important message from the figure is conveyed by the red crosses: expected earnings do not vary much over the period, especially not systematically related to application date.

The description above suggests that: (i) application date is strongly related to waiting time; (ii) expected outcomes based on individual characteristics are at most slightly associated with application date. Given that $\text{plim}\hat{\gamma}_2 = \gamma_2 + \frac{cov(Application\ date, u)}{cov(Application\ date,\ Wait\ time)}$, this means that the bias due to omitted individual characteristics is likely to be small.

The exclusion restriction for the IV analysis also requires that the only reason application date is related to outcomes, is that it affects waiting time. This assumption could be violated if there are overall time effects on the outcomes; i.e. those arriving later would have performed differently also in the absence of an impact of waiting time. We address this issue in supplementary specifications using within-month variation in application time, and indexing outcomes to a comparison group (see Section 5.3).

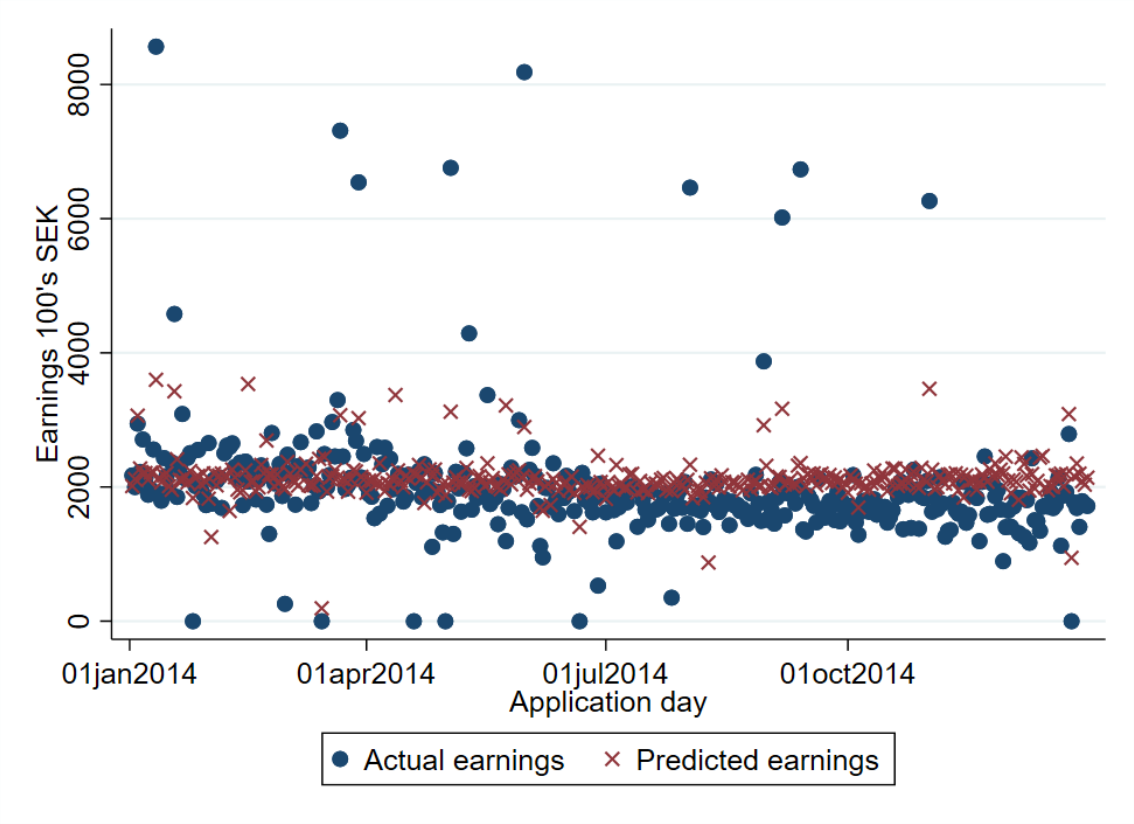

Figure 5: Actual and predicted earnings within 4 years from application

Notes: Predictions for 2014 applicants using regression estimates for 2011–2013. Specifications include individual characteristics of Table 1 plus wait time (linear) and calendar month dummies. Waiting time is set to 180 days and calendar month to 6 for all observations in the predictions. Earnings are measured in 2018 100's SEK.

5 Results

This section presents the results of the empirical analysis. We begin with labor market outcomes evaluated at different points in time after application. This analysis captures the overall effect of waiting time, i.e., the effect of waiting time per se as well as the delay effect stemming from the fact that individuals waiting longer have yet to reap the fruits of the latest (and often most productive) post-decision period (see the discussion in Section 4.1). We also illuminate potential mechanisms through outcomes related to active labor market policy, language training and health. Then, we proceed to study the same outcomes but now instead evaluated at different points in time after decision. This approach, which purges the analysis of delay effects, aims to clarify if waiting time is constructive or destructive for the individual in a more fundamental sense.

5.1 The overall impact on labor market integration

Table 2 presents estimates on the impact of waiting time on employment and earnings.[21] The outcomes are accumulated, meaning that employment is 1 for those with positive earnings at some point within the respective time horizons and that earnings reflect the total earnings within this time. The outcomes are evaluated 1, 2, 3 and 4 years after application.[22]

Table 2: Impact of waiting on cumulative labor market outcomes

	Time since application			
Dependent variable:	1 year	2 years	3 years	4 years
Ever employed	-0.023***	-0.027***	-0.017***	-0.006***
	(0.001)	(0.002)	(0.002)	(0.001)
Mean of dependent variable	0.110	0.324	0.561	0.722
Accumulated earnings (100 SEK)	-6.36***	-18.06***	-36.99***	-42.14***
	(0.52)	(1.93)	(4.25)	(7.06)
Mean of dependent variable	33.78	242.4	801.5	1828
Number of observations	20,720	20,720	20,720	20,720

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. The outcomes are cumulative, e.g. when we study employment, we define a dummy set to 1 if the individual ever has been employed at different points in time. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

[21] The results are stable across specifications with and without covariates (see Table A3).
[22] In Table A7, we also look separately on income during the first, second, third and fourth year after application.

Employment effects are substantial: waiting one more month decreases the employment probability by 2.3 percentage points within 1 year, and slightly more within 2 years. Considering the short-term employment rates of 11 and 32 percent respectively, the estimated impact is almost implausibly large. Part of it is likely to be "mechanical" in the sense that for some who must wait longer, there is very little time during which labor market entry could in practice happen.[23] With longer follow-ups, when more people have been employed at least at some point, the magnitude of the impact decreases in absolute and even more so in relative terms.

Accumulated earnings are also lower among those waiting longer. After three years, the estimated loss is SEK (Euro) 3,700 (350) per extra month of waiting. Since average earnings are as low as SEK (Euro) 80,000 (7,600), this amounts to 4.6 percent. In four years, the corresponding figure is 2.3 percent. Considering that average waiting time increased by about six months, this is also a substantial effect. Two things are important for interpreting the estimates: (i) for the population considered, average outcomes are initially poor, but in relative terms improve rapidly over the first few years; (ii) as discussed above, the delay effect means that the "last post-decision month(s)" are missing for those who waited longer compared to those waiting shorter. This means that it is not surprising to see substantial negative effects on accumulated labor market outcomes in the follow-up period. As long as the integration profile is convex, the delay effect will also be larger in absolute terms the later after application the evaluation is performed. The pattern in Table 2 with larger negative effects on income over time (in absolute terms) is consistent with this mechanism.

Figure 6 shows earnings estimates for subgroups for years 3 and 4 respectively. The negative impact of waiting is consistently present along many dimensions. The effect tends to be greater among males and younger asylees, which is consistent with these groups having a more rapid process of labor market entry. Furthermore, estimates suggest that the effect is similar in groups defined by level of education, region of origin, and type of residence permit.

The greater standard errors in the 4-year model making some point estimates insignificant are a result of the number of zero earners falling substantially between the years. Even though all point estimates are still negative and of similar magnitude, the

[23] The average processing time before a decision was 9.5 months in our main sample (see Table 1).

development raises questions about whether the effects vanish rapidly after the first few years. As will be discussed below, however, alternative strategies extending the sample to previous cohorts, indicates that the effects last for at least 7 years.

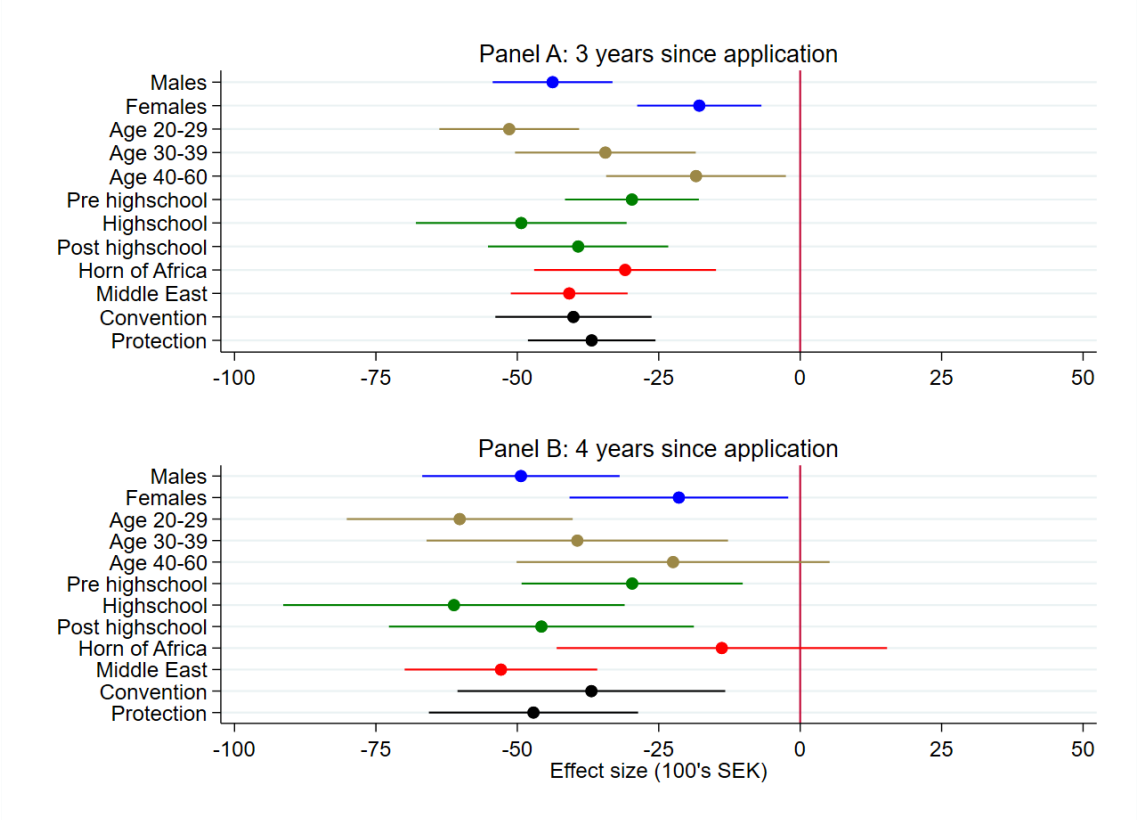

Figure 6: Impact on cumulative earnings 3 and 4 years after the application, IV estimates by subgroups

Note: Coefficients and 95-percent confidence intervals by subgroup. The same model specification as in Table 2 is used.

5.1.1 Mechanisms and investments – labor market policy, language training and health

The SPES organizes the introduction program for refugees (as discussed in Section 2). Registering at the SPES to commence the program, which could include activities such as job search assistance, general training, and work experience schemes, is the typical route to the labor market for refugees in Sweden. As expected, and seen in Panel A in Table 3, this process is affected by waiting. After one year, one month longer waiting means a 7.6 percentage points reduction in the probability of being registered at the SPES.

As essentially all asylees enter the SPES eventually, the difference disappears in later years.[24]

An important component of the introduction program is Swedish for Immigrants (SFI), i.e. language training provided to refugees and other immigrants. For people participating in the introduction program or for immigrants receiving social assistance, it can be regarded mandatory (unless not already proficient in Swedish). In this area, we find that enrolment as well as course completion is delayed. One month longer waiting means a 2.3 percentage points reduction in the probability to start a course within two years from application. As time proceeds, this difference decreases both in the absolute and relative sense (Panel B in Table 3).

Qualitatively similar patterns can be seen in the estimates on the impact on course completion. Very few asylum seekers complete a language course within the first year after application. This is not surprising since it requires both a quick asylum process and an exceptional pace relative to average completion times (Åslund & Engdahl, 2018). But also in a two-year perspective, the estimate suggests that one month longer waiting decreases the probability of course completion by almost 10 percent relative to a baseline of 43 percent passing. Even though the labor market returns to completing this type of language training remain somewhat uncertain (Åslund et al., 2017; Hernes et al., 2019), it is a typical path toward employment and other types of interventions. Delays are therefore likely to result in a slowdown of labor market integration.

[24] In fact, as shown by the estimates for "days until registration" displayed in Table A5, the delay almost exactly corresponds to the extended asylum waiting period, suggesting there is no impact on the time from residence permit.

Table 3. Registered unemployment, active labor market policies, language training and health

	Time since application:			
Dependent variable:	1 year	2 years	3 years	4 years
	Panel A: Registration and activities at SPES			
Pr(Enrolled at SPES)	-0.076***	-0.003***	-0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Mean of dependent variable	0.630	0.975	0.992	0.993
	Panel B: Language training			
Pr(Started a language course)	-0.078***	-0.023***	-0.004***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.325	0.829	0.943	0.957
Pr(Passed a language course)	-0.016***	-0.040***	-0.013***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.0483	0.439	0.696	0.757
	Panel C: Active labor market policy			
Pr(Employment subsidy)	-0.005***	-0.011***	-0.009***	-0.003
	(0.001)	(0.001)	(0.001)	(0.002)
Mean of dependent variable	0.0234	0.162	0.332	0.495
Pr(Other SPES ”programs”)	-0.064***	-0.028***	-0.010***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.288	0.749	0.893	0.937
	Panel D: Health			
Pr(Drugs psychiatric conditions)	-0.003***	-0.004***	-0.004***	-0.003***
	(0.000)	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.0121	0.0441	0.0768	0.105
Pr(Hospitalized psychiatric conditions)	-0.000**	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mean of dependent variable	0.00169	0.00676	0.0112	0.0153
Number of observations	20,720	20,720	20,720	20,720

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Employment subsidies are a common way to enter the labor market among refugees. In fact, the SPES reports that while 30–45 percent were in some form of employment 90 days after completing the introduction program 2016–2018, no more than 7 percent had regular unsubsidized jobs (Arbetsförmedlingen, 2019). Our estimates suggest that waiting longer means a significantly lower probability of having entered subsidized employment also three years after applying for asylum (Panel C in Table 3). The results are economically significant. For example, a 1.1 percentage point lower probability of subsidized employment within two years means a 6.7 percent reduction. By the fourth

year the effect is close to zero and no longer statistically significant. Similar patterns are found for other labor market programs at the SPES.[25]

Panel D presents results from estimations of the impact of asylum waiting on indicators of health, up to four years after application. We use register data on drug prescriptions and hospitalizations and create separate measures for psychiatric and "other" conditions (see Appendix A1 for details on the data sources). The estimates suggest that registered utilization of health care and pharmaceuticals because of psychiatric conditions is lower among those who waited longer. With time, however, the gap decreases, in particular relative to the mean accumulated outcome. Hospitalization is less common. For psychiatric conditions there is no significant difference from year two.[26]

Delay effects are likely part of the health estimates. If health problems occur "randomly" or recurring, we would expect people observed for longer periods post asylum to be more likely to have e.g. registered prescriptions. But expectations on the health profile by time since migration are less clear than for labor market outcomes; this part of the delay component may work in both directions. It is also possible that the asylum reception context provides support structures decreasing the need for contacts with formal health care. There is also the possibility that asylum seekers receive treatments before they receive a residence permit.[27] However, results presented in the robustness checks suggest that this is not a main driver of the differences.

5.2 The impact of waiting *per se*

The results presented above show that longer waiting has at least a mid-term negative impact on employment and earnings. There is also evidence of delayed and decreased participation and performance in integration policy measures. As discussed in the introduction, the total impact of increased waiting times consists of a delay effect (some things cannot happen before granted asylum) and the impact of waiting on the individual. We now turn to the latter component. It is easy to see that waiting may be stressful and affect e.g. psychological well-being. But it can also mean accumulation of human capital,

[25] The negative impact of longer waits is also seen when SPES interactions are defined in days of registration and program participation (see Panels A–C in Table A5).

[26] Table A5 in the appendix presents results on take-up of health care and pharmaceuticals for non-psychiatric reasons. The analysis shows that the negative impact of waiting is more pronounced for these outcomes, i.e. that waiting lowers the probability of seeking medical treatments for non-psychiatric conditions.

[27] While waiting for a decision, adult asylum seekers are entitled to emergency health care and dental care, and "health care that cannot wait" (government bill 2012/13:109). We observe contacts with health services only after an asylum investigation is closed and the applicant has registered as a resident in Sweden.

so that the individual is able to integrate more quickly once asylum is granted. Since there is uncertainty about the outcome of the process and cost-benefit tradeoffs in resource allocation, it is also highly policy relevant to understand what waiting means in terms of readiness.

5.2.1 Does waiting increase labor market readiness?

Panel A of Table 4 presents estimates for accumulated labor market outcomes, measured from the time of the decisions on the asylum application. According to the baseline specification, waiting longer improves post-decision employment and increases earnings (see Figure A2 for earnings estimates by subgroups). This is suggestive of refugees being able to use waiting time to accumulate skills that are valued in the labor market.[28] Our data on active labor market policy and language training can be used to investigate some of the mechanisms through which the positive effects are likely to arise.

Panel B of Table 4 shows that measured from the date of asylum, waiting longer means a moderate but significantly higher probability of entering employment subsidies during the follow-up period. Taken at face value, this suggests that the negative estimates for the overall impact reported above consists of two opposing forces; the delay effect is counteracted by an increased inflow after residence. Furthermore, the high combined participation rates and the negative estimates for "other programs" (seen in Panel B), are consistent with those waiting longer being more able to take on measures that are geared toward rapid labor market entry.

Panel C contains results from language training pointing in similar directions. While general differences in participation and course completion are small and/or statistically insignificant, there are indications that some of those who have waited longer more often bring some knowledge in the Swedish language and can progress quicker. A limited fraction of the refugees starts language training in a non-beginner's course. The probability of this is estimated to increase by about 5 percent per extra month of waiting.

[28] The results are stable across specifications with and without covariates (see Table A4). In Table A7, we also look separately on income during the first, second and third year after decision.

Table 4. Labor market outcomes and integration measures, from time of residence permit.

	Time since granted residence permit:		
Dependent variable:	1 year	2 years	3 years
	Panel A: Labor market outcomes		
Pr(Ever employed)	0.011***	0.015***	0.012***
	(0.001)	(0.002)	(0.002)
Mean of dependent variable	0.269	0.509	0.683
Accumulated earnings (100 SEK)	8.96***	24.04***	56.45***
	(1.38)	(3.43)	(7.94)
Mean of dependent variable	146.2	592.4	1471
Number of observations	20,720	20,720	19,041
	Panel B: Active labor market policy		
Pr(Employment subsidy)	0.003***	0.003**	0.008***
	(0.001)	(0.001)	(0.002)
Mean of dependent variable	0.112	0.287	0.460
Pr(Other SPES programs)	-0.006***	-0.005***	-0.003***
	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.725	0.880	0.939
Number of observations	20,720	20,720	19,041
	Panel C: Language training		
Pr(Started a language course)	-0.007***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.825	0.933	0.950
Pr(Started a non-beginners course)	0.004***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.0767	0.0922	0.0953
Pr(Passed a course)	0.001	-0.002	-0.005***
	(0.002)	(0.002)	(0.001)
Mean of dependent variable	0.322	0.669	0.751
Number of observations	20,720	20,720	20,720

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. As our earnings data and data from SPES end in 2018, we cannot observe outcomes the third year for a subset of our sample with very long wait times. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

5.2.2 Post asylum health

Table 5 presents results for health outcomes, holding the time since receipt of residence permit constant. In other words, an individual with one month more waiting will in total have spent more time in Sweden. Regardless of outcome, we find no evidence of deteriorating mental health due to longer waiting. The effects are typically small, both in the absolute and relative sense, and precisely estimated. It is here worth reminding oneself about the variation present in the data. During our sample period, waiting times increased by about 6 months on average. Thus, the absence of an impact cannot be taken as evidence

that waiting for several years, as is common in many countries (including Sweden in recent years), does not affect health. But it is of course also possible that slightly longer waiting means preparations that make the transition into Swedish society easier and thereby alleviates health issues.[29]

Table 5: Impact on health-related outcomes, from time of residence permit

	Time since residence permit		
Dependent variable:	1 year	2 years	3 years
Pr(Drugs psychiatric conditions)	-0.001*	-0.000	-0.002
	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.0373	0.0692	0.0983
Number of observations	20,720	20,720	20,720
Pr(Hospitalized psychiatric conditions)	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.001)
Mean of dependent variable	0.00463	0.00956	0.0129
Number of observations	20,720	20,720	19,041

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. As our data on hospitalizations end in 2018, we cannot observe outcomes the third year for a subset of our sample with very long wait times. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

5.3 Robustness checks and extensions

This section presents some variations to check the robustness of the results generated by the IV strategy. These include indexing outcomes, using calendar month fixed effects, period-specific rather than accumulated outcomes, and OLS instead of IV. We also present results extending the follow-up period for labor market outcomes to seven years.

A central threat to our identification strategy is that there may be general and immigrant-specific time effects affecting the analysis, considering that applying later and waiting longer means a lag in observation time. Such differences can arise due to business cycle effects but also e.g. because there is a greater number of newly-arrived migrants and refugees in later periods. Several variations all lend support to the credibility of the estimates. First, results do not change if we index earnings relative to those of 18–24-year-olds (thus assuming that they would be similarly affected by economic fluctuations); see Panel B of Table 6. Second, a very tight IV specification controlling for application

[29] Table A5 presents results on non-psychiatric conditions. We find no signs of deteriorating health due to longer waiting; if anything, the opposite.

month fixed effects, and thus only exploiting the variation in waiting times induced by applying later in the same month, gives qualitatively very similar estimates (Panel C).[30]

We believe it is reasonable to consider accumulated outcomes in the baseline analysis, as they reflect the individual and societal alternative costs for longer processing times. Measuring outcomes during a fixed time period (year *t* after application/decision) provides a supplementary picture. Such an exercise also addresses the potential concern that we do not observe outcomes pre-asylum.[31] Table A7 presents estimates for employment, earnings and health. The basic pattern of a negative (positive) overall (waiting in itself) impact on labor market outcomes remains. For health, the absence of indicators on increased health care utilization is confirmed. Note also that the concern that some health problems are handled during longer asylum waiting (and thus not seen in data) does not receive support by the time patterns. Had this been the case, we would have expected to see e.g. higher prescriptions shortly after application/decision, at least for conditions requiring long-term treatment.

[30] Table A6 presents similar robustness checks also for the specification based on time since residence permit. The corresponding robustness checks for the remaining outcomes analyzed in Section 5 are available on request.

[31] A related issue is the distribution of earnings within calendar years. As described in the appendix, the baseline analysis implicitly assumes that earnings are equally distributed within each year. If earnings instead increase also within years, our approach would overstate the share of earnings generated during the observation window especially for those applying earlier in the calendar year. This would cause a negative bias in the estimates in the "time since application" specifications. As an additional robustness check, we instead assumed that the last-year earnings profile is quadratic. Results are qualitatively stable also with this rather extreme assumption, although the effects are quantitatively smaller especially in the first two years (see Table A8).

Table 6: Impact of waiting on cumulative labor market outcomes - Variations and robustness checks

	Time since application			
Dependent variable:	1 year	2 years	3 years	4 years
	Panel A: Main specification (for reference)			
Pr(Ever employed)	-0.023***	-0.027***	-0.017***	-0.006***
	(0.001)	(0.002)	(0.002)	(0.001)
Mean of dependent variable	0.110	0.324	0.561	0.722
Accumulated earnings (100 SEK)	-6.36***	-18.06***	-36.99***	-42.14***
	(0.52)	(1.93)	(4.25)	(7.06)
Mean of dependent variable	33.78	242.4	801.5	1828
	Panel B: Earnings indexed			
Accumulated earnings (index 18-24)	-7.01***	-19.89***	-39.98***	-45.14***
	(0.58)	(2.05)	(4.37)	(7.16)
Mean of dependent variable	36.80	253.4	817.2	1844
	Panel C: Application month FE (IV)			
Pr(Ever employed)	-0.025***	-0.030***	-0.017**	-0.013*
	(0.005)	(0.008)	(0.008)	(0.007)
Mean of dependent variable	0.110	0.324	0.561	0.722
Accumulated earnings (100 SEK)	-5.47**	-17.13*	-38.53*	-70.78*
	(2.61)	(10.11)	(22.34)	(36.44)
Mean of dependent variable	33.78	242.4	801.5	1828
	Panel D: OLS			
Pr(Ever employed)	-0.009***	-0.012***	-0.009***	-0.004***
	(0.000)	(0.001)	(0.001)	(0.001)
Mean of dependent variable	0.110	0.324	0.561	0.722
Accumulated earnings (100 SEK)	-4.10***	-16.47***	-36.53***	-56.39***
	(0.26)	(0.85)	(1.84)	(3.04)
Mean of dependent variable	33.78	242.4	801.5	1828
Number of observations	20,720	20,720	20,720	20,720

Note: In panels A–C, we present estimates of γ_2 from Equation (3), where waiting time is measured in months. All regressions include individual characteristics of Table 1 (and in panel C we also include application month fixed effects). In panel D, we present estimates of α_2 from Equation (1). The regressions in panel D include individual characteristics of Table 1 as well as application month fixed effects. Each cell represents a separate regression. The outcomes are cumulative, e.g. when we study employment, we define a dummy set to 1 if the individual ever has been employed at different points in time. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Another type of variation is to use a different identifying assumption. An OLS specification controlling for rich background characteristics as well as application month builds on the idea that conditional on these factors, waiting time is random (or at least not systematically related to earnings potential). This is closer to approaches used in recent studies, although these also rely on institutional features (Hainmueller et al., 2016; Hvidtfeldt et al., 2018). It turns out that such an approach produces estimates close to the baseline IV specification; see Panel D in Table 6.

Building on this observation, in Table 7, we extend the sample to include also earlier cohorts. The table shows that the impact is strongly significant up to and including seven years after application. There is some indication that the impact grew stronger across cohorts, but also among the 2011 applicants, the loss amounted to SEK 8,300 after seven years per extra waiting month. This corresponds to 1.6 percent of total earnings, or almost 10 percent for a typical 6-month extension. Note also that this loss is unlikely to be "mechanically" explained by us not observing, and thus failing to include, actual pre-asylum decision earnings for those waiting longer. Had this been the case, the absolute accumulated waiting penalty would not increase with time. Rather, the results come from people being delayed in their integration process.

Table 7: Long-run estimates for accumulated earnings (OLS)

	Outcome: Earnings 100's SEK						
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**6 years**	**7 years**
Sample:							
2011–2014	-5.07***	-18.11***	-39.04***	-60.94***	N/A	N/A	N/A
	(0.22)	(0.60)	(1.21)	(1.97)			
2011–2013	-6.02***	-18.59***	-38.87***	-60.46***	-78.92***	N/A	N/A
	(0.39)	(0.96)	(1.85)	(3.02)	(4.32)		
2011–2012	-6.71***	-18.57***	-34.53***	-52.31***	-68.67***	-80.44***	N/A
	(0.51)	(1.27)	(2.40)	(3.89)	(5.62)	(7.49)	
2011	-4.05***	-13.36***	-27.07***	-42.74***	-59.48***	-73.95***	-83.19***
	(0.57)	(1.65)	(3.41)	(5.67)	(8.22)	(11.06)	(14.11)
Mean of dependent variable	49.88	288	864.3	1843	3037	4037	5075
Number of observations	62,694	62,694	62,694	62,694	30,138	14,169	5,297

Note: The table presents estimates of α_2 from Equation (1), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1 as well as application month fixed effects. The maximum number of observations are reported. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

6 Conclusions

Asylum waiting comes with alternative costs and is often portrayed as potentially harmful for the individual. Understanding the impact of longer waiting is also central for policy makers allocating resources and trying to balance various objectives under changing conditions brought by the many – often unpredictable – drivers of migration. The substantial variation in processing times seen across as well as within countries signals that better knowledge of the consequences of the asylum process could cause re-optimizations.

Our analysis exploits a rapid but gradual increase in waiting time among asylum seekers to Sweden in 2014. The change meant that similar individuals arriving a little later had to wait substantially longer. The typical waiting time increased from six to twelve months, a change arguably feasible for policy reforms and thus relevant.

We find that longer waiting slows down the integration process and affects labor market outcomes for at least seven years. The impact is sizable: accumulated earnings during the first four years after application are 2.3 percent lower per added month of waiting, or almost 14 percent for a typical six-month extension. The loss is present across demographic subgroups and can be linked to delayed participation in language training and labor market programs.

Our results indicate that the negative impact is due to delay rather than negative effects of waiting per se. There are no indications that waiting longer has a negative impact on psychiatric or other forms of health as measured by hospitalizations and prescribed pharmaceuticals. Measured from the date of being granted asylum, people who have waited longer perform somewhat better in the labor market. The data suggest that for some people longer waiting means human capital accumulation and an initiated integration process, making them more prepared for more advanced educational and labor market measures once asylum is granted.

The results are in line with previous limited literature showing a negative overall impact on economic outcomes from longer asylum handling times (Hainmueller et al., 2016; Hvidtfeldt et al., 2018; Ukrayinchuk & Havrylchyk, 2020). But we also find that causal analysis of how waiting in itself affects the individual, e.g. regarding health, gives a somewhat less concerning picture compared to studies documenting negative associations. In addition, our findings that the process of economic integration for asylum

seekers in Sweden seems to start already during the waiting period deviate from results from similar analyses on Danish data which could not consistently detect corresponding patterns (Hvidtfeldt et al. 2018).

As noted in the introduction, the Swedish integration system is ambitious in international comparison. It is possible that measures available to asylum seekers and immediately after decision mitigate the negative consequences of waiting. While some of our results can be taken to point in this direction, firm conclusions are clearly premature. Given the potential consequences for individuals and societies, and the weight of asylum and refugee issues in national and international policy debates, further scholarly attention is warranted.

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Appendix A1 (for online publication): Description of outcome variables[1]

Labor market outcomes:

Our primary labor market outcomes are *employment* (defined as having positive labor earnings) and *labor earnings* measured in 2018 100's SEK (adjusted for inflation using the CPI). In the main analysis, the measures are cumulative from the date of application or decision.[2] All measures are constructed using data from the Longitudinal integrated database for health insurance and labour market studies (LISA).

Registration with the Swedish Public Employment Service (SPES) and enrolment in active labor market programs:

We use data from the Swedish Public Employment Service (SPES). The dataset contains the universe of unemployment spells, including refugees participating in the introduction program (see Section 2.3). We distinguish between individuals registered at SPES indifferent of what services they use, individuals with wage subsidies (paid out by the agency) and individuals participating in other activities such as labor market training and preparatory education. All outcome measures in the main analysis constructed from this data source are cumulative except for when we study the impact on the numbers of days before registering at the SPES (see Table A5).

Swedish for Immigrants (SFI):

Most refugees participate in language training (often as a part of the introduction program). To analyze whether waiting time affects the probability of refugees enrolling into *Swedish for immigrants*, when they do so and what courses they take, we use a register compiled by the Swedish National Agency for Education (Skolverket). The start

[1] None of the data sources contain information on refugees before they have received a residence permit.

[2] Earnings are only available on a calendar year basis. Therefore, we cannot perfectly measure earnings between the application/decision date and a certain date after application/decision (e.g. two years after). Consider a person who applies for asylum on July 1, 2014. We want to measure the person's accumulated earnings the first two years after application, i.e. earnings during the period July 1, 2014 – July 1, 2016. We approximate earnings during this period in the following way: 2014 earnings + 2015 earnings + 2016 earnings *(day of the year of the application date/365) =2014 earnings + 2015 earnings + 2016 earnings * 0.5.

date and end date of all courses are observed. All measures are cumulative, if nothing else is noted.

Drug prescriptions:

The Swedish Prescribed Drug Register contains all prescribed drugs dispensed at pharmacies by month and is provided by the National Board of Health and Welfare (Socialstyrelsen). We distinguish between drugs primarily used to treat psychiatric conditions and all other drugs. Mental health conditions are captured by prescribed drugs of the following type:

- Psychotropic drugs: ATC-codes N06A (Antidepressants; This group of drugs comprises preparations used in the treatment of endogenous and exogenous depressions), N05B (Anxiolytics; this group of drugs comprises preparations used in the treatment of neuroses and psychosomatic disorders associated with anxiety and tension, e.g. benzodiazepines.) and N05C (Hypnotics and sedatives; this group of drugs comprises preparations with mainly sedative or hypnotic actions).
- Neuroleptics: ATC-code N05A (Antipsychotics; this group comprises drugs with antipsychotic actions (i.e. neuroleptics).)
- Addictive disorders: ATC-codes: N07B (Drugs used in addictive disorders; this group comprises drugs used for maintenance treatment of addictive disorders.) and N07C (This group comprises agents mainly used in the treatment of vertigo).

All outcome measures, in the main analysis, based on this source are cumulative.

Hospitalizations:

The National Patient Register from the National Board of Health and Welfare contains information regarding in-patients by month at public hospitals, the National Patient Register (NPR). We distinguish between in-patient care due psychiatric conditions and non-psychiatric conditions. Psychiatric conditions are captured by ICD-10 Classification of Mental and Behavioural Disorders (F01-F99). All outcome measures based on this source are cumulative, if nothing else is noted.

Appendix A2 (for online publication): Tables

First stage and balance tests:

Table A1: First stage and multivariate balance estimates

	Outcome:	
	Processing time	**Application date**
Application date	0.04***	N/A
	(0.00)	
Age	0.03***	0.02
	(0.00)	(0.04)
Male	-0.10	-1.31*
	(0.08)	(0.78)
Married	-0.75***	-0.57
	(0.08)	(0.81)
Children aged 0–17	0.21**	1.80*
	(0.09)	(0.95)
Compulsory school (9 years) (ref. cat: < 9 years of schooling)	0.04	0.44
	(0.10)	(1.08)
Upper secondary school	0.25***	1.22
	(0.09)	(0.98)
Post-upper secondary school < 2 years	0.34**	0.00
	(0.14)	(1.58)
Post-upper secondary school>= 2 years	0.19**	1.59
	(0.09)	(0.99)
Education missing	0.19	0.17
	(0.16)	(1.40)
Horn of Africa (ref cat: Other countries)	-0.90***	8.39***
	(0.11)	(1.61)
M.East incl. Syria	2.52***	16.00***
	(0.33)	(1.63)
Subsidary protection (ref. cat: Convention refugee)	-3.05***	-7.41***
	(0.20)	(1.02)
Humanitarian	-3.97***	11.16***
	(0.20)	(2.16)
Observations	20,720	20,720
F-test	4890	14.10

Note: In column 1, we present estimates of β_2 from Equation (2). Column 2 presents multivariate balance estimates for our main sample. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Table A2: Application date on individual variables – Univariate balance estimates.

	(1) **Wait time**	(2) **Age**	(3) **Male**	(4) **Married**	(5) **Children 0-17**
Application date	0.0430***	0.0005	-0.0001	0.0001	0.0002***
	(0.0007)	(0.0014)	(0.0001)	(0.0001)	(0.0001)
F-test	4208	0.156	2.635	0.763	10.29
	(6) **Pre high school 9 years**	(7) **High school**	(8) **Post high school < 2 years**	(9) **Post high school >= 2 years**	(10) **Education missing**
Application date	-0.0000	0.0000	-0.0000	0.0002**	-0.0000
	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0000)
F-test	0.162	0.341	0.118	5.630	0.448
	(11) **Convention**	(12) **Protection**	(13) **Humanitarian**	(14) **Horn of Africa**	(15) **M.East & North Africa**
Application date	0.0000	-0.0002***	0.0002***	-0.0002***	0.0004***
	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)
F-test	0.416	7.952	40.22	8.751	36.56
Number of individuals	20,720	20,720	20,720	20,720	20,720

Note: The table presents univariate balance estimates for our main sample. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Main results excluding controls:

Table A3: Impact of waiting on cumulative labor market outcomes, time since application.

	Time since application							
	1 year		2 years		3 years		4 years	
Ever employed	-0.023***	-0.023***	-0.027***	-0.028***	-0.017***	-0.019***	-0.006***	-0.008***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)
Mean of outcome	0.110	0.110	0.324	0.324	0.561	0.561	0.722	0.722
Accumulated earnings (100 SEK)	-6.36***	-6.52***	-18.06***	-19.12***	-36.99***	-39.83***	-42.14***	-48.02***
	(0.52)	(0.55)	(1.93)	(2.01)	(4.25)	(4.49)	(7.06)	(7.60)
Mean of outcome	33.78	33.78	242.4	242.4	801.5	801.5	1828	1828
Observations	20,720	20,720	20,720	20,720	20,720	20,720	20,720	20,720
Controls	X		X		X		X	

Note: The table presents estimates of γ_2 from Equation (3) (with and without the individual characteristics of Table 1), where waiting time is measured in months. Each cell represents a separate regression.. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Table A4: Labor market outcomes and integration measures, time since decision.

	Time since granted residence permit					
Dependent variable:	1 year		2 years		3 years	
(Ever employed)	0.011***	0.009***	0.015***	0.013***	0.012***	0.011***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Mean of dependent variable	0.269	0.269	0.509	0.509	0.683	0.683
Accumulated earnings	8.96***	7.76***	24.04***	20.80***	56.45***	50.49***
	(1.38)	(1.44)	(3.43)	(3.62)	(7.94)	(8.67)
Mean of dependent variable	146.2	146.2	592.4	592.4	1471	1471
Number of observations	20,720	20,720	20,720	20,720	19,041	19,041
Controls	X		X		X	

Note: The table presents estimates of γ_2 from Equation (3) (with and without the individual characteristics of Table 1), where waiting time is measured in months. Each cell represents a separate regression.. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Variations of outcome measures:

Table A5: Impact of waiting on supplementary outcomes

	Model 1: Time since application			Model 2: Time since residence permit		
Outcome measured after:	**Estimate**	**Std. Error**	**Mean of dep. var.**	**Estimate**	**Std. Error**	**Mean of dep. var.**
			Panel A: Days enrolled at the SPES			
1 year	-20.13***	(0.19)	87.27	-0.22	(0.18)	304.2
2 years	-29.49***	(0.21)	400.7	-0.57*	(0.30)	660.8
3 years	-28.30***	(0.35)	751.5	-0.83	(0.64)	991.7
4 years	-24.10***	(0.60)	1063	N/A		
			Panel B: Days with employment subsidies			
1 year	-0.43***	(0.05)	1.759	0.83***	(0.16)	14.10
2 years	-2.12***	(0.24)	24.79	1.85***	(0.41)	61.53
3 years	-4.24***	(0.51)	80.06	4.46***	(0.90)	140.7
4 years	-2.04***	(0.74)	163.7	N/A		
			Panel C: Days in other programs at the SPES			
1 year	-6.38***	(0.15)	22.35	-2.21***	(0.28)	93.25
2 years	-11.96***	(0.37)	127.9	-3.64***	(0.49)	203.9
3 years	-14.59***	(0.56)	241.9	-7.29***	(0.94)	342.8
4 years	-18.23***	(0.81)	376.5	N/A		
			Panel D: Pr(Drugs other conditions)			
1 year	-0.030***	(0.001)	0.125	-0.005***	(0.002)	0.359
2 years	-0.024***	(0.002)	0.402	-0.003*	(0.002)	0.552
3 years	-0.015***	(0.002)	0.586	-0.003**	(0.001)	0.671
4 years	-0.010***	(0.001)	0.691	N/A		
			Panel E: Pr(Hospitalized other condition)			
1 year	-0.004***	(0.001)	0.0260	-0.002**	(0.001)	0.0592
2 years	-0.006***	(0.001)	0.0833	-0.002**	(0.001)	0.119
3 years	-0.006***	(0.001)	0.142	-0.003**	(0.002)	0.168
4 years	-0.006***	(0.001)	0.189	N/A		

Panel F: Registration at SPES			
Outcome:	Estimate	Std. Error	Mean of dep. var.
Days until registration at SPES	30.545***	(0.383)	324.6

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. In Panel F, we estimate the impact of waiting time expressed in days, thus the model specifications deviate from the above models. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Table A6. Labor market outcomes since residence permit, alternative specifications.

	Time since granted residence permit		
Dependent variable:	1 year	2 years	3 years
	Panel A: Indexed Earnings		
Accumulated earnings (index 18-24)	8.25***	21.74***	52.84***
	(1.46)	(3.54)	(8.08)
Mean of dependent variable	153.5	606.8	1488
	Panel B: Application month FE (IV)		
Ever employed	0.003	0.012	0.002
	(0.007)	(0.008)	(0.009)
Mean of dependent variable	0.269	0.509	0.683
Accumulated earnings (100 SEK)	13.43*	23.84	13.21
	(7.01)	(18.08)	(39.89)
Mean of dependent variable	146.2	592.4	1471
Number of observations	20,720	20,720	20,720

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1 (and in panel B we also include application month fixed effects). */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Table A7. Labor market and health outcomes - alternative definitions of outcomes

	Model 1: Time since application			Model 2: Time since residence permit		
Outcome measured after:	**Estimate**	**Std. Error**	**Mean of dep. var.**	**Estimate**	**Std. Error**	**Mean of dep. var.**
			Panel A: Pr(Positive earnings)			
1 year	-0.023***	(0.001)	0.110	0.011***	(0.001)	0.269
2 years	-0.026***	(0.002)	0.323	0.015***	(0.002)	0.506
3 years	-0.015***	(0.002)	0.555	0.012***	(0.002)	0.668
4 years	-0.004***	(0.001)	0.704	N/A		
			Panel B: Earnings (100s SEK)			
1 year	-6.36***	(0.52)	33.78	8.96***	(1.38)	146.2
2 years	-11.70***	(1.55)	208.6	15.08***	(2.36)	446.2
3 years	-18.92***	(2.68)	559.1	29.48***	(4.35)	895.5
4 years	-5.15	(3.52)	1026	N/A		
			Panel C: Pr(Prescription drugs psychiatric conditions)			
1 year	-0.003***	(0.000)	0.0121	-0.001*	(0.001)	0.0373
2 years	-0.002***	(0.001)	0.0378	0.001	(0.001)	0.0483
3 years	-0.002*	(0.001)	0.0506	0.000	(0.001)	0.0570
4 years	-0.000	(0.001)	0.0554	N/A		
			Panel D: Pr(Hospitalization psychiatric conditions)			
1 year	-0.000**	(0.000)	0.00169	-0.000	(0.000)	0.00492
2 years	-0.000	(0.000)	0.00536	0.000	(0.000)	0.00584
3 years	-0.000	(0.000)	0.00579	-0.000	(0.000)	0.00494
4 years	-0.000	(0.000)	0.00550	N/A		

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses.

Table A8: Impact of waiting on cumulative income – alternative assumption about last-year income profile

	Time since application			
Dependent variable:	1 year	2 years	3 years	4 years
Accumulated earnings (100 SEK) - Baseline	-6.36***	-18.06***	-36.99***	-42.14***
	(0.52)	(1.93)	(4.25)	(7.06)
Mean of dependent variable	33.78	242.4	801.5	1828
Accumulated earnings (100 SEK) - Alternative	-1.97***	-9.20***	-25.21***	-36.37***
	(0.33)	(1.53)	(3.70)	(6.45)
Mean of dependent variable	17.73	163.2	625.8	1538
Number of observations	20,720	20,720	20,720	20,720

Note: The table presents estimates of γ_2 from Equation (3), where waiting time is measured in months. Each cell represents a separate regression. All regressions include individual characteristics of Table 1. */**/*** refers to statistical significance at the 10/5/1 percent level. Robust standard errors in parentheses. In the baseline analysis last-year earnings are calculated as last-year earnings*(day of the year of the application date/365). In the alternative analysis last-year earnings are calculated as last-year earnings*(day of the year of the application date/365)^2. See Appendix A1 for more information on the income measure.

Appendix A3 (for online publication): Figures

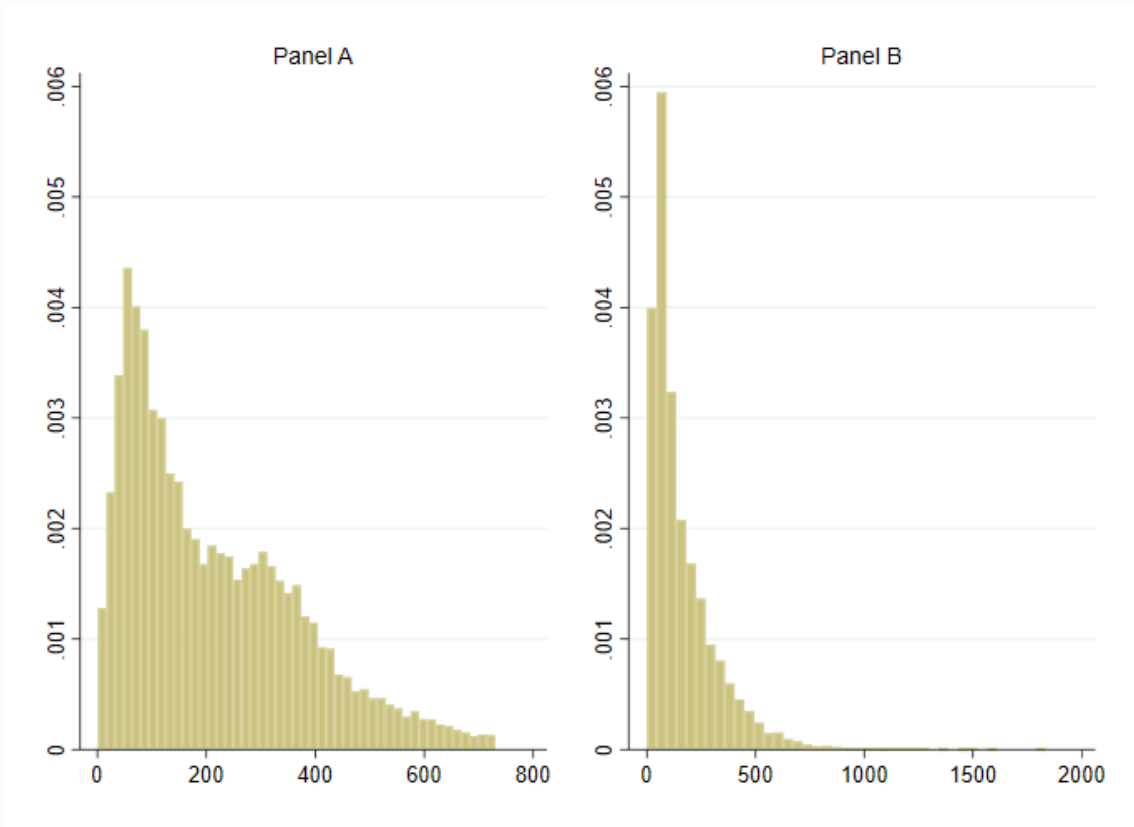

Figure A1: Distribution of time between application and granted residence permit, applications 2011–2014

Note: In Panel A applications between 2011-2014 with a processing time equal to or shorter than 2 years are included. In Panel B we extend the follow-up period until 2016 and include all applications indifferent of processing time.

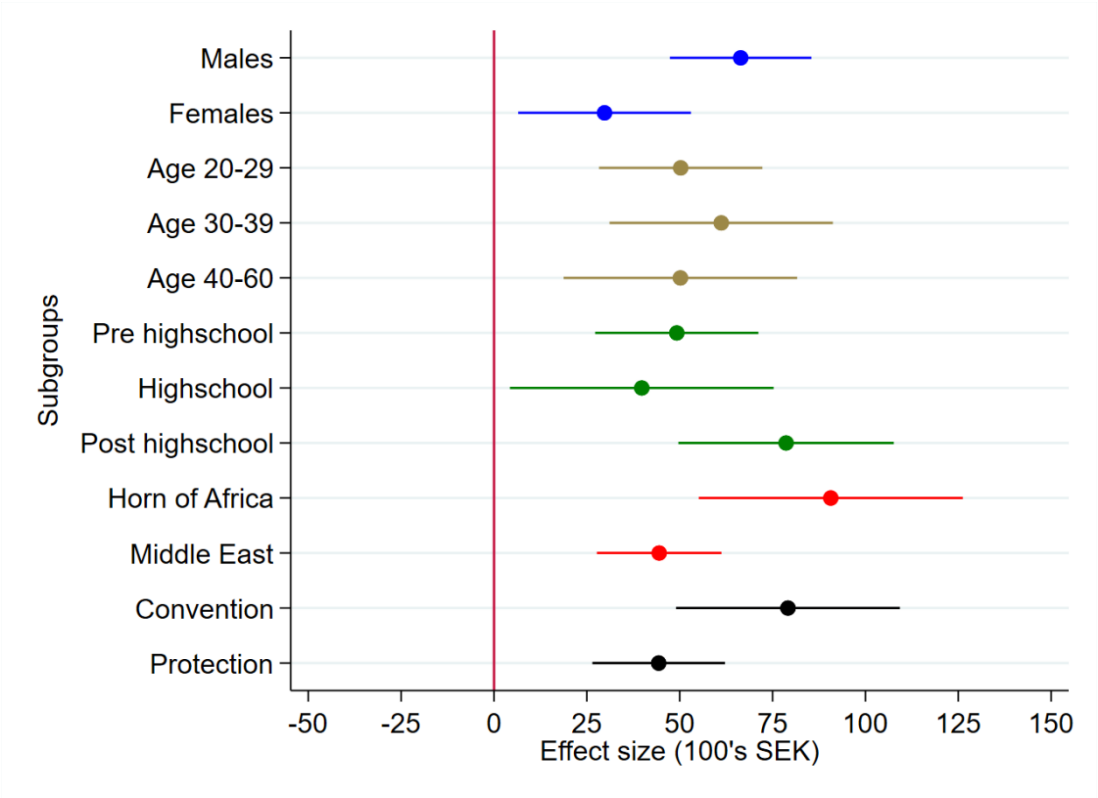

Figure A2: Impact on cumulative earnings 3 years since resident permit, IV estimates by subgroups

Note: Coefficients and 95-percent confidence intervals by subgroup. The same model as in Table 4 is used.