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Gateway Policy Explorer: Education Policy Series

International Compulsory Schooling Policy Details

1900-2024

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Preface

This document is intended for researchers who want to understand the evolution of policy or the policy in place at a particular point in time. This document is not intended for personal advice or to aid in decision-making. The authors have made significant effort to identify and collect historical information pertaining to these policies, to accurately represent these policies, and to communicate how policies may interact to determine legal requirements. The policies presented in this document focus on rules applicable to most individuals aged 50 and older from 1992. Many systems include special policies for specific groups. We encourage all users to complete their own review of literature in this area depending on the research questions they have in mind.

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Background — Gateway Policy Explorer: Education Policy Series

The *Gateway Policy Explorer* (<http://g2aging.org/policy-explorer>) is part of the Gateway to Global Aging Data (<http://g2aging.org>) project. The *Education Policy Series* captures historical policy that affects the birth cohorts of respondents in the surveys covered by the Gateway. It was motivated by the rapid evolution of policies during the lifetimes of older people across the world. As the Health and Retirement Study (HRS) began in 1992 and many of the international network of studies (HRS-INS) cover more than a decade, understanding the policies in place at the time of the survey has become more demanding for researchers.

Why are we tracking past policy? Individuals make choices based on current policies and the outcomes we see today may reflect responses to past policies. When interpreting the survey responses of individuals, an understanding of the policy environment under which those individuals operate is critical. The collection of contextual information in the *Gateway Policy Explorer* aims to support researchers who want to understand or use policy changes in their research and provide context for longitudinal or cross-country differences. Over the period 2023–2026 the *Gateway Policy Explorer* will be expanded to include information on retirement, long-term care, education, and other policies affecting the life cycle.

The key dimensions to the *Gateway Policy Explorer: Education Policy Series* are country and time. In the United States, policy is reported at the state level. We prioritize data collection for each country or state based on when respondents, largely born after 1900, would be affected by the policy topic.

A separate document, like this one, is developed for each policy covered in the *Gateway Policy Explorer: Education Policy Series*. Depending on the complexity of the topic, separate documents may be created for each country as well.

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International Compulsory Schooling Policy Details

1900-2024 * †

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* If you have questions or suggestions, please contact policy@g2aging.org.

† Detailed information and definitions are provided in tables, formulas and a glossary at the end of this document. To facilitate switching back and forth, this document is designed with hyperlinks. Most PDF readers have shortcuts that permit a reader to return to the previous location after selecting a hyperlink. In Adobe Acrobat on a PC: "Alt" + "←"; In Adobe Acrobat on a MAC: "command" + "←"; In Preview on a MAC: "command" + "[".

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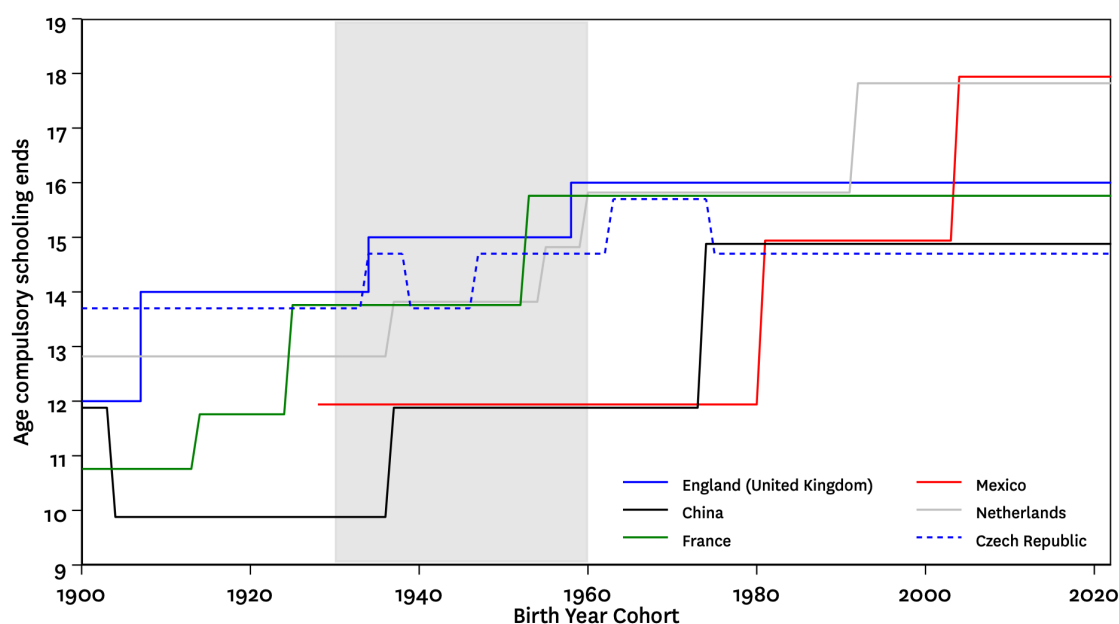
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1. Introduction

Overview

Compulsory education policies evolved significantly from 1900 to 2000. The large majority of European countries required only primary education (6 to 8 years) in 1900. Today most require 10 to 12 years. In this document, we review the historical evolution of compulsory education policies in many European countries as well as Chile, China, India, Korea, and Mexico. In the future, we will also incorporate other countries that are a part of the international network of health and retirement studies.

Figure 1: Selection of school leaving ages by birth year and country



Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data

Technical approach

The Gateway policy team identifies the dates of reforms to compulsory schooling by:

- identifying the original text of the legislation, and
- noting the political context in which the legislation was passed.

Reform dates are identified as the effective dates for policies when they are approved, unless

- the legislation explicitly states an effective date or affected cohort, or
- subsequent legislation is identified that alters the interpretation of the intended law (e.g., delays or suspends the schooling policy).

Determining who is affected by a reform generally requires understanding the start and end of the typical academic year in a country's primary and secondary schooling system. A school year (SY) typically does not follow the calendar year, which may lead to confusion regarding who is affected by a compulsory schooling reform. We define a SY based on a country's convention. In some countries, the *effective SY for enrollment* differs slightly from the SY. For example, in Chile, the SY typically begins March 1 and is completed by December of the same calendar year. In this case, we define the SY as March to February of the following calendar year. However, in Chile, students are permitted to enroll in a SY if they are age eligible by March 31. Consequently, we adjust the effective SY for enrollment to be from April to March of the following calendar year.

Compulsory schooling laws will typically become effective on the first day of the SY, making that the affected school year. Alternatively, the law may specify the affected school year or specify transitional provisions. In cases where the effective date occurs during a SY and no transitional provisions are stated in the law, we adjust effective dates of policies based on the next effective SY for enrollment. The rationale for this assumption is that we do not believe most policies would have required people who have already completed compulsory schooling requirements under the previous policy to return to school. For example, if a school year is from September to August, and a policy is passed in April 1962 raising compulsory school duration from 8 to 9 years, then we assume a person born in September 1946, who started school in the year they reach age 7 and who had the option to leave school at age 14 after completing their 8th consecutive

year of schooling in SY 1960-61, would not have been required to return to school less than one year later to complete a 9th year of schooling.

Countries differ in how they define compulsory schooling policy. Compulsory schooling laws are typically defined by starting age, leaving age, or duration. Usually 2 of the 3 components are specified, but sometimes all three are specified. From the different combinations of these components, we derive four country policy types which frame the creation of cross-country harmonized compulsory schooling measures:

- **Type 1** – Law specifies starting age and duration
- **Type 2** – Law specifies starting age and leaving age
- **Type 3** – Law specifies duration and leaving age (including systems defined by educational levels)
- **Type 4** – Law specifies starting age, leaving age, and duration

We develop the following cross-country harmonized measures based on this policy information:

- **Compulsory school starting age** – We define this as the age an individual reaches during the school year they begin compulsory schooling. There are a few different ways a country may present this in law:
 - *Age achievement during SY* – This is equivalent to our harmonized definition for starting age. For example, in Belgium, compulsory schooling starts in the SY when a person reaches age 6. In this example, they may begin compulsory schooling at age 5 as long as they reach age 6 at some point during the SY.
 - *Age achievement before SY* – In this case, we define starting age as one year later (e.g., Czech Republic).
 - *Age achievement* – In this rare case, a person begins school immediately (during a current SY); we are interested in completion of full SY, so we define starting age as one year later.

For types 1, 2 and 4, we use the starting age as specified according to the rules above. For the remaining categories where this value must be imputed, we follow these conventions:

- **Type 3** (none specified) – In this case, we assign school starting age based on the conventional age of the first stage of compulsory school. For example, in Chile no starting age was specified in the early 1920s, but 4 years of primary school were required and primary school typically started the SY during which a child reached age 7. Therefore, we use age 7 as the starting age.
- **Compulsory school leaving age** – We define this as the age an individual reaches in their last year of compulsory schooling. This may be a full or partial year of schooling. There are several different ways countries present this in law:
 - *Leaving age achievement during SY* – This is our harmonized definition for leaving age and is typically a consequence of school starting age and duration being specified by law.
 - *Leaving age achievement* – A person may leave school immediately upon reaching the leaving age, which means their final year may be a partial year.

For type 2 we use the leaving age as specified according to the rules above. For the remaining categories where we impute this value, we follow these conventions:

- **Types 1 and 4** (starting age is specified) – We assign school leaving age based on our measure of compulsory school starting age plus our measure of compulsory school duration minus 1.
- **Type 3** (starting age is imputed) – We assign school leaving age based on our imputed measure of compulsory school starting age plus our measure of compulsory school duration minus 1. This approach is motivated by our expectation that individuals will begin primary school at the conventional age of the first stage of compulsory school and continue school in a consecutive fashion until the compulsory duration requirement is met, which is typically before the legal compulsory school leaving age.
- **Compulsory schooling duration** – The required duration of compulsory schooling, measured as the sum of completed school years. We follow these conventions:
 - **Type 1, 3, and 4** (duration specified by law) – We assign the value established in law. It is equal to the total elapsed years of education between our measures of starting age and leaving age, which is equivalent to the difference between these two ages plus 1.
 - **Type 2** (duration imputed) – We impute a measure equal to the total elapsed years of education from our measure of starting age to the leaving age, which is equivalent to the difference between these two ages.

The first birth cohort affected by a reform changing our measure of the leaving age is calculated by subtracting the effective date of the policy by the greater of the original and new leaving ages.

- Example: A policy effective in SY 1966-67 increasing the schooling leaving age from 14 to 15 would affect children born in SY 1951-52 who would be 15 in SY 1966-67 when the policy went into effect, and therefore these children would be required to remain for an additional year of school.

The first birth cohort affected by a reform changing our measure of the starting age is calculated by subtracting from the effective date

of the policy by the lesser of the original and new starting age.

- Example: A policy effective in SY 2017-18 decreasing the schooling leaving age from 7 to 6 would affect children born in SY 2011-12 who would reach age 6 in SY 2017-18 when the policy went into effect, and therefore these children would be required to start schooling a year earlier.

2. Austria

Policymaking context

The Republic of Austria has been in its present territorial form since the end of the Second World War in 1945. In the period between 1900 and 1945, present-day Austria was part of other countries, including the Austro-Hungarian Empire (before 1918), the first Austrian Republic (1918-1933), the Federal State of Austria (1933-1938), and the Third German Empire (Nazi Germany, 1938-1945). Independence from the occupation of Allied Forces following the Second World War did not occur until 1955.

Policy history

The length of compulsory schooling requirements in Austria was set at 8 years according to *The Imperial Elementary School Act* (Reichsvolksschulgesetz) of 1869 (Imperial Law Gazette of the Empire of Austria, 1869, §21). In 1962, *the Compulsory Schooling Act* (Schulpflichtgesetz) extended compulsory schooling to 9 years, from ages 6 to 15 (Federal Law Gazette for the Republic of Austria, 1962). This change was implemented in the school year (SY) 1966-67 (Federal Law Gazette for the Republic of Austria, 1962). In the SY 2010-11, one year of pre-primary school was made mandatory, for a total of 10 years of compulsory schooling from ages 5 to 15 (Federal Law Gazette, 2009).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 1.

Table 1: Austria–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1951	7	14	8
September 1951 - August 2005	7	15	9
September 2005 - Present	6	15	10

Source: Federal Law Gazette (2009) and Federal Ministry of Education, Science and Research (2021)

Note: Austrian policy for starting school is based on a person that has reached age 6 before they start school (age 5 from SY 2005-06). Starting ages in the table following our technical approach in chapter 1, which reflect the age someone reaches during their first SY, are therefore one year later than the age in law. Leaving age is imputed based on starting age and compulsory schooling duration.

The Austrian school year is from September to August of the following year. Schooling begins on September 1st of the SY following a person reaching age 6 (Federal Law Gazette for the Republic of Austria (1962, §21, 22); Federal Law Gazette for the Republic of Austria (1962, §2)).

The 1962 reform extended compulsory schooling duration from 8 to 9 years (Federal Law Gazette for the Republic of Austria, 1962, §3). To establish a consistent cross-country definition, we set the compulsory school starting age as the age reached during a person's first SY, which is age 7. We estimate the school leaving age as 15, the age they would reach in the SY that they would have completed 9 consecutive years of schooling. The 1962 reform delayed implementation until the SY 1966-67 school year (Federal Law Gazette for the Republic of Austria, 1962, §30). The oldest cohort affected by the reform would be those people born in September 1951, who would start school in SY 1958-59 just as they were reaching age 7 and would then complete their 8th year in SY 1965-66 making them the first required to remain for a 9th year of schooling in SY 1966-67.

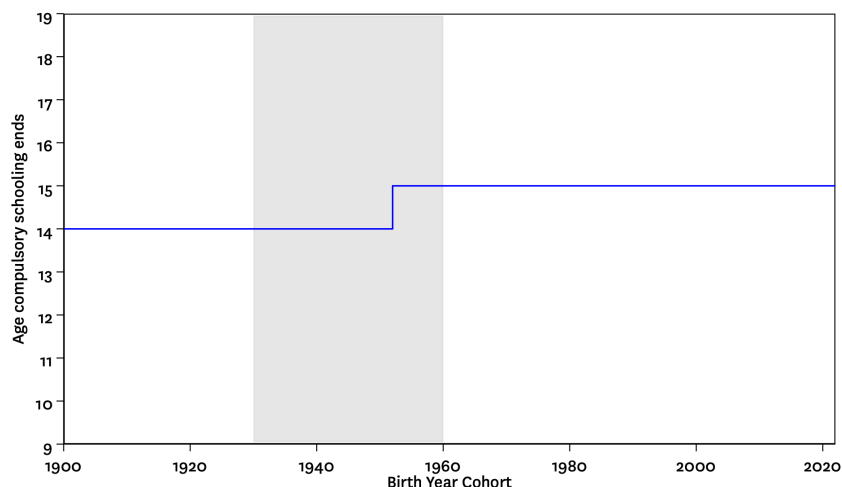
The 2009 reform implementing 1 year of pre-primary compulsory schooling was effective from SY 2010-11 (Federal Law Gazette, 2009, §2), therefore affecting individuals reaching age 5 on or after September 2010, or born on or after September 2005.

Published papers differ in their interpretation of compulsory schooling reforms in Austria. Crespo, López-Noval, and Mira (2014) calculate the birth cohort affected by the 1962 reform by subtracting the mandatory school leaving age of 15 from the year of the law's passage, obtaining 1947. Brunello, Fort, Schneeweis, and Winter-Ebmer (2016) determined that the birth cohort affected would be 1951 by subtracting the mandatory school leaving age of 15 from the year of implementation in 1966. In a similar way, Hofmarcher (2021) calculates the first birth cohort affected by assuming it would be the same as the birth cohort attending the last grade of compulsory schooling before the policy was implemented. Since the 9-year compulsory schooling requirement was implemented on September 1, 1966, Hofmarcher (2021) states that the cohort that completed the 8th grade in the 1965/66 school year is the one born in 1952. This

rationale is consistent with our interpretation of the law, but differs in that we treat individuals born from September 1951 to December 1951 as affected by the policy.

The figure below summarizes Austria's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. Reforms passed in 1962 and effective from 1966 raising the duration of schooling from 8 to 9 years (i.e., school leaving age from 14 to 15) would have affected birth cohorts starting in 1951.

Figure 2: Austria— Age compulsory schooling ends by birth year

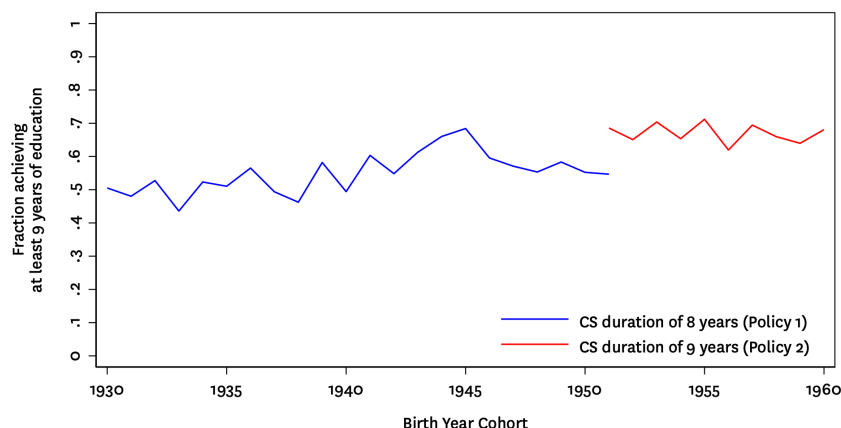


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 3 indicates the fraction of people living in Austria that achieved at least 9 years of education is between 50% and 60% in the Survey of Health, Ageing and Retirement in Europe (SHARE) born between 1930 and August 1951. After the reform affecting birth cohorts from September 1951, we observe a sharp increase in the fraction achieving at least 9 years of education, such that over 70% of the sample achieves at least this duration. However, a large fraction of the population continues to not satisfy the compulsory education requirements suggesting there exist some excluded populations.

Figure 3: Austria — Fraction completing at least 9 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized Survey of Health, Ageing and Retirement in Europe (SHARE) data (version G).

Note: Birth year range reduced to match the gray area in Figure 2.

3. Belgium

Policymaking context

Belgium gained its independence from the Netherlands in 1830 and established a representative democracy based on the Constitution of Belgium. The king is the head of state while the prime minister leads the Belgian government. Belgium had a unitary form of government until the 1980s, when it transitioned to a federal government. Today, Belgium shares power among the regions of Brussels, Flanders, and Wallonia. Education is organized by the three communities, but the age range of compulsory schooling is set by the federal government (SPLASH-db.eu, 2014a).

Policy history

The first compulsory schooling legislative change in the 20th century was the *Poulet Act* (May 1, 1914) that mandated that children must attend school from ages 6 to 12, making the compulsory schooling duration 6 years (Gathmann, Jürges, & Reinhold, 2015). The upper age limit for leaving compulsory schooling was also scheduled to increase to 13 and then 14 years of age. Implementation was delayed due to the First World War, but went into full effect in 1919 (Gathmann et al., 2015). In 1983, the *Law of 29 June 1983* increased compulsory schooling from ages 6 to 18 (12 years), with a part-time option available from age 15 (Moniteur Belge, 1983, Article 1, §1, 3). Since September 2020, the required duration of compulsory schooling has been 13 years, starting on September 1 of the calendar year in which a child reaches age 5 until age 18 (Moniteur Belge, 2020, Article 1, §1, 3).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 2.

Table 2: Belgium–Compulsory Schooling Ages (1908-2023)

Birth Date	Start Age	Leaving Age	Duration
September 1908 - December 1968	7	14	8
January 1969 - December 1969	7	17	11
January 1970 - December 2014	7	18	12
January 2015 - Present	6	18	13

Source: Moniteur Belge (1983, 2020)

Note: Measures are based on a person born before September. Starting ages are therefore 1 year later than the age in law. A consistent duration is created based on the number of completed years by August of the school leaving age. This duration is then used to create a measure for leaving age that is consistent with the rest of our measures based on the number of compulsory schooling years from the first full year of compulsory schooling.

The Belgian school year (SY) is from September to August of the following year. Belgian law states a person must begin schooling in the SY that starts during the calendar year they reach the compulsory school starting age in (Moniteur Belge, 1983, Article 1, §1). To establish a consistent cross-country definition, we set the compulsory school starting age as the age reached during a person's first SY. Applying this definition to Belgium, we measure our schooling ages based on people born before September of a calendar year. Therefore, our reported starting ages are generally 1 year after the compulsory starting age. An alternative representation for those born during or after September would be to maintain the same schooling duration, but shift the starting and leaving age 1 year earlier.

We were not able to identify the original text of the 1914 law or subsequent legislation delaying its implementation. Relying on the existing literature, we date the first cohort affected by the 1914 reform as people who reached age 6 by SY 1914-15, which are those people born on or after September 1908, although the reform could have plausibly affected people born as early as September 1902. We date the reform's delayed implementation as having affected people who would have reached their 6th consecutive schooling year in SY 1919-20, which was also people born on or after September 1908.

The 1983 reform increased the length of compulsory schooling to 12 years. That law states schooling is compulsory for children from the SY that starts during the calendar year a person reaches age 6 to the SY that ends during the calendar year a person reaches age 18, or completes full-time secondary education (Moniteur Belge, 1983, Article 1, §1, 3). This policy became effective on September 1, 1983. Transitional provisions included (Moniteur Belge, 1983, Article 16):

- Individuals born before January 1, 1968 or who have left school prior to SY 1982-83 are not affected by this reform

- Individuals born on or after January 1, 1968 and who have not left school in SY 1982-83 must complete at least 2 years of full-time secondary education
- Individuals born in 1969 are required to attend school until the end of the SY in which they reach age 17

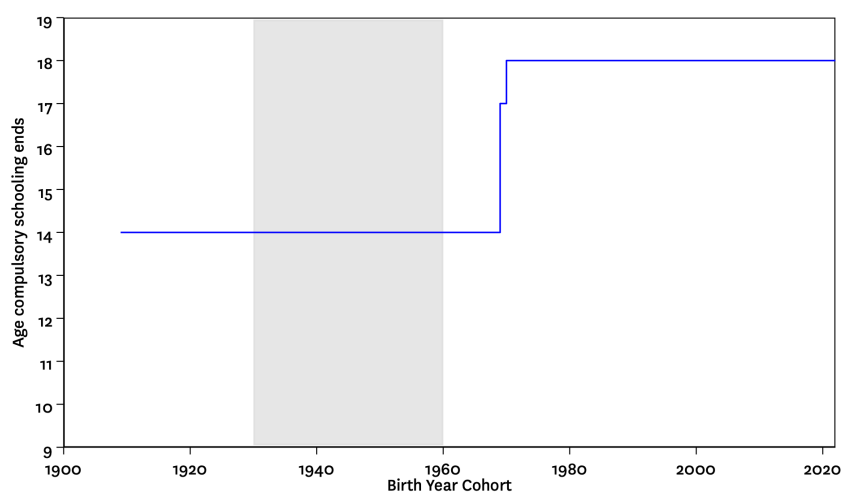
Under the previous policy, someone born between January and August 1968 who started schooling in the SY when they reached age 7 would have been in their 10th year of compulsory schooling in SY 1982-83. We assume secondary education started with their 7th year of compulsory schooling, so someone in their 10th year would be eligible to leave immediately. Similarly, for someone born in September-December 1968, they would have been in their 9th year of compulsory schooling, so they also would have been eligible to leave immediately. Consequently, we only interpret the law as affecting people born during or after January 1969.

The 2020 reform implementing 1 year of pre-primary compulsory schooling was effective from SY 2020-21 (Moniteur Belge, [2020](#), §2), affecting individuals reaching age 5 on or after January 2020 or born on or after January 2015.

There are limited studies that consider Belgian compulsory school reforms. Hofmarcher ([2021](#)) concluded that the first birth cohort affected by the 1983 reform was born in 1968. The difference in interpretation is likely attributable to the understanding of the reform's transitional provisions. As we expect most individuals are continuously enrolled from entry, we mark the start of the policy from 1969.

The figure below summarizes Belgium's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Belgium, there were no compulsory education reforms affecting birth cohorts 1930 to 1960.

Figure 4: Belgium— Age compulsory schooling ends by birth year

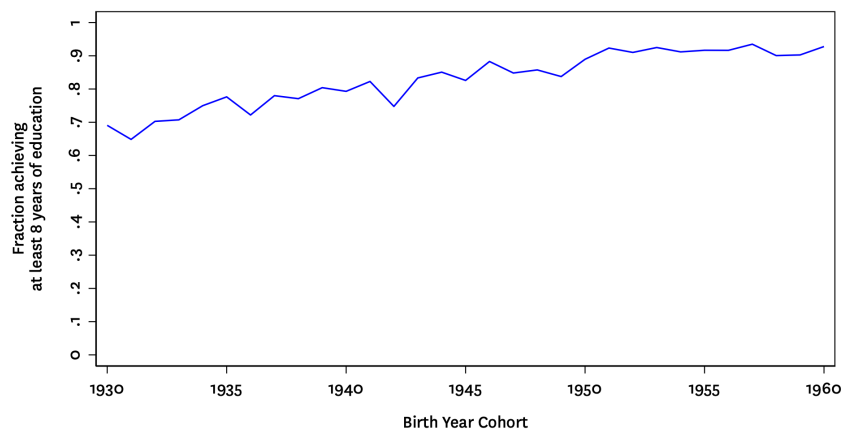


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 5 indicates the fraction of people living in Belgium that achieved at least 8 years of education gradually increased from 70% to 90% for respondents in SHARE born between 1930 and 1960.

Figure 5: Belgium — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 4.

4. Chile

Policymaking context

Chile has mostly remained in its current territorial form since 1900. In 1929, Chile's territory was redefined with the *Tratado de Lima*. This treaty settled a territorial dispute between Chile and Peru regarding the two nations' sovereignty over the provinces of Tacna and Arica. Peru and Chile agreed upon reincorporating Tacna as part of Peru, while Chile retained Arica. During the 1900s, Chile was under a dictatorship twice: from 1927 to 1931 and from 1973 to 1990. In 1990, Chile became a democracy.

Policy history

In Chile, compulsory schooling is determined by a minimum number of years required or by education levels to be completed by a specific age. Primary education became compulsory in 1920, requiring children to complete 4 years of education before age 13 (Ley Chile, 1920, Article 2). Students that were age 13 and had not completed the first 2 years of primary school must keep attending school until passing the annual regulatory tests or reaching age 15 (Ley Chile, 1920, Article 3). The 1929 *Ley de Educación General Obligatoria* increased the length of compulsory schooling to 6 years of primary school, to be completed between ages 7 and 15 (Ley Chile, 1929, Articles 2, 3). Children residing in rural areas were only compelled to attend school for 4 years (Ley Chile, 1929, Article 4). The 1965 education reform, effective from 1966, introduced new education levels as *Educación General Básica*, which corresponds to primary school, with an 8-year duration between 7 and 15 years of age, and *Educación Media*, which corresponds to secondary school with a 4-year duration, while keeping the compulsory schooling requirements of completing 6 years of education (Ley Chile, 1965). In 2003, both *Educación General Básica* and *Educación Media* levels became mandatory, increasing compulsory schooling to 12 years (Ley Chile, 2003; Ministerio de Educación, Revista de Educación, 2022). Kindergarten for 5-year-old children became mandatory in 2013 (Ley Chile, 2013; Ministerio de Educación, Revista de Educación, 2022). Today, people who are between ages 5 and 21 are required to attend school in Chile for 13 years.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 3.

Table 3: Chile–Compulsory Schooling Ages (1912–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1912 - March 1920 (potentially as early as March 1908)	7	10	4
April 1920 - March 1992	7	12	6
April 1992 - March 2009	7	18	12
April 2009 - Present	6	18	13

Source: Ley Chile (1920, 1929, 1965, 2003, 2005, 2013, 2017, n.d.) and Ministerio de Educación, Revista de Educación (2022)

Note: The start of primary education currently requires that a student is at least age 6 by March 31 of the school year, meaning they typically reach age 7 during their first year of primary schooling. Students are eligible to leave prior to the leaving age if they have completed the requisite duration of compulsory schooling. Leaving ages are imputed based on the starting age and compulsory duration.

School years in Chile typically start on March 1 and conclude during December of the same calendar year (Mineduc, 2024). We interpret the 1920 reform, enacted in August 1920 and effective within 6 months, to have been effective for SY 1921. The 1920 reform established 4 years of compulsory schooling by age 13. We impose a starting age of 7 based on the convention in the 1929 reform, which established that age as the earliest for primary school (Ley Chile, 1929, Article 2). Individuals starting at age 7 will complete their 4 years of compulsory schooling in the SY they reach age 10. Since the policy was effective until someone reached age 13, we date this policy as fully influencing people who would have been age 9 during SY 1921, as they would have had enough time to complete 4 years. Therefore we expect that this law would have affected people born from January 1912 who would be less than age 13 during the four school years following the implementation of this policy. It is possible that this law could have affected people born as early as March 1908, who would have been less than 13 at the time of first SY following enactment, but their required duration of schooling would have been fewer than 4 years.

We interpret the 1929 reform, enacted in November 1929 and effective from May 1930, to have been effective for the first school year starting after the effective date, which we interpret to be from March 1931, or SY 1931. It would have altered the behavior of people having completed no more than 4 years of compulsory schooling in SY 1930, which corresponds to people born from March 1920 if they

started primary school in the SY when they reach age 7.

We delay the effective birth dates from this reform by 1 month. Until 2017, policy in Chile allowed people who were born before March 31 to begin school in the current SY, shifting the effective SY for enrollment to between April and March of the following calendar year (Ley Chile, 2017).

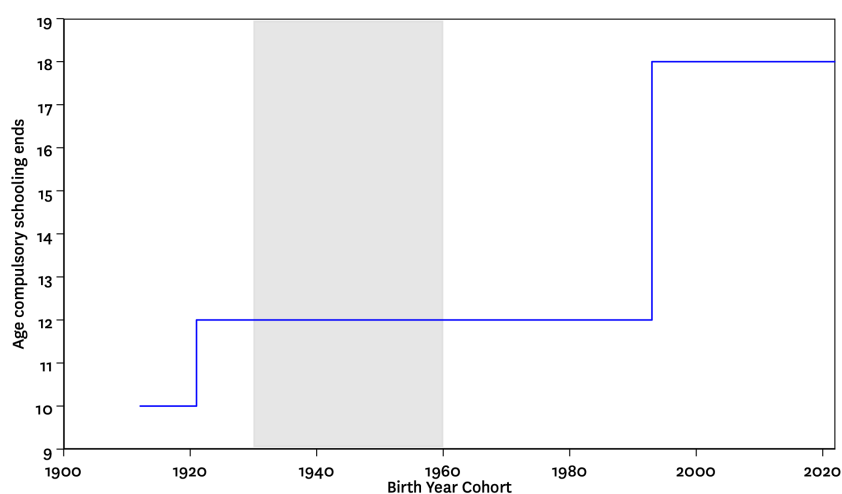
The 2003 reform, enacted May 2003, made the completion of secondary school mandatory by requiring minors to remain enrolled in school until they complete the 12th grade, which is generally no later than age 18 (Ley Chile, 2003). We interpret this law as primarily affecting people born from April 1992 that would be completing their 6th consecutive year of primary education in SY 2003 and so must remain in school from SY 2004. It is possible that this law might have affected people born from April 1986. We do not yet know whether the reform's provisions were enforced for people who had already completed 6 years of education at the time of the reform. In other countries, individuals that have already stopped school are excluded from reforms, while people still in school are affected by the reform.

The 2013 reform added 1 year of pre-primary compulsory schooling when it was enacted in December 2013 (Ley Chile, 2013). We interpret this reform as effective from SY 2014, affecting individuals who reached age 5 on or after April 2014, or born on or after April 2009.

We have not yet identified research using Chile's compulsory schooling laws.

The figure below summarizes Chile's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Chile, there were no compulsory schooling reforms affecting the birth cohorts from 1930 to 1960.

Figure 6: Chile— Age compulsory schooling ends by birth year

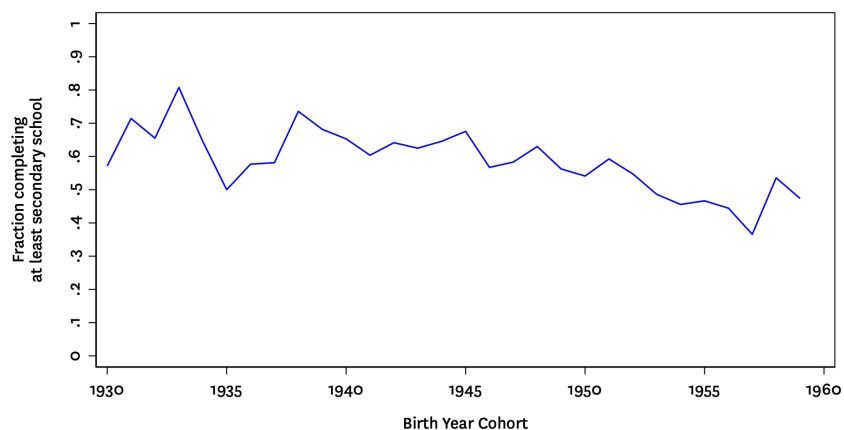


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 7 indicates the fraction of people living in Chile that achieved at least 6 years of education was typically above 60% for birth cohorts born between 1930 and 1945 in the 2015-2017 Chilean Social Protection Survey, and gradually declined to less than 50% for respondents born 1953-1959 (except 1958).

Figure 7: Chile — Fraction completing at least primary school (6 years) by birth cohort



Source: Author's analysis of the Gateway's Harmonized Chilean Social Protection Survey data (version A).

Note: Birth year range reduced to match the gray area in Figure 6.

5. China

Polymaking context

China has largely maintained its current territorial shape since the formal establishment of the People's Republic of China in 1949, with the exception of the addition of two special administrative regions (SARs): Hong Kong in 1997, and Macau in 1999. During the 1900s, modern-day China experienced various governmental and territorial transformations.

At the beginning of the 20th century, the territory was part of the Qing Dynasty until the Xinhai Revolution in October 1911 and later the formal abdication of the Xuantong Emperor in February 1912. In 1912, China declared itself a republic (Republic of China). In 1916, after the death of Yuan Shikai, the first president of the Republic of China, China fell under the authority of regional warlords. In 1921, the Chinese Communist Party was founded.

From 1912 to 1927, Beiyang government (北洋政府) governed the country and the Nationalist government (国民党政府) governed from 1927. From 1937 to 1945, the Republic of China engaged in the Second Sino-Japanese War against the Empire of Japan as part of World War II.

Following Japan's surrender in 1945, a conflict emerged between the Communist party and the Nationalist government, resulting in a civil war. By 1949, the Nationalists relocated to Taiwan while Mao Zedong declared the establishment of the People's Republic of China on October 1st of the same year.

Policy history

Compulsory schooling was first introduced during the Qing Dynasty with the establishment of the first national universal education system, the Renyin School Education System, in 1902. It required boys to enroll at age 6 and attend 7 years of compulsory schooling. However, the Renyin School Education System was not implemented and was soon replaced by the Guimao School Education System in 1904. The Guimao School Education System made changes to the enrollment age and the length of compulsory schooling by requiring boys at age 7 to attend 5 years of compulsory schooling (Sun, 2019). The Renzi Guichou School Education System was introduced in September 1912 and updated in 1913. In this school education system, the primary school was divided into two parts, low-level primary school (Grades 1-4) and high-level primary school (Grades 5-8). Low-level primary school was compulsory and only served children aged 7-10 while high-level primary school only served graduates of low-level primary school (Wu, 2020).

In 1922, the Republic of China implemented a new system known as the Renxu School Education System. It required children to enroll at age 6 and attend 4 years of compulsory primary schooling (low-level primary school) (Education Yearbook Compilation Committee of the Ministry of Education, 1934, p.24). However, at the local level, some provinces adopted laws that mandated longer lengths of compulsory schooling. For example, in September 1922, the Shaanxi Province First Education Executive Council Decision Act mandated that children from Shaanxi should receive compulsory schooling from age 6 until age 12 (6 years of compulsory schooling) (Shaanxi Provincial Local Chronicles Office, n.d.). From 1928 to 1937, the Republic of China convened the First National Conference on Education, introduced reforms to the Renxu School Education System, and established a new system known as the Wuchen School Education System. The required length of compulsory schooling remained unchanged. However, some local governments established simplified or short-term primary schools to promote compulsory schooling where the required length of compulsory schooling could be reduced to 2 years (Education Dictionary, 1989). In 1947, the Constitution of the Republic of China increased compulsory schooling to 6 years which applied to students between the ages of 6 and 12 (Republic of China, 1947).

The Constitution of the Republic of China was abolished in 1949 following the founding of the People's Republic of China. Compulsory schooling was not mentioned in any legislation until 1982 when the Constitution of the People's Republic of China was amended with the support of Deng Xiaoping and others (People's Republic of China, 1982). In 1986, the Compulsory Education Law of the People's Republic of China was promulgated which made schooling compulsory for 9 years. Local governments at all levels (province, county, and township) are responsible for the implementation and management of compulsory schooling. Compulsory schooling was implemented gradually by each province and is almost complete as of today (National Education Commission of the People's Republic of China, 1992; People's Republic of China, 2018). Children that are 6 years old must start school, with the exception of children in areas without sufficient educational resources, whose enrollment could be delayed to 7 years of age (People's Republic of China, 2018, Article 11).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 4.

Table 4: China–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1903 (Boys only)	8	12	5
September 1903 - August 1936	7	10	4
September 1936 - August 1973	7	12	6
September 1973 - Present (Implementation was gradual)	7	15	9

Source: Encyclopedia of China (2022), People's Republic of China (2018), and Republic of China (1947)

Notes: Chinese policy for starting school is based on a person reaching age 6 before they begin schooling. Starting ages in the table follow the technical approach described in chapter 1. They reflect the age someone reaches during their first SY. Consequently, they are one year later than the age in law.

The reform affecting the 1973 cohort was gradually implemented, with 24 of 31 provinces having adopted this structure between 1986–88.

The Chinese school year (SY) typically begins in September and ends in June of the following calendar year or, in some cases, ends in the first half of July of the following calendar year. China establishes a starting age based on “children who have reached the age of six” (People’s Republic of China, 2018, Article 11). To establish a consistent cross-country definition, we set the compulsory school starting age as the age reached during a person’s first SY, which is age 7. In China, measurement of age could be complicated by the common use of the lunar calendar despite policies intending the use of the Gregorian calendar. This may lead to misreporting during household registration if age is based on the lunar calendar month rather than the intended Gregorian calendar month. For example, from 1900 to present, people who were born on August 31 in the lunar calendar year could have their birth date ranging from September 25 to October 23 of the Gregorian calendar depending on which year they were born. In this case, if the lunar calendar month was used for determining initial enrollment, then an individual could enter before age reaching age 6 and therefore not reach age 7 during their first SY.

We interpret earlier reforms as beginning in the first SY following the effective date. For example, the 1912 reforms were enacted in September 1912, but the implementing laws were not effective until August 1913. Consequently, we interpret these laws as affecting student outcomes from SY 1913–14, which would then mean they affect students born during or after September 1903. It is possible that these policies may have affected older children at the time.

The 1947 constitution was published on January 1, 1947 and effective February 1, 1947 as the Ministry of Education urged local educational authorities to extend compulsory schooling years, which we interpret to be effective for SY 1947–48. Individuals born in September 1936 would have been in their 4th year of schooling when this policy went into effect and so would have had to remain 2 additional years through the end of SY 1948–49.

The 1986 reform was enacted in April 1986, which we interpret to be effective for SY 1986–87. Individuals born in September 1973 would have been in their 6th year of schooling when this policy went into effect and so would have had to remain 3 additional years through the end of SY 1988–89.

There are several recent studies using the 1986 reform (Cui, Liu, & Zhao, 2019; Eble & Hu, 2019; Liu, Ma, & Smith, 2022; Ma, 2019), but we have not yet identified other research using China’s compulsory schooling laws prior to the 1986 reform.

The figure below summarizes China's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In China, the 1947 reform affected people born from September 1935.

Figure 8: China— Age compulsory schooling ends by birth year



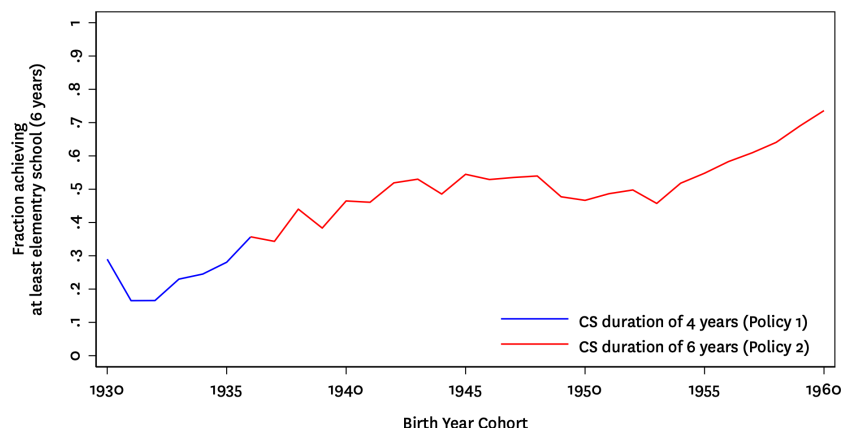
Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Using the China Health and Retirement Longitudinal Study (CHARLS), Figure 9 indicates the fraction of people living in China that achieved at least 6 years of education gradually increased from less than 30% for birth cohorts 1930-36 to 70% for people born in 1960. Using September 1935 as the cutoff for the new policy, we do not observe a sharp increase in educational attainment. If the 1947 reform affected people born in 1935 before September, then there may be a discernible increase in educational achievement in 1935 relative to 1934.

The gradual but discernible increases in the fraction of the sample completing at least 6 years of schooling during the periods 1935-45 and 1953-60 suggest there may exist another education reform driving increases in educational attainment such as the *Interim Regulations for Primary Schools (Draft)* issued by the Ministry of Education in 1952, and *Instructions on Rectifying and Improving Primary Education* in 1953. Alternatively, various forms of information education such as seasonal primary schools and half-day primary schools may have contributed to this increase.

Figure 9: China — Fraction completing at least elementary school (6 years) by birth cohort



Source: Author's analysis of the Gateway's Harmonized CHARLS data (version C).

Note: Birth year range reduced to match the gray area in Figure 8.

6. Czech Republic

Policymaking context

The Czech Republic has been in its present territorial form since January 1993. Since 1900, it has been part of a number of other countries, including the Austro-Hungarian Empire (before 1918), the First Czechoslovak Republic (1918-1938), the Second Czechoslovak Republic (1938-1939), the Third German Empire (Nazi Germany, 1939-1945), the Third Czechoslovak Republic (1945-1948), the Czechoslovak People's Republic (1948-1959), the Czechoslovak Socialist Republic (1960-1990), and the Czech and Slovak Federative Republic (1990-1992).

Policy history

In 1900, minors between the ages of 6 and 14 were required to attend school in the Austro-Hungarian Empire (including present day Czech Republic). This requirement was introduced in the Imperial Primary Education Act of 1869 (Staatsbibliothek zu Berlin, 1869, Article 21). The *Small Education Law* (Law 226 of 1922) reaffirmed the duration of compulsory schooling to be 8 years from 6 to 14 years old (Eurodyce, 2021b). In 1948, the *Act on the Basic Regulation of Unified Education* further extended compulsory schooling from 8 to 9 years and changed the school leaving age from 14 to 15, effective September 1948 (Zákony pro lidi, 1948). In 1953, the *School System and Teacher Education Act* reduced the school leaving age to 14, effectively reducing compulsory school duration to 8 years in SY 1953-54 (Zákony pro lidi, 1953). In 1960, the government passed the *Education System Act*, again extending the school leaving age to 15 years old and making compulsory schooling 9 years (Zákony pro lidi, 1960). In 1978, the *Act on Measures in the System of Primary and Secondary Schools* increased the school leaving age to 16, making compulsory schooling 10 years (Zákony pro lidi, 1978, 1984, §34). In 1990, following the end of the Czechoslovak Socialist Republic, the government shortened the compulsory schooling period to 9 years and made the school leaving age 15 again (Zákony pro lidi, 1990, §34). The length of compulsory schooling was again extended to 10 years in 2016 (Zákony pro lidi, 2004, 2016, §34, 36) by making pre-primary school compulsory from age 5.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 5.

Table 5: Czech Republic–Compulsory Schooling Ages (1900-2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1933	7	14	8
September 1933 - August 1938	7	15	9
September 1938 - August 1946	7	14	8
September 1946 - August 1962	7	15	9
September 1962 - August 1974	7	16	10
September 1974 - August 2011	7	15	9
September 2011 - Present	6	15	10

Source: Eurodyce (2021b) and Zákony pro lidi (1948, 1953, 1960, 1978, 1984, 1990, 2004, 2016)

Note: Starting age is adjusted to reflect the age a person reaches during their first year of compulsory schooling. Leaving age is imputed based on starting age and compulsory schooling duration.

The 1948 reform extended compulsory schooling by 1 year, increasing duration from 8 to 9 years. The *Act on the Basic Regulation of Unified Education* states that 9 years of compulsory schooling starts in “the school year that follows the day when the child reaches the sixth year of age” and is effective from September 1, 1948 (Zákony pro lidi, 1948, §13, 94). We interpret this law to be effective from SY 1948-49 and assume the school year runs from September to August. A student born in September 1933 would enter school in the school year after they reached age 6 (SY 1940-41). They would reach their 9th year of compulsory schooling in SY 1948-49 at age 15. Consequently, students may leave school after completing the school year in which they reach age 15.

The 1953 reform states that 8 years of schooling are compulsory starting from the beginning of the school year after a child reaches age 6 and is effective for SY 1953-54 (Zákony pro lidi, 1953, §3, 17). We interpret this law to be effective from September 1953. A student born in September 1939 would enter school in the school year after they reached age 6 (SY 1946-47). They would reach their 8th year of compulsory schooling in SY 1953-54 at age 14. Furthermore, a student born in September 1938 would be entering their 9th year, which

would no longer be compulsory. Therefore, the first birth cohort affected are those born from September 1938.

We apply the same logic as the 1948 reform for the 1960 and 1978 reforms that increase compulsory schooling duration by 1 year each. The 1960 reform was effective from December 1960, so it first impacted SY 1961-62. Therefore, the first affected birth cohort are those individuals born beginning in September 1946 (Zákony pro lidi, 1960, §5, 38). The 1978 reform was effective from September 1978, and first affected SY 1978-79. Individuals born during and after September 1962 were influenced by these measures (Zákony pro lidi, 1978, §34, 54).

We apply the same logic as the 1953 reform for the reduction in school duration of the 1990 reform, which was effective for SY 1990-91. We determine that the 1990 reform affected people born during and after September 1974 (Zákony pro lidi, 1990, Article 2, points 35, 51).

Finally, the 2016 reform reduced compulsory schooling start age from the school year after a child reaches age 6 to age 5, effective January 1, 2017 (Zákony pro lidi, 2016, Article 1, points 10, Article 4). We interpret this to affect enrollment from SY 2017-18, which means that it affects children born from September 2011.

Our estimates are generally 1 year earlier than Brunello et al. (2016) and Hofmarcher (2021), potentially due to our adjustment for compulsory schooling starting “the school year that follows the day when the child reaches the sixth year of age.” This effectively means that an individual starts school the year they reach age 7, meaning the birth year would be 1 year earlier than if someone had assumed starting the year they reached age 6 (as in some other countries, e.g., Belgium).

The figure below summarizes Czech Republic’s policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In the Czech Republic, multiple compulsory schooling reforms occurred affecting people born between 1930 and 1960.

Figure 10: Czech Republic— Age compulsory schooling ends by birth year

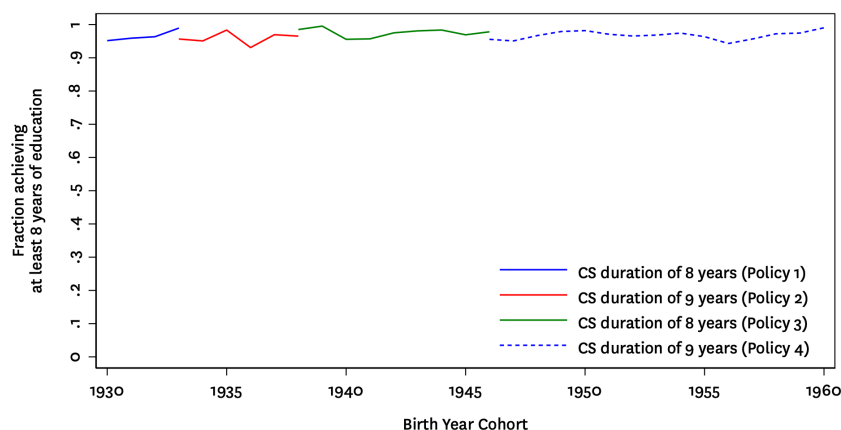


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 11 reveals that most people born between 1930 and 1960 in the Czech Republic completed at least 8 years of education. Figure 12 document that there may have been some reduction in attendance of a 9th school year following the 1953 reform, affecting people born from September 1938, that removed the requirement to remain in school for the 9th year. However, completion of the 9th year of schooling continued to improve after the reduction in the 1953 policy such that when compulsory schooling was again increased to 9 years in the 1960 reform (affecting people born from September of 1946), the fraction of the Czech SHARE sample born in 1945 completing 9 years of schooling was only marginally smaller than the share born in 1947.

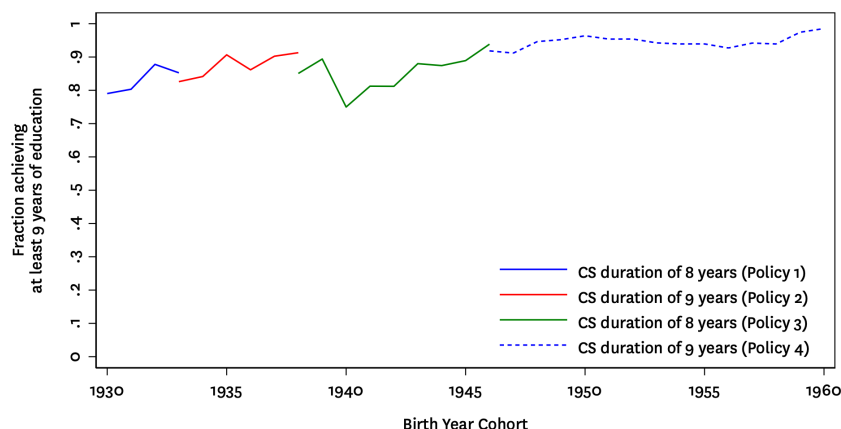
Figure 11: Czech Republic — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 10.

Figure 12: Czech Republic — Fraction completing at least 9 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 10.

7. Denmark

Policymaking context

Denmark has been mostly in its present territorial form since before 1900. In 1920, Southern Jutland was annexed back to Denmark after being part of Germany since 1864.

Denmark became a constitutional monarchy in 1849, with a two-chamber parliament. During World War II, Denmark was occupied by Nazi Germany from 1940 to 1945. Following the end of the war, Denmark reverted to its previous form of government. Presently, Denmark is a constitutional monarchy ruled by a representative democracy.

Policy history

In 1814, the *Ordinance for a Common School System* established compulsory primary education starting at the age of 7 and lasting until a child had undergone religious confirmation or had reached age 13 and completed the required coursework (danmarkshistorien.dk, 2012a, §7, 25). The *Free Education Act* of 1855 made compulsory schooling the responsibility of parents or guardians, meaning there was no requirement for children to be in a government operated school. Education in Denmark was handled differently between cities and the countryside (danmarkshistorien.dk, 2012e). The *Folkeskole Act of 1937* extended compulsory schooling to 7 years (danmarkshistorien.dk, 2012c, §43). Additional schooling reforms in 1958 did not alter compulsory schooling requirements, but mostly modified the educational tracking system (danmarkshistorien.dk, 2012b, §43). Furthermore, the distinction between urban and rural schools was eliminated by allowing rural schools to offer the same voluntary educational tracks as urban schools thereby expanding access to education for Danish children in rural areas (Arendt, 2008). In 1972, the *Act on the amendment of the Act on the Primary School* increased compulsory schooling duration to 9 years, thereby raising the school leaving age to 16 (Folketingstidende.dk, 1972, §44). In 2009, the *Law on Primary School* made 1 year of pre-primary education compulsory, extending the period of compulsory schooling to 10 years beginning in the school year that a child reaches age 6 (retsinformation.dk, 2009, §34). This policy has remained unchanged in subsequent reforms (retsinformation.dk, 2014, §34).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 6.

Table 6: Denmark–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - March 1924	8	13	6
April 1924 - December 1957	8	14	7
January 1958 - December 2002	7	15	9
January 2003 - Present	6	15	10

Source: danmarkshistorien.dk (2012a, 2012c, 2012d) and retsinformation.dk (2009)

Note: Starting age is adjusted to reflect the age a person reaches during their first year of compulsory schooling. Leaving age is imputed based on starting age and compulsory schooling duration.

School years in Denmark have changed over the past century. In the 1937 reform, the school year began on April 1 (danmarkshistorien.dk, 2012c, §9). By the 1958 reform, the starting date of the school year had moved to August 1, where it remains to this day (danmarkshistorien.dk, 2012b, §9).

The 1937 Act was effective from April 1, 1938, thereby affecting SY 1938–39. That reform states “the obligation to teach starts at the beginning of the school year for children who are 7 years old at that time” (danmarkshistorien.dk, 2012c, §43). We interpret this to mean that the student will reach age 8 during the first affected SY and complete their 7th compulsory schooling year at the age of 14. Consequently, the reform affected birth cohorts born during or after April 1924.

The 1972 Act stated that “the obligation to teach begins on 1 August in the calendar year in which the child turns 7, and ends on 31 July, after the child has received regular education for 9 years” (Folketingstidende.dk, 1972, §44). This increased the duration of compulsory schooling from 7 to 9 years. We interpret this to mean that students during this period entered in the calendar year when they reached

age 7, making the effective SY for enrollment the calendar year. It is unclear when the starting age shifted to be this age (this was not true during the 1958 reform). The 1972 Act was enacted in April 1972 and the change in compulsory schooling was effective from August 1, 1972, thereby affecting SY 1972-73 (Arendt, Christensen, & Hjorth-Trolle, 2021). The first affected cohort were people born during and after January 1958, who would have started school in SY 1965-66. Their 8th year of compulsory schooling occurred in SY 1972-73, during the first affected SY.

A number of studies have used Denmark's compulsory schooling policy as part of their analysis, but their reported duration and timing varies from that reported here. The web appendix in Brunello et al. (2016) states "Compulsory education was increased in 1958 by 3 years, from 4 to 7. In 1971, compulsory schooling was further increased by 2 years, from 7 to 9." Brunello, Fort, and Weber (2009) use the same periods. Arendt (2008) uses the 1958 and 1972 law, with the focus on the 1958 law being that it expanded access to higher levels of education. Gathmann et al. (2015) use the same time period as Brunello et al. (2009), but examine the robustness of their findings to Arendt (2005)'s timing. Crespo et al. (2014) use only 5 years of compulsory schooling before the 1958 law.

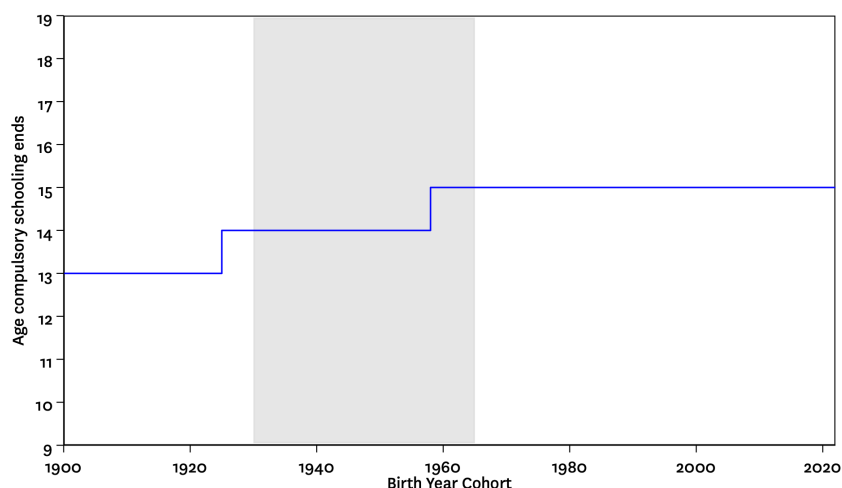
The above discrepancies in policy timing can be summarized as:

1. What is the correct compulsory schooling requirement before 1958 (4-7 years)?
2. What is the correct timing of the increase in compulsory schooling from 7 to 9 years (1971 or 1975)?

Regarding the requirement before 1958, our interpretation of §43 of the legislative text in the 1937 and 1958 laws indicates that the compulsory schooling duration was 7 years for this period (danmarkshistorien.dk, 2012b, 2012c). This means that there was no change to the compulsory schooling requirement brought by the 1958 reform. Rather, the reform cited by Brunello et al. (2016), Arendt (2005), and Crespo et al. (2014) actually occurred with the passage of the 1937 reform.

The figure below summarizes Denmark's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Denmark, there were no compulsory education reforms affecting birth cohorts 1930 to 1960, so we expand our typical window through 1965. The 1975 reform increased schooling duration for people born during or after January 1961.

Figure 13: Denmark— Age compulsory schooling ends by birth year

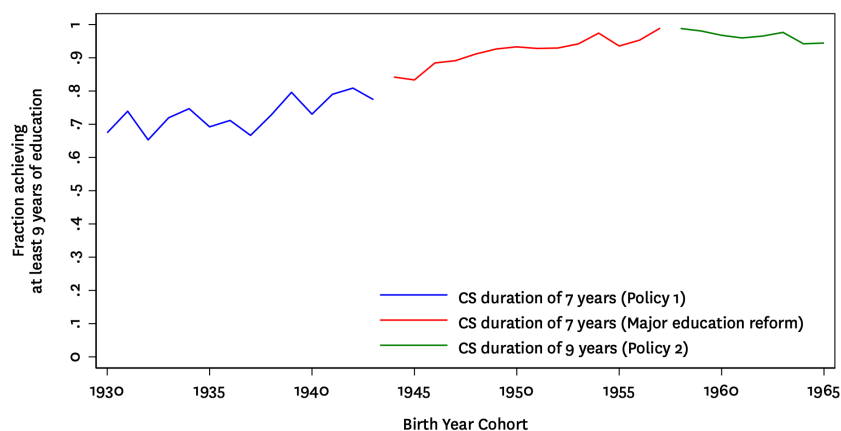


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 14 for Denmark suggests that 70% people born before 1940 exceeded 9 years of schooling in the SHARE sample and gradually increased to more than 90% after 1950. The main birth cohorts included in Denmark's SHARELIFE sample experienced a broad increase in the percentage completing at least 12 years of education. While increases in compulsory schooling may not lead to significant gains in educational achievement, findings in Arendt (2005) suggest that expansions in access to education beyond the 7th year that were part of the 1958 reform may be a determinant of the increase in educational achievement for birth cohorts from 1944.

Figure 14: Denmark — Fraction completing at least 9 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 13.

8. England (United Kingdom)

Policymaking context

In 1900, the United Kingdom consisted of countries within the islands of Great Britain and Ireland. Since 1922, when the Irish Free State formed the independent country of Ireland, it has been the United Kingdom of Great Britain and Northern Ireland (UK). Education in the UK is devolved to its constituent countries: England, Northern Ireland, Scotland and Wales. The following discussion of education policy changes refers to policies set by the UK government, which apply to England. Other countries in the UK may differ in their compulsory schooling policies.

Policy history

The length of compulsory schooling in England has steadily increased since its introduction in 1880. Rather than legislating a compulsory duration of schooling, the UK government legislates a school start and leaving age. The *Education Act of 1880* made school compulsory for all children between the ages of 5 and 10. The 1893 *Elementary Education (School Attendance) Act* further raised the leaving age to 11, followed by an act in 1899 raising the age to 12 (UK Parliament, 2024). In 1900, the start and leaving ages were 5 and 12, respectively. The first change in compulsory schooling requirements since 1900 was the *Education Act of 1918* that raised the school leaving age from age 12 to age 14 (Legislation.gov.uk, 1918, §8(1)). The Education Act 1944 increased the school leaving age to 15 with an allowance to increase it further to age 16 when practicable (Legislation.gov.uk, 1944a, §35). Implementation of the increase to age 15 was delayed from April 1, 1945 to April 1, 1947 (Banks & Mazzonna, 2012; Legislation.gov.uk, 1944b). The increase to age 16 was further delayed until September 1972, when it was done by an Order in Council (Legislation.gov.uk, 1972) effective for school year (SY) 1972-73. While the official school leaving age remains 16, in 2008 the UK parliament passed the *Education and Skills Act 2008*, which requires persons between the ages of 16 and 18 to do one of three options after finishing compulsory schooling: continuing further education, completing an apprenticeship, or spending over 20 hours per week volunteering or working while enrolled in part-time education (Legislation.gov.uk, 2008).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 7.

Table 7: England–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1906	6	12	7*
September 1906 - March 1933	6	14	9*
April 1933 - August 1957	6	15	10*
September 1957 - Present	6	16	11*

Source: Legislation.gov.uk (1918, 1944a, 1972)

Notes: Starting age is adjusted to reflect the age a person reaches during their first full year of compulsory schooling. Duration is imputed based on the difference between starting age and leaving age.

* Individual may have a shorter duration by one or two terms depending on their birth date

The school year in England begins in September, but it is organized into terms starting approximately January 1 (spring term), April 1 (summer term), and September 1 (autumn term). A person reaching starting age (i.e., age 5), must begin school at the first term after turning age 5 (Gov.uk, 2024). English education law also establishes school leaving dates which provide more structure on when a student can stop school:

- From 1996 onward, compulsory schooling policy requires an individual to complete the SY when they reach the school leaving age (Legislation.gov.uk, 1996, §8).
- From April 1976 - November 1996, the law established the following school leaving dates based on a SY from September to August of the following year based on birthdates (Legislation.gov.uk, 1976, §1):
 - September 1 – January 31: End of the spring term of that SY
 - February 1 – May school leaving date: May leaving date
 - May school leaving date – August 31: Birth date
 - Note: The “May school leaving date” is defined as the Friday before the last Monday in May
- From April 1962 - March 1976, the law established the following school-leaving dates based on a SY from September to August of

the following year based on birthdates (Legislation.gov.uk, 1962, §9):

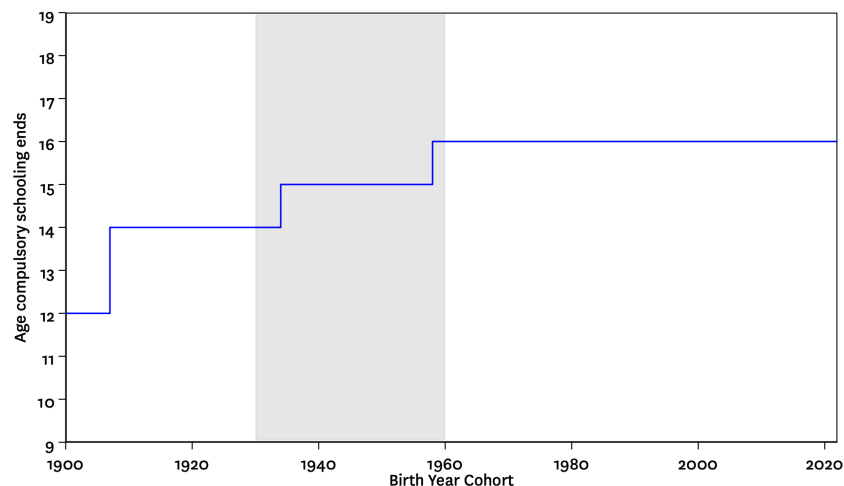
- September 1 - January 31: End of the spring term of that SY
- February 1 - August 31: End of the summer term of that SY
- From April 1946 - March 1962, the law established the following school-leaving dates: (Legislation.gov.uk, 1946, §8):
 - If a person reaches the school leaving age during a school term when they are registered, they will be deemed to not have reached that age until the end of the term.
 - If a person reaches the school leaving age when he or she was registered in the year prior but is no longer registered, then they are considered to have been registered and the leaving age based on the previous item applies.
- Before April 1946: School leaving date rules have not been identified.

The *Education Act 1944* increased compulsory schooling requirements by 1 year effective from April 1947 by changing the school leaving age from 14 to 15. This reform should have affected students that had not reached age 14 by April 1947, which are individuals born during or after April 1933. This corresponds to the dates used by Banks and Mazzonna (2012) who also determine the first cohort affected by this reform as those born during April 1933. Brunello et al. (2016) reports an effective year of 1933.

The *Raising of the School Leaving Age Order 1972*, UK Statutory Instruments No. 444 raised the school leaving age to 16 effective September 1, 1972. This reform should have affected students that had not reached age 15 by September 1972, which are individuals born during or after September 1957. This implies that individuals that were 16 years old by the end of SY 1972-73 were the first affected by this policy. These individuals would have been born between September 1956 and August 1957. This corresponds to the dates used by Banks, Carvalho, and Perez-Arce (2019) who also determine the first cohort affected by this reform as those born during September 1957. Hofmarcher (2021) reports an effective year of 1958 since it is the first year in which all birth months are affected by the policy reform.

The figure below summarizes England's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In England, there were two compulsory education reforms increasing the school leaving ages for birth cohorts from April 1933 and September 1957.

Figure 15: England — Age compulsory schooling ends by birth year

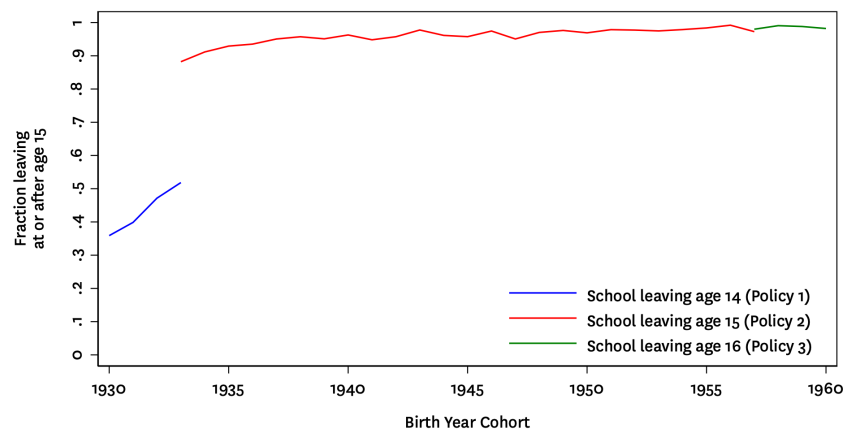


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 16 suggests that 50% or less of people born before April 1933 left school after age 14 in the ELSA sample, but this number jumped to 90% or more after the reform. Educational achievement beyond age 15 continued to gradually increase after this reform. Figure 17 highlights this change through the percentage of the ELSA sample leaving at or after age 16, which is the effective leaving age after the 1972 reform (affecting people born in or after September 1957). Just prior to the implementation of that reform in 1957, we observe that about 85% of the ELSA sample left at or after age 16 and this jumped to over 95% after the reform was implemented in September.

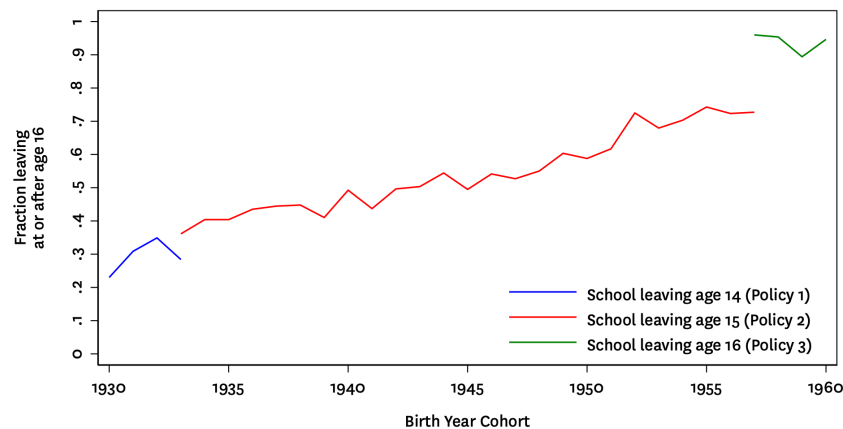
Figure 16: England — Average school leaving age by birth cohort



Source: Author's analysis of the Gateway's Harmonized English Longitudinal Survey on Ageing (ELSA) data (version G2).

Note: Birth year range reduced to match the gray area in Figure 15.

Figure 17: England — Average school leaving age by birth cohort



Source: Author's analysis of the Gateway's Harmonized ELSA data (version G2).

Note: Birth year range reduced to match the gray area in Figure 15.

9. Estonia

Policymaking context

Estonia was part of the Russian empire until its independence in February 1918. Between 1918 and 1920, Estonia fought against the Russian Bolshevik invasion until the Russian-Estonian Peace Treaty was signed in February 1920. Estonia was occupied by the Soviet Union during World War II in June 1940, Nazi Germany in 1941, and the Soviet Union from 1944. In August 1991, Estonia regained its independence as a democratic republic.

Policy history

After its independence in 1918, Estonia introduced compulsory schooling legislation. Individuals ages 9 to 14 were required to attend school for 4 years (Asutav Kogu, 1919). These provisions were amended in 1920 by requiring children who reached age 7 by the beginning of the school year to attend primary school until its completion after 6 years of schooling or until age 16 (Asutav Kogu, 1920). In 1931, the starting age was changed to 8 years old (Riigi Teataja, 1931). The law also changed to require students to either complete 6 years of education or turn 14 (while the prior law required them to complete 6 years or turn 16) (Riigi Teataja, 1934). The change was then partially turned back in 1940, requiring students to either complete 6 years or turn 15 (Haridusministeeriumi Teataja, 1940). In 1941, students were required to stay in school until reaching age 16 or completing 7 years of schooling (Eesti NSV Teataja, 1941). These provisions were further expanded in 1958 when children were required to start school at age 7, and to reach age 16 or complete 8 years of schooling before leaving (Eesti NSV Teataja, 1958). In 1986, students were required to start school at age 6 and could leave when reaching age 18 or completing 9 years of non-technical secondary education (Eesti Nõukogude Sotsialistliku Vabariigi Ülemnõukogu ja Valitsuse Teataja, 1986). The starting age was later raised to 7 years old and the leaving age was lowered to age 16 in 1992 (Riigi Teataja, 1992). From 1993 until the present, individuals have been required to stay in school from age 7 until completing 9 years of education or reaching age 17 (Riigi Teataja, 1993).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 8 for people born from August 1909.

Table 8: Estonia–Compulsory Schooling Ages (1909–2023)

Birth Date	Start Age	Leaving Age	Duration
August 1909 - July 1912	10	13*	4
August 1912 - July 1923	8	13*	6
August 1923 - July 1927	9	14*	6
August 1927 - July 1944	9	15*	7
August 1944 - August 1971	8	15*	8
September 1971 - August 1985	7	15*	9
September 1985 - Present	8	16	9

Source: Asutav Kogu (1919, 1920), Eesti Nõukogude Sotsialistliku Vabariigi Ülemnõukogu ja Valitsuse Teataja (1986), Eesti NSV Teataja (1941, 1958), Haridusministeeriumi Teataja (1940), and Riigi Teataja (1931, 1934, 1992, 1993)

Note: In numerous instances, the Estonian compulsory schooling laws specify a starting age, a duration that individuals need to be in school, and an age by which these compulsory schooling requirements need to be completed. The latter is not the leaving age. The leaving age is imputed by the starting age plus school duration minus 1 assuming continuous enrollment from the starting age for the duration of compulsory schooling.

A decree of the Constituent Assembly from September 19, 1919 introduced compulsory schooling in Estonia for 4 years for children between ages 9 and 14 (Asutav Kogu, 1919). We interpret this law to be effective from SY 1919–20. The legislation does not indicate the month in which the school year starts, or whether an individual should reach age 9 before or during the school year. For this period, we assume the school year started in August, and that children must reach the required age before the start of the school year. A student born in August 1909 would enter school in the school year after they reached age 9 (SY 1919–20) completing their fourth year of school at age 13 in SY 1922–23 assuming they attend each year of compulsory schooling consecutively.

The 1920 law, effective May 7, 1920, required children who are age 7 by the beginning of the school year to complete primary school which lasts for 6 years or stay in school until age 16 (Asutav Kogu, 1920, §8, 9, 20). Since the school year for this period goes from

August 1 to July 31 of the following year (Asutav Kogu, 1920, §22), we interpret this law to be effective from SY 1920-21. A student born in August 1912 would enter school in the school year after they reached age 7 (SY 1920-21) completing their sixth year of school at age 13 in SY 1925-26 assuming they attend each year of compulsory schooling consecutively.

The *Public Elementary Schools Act* of 1931, effective June 2, 1931, required children who have reached age 8 by the beginning of the school year to start primary school which lasts for 6 years or stay in school until age 16 (Riigi Teataja, 1931, §8, 9, 36). Since the school year for this period goes from August 1 to July 31 of the following year (Riigi Teataja, 1931, §40), we interpret this law to be effective from SY 1931-32. Individuals born in August 1922 would have started school after reaching age 7 in SY 1930-31. Thus, we determined that a student born in August 1923 would enter school in the school year after they reached age 8 (SY 1932-33) completing their sixth year of school at age 14 in SY 1937-38 assuming they attend each year of compulsory schooling consecutively.

The 1934 law, effective May 25, 1934, required children to stay in school until completing primary school (which lasts for 6 years) or stay in school until age 14 (Riigi Teataja, 1934). We interpret this law to be effective from SY 1934-35. Children who reached age 14 in the first half of the school year in which they are enrolled are released from compulsory schooling at the end of the previous school year while students who reached age 14 in the second half of the school year in which they are enrolled must stay in school until the end of the school year in which they reached age 14. A student born between February and July 1921 would enter school in the school year after they reached age 8 (SY 1929-30) completing their sixth year of school at age 14 in SY 1934-35 assuming they attend each year of compulsory schooling consecutively. Assuming individuals were continuously enrolled from the starting age, this change has no effect on our calculations or Table 8.

The 1940 law, effective July 4, 1940, raised the leaving age to 15 years old for individuals that have not completed the 6 years of primary school (Haridusministeeriumi Teataja, 1940). It required children who reached age 15 during their last year of compulsory schooling to remain in school until the end of the school year. We interpret this law to be effective from SY 1940-41. A student born in August 1925 would enter school in the school year after they reached age 8 (SY 1934-35) completing their sixth year of school at age 14 in SY 1939-40 assuming they attend each year of compulsory schooling consecutively. Assuming individuals were continuously enrolled from the starting age, this change has no effect on our calculations or Table 8.

The 1941 law, effective May 20, 1941, extended the duration of compulsory schooling to the seventh year of school effective from SY 1941-42 while the leaving age was raised to age 16 for those who have not completed the 7 years of general education (Eesti NSV Teataja, 1941). A student born in August 1927 would reach age 8 by the school year in which they reach age 9 (SY 1936-37) completing their sixth year of school at age 14 in SY 1941-42 assuming they attend each year of compulsory schooling consecutively. Thus, they would be the first cohort required to complete a seventh year of schooling in SY 1942-43 in the year they reach age 15.

The 1958 law, effective December 24, 1958, extended the duration of compulsory schooling to the eighth year of school from SY 1959-60 while the starting age was lowered to age 7 (Eesti NSV Teataja, 1958). A student born in August 1944 would enter school in the school year after they reached age 7 (SY 1952-53) completing their seventh year of school at age 14 in SY 1958-59. Thus, they would be the first cohort required to complete an eighth year of school at age 15 in SY 1959-60 assuming they attend each year of compulsory schooling consecutively.

The 1986 law, effective June 26, 1986, extended the duration of compulsory schooling to the ninth year of school while the starting age was lowered to age 6, and the leaving age was changed to age 18 (Eesti Nõukogude Sotsialistliku Vabariigi Ülemnõukogu ja Valitsuse Teataja, 1986). We interpret this law to be effective from SY 1986-87. From the 1970s, the school year starts on September 1. Thus, a student born in September 1971 would enter school in the school year after they reached age 6 (SY 1978-79) completing their eighth year of school at age 14 in SY 1985-86. Thus, they would be the first cohort required to complete a ninth year of school at age 15 in SY 1986-87 assuming they attend each year of compulsory schooling consecutively.

The 1992 law, effective March 30, 1992, the starting age was raised to age 7, and the leaving age was changed to age 16 (Riigi Teataja, 1992, §22, 25, 29). We interpret this law to be effective from SY 1992-93. A student born in September 1985 would enter school in the school year after they reached age 7 (SY 1993-94) completing their ninth year of school at age 16 in SY 2001-02 assuming they attend each year of compulsory schooling consecutively.

The 1993 law, effective September 24, 1993, changed the leaving age for those who have not completed 9 years of school to age 17 (Riigi Teataja, 1993, §54). Children must reach age 7 by October 1 of the school year in which they are enrolling. We interpret this law to be effective from SY 1994-95. A student born in October 1986 would enter school in the school year after they reached age 7 (SY 1994-95) completing their ninth year of school at age 16 in SY 2002-03 assuming they attend each year of compulsory schooling consecutively. Assuming individuals were continuously enrolled from the starting age, this change has no effect on our calculations or Table 8.

Few papers investigate Estonian compulsory school laws, with the exception of Hofmarcher (2021) which studied the 1958, 1970 and 1992 reforms. Hofmarcher (2021) determined that the 1958 law extended the duration of compulsory schooling to 8 years effective from SY 1959-60 affecting the cohort born in 1945 which was in seventh grade in the SY 1958-59. This conclusion is similar to our interpretation of Eesti NSV Teataja (1958). While Hofmarcher (2021) considers the first full birth cohort affected as the group of individuals who was born from January 1945, we consider this reform affected individuals born as early as August 1944. While Hofmarcher (2021) discusses policy changes that occurred in 1970, we have not found evidence that such reform took place. Hofmarcher (2021) determined that the 1992 reform introduced 9 years of compulsory schooling from age 7 affecting the cohort born in 1975 which would leave compulsory schooling at the end of the tenth grade in the SY 1991-92. This is inconsistent with our interpretation of Riigi Teataja (1992). We determined that Eesti Nõukogude Sotsialistliku Vabariigi Ülemnõukogu ja Valitsuse Teataja (1986) introduced 9 years of compulsory schooling while Riigi Teataja (1992) raised the starting age to age 7 affecting the cohort born in August 1984.

The figure below summarizes Estonia's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Estonia, there was one compulsory schooling reform affecting people born between 1930 and 1960, the most common birth dates of respondents in the Estonian SHARE sample. That reform increased the duration of compulsory schooling from 7 to 8 years for individuals born during or after August 1944.

Figure 18: Estonia— Age compulsory schooling ends by birth year

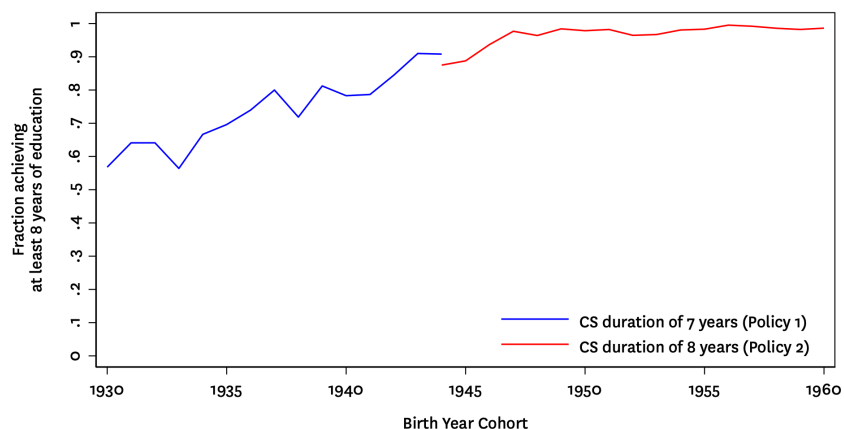


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 19 suggests there was no sharp change in compulsory schooling achievement affecting the cohorts born immediately after August 1944, the first major reform affecting the Estonian SHARE sample. Rather the fraction of individuals completing at least 8 years of compulsory schooling rose gradually from around 55-65% for people born between 1930–1933, to greater than 95% for respondents born after 1946.

Figure 19: Estonia — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 18.

10. France

Polycymaking context

The European territory of France has largely remained in its present territorial form since 1900, except during its occupation by Germany from 1939 to 1945.

Policy history

In 1900, France had compulsory schooling for children from ages 6 to 13, although children could leave before age 13 if they had earned a certificate of primary education (Senat.fr, 1882, Article 4). In 1936, compulsory schooling increased to 8 years, from ages 6 to 14 (education.gouv.fr, 1936, Article 1). In 1959, *Ordinance n° 59-45* extended the length of compulsory schooling to 10 years with an increase in the school leaving to age of 16 effective for persons age 6 or younger on January 1, 1959, which means it was implemented from SY 1967-68 (education.gouv.fr, 1959, Article 1). In 2019, the *Law for a School of Trust* shifted the start of compulsory schooling from age 6 to age 3 and instituted a compulsory training requirement for persons between the ages of 16 and 18 who do not pursue further education and are not employed (legifrance.gouv.fr, 2019, Articles 11, 15).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 9.

Table 9: France–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - June 1913	7	11	5
July 1913 - June 1924	7	12	6
July 1924 - December 1952	7	14	8
January 1953 - December 2013 (Compulsory training required from Jan. 2003)	7	16	10
January 2014 - December 2014	6	16	11
January 2015 - December 2015	5	16	12
January 2016 - Present	4	16	13

Source: education.gouv.fr (1936, 1959), legifrance.gouv.fr (2019), and Senat.fr (1882)

Notes: Measures are based on a person born before September. Starting ages are therefore 1 year later than the age in law. A consistent duration is created based on the number of completed years by August of the school leaving age. This duration is then used to create a measure for leaving age that is consistent with the rest of our measures based on the number of compulsory schooling years from the first full year of compulsory schooling.

A school year (SY) in France is from September to August of the following year, with classes typically completed in June. A person begins primary school at the start of the SY corresponding to the calendar year they reach age 6. To establish a consistent cross-country definition, we set the compulsory school starting age as the age reached during a person's first SY. Applying this definition to France, we measure our schooling ages based on people born before September of a calendar year. Therefore, our reported starting ages are generally 1 year after the compulsory starting age. An alternative representation for those born during or after September would be to maintain the same schooling duration, but shift the starting and leaving age 1 year earlier.

The 1882 law required schooling from ages 6 to 13, but it also considered individuals with a Certificate of Elementary Primary Studies (Certificat d'études primaires élémentaires - CEPE) to have satisfied compulsory schooling requirements (Senat.fr, 1882, Article 6). Individuals could take this test from age 11 and work was permitted with a certificate from age 12. This is why we consider school to be compulsory in this period only until age 11. We set compulsory schooling duration during the earliest part of the 1900s at 5 years, however, it could be 6 years for a person born later in a calendar year.

A 1924 reform raised the first age a person could take the primary education test from age 11 to at least age 12 on July 1 in the year in which the person appeared for the test (JORF, 1924). This is why we consider school to be compulsory in this period only until age 12. This reform was effective from May 1924. Given that the test was typically organized before the end of the school year in June, a person born on or after July 1913 would have to wait one additional year effectively extending the duration of their compulsory schooling.

The 1936 reform increased the school leaving age to 14 and prohibited work before age 14, effectively increasing duration by 2 years (education.gouv.fr, 1936). We assume this law, passed in August 1936, was effective for SY 1936-37, which would have affected any person under age 12 in July 1936, i.e., born July 1924, who would not have had a chance to receive their certificate of primary education.

The 1959 reform increased the school leaving age to 16, which led to 2 additional years of compulsory schooling (education.gouv.fr, 1959). This law explicitly stated that it was effective for people aged 6 or younger in January 1959, i.e., born after January 1953, which effectively meant that implementation was delayed and this policy would first affect the schooling decisions of these cohorts from SY 1967-68.

Our reported effective date for the 1959 policy is consistent with others in the literature due to the explicit mention of the affected birth cohorts in the law (See Crespo et al. (2014), Brunello et al. (2016) and Hofmarcher (2021) for examples of research using this policy).

The 2019 law required compulsory training for people between age 16 and 18 who do not pursue further education and was effective from SY 2020-21 (legifrance.gouv.fr, 2019, Articles 63). Compulsory training could be satisfied through either additional schooling, employment, or civic service (Service-Public.fr, 2024). Individuals under the age of 18 as of SY 2020-21, or born from January 2003, would have been affected.

The 2019 law also changed the pre-primary compulsory schooling requirements from a starting age of 6 to age 3. These reforms were effective from SY 2019-20 (legifrance.gouv.fr, 2019, Articles 63). This led to a gradual increase in compulsory schooling for people born between 2014 and 2016. For example, a person born before September in 2014 would have been age 5 at the start of SY 2019-20 and reached age 6 during SY 2019-20. A person born before September in 2016 would have been age 3 at the start of SY 2019-20 and reached age 4 during SY 2019-20. Before this reform, 97% of children aged 3 and 99% of those aged 4 were already enrolled in school ([de la Statistique et des Études Économiques](http://de.la.Statistique.et.des.Etudes.Economiques), 2023). Consequently, the 2019 law is unlikely to have a substantial impact on schooling duration.

The figure below summarizes France's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In France, there was one compulsory education reform affecting birth cohorts from 1930-60 (the most common cohorts in SHARE), which increased compulsory schooling duration from 8 to 10 years for birth cohorts from January 1953.

Figure 20: France— Age compulsory schooling ends by birth year

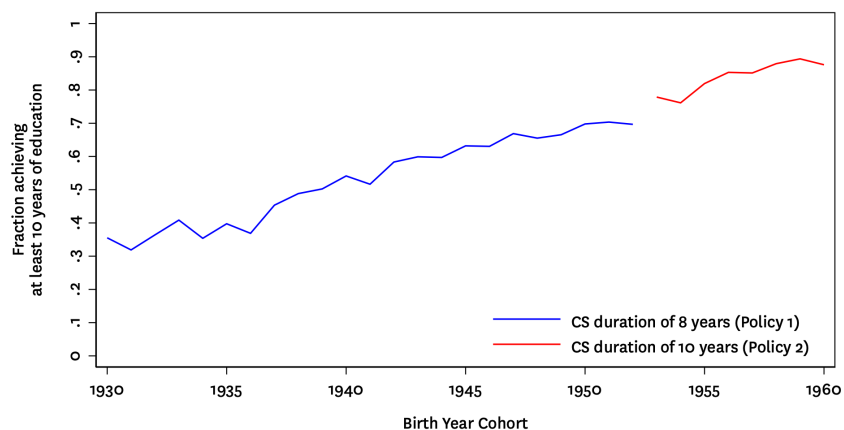


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 21 suggests a gradual increase in the number of people achieving at least 10 years of education between 1930 and 1960, with an increase of about 10 percentage points achieving this level of schooling for people born in 1953 (the first cohort affected by the 1959 reform) relative to those born in 1952. The 1959 reform is the only compulsory schooling reform in France affecting the SHARE sample.

Figure 21: France — Fraction completing at least 10 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 20.

11. Germany

Polycymaking context

Germany has been in its current territorial form since its reunion as the Federal Republic of Germany in October 1990. Over the course of the 1900s, present-day Germany underwent a number of governmental and territorial changes. Although the official designation of the state remained the “German Empire” from the beginning of the 20th century through the end of World War II, the country can be conceived of as transitioning through three distinct political eras over the first half of the century: the second German Empire (until 1918); the Weimar Republic (1918-1933); and the third German Empire (Nazi Germany, 1933-1945). Following the Second World War, the German Empire was separated into the German Democratic Republic (East Germany, 1949-1990) and the Federal Republic of Germany (West Germany, 1949-1990).

Policy history

Before separation

During the era of the Weimar Republic, the 1919 Weimar Constitution mandated compulsory schooling in Germany to be 8 years in duration. At a minimum, these 8 years of schooling would be fulfilled in the elementary school, known as Volksschule at the time (Reich President, 1919; SPLASH-db.eu, 2015b). The Weimar Constitution, along with the 1920 “Law Concerning Elementary Schools and the Abolition of Preschools,” established a common primary school (Grundschule), which comprised the first half of Volksschule (grades 1-4) for all students. During this era, Germany maintained a 3-track education system in which students attended: 1) the upper level (grades 5-8) of the public elementary school (Volksschul-Obersstufe) or a 4- to 6-year middle school that led to less technical occupations; 2) a technical vocational track which could extend up to 9 years; or 3) a 9-year course of study at Gymnasium that qualified students for higher education.

In 1938, the *Compulsory Schooling Act* of the German Reich was ratified. This act affirmed the length of compulsory schooling at 8 years of primary school and defined the starting age as the year a child reaches age 6 before June 30th (verfassungen.de, 1938). The law also required that students attend 2-3 years of vocational school and training following the obligatory 8 years of elementary school (SPLASH-db.eu, 2015a). The additional compulsory years of vocational schooling could be avoided with military service, employment, or attending a university or other approved education (verfassungen.de, 1938). Following the end of the Second World War, the German state split into East and West Germany and those two states followed different paths for their respective education systems.

East Germany

The first law shaping compulsory schooling in East Germany, the “Law for the Democratization of the German School,” was adopted by the five Länder in the Soviet Zone in 1946 (before the official designation of the territory as the German Democratic Republic). The 1946 law specified that basic compulsory schooling would comprise 12 years starting at age 6; 8 of these years were spent in the primary or elementary school (Grundschule) followed by vocational training in years 9-12 if not attending another type of school such as the technical school (Fachschule) or the advanced high school (Oberschule). The 1950 *Compulsory Schooling Act* retained the duration of compulsory schooling (SPLASH-db.eu, 2014c; verfassungen.de, 1950). In 1959, school reform laws in East Germany changed the structure of the school system such that compulsory schooling would be fulfilled by 10 years in a common Polytechnic High School (Polytechnische Oberschule) plus at least two years in either vocational training (Berufsschule) or a course of study in the Extended High School (Erweiterte Oberschule) (SPLASH-db.eu, 2015c; verfassungen.de, 1959). These requirements were upheld in subsequent legislation in 1965 (verfassungen.de, 1965). No other legislative change took place in East Germany until the unification of East and West Germany.

West Germany

In West Germany, compulsory schooling policy was set by individual states. Hamburg and Berlin introduced a 9th compulsory year in 1949, while most other states did so during the 1950s. The first collective compulsory schooling reform across the West German states took place in 1964 when the Hamburg Accord (building on the 1955 Düsseldorf Accord) between the ministers of education from each of the West German states agreed that the compulsory schooling length should increase by 1 year (Pischke & von Wachter, 2005). Under this legislation, the 4-year lower secondary school (Hauptschule) was extended to 5 years, and children would, at a minimum, attend school from age 6 to 15. After 9 years of full-time compulsory schooling, a student would be obliged to attend around 3 years of vocational training. The Hamburg Agreement also made more provisions to transfer from the Hauptschule to the Realschule (to receive advanced technical training which qualifies for entry into a technical college), or from either of these two schools to the Gymnasium for

academic training.

Post reunification

Following the reunification of the German states in 1990, compulsory schooling continued to follow the system of West Germany: in general, it required at least 9 years of full-time education starting at age 6. Following 4 years of primary school (Grundschule), German children have the freedom to choose from alternative educational tracks (provided they satisfy requirements for entry): the 5- to 6-year Hauptschule, which is a vocational track geared towards learning a trade; the 6-year Realschule, which is geared towards a more technical occupation; and the 9-year Gymnasium, which is the advanced academic preparatory track for University entrance. Compulsory schooling laws at the state level continued to evolve following reunification. These will be detailed in a future version.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 10 for East Germany and in Table 11 for West Germany

Table 10: Germany (East)–Compulsory Schooling Ages (1912-1990)

Birth Date	Start Age	Leaving Age	Duration
July 1912 - June 1948	7	14	8
July 1948 - June 1975 (potentially as early as July 1944)	7*	16*	10
July 1975 - 1990	7	15	9

Source: Reich President (1919) and verfassungen.de (1938, 1950, 1959, 1965)

Notes: Measures are based on a person born before July. Starting ages are therefore 1 year later than the age in law.

* From 1950, successive education reforms changed the wording of the starting age (see discussion) such that we are uncertain if the policy increased the starting age in the school system by 1 year, which would effectively delay the leaving age by 1 year. For now, we have maintained the effective starting age prior to the German Democratic Republic's 1950 reform.

Table 11: Germany (West)–Compulsory Schooling Ages (1912-1990)

Birth Date	Start Age	Leaving Age	Duration
July 1912 - Varies	7	14	8
July 1933 - 1990 (Hamburg)	7	15	9
July 1940 - 1990 (Schleswig-Holstein)	7	15	9
July 1942 - 1990 (Bremen)	7	15	9
July 1946 - 1990 (Lower Saxony)	7	15	9
July 1948 - 1990 (Saarland)	7	15	9
July 1952 - 1990 (Baden-Württemberg, Hesse, North Rhine-Westphalia, Rhineland-Palatinate)	7	15	9
July 1954 - 1990 (Bavaria)	7	15	9

Source: Pischke and von Wachter (2005), Reich President (1919), and verfassungen.de (1938)

Notes: Measures are based on a person born before July. Starting ages are therefore 1 year later than the age in law. Extension of the compulsory schooling duration from 8 to 9 years occurred at the state level, indicated in the parentheses.

A school year (SY) in Germany is from September to August of the following year, with classes typically completed in June. A person begins primary school at the start of the SY after they are age 6 on June 30th. We measure our schooling ages based on people born before July of a calendar year. Therefore, our reported starting ages are generally 1 year after the compulsory starting age. An alternative representation for those born after June would be to maintain the same schooling duration, but shift the starting and leaving age 1 year earlier.

The Weimar Constitution provided the first indication of a compulsory schooling duration. It was effective from August 1919, likely affecting SY 1919-20. We determined the first cohort likely to be fully impacted by this policy as those born from July 1912, although it likely affected earlier cohorts as well.

For the reforms in East Germany, the 1950 reform increased the starting age by one year, but did not affect the duration of compulsory schooling. The 1950 reform, effective December 1950, states that 8 years of schooling are compulsory for children from the age of 7. It is unclear from the legislation whether the intent was to delay the starting age by 1 year or the wording was an alternative framing for the starting age. We could not identify any secondary sources that suggest raising the starting age for compulsory schooling was part of intended reforms. Consequently, we interpret this law as maintaining the policy that was in place, although it may have altered other aspects of the educational system.

The 1959 East German reform, enacted in December 1959, increased compulsory schooling duration but was gradually implemented through Autumn 1964 (verfassungen.de, 1959, §1). Therefore, we expect that it would have been effective for SY 1964-65, which would have first affected people born during or after July 1948. The gradual implementation of the law means that changes may be observed as early as the SY following the enactment, which would be SY 1960-61. Hofmarcher (2021) similarly identifies this policy reform as an increase in compulsory schooling from 8 to 10 years, starting in the 1964-65 SY. However, their approach is to use the reform that affected the largest population (i.e. the reform in the most highly populated state) as the pivotal birth year across the country. Thus, Hofmarcher (2021) uses the reforms implemented in SY 1967-68 in the four largest West German states only since this policy affected a large share of the German population. As such, they do not report a first cohort affected by this policy in East Germany. We were not able to identify research that has used compulsory schooling reforms in East Germany.

For reforms after the formation of the Federal Republic of Germany, we rely on state-level policies documented in Pischke and von Wachter (2005, Table 1). Different studies such as Schneeweis, Skirbekk, and Winter-Ebmer (2014) and Crespo et al. (2014) explore changes in compulsory schooling at the individual state level for West Germany, but their values are based on Pischke and von Wachter (2005). We adjust the start dates of Pischke and von Wachter (2005) to account for the start and end of the German school years. When reporting a general value for West Germany, we use the date for increasing the compulsory schooling duration in the Hamburg Accord, which was SY 1967-68 that would have affected people born during or after July 1952.

Following reunification, compulsory schooling in East Germany reverted back to the West German laws, which we record as being effective beginning in SY 1990-91 and impacting people living in the former German Democratic Republic born during or after July 1975.

The figure below summarizes Germany (East)'s policy on the age compulsory schooling ends based on birth year from 1900 to 1990. In East Germany, there was one compulsory education reform increasing the school schooling duration from 8 to 10 years for birth cohorts from July 1948.

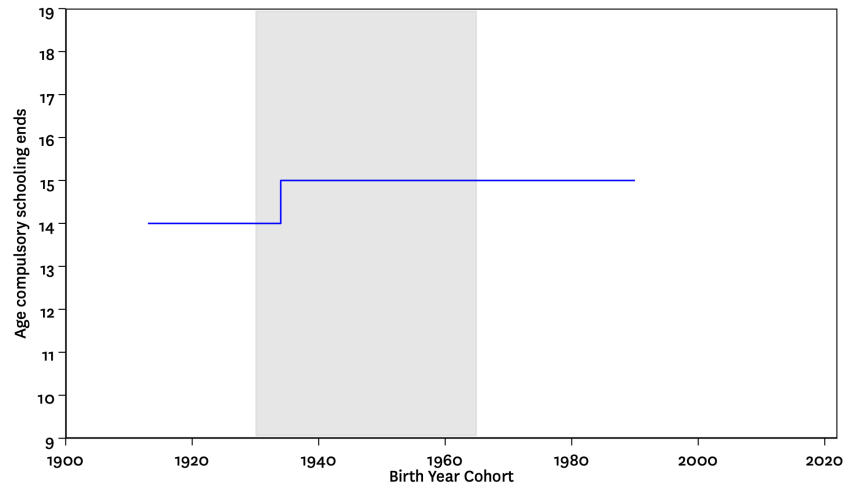
Figure 22: Germany (East)— Age compulsory schooling ends by birth year



Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

The figure below summarizes Germany (West)’s policy on the age compulsory schooling ends based on birth year from 1900 to 1990. In West Germany, there was one compulsory education reform increasing the school schooling duration from 8 to 9 years affecting birth cohorts from 1933 to 1954.

Figure 23: Germany (West)— Age compulsory schooling ends by birth year

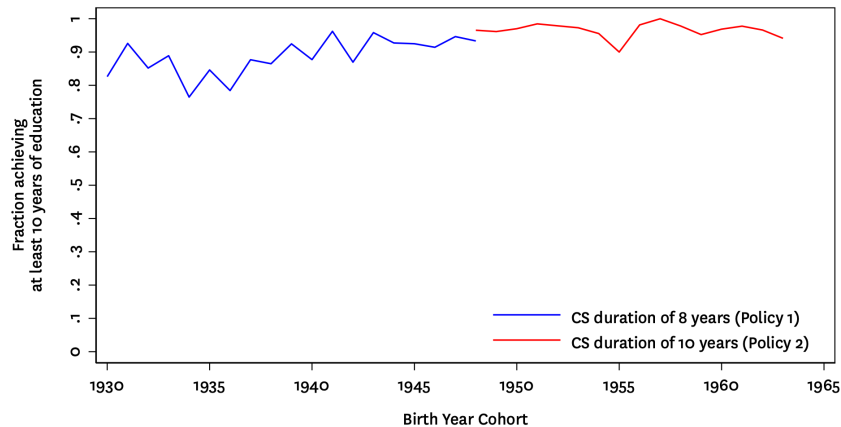


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 24 suggests limited changes in the fraction of the German SHARE sample living in East Germany in 1989 achieving the minimum compulsory schooling duration levels around policy reform dates.

Figure 24: Germany (East) — Fraction completing at least 10 years of education by birth cohort



Source: Author’s analysis of the Gateway’s Harmonized SHARE data (version G) restricted to German respondents who report having lived in the German Democratic Republic in 1989.

Note: Birth year range reduced to match the gray area in Figure 22.

12. Greece

Policymaking context

In 1900, Greece was governed as a monarchy until it was abolished by referendum in 1924. Greece then transitioned to a parliamentary republic, known as the Second Hellenic Republic, which remained in place until 1935 when a military coup returned Greece to a monarchy. In 1940, Italy declared war on Greece while from 1941 to 1944, Germany invaded and occupied Greece. Following liberation, the monarchy remained in place until 1967, when a military dictatorship took power and governed until 1974. In 1974, a new constitution was passed that made the Greek government a parliamentary republic, known as the Third Hellenic Republic. This system of government remains in place today. The role of the president has been mostly ceremonial since 1986.

Policy history

The Greek educational system was fragmented throughout the 1800s. Efforts to unify and broaden the system began with the 1895 law on elementary school education which introduced compulsory primary schooling (Government Gazette of the Kingdom of Greece, 1895). Schooling during this time period was segregated and done in private schools for women (Government Gazette of the Kingdom of Greece, 1895, Article 21, 22). The next major change took place in 1927 when the Constitution of 1927 was ratified and mandated compulsory schooling for 6 years (Republic of Greece, 1927, Article 23). In 1964, legislation was passed to make education compulsory until the age of 15 (Government Gazette of the Kingdom of Greece, 1964, Article 4). However, this reform was revoked three years later in 1967 by the military dictatorship, and the length of compulsory schooling again became 6 years, from ages 6 to 12 (Government Gazette of the Kingdom of Greece, 1967, Article 3). In 1975, during Greece's post-colonial period, the Constitution of 1975 restored compulsory schooling to 9 years (Government Gazette of the Republic of Greece, 1975, Article 16). In 2006 and then again in 2018, the start of compulsory schooling was moved to age 5 and then age 4, making 2 years of pre-primary school mandatory (Eurodyce, 2021a; Government Gazette of the Republic of Greece, 2006, 2018; OECD, 2005). Currently, Greek children start school when they reach the age of 4 and finish compulsory school at the age of 15.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 12.

Table 12: Greece–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - March 1953	7	12	6
April 1953 - March 1954	7	15	9
April 1954 - March 1955	7	14	8
April 1955 - March 1956	7	13	7
April 1956 - March 1965	7	12	6
April 1965 - December 2001	7	15	9
January 2002 - December 2013	6	15	10
January 2014 - Present	5	15	11

Source: Government Gazette of the Kingdom of Greece (1895), Government Gazette of the Republic of Greece (1975), OECD (2005), and Republic of Greece (1927)

Notes: Starting age is based on rules pertaining to admission to primary school (and later pre-primary school). See text for details.

A school year (SY) in Greece is from September to August of the following year, with classes typically completed in June. Since 1995, a person begins primary school at the start of the SY corresponding to the calendar year they reach age 6 (Government Gazette of the Republic of Greece, 1995, Article 10). Prior to that, and as early as at least the 1964 education law, the effective SY of enrollment for compulsory schooling was based on a person being “at least 5 years and 6 months old on October 1 of the school year” (Government Gazette of the Kingdom of Greece, 1964; Government Gazette of the Republic of Greece, 1985, Article 4). We adopt this as the convention for identifying cohorts affected by policy changes prior to 1995. For example, a child born during January–March 1960 would be at least 5.5 years of age in October 1965 and have been able to start primary schooling in SY 1965–66, while individuals born from April–December 1960 would have been able to start in SY 1966–67. A child born April 1960–March 1961 would first enter school in SY 1966–67 in September 1966 between ages 5.5 and 6.5, and they would be aged 6.5 to 7.5 at the end of the SY. We place the starting age as 7 because that is the age achieved by the oldest person in a cohort during their first year of primary school. The leaving age is then determined by the

compulsory school duration from the starting age. An alternative representation for those born between October and March would be to maintain the same schooling duration, but shift the starting and leaving age 1 year earlier.

Prior to the 1964 law, legislation regarding compulsory schooling was difficult to interpret. The 1895 law makes clear that primary schooling is compulsory and kindergarten concludes at age 6 (Government Gazette of the Kingdom of Greece, 1895, Article 1, 6). It does not clearly state the duration of compulsory schooling, other than to state that for women it is only 4 years long (Government Gazette of the Kingdom of Greece, 1895, Article 21, 22). The 1927 constitution clarifies that primary education is compulsory and duration cannot be less than 6 years (Republic of Greece, 1927, Article 23). Collectively, we interpret these two legal documents as compulsory schooling applying to primary school, which we infer lasts for 6 years (consistent with the 1964 law), and begins the SY after a child reaches age 6.

The 1964 law that extended compulsory schooling to 9 years was enacted in October 1964, so we infer it would have affected SY 1965-66 (Government Gazette of the Kingdom of Greece, 1964). The cohort that was completing its 6th year in SY 1964-65 would be the first affected by the reform, which would include people born during or after April 1953.

The 1964 compulsory schooling reforms were reversed by the 1967 law, which was enacted in September 1967 and which we assume to have been effective for SY 1967-68. As compulsory schooling duration reverted back to 6 years, only the cohort born between April 1953-March 1954 would have made it to their 9th year of compulsory schooling, while each successive year would have had one less year of compulsory schooling until those born during or after April 1956 would have had only 6 years of compulsory schooling. We encourage caution when using these reforms, as we are uncertain whether the compulsory schooling requirements in the 1964 reform were fully implemented given the political changes during this period.

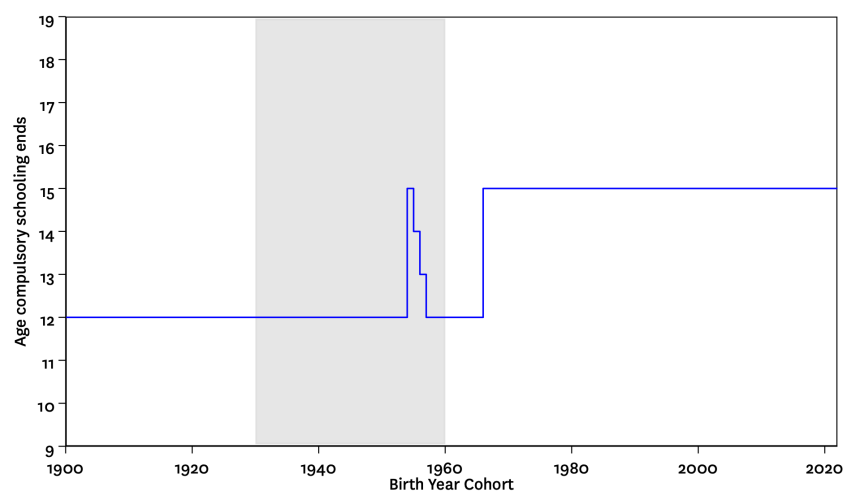
The 1975 constitution that made schooling compulsory for 9 years was enacted on June 11, 1975 (Government Gazette of the Republic of Greece, 1975) and was implemented by the 1976 Education Act, effective April 1976 (Government Gazette of the Republic of Greece, 1976). We assume the change in compulsory schooling duration was effective for SY 1976-77. However, we encourage caution when using these reforms as there seems to be a transition period that delayed the full implementation of this reform for a few years. The cohort that completed its 6th year in SY 1975-76 would be the first affected by the reform, which would include people born during or after April 1965.

The 2006 reform was enacted in December 2006, so we assume it was effective for children reaching a compulsory school age of 5 in SY 2007-2008, which are people born during or after January 2002 (Government Gazette of the Republic of Greece, 2006, Article 73). The 2018 reform was enacted in March 2018, so we assume it was effective for children reaching a compulsory school age of 4 in SY 2018-19, which are people born during or after January 2014 (Government Gazette of the Republic of Greece, 2018, Article 33).

Our dates are 1 year later than Hofmarcher (2021), who had the 1975 policy effective for people born from 1964. These differences are potentially due to our interpretation of the school year timing. We have not yet identified other papers that use Greece's compulsory schooling reforms.

The figure below summarizes Greece's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Greece, there was a compulsory schooling reform in 1964 that was reversed from 1967, potentially affecting people born between 1953 and 1956.

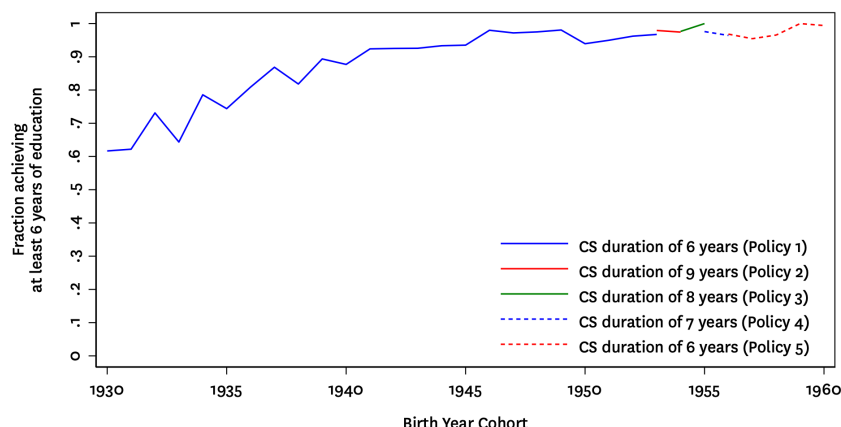
Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Figure 25: Greece— Age compulsory schooling ends by birth year

Educational achievement by respondent characteristics in the HRS-INS

Figure 26 suggest that compliance with the six years of compulsory schooling improved over birth cohorts 1930 to 1945. Figure 27 suggests a gradual increase in the number of people achieving at least 9 years of education, with about 60-70% achieving this level prior to the 1964 reform. The 1964 reform does appear to correspond with a short-term spike in educational achievement for those born between January and March 1954, but we caution that this may be a small sample and further investigation is encouraged.

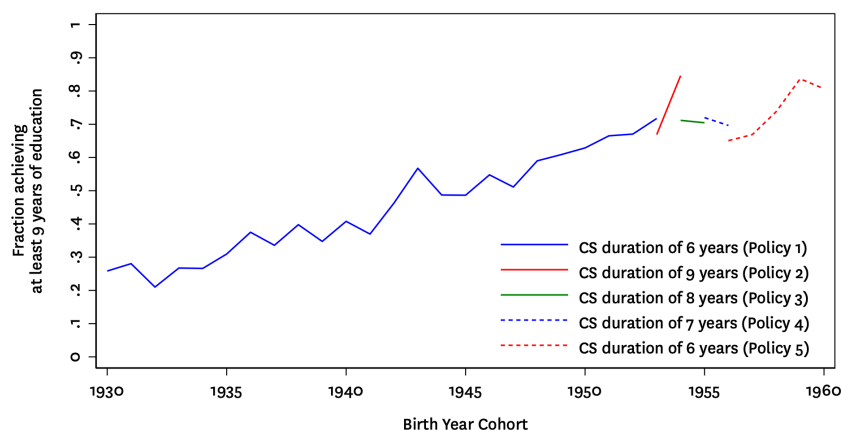
Figure 26: Greece — Fraction completing at least 6 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 25.

Figure 27: Greece — Fraction completing at least 9 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 25.

13. India

Policymaking context

Before 1947, India was divided into territories that were directly under British rule, as well as princely states that were partially administered by the British. In 1947, India became an independent state which experienced multiple territorial changes domestically and internationally. Internationally, India has been facing territorial issues with countries such as China, Pakistan and Nepal. Domestically, India has faced annexations, mergers and partitions within states such as the ones mentioned in the next section.

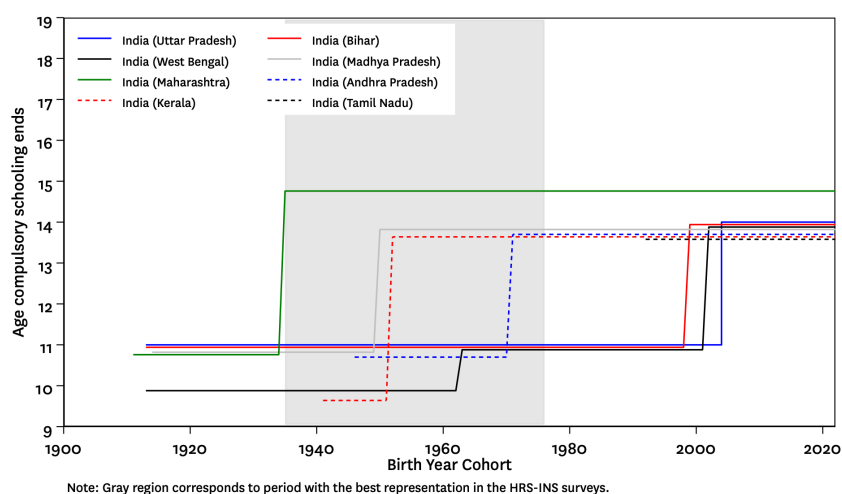
Policy history

The Constitution (Eighty-sixth Amendment Act), 2002 (The Gazette of India, 2002), also known as the Right of Children to Free and Compulsory Education Act (RTE), introduced free and compulsory schooling for Indian children at the national level. This act came into effect on April 1, 2010 (Department of School Education & Literacy, 2023; The Gazette of India, 2009). Before 2010, individual Indian states adopted their own compulsory schooling policies. Free compulsory schooling until age 14 was introduced as a *Directive Principle of State Policy* in the Constitution of India (Government of India, 1950, Article 45) as a guideline for the Indian government when framing educational policies. This was not enforced until the passage of the 2010 law (ACER Centre, 2022; Centre for Policy Research, 1999). We have collected policy information for the 8 largest Indian states in the Harmonized LASI survey, as detailed in the following sections.

Note: Mapping British Indian provinces to modern Indian states is not a straightforward process. The contours of some former British Indian provinces might not necessarily overlap with the contours of modern Indian states. We note when multiple jurisdictions might have influenced present day residents of the states documented.

The figure below summarizes India's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In India, compulsory schooling laws vary by state.

Figure 28: India— Age compulsory schooling ends by birth year



Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Bihar

Bihar and Orissa was an Indian province under British authority that existed until 1936 when it was partitioned into Bihar province and Orissa Province. In 1919, the *Bihar and Orissa Primary Education Act* introduced compulsory schooling in both rural areas and municipalities for children ages 6 to 11 (Bihar and Orissa Government, 1919, Article 2 (2)). After the partition with Orissa, Bihar maintained the same compulsory schooling requirements (Bihar Government, 1961). The *Bihar State Free and Compulsory Education of Children Rules* mandated compulsory schooling for children ages 6 to 14 effective April 2010 (Bihar Government, 2011).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 13.

Table 13: India (Bihar)–Compulsory Schooling Ages (1912-2023)

Birth Date	Start Age	Leaving Age	Duration
May 1912 - April 1998	7	11	5
May 1998 - Present	7	14	8

Source: Bihar and Orissa Government (1919) and Bihar Government (2011)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Bihar is from May to April of the following year.

The 1919 law introduced compulsory schooling for “a boy or a girl who is not less than 6 and not more than 11” (Bihar and Orissa Government, 1919, Article 2(2)). Since schooling required children to reach age 6 before starting school, we set the starting age as the year they reach age 7 and the leaving age at 11 to estimate the duration of 5 years of schooling. Assuming this is valid from SY 1919-20, we estimate that the oldest cohort affected by the reform would have been those people born between May 1912 and April 1913, who would have started school in SY 1919-20 just as they were reaching age 7.

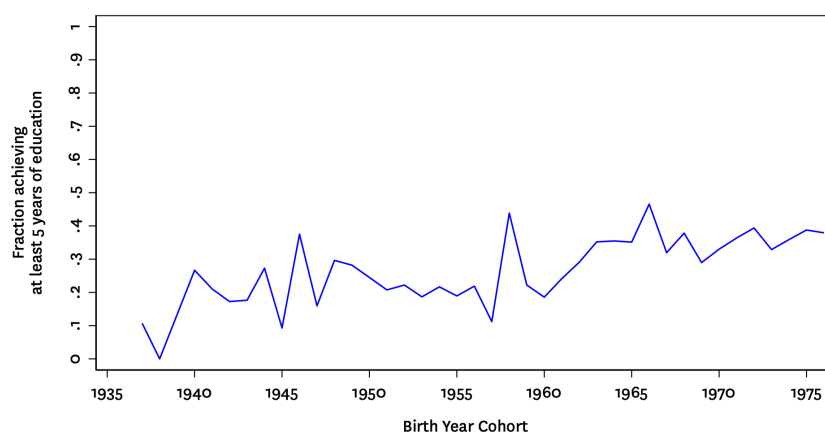
The 2011 law increased the school leaving age to 14 years old (Bihar Government, 2011, Article 1(e)) effective April 2010. Since this is valid from SY 2010-11, we estimate that the oldest cohort affected by the reform would have been those people born between May 1998 and April 1999, who would have completed 5 years of schooling in SY 2009-10, and would have been the first cohort required to complete an 8th year of schooling in SY 2012-13 just as they were reaching age 14.

We have not yet identified research using compulsory schooling laws in Bihar, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 29 suggests that compliance with the five years of compulsory schooling is limited for people born from 1935 to 1976 interviewed in the Longitudinal Aging Study in India (LASI).

Figure 29: Bihar — Fraction completing at least 5 years of education by birth cohort



Source: Author’s analysis of the Gateway’s Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Maharashtra

In 1918, the Bombay Primary Education (District Municipalities) Act, commonly known as the Patel Act, introduced compulsory schooling for children ages 6 to 11 residing in municipal areas in the Bombay Presidency, with the exception of the city of Bombay (Mondal, 2017). In 1920, the City of Bombay adopted its own first compulsory schooling act with the City of Bombay Primary Education Act for children from ages 6 to 11 (Bombay Government Gazette, 1920). In 1923, the Bombay Primary Education Act extended the compulsory schooling requirement to all municipal and rural areas in the Bombay Presidency except for the City of Bombay which had its own regulations (Mondal, 2017). In 1946, the Bombay Presidency became the Bombay State. In 1947, the Bombay Primary Education Act started requiring children ages 6 to 14 to attend school (Government of Gujarat, 1947). Bombay State was divided into Gujarat and Maharashtra in 1960. Maharashtra adopted the policies in place after the division (Government of Maharashtra, 1960).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 14.

Table 14: India (Maharashtra)–Compulsory Schooling Ages (1911–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1911 - December 1934	7	11	5
January 1935 - Present	7	15	9

Source: Government of Gujarat (1947) and Mondal (2017)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Maharashtra is from June to May of the following year, but requires individuals to reach a minimum age before December 31 of the calendar year before they start school.

The 1918 law introduced compulsory schooling for children that have reached age 6 and were not more than 11 (Mondal, 2017). We have been unable to locate the primary source to confirm the changes introduced by this policy. Thus, based on (Mondal, 2017), we set the starting age as the year they reach age 7 and the leaving age as the year they reach age 11 to determine the duration of 5 years of schooling. Assuming this is valid from SY 1918–19, we determine that the oldest cohort affected by this reform would have been those people born in 1911, who would have started school in SY 1918–19 just as they were reaching age 7.

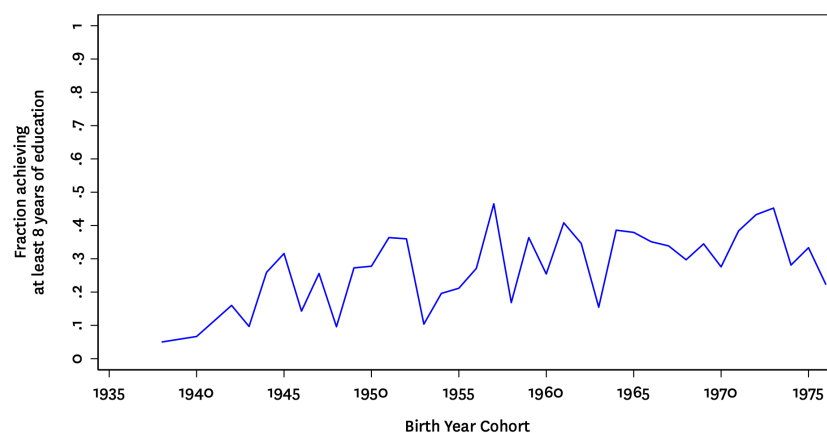
The 1947 law changed the school leaving requirements to individuals that were “not more than fourteen years at the beginning of the school year” (Government of Gujarat, 1947, Article 2(7)). We set the starting age as the year they reach age 7 and the leaving age as the year they reach 15 to determine the duration of 9 years of schooling. Assuming this is valid from SY 1947–48, we determine that the oldest cohort affected by this reform would have been those people born in 1935, who would have started school in SY 1942–43 just as they were reaching age 7, would have completed their 5th year of schooling in SY 1946–47, and so would have been the first cohort required to stay for a 6th year of schooling in SY 1947–48.

We have not yet identified research using compulsory schooling laws in Maharashtra, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 30 suggests that compliance with the change to 8 years of compulsory schooling is limited for people born from 1935 to 1976 interviewed in the LASI.

Figure 30: Maharashtra — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Tamil Nadu

In 1920, the Madras Presidency adopted the Madras Elementary Education Act, which gave local municipalities the option of adopting compulsory schooling policies if they “declared by resolution [their] readiness to levy taxes” to cover the expenses of adopting this policy (Madras Government, 1920). In 1969, Madras State was renamed Tamil Nadu. The Tamil Nadu Compulsory Elementary Education Act of 1998 required children from ages 6 to 14 to attend primary school (Tamil Nadu Government Gazette, 1994). The Tamil Nadu Right of Children to Free and Compulsory Education Rules of 2011 (Tamil Nadu Government Gazette, 2011) maintained the compulsory schooling requirements for children ages 6 to 14.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 15.

Table 15: India (Tamil Nadu)–Compulsory Schooling Ages (1991–2023)

Birth Date	Start Age	Leaving Age	Duration
June 1991 - Present (Local municipalities may adopt compulsory schooling requirements before this)	7	14	8

Source: Tamil Nadu Government Gazette (1994)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Tamil Nadu is from June to May of the following year.

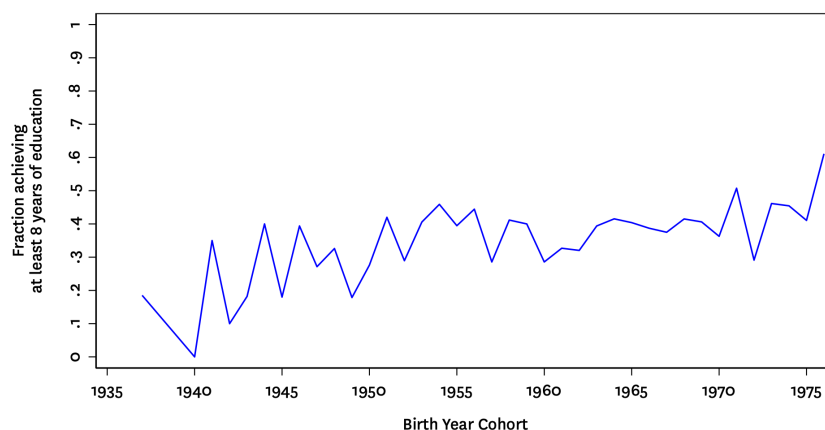
The 1998 law required children to attend school from the moment they reach age 6 until they have reached standard V in primary school or have reached age 14 (Tamil Nadu Government Gazette, 1994, Article 5). While students may enter mid-SY, we use the age they would reach during the first full SY to determine the starting age. Thus, we set the starting age to 7, the leaving age to 14, and determine the duration of 8 years of schooling. The oldest cohort affected by this reform would have been people born between June 1991 and May 1992, who would have started their first year of school just as they are reaching age 7 in SY 1998–99, and would have completed 8 years of schooling by age 14 in SY 2005–06.

We have not yet identified research using compulsory schooling laws in Tamil Nadu, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 31 suggests that the fraction of the LASI sample from Tamil Nadu and born between 1935 and 1976 with 8 years of compulsory schooling is limited.

Figure 31: Tamil Nadu — Fraction completing at least 8 years of education by birth cohort



Source: Author’s analysis of the Gateway’s Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Uttar Pradesh

The United Provinces of Agra and Oudh (UP) was an Indian province under British authority that existed from 1902 to 1937. In 1919, the United Provinces introduced its first compulsory schooling legislation, the United Provinces Primary Education Act of 1919 (United Provinces Government, 1919), which required children ages 6 to 11 living in UP municipalities that adopted this policy to attend school. The requirement was later expanded to include all areas under the jurisdiction of the UP District Board in the 1926 Primary Education Act (United Provinces Government, 1926). In 1950, United Provinces was annexed with Rampur, Benares, and Theri Garhwal, and became the present-day state of Uttar Pradesh. Uttar Pradesh adopted the policies in place after the territorial reorganization (Ministry of Law and Justice, 1950). In 2011, the Uttar Pradesh Right of Children to Free and Compulsory Education Rules (Uttar Pradesh Gazette, 2011) mandated compulsory schooling for children ages 6 to 14.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 16.

Table 16: India (Uttar Pradesh)–Compulsory Schooling Ages (1912–2023)

Birth Date	Start Age	Leaving Age	Duration
April 1912 - March 2003	7	11	5
April 2003 - Present	7	14	8

Source: United Provinces Government (1919) and Uttar Pradesh Gazette (2011)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Uttar Pradesh is from April to March of the following year.

The 1919 law introduced compulsory schooling for “a child whose age is not less than 6 and not more than 11” (United Provinces Government, 1919, Article 2(2)). Since schooling required children to reach age 6 before starting school, we set the starting age as the year they reach age 7 and the leaving age at 11 to estimate the duration of 5 years of schooling. Assuming this is valid from SY 1919–20, we estimate that the oldest cohort affected by the reform would have been people born between April 1, 1912 and March 30, 1913, who would have started school in SY 1919–20 just as they reached age 7 and would have completed their 5th year of schooling in SY 1923–24 just as they were reaching age 11.

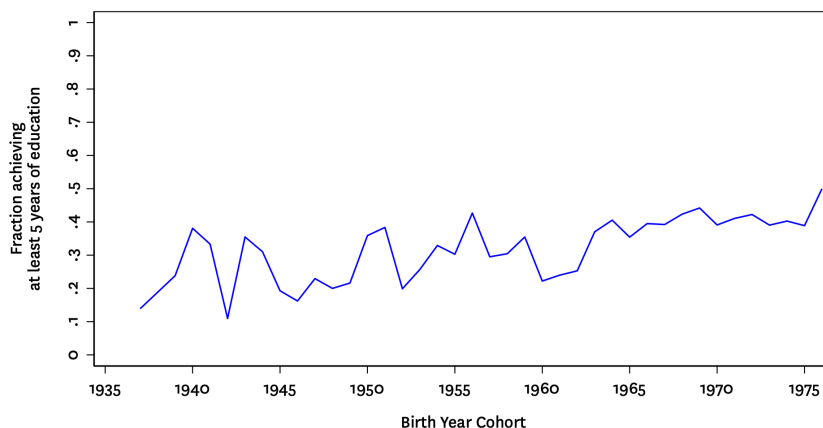
The 2011 law increased the leaving age to 14 (Uttar Pradesh Gazette, 2011, Article 6.4(g)). We set the starting age as the year they reach age 7 and the leaving age at 14 to estimate the duration of 8 years of schooling. Since this is valid from SY 2010–11, we estimate that the oldest cohort affected by the reform would have been people born between April 1, 2003 and March 30, 2004, who would have started school in SY 2010–11 just as they were reaching age 7 and would have completed their 8th year of schooling in SY 2017–18 just as they were reaching age 14.

We have not yet identified research using compulsory schooling laws in Uttar Pradesh, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 32 suggests that compliance with 5 years of compulsory schooling in Uttar Pradesh is limited for people interviewed in LASI that are born from 1935 to 1976.

Figure 32: Uttar Pradesh — Fraction completing at least 5 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

West Bengal

In 1919, the Bengal Primary Education Act introduced compulsory schooling for boys aged 6 to 10 at the municipal level (Mondal, 2017). This was extended to rural areas in Bengal in 1930, and to girls in 1932 (Mondal, 2017). In 1947, Bengal was partitioned into East Bengal and West Bengal. East Bengal became part of Pakistan and West Bengal remained as part of India. In 1973, the West Bengal Primary Education Act maintained compulsory schooling requirements for all children in West Bengal that were between ages 6 and 11 (Calcutta Gazette, 1973). In 2012, the *West Bengal Right of Children to Free and Compulsory Education (Right to Education Protection Authority) Rules* (The Kolkata Gazette, 2012) required children ages 6 to 14 to attend school.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 17.

Table 17: India (West Bengal)–Compulsory Schooling Ages (1912-2023)

Birth Date	Start Age	Leaving Age	Duration
April 1912 - March 1962	7	10	4
April 1962- March 2001	7	11	5
April 2001 - Present	7	14	8

Source: Calcutta Gazette (1973) and Mondal (2017)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in West Bengal is from April to March of the following year.

The 1919 law introduced compulsory schooling for boys ages 6 to 10 (Mondal, 2017). We have been unable to locate the primary source to confirm the changes introduced by this policy. Based on (Mondal, 2017), we set the starting age as the year they reach age 7, the leaving age as 10, and estimate the duration of 4 years of schooling. Thus, the oldest cohort affected by this policy would have been those people born between April 1912 and March 1913, who would have started school in SY 1919-20 just as they were reaching age 7, and would have completed 4 years of schooling in SY 1922-23 just as they were reaching age 10.

The 1973 law required individuals that have “completed six but not eleven years of age at the beginning of the school year” to attend school (Calcutta Gazette, 1973, Article 2(v)). We set the starting age as the year they reach 7, the leaving age at 11, and estimate they would have completed 5 years of schooling. Since this is valid from SY 1973-74 and since the school year starts in April, we estimate the first affected cohort would have been those born between April 1962 and March 1963, who would have started school in SY 1969-70

just as they were reaching age 7, and they would have completed a 4th year of schooling in SY 1972-73 and a 5th year of schooling in SY 1973-74.

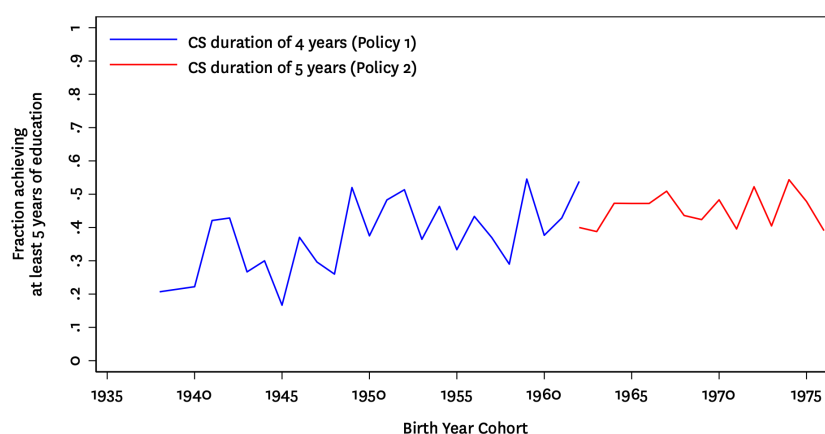
The 2012 law increased the school leaving age to 14 (The Kolkata Gazette, 2012, Article 2). We set the starting age as the year they reach 7, the leaving age at 14, and estimate they would have completed 8 years of schooling. The oldest cohort affected by this policy would have been those born between April 2001 and March 2002, who would have started school in SY 2008-09 just as they were reaching age 7, and they would have completed 5 years of schooling by the end of the SY 2012-13, and would have been the first cohort required to complete 3 additional years of schooling by the end of SY 2015-16.

We have not yet identified research using compulsory schooling laws in West Bengal, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 33 suggests that compliance with 5 years of compulsory schooling is limited for people interviewed in LASI born from 1935 to 1976.

Figure 33: West Bengal — Fraction completing at least 5 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Madhya Pradesh

In 1920, the Central Provinces Primary Education Act introduced compulsory schooling for children between ages 6 and 11 (Mondal, 2017). In 1936, Central Provinces merged with Berar and became Central Provinces and Berar. Twenty years later, in 1956, Vindhya Pradesh, Madhya Barat, and Bhopal were incorporated into what is currently known as the state of Madhya Pradesh. Between 1952 and 1961, Vindhya Pradesh, Bhopal State, and Madhya Pradesh introduced primary education acts. The ages affected by compulsory schooling policies introduced in this period have not been identified. In 1961, Chhattisgarh, which was part of Madhya Pradesh until 2000, introduced the Chhattisgarh Primary Education Act, which made education compulsory for children between ages 6 and 14 (Madhya Pradesh Gazette (Extraordinary), 1961). In 2002, this was extended to include children from ages 5 to 14 (Madhya Pradesh Gazette (Extraordinary), 2002). In 2011, the Madhya Pradesh Right of Children to Free and Compulsory Education Rules established compulsory schooling for children from ages 6 to 14 (Madhya Pradesh Gazette, 2011).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 18.

Table 18: India (Madhya Pradesh)–Compulsory Schooling Ages (1913-2023)

Birth Date	Start Age	Leaving Age	Duration
April 1913 - March 1949	7	11	5
April 1949 - March 1996	7	14	8
April 1996 - March 2004	6	14	9
April 2004 - Present	7	14	8

Source: Madhya Pradesh Gazette (Extraordinary) (1961, 2002) and Mondal (2017)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Madhya Pradesh is from April to March of the following year.

The 1920 law introduced compulsory schooling for children between 6 and 11 years old (Mondal, 2017). We set the starting age to the year when they reach age 7, the leaving age at 11, and calculate a duration of 5 years of compulsory schooling. We have been unable to locate the primary source to confirm the changes introduced by this policy. Based on Mondal (2017), we estimate that the oldest cohort affected would have been those born between April 1913 and March 1914, who would start school in SY 1920-21, and would have completed 5 years of schooling in SY 1924-25 just as they were reaching age 11.

The 1961 law required children “not less than six or more than fourteen” to attend school (Madhya Pradesh Gazette (Extraordinary), 1961, Article 2(e)). We set the starting age to the year when they reach age 7, the leaving age at 14, and calculate they would complete 8 years of schooling. The oldest cohort affected by this policy would have been those who would have completed their fifth year of schooling in SY 1960-61. Thus, the first cohort affected by this policy would have been those who were born between April 1949 and March 1950, who would have started school in SY 1956-57 just as they were reaching age 7, and would have completed three additional years of schooling by the end of the SY 1963-64.

The 2002 law lowered the starting age to 5 years old (Madhya Pradesh Gazette (Extraordinary), 2002, Chapter III, Article 12). We set the starting age to the year when they reach age 6, the leaving age at 14, and estimate they had 9 years of compulsory schooling. Thus, the oldest cohort affected by this policy would have been those born between April 1996 and March 1997, who would have started school in SY 2002-03 just as they were reaching age 6 and would have completed 9 years of schooling in SY 2010-11.

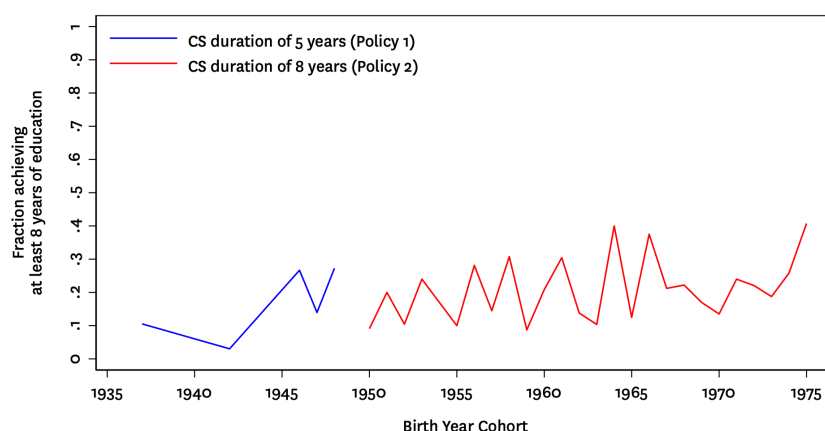
The 2011 law raised the starting age to 6 years old (Madhya Pradesh Gazette, 2011). The oldest cohort affected by this reform would have been those born between April 2004 and March 2005, who would have started school in SY 2011-12 when they reached age 7, and would have completed 8 years of schooling in SY 2018-19.

We have not yet identified research using compulsory schooling laws in Madhya Pradesh, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 34 suggests that there is no discernible increase in the fraction of the LASI sample achieving at least 8 years of schooling for people born after April 1949. More generally, even after compulsory schooling was increased to 8 years from April 1949, compliance with 8 years of compulsory schooling was limited among people interviewed in LASI.

Source: Author’s analysis of the Gateway’s Harmonized LASI data (version A).

Figure 34: Madhya Pradesh — Fraction completing at least 8 years of education by birth cohort

Note: Birth year range reduced to match the gray area in Figure 28.

Andhra Pradesh

In 1920, the Madras Presidency adopted the Madras Elementary Education Act, which gave local municipalities the option of adopting compulsory schooling policies if they “declared by resolution [their] readiness to levy taxes” to cover the expenses of adopting these policies (Madras Government, 1920). In 1953, the Andhra State was created from part of the Madras Presidency. In 1956, Telugu-speaking areas of the Hyderabad State were merged with the Andhra state to form the state of Andhra Pradesh. In 1952, the Hyderabad Compulsory Primary Education Act introduced compulsory schooling for children from ages 6 to 11 (Gazette Extraordinary, 1952). In 1961, Andhra Pradesh introduced a new primary education act. The ages affected by this policy have not been identified. In 1982, the Andhra Pradesh Education Act introduced compulsory schooling for children from ages 6 to 14 (Andhra Pradesh Gazette, 1982). In 2014, the Andhra Pradesh region was divided into two states: Andhra Pradesh and Telangana, with Hyderabad as the capital of the latter. Compulsory schooling for children between ages 6 to 14 was asserted by the Andhra Pradesh Right of Children to Free and Compulsory Education Rules, 2010 (Andhra Pradesh Gazette, 2010) and Telangana Right of Children to Free and Compulsory Education Rules, 2010 (Telangana Gazette, 2010).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 19.

Table 19: India (Andhra Pradesh)–Compulsory Schooling Ages (1945-2023)

Birth Date	Start Age	Leaving Age	Duration
June 1945 - May 1970 (Local municipalities may adopt compulsory schooling requirements before this)	7	11	5
June 1970 - Present	7	14	8

Source: Andhra Pradesh Gazette (1982) and Gazette Extraordinary (1952)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Andhra Pradesh is from June to May of the following year.

The 1952 law required children “not less than 6 and not more than 11” to attend school (Gazette Extraordinary, 1952, Article 2(iii)). We set the starting age as the year they reach age 7 and the leaving age to 11, and use it to determine the duration of 5 years of schooling. The oldest cohort affected by this policy would have been those born between June 1945 and May 1946, who would have started school in SY 1952-53 just as they were reaching age 7, and would have completed 5 years of schooling in SY 1956-57.

The 1982 law required children from 6 to 14 to attend school (Andhra Pradesh Gazette, 1982, Chapter I, Section 2(9)). The oldest cohort affected by this policy would have been people born between June 1970 and June 1971, who would have started school in SY 1977-78 just

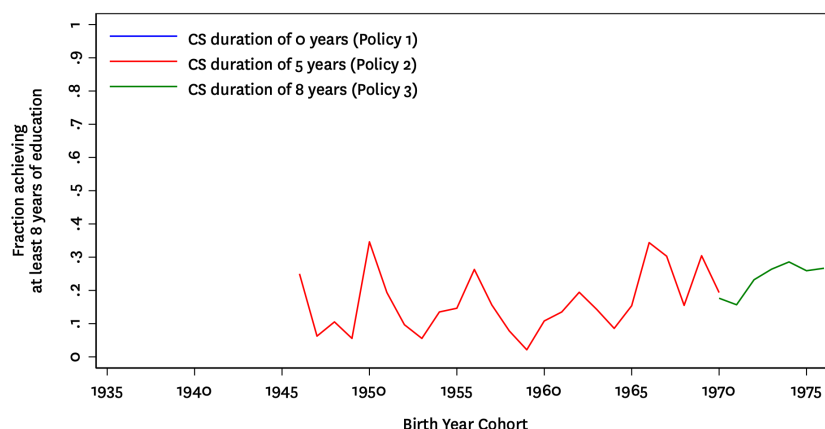
as they were reaching age 7, and would have completed 5 years of schooling in SY 1981-82 and would have been the first cohort required to complete 3 additional years of schooling by the end of SY 1984-85.

We have not yet identified research using compulsory schooling laws in Andhra Pradesh, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 35 suggests that there is no discernible increase in the fraction of the LASI sample achieving at least 8 years of schooling for people born after June 1970. More generally, even after compulsory schooling was increased to 8 years from June 1970, compliance with 8 years of compulsory schooling was limited among people interviewed in LASI.

Figure 35: Andhra Pradesh — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Kerala

In 1920, the Madras Presidency adopted the *Madras Elementary Education Act* which gave local municipalities the option of adopting compulsory schooling policies if they “declared by resolution [their] readiness to levy taxes” to cover the expenses of adopting these policies (Madras Government, 1920). In 1956, the Kasaragod taluk of South Canara District — which was part of the Madras state — the Malabar District, and Travancore-Cochin formed the state of Kerala. Travancore introduced compulsory schooling for children from ages 5 to 10 from 1946 (The Travancore Government Gazette Extraordinary, 1945). We have been unable to find the original legislation and compulsory schooling details for Cochin before it was incorporated into Kerala. In 1958, the *Kerala Education Act* established compulsory schooling for children from ages 6 to 14 based on the *Travancore Primary Education Act, 1121*, *Cochin Free Compulsory Primary Education Act, XI of 1123* and the *Madras Elementary Education Act* (Kerala Gazette Extraordinary, 1958). These compulsory schooling requirements were reiterated by the Kerala Right of Children to Free and Compulsory Education Rules in 2011 (Kerala Gazette Extraordinary, 2011).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 20.

Table 20: India (Kerala)–Compulsory Schooling Ages (1958-2023)

Birth Date	Start Age	Leaving Age	Duration
June 1940 - May 1951	6	10	5
June 1951 - Present (Local municipalities may adopt compulsory schooling requirements before this)	7	14	8

Source: Kerala Gazette Extraordinary (1958) and The Travancore Government Gazette Extraordinary (1945)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age.

The school year in Kerala is from June to May of the following year.

The 1945 law introduced compulsory schooling in Travancore, one of the states that became part of Kerala, for children from ages 5 to 10 years old from 1946 (The Travancore Government Gazette Extraordinary, 1945). We set the starting age as the year they reach age 6, the leaving age at 10 and estimate they would have completed 5 years of schooling. Thus, the oldest cohort affected by this policy would have been born between June 1940 and May 1941, who would have started school in SY 1946-47 just as they were reaching age 6, and would have completed 5 years of schooling in SY 1950-51 just as they are reaching 10 years old.

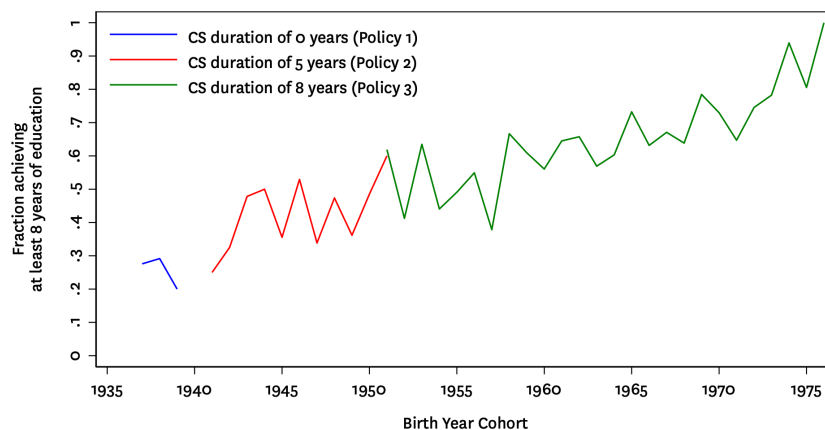
The 1958 law was the first one to introduce statewide starting and leaving ages from 6 to 14 years old (Kerala Gazette Extraordinary, 1958, Article 22(ii)). We set the starting age as the year they reach age 7, the leaving age at 14 and estimate they would have completed 8 years of schooling. Thus, the oldest cohort affected by this policy would have been people born between June 1951 and May 1952, who would have started school in SY 1958-59 just as they were reaching age 7, and would have completed 8 years of schooling in SY 1965-66 just as they are reaching 14 years old.

We have not yet identified research using compulsory schooling laws in Kerala, India.

Educational achievement by respondent characteristics in the HRS-INS

Figure 36 suggests that there was a gradual increase in the fraction of the LASI sample from Kerala having at least 8 years of compulsory schooling, but no clear change associated with the introduction of compulsory schooling in June 1951. Kerala stands out relative to the other Indian states covered in this document for having relatively high rate of the population completing at least 8 years of schooling (greater than 70% by the 1970s).

Figure 36: Kerala — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized LASI data (version A).

Note: Birth year range reduced to match the gray area in Figure 28.

Recent National Policy

In 2020, the National Education Policy was introduced with the aim of strengthening and improving the Indian education system by 2040. One of the goals of this policy is to make education compulsory from ages 3 to 18 (Ministry of Human Resource Development, 2020). Each state is free to implement the changes according to their own timeline.

14. Ireland

Policymaking context

From 1801 to 1922, Ireland was part of the United Kingdom. In 1922, the Irish Free State was established under the Anglo-Irish Treaty ending the Irish War of Independence which lasted from 1919 to 1921. The Anglo-Irish Treaty made Southern Ireland an independent state from the United Kingdom while Northern Ireland remained part of the United Kingdom. Southern Ireland is known as Ireland today.

Policy history

In Ireland, compulsory schooling was introduced under the *School Attendance Act of 1926* for children aged 6 to 14 (Fahey, 1992; Irish Statute Book, 1926). In 1972, the school leaving age increased to 15 years old while retaining the starting age at age 6 (Irish Statute Book, 1972). In 2000, the *Education (Welfare) Act* required all children from ages 6 to 16 to remain in school until age 16 or until completing 3 years of secondary education (Department of Education and Science, 2004; Irish Statute Book, 2000). The second-level education has a 3-year duration (Citizens Information, 2022a), so people usually leave school at age 16 after completing this level. This change was effective from the school year (SY) 2002-03. Today, compulsory schooling in Ireland ranges from age 6 to 16 (Citizens Information, 2022a, 2022b).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 21.

Table 21: Ireland–Compulsory Schooling Ages (1900-2023)

Birth Date	Start Age	Leaving Age	Duration
October 1919 - September 1957	7	14	8
October 1957 - September 1984	7	15	9
October 1984 - Present	7	16	10

Source: Irish Statute Book (1926, 1972, 2000)

Note: Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Duration is imputed based on starting age and leaving age. Cohorts born before October 1919 are subject to the same rules as the UK (England).

The school year in Ireland is from September to August of the following year.

The 1926 law introduced compulsory schooling for children from “the age of 6 years and that have not reached the age of 14” effective May 1926 (Irish Statute Book, 1926, §2). A person is considered to have reached age 6 at the end of the calendar quarter of their 6th birthday (Irish Statute Book, 1926, §3). We interpret this to mean that the effective SY for enrollment is reaching age 6 on or prior to September 30 of the SY starting from that September. We set the starting age as 7, which they reach during the SY. Using the leaving age of 14 stated in the law, we estimate a compulsory schooling duration of 8 years. The oldest cohort affected by the reform would be those people born in October 1919, who would start school in SY 1926-27 just as they are reaching age 7, and would complete the 8th year of schooling in SY 1933-34.

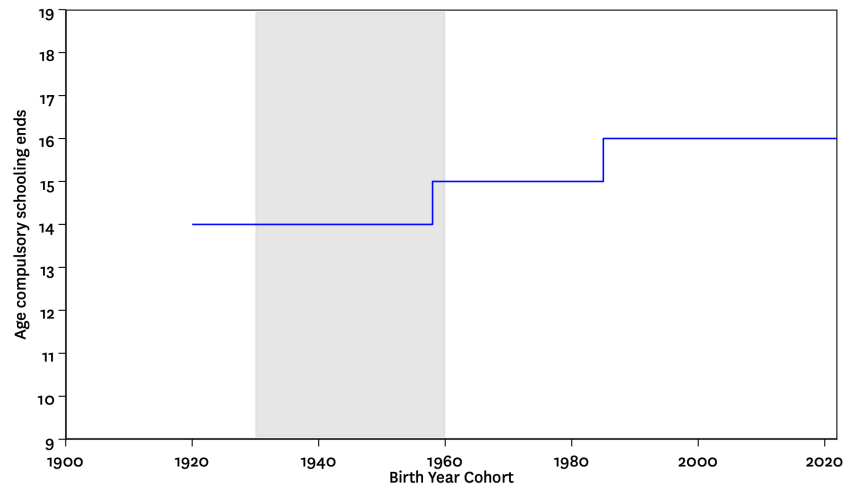
The Irish Statute Book (1972) became effective on July 1, 1972 requiring children that have reached age 14 but not 15 to stay in school (Irish Statute Book, 1972). Since starting age requirements have not changed, we set the starting age as the year they reach age 7, and using the leaving age of 15 stated in the law, we estimate they would have completed 9 years of schooling. The oldest cohort affected by the reform would be those people who were born in October 1957. This cohort would start school in SY 1964-65, would complete their 8th year of education in SY 1971-72, and would be the first cohort required to remain for a 9th year of school in SY 1972-73.

The *Education (Welfare) Act (2000)* changed the school leaving age to 16 (Irish Statute Book, 2000, §31). We set the starting age as the year they reach age 7 and, using the leaving age of 16 stated in the law, we estimate they would have completed 10 years of schooling. The oldest cohort affected by the reform would be those people born in October 1984, who would start school in SY 1991-92 just as they are reaching age 7, would complete a 9th year of education in SY 1999-00, and would be the first cohort required to complete a 10th year of education in SY 2000-01.

The policy most frequently investigated in the literature is the 1972 reform. Hofmarcher (2021) calculates the first birth cohort affected by assuming it would be the same as the birth cohort attending the last grade of compulsory schooling before the policy was implemented. Since the increase in leaving age to 15 was implemented on July 1, 1972, Hofmarcher (2021) states that the first fully affected cohort was born in 1958 and turned 14 in 1972. Additionally, Hofmarcher (2021) indicates that those who had reached age 15 by the beginning of the SY 1972-73 would also be affected by this change. This is consistent with our interpretation of the law as we considered the first cohort affected as the one that was born in October 1957 making the cohort born in 1958 the first fully affected cohort.

The figure below summarizes Ireland's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Ireland, there was one compulsory schooling reform that increased the school leaving age for birth cohorts from October 1957.

Figure 37: Ireland— Age compulsory schooling ends by birth year

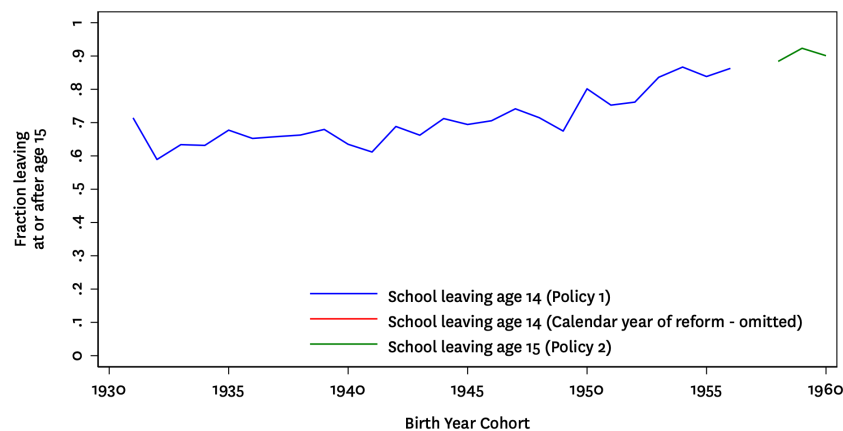


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 38 suggests that 70% or more of people leave school on or after age 15, even though it only became compulsory in 1957. There is not evidence of a notable jump in educational attainment of at least 15 years comparing immediately before relative to immediately after the legislation. There is some evidence of a jump for people born on or after 1951, which is potentially associated with free schooling reforms.

Figure 38: Ireland — Average school leaving age by birth cohort



Source: Author's analysis of the Gateway's Harmonized data (version C) from The Irish Longitudinal Study on Ageing (TILDA).

Note: Birth year range reduced to match the gray area in Figure 37.

15. Italy

Policymaking context

Italy was unified in 1861 and was a parliamentary constitutional monarchy until 1922. From 1922 to 1943 it was a constitutional monarchy under a one-party dictatorship and from 1943 to 1946, the parliamentary constitutional monarchy was restored. In 1946, Italy became a parliamentary republic under its new constitution. The Italian government remains in this form today.

Policy history

In 1900, schooling was compulsory for children ages 6 to 9 (Gazzettaufficiale.it, 1877, Articles 1, 2). In 1904, the Orlando Law was passed, establishing 6 years of compulsory schooling for Italian citizens ages 6 to 12 (Gazzettaufficiale.it, 1904). In 1923, the Gentile Reform took place, making it compulsory for children from age 6 to 14 to attend school (Gazzettaufficiale.it, 1923a). This reform also added a component of lower middle school to compulsory schooling following completion of the fifth grade (age 10). The Gentile reform provided multiple educational tracks after completing the 5th grade of primary school - including a classical education in the liberal arts and sciences, a technical education, a teaching education, and a complementary professional training track (Gazzettaufficiale.it, 1923b). Although the length of each educational track varied, students could leave once reaching age 14 (Gazzettaufficiale.it, 1923a). In 1948, the newly ratified Italian constitution provided for 8 years of compulsory schooling, but the structure established under the Gentile Reform largely remained, allowing for early exit after completion of an educational track or after reaching leaving age (Senato della Repubblica, 1948). The changes introduced by the Gentile reform were not actually enforced until the 1960s. In 1962, Italy consolidated the post-primary educational tracks into a single middle school, of which three years were compulsory (Gazzettaufficiale.it, 1962). This law was effective from 1963. It did not change the compulsory schooling obligation of 8 years from ages 6 to 14 but eliminated a pathway (vocational training) that allowed for early exit. The next change to compulsory schooling reform took place in 1999 when the Berlinguer reform extended the length of compulsory schooling requirement by 1 year and raised the school-leaving age to 15 years old for Italian students (Gazzettaufficiale.it, 1999; Raimondi & Vergolini, 2019). As part of the 2007 budget law, compulsory schooling was further extended to 10 years of education from age 6 to age 16 from the 2007-2008 school year (Gazzettaufficiale.it, 2006, Art. 1, par. 622). Today, compulsory schooling in Italy is 10 years, from ages 6 to 16.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 22.

Table 22: Italy–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - December 1909	7	12	6
January 1910 - December 1983 (potentially only affecting people from January 1950)	7	14	8
January 1984 - December 1990	7	15	9
January 1991 - Present	7	16	10

Source: Gazzettaufficiale.it (1877, 1904, 1923a, 1962, 1999, 2006) and Senato della Repubblica (1948)

Note: Starting ages and leaving ages are established in the law. Duration is imputed based on starting and leaving age. Starting ages are adjusted based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law.

The school year (SY) in Italy is from September to August of the following year. Italian laws from 1877 are not explicit about whether age 6 is measured by the start of the school year, end of the calendar year, or another measure. Presently, initial enrollment is based on reaching age 6 by December 31 of the SY (Ministry of Education and Merit, 2024). Therefore, we treat the effective SY for enrollment as a person being born in the calendar year the SY begins.

The *Coppino Law* in 1877 introduced compulsory schooling in Italy from ages 6 to 9 (Gazzettaufficiale.it, 1877, Article 1, 2). We calculate the duration of schooling in this period to be 3. The 1904 law, effective from January 1, 1904 and affecting the 1904-05 SY, extended the school leaving age to age 12 while keeping the starting age the same (Gazzettaufficiale.it, 1904, Article 1, 2). Schooling in Italy started in September of the SY following a person reaching age 6 (Gazzettaufficiale.it, 1904). Thus, for the 1904 law, we set the starting age as the year they reach age 7 and the leaving age as 12 when they would have completed 6 years of schooling. The youngest cohort affected by

the reform would be those people born in September 1897 who would have been born before 1900 which is not included in the period covered in this document. Thus, for the purposes of this document, we consider January 1900 as the first cohort affected by the 1904 law. Those born in September 1900 would have started school in SY 1907-08 just as they are reaching age 7, and would complete the 6th year of schooling in SY 1912-13.

The Gentile Reform in 1923, effective from SY1923-24, increased the school leaving age to 14 while keeping the starting age of 6 (Gazzettaufficiale.it, 1923a, Articles 1, 2, 29). Based on this, we calculate a duration of 8 years of schooling. We set the starting age as the year a child reaches age 7 and the leaving age as 14 (when they would have completed 8 years of schooling). The oldest cohort affected by the reform would be those people born September 1910, who would start school in SY 1917-18 just as they are reaching age 7. This cohort would complete a 6th year of education in SY 1922-23, and would complete the 8th year of schooling in SY 1924-25.

Published studies focus on the 1963 reform which altered the tracking structure of the school system but did not change compulsory schooling requirements. Crespo et al. (2014) and Brunello et al. (2016) indicate that when the three years of middle school became compulsory in 1963, it affected the cohort born in 1949. Crespo et al. (2014) calculates the birth cohort affected by the 1963 reform by subtracting the mandatory school leaving age of 14 from the year of passage, obtaining 1949. Brunello et al. (2016) determined that the birth cohort affected would be 1949 by subtracting the mandatory school leaving age of 15 from the first year of implementation in 1963. Hofmarcher (2021) calculates the first birth cohort affected by assuming it would be the same as the birth cohort attending the last grade of compulsory schooling before the policy was implemented. Since the reform was implemented in 1963, Hofmarcher (2021) states that the cohort affected is the one born in 1952 that completed the fifth grade in SY 1962-63.

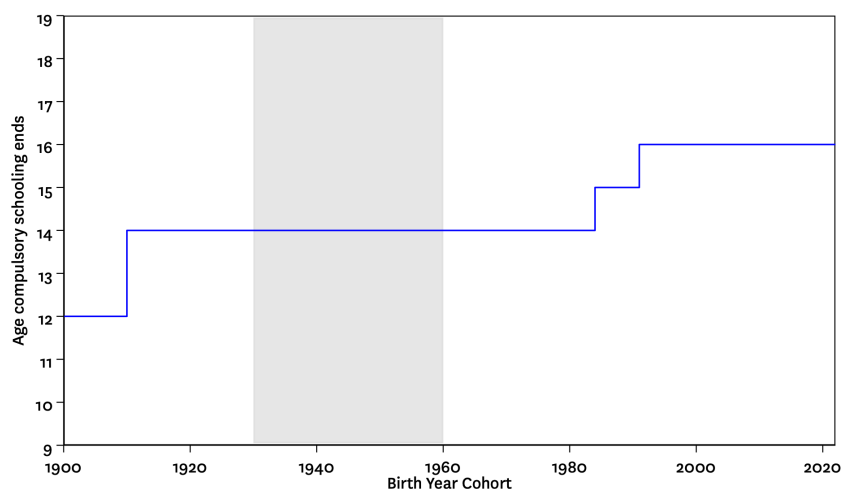
The 1963 reform changed vocational training requirements and created state middle schools but did not officially affect the length of compulsory schooling. However, we consider that it is with the 1963 reform that the compulsory schooling mandate of 8 years was actually enforced. Another aspect of the 1963 reform that may distinguish it from the earlier reforms is that it explicitly states that “compulsory education after primary school is given free of charge in middle school” (Gazzettaufficiale.it, 1962, Article 1), which suggests that secondary education was previously not free of charge.

The 1999 law extended the length of compulsory schooling to 9 years while keeping the starting age as 6 (Gazzettaufficiale.it, 1999). We determined the starting age to be the year a child reaches age 7 and estimate a leaving age of 15 (the year they would have completed 9 years of schooling). The oldest cohort affected by the reform would be those people born in September 1984, who would start school in SY 1991-92 just as they are reaching age 7, and would complete their 9th year of schooling in SY 1999-00.

The 2007 budget law extended compulsory schooling to 10 years while keeping the starting age as 6 (Gazzettaufficiale.it, 2006). We determined the starting age to be the year a child reaches age 7 and estimate a leaving age of 16 (the year they would have completed 10 years of schooling). The oldest cohort affected by the reform would be those people born in September 1991, who would start school in SY 1998-99 just as they are reaching age 7, and would complete the 10th year of schooling in SY 2007-08.

The figure below summarizes Italy's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Italy, there were no compulsory schooling reforms between 1930 and 1960.

Figure 39: Italy— Age compulsory schooling ends by birth year

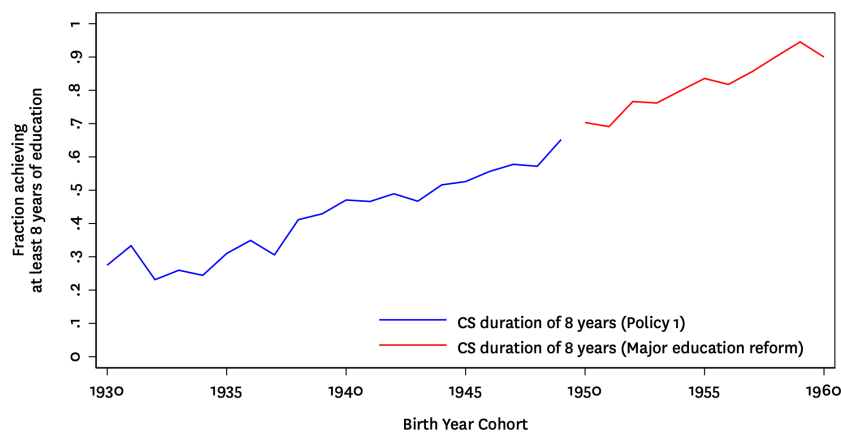


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 40 suggests that compliance with the 8 years of compulsory schooling policy was imperfect, but improved gradually over birth cohorts 1930 to 1960 and only exceeded 90% of the SHARE sample for those born toward the end of the period (late 1950s). There is a jump in the percentage of the SHARE sample achieving at least 8 years of education around the birth cohorts that would have been affected by the 1963 reform (i.e., 1950).

Figure 40: Italy — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 39.

16. Korea

Policymaking context

South Korea has been in its current territorial form since it was formally established as The Republic of Korea in 1948. Throughout the 1900s, what is now South Korea underwent several governmental and territorial changes. The territory was part of the Korean Empire from the beginning of the century until 1911, when it was annexed by Japan. From 1911 to 1945, the territory remained under Japanese colonial rule. Following World War II, Korea was divided along the 38th parallel into northern and southern territories. From 1945 to 1948, North Korea was under Soviet occupation and South Korea was under American occupation and in 1950, the Korean War started. Three years later, the Korean War ended with an Armistice Agreement that retained the division of the Korean peninsula into North Korea (Democratic People's Republic of Korea) and South Korea (The Republic of Korea).

Policy history

Compulsory schooling in South Korea is determined by education levels rather than school starting and leaving age. Primary education, which is 6 years, became compulsory in 1949 under the Education Law (Ministry of Government Legislation, 1949). The law requires six years of primary education for all citizens but doesn't specify an enrollment age. Generally, children attend elementary school from ages 6 to 12 (Ministry of Education, 2020). In 1982, an amendment to the Education Law set the starting age for elementary school as six years old (Ministry of Government Legislation, 1982).

In 1985, an amendment to the Education Law made 3 years of lower secondary school (middle school) compulsory (Ministry of Government Legislation, 1985), increasing the mandatory years of education to 9 years. However, the law specified that the implementation of compulsory lower secondary schooling was to be carried out sequentially. A statement was added about citizens' duty to enroll their children in middle school after they complete elementary school. In 1996, the statement about duty to enroll in elementary school changed to specify a starting age of 6 or 5 if schools have the capacity to accommodate 5-year olds (Ministry of Government Legislation, 1996).

In 1998, the Education Law was repealed and replaced by the Fundamental Act on Education and the Elementary and Secondary Education Act (Ministry of Government Legislation, 1998a, 1998b), however, the compulsory schooling requirement remained 6 years of elementary school and 3 years of middle school. In 2008, the Elementary and Secondary Education Act was amended to specify that while the typical starting age is six, schools may also enroll children at the age of five if they have the capacity to accommodate them (Ministry of Government Legislation, 2008).

Each of the aforementioned reforms include explicit statements that national schools (those managed by the state), public schools (those managed by local governments), and private schools (those managed by private corporations or individuals) were not to collect tuition and fees for compulsory schooling, however, it has been documented that schools in Korea have collected tuition/fees for compulsory schooling as late as 2004 (Ministry of Education, 2020; Ministry of Government Legislation, 2008, 2019a, 2019b, Article 3). Free compulsory primary schooling was intended to be fully implemented by 1959 as part of the Six-Year Compulsory Education Plan (1954-1959), which aimed to increase primary school attendance by building classrooms and acquiring financial resources following the end of the Korean War. While the plan succeeded in raising primary school attendance rates (from below 50% to around 96%) it did not succeed in fully restricting schools from collecting tuition and fees for compulsory schooling (Jeong & Woojin, 2019; Seth, 2002).

Nevertheless, it has been documented in the literature that compulsory schooling related fees are collected in practice even after 1959. Seth (2002) finds that education financing continued to rely on informal methods even after 1959 through gifts to teachers, Parent-Teacher Association (PTA) fees, and the sale of specialized textbooks and study materials used for exam preparation. While voluntary in theory, PTA fees were universally recognized as compulsory by school administrators. The decision to abolish the PTA in 1961, driven by concerns of corruption, marked a significant reform in educational finance. However, the PTA was reinstated in 1970, and a study found that five years after its reinstatement, miscellaneous fees were still being collected.

In 1985, compulsory and free middle school education was partially introduced in islands and remote areas. Free education was expanded to towns and villages in 1994. It began for first-year middle school students in 2002, expanded to second-year students in 2003, and was fully implemented for third-year students across larger cities nationwide by 2004 (Korea Institute of Child Care and Education, 2021; National Archives of Korea, 2023).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 23.

Table 23: Korea–Compulsory Schooling Ages (1943–2023)

Birth Date	Start Age	Leaving Age	Duration
March 1943 - February 1972	7	12	6
March 1972 - Present (March 1979 for villages; March 1989 for larger cities)	7	15	9

Source: Ministry of Government Legislation (1949, 1982)

Note: Starting ages and leaving ages are imputed based on the duration stated in law. Ministry of Government Legislation (1996) is the first law introducing the starting age of 6 or 5 if the schools have the capacity to accommodate 5-year olds. Starting ages are based on a person that has reached age 6 before they start school. Starting ages are therefore 1 year later than the age in law. Ministry of Government Legislation (2008) allowed enrollment of students at ages 5, 6, or 7, keeping age 6 as the standard.

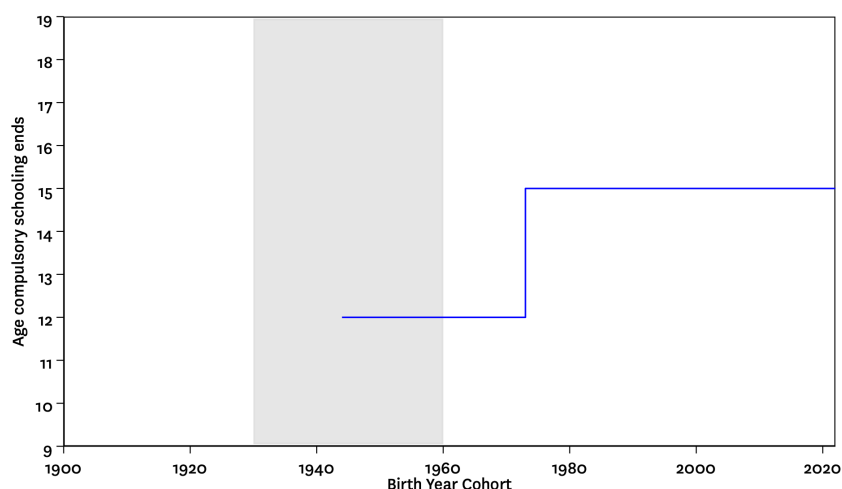
The school year in Korea is from March to February of the next year, with classes typically completed by December.

The 1949 reform introduced compulsory schooling for 6 years of primary education (Ministry of Government Legislation, 1949, Article 8). No specific starting or leaving ages are mentioned in the law until the starting age of 6 is introduced in the 1982 law for the school year following the day after a child turns 6 years old (Ministry of Government Legislation, 1982). Therefore, based on the 1982 law, we determine the starting age to be the year they reach age 7 and estimate the leaving age of 12 (the year they would have completed 6 years of schooling). Since the policy is valid from December 1949, the oldest cohort affected by the reform would be those people born in March 1943. This cohort would start school in school year (SY) 1950–51 just as they are reaching age 7 and would complete a sixth year of education in SY 1955–56.

The 1985 reform required 3 years of secondary education in addition to the 6 years of elementary education (Ministry of Government Legislation, 1985, Article 8). Thus, we determine the school starting age to be the year a child reaches age 7 and estimate the school leaving age of 15 (the year they would have completed 9 years of schooling). Since the policy is valid from SY 1985–86, the oldest cohort affected by the reform would be those people born in March 1972, who would start school in SY 1979–80 just as they are reaching age 7. This cohort would complete a 6th year of education in 1984 and would complete a 9th year of education in SY 1987–88.

We have not yet identified research papers that analyze the causal effects of compulsory schooling laws in Korea.

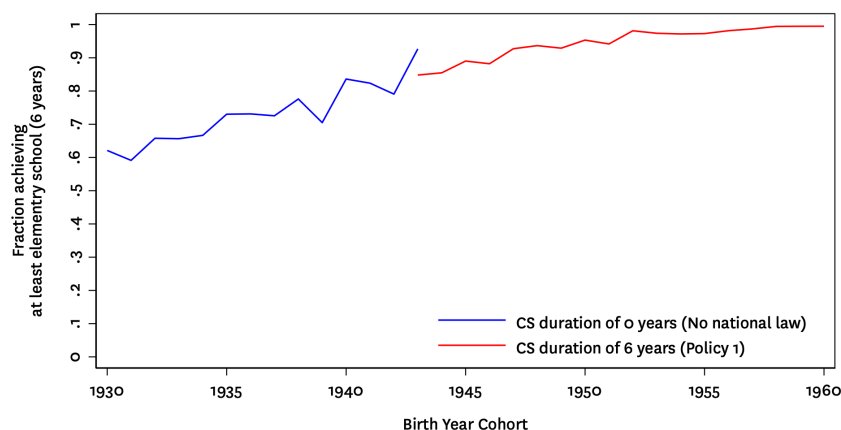
The figure below summarizes Korea's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Korea, the 1949 reform affected people born from March 1943.

Figure 41: Korea— Age compulsory schooling ends by birth year

Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

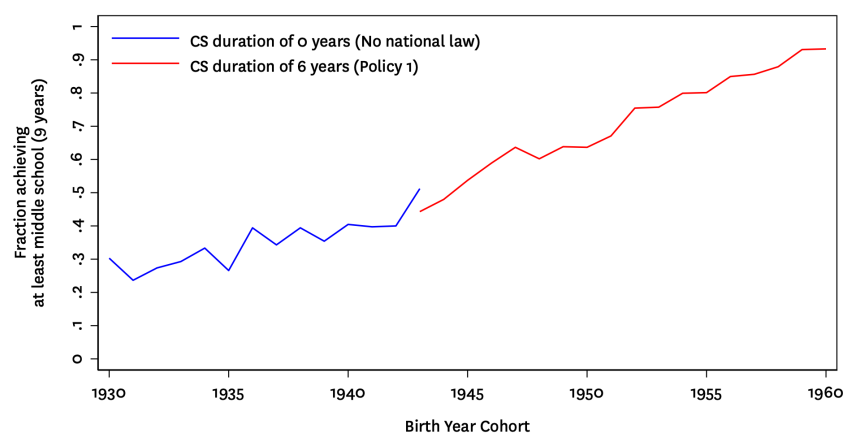
Educational achievement by respondent characteristics in the HRS-INS

Figure 42 reveals that the fraction of those completing at least primary or elementary school increased gradually for cohorts born between 1930 and 1960 in the Korean Longitudinal Study of Aging (KLOSA) sample. No sharp change in educational achievement is observed for those born during or after March 1943— the first birth cohort affected by the 1949 law that made primary education compulsory — relative to respondents born in the months and years immediately prior. The 1985 reform, which affected Koreans born during or after March 1972, required completion of 3 years of middle school. Figure 43 documents lower secondary educational achievement (i.e., middle school) for KLOSA respondents born between 1930 and 1960 who are not affected by that reform. From 1950, we observe a sharp increase in completion of middle school with notable jumps in attainment for those born in 1952 and 1959, suggesting the potential importance of the Six-Year Compulsory Education Plan (1954-1959) and potentially earlier policy innovations in explaining changes in Korean educational achievement for these birth cohorts.

Figure 42: Korea — Fraction completing at least elementary school (6 years) by birth cohort

Source: Author's analysis of KLOSA data (version E.2).

Note: Birth year range reduced to match the gray area in Figure 41.

Figure 43: Korea — Fraction completing at least middle school (9 years) by birth cohort

Source: Author's analysis of KLOSA data (version E.2).

Note: Birth year range reduced to match the gray area in Figure 41.

17. Luxembourg

Polycymaking context

The Grand Duchy of Luxembourg became a constitutional monarchy in 1868 and has mostly remained in its current territorial form since 1900. During World War I, from 1914-1918, and World War II, from 1940-1945, Luxembourg was occupied by Germany. Following the ends of both wars, Luxembourg returned to its previous form of government.

Policy history

In 1900, children were required to begin school if they were 6 years old at the start of the school year, and needed to attend for 6 consecutive years thereafter (Chambre des députés, 1881). Local municipalities had the power to extend the compulsory schooling duration to 7 years. Beginning in 1912, the duration extended to 7 years throughout Luxembourg, with the starting age remaining at age 6, and local municipalities retained the ability to mandate that individuals remain in school for 1 additional year (Chambre des députés, 1912). The Grand-Ducal Decree of May 25, 1945 raised Luxembourg's compulsory schooling duration to 8, again with the option for local municipalities to extend the duration to 9 years (Chambre des députés, 1945). In 1963, the duration was raised uniformly to 9 years throughout Luxembourg (Chambre des députés, 1963). The Grand-Ducal Regulation of October 22, 1976 lowered the school starting age so that individuals ages 5 and over were required to attend school until age 15 (Chambre des députés, 1976). 1992 regulations established that obligatory pre-school education (kindergarten) began at age 4, effective for school year (SY) 1993-94 (Chambre des députés, 1992). However, kindergarten was not considered part of compulsory schooling until 2009 (Chambre des députés, 2009). Also in 2009, the leaving age was raised to 16 (Chambre des députés, 2009). The Chambre des députés raised the leaving age to 18 in 2023, and this change will go into effect in SY 2026-27 (Chambre des députés, 2023).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 24.

Table 24: Luxembourg–Compulsory Schooling Ages (1900-2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - October 1900	7	12*	6*
November 1900 - October 1932	7	13*	7*
November 1932 - December 1948	7	14*	8*
January 1949 - August 1971	7	15	9
September 1971 - August 1987	6	15	10
September 1987 - August 1994	5**	15	11
September 1994 - August 2010	5	16	12
September 2010 - .	5	18	14

Source: Chambre des députés (1881, 1912, 1945, 1963, 1976, 1992, 2009, 2023)

Note: Starting ages are adjusted to reflect the age a person reaches during their first full year of compulsory schooling and are therefore 1 year later than the age stated in the law. Leaving ages are imputed based on the duration stated in the law.

* These leaving ages may be 1 year greater due to power given to local municipalities to extend the duration by 1 year greater than that established for the country.

** Since kindergarten was mandatory beginning in SY 1993-94, we consider it as part of the compulsory schooling period, even though it was not formally recognized as such until SY 2009-10. (Chambre des députés, 1881, 1912, 1945).

In 1900, individuals were required to attend school beginning at age 6 for a period of 6 years (Chambre des députés, 1881). We adjust the starting age forward by 1 year to reflect the age reached during the first year of compulsory schooling. After 6 years of compulsory schooling, people would have left school at age 12.

The 1912 law kept the starting age of 6 and extended the duration to 7 years, effective for SY 1912-13 (Chambre des députés, 1912). The cutoff date for enrollment during this period was November 1. Individuals born November 1900 would be the first affected by this policy. They turned 12 in SY 1912-13; under the previous policy, they would have been able to leave school at this age, but under the new policy attendance was mandated for an additional year.

The 1945 reform required students to attend school beginning at age 6 for an 8-year period, effective for SY 1945-46 (Chambre des

députés, 1945). Individuals born November 1932 would have been the first birth cohort affected by this policy. They would enter school in the school year after they reached age 6 (SY 1938-39). They would reach their 7th year of compulsory schooling in 1945-46 at age 13, when the new policy was adopted, and would need to stay in school for 1 additional year, until age 14.

In 1963, the starting age remained age 6 while the duration increased to 9 years (Chambre des députés, 1963). Children needed to reach age 6 during the calendar year in which the school year began; therefore, we treat January 1 as the cutoff date for enrollment. Individuals born January 1949 would have been the first affected by this policy. They entered school in SY 1956-57 and reached their 8th year of schooling in 1963-64 at age 14. They were newly required by law to remain in school until they reached age 15 in SY 1964-65.

The 1976 regulation, effective SY 1977-78, lowered the school starting age to 5 and kept the leaving age of 15 (Chambre des députés, 1976). We adjust the starting age forward by 1 year, to 6, to reflect the age reached during the first year of compulsory schooling. In addition, this policy also changed the cutoff date for enrollment to September 1. Students first impacted by this policy were born September 1971. They needed to enter school 1 year earlier than the cohorts that preceded them, in SY 1977-78.

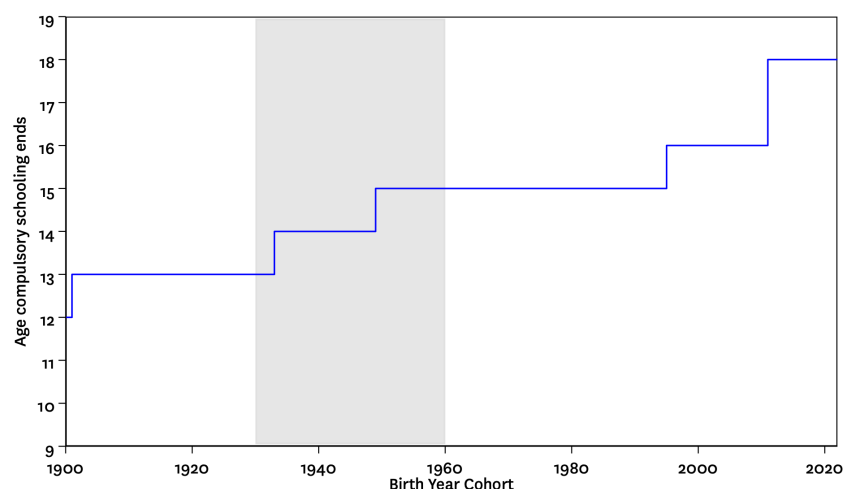
The 1992 reform lowered the school starting age to 4 and kept the leaving age of 15, effective for SY 1992-93 (Chambre des députés, 1976). We adjust the starting age forward by 1 year. People born September 1987 were the first affected; they turned 5 in SY 1992-93.

The 2009 law raised the leaving age to 16, effective SY 2009-10 (Chambre des députés, 2009). Students born September 1994 were the first affected. They reached their 15th year of schooling in SY 2009-10 and now needed to stay in school for 1 additional year, until age 16.

The 2023 law changed the leaving age to 16 and will go into effect for SY 2026-27 (Chambre des députés, 2023). Students born September 2010 will be the first impacted by this change. They will reach their 12th year of schooling in September 2026 and will need to remain in school for 2 more years, until they reach age 18.

Few papers investigate Luxembourg compulsory schooling laws, with the exception of Hofmarcher (2021). Hofmarcher (2021) determined that the 1963 Act increased compulsory schooling requirements by 1 year from age 14 to age 15, affecting those born in 1950. This conclusion is inconsistent with our interpretation of (Chambre des députés, 1963) and was likely due to a difference in calculations.

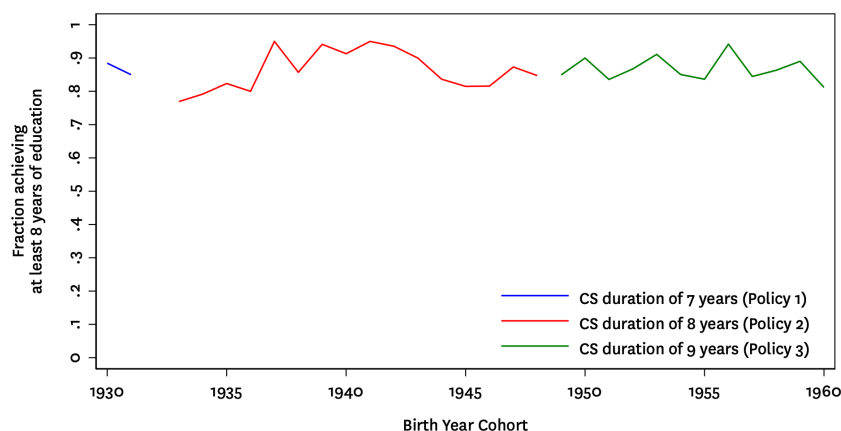
The figure below summarizes Luxembourg's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Luxembourg, there were two compulsory schooling reforms affecting people between 1930 and 1960. The first reform required at least 8 years of schooling for people born from November 1932, while a second reform required 9 years of schooling for people born from January 1949.

Figure 44: Luxembourg— Age compulsory schooling ends by birth year

Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

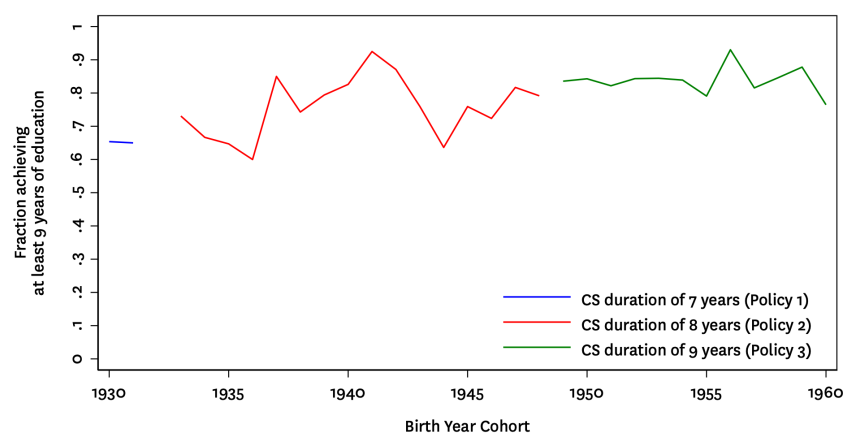
Educational achievement by respondent characteristics in the HRS-INS

Figure 45 suggests there is no discernible change in compulsory schooling achievement before and after the reform affecting the 1932 cohort. The fraction of individuals in the Luxembourg SHARE sample completing at least 8 years of compulsory schooling was approximately 80–95% for people born before between 1930 and 1960. Figure 46 suggests the fraction of people achieving at least 9 years of schooling grew in the years prior to the increase in compulsory schooling to 9 years, but there is no discernible jump around the policy change. From 1949, the fraction with at least 9 years of schooling was relatively steady at around 80%.

Figure 45: Luxembourg — Fraction completing at least 8 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 44.

Figure 46: Luxembourg — Fraction completing at least 9 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 44.

18. Mexico

Policymaking context

Mexico has remained in its current territorial form since 1900. From 1876 to 1911, Mexico was under a dictatorship that ended with the start of the Mexican Revolution. The Mexican Revolution occurred between 1910 and 1920, and ended with the enactment of the Constitution of 1917, which (with amendments) is Mexico's current constitution. The Mexican Revolution represented a pivotal change in the way the government played a role in an individual's life through different public policies. While some of the changes introduced by 20th-century social revolution included universal education, labor rights, land reform and the nationalization of industries such as petroleum, the expansion of access to quality education was and continues to be one of the most important principles initiated by the Mexican Revolution.

Policy history

In Mexico, compulsory schooling is determined by education levels instead of a start and leaving age. Primary education became compulsory in 1934 (Diario Oficial de la Federacion, 1934; National Institute for the Evaluation of Education, 2018). Children in Mexico generally attend primary school from 6 to 12 years old (Embassy of Mexico in Spain, 2021). In 1993, a decree made secondary education compulsory (Diario Oficial de la Federacion, 1993; National Institute for the Evaluation of Education, 2018). Secondary school students in Mexico are generally from ages 13 to 15 (Embassy of Mexico in Spain, 2021). A decree issued in 2002 and effective from the 2004-05 school year included preschool education as part of compulsory schooling (Diario Oficial de la Federacion, 2002; National Institute for the Evaluation of Education, 2018). Children typically attend preschool from ages 3 to 5 (Embassy of Mexico in Spain, 2021). A decree issued in 2006 specified for the first time starting ages to fulfill preschool and primary school requirements (Diario Oficial de la Federacion, 2006). In 2012, upper secondary education, also known as educación media superior, was incorporated into the compulsory schooling requirements (Diario Oficial de la Federacion, 2012). Students generally attend upper secondary school from ages 16 to 18 (Embassy of Mexico in Spain, 2021).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 25.

Table 25: Mexico–Compulsory Schooling Ages (1928–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1928 - December 1980	7	12	6
January 1981 - December 1998	7	15*	9*
January 1999 - December 2000	6	15*	10*
January 2001 - December 2003	5	15*	11*
January 2004 - December 2004	5	18	14
January 2005 - Present	4	18	15

Source: Diario Oficial de la Federacion (1934, 1993, 2002, 2006, 2012)

Note: Initial school enrollment is based on the school year starting in the calendar year a person has reached age 6. Starting ages are therefore 1 year later than the reported school enrollment age in law. Leaving ages are imputed based on the duration of educational levels stated in law.

* These leaving ages may be 3 years greater due to the gradual implementation of the 2012 reform that introduced 3 additional years of education from school year (SY) 2012-13 to SY 2021-22 from cohorts born as early as January 1997 (Diario Oficial de la Federacion, 2012).

The 1917 Mexican Constitution gave the government more control over education. For instance, the 1934 law introduced compulsory schooling for the primary school level (Diario Oficial de la Federacion, 1934). Schooling in Mexico begins in the last days of August, but no specific starting ages, leaving ages or schooling duration are mentioned in the law until 2006. In the 2006 decree, people start primary school if they reach age 6 by December 31st of that year (Diario Oficial de la Federacion, 2006). Based on the 2006 law (Diario Oficial de la Federacion, 2006) and details about schooling duration from Embassy of Mexico in Spain (2021), we determine the starting age to be the SY during which a child reaches age 7, and estimate the leaving age as 12 (after they would have completed 6 years of continuous compulsory schooling). The oldest cohort affected by the reform would be those people born from January 1928. This cohort would start school in SY 1934-35 just as they are reaching age 7, and would complete the 6th year of schooling in SY 1939-40.

The 1993 law made secondary school compulsory, adding 3 additional years to compulsory schooling requirements (Diario Oficial de la

Federacion, 1993, Article 2). Since the policy is valid from March 1993, the first affected SY is SY 1993-94, and the oldest cohort affected by the reform would be those people born January 1981. This cohort would reach age 7 and start school in SY 1987-88, complete a 6th year of education in SY 1992-93, and complete a 9th year of education in SY 1995-96.

The 2002 law made 3 years of preschool education compulsory, but was implemented gradually (adding 1 year at a time) such that a single year of preschool for children starting age 6 was made mandatory in SY 2004-05, 2 years of preschool for children starting age 5 was made mandatory in SY 2005-06, and 3 years of preschool for children starting age 4 was made mandatory in SY 2008-09 (Diario Oficial de la Federacion, 2002, Article 5). Since the gradual implementation starts from SY 2004-05, the oldest cohort affected by the reform would be those people born January 1999. This cohort would start school in SY 2004-05 just as they are reaching age 6, and would complete 1 year of preschool education in that same year. We use the same approach to calculate the birth cohorts affected by the changes implemented in the SY 2005-06 and SY 2008-09. People born from January 2001, who would start school in SY 2005-06 school year as they are reaching age 5, are the first cohort required to complete 2 years of preschool education. People born from January 2005, who would start school in SY 2008-09 as they are reaching age 4, are the first cohort required to complete 3 years of preschool education.

The 2012 law made upper secondary education compulsory, adding three additional years to compulsory schooling requirements. This was implemented gradually from SY 2012-13 to SY 2021-22 for people finishing secondary education by the end of the SY 2011-2012 (Diario Oficial de la Federacion, 2012, Transitional Article 2). Since the gradual implementation starts from SY 2012-13, the oldest cohort affected by the reform would be those people born from January 1997, who would start school in SY 2003-04 just as they are reaching age 7, would complete an 8th year of education by the end of the SY 2011-12, and would start a 9th year of education in the SY 2012-13.

There are some studies that have also explored changes in compulsory schooling requirements in Mexico. For example, for the 1993 reform, Gutierrez, Romero, Allen, Glymour, and Torres (2023) indicate that the compulsory schooling requirement introduced in 1993 increasing the duration of schooling from 6 to 9 years would affect those born in 1979 since they would be the first ones required to complete 9 years of schooling. It is not clear how they determined 1979 as the first birth cohort affected by this policy. On the other hand, Leon-Bravo (2022) indicates that the first cohort affected by the 1993 policy was born in 1981. They state that since the law increased the school leaving age from 12 years to 15 years, the first cohort affected was the one that turned 12 in 1993. Our findings coincide with the ones from Leon-Bravo (2022) considering the first fully affected cohort as those born in 1981.

The figure below summarizes Mexico's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Mexico, compulsory schooling reforms did not alter educational requirements for individuals born between 1930 and 1960.

Figure 47: Mexico— Age compulsory schooling ends by birth year



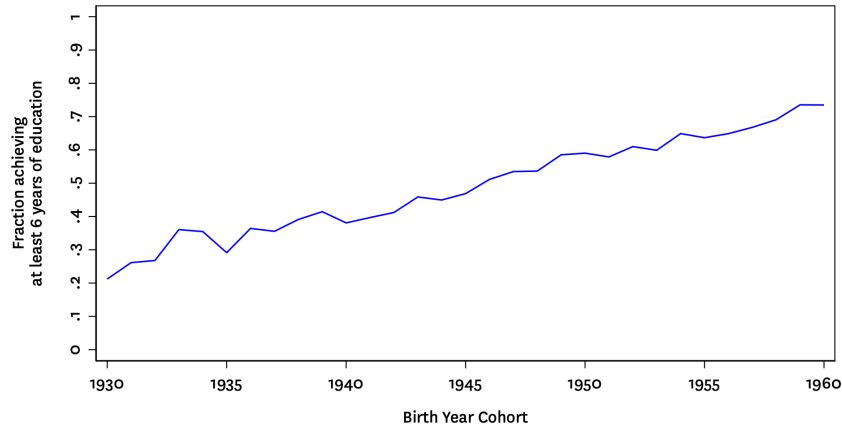
Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 48 reveals that the fraction of people completing at least six years of schooling increased gradually for cohorts born between 1930 and 1960 in the Mexican Health and Aging Study (MHAS) sample. No sharp change in educational achievement is observed over this period. The 1993 reform, which affected Mexicans born during or after January 1981, required completion of 3 years of lower secondary

schooling. Figure 49 documents the fraction of MHAS respondents born between 1930 and 1960 completing 9 years of education (these people would not have been affected by the 1993 reform). As we observed with at least 6 years of schooling, there appears to be general trend towards more people completing at least 9 years of schooling, and there appear to be no distinct jumps in educational achievement during this period.

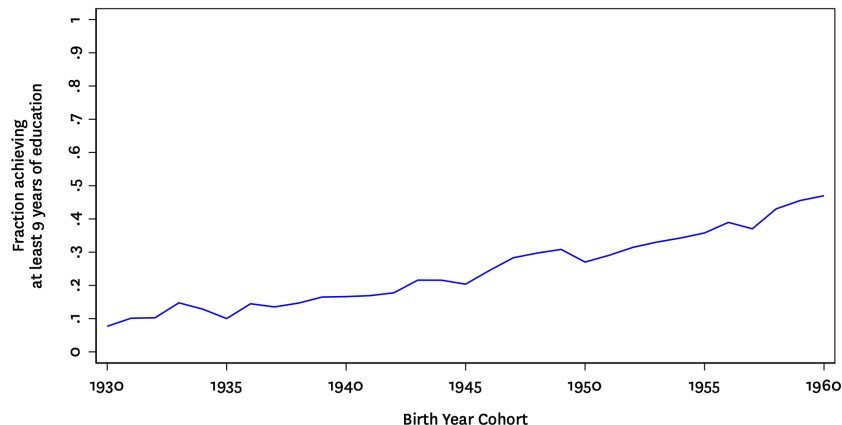
Figure 48: Mexico — Fraction completing at least elementary school (6 years) by birth cohort



Source: Author's analysis of Gateway's Harmonized MHAS data (version C).

Note: Birth year range reduced to match the gray area in Figure 47.

Figure 49: Mexico — Fraction completing at least lower secondary school (9 years) by birth cohort



Source: Author's analysis of Gateway's Harmonized MHAS data (version C).

Note: Birth year range reduced to match the gray area in Figure 47.

19. Netherlands

Polymaking context

The Kingdom of the Netherlands was formed in 1815 as a constitutional monarchy. The country's borders and political system have largely remained the same since 1900 with the exception of the period of German occupation from May 1940 to May 1945, during which time the Dutch government was suspended and a German occupational administration set policy.

Policy history

In 1901, the *Compulsory Education Act* introduced 6 years of compulsory schooling starting from age 7 (Kippersluis, O'Donnell, & Doorslaer, 2011; Staatsblad, 1901a, 1901b). From 1922, a series of reforms increased compulsory schooling to 7 years from age 6, but ultimately delayed the implementation of the extended compulsory duration until 1929. Specifically, in 1922, the *Compulsory Education Act* was amended to extend compulsory schooling from 6 to 7 years starting from age 6 (Kippersluis et al., 2011; Staatsblad, 1921). Then, in 1924, an amendment reversed the 1-year extension to compulsory schooling and reinstated the schooling duration of 6 years (Kippersluis et al., 2011; Staatsblad, 1924) with the intent of later reimplementing the original extension on December 31, 1929 (Staatsblad, 1924). However, in 1928, the date of implementation was moved forward to June 30, 1928 (Staatsblad, 1928), so by 1929, the duration of compulsory schooling was finally increased from 6 to 7 years (Staatsblad, 1929).

In 1942, another amendment extended the length of compulsory schooling from 7 to 8 years (Bakker, Noordmann, & Wingerden, 2006; Kippersluis et al., 2011). However, its enforcement was deferred to January 1, 1950 (Kippersluis et al., 2011; Staatsblad, 1947).

In 1969, the *Compulsory Education Act of 1969* (Leerplichtwet 1969), further extended the school duration to 9 years, effective from January 1, 1969 (Staatsblad, 1968). Another reform in 1975 extended the compulsory schooling duration to 10 years (Kippersluis et al., 2011; Staatsblad, 1975). Children would be eligible to leave school after receiving 10 years of compulsory schooling or when they turn 16 years old.

Ten years later in 1985, the *Primary Education Act of 1985* [Wet op het Basisonderwijs 1985] merged nursery with primary school, which created the possibility of starting schooling earlier at age 4 (Staatsblad, 1981), but the compulsory schooling starting age specified in the law was age 5 (Kippersluis et al., 2011). In 2007, a reform introduced a new requirement to compulsory schooling: students under age 18 need a basic qualification such as HAVO (general secondary education), VWO (pre-university education), or MBO-2 (vocational education) to leave compulsory schooling (Cabus & Witte, 2011; Kippersluis et al., 2011; Overheid.nl, 2007; SPLASH-db.eu, 2014d).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 26.

Table 26: Netherlands–Compulsory Schooling Ages (1894–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1894 - June 1922	8	13	6
July 1922 - December 1936	7	13	7
January 1937 - December 1954	7	14	8
January 1955 - December 1959	7	15	9
January 1960 - July 1980	7	16	10
August 1980 - July 1991	6	16	11
August 1991 - Present	6	18	13

Source: Overheid.nl (2007) and Staatsblad (1901a, 1901b, 1921, 1924, 1928, 1929, 1968, 1975, 1983)

Note: Starting ages, leaving ages and duration are established in the law. Starting ages are adjusted to reflect the age a person reaches during their first full year of compulsory schooling. Starting ages are therefore 1 year later than the age in law.

Currently, the school year (SY) in the Netherlands begins in August or September, but children must enter school immediately upon reaching compulsory schooling age.

The 1901 law introduced compulsory schooling for children that reached the age of 7 for a period of 6 years (Staatsblad, 1901b, Article 3), effective January 1901 (Staatsblad, 1901a). While students may enter mid-SY, we measure start ages based on the age reached during the first full SY. Consequently, we mark the starting age from age 8 at the start of the 20th century. After 6 years of compulsory schooling they would have left school at age 13.

The 1921 law extended compulsory schooling duration from 6 to 7 years and moved the starting age from children that had reached age 7 to age 6 (Staatsblad, 1921, Article IV, VI). Owing to shortages of personnel and resources, the 1924 law effectively delayed many of the measures in the 1921 law until December 31, 1929 including the changes to compulsory schooling duration and starting age (Staatsblad, 1924, Article 1, 2). This was eventually advanced to June 30, 1928 in a series of reforms, but the main provisions of the 1921 reform stood: schooling would start one year earlier and last for 7 years (Staatsblad, 1928, 1929). Therefore, we set the starting age as the SY during which they reach age 7 and estimate the leaving age as 13 as the year they would have completed 7 years of schooling. The oldest cohort affected by the reform would be those people born from July 1922 who would start school in SY 1928-29.

The 1942 law increased the length of compulsory schooling to 8 years, but effective implementation did not take effect until after the war when legislation was passed by the new Dutch government in 1947 that became effective January 1, 1950 and affected SY 1950-51 (Bakker et al., 2006; Kippersluis et al., 2011; Staatsblad, 1947). The oldest cohort affected by the reform would be those people born from January 1937, who would have started school in SY 1943-44 during which they reached age 7. This cohort would have completed their 7th year of schooling in SY 1949-50, and would have been the first cohort exiting school following completion of their 8th year of schooling in SY 1950-51.

The 1969 law increased the length of compulsory schooling to 9 years effective from August 1, 1969 for children that had reached the age of 6 years and 8 months old by the end of the year and not reached age 16 (Staatsblad, 1968, §2). The oldest cohort affected by the reform would be those people born January 1955 who started school in SY 1961-62, during which they reached age 7. This cohort would have completed their 8th year of schooling in SY 1968-69, and would have been the first cohort required to complete a 9th year of schooling in SY 1969-70.

The 1975 law extended the length of compulsory schooling to 10 years effective from August 1, 1975, affecting SY 1975-76 (Staatsblad, 1975, Art. 1). The oldest cohort affected by the reform would have been those people born from January 1960, who would have started school in SY 1966-67 during which they reached age 7. This cohort would have completed their 9th year of schooling in SY 1974-75, and so would have been the first cohort required to complete a 10th year of schooling in SY 1975-76.

A 1983 law, effective August 1, 1985, lowered the start of compulsory schooling to age 5 and clarified that schooling ended after 12 years or at age 16 (Staatsblad, 1983, Articles G1, H4). The oldest cohort affected by the reform were people born from August 1980, who would have started school in SY 1985-86, and would have completed 11 continuous years of schooling in SY 1995-96 when they reached age 16.

The 2007 law introduced additional requirements to leave compulsory schooling effectively increasing the school leaving age to 18 for individuals reaching age 17 after SY 2006-07 (Overheid.nl, 2007, Articles I.E, V, VI). The oldest cohort affected by the reform would have been those people born from August 1991, who would start school in SY 1996-97, would complete a 12th year of schooling in SY 2006-07 when reaching age 17, and would exit compulsory schooling after SY 2007-08.

Dutch compulsory schooling laws examined in published work include the 1942 and 1969 reforms. The 1942 reform, effective from January 1, 1950, is a focal point of work by Hofmarcher (2021) and Crespo et al. (2014) who determine that the 1942 reform affected the 1937 cohort born since that cohort would have to stay an additional year in school after the 7th grade. Alternatively, Mazzonna (2014) indicates that the reform affected those born in 1936. We have been unable to find the original legislation for the 1942 reform to confirm these details. Based on available information, our interpretation of the law is consistent with the findings by Hofmarcher (2021) and Crespo et al. (2014).

The 1969 reform is also a topic of research in Hofmarcher (2021). In this work, the author states that the implementation of the 1969 law was delayed until 1971 such that the birth cohort affected would be born in 1957. Based on the 1969 law, we determined that the first cohort affected by the 1969 reform was born in 1955 assuming the law was implemented in 1969 as originally planned. We identified several reforms of the 1969 law between implementation and 1971, but have found no evidence that the implementation was postponed to 1971 (Staatsblad, 1971b, 1971c). The compulsory schooling law was reissued in 1971 due to many textual changes arising in Staatsblad (1971c), which was effective from August 1971 (see Staatsblad (1971a)).

The figure below summarizes Netherlands's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In the Netherlands, there were three increases in compulsory schooling duration between 1930 and 1965, affecting individuals born during or after January 1937, January 1955, and January 1960.

Figure 50: Netherlands— Age compulsory schooling ends by birth year

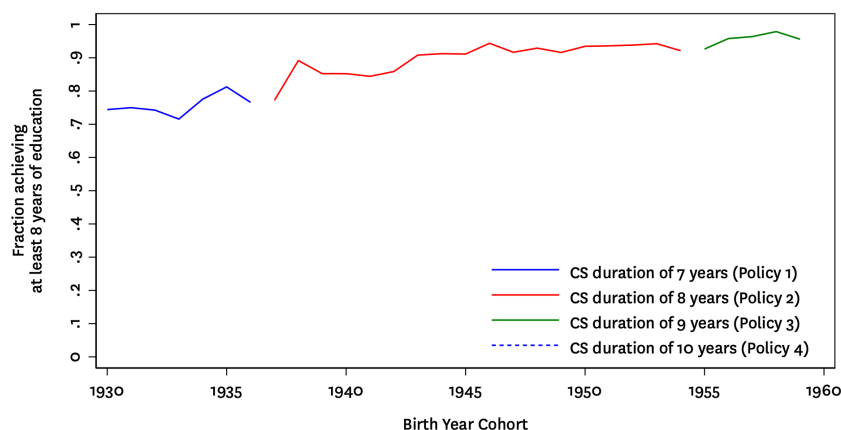


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

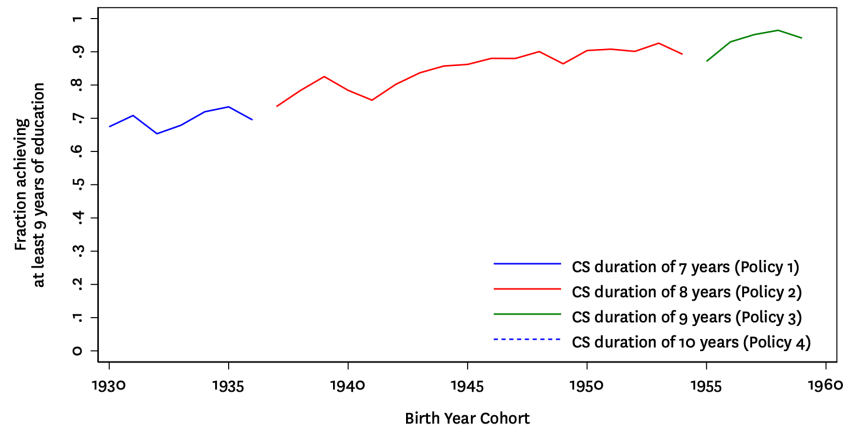
Figure 51 suggests that the fraction of individuals in the Dutch SHARE sample completing at least 8 years of compulsory schooling policy increased after the 1942 law was implemented for those born after 1937, although the data suggest the start date might be one year later than our placement (e.g., starting from January 1938). Subsequent reforms increasing schooling duration to 9 and 10 years from 1955 and 1960, illustrated in Figure 52 and Figure 53, are associated with smaller changes in the fraction of the sample achieving the respective level of compulsory education.

Figure 51: Netherlands — Fraction completing at least 8 years of education by birth cohort



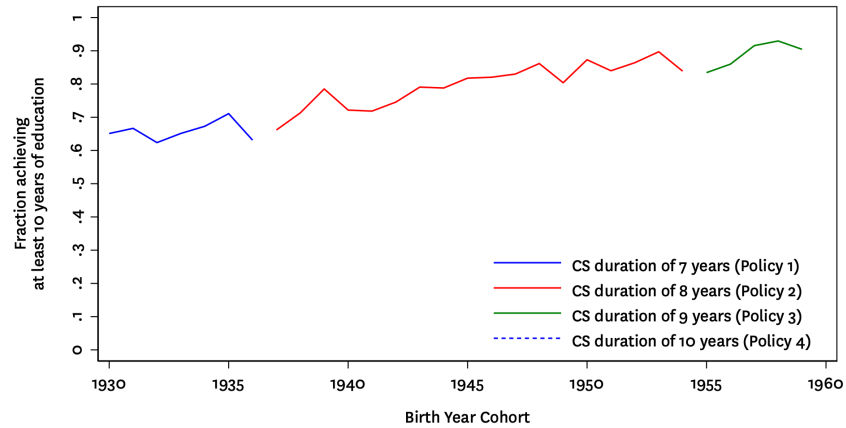
Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 50.

Figure 52: Netherlands — Fraction completing at least 9 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 50.

Figure 53: Netherlands — Fraction completing at least 10 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 50.

20. Northern Ireland (United Kingdom)

Polymaking context

In 1900, Northern Ireland was part of the larger island of Ireland, all of which was under British rule. In 1922, the Anglo-Irish Treaty ended the Irish War of Independence and provided for two states. The southern part of Ireland left the United Kingdom and became what is currently known as the Republic of Ireland. The northern part of Ireland became an independent state of the United Kingdom that is now known as Northern Ireland.

Policy history

Northern Ireland closely followed the education regulations of England until 1921 when it became its own state as part of the United Kingdom with its own parliament and government (Secondary Education and Social Change, 2017). In 1900, the school start age was 5 while the school leaving age was 12. Then, in 1918, the *Education Act of 1918* (UK Parliament, 1918), raised the leaving age to 14. After Northern Ireland became an independent state, the *Education (Northern Ireland) Act of 1947* increased the school leaving age from age 14 to age 15 (Northern Ireland Assembly, 1947). However, this change was not implemented until 1957 (Northern Ireland Assembly, 1953; PRONI, 2007; Silles, 2011; Sutherland, 1982). In 1972, the *Education and Libraries (Northern Ireland) Order of 1972* (Northern Ireland Assembly, 1972, Article 36) raised the school leaving age to age 16 which was effective for children who were 14 years old in 1972 (Silles, 2011). The next change in compulsory schooling in Northern Ireland happened in 1989 with the *Education Report (Northern Ireland) Order 1989*. This policy lowered the start age to age 4 (Northern Ireland Assembly, 1989). This change was not immediate, but was effective from SY 1990-91 (Northern Ireland Assembly, 1990). Children in Northern Ireland are required to attend school from age 4 to 16 today.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 27.

Table 27: Northern Ireland–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1906	6	12	7*
September 1906 - March 1943	6	14	9*
April 1943 - August 1957	6	15	10
September 1957 - August 1985	6	16	11
September 1985 - Present	5	16	12

Source: Northern Ireland Assembly (1947, 1972, 1990)

Note: Starting ages and leaving ages are established in the law. Starting ages are adjusted to reflect the age a person reaches during their first full year of compulsory schooling. Starting ages are therefore 1 year later than the age in law.

* Individual may have a shorter duration by 1 or 2 terms depending on their birth date. These cohorts are subject to the same rules as England.

Currently, the school year (SY) in Northern Ireland begins in September and ends in June. Since Northern Ireland closely followed the same education regulations as England until it became its own state in 1921, this section focuses on policies in place after Northern Ireland became an independent state. For details of educational regulations in Northern Ireland before 1921, see the section for *England*. At present, a person reaching starting age (e.g., age 5), must begin school at the first term after reaching that age (Gov.uk, 2024).

The first education regulation introduced after Northern Ireland became an independent state is the *Education (Northern Ireland) Act of 1947* which increased the schooling leaving age to 15 for individuals that have reached age 5 (Northern Ireland Assembly, 1947, §33) and was effective from April 1, 1957 (Northern Ireland Assembly, 1953, §2). We set the starting age to the year when they reach age 6 (the first full SY after starting compulsory schooling) and the leaving age at 15, from which we estimate they would have typically completed 10 full years of schooling. The oldest cohort affected by the reform would have been those people born from April 1943, who would have started school when reaching age 6 in SY 1948-49, would have completed their 9th continuous year of compulsory schooling in SY 1956-57, and would be the first cohort required to complete an additional year of schooling in SY 1957-58.

The *Education and Libraries (Northern Ireland) Order of 1972* raised the minimum leaving age to 16 (Northern Ireland Assembly, 1972, §36(1, 2)) effective September 1, 1973, and introduced the following provisions for people reaching age 16:

- February 1-August 31: If reaching age 16 in this time frame, they must stay in school until the end of the summer term of the SY in which they reach 16. The summer term ends at the end of August (Northern Ireland Assembly, 1972, §36(6)).
- September 1-January 31: If reaching age 16 in this time frame, they must stay in school until the end of the spring term of the SY in which they reach 16. The spring term ends at the end of April (Northern Ireland Assembly, 1972, §36(6)).

Since individuals must reach age 5 before starting school and must reach age 16 to leave compulsory schooling, we determine the starting age to be the year in which they reach age 6, the leaving age to be age 16, and determine they must complete 11 years of schooling. Thus, the oldest cohort affected by the reform would be those that were born from September 1957, who would be the first to have reached a leaving age of 16 during or after SY 1973-74.

The *Education Report (Northern Ireland) Order 1989* required individuals from ages 4 and 16 to attend school (Northern Ireland Assembly, 1989, §156), and introduced the following provisions for people starting school effective for SY 1990-91: (Northern Ireland Assembly, 1990, Article 1):

- September 1 to July 1 of the following year: If reaching age 4 in this time frame, they reach compulsory school age on August 1 in that following year
- July 2 - August 31: If reaching age 4 in this time frame, they reach compulsory schooling age on August 1 of the following year.

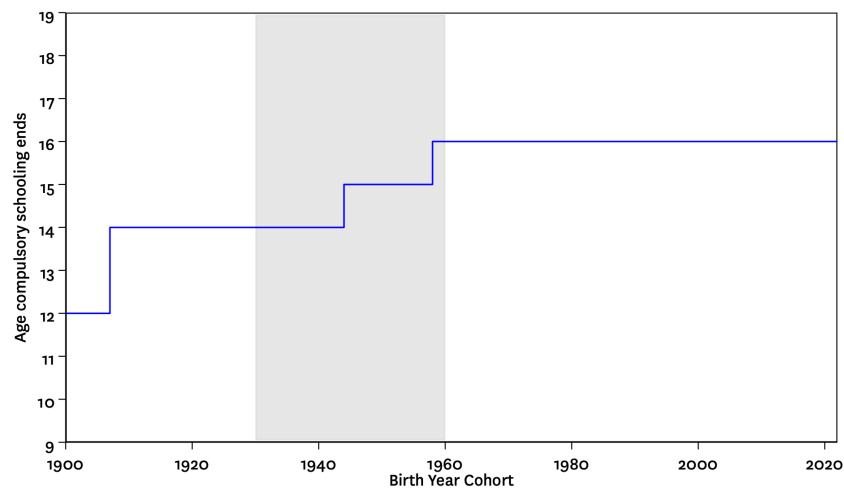
The following provisions are introduced for people leaving school:

- September 1 - July 1 of the following year: If reaching age 16 in this time frame, they can leave school from June 30 of the following year.
- July 2 - August 31: If reaching age 16 in this time frame, they can leave school from June 30 of the following year.

Since individuals must reach age 4 before starting school and must reach age 16 to leave school, we determine the starting age to be the year in which they reach 5 years old, the leaving age to be 16, and determine they should complete 12 years of schooling. Thus, the first birth cohort affected by this reform would be those who are born from September 1, 1985, who would start school in SY 1990-91 just when they are reaching age 5. This cohort would complete 12 years of schooling in SY 2001-02 when reaching age 16.

Research using Northern Ireland's compulsory schooling laws is limited, but it is included in the detailed review of European countries by Hofmarcher (2021). Our dates in Table 27 are consistent with Hofmarcher (2021).

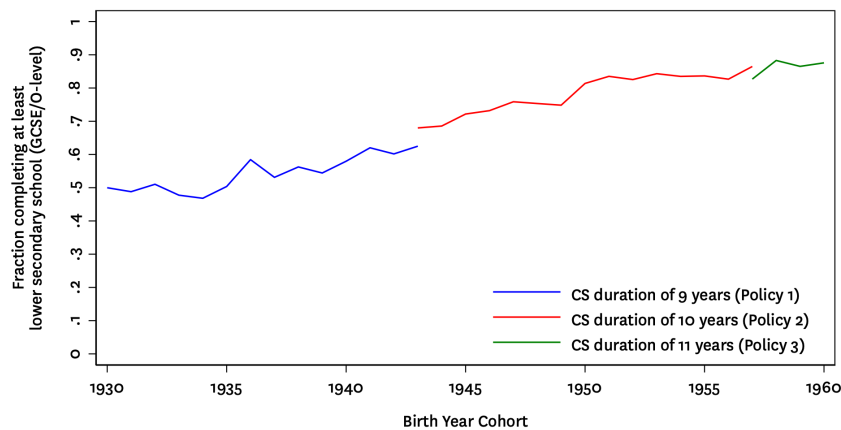
The figure below summarizes Northern Ireland's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Northern Ireland, compulsory schooling reforms increased the school leaving age twice for people born between 1930 and 1960, first for people born from April 1942 and then again for people born from September 1956.

Figure 54: Northern Ireland— Age compulsory schooling ends by birth year

Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 55 reveals that the fraction of people completing at least lower secondary school (i.e., GCSE/O-level) increased gradually for cohorts born between 1930 and 1960 in the Northern Ireland Cohort for the Longitudinal Study of Ageing (NICOLA) sample. There is a small change in educational achievement observed around the reform affecting birth cohorts from April 1943, but not the later reform. The NICOLA data only collects educational achievement, so differences of one additional year of schooling may be masked. There is a notable change in the fraction of people born after 1950 completing at least lower secondary school, potentially owing to a separate policy or event.

Figure 55: Northern Ireland — Fraction completing at least lower secondary school (GCSE/O-level) by birth cohort

Source: Author's analysis of NICOLA data.

Note: Birth year range reduced to match the gray area in Figure 54.

21. Poland

Policymaking context since 1900

Poland, in its current territorial form, was part of several other countries between 1900 and 1918. During the Second World War, Poland was divided between the Nazi German Empire and USSR. Following the end of the Second World War, the Polish People's Republic (1947-1989) was formed. After the dissolution of the USSR in 1989, Poland established the Third Polish Republic, a unitary parliamentary republic, that remains in place to present day.

Policy history

Poland's education policy changed frequently over the 1900s. At the start of the Second Polish Republic, although Poland passed a compulsory schooling law that required all children from age 7 to 14 to attend a 7-year primary school (Dziennik Ustaw, 1919), in practice most children in rural areas only attended school for 4 years. There were some exceptions to this policy, for example, children were exempt from the requirement if they lived more than three miles from the nearest school. On July 15, 1961, the Law on the Development of Education Systems, introduced a mandatory 8-year primary school (Dziennik Ustaw, 1961a) which started at age 7 and was effective from the 1966 school year (SY) (Dziennik Ustaw, 1961b; Liwiński, 2018). This policy remained in place through the start of the Third Polish Republic (Dziennik Ustaw, 1991). As part of the 1997 Constitution of the Republic of Poland (Dziennik Ustaw, 1997) full-time compulsory schooling was introduced by requiring enrollment in a secondary school or a vocational training program from ages 15 to 18, which effectively increased the school leaving age to 18. 1 year of mandatory preschool education was introduced in 2003 for children aged 6 effective September 1, 2004 (Dziennik Ustaw, 2003). Preschool education for children aged 5 became compulsory on September 1, 2011 (Dziennik Ustaw, 2009; Jakubowski, 2021). However, the 2016 Law on School Education (Dziennik Ustaw, 2016), effective from September 1, 2016, removed compulsory preschool education requirements, reverting back to the education system established by the 1997 reform in which full-time compulsory schooling was fulfilled by 1 year of pre-primary schooling at age 6, 8 years of primary school from ages 7 to 14, and 3 years of full-time compulsory secondary school or vocational training from ages 15 to 18 (Eurydice, 2022; Jakubowski, 2021). Currently, residents in Poland have compulsory schooling requirements from ages 6 to 18.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 28.

Table 28: Poland–Compulsory Schooling Ages (1919-2023)

Birth Date	Start Age	Leaving Age	Duration
January 1912 - December 1951	7	13	7
January 1952 - December 1983 (potentially as early as January 1947)	7	14	8
January 1984 - December 1997 (potentially as early as January 1981)	7	18	12
January 1998 - December 2005	6	18	13
January 2006 - December 2011	5	18	14
January 2012 - Present	6	18	13

Source: Dziennik Ustaw (1919, 1961a, 1961b, 1997, 2003, 2009, 2016)

Note: Starting ages and duration are established in the law. Starting ages reflect someone born in September-December. For individuals born January-August, they would be 1 year later.

The school year in Poland is from September to August of the following year, although school typically ends in June (Dziennik Ustaw, 1919, Article 22).

The 1919 law required children from age 7 to attend primary school (Dziennik Ustaw, 1919, Articles 1-3) for 7 years before reaching age 14 (Dziennik Ustaw, 1919, Article 8) from September 1 of the calendar year in which an individual reached age 7 (Dziennik Ustaw, 1919, Article 10). Therefore, we set the starting age as the year they reach age 7 and estimate age 13 as their age when they would have completed 7 continuous years of schooling. The oldest cohort affected by the reform would have been people born in January 1912, who would have started school in SY 1919-20 having reached age 7 in calendar year 1919, and would have completed their 7th year of schooling in SY

1925-26.

The 1961 law required individuals to complete an 8-year primary school which started from the calendar year the person reached age 7 (Dziennik Ustaw, [1961a](#), Article 9). This change was effective from SY 1966-67 (Dziennik Ustaw, [1961b](#), §1, 2). The oldest cohort fully affected by the reform would have been those people born in January 1952, who would have started school in SY 1959-60 just as they were reaching age 7. This cohort would have completed their 7th year of schooling in SY 1965-66, and would have been the first cohort required to complete an 8th year of schooling in SY 1966-67. As SY 1966-67 was a deadline for implementation, it is possible that the 8-year primary school could have been implemented in the SY following the 1961 law (the earliest possible would have been SY 1961-62).

The 1997 constitution introduced full-time compulsory schooling requirements in a secondary school or vocational training program for people between ages 15 and 18, and raised the school leaving age to 18 (Dziennik Ustaw, [1997](#), Article 70). Implementation of the constitutional reform occurred in 1999, through the establishment of 6-year primary schools, 2-year lower secondary schools, and 4-year upper secondary schools. Compulsory schooling requirements were effective for people under the age of 18 as of September 1, 1999. The oldest cohort fully affected by the reform would have been those people completing their 8th year of continuous compulsory schooling in SY 1998-99, which were people born in 1984. Arguably, schooling was also compulsory for anyone under the age of 18 at the time (i.e., those born from January 1981), but it is unclear if the additional schooling requirement was enforced for people that would have already exited schooling.

The 2003 law lowered the starting age, effective in SY 2004-05, to the beginning of the SY in which an individual reaches age 6 (Dziennik Ustaw, [2003](#), Articles 1 §16(c), 22 §2). The oldest cohort affected by the reform would have been those people born in January 1998, who would have started school in SY 2004-05 just as they were reaching age 6, and would have completed their 13th year of schooling in SY 2016-17.

The 2009 law lowered the starting age to 5, effective SY 2011-12 (Dziennik Ustaw, [2009](#), Article 1 §15(b), 26 §3). The oldest cohort affected by the reform would be those people born in January 2006, who would have started school in SY 2011-12 just as they were reaching age 5, and would have completed their 14th year of schooling in SY 2024-25.

The 2016 law reverted the education system to the effective system from SY 2004-11 by increasing the starting age to 6 (Dziennik Ustaw, [2016](#), Article 31). The oldest cohort affected by the reform would have been those people born in January 2012, who would have started school in SY 2017-18 just as they reached age 5, but could defer until age 6 in SY 2018-19.

Published studies of compulsory education in Poland differ in their determination of the first birth cohort affected by the 1961 law. For example, Mazzonna ([2014](#)) states that the reform affected the cohort born in 1953. It is unclear how this author determined the birth cohort affected. On the other hand, Hofmarcher ([2021](#)) calculates the first birth cohort affected by assuming it would be the same as the birth cohort attending the last grade of compulsory schooling before the policy was implemented. Since the 8-year requirement of compulsory schooling was implemented in the 1966/67 school year, Hofmarcher ([2021](#)) indicates that the reform affected the cohort that was in seventh grade in the 1965/66 school year—those born in 1952. This is consistent with our interpretation of the law.

We could not locate existing analyses that use compulsory schooling law reforms in Poland other than the 1961 reform.

The figure below summarizes Poland's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Poland, there was one compulsory schooling reform affecting people between 1930 and 1960. The reform was enacted in 1961 and fully effective for people born from January 1952, but could have affected people born as early as January 1947.

Figure 56: Poland— Age compulsory schooling ends by birth year

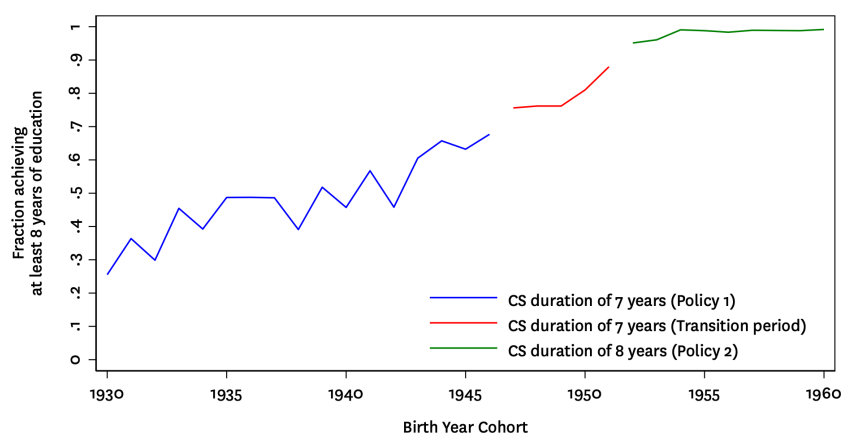


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 57 suggests that the fraction of individuals in the Polish SHARE sample completing at least 8 years of compulsory schooling policy gradually increased for people born between 1930 (30%) and 1945 (60%), but then sharply increased after the passage of the 1961 law to 70+% (SY 1961-62 affecting people born from January 1947) and then reached near full compliance (90+% by the effective date of that reform (SY 1966-67 affecting people born from January 1952).

Figure 57: Poland — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 56.

22. Portugal

Policymaking context

Portugal was a monarchy until the beginning of the 20th century. The revolution of 1910 replaced the monarchy and established the First Republic. In 1926, a coup d'état led to a military dictatorship known as the National Dictatorship (Ditadura Nacional). In 1933, the dictatorship continued under the New State (Estado Novo). Since the 1974 democratic transition and the enactment of the 1976 Constitution, Portugal has had a parliamentary democracy. Although mainland Portugal did not gain or cede any territories during the 1900s, it is important to note that Portugal was a colonial regime that lasted until the 1974 revolution.

Policy history

In 1894, individuals were required to complete the first grade within elementary education between the ages of 6 to 12 years old (Conselho Nacional de Educação, 2017; Diário da República, 1894, Decree 1, Article 2). The *Decreto de 29 de março de 1911* made elementary primary education, with a duration of 3 years, obligatory for minors between the ages of 7 and 14 (Conselho Nacional de Educação, 2017; Diário da República, 1911, Article 37). The 1919 reform extended compulsory schooling duration from 3 to 5 years by requiring children between the ages of 7 and 12 to complete 5 years of general primary education (Diário da República, 1919, Articles 7, 8). In 1927, children between the ages of 7 and 11 were required to complete 4 years of elementary primary education (Conselho Nacional de Educação, 2017; Diário da República, 1927, Article 1) which changed to 3 years in 1930 (Conselho Nacional de Educação, 2017; Diário da República, 1930). The 1956 reform increased the duration of compulsory schooling to 4 years for all male minors who were older than 7 but younger than 13 years old (Diário da República, 1956). In 1960, the government made it compulsory to complete 4 years of primary school for children of both genders, and to do so between the ages of 7 and 12 (Diário da República, 1960). The duration of compulsory schooling was further extended in 1964 to 6 years by requiring children who started their first year of schooling in 1964 to complete 2 additional years of schooling (Conselho Nacional de Educação, 2017; Diário da República, 1964, Article 4.1). The 1979 reform set the school age between 6 and 14 years of age (Diário da República, 1979, Article 4.1). The 1979 law states individuals are required to complete 6 years of basic education while they are in this age range, but did not imply they would need to stay in school until age 14. During this period, children had to complete 6 years of basic education (Diário da República, 1979, Article 1.2). In 1986 the duration of compulsory basic education was increased to 9 years, requiring children between 6 and 15 years of age to attend school (Conselho Nacional de Educação, 2017; Diário da República, 1986, Article 6). The school leaving age was raised to 18 in 2009 (Conselho Nacional de Educação, 2017; Diário da República, 2009).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 29 for people born from January 1900.

Table 29: Portugal–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - September 1904	7	7	1
October 1904 - September 1909	8	10	3
October 1909 - September 1916	8	12	5
October 1916 - September 1920	8	11	4
October 1920 - September 1947	8	10	3
October 1947 - September 1956	8	11	4
October 1956 - December 1966	8	13	6
January 1967 - August 1980	7	12	6
September 1980 - August 1997	7	15	9
September 1997 - Present	7	18	12

Source: Conselho Nacional de Educação (2017) and Diário da República (1844, 1894, 1911, 1919, 1927, 1930, 1956, 1960, 1964, 1979, 1986, 2009)

Note: The 1956 reform affecting people born after October 1950 only affected male minors. In numerous instances, the Portuguese compulsory schooling laws specify a starting age, a duration that individuals need to be in school, and an age by which these compulsory schooling requirements need to be completed. The latter is not the leaving age. The leaving age is imputed by the starting age plus school duration minus 1 assuming continuous enrollment from the starting age for the duration of compulsory schooling.

The school year in Portugal currently starts in September and ends in June.

The 1894 reform, effective December 22, 1894, states that children must complete the first grade within elementary education between the ages of 6 to 12 (Diário da República, 1894, Decree 1, Article 2). The legislation does not mention any specific details of whether children must be age 6 by the start of the school year or reach that age sometime during the school year. The school year begins in October (Diário da República, 1894, Article 20). For our calculations, we assume children must reach age 7 during their first year of education. We interpret this law to be effective from SY 1895-96. A student born in October 1888 would enter school the school year after they reached age 6 (SY 1895-96) completing their first year of schooling at age 7 in SY 1895-96 assuming they attend each year of compulsory schooling consecutively from the starting age.

The 1911 reform, effective January 1, 1912, states that primary education is compulsory for individuals between the ages of 7 and 14 (Diário da República, 1911, Article 37). Children reaching age 7 during the school year are permitted to be enrolled in school if desired (Diário da República, 1911, Article 42). This same reform indicates that primary education lasts for 3 years (Diário da República, 1911, Article 4). We interpret this law to be effective from SY 1912-13. A student born in October 1904 would enter school in the school year after they reached age 7 (SY 1912-13) completing their third year of schooling at age 10 in SY 1914-15 assuming they attend each year of compulsory schooling consecutively.

The 1919 reform, effective May 10, 1919, made the five years of general primary education compulsory which could be completed between the ages of 7 and 12 (Diário da República, 1919). We interpret this law to be effective from SY 1919-20. A student born in October 1909 would enter school in the school year after they reached age 7 (SY 1917-18) completing three years of schooling at age 10 in SY 1919-20. They would be the first cohort required to complete five years of schooling at age 12 in SY 1921-22 assuming they attend each year of compulsory schooling consecutively.

The 1927 reform, effective May 17, 1927, required individuals from ages 7 to 11 to complete 4 years of schooling (Diário da República, 1927). We interpret this law to be effective from SY 1927-28. A student born in October 1916 would enter school in the school year after they reached age 7 (SY 1924-25) completing three years of schooling at age 10 in SY 1926-27. They would be the first cohort required to complete four years of schooling instead of five at age 11 in SY 1927-28 assuming they attend each year of compulsory schooling consecutively.

The 1930 reform, effective March 22, 1930, required individuals to complete elementary primary education with a duration of 3 years (Diário da República, 1930). We interpret this law to be effective from SY 1930-31. A student born in October 1920 would enter school in the school year after they reached age 7 (SY 1928-29) and would leave school after completing 3 years of schooling at age 10 in SY 1930-31 assuming they attend each year of compulsory schooling consecutively.

The 1956 reform, effective October 1, 1957, required individuals male minors that had 7 or more years of age and less than 13 to attend school for 4 years (Diário da República, 1956, Article 1). This policy was effective starting October 1957; thus, we interpret this law to be effective from SY 1957-58. A male student born in October 1947 would enter school in the school year after they reached age 7 (SY 1955-56) completing three years of schooling at age 10 in SY 1957-58. They would be the first cohort of male students required to complete four years of schooling at age 11 in SY 1958-59 assuming they attend each year of compulsory schooling consecutively.

The 1960 reform, effective May 28, 1960, required individuals of all genders that were between the ages of 7 and 12 to complete primary school which lasted for 4 years (Diário da República, 1960). Children must be age 7 by December 31 of the academic year in which they are enrolling (Diário da República, 1960, Article 2). This policy was effective from SY 1960-61. A student born in January 1951 would enter school in the school year after they reached age 7 (SY 1958-59) completing 3 years of schooling at age 10 in SY 1960-61. They would be the first cohort of students required to complete 4 years of schooling at age 11 in SY 1961-62 assuming they attend each year of compulsory schooling consecutively.

The 1964 reform, effective July 9, 1964, states that individuals starting their first year of schooling in SY 1964-65 are required to complete 2 additional years of schooling (Diário da República, 1964, Article 4). Thus, a student born in October 1956 would start in the school year after they reached age 7 (SY 1964-65) completing 6 years of schooling at age 13 in SY 1969-70 assuming they attend each year of compulsory schooling consecutively.

The 1979 reform, effective January 1, 1980, states individuals are required to complete 6 years of basic education while they are in school age which is between the ages of 6 and 14 (Diário da República, 1979). Children must be 6 years old by September 30 of the school year in which they start compulsory schooling (Diário da República, 1979, Article 4). This is effective for people born from January 1, 1967 (Diário da República, 1979, Article 12). Thus, a student born in January 1967 would enter school in the school year after they reached

age 6 (SY 1973-74) completing 6 years of schooling at age 12 in SY 1978-79 assuming they attend each year of compulsory schooling consecutively.

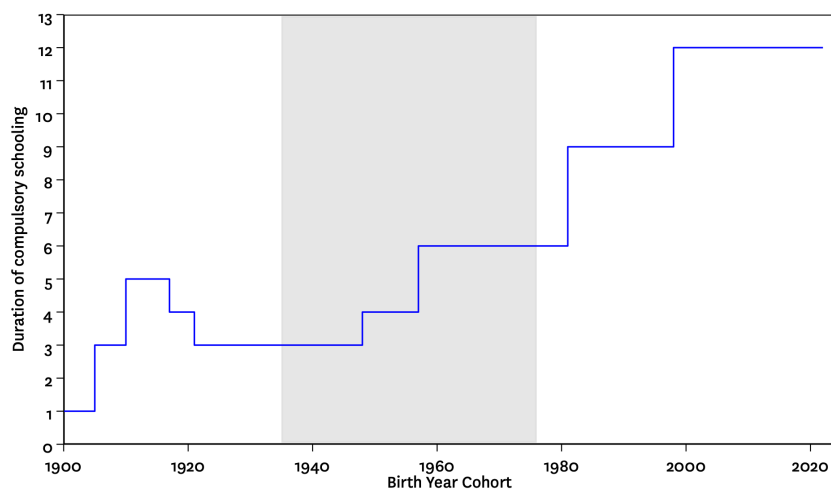
The 1986 reform, effective September 30, 1986, raised the duration of basic education to 9 years and the leaving age to 15 years of age (Diário da República, 1986). This was effective for individuals who began their first year of basic education in SY 1987-88 (Diário da República, 1986, Article 63). Children must be 6 years old by September 15 of the school year when they start compulsory schooling (Diário da República, 1986, Article 6). A student born in September 1980 would enter school in the school year after they reached age 6 (SY 1986-87) completing 9 years of schooling at age 15 in SY 1994-95.

The 2009 reform, effective August 20, 2009, raised the school leaving age to 18 years old (Diário da República, 2009). This was effective for individuals who were in the seventh year of schooling in the SY 2009-10 (Diário da República, 2009, Article 8). A student born in September 1997 would enter school in the school year after they reached age 6 (SY 2003-04) completing 12 years of schooling at age 18 in SY 2014-15.

Our estimates match the reforms of 1956, 1960, 1964, 1986 and 2009 studied by Hofmarcher (2021). However, our interpretation slightly varies for the 1960 reform. Hofmarcher (2021) assumes the 1960 reform affected girls who completed the third year of schooling in SY 1959-60 while we assume it would affect individuals of both genders that start the first year of schooling in SY 1960-61.

The figure below summarizes Portugal's policy on the duration of compulsory schooling based on birth year from 1900 to 2024. In Portugal, there was two compulsory schooling reforms affecting people between 1930 and 1960. The first reform required at least 4 years of schooling for people born from October 1947 (an increase from 3 years), while a second reform required 6 years of schooling for people born from October 1956.

Figure 58: Portugal— Duration of compulsory schooling by birth year

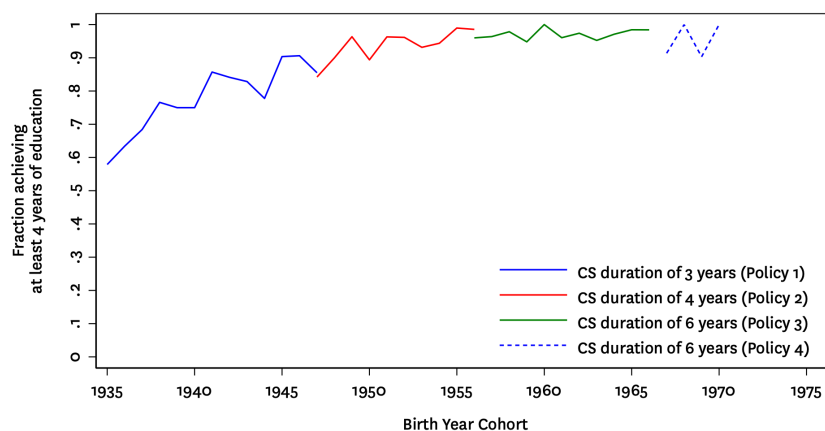


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 59 suggests there is no sharp change in compulsory schooling achievement affecting the cohorts born immediately after October 1947, the first major reform affecting the Portuguese SHARE sample. The fraction of individuals completing at least 4 years of compulsory schooling was approximately 80–90% for people born between 1945 and October 1947, although it gradually increased to being consistently greater than 90% after 1950. Figure 60 suggests the fraction of people achieving at least 6 years of schooling grew rapidly in the years after the increase in compulsory schooling to 6 years (policy 3) from less than 50% before 1956 to 60% or greater from 1957.

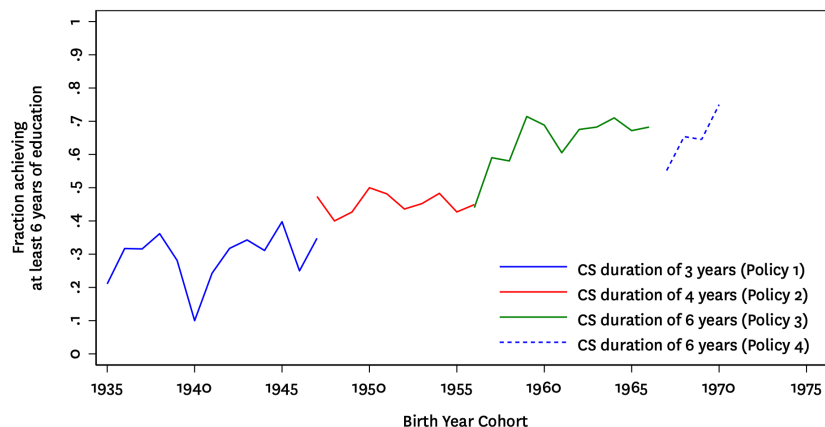
Figure 59: Portugal — Fraction completing at least 4 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version F).

Note: Birth year range reduced to match the gray area in Figure 58.

Figure 60: Portugal — Fraction completing at least 6 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 58.

23. Slovakia

Policymaking context

Slovakia has been in its present territorial form since January 1993. Since 1900, it has been part of other states at different points in time, including the Austro-Hungarian Empire (before 1918), the First Czechoslovak Republic (1918-1938), the Second Czechoslovak Republic (1938-1939), partially recognized by the Nazi German Empire (1939-1945), the Third Czechoslovak Republic (1945-1948), the Czechoslovak Socialist Republic (1948-1990), and the Czech and Slovak Federative Republic (1990-1992). In 1938 as part of the First Vienna Award, Czechoslovakia ceded southern parts of present-day Slovakia to Hungary, but these parts were returned in 1947.

Policy history

In 1900, minors between the ages of 6 and 12 were required to attend school in the Austro-Hungarian Empire (including present day Slovakia). This requirement was introduced in the 1868 law (Országgyűlés, 1868, Article 49). While other education major reforms occurred during the Austro-Hungarian Empire, notably the Apponyi Schooling Laws of 1907 (Budapesti Közlöny, 1907a, 1907b), there were no further reforms to compulsory schooling duration. The first legislation on compulsory schooling in the 20th century occurred shortly after the creation of the First Czechoslovak Republic. The *Small Education Law* (Law 226 of 1922) extended compulsory schooling to 8 years, so that it ranged from 6 to 14 years old (Zbierke Zákonov Slovenskej Republiky, 1922). This policy took effect in the 1927-28 school year (SY). In 1948, the *Act on the Basic Regulation of Unified Education* further extended compulsory schooling from 8 to 9 years and changed the school leaving age from 14 to 15, effective September 1948 (Zbierke Zákonov Slovenskej Republiky, 1948). In 1953, the *School System and Teacher Education Act* reduced the school leaving age to 14, effectively reducing compulsory school duration to 8 years in SY 1953-54 (Zbierke Zákonov Slovenskej Republiky, 1953). In 1960, the government passed the *Education System Act*, again extending the school leaving age to 15 years old and making compulsory schooling 9 years (Zbierke Zákonov Slovenskej Republiky, 1960). In 1978, the *Act on Measures in the System of Primary and Secondary Schools* increased the school leaving age to 16, making compulsory schooling 10 years (Zbierke Zákonov Slovenskej Republiky, 1978, §34).

The 1978 law was modified over ten times from 1990 to 2005 with the earliest amendment in 1990 reducing the duration of compulsory schooling to 9 years and lowering the leaving age to 14 (Kosová & Porubský, 2018; Zbierke Zákonov Slovenskej Republiky, 1990). Shortly after, the Czechoslovakia Socialist Republic ended, and Czechia and Slovakia reformed their respective educational systems. In 1998, Slovakia returned the duration of compulsory schooling to 10 years from age 6 (Kosová & Porubský, 2018; Zbierke Zákonov Slovenskej Republiky, 1998). In 2008, the School Act replaced previous legislation governing schooling in Slovakia, but left the duration of compulsory schooling at 10 years starting the school year a child reaches age 6 (Zbierke Zákonov Slovenskej Republiky, 2008). The most recent change to compulsory schooling in Slovakia took effect in January of 2021, mandating that children start compulsory schooling the year they reach age 5 and extending the duration of compulsory schooling to 11 years (Zbierke Zákonov Slovenskej Republiky, 2021). Currently, compulsory schooling in Slovakia is 11 years long from age 5 to 16.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 30.

Table 30: Slovakia–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 - August 1915	7	12	6
September 1915 - August 1933 (potentially as early as September 1910)	7	14	8
September 1933 - August 1938	7	15	9
September 1938 - August 1946	7	14	8
September 1946 - August 1962	7	15	9
September 1962 - August 1974	7	16	10
September 1974 - August 1983	7	15	9
September 1985 - August 2015 (potentially as early as September 1983)	7	16	10
September 2015 - Present	6	16	11

Source: Kosov and Porubsk (2018) and Zbierke Zkonov Slovenskej Republiky (1922, 1948, 1953, 1960, 1984, 1990, 1998, 2021)

Note: Slovak policy for starting school is based on a person that has reached age 6 before they start school (age 5 from SY 2015–16). Starting ages in the table following our technical approach in chapter 1, which reflect the age someone reaches during their first SY, are therefore one year later than the age in law. Leaving age is imputed based on starting age and compulsory schooling duration.

The school year in Slovakia typically spans from September to August.

We calculate the birth cohorts affected by policy changes based on specific details from the laws in place. The 1922 reform established that compulsory schooling begins in the school year after an individual reaches the age of 6 and lasts 8 years (Zbierke Zkonov Slovenskej Republiky, 1922, §11). This means that a child would reach the age of 7 during their first year of compulsory schooling. With a compulsory schooling duration of 8 years, the leaving age is the SY during which they reach age 14. This law was implemented gradually, starting in SY 1922–23, and effective across the country by SY 1927–28. In regions where the policy was implemented immediately, individuals born in September 1910 would reach the age of 12 in SY 1922–23, and would be required to remain in school for two additional years. Therefore, the first cohort affected was potentially born as early as September 1910. Since this law was gradually implemented between SY 1922–23 and SY 1927–28, the last cohort affected by the gradual implementation reached the age of 12 in SY 1927–28. The last cohort affected by the gradual implementation was born in September 1915.

The 1948 reform extended compulsory schooling by 1 year, increasing duration from 8 to 9 years. The *Act on the Basic Regulation of Unified Education*, effective from September 1, 1948, states that 9 years of compulsory schooling starts in “the school year that follows the day when the child reaches the sixth year of age” (Zbierke Zkonov Slovenskej Republiky, 1948, §13, 94). We interpret this law to be effective from SY 1948–49 and assume the school year runs from September to August. A student born in September 1933 would enter school in the school year after they reached age 6 (SY 1940–41). They would reach their 9th year of compulsory schooling in SY 1948–49 at age 15. Consequently, students may leave school after completing the school year in which they reach age 15.

The 1953 reform states that 8 years of schooling are compulsory starting from the beginning of the school year after a child reaches age 6 and is effective for SY 1953–54 (Zbierke Zkonov Slovenskej Republiky, 1953, §3, 17). We interpret this law to be effective from September 1953. A student born in September 1939 would enter school in the school year after they reached age 6 (SY 1946–47). They would reach their 8th year of compulsory schooling in SY 1953–54 at age 14. Furthermore, a student born in September 1938 would be entering their 9th year, which would no longer be compulsory. Therefore, the first birth cohort affected are those born from September 1938.

We apply the same logic as the 1948 reform for the 1960 and 1978 reforms that increase compulsory schooling duration by 1 year each. The 1960 reform was effective from December 1960, so it first impacted SY 1961–62. Therefore, the first affected birth cohort are those individuals born beginning in September 1946 (Zbierke Zkonov Slovenskej Republiky, 1960, §5, 38). The 1978 reform was effective from September 1978, and first affected SY 1978–79. Individuals born during and after September 1962 were influenced by these measures (Zbierke Zkonov Slovenskej Republiky, 1978, §34, 54).

We apply the same logic as the 1953 reform for the reduction in school duration of the 1990 reform, which was effective for SY 1990–91. We determine that the 1990 reform affected people born during and after September 1974 (Zbierke Zkonov Slovenskej Republiky, 1990,

Article 2, points 35, 51).

The 1998 reform increased the compulsory schooling duration to 10 years but stipulated that individuals reaching the age of 15 by the end of SY 1997-98 could leave school (Zbierke Zákonov Slovenskej Republiky, 1998, Article 1, points 3, 4). Based on this transitional provision, individuals born before September 1, 1983 were not affected by this reform, and the first cohort affected was born in September 1983. However, individuals that completed 8 years of education in SY 1997-98 and SY 1998-99 and who were not accepted at a secondary school could leave school after 9 years of schooling. Because of the transitional provision, some individuals born between September 1983 and August 1985 (completing 8 years of schooling between SY 1997-98 and SY 1998-99) were also exempt from this reform. The first cohort fully affected was born in September 1985.

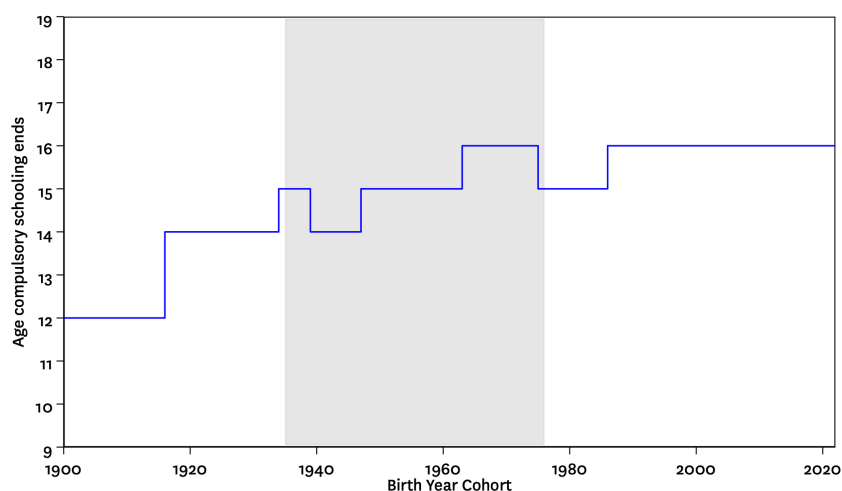
The 2019 reform lowered the school starting age, requiring enrollment in the school year following an individual's 5th birthday — they would reach the age of 6 during their first year of compulsory schooling (Zbierke Zákonov Slovenskej Republiky, 2021). This law became effective in January 2021, which we interpret as becoming effective in SY 2021-22. The first cohort affected by this policy was born in September 2015 and would have reached age 6 during SY 2021-22.

Few papers investigate Slovakian compulsory school laws, with one exception being Hofmarcher (2021). In general, their estimates of birth cohorts by effective policy are consistent with the information presented above except they focus on full years. Below, we summarize their findings noting only substantive differences:

- 1948 reform: first birth cohort affected is 1934
- 1953 reform: first birth cohort affected is 1939
- 1960 reform: first birth cohort affected is 1947
- 1978 reform: first birth cohort affected is 1964 - inconsistent because they assume change was effective from SY 1979-80, but the law was effective from September 1978 (Zbierke Zákonov Slovenskej Republiky, 1978, §54)
- 1990 reform: first birth cohort affected is 1975
- 1998 reform: first birth cohort affected is September 1983 – inconsistent because they do not consider transitional provisions (Zbierke Zákonov Slovenskej Republiky, 1998, Article 1, point 4)

The figure below summarizes Slovakia's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Slovakia, multiple compulsory schooling reforms occurred affecting people born between 1935 and 1976.

Figure 61: Slovakia— Age compulsory schooling ends by birth year

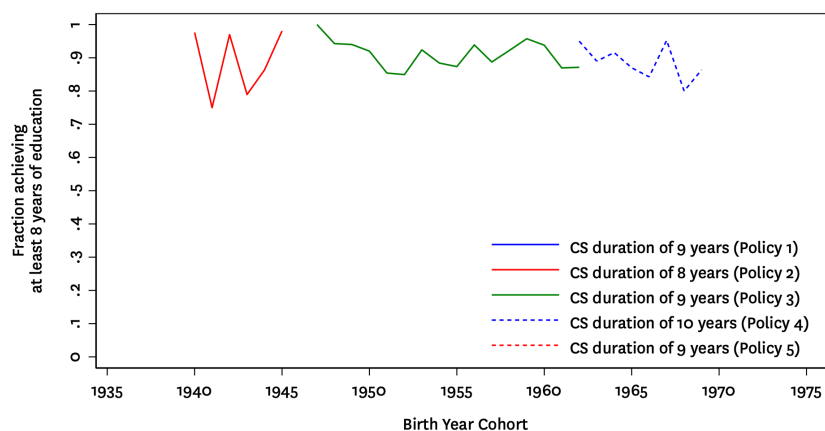


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

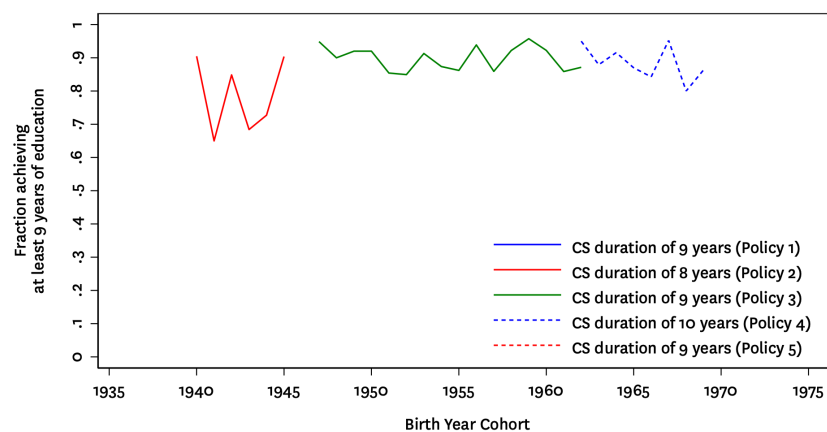
Figure 62 reveals that most people born between 1940 and 1970 in the Slovakia completed at least 8 years of education (sharp variations in periods before 1947 may be due to limited sample sizes). Figure 63 suggests there may have been an increase in completion of the 9th year around the 1960 reform (affecting people born from September of 1946), but limited data prior to that reform make this unclear due to year-to-year volatility in average reported schooling duration. Figure 64 does not indicate a persistent response to the 1978 reform from increasing compulsory schooling to 10 years for people born from September 1962.

Figure 62: Slovakia — Fraction completing at least 8 years of education by birth cohort



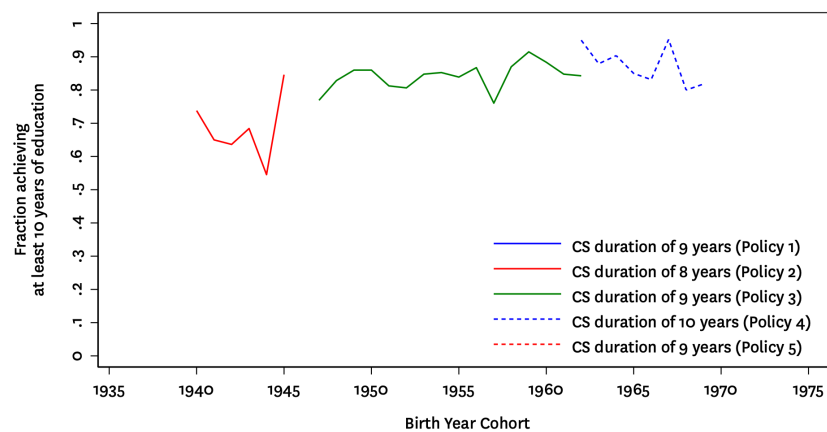
Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 61.

Figure 63: Slovakia — Fraction completing at least 9 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 61.

Figure 64: Slovakia — Fraction completing at least 10 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 61.

24. Spain

Policymaking context

Spain has largely remained in its current territorial form since 1900. In 1900, Spain was a constitutional monarchy, with substantial power provided to the legislature (the Cortes Generales). In 1923, the parliamentary system was replaced with a military dictatorship until 1931. Afterwards, from 1931 to 1939, Spain was a parliamentary republic (the Second Spanish Republic). Between 1936 and 1939, the Spanish Civil War occurred, which concluded with Spain becoming a dictatorship, known officially as the Spanish State. This period of dictatorship concluded in 1975, and Spain began transitioning to a constitutional monarchy. The transition concluded in 1978 and Spain remains a constitutional monarchy today. During the periods of dictatorship, the Cortes Generales were suspended.

Policy history

In 1900, compulsory schooling in Spain lasted from ages 6 to 9, dating to the 1857 Public Instruction Law (Gaceta de Madrid, 1857). In 1909, the school leaving age increased to 12 years old, while the starting age of 6 was retained (Gaceta de Madrid, 1909). In 1964, during the Spanish State, the school leaving age increased to 14 years old, adding 2 additional years to mandatory general basic education, for a total of 8 years (Boletín Oficial del Estado, 1964). While it did not alter the compulsory schooling requirement, a 1970 reform changed the structure of the Spanish education system by introducing two components of compulsory basic education: the first part was for children from 6 to 10 years old and the second part was for children from 11 to 13 years old (Boletín Oficial del Estado, 1970; McNair, 1981). The Spanish Constitution of 1978, enacted when the transition to a constitutional monarchy concluded, paved the way for future educational reforms (del Estado, 1978, Article 27). In 1990, as part of a broader reform of the Spanish educational system, the two parts of compulsory schooling were updated to 6 years of primary education and 4 years of secondary education, which increased the school leaving age to 16 and the length of compulsory schooling to 10 years to give students a broader knowledge in different areas before specialization (Boletín Oficial del Estado, 1990; Robles-Zurita, 2017). This addressed the gap between the school leaving age of 14 and the legal working age of 16 (Boletín Oficial del Estado, 1990). According to secondary sources, this reform was gradually implemented beginning with school year (SY) 1991-92, and had been implemented across Spain by SY 1999-00 school year (Felgueroso, Gutiérrez-Domènech, & Jiménez-Martín, 2014). Changes were introduced across provinces at different points in time (Cuevas-Ruiz, Borra, & Sevilla, 2023). This 10-year length of compulsory schooling still applies in Spain today (European Commission, 2023a, 2023b, 2023c; OECD, 2020).

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 31.

Table 31: Spain–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
September 1897 - December 1953	7	12	6
January 1954 - August 1985	7	14	8
September 1985 - Present (potentially as early as September 1977)	7	16	10

Source: Boletín Oficial del Estado (1964, 1990) and Gaceta de Madrid (1857, 1909)

Note: Starting age is adjusted to reflect the age a person reaches during their first year of compulsory schooling. Compulsory schooling duration is imputed based on starting age and leaving age.

The school year in Spain typically spans from September to June (Ministerio de Educación, Formación Profesional y Deportes, n.d.).

Compulsory education laws before 1964 state that children are enrolled in school based on the list the mayor of each town council publishes annually in the last fortnight of September of children that are between ages 6 and 12 (Gaceta de Madrid, 1909, Article 8, §1). The list of children between ages 6 and 12 is based on the registers, municipal statistics and the census (Gaceta de Madrid, 1909, Article 8, §1). For example, the 1909 law required school attendance for children between the ages of 6 and 12. An individual born in August 1903 would reach the age of 6 by the September Census and be required to enroll in school in SY 1909-10. We adjust the school starting age to age 7, to reflect the age that this individual would reach during their first year of compulsory schooling.

Based on the Boletín Oficial del Estado (1964), children in Spain were required to stay in school from age 6 until age 14. The *Final Disposition* section of the (Boletín Oficial del Estado, 1964) states that the birth cohort affected by the change in school leaving age to age 14 was born in 1954.

The 1970 Act did not change compulsory schooling requirements but introduced new educational levels for children from ages 6 to 13 (Boletín Oficial del Estado, 1970, Article 15).

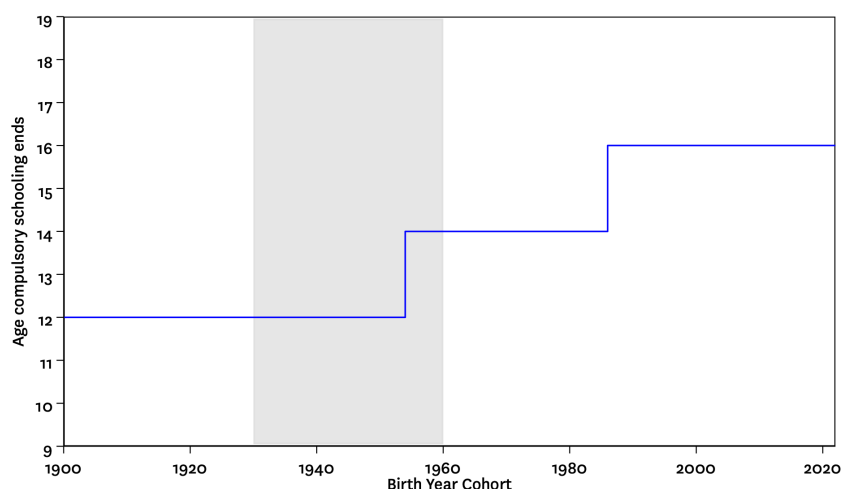
The 1990 reform, which increased the school leaving age to 16 and the compulsory schooling duration to 10 years, was passed in October of 1990 and its implementation began in SY 1991-92 (Boletín Oficial del Estado, 1990; Felgueroso et al., 2014). Implementation was completed by SY 1999-2000. Individuals born in September 1985 would have started compulsory schooling in SY 1992-93. They would have completed 8 years of compulsory schooling in SY 1999-2000 and were mandated to remain in school for an additional two years. Thus, the first birth cohort for whom this policy was effective across all of Spain was born in September 1985. Individuals born in September 1977 would have reached the age of 7 during their first year of compulsory schooling (SY 1984-85 school year) and would have completed 8 years of schooling in SY 1991-92. Therefore, in schools where the 1990 reform was first implemented, individuals born in the September 1977 cohort would be the first affected.

Few papers investigate Spanish compulsory school laws, with the exception of Pons and Gonzalo (2002), Murtin and Viarengo (2011), and Hofmarcher (2021). In general, their estimates are consistent with what was presented above. However, they focus on full years. Hofmarcher (2021) determined that the 1970 Act increased compulsory schooling requirements by 1 year from age 13 to age 14 affecting those born in 1958. This conclusion is inconsistent with our interpretation of (Boletín Oficial del Estado, 1970). Murtin and Viarengo (2011) also report an increase in compulsory schooling duration to 8 years from the 1970 reform, but they do not calculate the first birth cohort affected by this policy. Both papers assume that the school leaving age is 13 prior to the 1970 reform. However, our research indicates that the school leaving age was increased to 14 in 1964 (Boletín Oficial del Estado, 1964).

Pons and Gonzalo (2002) report that the 1970 law established compulsory schooling for minors ages 6 to 13, starting with the cohort born in 1957. They do not provide an explanation of their method in calculating the pivotal birth cohort. Since the 1970 reform created new education levels for minors aged 6 to 13, it is possible that they interpret the ages affected by the education system reform as those affected by compulsory schooling.

The figure below summarizes Spain's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Spain, there was one compulsory schooling reform affecting people between 1930 and 1960. The reform was enacted in 1964 and fully effective for people born from January 1954

Figure 65: Spain— Age compulsory schooling ends by birth year

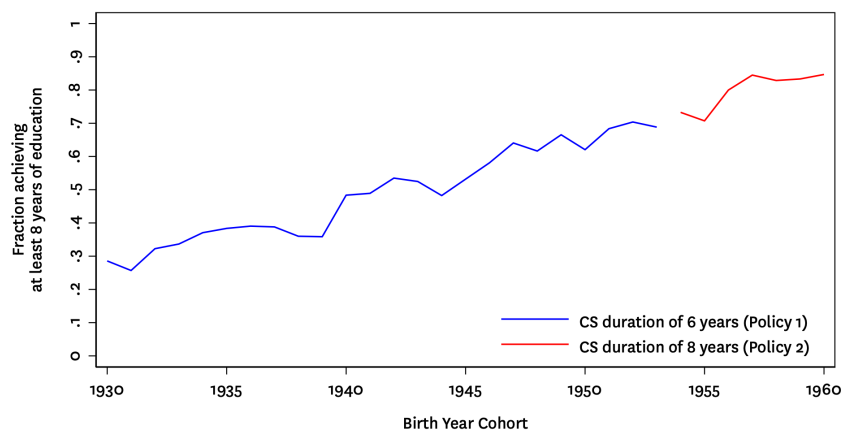


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

Figure 66 suggests that the fraction of individuals in the Spanish SHARE sample completing at least 8 years of compulsory schooling policy gradually increased for people born between 1930 (30%) and 1950 (60%), but then sharply increased 2 years after the cohort we estimate to be affected by the 1964 law (1956 v. 1954) to 80+% of the SHARE sample. Additionally there appears to be an earlier jump in the fraction of the sample completing 8 years of education for people born from 1940, potentially reflecting the influence of another reform or event.

Figure 66: Spain — Fraction completing at least 8 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 65.

25. Sweden

Polymaking context

Sweden has largely remained in its current territorial form since 1900. The 1809 Constitution introduced a constitutional monarchy regime which was in place until the first decades of the 1900s. Since 1866, Sweden has had a bicameral legislature.

Policy history

In 1900, dating to the 1882 Primary School Code, compulsory schooling was 6 years starting from age 7 (SPLASH-db.eu, 2014b; Svensk författningssamling, 1882). While compulsory schooling was initially introduced in 1842, the starting age requirements were added in 1882. However, after the 1882 policy was passed, many children did not complete 6 years of schooling, or only attended school half of the required time as exceptions were granted in certain cases, such as children who were home-schooled or who were deemed to have attained a minimum level of knowledge (Westberg, 2020). From 1919 onwards, enforcement of compulsory schooling is extended establishing that exceptions would only be made in extraordinary circumstances (Westberg, 2020). The duration of compulsory schooling was increased by the Swedish parliament to 7 years in 1937 starting from age 7 (Fischer, Karlsson, Nilsson, & Schwarz, 2016; Lindegren, 1941). However, this change was not enforced at a national level until school year (SY) 1948-49, letting school districts choose the timing of implementation within the next 12 years (Fischer, Karlsson, Nilsson, & Schwarz, 2020). Before 1962, most children attended primary school [folkskola], but there also were other school forms that children could attend. The number of compulsory years of full-time schooling was increased again with the Education Act of 1962, which required children ages 7 to 16 years old to be in school for 9 years (Svensk författningssamling, 1962). While this policy was gradually introduced in some locations and became effective throughout the country by 1972, some municipalities had introduced a nine-year primary school in the 1950s as an experiment (SPLASH-db.eu, 2014e). The most recent change to compulsory schooling policies in Sweden took place in 2018 when the one-year preschool class for ages 6 to 7, förskoleklass, was incorporated as part of the compulsory schooling requirements (Svensk författningssamling, 2010, 2017). The current system in place in Sweden requires mandatory schooling for 10 years for children ages 6 to 16 years old, encompassing 1 year of the preschool class and 9 years of comprehensive school.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 32.

Table 32: Sweden–Compulsory Schooling Ages (1900–2023)

Birth Date	Start Age	Leaving Age	Duration
January 1900 – December 1935	7	12	6
January 1936 – December 1957 (potentially as early as January 1925)	7	13	7
January 1958 – December 2011 (potentially as early as January 1949)	7	15	9
January 2012 – Present	6	15	10

Source: Lindegren (1941) and Svensk författningssamling (1882, 1962, 2010, 2017)

Note: The table includes all schooling levels that are compulsory by Swedish law, including preschool level classes and comprehensive school level classes. Leaving age for cohorts prior to 1936 is imputed based on the duration of compulsory schooling. Leaving age is generally adjusted to reflect the age a person reaches during their last year of compulsory schooling.

In Sweden, the school year begins in August and is split into two terms. However, compulsory schooling laws are enforced based on the age reached during the calendar year (Svensk författningssamling, 2010, Ch. 7, §10). Thus, the effective school year for enrollment is the calendar year (January to December). We document all schooling levels that have compulsory attendance by Swedish law, including preschool level classes and comprehensive school level classes.

Chapter 6 of the 1882 schooling law made attendance at the Folkskola (elementary school) mandatory for those between the ages of 7 and 14, inclusive (Svensk författningssamling, 1882). However, the same chapter clarifies that children who had completed Folkskola could leave school. Based on the national curriculum for Folkskola passed in 1878, the elementary school curriculum was designed for 6 years. Assuming an individual began to attend school in the year in which they reached the age of 7, they would complete the Folkskola curriculum after 6 years of compulsory schooling, at the age of 12. We impute this age as the school leaving age for cohorts born before

1936.

We have been unable to locate the primary source to confirm the changes introduced by the 1937 policy. However, based on secondary sources, our understanding is that it raised the compulsory schooling requirement to 7 years. This change occurred through the Folkskola curriculum becoming a 7-year program (SPLASH-db.eu, 2014e). It would have first affected individuals born in 1925 who reached the age of 7 in their first year of compulsory schooling and completed 6 years of schooling in SY 1937-38. Since they would be required to stay for an additional year to complete the new Folkskola curriculum, they would be the first cohort affected by the policy. However, the reform was not enforced at a national level until SY 1948-49. Based on this effective date, the policy affected all minors in Sweden starting with the cohort born in 1936.

The *Education Act of 1962* mandated compulsory schooling for children from the calendar year in which they reached age 7 until the end of the school year when they reached age 16 or completed 9 years of schooling (Svensk författningssamling, 1962, §30). However, the implementation of this reform did not occur at the same time and varied by location. The change was introduced from July 1, 1962 and was required to be effective in all of Sweden by the end of SY 1968-69 (Svensk författningssamling, 1962, §56, 58). Nevertheless, the final national implementation did not occur until SY 1972-73 (SPLASH-db.eu, 2014e). We take SY 1972-73 as the effective year for the actual implementation of this reform in all of Sweden. We determine that the first cohort affected completed 7 years of schooling in this academic year. Individuals born in January 1958 started compulsory schooling in 1966 at the age of 7. They completed 7 years of compulsory school in SY 1972-73, and were required to remain enrolled for 2 more years. Therefore, the first cohort affected by the 1962 reform across Sweden was born in January 1958.

We also consider the school districts where the policy reform was enforced before the final implementation deadline. Taking 1962 as the effective year for the initial mandate, we determine that the first cohort affected would have completed 7 years of schooling in SY 1962-63. An individual born in January of 1949 would have begun compulsory schooling at the age of 7 in 1956. They would have completed 7 years of schooling in SY 1962-63 and been subject to 2 additional years of schooling. Thus, the first cohort affected was potentially born as early as January 1949 in some school districts.

Prior to the passage of the 1962 reform, some Swedish municipalities were selected to adopt 9 years of compulsory schooling during an experimental period (Holmlund, 2008). This began in SY 1949-50. Only municipalities that had already adopted the Folkskola reform of 1936 were selected to participate. In these municipalities, the 9-year compulsory schooling duration potentially affected cohorts born as early as January 1936. Since this only affected municipalities that were selected to participate in the experiment, it is not included in our data.

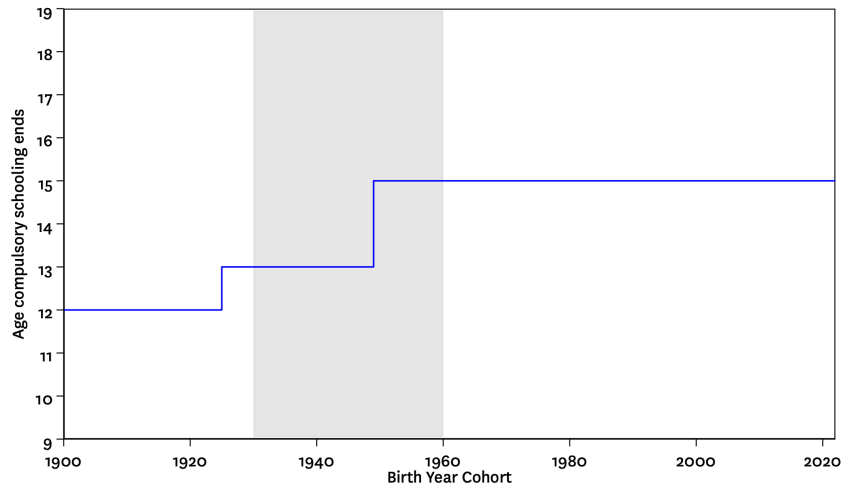
In 2018, Sweden began to require enrollment in a one-year preschool class in the calendar year in which an individual reached the age of 6 (Svensk författningssamling, 2017). The law was effective in January 2018, and enforced starting with SY 2018-19. An individual who was born in January 2012 would reach the age of 6 in SY 2018-19 and be required to enroll in the one-year preschool class. Therefore, we calculate the first cohort affected by this policy reform was born in January 2012.

Few papers investigate Swedish compulsory school laws with the exception of Hofmarcher (2021) which studied the 1937 and 1962 reforms. Hofmarcher (2021) reports the reform to the Folkskola curriculum as occurring in 1936, and gradually implemented between SY 1936-37 and SY 1948-49. Based on this, they report that the cohorts affected by the reform were born between 1923 and 1935. Two key differences between their approach and ours explain the discrepancies in these cohort calculations. First, our calculation, and the Swedish compulsory schooling law, is based on the age an individual will reach in the calendar year, not the school year. Second, our research indicates that this reform was passed in 1937, meaning we assume that it became effective in SY 1937-38 at the earliest.

Hofmarcher (2021) states that the *Education Act of 1962* extending compulsory schooling effective from SY 1962-63 had been in place since 1949-50 for certain municipalities affecting either students in the first or fifth grade depending on what each municipality decided. Using the 1962 implementation date, Hofmarcher (2021) determined that the first birth cohort affected once the policy was effective is the one that was in the 5th grade in SY 1962-63 and was born in 1951.

The figure below summarizes Sweden's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Sweden, there was two compulsory schooling reforms affecting people between 1930 and 1960. The first reform required at least 7 years of schooling for people born from 1936, while a second reform required 9 years of schooling for people born from 1958. Both laws were gradually implemented over the 9-11 years preceding their nationwide enforcement.

Figure 67: Sweden — Age compulsory schooling ends by birth year

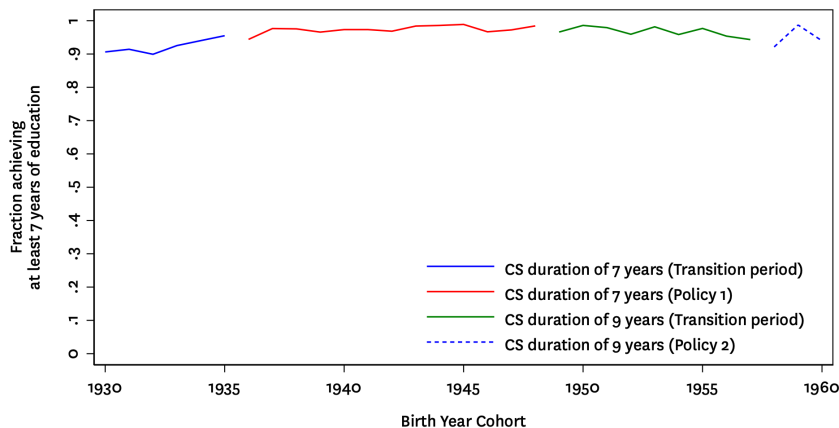


Note: The gray region reflects that the most frequent birth years of respondents in the Survey of Health, Ageing and Retirement in Europe's (SHARE) sample for Sweden are from 1930 to 1960.

Educational achievement by respondent characteristics in the HRS-INS

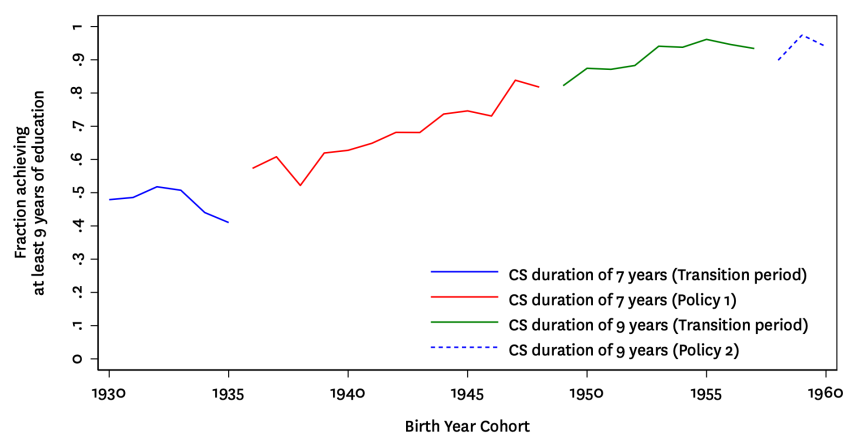
Figure 68 suggests that the fraction of individuals in the Swedish SHARE sample completing at least 7 years of compulsory schooling was approximately 90% for people born between 1930 and 1934, the last years of the transition to 7 compulsory schooling years. After 1935, it appears that compliance was nearly 100%. Figure 69 demonstrates that there was a gradual increase in people achieving at least 9 years of schooling before the increase in compulsory schooling to 9 years. By 1957, the year before the transition to 9 years of compulsory schooling began, 80% of the SHARE sample was already completing at least 9 years of schooling. Once the transition to 9 years of compulsory schooling began for people born from 1949, we observe one notable increase in 9-year schooling completion in 1953. By the end of the transition period, compliance was nearly 100%.

Figure 68: Sweden — Fraction completing at least 7 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 67.

Figure 69: Sweden — Fraction completing at least 9 years of education by birth cohort

Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 67.

26. Switzerland

Policymaking context

The Swiss Confederation, commonly known as Switzerland, is a federal republic comprising 26 cantons. After the Swiss civil war ended in 1847, Switzerland established a federal system: the federal government assumed responsibilities such as defense and trade while the cantonal governments retained significant autonomy in other areas. The political system of Switzerland has not changed drastically from this structure. The 26 cantons are granted a high level of independence, and also have their own streams of income. One of the areas that Swiss cantons control is compulsory education, and as a result education policies in Switzerland can be very diverse.

Policy history

The education system in Switzerland is decentralized and is regulated by each canton (SPLASH-db.eu, 2014f). The Swiss Federal Constitution of 1874 (Swiss Government, 1874) instituted mandatory education for all children in Switzerland, although the duration and ages in which children are required to be educated were not stipulated and vary by canton. To standardize these aspects of education in Switzerland, the 1970 Concordat on School Coordination set the start of education at age 6 and made it mandatory for at least 9 years, effective from school year (SY) 1973-74 (Schweizerische Konferenz der kantonalen Erziehungsdirektoren, 1970). The next change in compulsory schooling in Switzerland occurred in 2007 when the Intercantonal Agreement on Harmonisation of Compulsory Education (HarmoS Agreement) of June 14, 2007 extended the length of compulsory schooling to 11 years. This included 8 years of primary school, which included kindergarten, and 3 years of lower secondary school (Kanton Wallis, 2007, Articles 6.1, 6.2). These measures were not effective in all of Switzerland, but only in cantons that signed this agreement. As of November 2014, only 15 of 26 cantons had signed the HarmoS Agreement. Therefore, compulsory schooling in Switzerland ranges from 9 to 11 years depending on the canton.

Effective policy by cohort and comparison with existing analyses

Based on the rules established in the introduction, we assign the following birth cohorts and dates in Table 33.

Table 33: Switzerland–Compulsory Schooling Ages (1965-2023)

Birth Date	Start Age	Leaving Age	Duration
August 1964 - July 2002 (Implementation delayed in some cantons)	7	15	9
August 2002 - Present (Only 15 of 26 cantons agreed to this change)	5	15	11

Source: Kanton Wallis (2007) and Schweizerische Konferenz der kantonalen Erziehungsdirektoren (1970)

Note: National agreements are noted here, but canton-level implementation varies and are not noted here. Starting age is adjusted to reflect the age a person reaches during the first year of compulsory schooling. Leaving age is imputed based on starting age and compulsory schooling duration.

The 1970 *Concordat on School Coordination*, effective from October 1970, set the start of education at age 6 and made it mandatory for at least 9 years for Swiss cantons that signed the proposal (Schweizerische Konferenz der kantonalen Erziehungsdirektoren, 1970). Since the policy was generally enforced for those who reached the age of 6 before the start of the academic year, we adjust the starting age to 7 to reflect the age that a student would reach during their first year of compulsory schooling.

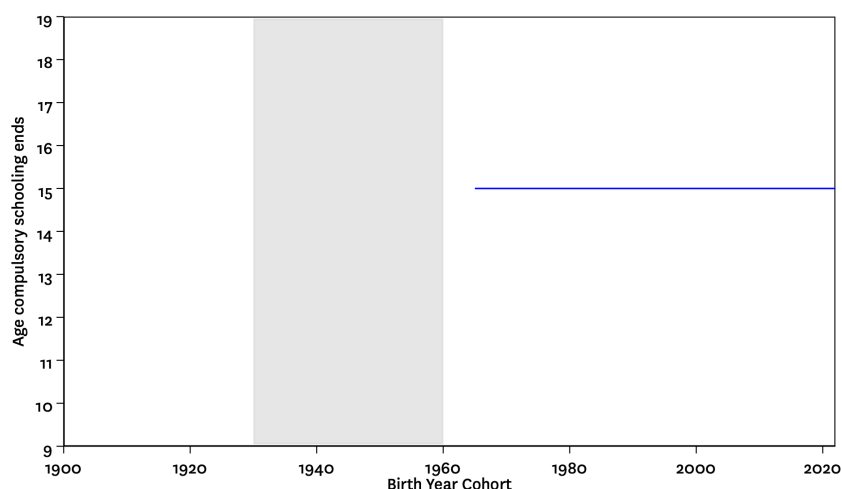
Assuming the first cantons signed the proposal by the end of 1970, and the changes were effective for SY 1971-72, we calculate the first birth cohort affected by the 1970 reform as the cohort that reached the age of 6 before the cutoff date for SY 1971-72. In most regions in Switzerland, this date is July 31. Individuals born in August 1964 would have been required to enroll in SY 1971-72 and reached the age of 7 during their first year of compulsory schooling. They would have completed their required 9 years of schooling at the age of 15. Therefore, we report the first cohort affected by this policy was born in August 1964.

According to Hofmarcher (2021), most cantons signed the proposal in the 1970s and the rest were required to adopt this policy change “within a reasonable time frame”. Therefore, there is no clear initial birth cohort affected by this policy. To address the issue of canton-level enforcement, Hofmarcher uses the policy enforcement dates of Zurich, which was the largest canton by population. He takes the implementation year of this reform in Zurich in 1977 to determine that the earliest birth cohort affected is 1971.

The *Intercantonal Agreement on Harmonisation of Compulsory Education* states that compulsory schooling begins after an individual reaches the age of 4, with a July 31 cutoff date (Kanton Wallis, 2007, §5). This means that individuals would reach the age of 5 in their first year of compulsory schooling. The first cohort affected would reach the age of 5 during SY 2007-08. They would be born in August 2002 and complete their compulsory 11 years of schooling in SY 2017-18, at the age of 15.

The figure below summarizes Switzerland's policy on the age compulsory schooling ends based on birth year from 1900 to 2024. In Switzerland, there was no nationwide compulsory schooling policy affecting people between 1930 and 1960.

Figure 70: Switzerland— Age compulsory schooling ends by birth year

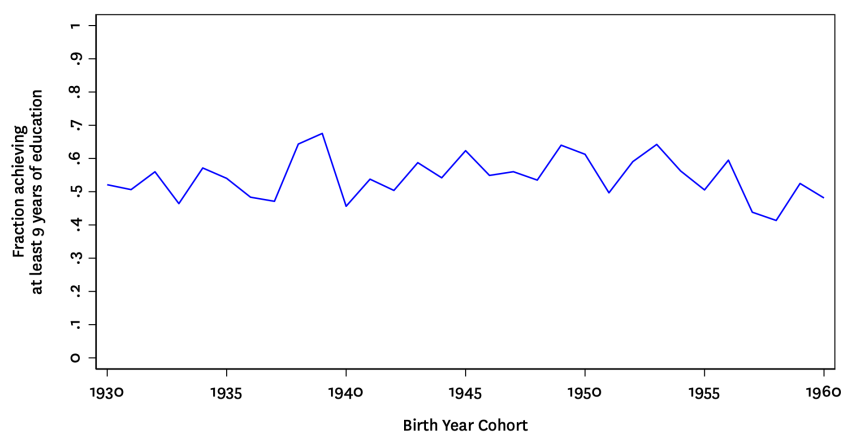


Note: The gray region corresponds to the most frequent birth years of respondents covered in our survey data.

Educational achievement by respondent characteristics in the HRS-INS

No nationwide compulsory schooling policy existed for Swiss people born between 1930 and 1960. For Swiss people born from August 1964, 9 years of schooling would have been required in most cantons. Figure 71 reveals that only about half of the individuals in the Swiss SHARE sample born between 1930 and 1960 completed at least 9 years of compulsory schooling, and no trend towards greater schooling is apparent.

Figure 71: Switzerland — Fraction completing at least 9 years of education by birth cohort



Source: Author's analysis of the Gateway's Harmonized SHARE data (version G).

Note: Birth year range reduced to match the gray area in Figure 70.

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Version information

Current Version: 1.1 (February 2025)

Version history

- 1.0 (July 2024): First version.
- 1.1 (February 2025): Added Estonia, Luxembourg, Portugal, and Sweden; updated figures.