Web Appendix
Long term mental health outcomes of Finnish children evacuated to Swedish families during the second world war and their non-evacuated siblings: cohort study

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Appendices

A The Evacuation Policy[1]

Historical Background

Finland fought two wars against the Soviet Union between 1939 and 1944 during World War II. Despite Finnish collaboration with the Axis Powers during World War II, Finland's resistance against Stalin's Red Army received moral support from many Western countries. Food and material aid was received from international organizations and credit was granted by several countries.

In June 1941, a plan for a large scale operation of evacuating Finnish children to Sweden emerged. A nationwide volunteer organization was established in Sweden to care for the placement of the children and a large scale network of volunteer foster families was mobilized.[2] In Finland the evacuations were organized by a nationwide organization, under the auspices of the Ministry of Social Affairs relying on the nationwide civilian service logistic infrastructure including local offices and staff. These two organizations designed the evacuation scheme and carried out the major part of the evacuations and placements in foster families made between 1941 and

[1] The chief part of the documents that this section is based on are available in the Files for The Child Evacuation Scheme during World War II at The National Archives of Finland (NAF). When not specifically mentioned, I refer to Lomu (1974), who constructs a detailed report on the evacuation scheme based on the documents of NAF.

[2] No financial compensation for accommodating Finnish children was ever promised to the families, and none was ever going to be rewarded either for that matter. In other words, the accommodating of evacuees was based purely on philanthropic grounds.

1945.[3]

The official motives for a mass evacuation of children were, as stated by the Ministry of Social Affairs, that children who were particularly exposed to the various adversities of war should be given a better rearing environment. At first, each Finnish county was granted a quota of evacuees, but restricting the selection of participants to the stated quotas proved difficult as fear for air raids spread among the urban population and food became scarce. The original eligibility criteria were the following: 1. Children of relocated Karelian families[4] 2. Children whose fathers were wounded in battle 3. Children who had lost their home in bombings 4. Children whose father's had died in war or who had lost their parents in bombings. In January 1942, the criteria were expanded to comprise children from large families, and children whose mothers were working full time; also children who resided in towns that were potential targets for air raids. This latter criterion applied, in practice, to most eastern and southern towns of Finland, where hence most children were considered eligible. At first the objective was to send preschoolers. A strict age criterion was however not applied in practice due, for instance, to the difficulty to age-discriminate between siblings. Statistics show that roughly half of the children were past school starting age by the time of evacuation.

In total 48,628 children were evacuated to Sweden through the described evacuation scheme and an additional roughly 20,000 children were sent to Sweden inde-

[3]Most evacuations were made in the winter between 1941 and 1942 and in 1944.

[4]Being the border region between Finland and the Soviet Union, Karelia was the region most adversely affected by the war. Roughly 400,000 people, virtually the whole Karelian population, had to be displaced to other regions of Finland already in 1940 as a consequence of the Moscow Peace Treaty between the Soviet Union and Finland, which handed Karelia to the Soviet Union. Figure A presents the ceded part of Karelia on a map of Finland.

pendently from the official evacuation program to relatives and friends. In total, it is estimated that roughly 65,000 children spent from a couple of months up to five years (on average two years) in foster care in Swedish families during World War II. The total amount of evacuees equals the size of one Finnish cohort during the 1930s.

The Evacuation from Finland to Sweden

A large organization, called the Evacuation Committee, was set up on the foundations of the existing war time civilian support organization to execute the evacuations with the help from numerous volunteers.[5] The organization made itself known through nationwide broadcasting and advertising in local newspapers. Headquarters were established in Helsinki, employing a large administrative staff. The Evacuation Committee set up and funded regional subsidiary offices that were largely run by volunteers such as local nurses. After the evacuations began, in September 1941, the county offices were converted into evacuation centers handling the selection process, transportation arrangements, documentation, accounting, correspondence between the evacuees and their families, and advertising of the evacuation scheme in the local media. Absorption centers were set up near the ports of Turku and Vaasa, from where the evacuees were shipped to Sweden and in the border towns of Tornio and Kemi, from where the evacuees crossed the border by railway. All travel expenses were covered by the Evacuation Committee.

Parents who had learned about the evacuation program through mass media

[5]The Civilian Service of Finland contributed with an already existing network of volunteers. This organization was founded in 1939 for the purpose of distributing aid packages received from foreign organizations.

or local authorities first filed an application to the local evacuation office. In the application the parents had to account for the reasons for applying to the program and list their status on each of the eligibility criteria. Families with more than one child could opt for including all their children in the application or decide to evacuate only some of their children (this was quite a usual strategy in large families where malnutrition was a common reason for participation). Even though the family background (eligibility criteria) of each evacuee was well documented through the screening process neither the child evacuee registry nor historical accounts has much to say about selective behavior within families that evacuated only some of their children; the actual evacuation decision was considered to be a family matter (Kavén, 2010). When the application was approved, a health check at the local hospital followed and an identification document including a photograph was issued. The documents were sent to the local evacuation office where the child's file was put into a queue awaiting information on the region's quota for the following evacuation round. As soon as the headquarters of the organization gave information of each region's quota for the next round, the county office gathered the children - according to the ordered date of application approval - to the nearest railway station from where they were sent to the absorption centers. The children were not allowed to carry any money and their ration cards (most grocery products were rationed in Finland during the war) needed to be handed in before departure.[6] The children brought with them a franked envelope, which the foster parents that would be assigned in Sweden, were urged to post to the Finnish county office with notification of the child's arrival and

[6]This made any form of bribing of the officials difficult for the children.

their name and address, to enable correspondence between the biological parents and their child. Upon arrival at the absorption center, a brief health check was conducted and information on the children was entered into an evacuee register. Each child was assigned a running number according to arrival order and given an identification plate to carry around her neck.

Based on the above description of the evacuation, it is plausible that the evacuation created randomness in the order in which the children were transported to Sweden. The strongest arguments in favor of random order of evacuation with respect to any background characteristics are that the children were processed according to a running number upon the arrival to the absorption centers (and boarded the vehicle of transportation accordingly).

The Placement to Foster Families in Sweden

In Sweden, the structure of the Placement Committee was literally a mirror image of the Evacuation Committee on the Finnish side. Its main office was located in Stockholm and each county had its own local organization led by an authorized representative who was in charge of the placement of the children into families. In practice, large local volunteer organizations conducted the major part of the placement operations, and the provincial offices handled registries of children and other administrative issues. Quarantine centers were established in geographically strategic Swedish towns, usually the capital of the county.

At first, as the contingents arrived in Swedish territory, they were taken to sanitary centers, which were located in the near proximity of the arrival port or station

(Stockholm, Umeå and Haparanda), where brief health checks were conducted. At the sanitary centers, the contingents were split into smaller groups which were placed in quarantine centers for a week. They went through careful health checks before being assigned a county of destination and eventually a foster family to confirm that they were not carrying any contagious diseases. Although medical issues were of first priority, much weight was put on nutrition and inventory of the children's luggage. Clothes were provided to poorly equipped children, and all children were cleaned thoroughly. When leaving the quarantine centers, the children were separated into smaller groups and transported via the county offices - where the group would be re-shuffled into smaller units - to their final destinations.

Little is documented about the final stage of the evacuation, that is, the placement in foster families, and thus one is principally referred to anecdotal evidence as recalled or retold by the evacuees.[7] Regarding the different stages of the journey until the local Swedish provincial offices, anecdotal evidence conforms unusually well with the information in official documents. The final stage of the trip to the eventual placement seems to have been completed in three different ways: 1. when several children arrived at the same time in a community, the distribution of children to foster families would take place at some temporary lodging, e.g. the local parish house or school premises, according to a first-come first-served process,[8] 2. in sparsely

[7]We make use of a compilation of 135 short stories of recollections by the evacuees edited by Leila Lehtiranta (1996).

[8]Pirkko Bergman, a one time child evacuee, recalls "we (the children) were taken to a room and were told to sit on chairs with the identification plates visibly displayed. A group of people rushed in and among the first ones was a tall man who examined me, wrote something indicating 'reserved' on the parcel I was carrying and continued to examine others. Others showed interest in me but noticed the reservation sign on the package. The tall man, who turned out to be the priest of the village of Åsunden, Gösta Rosen, returned to pick me up together with another child,

populated areas, or in areas where only one family was awaiting a child, the assigned family would receive the child on a bus stop or train station without any possibilities to affect the choice of child, 3. in some cases the local ombudsman for the placement committee, often the local priest or school principal, assigned the children to families at their arrival on the train or bus station.

The description of the events during the journey to the final destination suggests that the children were processed anonymously according to the information provided on an identification plate hanging around their neck, i.e., an assigned running number, name and gender, and sorted randomly at several stages of the journey. By the time the children reached the last leg of their transportation, the inequalities in clothing, cleanness, and nutrition are supposed to have been leveled out, and thus to have made any inference of social background based on appearance difficult.

whom, I found out upon our arrival in the village, he had chosen for himself, I was assigned to a neighboring family" (Lehtiranta 1996).

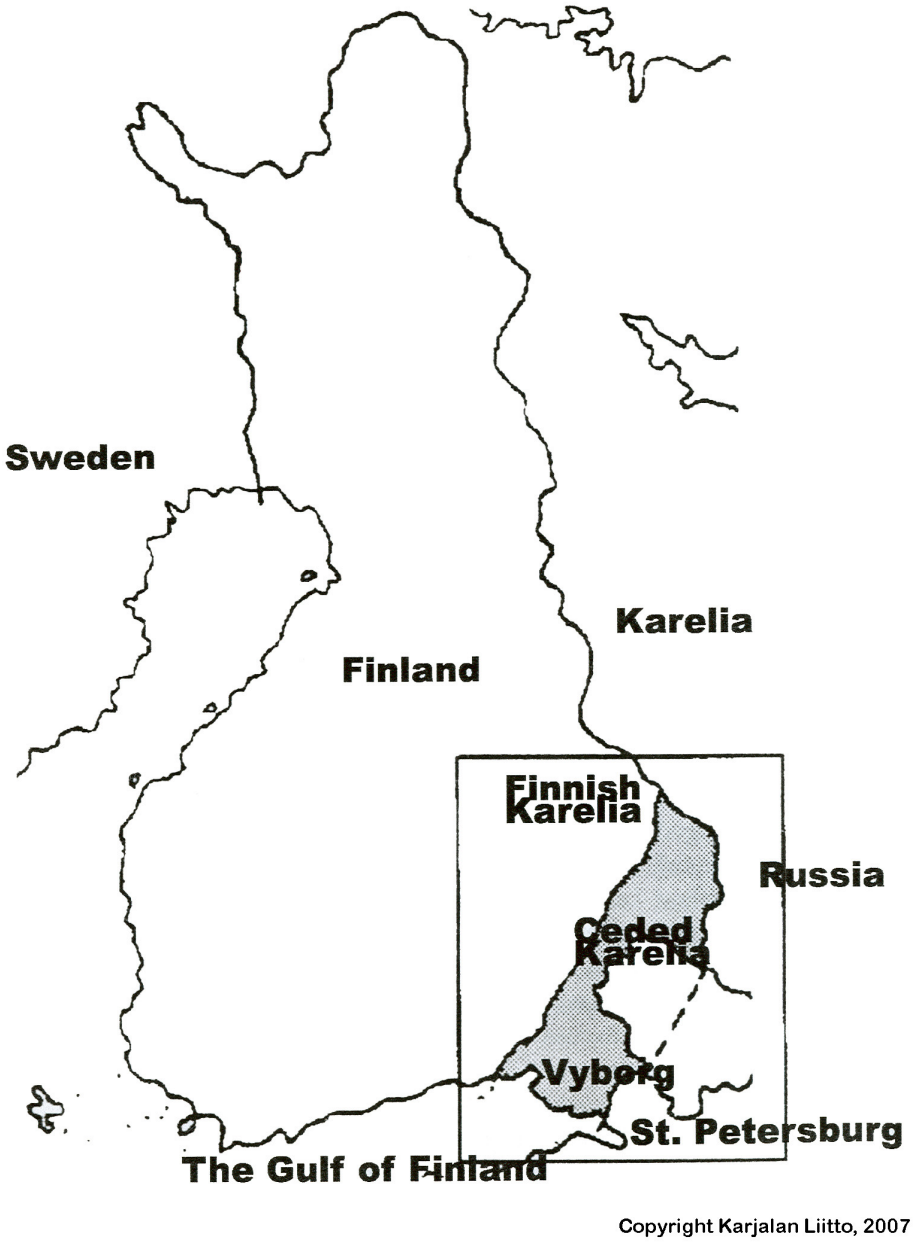

Figure A: Finland including the area of Karelia ceded to Soviet Union in 1940. Reproduced with permission from the Finnish Karelian League (Karjalan Liitto).

B Data collection

1950 population census

The analytic sample is based on a 10% sample ($n = 411,628$) of households drawn from the full 1950 Finnish Census of Population ($n = 4,029,803$).[9] Statistics Finland drew this sample (1950 census sample) in 1997 and matched it to the Population Register based on all three first names, last name, and date and place of birth, in order to link each individual in the sample to her social security number (issued towards the end of the 1960s). Thus, the individual had to be alive as of 1970 and reside in Finland in order to make it to the matched 1950 census sample that was linkable to more recent censuses and other register data based on the social security number. In total, 300,859 social security numbers (73,1%) were identified and found in any of the censuses from 1970 onwards out of the base sample population of 411,628 individuals. The main reason for this attrition is death; Statistics Finland calculates that in total 778,368 individuals born before 1951 died in Finland between 1951 and 1970 and estimates that the net outmigration during the same period was 248,000 individuals in total. Subtracting these numbers from 4,029,803, i.e., the full 1950 Finnish Census of Population suggests that 74.5% of the original base population should theoretically be identifiable as of 1970. As compared to this benchmark, the actual identification rate of 73.1% indicates that the identification procedure was successful. Statistics Finland (2013) provides the details of the sampling and the assignment of social security numbers to the individuals in 1950 census sample.

[9] In total, 114,000 households from 392 municipalities were included in the sample.

In the study we restricted the analysis to the relevant evacuee cohorts, 1933-1944 of which children were evacuated to Sweden. Statistics Finland provided the population of these cohorts belonging to the 1950 census sample and the Ethics committee of Statistics Finland gave us permission (TK53-1500-10) to compare it to the complete list of child evacuees ($n = 48,682$) at the Finnish National Archives based on the first and last names and exact birth date.

The child evacuee registry

Register data dating back to World War II on the child evacuation operation are available in the Child Evacuee Registry at the National Archives of Finland. In these government records, an evacuee card is stored for each of the Finnish children who were sent through the official evacuation scheme ($n = 48,682$).[10] Each evacuee card contains in addition to the evacuee's full name and birth date information on county of residence, biological family background (in particular facts regarding the officially stated eligibility criteria), age at evacuation, and duration of evacuation. Lomu (1974) provides details on the contents of the Child Evacuee Registry and summarizes descriptive statistics on the whole population of evacuees.

[10] In addition to the evacuations supervised by the Evacuation Committee, roughly 10,000-15,000 children are known to have been sent to Sweden through private bilateral organizations and to family and friends.

C Geographical distribution of study sample households across counties in 1939 and 1950

Distribution of individuals of the study sample according to county of residence of the household in 1939 and 1950

County of residence	Households in 1939 (N)	Households in 1950 (N)
Uusimaa	3,516	4,088
Varsinais-suomi	3,009	3,604
Satakunta	2,367	2,807
Kanta-Häme	1,157	1,328
Pirkanmaa	3,195	3,894
Päijät-Häme	1,008	1,334
Kymenlaakso	1,432	1,723
Etelä-Karjala	1,898	1,598
Etelä-Savo	2,404	2,664
Pohjois-Savo	3,258	3,573
Pohjois-Karjala	2,914	3,216
Keski-Suomi	2,631	3,058
Etelä-Pohjanmaa	3,133	3,282
Pohjanmaa	1,194	1,225
Keski-Pohjanmaa	795	870
Pohjois-Pohjanmaa	3,951	4,109
Kainuu	1,159	1,222
Lappi	2,256	2,324
Itä-Uusimaa	672	735
Ahvenanmaa	225	223
Ceded Karelia	4,703	-
	46,877	46,877

D Sample characteristics by exposure status

Sample Characteristics of a 10 Percent Sample of 1933-1944 Cohorts From the 1950 Finnish Census of Population by gender and evacuation status

	Women		Men	
	Evacuee	Nonevacuee	Evacuee	Nonevacuee
	$n = 636$	$n = 21,385$	$n = 789$	$n = 22,653$
Characteristic	Mean (%)	Mean (%)	Mean (%)	Mean (%)
Family background				
Socioeconomic status in 1939[a]				
Entrepreneur	12.30	30.60	12.20	30.90
White collar worker	9.60	9.45	12.00	9.70
Blue collar worker	45.75	29.05	40.05	28.60
Homemakers	2.80	9.00	4.05	8.60
Unemployed or out of labor force	29.55	21.90	31.70	22.30
Parental education[b]				
Primary school or less	92.61	93.30	90.75	92.77
Past primary school	7.39	6.70	9.25	7.23
Number of children				
in the family in 1940	2.56	1.88	2.66	1.93
	[1.48]	[1.81]	[1.51]	[1.81]
Native language				
Finnish	87.58	94.90	87.80	94.60
Swedish	12.42	5.10	12.20	5.40

Abbreviations: SD, standard deviation. [a] Based on father's occupation, replaced if missing by mother's occupation. [b] Highest level of schooling of either the mother or the father. [c] Standard errors of the sample means are reported in square brackets.

E Subgroup analyses

By age at evacuation

Table E-1. Risk of psychiatric hospitalization at ages 38-78 (1971-2011) according to child-evacuee status during World War II – by age at evacuation

Evacuee status	**Hazard ratios of psychiatric hospitalization**		
	Evacuated subgroup by age at evacuation		
	< 48 (months)	$48 - 83$	$84 \leq$
Women $(n = 22,021)$			
Evacuee[a]	1.10	1.06	1.27
(95% CI)	(0.62 to 1.96)[b]	(0.71 to 1.60)	(0.89 to 1.82)
Men $(n = 23,442)$			
Evacuee	0.98	0.75	0.74
(95% CI)	(0.59 to 1.63)	(0.52 to 1.09)	(0.50 to 1.09)

Notes. Impacts by gender were derived from one model by including interaction terms with three indicator variables for evacuation that each obtain value 1 if evacuation occurred within a particular age period (evacuated at age <48 months, 48-83 months, or 84- months), the indicator variables (including one for the nonevacuees, i.e., the reference category) being mutually exclusive and collectively exhaustive. Gender composition of the analytic sample $(n = 45,463)$ reported in the table. The model adjusts for gender and its interaction with the three exposure variables, parental education, native language, number of children in 1940, five categorical variables for SES in 1939 and county of residence in 1939, interaction terms between gender and each of the five categorical SES variables, age (birth cohort), birth order, region of residence (1939).

[a]The reference category are the individuals who remained with their biological families during the war. [b]CI=confidence interval. Confidence intervals at 95 % level reported in parentheses. Cluster-robust standard errors are adjusted for familial clustering.

By duration of stay

Table E-2. Risk of psychiatric hospitalization at ages 38-78 (1971-2011) according to child-evacuee status during World War II – by duration of stay

Evacuee status	**Hazard ratios of psychiatric hospitalization**	
	Evacuated subgroup by duration of stay	
	≤ 24 (months)	> 24
Women[a]		
Evacuee	1.03	1.42
	(0.74 to 1.42)[b]	(0.98 to 2.08)
Men		
Evacuee	0.78	0.80
	(0.59 to 1.05)	(0.54 to 1.18)

Notes. Impacts by gender were derived from one model by including interaction terms with two indicator variables for evacuation of which one obtain value 1 if the duration of evacuation lasted up to 24 months and the other obtain value 1 if duration lasted for longer, the indicator variables (including one for the nonevacuees, i.e., the reference category) being mutually exclusive and collectively exhaustive. Gender composition of the analysis sample $(n = 45,463)$ reported in the table. The model adjusts for gender and its interaction with the three exposure variables, parental education, native language, number of children in 1940, five categorical variables for SES in 1939 and county of residence in 1939, interaction terms between gender and each of the five categorical SES variables, age (birth cohort), birth order, region of residence (1939).

[a]The reference category are the individuals who remained with their rearing families during the war. [b]CI=confidence interval. Confidence intervals at 95 % level reported in parentheses. Cluster-robust standard errors are adjusted for familial clustering.

References

[1] Kavén P. *Humanitaarisuuden varjossa: Poliittiset tekijät lastensiirroissa Ruotsiin sotiemme aikana ja niiden jälkeen.* Helsinki, Finland: Doctoral Dissertation at Dept. of Philosophy, History, Culture and Art Studies, Faculty of Arts University of Helsinki; 2010 (English summary available at: http://urn.fi/URN:ISBN:978-952-10-6722-8)

[2] Lehtiranta, Leila. 1996. *Matkalla Kodista Kotiin: Sotalapset Muistelevat.* (Engl. On the Road from One Home to Another: Recollections by Child Evacuees) Vantaa: Pohjola-Norden.

[3] Lomu J. Lastensiirtokomitea ja sen arkisto 1941-1949 (Engl. The Child Evacuation Committee and its Archives 1941-1949), Publication Series of the National Archives, Finland., 1974;441(5a).

[4] Santavirta T. How large are the effects from temporary changes in family environment: evidence from a child-evacuation program during World War II. *AEJ: Applied*. 2012;4(3):28–42.

[5] Statistics Finland (2013). Vuoden 1950 väestölaskennan otosaineiston käsikirja [Engl. Handbook of the 1950 census sample]. Handbooks 38. Helsinki: Statistics Finland. Available online at http://www.stat.fi/tup/julkaisut/tiedostot/julkaisuluettelo/

yksk38_195000_2013_10461_net.pdf.