



## **A reconstruction of the size and composition of Jewish Holocaust survivors in the Netherlands, 1945**

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**Abstract.** Compared to other countries that have suffered from the Nazi occupation, the destructive impact of the Holocaust on the Jewish population has been particularly strong in the Netherlands. This paper gives a demographic reconstruction of the Jewish population in the Netherlands by the end of the war (1945), disaggregated by age and sex. The reconstruction is based on two approaches: a forward projection 1941–1945, starting from registration data supplemented by information on Holocaust losses; and a backward projection 1966–1945, starting from an enumeration of Halachic Jews carried out in 1966. The two approaches yield two estimates that are comfortingly similar.

**Keywords:** Backward projection, Demographic reconstruction, Holocaust, Jewish population, Netherlands

### **1. Introduction**

In the 1990s, more than five decades after the Shoah, world-wide discussion has sprung up about the material restitution of Jewish property stolen during the Nazi occupation of Europe. Legislation to restitute Jewish property is being debated across Europe. It is now generally acknowledged that governments and financial institutions have put too little effort in post-war years in restoring this stolen property to the rightful owners. In many countries funds have been established in order to enable some form of financial compensation to the survivors of the Holocaust, or their heirs.

In the Netherlands, in recognition of the deficiencies retrospectively identified in the restoration of rights after the Second World War (WWII hereafter) schemes have been set up for compensation for stolen and incompletely restored Jewish property. These schemes concern the return of Jewish assets without the burden of having to prove the amount looted.

In the spring of 2000, the Dutch government, banks, insurance companies and stock exchange, agreed with representatives of Dutch Jewry in the Netherlands (Central Jewish Board) and in Israel (The Platform Israel) that a total amount of NLG 764 million (about 300 million US\$) will be made available for material and moral compensation. A special foundation, the 'Stichting

MAROR-gelden' has been established to manage and distribute the fund's assets. The bulk of the money will be allocated as individual benefits to Jews who survived WWII in the Netherlands. These persons are referred to as 'concerned parties'. In the case of a concerned party having died prior to an application being submitted, 'substitutes' (surviving children or spouse) can act on the concerned party's behalf.

Every concerned party receives the same amount. This means that the amount of a single portion can be calculated only after the number of applications submitted becomes known. Given the advanced age of many Holocaust survivors, however, the awarding authorities did not want to wait until the closing date for submission to determine the amount of the refund. Instead the Netherlands Interdisciplinary Demographic Institute (NIDI) in The Hague (The Netherlands) was asked to make an estimate of the potential number of claims.

The estimation procedure comprised of two main steps. Firstly, the reconstruction of the 1945 population of Holocaust survivors by age and sex; secondly, based on this 1945 population, the projection of those still alive in 2000 or, if not alive, their surviving children and/or spouse.

This paper reports on the reconstruction of the population of Holocaust survivors, disaggregated by age and sex. For this reconstruction data from various sources had to be combined. None of the sources contained all necessary information; they use different definitions, and are occasionally even contradictory. We have tried to combine the data from different sources into one single, as consistent as possible structure.

The organization of this paper is as follows. Section 2 briefly introduces the data sources, the various definitions and the method used. Section 3 further discusses the 1941 registration data, and the forward projection 1941–1945. In Section 4, we focus on the 1966 enumeration and the backward projection 1966–1945. The two projected 1945 populations are compared in Section 5. The composition by age and sex is presented in Section 6. The final section summarizes and concludes.

## **2. Definitions, data sources and method**

For the purpose of this article, Jewish survivors of World War II in the Netherlands are defined as follows:

- persons who resided in the Netherlands, permanently or for some time, during the period from 10 May 1940 until 8 May 1945, and
- who were still alive on 8 May 1945, and
- who have at least one Jewish parent and two Jewish grandparents on the side of that Jewish parent.

This *definition* directly derives from the eligibility criteria formulated for the Dutch *compensation fund*. The eligibility criterion for 'Jewish' is closely related to the detailed Nazi definitions, but is much wider than the Halachic (Rabbinic) criterion for Jew.

The destructive impact of the Holocaust on the Jewish population was particularly strong in the Netherlands. Roughly two thirds of the Jewish population were deported and murdered; compared to 40 percent in Belgium, and 25 percent in France (Moore 1997: 2). One major reason for this extremely high death toll was the effective and almost complete system of population registration in the Netherlands, which greatly assisted the Nazis in identifying, locating, arresting and murdering Jewish persons.

There are several reasons why the registration system itself could not be used for tracing the decimation of the Jewish population over the years 1941–1945. First, the person cards are not available electronically, and are kept by each individual municipality, which would make register research extremely labor intensive. Second, the 1941–1945 register is incomplete and unreliable, because parts have been lost in raids organized by the resistance movement. Third, the effects of the deportation have not been directly recorded. Whenever a person was deported, his or her card was simply removed from the register. The only trace left was a remark on a list that this person had left the country with 'destination unknown'.

In the Netherlands, therefore, no statistics or other directly accessible data sources are available that provide information on the exact number of Jews that survived WWII in the Netherlands. Direct post-war sources range from 14.346 (1947 Population Census) to 21.674 (1945 Registration of survivors by the Jewish Coordination Committee). The numbers, however, are unreliable and do not cover the total population of survivors for various reasons. The *census definition*, for example, is very restrictive, since it is based on subjective religious affiliation: any person who declares himself a member of a Jewish religious community. The 1945 Registration by the Jewish Coordination Committee only contains persons who registered themselves voluntarily, mostly in order to facilitate reunification with possibly surviving relatives (Vedder 1961).

Given their limited coverage combined with the absence of information on the age and sex composition, these registrations were of little value for our purposes. Instead, two other data sources have been used for the reconstruction. The first source was the registration of Jews in the Netherlands in 1941, carried out by the Nazis. These registration data, supplemented by information on Holocaust losses, have been projected forwards to 1945. The second source was a statistical study of Dutch Jews undertaken in 1966. The 1966 population has been projected backwards to 1945. This source was im-

portant, not only as a second estimate for 1945, but even more so because of the detailed age- and sex-specific information.

In 1941, the Nazis organized a registration of all Jews in the Netherlands, adapting the then recently enhanced effective and almost complete population registration. The *Nazi definition of Jew* was formulated in terms of number of Jewish grandparents, membership of a Jewish religious community, and being married to a Jewish partner. As so-called ‘full Jews’ were considered: persons with four or three Jewish grandparents; plus persons with two Jewish grandparents who in addition were either married to a Jewish partner or were themselves member of a Jewish religious community. So-called ‘half Jews’ were those with two Jewish grandparent who in addition were neither member of a Jewish religious community, nor married to a Jewish partner. Persons with one Jewish grandparent were denoted as so-called ‘quarter Jews’; this group will be ignored in this paper.

In 1966, the Jewish community in the Netherlands launched an extensive enumeration of Jewish persons. This enumeration relates to Jews according to the *Halachic definition*: persons born from a Jewish mother, who had not joined explicitly a non-Jewish religious community, plus any other person who joined a Jewish religious community. The Halachic definition is much more restrictive than the Nazi definition and the definition from the compensation fund.

Obviously, these definitional differences must be taken into account when combining data from difference sources. In addition, however, we have to recognize that data sources refer to different points in time. Our aim is to link these data sources in a demographically complete and consistent way. For any two points in time  $t$  and  $u$  the following (in principle: age- and sex-specific) accounting equation holds:

$$N(u) = N(t) - D(t, u) + B(t, u) - E(t, u) + I(t, u) \quad (1)$$

where  $N$  is the size of the Jewish population (whatever the definition) at a certain point in time, and  $D$ ,  $B$ ,  $E$  and  $I$  denote deaths, births, emigration and immigration, respectively, during the period between two points in time. Ideally, we would like to quantify each component in Equation (1) for the two time points 10 May 1940 and 8 May 1945. The problem is that there is no consistent data set that could be used for this purpose. What we will do, therefore, in the sections to follow, is to manipulate Equation (1) in several ways, producing sub-equations for which data (or at least reasonable estimates) are available. More specifically, the following types of manipulations will be employed:

- Splitting the period under consideration into sub-periods. For example, in going from 10 May 1940 to 8 May 1945, we insert the observation point

1 October 1941, marking the registration of the Jews in the Netherlands by the Nazis.

- Splitting the total Jewish population into sub-groups. For example, to account for different age structures and survival ratios, we distinguish between ‘half Jews’ and ‘full Jews’.
- Splitting components into sub-components for which specific information is available. For example, total mortality is split into ‘murder by Nazis’, ‘suicide’, and ‘natural mortality’.
- Collapsing components of population change. For example, post-war migration is treated as net emigration.

### **3. Forward projection 1941–1945: Registration 1941 and the Holocaust losses**

This section deals with the reconstruction of the size of and change in the Jewish population in the Netherlands during the period 1940–1945. Starting point is the Registration of Jews in the Netherlands in 1941.

Decree VO 6/1941 of 10 January ordered the formal registration of all Jews. Using the widest possible definition of Jew (see Section 2), the Germans insisted that all those who might be included in the definition had to register. The actual registration process was carried out by the Dutch administrative services headed by a bureaucrat *pur sang*, J.L. Lentz, who adapted the then recently enhanced population registration system (Seltzer 1998: 523). The results of the registration were published in the ‘Statistical Record of Persons of Jewish Blood in the Netherlands’<sup>1</sup> (Central Population Registration Office 1942), describing the situation as per 1 October 1941.

The level of compliance was very high. Post-war historians could find only a few cases who had deliberately avoided registering (Moore 1997: 64). Any difference between the registration 1941 and the ‘real’ numbers is assumed to be negligibly small, with the possible exception of a few numerically small specific groups. Moore (1997: 64) argues that only those who already lived outside the law (illegal immigrants and communists), or those who had a fear of any dealings with authority (many Eastern European Jews), were likely to have evaded the registration process in any numbers. This almost full compliance can be partly explained by the fact that if Jews refused to comply, the information about their ‘Jewishness’ could be found in a number of Dutch archives, in particular those of the Netherlands Israelite Community and the burial records. A considerable number did, however, try to deny their (full) Jewish origins: in June 1941, the German authorities had already received more than a thousand requests of people who wanted a revision of their status as Jews. Of these borderline-cases, wrote one of the German

Table 1. Key data from the registration of 1941

Jewish grandparents	Member Jewish religious community?	Jewish partner?	Nazi definition	Number
4			Full	134,498
3			Full	1,486
2	Yes	No	Full	2,286
2	Yes	Yes	Full	1,252
2	No	Yes	Full	479
2	No	No	Half	14,895
1			Quarter	5,990
Total				160,886

officials, Dr. Hans Calmeyer, “an unexpectedly large number have no doubt wrongly been forced to register” (De Jong 1972: 875). So, instead of evading the registration, people strove to undo its results. It shows the trust that the Jewish population still had in the legal authorities. By the end of 1941, when hundreds of Jews had already been murdered in Mauthausen, this trust had declined. But then, the damage had already been done.

Table 1 summarizes the key data from the registration. In October 1941, Lentz c.s. had counted 160,886 people with at least one Jewish grandparent: 140,001 so-called ‘full Jews’, 14,895 ‘half Jews’, and 5,990 ‘quarter Jews’. In this paper ‘full Jews’ will be further divided in (a) *mixed married ‘full Jews’*, and (b) *other ‘full Jews’*, i.e., those who were not married, or married to a Jewish partner. Although the registration of 1941 gives 19,000 ‘full Jews’ in a mixed marriage, this is generally believed to be a gross overestimation. The 9,000 figure is thought to be fairly accurate (e.g., Brász 2000, Presser 1969). Quarter Jews will be ignored in this paper.

In the following sub-sections, we will quantify the components in the accounting equation (1) for the period between 10 May 1940 (German invasion of the Netherlands) and 31 December 1945 (end of year in which the war ended). In doing so, we split the full period into three sub-periods by inserting two intermediate dates: 1 October 1941 (registration 1941) and 8 May 1945 (capitulation of the German army).

### 3.1. From 10 May 1940 to 1 October 1941

There are no direct data on the number of Jews in the Netherlands per 10 May 1940. Stock data are only available from the Registration 1941. Although the

actual registration process was carried out during a period spanning several months, the ultimate statistical publication describes the situation as per 1 October 1941. It is quite possible that some components of population change occurred between registration and 1 October 1941 which are not reflected in the statistical publication (e.g., a person registered in April 1941 and was deported to Mauthausen in August 1941). As a result, in our reconstruction such components of population change are 'automatically' allocated to the sub-period *starting* 1 October 1941, even though they actually occurred in the sub-period *ending* 1 October 1941.

If we knew the components of population change between 10 May 1940 and 1 October 1941, we could reconstruct the full 10 May 1940 population. We do not have such data. However, for the purpose of estimating the number of Jewish *survivors* of the Holocaust in the Netherlands, the impossibility of reconstructing 10 May 1940 is not fatal, because survivors from the pre-registration period must also have been alive per 1 October 1941. All these survivors are included in the 1941 registration, except for those alive outside the Netherlands.<sup>2</sup> This category consists of Jews who emigrated from the Netherlands between 10 May 1940 and 1 October 1941. Together with the 154,896 persons ('half Jews' plus 'full Jews') from the registration, this gives 155,196 Jews per 1 October 1941 (Table 2).

### 3.2. *From 1 October 1941 to 8 May 1945*

In 1941 there were about 155,000 persons with at least two Jewish grandparents: 15,000 'half Jews', and 140,000 'full Jews'. The systematic deportations were aimed at the 140,000 'full Jews', with the exception of those in a mixed marriage (i.e., married to a non-Jew) and persons with a special immunity. A small number managed to escape deportation, by going into hiding or flee the country. By far the largest part were deported and murdered in the extermination camps.

It is not possible exactly to quantify the fate of the 'full Jews'. The available literature gives alternative figures, mostly based on estimates. In addition, it is very difficult to avoid some double-counting, as survivors might well belong to multiple groups. Thus, each numerical representation will be an approximation of reality only. The tables we present here (Tables 3 and 4) have been finalized during a conference at the Netherlands Institute for War Documentation (NIOD), organized for this specific purpose on 31 August 2000. Below, we discuss the various components of these tables in detail.

#### *Deportation*

When, in the spring of 1942, it became clear to the German authorities that the Dutch Jews were to be deported, they wanted complete control of this

Table 2. Accounting equation for sub-period 10 May 1940–1 October 1941

	$N(t)$	Population 10 May 1940	Residing in the Netherlands		Abroad	Total
			'Half Jews'	'Full Jews'		
			Mixed married	Other		
						Total
$-D(t, u)$	Deaths:					
	* suicides					-300 <sup>a</sup>
	* razzia 22/23 Feb 1941					-400 <sup>b</sup>
	* other					?
$+B(t, u)$	Births					?
$-E(t, u)$	Emigration					-300 <sup>c</sup>
$+I(t, u)$	Immigration					?
$N(u)$	Population 1 Oct 1941	14,895 <sup>d</sup>	9,000 <sup>d</sup>	131,001 <sup>d</sup>	154,896 <sup>d</sup>	300
						155,196

<sup>a</sup> Source: W. Ultee, personal communication.

<sup>b</sup> Source: De Jong (1972: 892).

<sup>c</sup> Source: De Jong (1974: 1006-1009).

<sup>d</sup> Source: Registration 1941; Brász (2000).

Table 3. Accounting equation for sub-period 1 October 1941–8 May 1945

	Residing in the Netherlands				Abroad	Total
	'Half Jews'	'Full Jews'	Total			
		Mixed married	Other			
$N(t)$	Population 1 October 1941 <sup>a</sup>	9,000	131,001	154,986	300	155,196
$-D(t, u)$	Deaths:					
	* deported and murdered <sup>b</sup>	-350	-100,242	-101,092		-101,092
	* murdered in Netherlands <sup>c</sup>		-500	-500		-500
	* suicides <sup>d</sup>		-452	-452		-452
	* 'natural' decline <sup>e</sup>	0	-2,000	-2,000	0	-2,000
$+B(t, u)$	Births					
$-E(t, u)$	Emigration:	Included in 'natural' decline				
	* Schultze Bernett group <sup>f</sup>		-700	-700	+700	0
	* refugees to Palestine <sup>g</sup>		-500	-500	+500	0
	* refugees deported and murdered <sup>h</sup>		-1,500	-1,500		-1,500
	* refugees returned to NL after the war <sup>i</sup>		-2,000	-2,000	+2,000	0
	* deported, not murdered (repatriates) <sup>j</sup>		-5,500	-5,500	+5,500	0

Table 3. Continued

	Residing in the Netherlands				Abroad	Total	
	'Half Jews'	'Full Jews'					Total
		Mixed married	Other				
$+I(t, u)$	Immigration <sup>k</sup>	0	0	0	n.a.	0	
$N(u)$	Population 8 May 1945 <sup>l</sup>	14,545	8,500	17,607	9,000	49,652	

<sup>a</sup> From Table 2.

<sup>b</sup> Source: C.J.F. Stuldreher, personal communication.

<sup>c</sup> Source: NIOD conference, 31 August 2000.

<sup>d</sup> Source: Ultee & Luijckx (1997: 63).

<sup>e</sup> Source: own calculations, see text.

<sup>f</sup> Source: De Jong (1974: 1006-1009).

<sup>g</sup> Source: NIOD conference, 31 August 2000.

<sup>h</sup> Source: Estimated from Hirschfeld (1991: 165).

<sup>i</sup> Source: estimated from: 1. List of Dutch Jews that were registered in France ("Lijst van in Frankrijk geregistreerde Nederlandse Joden") (Brussels, fall of 1944) and 2. Central Registration Office, Alphabetical List of Jews in the Netherlands ("Centraal Registratiebureau voor Joden, Alfabetische lijst van zich in Nederland bevindende joden") supplements 8, 9 and 9a (Amsterdam 1945-1947). The first list mentioned here contains 205 Dutch Jews that had fled to France. The supplements 8, 9 and 9a of the second list contain the Jews that came back the Netherlands from far abroad. Of these, 1,920 had lived in the Netherlands at some point during the occupation. A possible overlap within the supplements must be taken into account, which is why we estimated this figure at 2,000.

<sup>j</sup> Source: Estimated from Hirschfeld (1991: 165). To Hirschfeld's estimate of 5,200 must be added the few hundred Jews – the exact figure is unknown – that survived 'mixed' concentration camps like Buchenwald and Neuengamme.

<sup>k</sup> By assumption.

<sup>l</sup> See also Table 4.

matter. For this reason they ordered copies to be made of all the registration files. On the basis of these copies, which were housed in the building of the Zentralstelle für jüdische Auswanderung in Amsterdam, the Dutch Jews were deported (De Jong, 1974: 1046).<sup>3</sup> The total number of Jews deported from the Netherlands is about 106,992 (400 in Table 2, 101,092 + 5,500 in Table 3). This number is fairly reliable. Hirschfeld (1991) counted 91 transportation trains (mostly from the 'transit camp' of Westerbork) between July 1942 and September 1944 with in total 102,992 Jews. In addition, between February 1941 and June 1942 about 4,000 Jewish men were transferred to Mauthausen. Included in these 4,000 are the 400 Jews arrested in Amsterdam in the first *razzia* of 22/23 February 1941, which led to the famous (although futile) 'February Strike' (Presser 1969). Since it is highly unlikely that these persons had already fulfilled their registration duties, the number of deported among the Registration 1941 population is 400 less than the total number of deported.

#### *Murder*

The highly impressive publication 'In Memoriam/L'Zecher' (SDU 1995) contains the names of almost all Jews murdered in the extermination camps after deportation from the Netherlands. A digital version of this list contains 101,549 names. After publication it appeared that a small number of names was erroneously left out, which brings the total very close to 102,000 (including the 400 counted in Table 1). These 102,000 victims are not exclusively 'other full Jews': the number includes an estimated 500 mixed married 'full Jews' and about 350 'half Jews'. In addition, the publication contains a small number of Jews murdered in the Netherlands (total number set at 500), as well as Jews murdered after deportation from another country (total number set at 1,500). Thus, the correspondence between the number 102,000 from 'In Memoriam/L'Zecher' and the number 100,242 'other full Jews' murdered after deportation from the Netherlands in Table 2 is as follows: 102,000, minus 400 not in Registration 1941 (Table 1), minus 500 mixed married, minus 350 'half Jews', minus 508 murdered *not* after deportation from the Netherlands but nevertheless included in 'In Memoriam/L'Zecher'.

#### *Suicide*

According to Ultee and Luijkx (1997), about 452 Jews committed suicide after February 1941. We have assumed that all these Jews were included in the Registration 1941 data.

#### *'Natural' decline*

There are no direct data on 'natural' decline among the Jewish population. Therefore, we have to rely upon a (necessarily crude) demographic calculation.

From the age distribution in the Registration 1941, it appears that the crude birth rate among the total Jewish population was around 12.5 per 1000 just before the start of the war. After 1940, fertility among Jews must have declined somewhat, and after the start of the deportations it most certainly dropped substantially. For the full period 1941–1945, a crude birth rate of 9.5 is not unreasonable.

From the backward projection (to be discussed in Section 4), it follows that the crude death rate among the Holocaust survivors was about 10 per 1000 immediately after the war. In the years 1941–1945 ‘natural’ mortality was substantially higher, considering things like conditions in hiding and the 1944/1945 famine. Regional mortality statistics show that in 1945, mortality in the western provinces (where most Jews were concentrated) was about twice the normal level. Over the full 1941–1945 period, an over-mortality of 50%, i.e., a crude death rate of 15 per 1000, seems quite reasonable.

Applying crude birth and deaths rates of 9.5 and 15 per 1000, respectively, and taking into account the time path of the deportations, produces a ‘natural’ population decline of 2,000 persons. This number has been assigned to the category ‘other full Jews’.

For the mixed married, natural decline has been set to zero. Since the population of the mixed married was relatively young, natural mortality must have been very small. Likewise, the number of mixed marriages contracted after 1941 must have been equally small, because these were illegal under the so-called ‘Nuremberg Laws’ (Presser 1969).

For the ‘half Jews’, natural decline has also been set to zero. Because of their young age structure, the number of natural deaths must have been very small. The number of births was also very small, because the fertility decline after 1941 among the mixed married was particularly strong, partly because of forced sterilization, and notably because of conscious restraint: a pregnancy was perceived as greatly increasing the risk of deportation, given the inconsistent policies of the Nazis in this domain.

### *Emigration*

About 700 ‘full Jews’ escaped the country through the mediation of an officer of the German counter-intelligence, G.W. Schulze Bernett, who didn’t hold the Nazis in high regard. He worked together in this with a German businessman with similar views, Harry W. Hamacher, who in 1939 had become the owner of a Jewish transportation firm in Amsterdam. The management of this firm stayed in contact with many German Jews, who had sought refuge in the Netherlands before the war and had applied for emigration just after May 1940. Hamacher asked Schulze Bernett to help these Jews to escape in a legal way and to add a few Jews from his own network. The German authorities

Table 4. Jews in the Netherlands per 8 May 1945, by category of survival

	Residing in the Netherlands				Total
	'Half Jews'	'Full Jews'			
		Mixed married	Other		
Not in hiding <sup>a</sup>	13,845	7,800			21,065
Immunized <sup>b</sup>				3,050	3,050
Survived in hiding <sup>c</sup>	700 <sup>c</sup>	700 <sup>c</sup>		13,557 <sup>a</sup>	14,957
Liberated from captivity in Netherlands <sup>d</sup>				1,000	1,000
<i>N(u)</i> Total: population 8 May 1945 <sup>e</sup>	14,545	8,500		17,607	40,652

<sup>a</sup> Source: balancing item.

<sup>b</sup> Source: NIOD conference, 31 August 2000.

<sup>c</sup> Source: C.J.F. Stuldreher, personal communication.

<sup>d</sup> Source: estimated from the survivor lists of the Westerbork transit camp: 1. part of registration by the Central Registration Office for Jews (list A1) and 2. List of former inmates of camp Westerbork, archive of the 'Herinneringscentrum kamp Westerbork'. Two survivor lists (dated April and August 1945) show 893 survivors from the Westerbork camp. To this figure must be added the unknown but small number of Jews that were liberated in other Dutch prisons, resulting in an estimated total of 1,000.

<sup>e</sup> See also Table 3.

were told that these added Jews only posed as Jews, but in reality were spies for Germany in the New World. In this way the emigrants, ostentatiously accompanied by the 'German agents', escaped the country in 1941/42 (De Jong 1974: 1006–1009).

The number of undocumented emigrants (refugees) is crudely estimated at about 4,000. Of these 4,000, an estimated 500 went to Palestine, 2,000 returned to the Netherlands after the war, and 1,500 were captured during the flight and deported (these 1,500 are partially included in 'In Memoriam/L'Zecher').

#### *Imputing dubious flow data from direct evidence 8 May 1945*

Some of the flow data included in Table 3 are rather weak. As a consequence, combining these flow data with the Registration population per 1 October 1941 gives an in some aspects weak population per 8 May 1945. Fortunately, there is some direct evidence on the situation per 8 May 1945, collected in Table 4, which can be used to apply the accounting equation in reverse and calibrate some of the dubious flow data in Table 3.

About 3,050 Jews survived the war because of a special immunization. About 3,000 Dutch Jews escaped the deportations because they contested their status as ‘full Jews’. Many of these protests ended up on the desk of H.G. Calmeyer, a lawyer from Osnabrück, who did his best to designate as many of these contestants as he could as half-Jews or even Aryans, sometimes risking his own life and that of his subordinates in the process. In addition, two members of the Dutch resistance by the name of Cornelis Teutscher and Antonius Mom knew about Calmeyer’s power in this field and started to fabricate their own ‘Calmeyer decisions’, saving more hundreds of Jews.<sup>4</sup> Another 50 Jews were protected by Seyss-Inquart (the *Reichskommissar* for the Netherlands) himself, as a personal favor; however, most historians treat this act more as a whim than as a genuine desire to save Jews.

About 1,000 Jews are known to have been liberated from imprisonment in the Netherlands, of whom 893 were liberated in Westerbork.

NIOD has a database with Jewish survivors, containing 18,142 persons. This database consists mostly of persons in hiding, but also contains an unknown number of exempted Jews (so-called ‘Calmeyer Jews’) and persons repatriated from the extermination camps. All in all it is estimated that 14,957 Jews survived the war in hiding, of whom about 700 ‘half Jews’ and 700 mixed married, implying 13,557 ‘other full Jews’.

### 3.3. *From 8 May 1945 to 31 December 1945*

The backward projection to be presented in section 4 goes back to 1 January 1946 or, equivalently, 31 December 1945. The reconstruction from 10 May 1940 to 8 May 1945, therefore, needs to be extended by the remaining part of the year 1945. Table 5 summarizes our assumptions on the accounting equation for this period.

The main assumption in Table 5 is that the natural increase among the Jewish survivors of the Holocaust in the Netherlands was zero during the second half of 1945. We do not have much evidence to support this assumption, but neither is there any evidence for an alternative. The period is too short to include the start of the post-war increase in births, and whatever natural increase or decline there will have been, it will certainly have been of limited importance only. Also, the possible error introduced by the assumption of zero natural increase is by all means smaller than the total margin of error.

In addition, Table 5 contains three figures on migration movements, two of which have their counterpart in Table 3. The 500 emigration (presumably all to Palestine) is a crude estimate, based on Brász (2000).

To conclude: by the end of 1945, there were 49,652 Jewish (Nazi and compensation fund definition) survivors of the Holocaust in the Netherlands, of whom 2,000 were living abroad.

Table 5. Accounting equation for sub-period 8 May 1945–31 December 1945

	Residing in the Netherlands			Abroad	Total
	'Half Jews'	'Full Jews'	Total		
		Mixed married	Other		
$N(t)$	Population 8 May 1945 <sup>a</sup>	8,500	17,607	9,000	49,652
$-D(t, u)$	Deaths: natural decline <sup>b</sup>	0	0	0	0
$+B(t, u)$	Births	Included in natural decline			
$-E(t, u)$	Emigration <sup>c</sup>		-500	+500	0
$+I(t, u)$	Immigration: * repatriated after deportation <sup>d</sup> * refugees returned to NL after the war <sup>e</sup>		+5,500	-5,500	0
			+2,000	+2,000	0
$N(u)$	Population 31 Dec 1945	8,500	24,607	2,000	49,652

<sup>a</sup> From Table 3/4.

<sup>b</sup> By assumption.

<sup>c</sup> Source: Brász (2000).

<sup>d</sup> From Table 3.

<sup>e</sup> From Table 3.

#### 4. Backward projection of Halachic Jews 1966–1945

After 1945, the statistical basis for demographic research on Jews in the Netherlands quickly dwindled. The trauma of the Holocaust and in particular the fact that population statistics had so much helped the Nazis in decimating Dutch Jewry, has created a general resentment against registration in general and of Jewishness in particular. Official population statistics for a while continued to classify by membership of a religious community, which captures only part of the Jewish population. More importantly, the religion variable was obtained by self-reporting, and since many Jews were (understandably) no longer prepared to declare themselves as belonging to a Jewish religious community, the resulting statistics became virtually useless. As an illustration, the census of 1947 counted just 14,347 Jews in the Netherlands, while the true number, whatever the definition, must have been at least two if not three times as large.

The Jewish community in the Netherlands has tried to fill this gap by establishing a ‘Committee for Demography of Jews in the Netherlands’ that periodically conducts its own research. In 1954 (Vedder 1961), and again in 1966 (Van Praag 1971), the Committee launched an extensive enumeration of Jewish persons, yielding valuable demographic information. Recently, a renewed data collection effort was commissioned, although on a much more modest scale, via a survey with around 1,000 respondents conducted in 1999 (Van Solinge & De Vries 2001).

The 1966 enumeration is of particular importance, because of its coverage and reliability. Contrary to the 1954 study, which suffers from substantial underestimation, the 1966 count is fairly complete. The enumeration per 1 January 1966 relates to Jews according to the Halachic definition: persons with a Jewish mother who did not explicitly join a non-Jewish religious community. The data were obtained from the administration of Jewish parishes (but specifically also *including* non-members as much as possible), and then extensively checked and corrected against the municipal population registers. Because of these checks, the reliability of the data is fairly good. Some uncertainty surrounds the extent to which Jews who are *not* members of a Jewish religious community have been included. In the parish of Amsterdam, registration of non-members is as complete as possible, in The Hague and Rotterdam it is quite reasonable, but outside these three main cities the coverage is more dubious (Van Praag 1971: 1–2). Therefore, it is quite possible that the enumeration of 1966 underestimates the true number of Halachic Jews in the Netherlands by several thousands (namely: born from a Halachic mother, not member of a Jewish religious community, living outside of the three main cities).

The enumerated Halachic population per 1 January 1966, disaggregated by age and sex, can be projected backwards in time to produce an estimate of the size and composition of the Halachic population in 1945. This backward projection<sup>5</sup> requires certain assumptions on mortality and migration for the years 1946 . . . 1965; *fertility* assumptions are not needed in a backward projection, because the annual numbers of births are derived from cohort sizes measured at a later date. For mortality, we have used national age- and sex-specific mortality rates.

Migration has been modeled as net emigration, requiring net emigration rates by age and sex. For the years 1954 . . . 1965 net emigration has been set to zero (Van Praag 1971: 42). For the years 1946 . . . 1953, the assumption of zero net migration is obviously unrealistic, given the sizeable aliyah (emigration to Israel). For this period, age-specific net emigration rates (assumed to be equal for men and women) have been estimated from data collected in the 1954 enumeration (Vedder 1961: 35), followed by proportional adjustment to yield a specified value for the net emigration flow 1946 . . . 1953. This total net emigration flow 1946 . . . 1953 has been set to about 4,700, based on estimates by Brász (2000). In addition, we have to take into account that, by 1 January 1946, there were an additional 2,000 persons living outside the Netherlands, as a result of emigration during the years 1940 . . . 1945. These 2,000 persons have been included in the backward projection in the same manner as the 4,700 emigrants from the years 1946 . . . 1953.

The backward projection leads to a population of 34,379 persons per 31 December 1945, disaggregated by age and sex; the corresponding numbers for the components of the accounting equation are listed in Table 6. This population must be understood to refer to Halachic Jews who were residing in the Netherlands at the beginning of World War II, and who were still alive by 1945 (but not necessarily still residing in the Netherlands). In other words: using the Halachic definition, there were 34,379 survivors of the Holocaust in the Netherlands.

## 5. A comparison of the forward and backward projection results

We now have two estimates of the number of Dutch Holocaust survivors: 49,652 Jews from the forward projection 1941–1945, according to the compensation fund and Nazi definition; 34,379 Jews from the backward projection 1966–1945, according to the Halachic definition. To allow a confrontation of these two numbers, we first need to adjust the numbers to a common definition, for which we select the Halachic one.

Table 6. Accounting equation for Halachic Jews, for backward period 1 January 1966–31 December 1945

$N(u)$	Population 1 Jan 1966	Netherlands	Abroad	Total	Source
		29,660			Van Praag (1971)
$+D(t, u)$	Deaths	+6,459			From backward projection
$-B(t, u)$	Births	-8,454			From backward projection
$+E(t, u)$	Net emigration:				
	* years 1954 ... 1966	0			Van Praag (1971)
	* years 1946 ... 1953	+4,714			Brász (2000)
	* years 1940 ... 1945		+2,000		Tables 1–4
$-I(t, u)$	Immigration	Included in net emigration			
$N(t)$	Population 31 Dec 1945	32,379	2,000	34,379	Halachic Holocaust survivors

Table 7 summarizes the relevant data from the registration of 1941. For each row, we can estimate how many persons satisfy the conditions of the Halacha. We first distinguish by the number of Jewish grandparents:

- Four Jewish grandparents: 134,498 persons. These are all Halachic, with the exception of those who have entered a non-Jewish religious community (1,667). Total 132,831 Halachic Jews;
- Three Jewish grandparents: 1,486 persons. Members of a non-Jewish religious community (146) are non-Halachic. Of the remaining 1,340 persons, all are Halachic, except those for whom the one non-Jewish grandparent is the maternal grandmother (assumption: 25%). This yields 1,005 Halachic Jews.
- One Jewish grandparent: 5,990 persons. 3,383 are member of a non-Jewish religious community. The remaining 2,607 are non-Halachic, unless the one Jewish grandparent is the maternal grandmother (25%). This yields 652 Halachic Jews, or 10.9% among the ‘quarter Jews’.

The real problems start with persons having two Jewish grandparents. From the 18,912 persons with two Jewish grandparents, we first subtract the 4,871 members of a non-Jewish church. For the remaining 14,041, we need to estimate how many have a Jewish maternal grandmother. Following Vedder (1961), we use for this the ratio between men and women among the mixed married Jews with four Jewish grandparents: in the registration 1941, this ratio is 11,083 men to 7,101 women, implying 39,05% Jewish via the mother, or 5,483 Halachic Jews of the 14,041.

Table 7 gives 4,205 persons with two Jewish grandparents who satisfy the Nazi criteria for ‘full Jew’: either married to a Jew, or member of a Jewish church. Of these 4,205, 102 are member of a non-Jewish religious community and consequently non-Halachic; 3,755 are member of a Jewish religious community and consequently Halachic; 348 are not member of any religious community. It is quite likely that all these 348 persons are Halachic because the fact that they married a Jew is evidence of some attachment to Judaism. All in all this gives 3,755 plus 348, i.e., 4,103 Halachic Jews. Thus, among the ‘full Jews’ with two Jewish grandparents, 4,103/4,205 or 97.6% are Halachic.

Table 7 gives 14,707 persons with two Jewish grandparents who satisfy the Nazi criteria for ‘half Jew’: not married to a Jew, and not member of a Jewish religious community. The total number of Halachic Jews within this group must equal: 5,483 (Halachic among all with two Jewish grandparents) minus 4,103 (Halachic among those with two Jewish grandparents satisfying the ‘full Jew’ criteria), or 1,380. Thus, among the ‘half Jews’ (with by definition two Jewish grandparents), 1,380/14,707 or 9.4% are Halachic. This is even lower than among the ‘quarter Jews’. The explanation for this can be found

Table 7. Registration 1941 data for estimation proportion Halachic Jews

Jewish grandparents	Member Jewish religious community?	Jewish partner?	Nazi definition	Religious community <sup>a</sup>			Total number	Estimated Of whom Halachic <sup>b</sup>
				Non-Jewish	Jewish	None		
4			Full	1,667	121,191	11,640	134,498	132,831
3			Full	146	764	576	1,486	1,005
2	Yes	No	Full		2,474		2,474	4,103
2	Yes	Yes	Full		1,281		1,281	
2	No	Yes	Full	102		348	450	
2	No	No	Half	4,709		9,938	14,707	1,380
1			Quarter	3,383	200	2,467	5,990	652
Total				10,067	125,910	24,909	160,886	139,971

<sup>a</sup> Registration 1941, Table VII. The total numbers in this table are slightly different from those in Table 1, based on Table X of the Registration 1941.

<sup>b</sup> See text.

Table 8. Jewish Holocaust survivors 31 December 1945, alternative definitions

	'Half Jews'	'Full Jews'	Total	Source
Reconstruction from registration 1941:				
compensation fund/Nazi definition	14,545	35,107	49,652	Table 5
proportion Halachic	9.4%	98.4%		Table 7
Halachic definition	1,365	34,543	35,908	
Backward projection from 1966:				
Halachic definition			34,379	Table 6

in the criteria used by the Nazis to divide those with exactly two Jewish grandparents into 'half Jews' and 'full Jews': the factors contributing to being classified as 'full Jew' are strongly correlated with factors contributing to being Halachic, particularly the factor 'being a member of a Jewish religious community'.

For all 'full Jews' together (four or three or two Jewish grandparents), the proportion Halachic equals  $(132,831 + 1,005 + 4,103)/(134,498 + 1,486 + 4,205)$  or 98.4%.

Table 8 shows the combination of these percentages and the results of the 1941–1945 projection of Table 1. It results in 35,908 Halachic Holocaust survivors. This number is somewhat higher than the 34,379 from the backward projection 1966–1945, although the order of magnitude is comfortably similar. There are numerous factors that could explain part of this difference. We have investigated several, including natural growth 1941–1945, mortality 1945–1966, emigration, and loss of Halachic Jewishness through e.g., baptism. All of these factors, we believe, have either reasonably well been taken care of in the two projections, or would have had a very small effect on the projection results only. The only substantial factor that remains is the possible under-count in the enumeration of 1966. As was already discussed in Section 4, it is quite possible that the 1966 enumeration was several thousands too low; as a result, the backward projection 1966–1945 could well be several thousands too low as well. For this latter reason, we are inclined to believe in the higher number of 35,908 rather than in the lower number of 34,379.

To conclude, the number of Jewish survivors of the Holocaust in the Netherlands is estimated at 49,652 persons, of whom 35,908 are Halachic Jews, i.e., Jewish according to Jewish Law.

## 6. The composition by age and sex

From the 1966–1945 backward projection, we have 34,379 Halachic survivors by age and sex, proportionally blown up to 35,908 to allow for under-count in the enumeration 1966. From the 1941–1945 forward projection, we have 49,652 Jewish survivors by Nazi category. As is apparent from Table 7, the bulk of the difference between these two populations concerns the Nazi category of the ‘half Jews’: 14,545 survivors, all Jewish according to the compensation fund eligibility criteria, but only 1,365 Jewish according to the Halacha.

Since the age composition of the ‘half Jews’ is quite different from that of the ‘full Jews’, it would certainly be incorrect to simply apply the age and sex composition of the backward projection to the full 49,652 population. Rather, the composition of the backward projection should be expanded in proportion with the composition of the ‘half Jews’. The registration of 1941 gives us the distribution of the ‘half Jews’ by sex and year of birth; birth cohort 1941 (age group 0) is incomplete, because the registration took place during that year. Between 1941 and 1945, this population has grown older, and been subject to deaths and births. ‘Half Jews’ are children born in mixed marriages. As already discussed earlier, fertility in mixed marriages dropped substantially after 1941. Thus, when completing the 1945 age distribution of the ‘half Jews’ from below, the subsequent birth cohorts become progressively smaller.

The resulting age-sex composition of the 1945 Holocaust survivors is depicted in Figure 1. The inner curve represents the Halachic survivors from the backward projection. The outer curve represents all Jewish survivors, and the difference between inner and outer curve is proportional to the extrapolated composition of the ‘half Jews’.

## 7. Summary and conclusions

In this paper we have attempted to make a demographic reconstruction of the Jewish survivors of the Holocaust in the Netherlands. Here, ‘Jewish survivor’ is understood to indicate a person who was residing in the Netherlands in 1941, was still alive on 8 May 1945, and had at least two Jewish (in the sense of Jewish law) grandparents.

In 1941, the Nazis organized a registration of all Jews in the Netherlands, adapting the then recently enhanced effective and almost complete system of population registration. As a result, the size and composition of the Jewish population in the Netherlands per 1 October 1941 is quite accurately known. At that moment, there were about 156,000 Jews (‘half Jews’ plus ‘full Jews’). Between 1941 and 1945, their number decreased by an estimated 106,000,

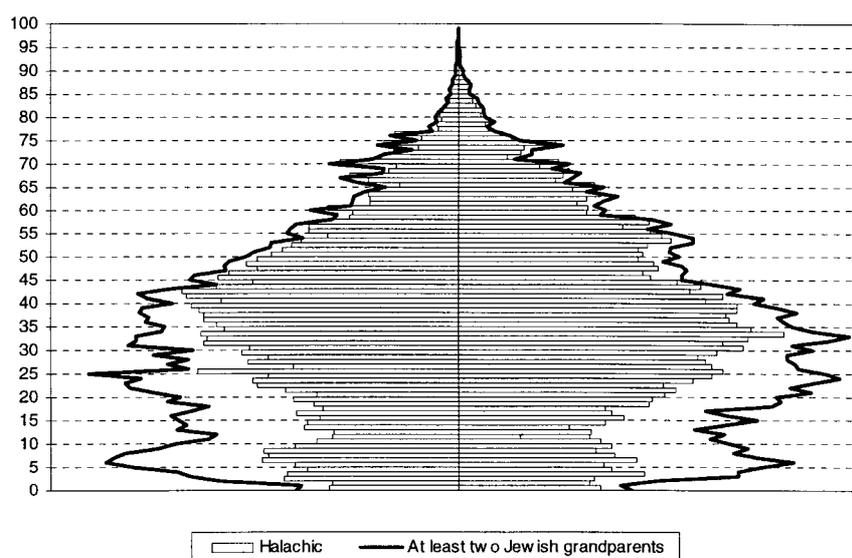


Figure 1. Jewish Holocaust survivors by age and sex, 1945.

mainly by murder in the extermination camps. Thus, only 50,000 Jews, about one third, survived the Holocaust. Of these 50,000, an estimated 35,900 are Halachic Jews, i.e., Jewish according to Jewish law.

As a second estimate, and also to enable a reconstruction of the age and sex composition of the 1945 survivors, the results of an enumeration of Dutch Jews held in 1966 have been projected backwards to 1945. This backward projection gives 34,400 Halachic Holocaust survivors, a number that is comfortably close to the 36,600 from the 1941–1945 projection. Since it is quite possible that the 1966 enumeration was several thousands too low, we stick to the higher number.

Finally, we have attempted to construct the composition of Jewish Holocaust survivors by age and sex. This composition has been obtained from the backward projection, supplemented with an extrapolation of the 1941 age and sex composition of the ‘half Jews’.

Obviously, the exact size and age-sex distribution of the Jewish Holocaust survivors is subject to uncertainty. Each step in the reconstruction is based on assumptions and indirect evidence, with some pieces of the puzzle more reasonable than others. The exact demographic story of the destruction of Dutch Jewry during the Nazi period will quite likely never be written. The best we can do is to try and construct a fairly accurate estimate, which we hope to have achieved in this paper.

## Notes

1. 'Statistiek der bevolking van Joodschen bloede in Nederland'.
2. We established earlier that very few Jews residing in the Netherlands refused to register.
3. The registration of 1941 was lost in a bombardment in 1944. The copy in the Zentralstelle was in part handed over to the Red Cross after the war.
4. Archive of the Yad Vashem Department of the Righteous, files 4997 (Calmeyer), 2477 (Antonius Mom) and 2478 (Cornelis Teutscher), Jerusalem.
5. In a backward projection, the population by age and sex at the start of year  $t$  is reconstructed from the observed population by age and sex at the start of year  $t + 1$ , as well as from the age- and sex-specific mortality and migration rates observed during year  $t$ . For simplicity, assume that we observe 1000 men aged 50 per 1 January 1966 (i.e., born in 1915), and assume that we know that in 1965 5% of all men born in 1915 died and 10% emigrated. The 1000 observed per 1 January 1966 then constitute 85% of the number of men aged 49 per 1 January 1965, from which we deduce that the male population aged 49 per 1 January 1965 must have consisted of 1176 persons. These calculations are repeated for all ages, both sexes, and all years back in time for which we have age- and sex-specific mortality and (net) emigration rates. Note that births follow automatically from mortality and migration rates alone: knowing the population aged 0 at the start of year  $t + 1$  and knowing the mortality and migration rates for babies born during year  $t$ , the total number of births during year  $t$  can easily be calculated.

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