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# Lost generations: The demographic impact of the Great War

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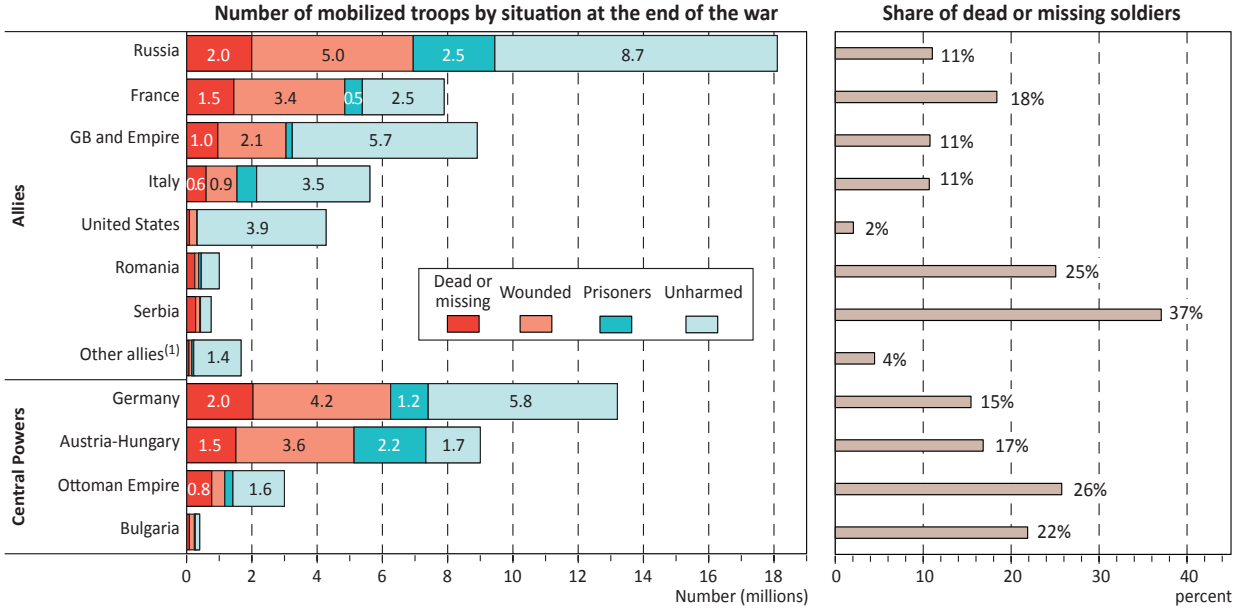
The 1914-1918 war is remembered for the sheer scale of human losses: at least 18% of the soldiers enlisted in the French army – some 1.5 million men – died in uniform. Using data from the latest historical and demographic research on military and civilian losses, the author compares the carnage of the First World War with another great scourge, that of infant mortality, whose order of magnitude was similar.

One hundred years after the outbreak of the First World War, what information do we have about the human losses incurred? According to the most recent estimates, [1 and 2] 74 million men were mobilized (48 million by the Allies, 26 million by the Central Powers), of whom 10 million, or 14%, lost their life (5.6 and 4.4 million, respectively) (Figure 1). While fewer men were mobilized in France than in Germany, its losses were proportionally higher: out of 7.9 million soldiers, colonial troops included, around 1.5 million (18%) died during the war or within the six months that followed (see Box 1).

**Figure 1. Military losses among the warring parties**




(1) Belgium, Portugal, Greece, Montenegro, Japan.
**Sources**: J. Winter [1] revised by A. Prost [2] for the dead and wounded (data kindly made available to the author).
(F. Héran, *Population & Societies*, no. 510, INED, April 2014)

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## Box 1. Counting the dead and wounded: the military method and researchers' estimates

According to the figure obtained by the French deputy and general budget rapporteur Louis Marin, the death toll among French troops between August 1914 and November 1918 was 1,357,800. His reports submitted between June 1919 and March 1920 reproduce, with some caveats, the figures for total losses acknowledged by the French army. [5]

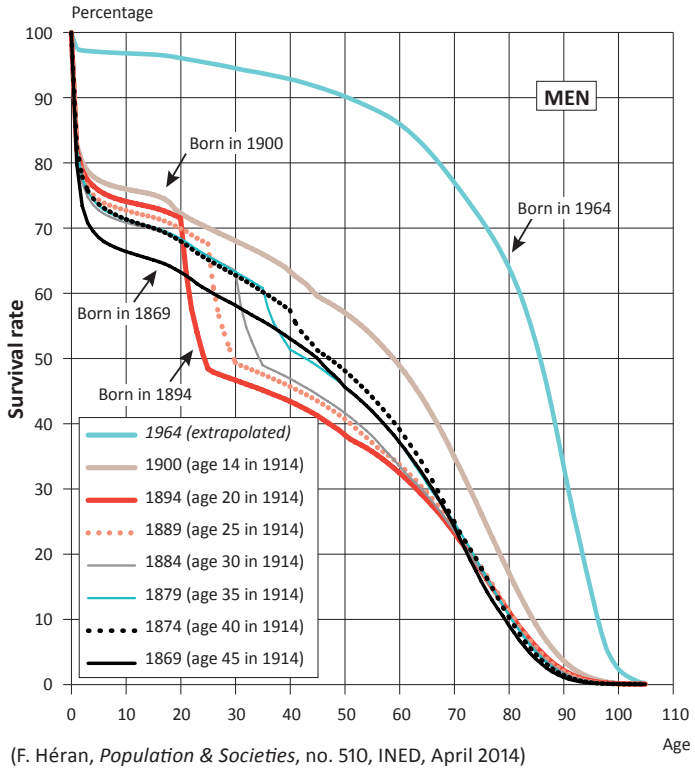
In 1931, Michel Huber, director of the French statistical office (Statistique générale de la France, now replaced by INSEE), made some minor adjustments, adding the 11,400 naval deaths and the 28,600 deaths recorded by the army medical corps in the six months after the war to reach a total of 1.4 million. [6] For Huber this was a conservative estimate, and it was habitually rounded up to 1.5 million, a figure probably more realistic than the implausibly precise official total.

Antoine Prost has described the procedures used by the French military command and the army medical corps to produce these statistics. It was not until July 1916 that the French army started producing nominative lists for each category (dead, missing in action, wounded, prisoner, discharged and "returned to duty", assigned to civilian duties, etc.) before comparing them with the initial enlistment rolls, the aim being to compare losses in both camps. Breaking new ground, these data were processed on the very first tabulating machines of Statistique générale de France (SGF).

The number of wounded is difficult to estimate because of the many double counts. According to Marin's report, the French army evacuated 4.2 million men, not counting the 5.2 million who fell ill, among whom the military hospitals recorded 251,000 and 147,000 deaths, respectively. An unknown number died after being demobilized, since the army statistics covered currently serving soldiers only. Based on an analysis of war veterans' cards, Prost lowered the total number of wounded to 3.4 million, since 20% were evacuated at least twice. A third of all wounded men were entitled to a long-term disability pension.

Last, complementing Huber's essay, Jaques Vallin analysed the demographic impact of the war by establishing a set of hypotheses on the distribution of deaths by age and cohort. [7] In his 1971 thesis published by INED, he constructed life tables for the cohorts who lived in the twentieth century, paying special attention to those most severely affected by the 1914-1918 war.

## Figure 2a. Proportion of survivors at each age for cohorts born before the First World War




(F. Héran, *Population & Societies*, no. 510, INED, April 2014)

**Source:** Source : Vallin and Meslé [4].

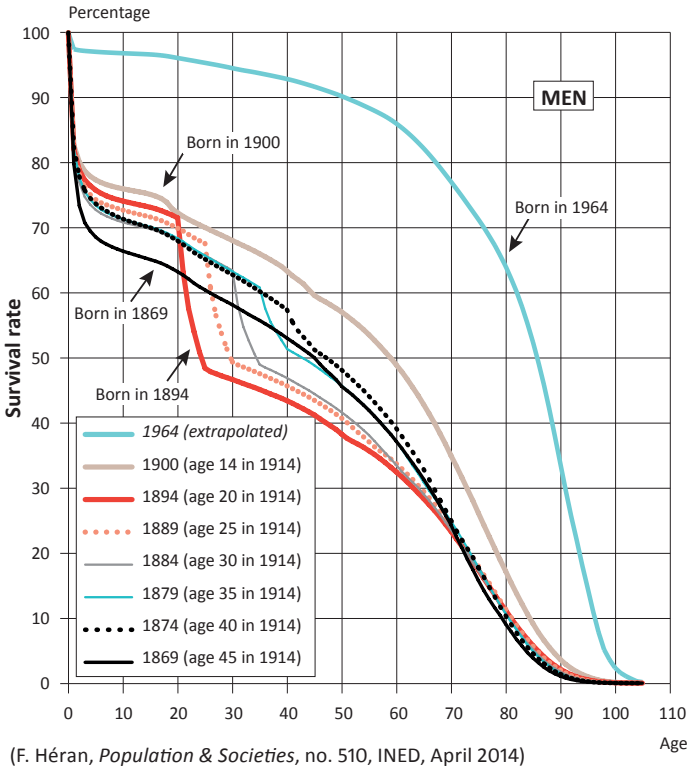
**interpretation:** At age 20, 72% of the 1894 male birth cohort had escaped death in infancy and childhood; five years later, at the end of the Great War, just 48% of the same cohort was still alive.

While pointing out that the last comparable bloodbath in Europe dated back to the Thirty Years' War (1618-1648), the historian Jay Winter puts these effects into perspective: the 10 million casualties correspond to the number of migrants who left Europe for the New World in the decade preceding the war. But is this a meaningful comparison? At least one-third of the migrants who left for America returned home between 1871 and 1914.[3] Moreover, France did not have population surplus and few of its citizens departed; it was already an immigration country.

## Two mass killers

It would be more instructive to compare the above figure with that of another terrible scourge, now largely forgotten, that of infant mortality. Today, only 1% of the French population dies before age 20. A century ago, in 1914, when infectious diseases killed massively in infancy and childhood, 26% of females and 28% of males born in 1894 (the cohort aged 20 in that year) were no longer alive (Figure 2). The situation was improving however: 25 years earlier, 37% of the cohort born in 1869 was already dead by age 20. In other words, the cohort of men born in 1894 [8] had already shrunk by 28% before the war began due to infant and childhood mortality. In times of peace, it would have lost a further 2% at ages 20-25, but the war raised the proportion to 23%, the highest of all mobilized cohorts.

**Figure 2b. Proportion of survivors at each age for cohorts born before the First World War**




(F. Héran, *Population & Societies*, no. 510, INED, April 2014)

Among women born in 1894, the survival rate is 74% at age 20 and 70% five years later. Without the war, the male survival curves for 1894 would have fit between those of the non-mobilized cohorts born in 1869 and 1900 (indicated by an arrow). The 1964 cohort illustrates the subsequent improvement in life expectancy.

The second great "killer", namely the Great War, eliminated a third of the survivors of the first, and by the end of 1918, disease and war had eliminated 52% of the men born in 1894. But while the former was accepted as an inevitable fatality, the latter, which hit working or educated young men, rocked the entire country.

## An unequal death toll across cohorts

Only 12%, at most, of the victims of the Great War were civilians (Box 2). The war mainly killed young men, thereby reversing the hierarchy of survival rates by cohort. The main factor was duration of exposure. Less experienced than the cohorts of 1911-1912-1913 who were already enrolled in a three-year period of military service, the 1914 cohort bore the brunt of the first months of conflict and was mobilized throughout the war. Of the 320,000 men in this cohort, 294,000 were declared fit by the army and 224,000 were enlisted. Among these, 31% – i.e. 22% of the cohort – died in uniform. In contrast, the 1917 cohort, mobilized from January 1916, was exposed for a shorter time and its losses were three times smaller.

Losses were also smaller among older men, who were less massively enlisted (77% of the 1874 birth cohort was mobilized, versus 92% of the 1894 birth cohort). The army called up those who had been exempted or discharged, but spared the oldest men. It knew that a population comprised mainly of farmers and manual workers, accustomed to strenuous labour and exposure to all weathers, was also at high risk of rapid exhaustion, and hence to high levels of morbidity and mortality. Even in times of peace, non-mobilized cohorts, such as that born in 1900, shrank by 20% between ages 20 and 54 (compared with 6% in the 1964 birth cohort).

## An 11-year decrease in life expectancy

How did the war affect life expectancy? It can be measured in two ways: either cross-sectionally (for a given year) or longitudinally (for a birth cohort), and the results obtained are very different.

In the first case, we do not follow actual birth cohorts until they eventually die out, but we calculate for a given year, say 1915, the average length of life of a fictitious cohort exposed at each age of life to the mortality conditions affecting individuals of each age in that year. This is a standard measure, but cannot be used in times of war since it would involve imagining the fate of a cohort exposed to war throughout its life. In two years, from 1913 to 1915, female life expectancy calculated in this way declined by just 3%, falling from 53.5 years to 51.7 years (–3%), but it plummeted by 46% for males, from 49.4 to 26.6 years.

In the second approach, applied here, we follow the outcomes of actual cohorts until all their members have died out. The male birth cohorts of 1894 and 1895 were the hardest hit. Without the war, their life expectancy would have been 48.3 years, but they lived for just 37.6 years on average, a loss of 11 years. This is a substantial decrease (–22%), but only half the 46% obtained with the cross-sectional or "period" indicator, since the survivors (some of whom became centenarians in 1994-1995) reaped the benefits of increasing life expectancy at advanced ages.

## Long-term effects

Alongside direct military losses, the war also affected the civilian population. Widows were already numerous before 1914 due to high excess male mortality: one woman in five at ages 45-50, and one

## Box 2. Civilian losses: unknown death toll in invaded département

Estimating French civilian losses in the Great War is just as difficult as for military losses. The 10 invaded départments, from the Vosges to the Pas-de-Calais, had a total population of 6.5 million, representing 17% of the national total, of whom around 1.4 million fled south. Civil records were not destroyed in the invaded area, but the SGF stopped updating its death registers. In Alsace-Moselle, however, a region annexed by Germany in 1870 and with a population of 1.9 million in 1910, the authorities counted 38,000 war-related deaths.

According to SGF data, civilian mortality in the 77 uninvaded départements changed little between 1914 and 1917, remaining below the level recorded in 1911 when a summer heat wave raised mortality by 11%. In 1918, however, deaths increased by 20% in the wake of the Spanish flu epidemic which hit France in the winter of 1918-1919 (and which continued until 1920). The 77 uninvaded départements of France did not suffer the disastrous effects of the economic blocade imposed upon Germany, and all in all, there were just 117,000 excess civilian deaths in France during WWI. Extrapoliting this surplus to the 87 départements gives a total of 139,000 deaths. The figure can be rounded up to 180,000 to take account of excess mortality in the invaded area, which suffered under a harsh occupying regime. Based on these figures, civilian deaths in France accounted for around 12% of total deaths linked to the Great War (including the first Spanish flu deaths).

in two above that age. The war did not change these proportions, but doubled the share of widows in the 25-44 age group, raising it from 5% in 1913 to 10% in 1920. Alongside the 2.4 million peacetime widows, the war added a further half-million war widows, who were left with around a million fatherless children. The war also halved the annual number of births in France, from 800,000 to 400,000, and despite the upturn in fertility after the war, more than a million "missing" children were never born. The "depleted cohorts" created a lasting gash in the French population pyramid [9 and 10] whose effects were two-fold: it speeded up population ageing, so that by 1939 France was one of the world's oldest countries (a position now held by Japan), but in the years 1990-2000 it also temporarily lightened the burden of dependence as the depleted cohorts reached advanced ages.

True, the 1.7 million inhabitants of Alsace-Lorraine were recovered by France in 1918, but neither the return of these lost provinces, nor the war reparations imposed upon the vanquished nations were able to compensate for the lost generations. With 1.5 million deaths, commensurate numbers of widows and orphans, more than 3 million wounded, of whom one-third became permanent invalids, and a million missing births, the losses were irreparable and, indeed, never repaired. But since then, as pointed out by Jacques Vallin, "progress in childcare and paediatrics have done more to enhance the survival of generations than the most murderous war ever did to hasten their death". [7, p. 170]

## References


[1] Jay Winter, "Victimes de la guerre : morts, blessés et invalides", in S. Audoin-Rouzeau et J.-J. Becker (eds.), Encyclopédie de la Grande Guerre, t. II, *Perrin*, 2nd ed., 2012, pp. 715-728.

[2] Antoine Prost, "The dead", in J. Winter (ed.), The Cambridge History of the First World War, vol. 3, Cambridge, CUP, 2014, pp. 561-586.

[3] Marjory Harper, *Emigrant Homecomings: The Return Movements of Emigrants, 1600-2000*, Manchester/New York, Manchester University Press, 2004.

[4] Jacques Vallin and France Meslé, *Tables de mortalité françaises pour les XIXe et XXe siècles et projections pour le XXIe siècle*, Paris, INED, Données statistiques, 2001 (with CD-Rom).

[5] Antoine Prost, "Compter les vivants et les morts : l'évaluation des pertes françaises de 1914-1918", *Le Mouvement social*, 222, January-March 2008, pp. 41-60.

[6] Michel Huber, *La population de la France pendant la guerre*, Paris, Puf, 1931.

[7] Jacques Vallin, *La mortalité par génération en France depuis 1899*, Paris, INED, Cahier 63, 1973.

[8] Maurice Genevoix, *Ceux de 14*, Paris, Points, 2008 [written in 1916-1923].

[9] Fabienne Daguet, *Un siècle de démographie française*, Insee Résultats, Démographie société, 47-48, 1995.

[10] Gilles Pison, "1914-2014: A century of change in the French population pyramid", *Population and Societies*, 509, March 2014.



## Abstract

At the end of the Great War, the cohort of men born in 1894 was aged 25. Half of the men in this cohort had already been struck down by two major killers: infant and childhood diseases, followed by war. Their life expectancy, already low in peacetime (48 years) was shortened by 11 years. War losses among other cohorts depended on age at mobilization and duration of exposure. The conflict left half a million young war widows (aged below 45) and a million fatherless children. More than a million children were never born, and in 1939 France became the world's oldest country, before the baby-boom turned the situation around.



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