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Historical Education System Data (HESDat)



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HISTORICAL EDUCATION SYSTEM DATA (HESDAT)

Michael Windzio, Fabian Besche-Truthe and Helen Seitzer*

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ABSTRACT

The historical education system dataset (HESDat) was collected to facilitate a comprehensive description and explanation of the dynamics of emergence, diffusion, and transformation in state education systems. In modern welfare states, education is a crucial instrument of social policy and is considered a prerequisite for exercising social rights and political participation (Weymann 2014). The project identifies the developmental trajectories and patterns of education systems. It investigates the causes of change and reform from a global and historical perspective. In our understanding, education systems entail all state-regulated and standardized forms of education, such as pre-school programs, the compulsory schooling sector, vocational training, and higher education structures.

HESDat, therefore, contains currently 63 different indicators on education systems, from state-mandated reforms to policy practice and system performance with a focus on compulsory structures. The earliest data collection dates back to 1739 spanning until 2020. Data for up to 170 states were collected so far (data collection is ongoing in 2021).

The project itself is embedded in a much larger collaborative research effort: The Collaborative Research Centre (CRC) 1342 “Global Dynamics of Social Policy”, funded by the German Research Foundation, is an association of research institutions at the University of Bremen, Jacobs University Bremen, the University of Duisburg-Essen, and the University of Cologne. About 80 researchers are involved in the center. The CRC 1342 aims to collect and describe patterns of development in all areas of social policy. The data is subsequently stored in a collective database, the “Welfare State Information System”

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(WeSIS), which allows the exploration, analysis, and download of data on many aspects of welfare states. WeSIS is accompanied by a Wiki-Style website, which describes the indicators and provides details on coding, original sources, and data availability.

An additional technical paper on the development of enrollment trends has been released within the framework of the CRC 1342. This particular dataset is thus not described here, but included under the framework of the project (Seitzer and Windzio 2021). Several publications utilizing the data described here are underway and can be found on the project website.¹ When utilizing the data, please quote the applicable publication, codebook and/or WeSIS.

1. INTRODUCTION

In modern welfare states, formal education is a pivotal instrument for preventative social policy, where it is considered a prerequisite for exercising social rights (Weymann 2014). Furthermore, state education fulfills an important function in the communication and reproduction of cultural traditions. In this project, we identify the developmental trajectories and patterns displayed by education systems and investigate the causes of change from a global and historical perspective. We argue that the emergence and development of education systems can be traced back to national factors and the international diffusion of ideas.

Even though multiple attempts were made at collecting historical data on education systems, HES-Dat is still one of its kind. The extensive historical reach, as well as the inclusion of historical political entities to trace the diffusion of education policy, is a unique perspective that allows the assessment of policy diffusion to an unprecedented extent. Previously collected data are utilized and combined within this dataset. The sources are indicated in the project's data repository WeSIS as well as the WeSISpedia website for data description. The sources include, but are not limited to, Barro and Lee's enrollment data (2010), Marlow-Fergusons World Education Encyclopedia (e.g. 2002), and Brock's Education around the World Series (e.g. 2013) as well as the International Historical Statistics Series (e.g. Mitchell 2007b; 2007a; 2007c), but also current sources such as the UNESCO Institute for Statistics (UIS). Indicators corresponding to data from the UIS deposited in WeSIS are marked with the suffix "UIS" in the short description. Accordingly, data originally collected by the CRC and thus part of the dataset presented here are marked with the suffix "CRC 1342" in the short description.

This codebook describes the data collection process and gives an overview over important indicators, keywords and concepts represented in this data. The codebook furthermore allows the citation of the data as long as the corresponding data repository WeSIS is not yet released to the general public.

2. DATA COLLECTION

The data was collected between 2018 and 2021 by the research team of A05. Special thanks go to our exceptional student assistants and interns, without their tireless efforts this project could not have been realized (in alphabetic order): Gabrielle Bieser, Modesta Dragasute, Nelli Feist, Ojarmyrat Gandymov, Anton Hardock, Jonas Krol, Mareike Müller-Scheffsky, Amelia Price, Philip Roth, Marvin Stein, and Daniel Titze.

¹ <https://www.socialpolicydynamics.de/projects/project-area-a-global-dynamics/project-a05/publications>

3. SAMPLE

In general, data was intentionally collected for the period between 1880 and 2018 but in multiple cases data as early as 1642 was available and, therefore, recorded. Especially the first-ever legislation concerning education – what we call “introduction of education in social legislation” – happened, in some cases well before classic social policy was introduced. For example in the United States, the initial introduction of education as a state responsibility was declared in 1642 by the Massachusetts Bay Company (Brock and Alexiandou 2013).

The dataset includes current political entities as well as historical ones that ceased to exist over time. In cases of the creation or secession of a new political entity on the same territory, the previously coded data was taken as a first introduction.

For example, if a state had previously introduced compulsory schooling but discontinued its program or was split into multiple separate political entities the newly created political entities on the same (former) territory with the same educational institution, have not been coded separately. We select our data based on the first introduction of an institution like compulsory schooling, even though constitutions change and/or empires fall apart.

Therefore, we assume a path-dependency between political entities on the same territory because we suppose policymakers often refer to pre-existing bureaucratic structures and procedures.

To ensure cross-comparability to other major data collections in the social sciences, we rely on the entity identifiers from the Correlates of War Project.² A state is, therefore, defined under the following criteria: Before 1920, the entity must have a population greater than 500,000 and have had diplomatic missions at or above the rank of charge d’affaires with Britain and France. After 1920, the entity must be a member of the United Nations or League of Nations or have a population greater than 500,000 and receive diplomatic missions from two major powers.

Federal states were mostly coded as a single unit to ensure compatibility with other datasets. If, however, the differences in education systems are substantial, the data will be coded for the entities separately, in addition to a collective sample, in the next iteration of this dataset. This has already been partially achieved in the case of the United Kingdom. The United Kingdom was split into England, Wales, Northern Ireland, and Scotland. Additionally, data for a collective political entity (UK) was pooled, where the first introduced incidence of state education in all these cases was used, due to the path-dependency between the territories. The United States on the other hand were coded as one single case, coding the first introduction in a state which was already part of the Union as the first introduction for the entire political entity. In the next iteration of this dataset, the states will be split into single units. Hong Kong was treated as an independent case, so were Taiwan and Macao.

4. CATEGORIZATIONS

The indicators in this dataset can be grouped into five categories, based on the information they contain: Attainment, Curriculum, Legislation, Participation, and Resources. In addition, second and third categories allow a more differentiated classification of the different indicators.

Attainment contains indicators such as transition rates, school life expectancy, or literacy attainment across the populations. The indicators in the Curriculum category describe the inclusion or exclusion of subjects such as religion and ideology in the national compulsory school curriculum. Structures of education systems such as standardizations, legal regulation (e.g. the introduction of compulsory school-

2 Correlates of War Project. 2017. “State System Membership List, v2016.” Online, <http://correlatesofwar.org>.

ing), and durations of compulsory and non-compulsory schooling are classified within the Legislation category. Participation classifies enrollments and drop-out rates. Resources denote financial or personnel resources a system can distribute (e.g. student-teacher ratios). All original indicators and respective classifications can be found in Table 1.

The grouping of indicators allows for a better overview of the data as displayed in WeSIS. In the following section, the second grouping is used to cluster the indicators further. Table 1 in the Appendix contains a short description of all indicators. All indicators, except for the introductions, are initially coded in country-year format which allows the coding of reforms. The duration of compulsory primary school is, for example, coded as 4 years in 1989 and 5 in 1999. For all years of this entity, from the introduction to 1989, the duration of compulsory primary school is coded as 4. From 1999 on it is coded as 5, until further changes are coded. This format, often found in time series analysis, also allows the continuous specification of the value of interest, even if the introduction or reform date is unclear.

Introduction dates of policies are generally coded by year. Several indicators are available in a country-year format to code the year of introduction but also in binary format, where once the indicator has been introduced the cell for the corresponding year contains a 1.

Further information about the specific indicator, if necessary, can be found in WeSISpedia.

The following section contains explanations and clarifications for key terms and indicators.

4.1 Key Terms and Indicators

COMPULSORY ASPECTS

The term **compulsory** refers to parts of the education system which are obligatory for a particular population. This population is usually defined by age or gender, varying between countries over time. The duration of compulsory school attendance and the duration of compulsory school levels differ between countries. Compulsory schooling can include pre-school as well as aspects of schooling such as the language of instruction or compulsory subjects such as religion, which can take place either at a school or at home (“homeschooling”), depending on the countries’ policy.

SCHOOL LEVELS

The dataset differentiates between 4 different levels of education: **Pre-school** is specifically named as such by the state and can entail programs for all ages from birth to school entry-age. It is important to note, however, that only state-provided programs available for all children are coded. The dataset does not include programs organized by municipalities and funded by the state. The program must be available for the entire population to attend.

Primary education counts as basic education. The secondary schooling level is separated into **lower** and **upper secondary**. Many states include only the primary and lower secondary levels into the compulsory school program, but only the attendance of the upper secondary sector allows access to higher education. In some cases, the secondary sector is not split into two levels, but the completion of this level still leads directly to higher education. This is then coded as “upper secondary” education.

States specify individually which levels are compulsory, which age groups attend which levels, and the complexity of the material per level. The levels are defined differently by each state and are not standardized through the international standard classification of education (ISCED) for durations. A student completing lower secondary education in one state could have a different knowledge base than a student from another state completing the same level, regardless of age. This, however, is dependent on the states and the diffusion of these standards is part of the question in which this dataset was developed. In short, we define primary schooling as the first level which grants basic education to students. Upper secondary is the educational level that leads to higher education. Lower secondary is

then between those two levels: more advanced than basic education but not leading directly to higher education.

Vocational education and training (VET) is defined through the designation for learners to acquire the knowledge, skills, and competencies specific to a particular occupation, trade, or class of occupations. Such programs may have work-based components (e.g. apprenticeships, dual-system education programs). The completion leads to labor-market relevant qualifications acknowledged by national authorities and/or the labor market.

Higher education is defined by the attendance in a university or similar institution in opposition to vocational education and training; often the bachelors-degree is the achievable degree for higher education.

INTRODUCTIONS

This category includes introduction-indicators, which refer to the first introduction of a policy, thus in some variables the first occurrence of an indicator. For example, the introduction of education in (social) legislation denotes the first instance of a political entity declaring education as a responsibility of the state, by mentioning education in a policy, the constitution or adding it through amendments. Importantly, this is only coded if it concerns most of the population, introductions for minority groups are not coded. The introduction date, coded in years³, refers to *de jure* as opposed to *de facto*. While *de jure* describes the first official introduction of the law, *de facto* states consider the enactment of the law. Even though there can be multiple years between those dates and the practice could not be fulfilled entirely either, the state's first intention to regulate this aspect of education for all citizens is coded. Introductions are valid for all aspects of compulsory education, including the language of instruction and the duration of the school levels.

Reforms are not coded under introductions, but all other indicators are always coded in conjunction with a year, which allows the coding of reforms if changes occurred.

The abolishment of a previously introduced law is coded in a separate indicator: for example, "Abolishment of compulsory schooling". If a law is not introduced or no information was found, it is coded as missing. In data release 0.1 missing data for these countries is omitted, though we plan to include them in future releases. Additionally, and for specific purposes, introductions are also coded in binary form. These indicators represent the existence of a policy and consider introduction and abolishment.

Standardization gives information on similar content to the indicator describing *tracking*, that is the separation of students by achievement levels into different school forms or class structures. In this indicator, we show the introduction of national exams. These exams can either lead to a stratification into different tracks, allow the progression to higher school levels, or universities, or simply review students' knowledge. There are different types of exams: Belgium for example, has different school tracks (some leading to higher education, some to vocational education), but no standardized examinations when entering or when leaving school. Germany, on the other hand, has both. There are multiple school tracks (Gymnasium, Realschule, etc.) but there is also a state-wide exam (Zentralabitur) for the Gymnasium track and for most other tracks (except leaving without certificate). The grades of this exam often determine access to higher education.

An indicator for the introduction of standardized structures is available also for vocational education and training (VET). Even though not an aspect of compulsory schooling, some countries offer a state-wide standardization of certificates for trades. This is considered state affairs and part of education and training.

Another indicator coded in this category is **centralized teacher training**. This indicator describes the introduction of a state-wide teacher training system. This could be specific schools, a centrally or-

3 Due to technical reasons the date is nonetheless depicted as December 31st in WeSIS.

ganized class, and in-school training or university programs. The intention for this indicator is to specify if the state has set a standard for teacher training effective for the entire state.

DURATIONS

Indicators containing durations specify the official minimum duration of a given level of education. This can entail the duration of all compulsory levels, split into the primary and secondary sectors. This category can also contain data on durations of non-compulsory aspects of schooling which are offered by the state such as pre-school or higher education.

DIFFERENTIATION

The category **differentiation** specifies two distinct aspects of differentiation: stratification between ability or content groups (academic vs. technical schools) and aspects of standardization for all school types. Both types of indicators include introduction years, specified under **basic legal regulations**.

The **tracking** indicator is the binary specification of the **stratification** indicator, specifying if there is a tracked education system in place at any given year. Between-school and within-school tracking are coded the same: if it leads to different certificates influencing career options after compulsory schooling, the system is coded as tracked.

Age of first Selection refers to the age of the student, when the first separation into different tracks of schooling occurs, often accompanied by aptitude exams. Here, the earliest age at which students take the aptitude exam is coded. If there are multiple exams, only the first value is coded.

In summary, for all indicators the “national” component is coded, meaning that tests, standards, and regulations administered by municipalities or a school council are not included. Further information of, for example, changes in national examinations or restrictions depending on the school track, are not recorded in the dataset at the time. Further information on the specific indicators can be found in the respective WeSISpedia pages.

PARTICIPATION

Participation indicators include enrolment ratios and drop-out rates. These indicators were mostly collected from sources such as the UNESCO Institute of Statistics and were not altered. Some data from other sources were imputed. These indicators are available to download on WeSIS, containing the same country codes and time-span as HESDat to allow for easier analysis. For a comprehensive account of enrolment trends, see the technical paper by Seitzer and Windzio (2021).

RESOURCES

Resource indicators are concerned with resources that go into the education system. These are both, financial and personnel resources. Financial resources include state expenditure as well as private expenditure and were collected from sources like the UNESCO Institute of Statistics and the International Historical Statistics series by Mitchell (2007 a,b,c). For historical data, we coded state expenditure as a percentage of total government expenditure. This allows increased data availability, as the measurement does not rely on currency transformation and thus allows the separation from the national currency. The indicator, thus, represents the value governments give state-run education systems.

CURRICULUM

For this first publication of our dataset, we focused on indicators of cultural reproduction to represent the government agenda transmitted through the curriculum. These are the inclusion of religion, universalistic ethics, or Marxist-Leninist philosophies within the state-mandated curriculum. These indicators are binary

and denote the compulsory nature of these aspects. However, it is very difficult to find the real introduction dates of compulsion; in particular, with the sources used. Therefore, it is in these variables where we see the most room for further improvements.

MISSING AND NON-APPLICABLE

Information that could not be found or remained unclear is not included in the data release 0.1. If the indicator is not applicable, due to specific non-introduction for example, it is coded as N/A. Pre-school education, for example, might be available but not compulsory, the year of introduction of pre-school education is thus coded as N/A, while the duration of the program (non-compulsory) still contains values for any given year.

SOURCES

Most of the initial information was extracted from three sources: The Education Around the World Series by Colin Brock⁴, World Education Encyclopedia by Rebecca Marlow-Fergusson,⁵ and UNESCO's International Yearbook of Education.

The Marlow-Fergusson Encyclopedia gives detailed insight into education systems around the world in terms of legal and historical factors.

"The World Education Encyclopedia is designed as a descriptive survey of the national education systems of the world in the dawn of the twenty-first century" (Marlow-Ferguson 2002, Introduction XIII). It describes historical background, constitutional and legal foundations, administration and financial aspects, and an overview of the teaching profession of each state. We found that the availability of data varies over countries and regions. Therefore, not every component mentioned above is given for each state.

The series by Brock is narrative and gives a broader impression on a nation's development, discussing relevant topics based upon its respective national educational system (e.g. multicultural nations, language of instruction, influence of religion in the curricula, case studies). "Education Around the World is designed to provide a global picture of education at the time of its authorship and publication enabling national, regional, and global trends to become apparent and be compared. All countries in the world will be represented, thus capturing both global trends and idiosyncratic features at the same time. Each volume includes a substantial editorial introductory chapter, followed by chapters on each state written by indigenous authors who are recognized experts in their field, allowing for special local factors to emerge and to be explained with authority and cultural understanding."⁶

Lastly, the International Yearbook of Education was a yearly publication by UNESCO running from 1933-1969 (except the time during World War 2). It compiles statistical as well as narrative data on education system changes.

The data were further evaluated with additional sources. These are specified in the **sources** section of the respective WeSISpedia page.

NAMING CONVENTION

The indicators are named in the following fashion: "edu" specifies the overall dataset, it is followed by either "intr", which specifies whether the indicator value is an introduction date, or "dur" for durations indicators. If the indicator is neither an introduction nor a duration, the names are chosen to be mostly self-explanatory. Related indicators are also specified, to allow for easier grouping of the indicators.

4 <https://www.bloomsbury.com/uk/series/education-around-the-world/>

5 Marlow-Ferguson, Rebecca. 2002. *World Education Encyclopedia. A Survey of Educational Systems Worldwide*. Detroit: Gale Group. Vol 1-3

6 <https://www.bloomsbury.com/uk/series/education-around-the-world/>

OTHER META-DATA

In addition, the dataset includes the description of the data type (numeric or string) as well as the scale (multinomial, binary, date, metric, or string) and the unit of measurement.

DESCRIPTIVE STATISTICS

Table 1 shows descriptive statistics for introduction variables, indicated by their technical variable names. The appendix contains a Graph regarding the introduction percentages.

Table 2 shows all indicators, their categories, and technical variable names.

Table 1: Descriptive Statistics: Introduction Dates

Statistic	N	Min	Mean	Median	Max
edu_intr_comp	144	1739	1931	1942	2015
edu_intr_comp_fem	48	1842	1945	1960	2002
edu_intr_comp_pre	27	1891	1989	1997	2015
edu_intr_home_school	42	1849	1979	1995	2016
edu_intr_med_instr	55	1772	1938	1958	2011
edu_intr_ministry	59	1773	1922	1936	1995
edu_intr_nfe_leg	23	1831	1964	1974	2010
edu_intr_pub_prv_mix	27	1807	1961	1985	2013
edu_intr_soc_leg	119	1642	1918	1935	2002
edu_intr_stand_vet	24	1911	1971	1980	2004
edu_intr_sys_stand	34	1852	1960	1963	2009
edu_intr_sys_strat	22	1848	1959	1973	1998
edu_intr_teach_train	54	1790	1936	1954	2013

Table 2: Indicator Table

Indicator name	Category 1	Category 2	Category 3	Technical name	Scale	Short description	Unit
Abolishment of allowance to home-schooling	Legislation	Regulation	Basic regulation	edu_abl_home_school	Date	Year of the abolishment of allowance to home-schooling (if applicable) (CRC 1342)	Year
Allowance of homeschooling binary	Legislation	Regulation	Basic regulation	edu_intr_home_school_bin	Binary	Binary variable depicting whether homeschooling is allowed (CRC 1342)	Yes/No
Education introduced in social legislation	Legislation	Regulation	Basic regulation	edu_intr_soc_leg	Date	Year of first-ever legislation on education (CRC 1342)	Year
Education ministry exists binary	Legislation	Regulation	Basic regulation	edu_intr_ministry_bin	Binary	Binary variable depicting whether there exists a Ministry of Education (if applicable) (CRC 1342)	Yes/No
First legislation concerning education binary	Legislation	Regulation	Basic regulation	edu_intr_soc_leg_bin	Binary	Binary variable depicting whether there has been legislation on education (CRC 1342)	Yes/No
Founding of Ministry of Education	Legislation	Regulation	Basic regulation	edu_intr_ministry	Date	Year of the founding of a Ministry of Education (if applicable)(CRC 1342)	Year
Introduction of an allowance to home-schooling	Legislation	Regulation	Basic regulation	edu_intr_home_school	Date	Year of allowance of homeschooling (if applicable) (CRC 1342)	Year
Introduction of first legislation about non formal education	Legislation	Regulation	Basic regulation	edu_intr_nfe_leg	Date	Year of first-ever legislation on non-formal education (CRC 1342)	Year
Legislation on non formal education in place binary	Legislation	Regulation	Basic regulation	edu_intr_nfe_leg_bin	Binary	Binary variable depicting whether there is legislation on non-formal education (CRC 1342)	Yes/No
Abolishment of compulsory education for females	Legislation	Regulation	Compulsory education	edu_abl_comp_fem	Date	Year of the abolishment of compulsory education for females (if applicable) (CRC 1342)	Year
Compulsory pre-primary education binary	Legislation	Regulation	Compulsory education	edu_intr_comp_pre_bin	Binary	Binary variable depicting whether pre-primary education is compulsory (CRC 1342)	Yes/No
Compulsory schooling existent binary	Legislation	Regulation	Compulsory education	edu_intr_comp_bin	Binary	Binary variable depicting whether education is compulsory (CRC 1342)	Yes/No
Compulsory schooling for females binary	Legislation	Regulation	Compulsory education	edu_intr_comp_fem_bin	Binary	Binary variable depicting whether education is compulsory for females (CRC 1342)	Yes/No
Introduction of compulsory education (specifically) for females	Legislation	Regulation	Compulsory education	edu_intr_comp_fem	Date	Year of the introduction of compulsory education for females (if applicable)(CRC 1342)	Year
Introduction of compulsory pre-primary education	Legislation	Regulation	Compulsory education	edu_intr_comp_pre	Date	Year of the introduction of compulsory education for females (if applicable)(CRC 1342)	Year
Introduction of compulsory schooling	Legislation	Regulation	Compulsory education	edu_intr_comp	Date	Year of the introduction of compulsory education (CRC 1342)	Year
Duration of minimum education in years	Legislation	Duration	Compulsory	edu_dur_min	Metric	Duration of compulsory education in years (CRC 1342)	Duration
Duration of higher education	Legislation	Duration	Free	edu_dur_he	Metric	Duration of higher education in years (CRC 1342)	Duration

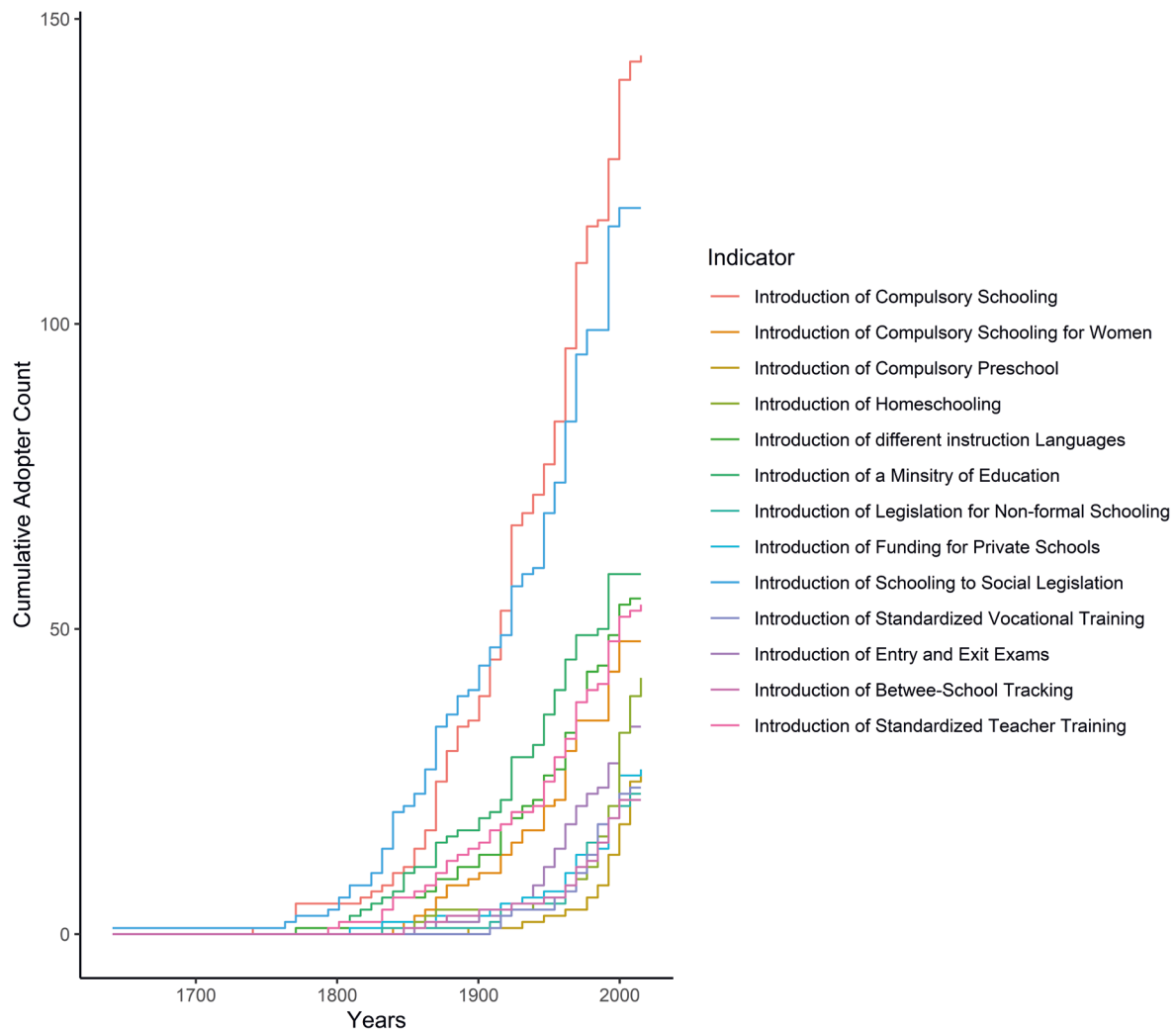
Indicator name	Category 1	Category 2	Category 3	Technical name	Scale	Short description	Unit
Duration of lower secondary education	Legislation	Duration	Free	edu_dur_low_sec	Metric	Duration of lower secondary education in years (CRC 1342)	Duration
Duration of pre-school education	Legislation	Duration	Free	edu_dur_pre	Metric	Duration of pre-school education prescribed by law in years (CRC 1342)	Duration
Duration of primary education	Legislation	Duration	Free	edu_dur_pri	Metric	Duration of primary education in years (CRC 1342)	Duration
Duration of upper secondary education	Legislation	Duration	Free	edu_dur_up_sec	Metric	Duration of upper secondary education in years (CRC 1342)	Duration
Duration of VET	Legislation	Duration	Free	edu_dur_vet	Metric	Duration of vocational education and training in years (CRC 1342)	Duration
Number of years of free pre-primary education guaranteed in legal frameworks	Legislation	Duration	Free	edu_dur_free_pre_uis	Metric	Duration of free pre-primary education legally granted (CRC 1342)	Duration
Participation in ERCE	Legislation	Standardization	International Assessments	edu_ilsa_parti_erce	Binary	Binary variable indicating the participation in 'Estudio Regional Comparativo y Explicativo' and its follow ups (CRC 1342)	Yes/No
Participation in ICCS	Legislation	Standardization	International Assessments	edu_ilsa_parti_iccs	Binary	Binary variable indicating the participation in International Civic and Citizenship Education Study (CRC 1342)	Yes/No
Participation in ICILS	Legislation	Standardization	International Assessments	edu_ilsa_parti_icils	Binary	Binary variable indicating the participation in International Computer and Information Literacy Study (CRC 1342)	Yes/No
Participation in PASEC	Legislation	Standardization	International Assessments	edu_ilsa_parti_pasec	Binary	Binary variable indicating the participation in Programme d'analyse des systèmes éducatifs de la CONFEMEN (CRC 1342)	Yes/No
Participation in PIRLS	Legislation	Standardization	International Assessments	edu_ilsa_parti_pirls	Binary	Binary variable indicating the participation in Progress in International Reading Literacy Study (CRC 1342)	Yes/No
Participation in PISA	Legislation	Standardization	International Assessments	edu_ilsa_parti_pisa	Binary	Binary variable indicating the participation in Programme for International Student Assessment (CRC 1342)	Yes/No
Participation in PISA-D	Legislation	Standardization	International Assessments	edu_ilsa_parti_pisa_d	Binary	Binary variable indicating the participation in PISA for Development (CRC 1342)	Yes/No
Participation in SACMEQ	Legislation	Standardization	International Assessments	edu_ilsa_parti_sacmeq	Binary	Binary variable indicating the participation in The Southern and Eastern Africa Consortium for Monitoring Educational Quality (CRC 1342)	Yes/No
Participation in TALIS	Legislation	Standardization	International Assessments	edu_ilsa_parti_talis	Binary	Binary variable indicating the participation in The OECD Teaching and Learning International Survey (CRC 1342)	Yes/No

Indicator name	Category 1	Category 2	Category 3	Technical name	Scale	Short description	Unit
Participation in TIMSS	Legislation	Standardization	International Assessments	edu_ilsa_parti_timss	Binary	Binary variable indicating the participation in Trends in International Mathematics and Science Study (CRC 1342)	Yes/No
Introduction of common medium of instruction	Legislation	Standardization	Language	edu_intr_med_instr	Date	Year of the first-ever introduction of legislation on a common language of instruction (CRC 1342)	Year
Official medium of instruction	Legislation	Standardization	Language	edu_med_instr	String	Language(s) used in education (CRC 1342)	Language
Official medium of instruction binary	Legislation	Standardization	Language	edu_intr_med_instr_bin	Binary	Binary variable depicting whether there exists legislation on a common language of instruction (CRC 1342)	Yes/No
Common entrance or exit exam binary	Legislation	Standardization	National Exams	edu_intr_sys_stand_bin	Binary	Binary variable indicating the existence of a common entrance or exit exam (CRC 1342)	Yes/No
Introduction of common entrance or exit exam	Legislation	Standardization	National Exams	edu_intr_sys_stand	Date	Year of the introduction of a common entrance or exit exam (CRC 1342)	Year
Introduction of common vocational education system	Legislation	Standardization	National Exams	edu_intr_stand_vet	Date	Year of the introduction of common VET exam (CRC 1342)	Year
Introduction of common vocational education system binary	Legislation	Standardization	National Exams	edu_intr_stand_vet_bin	Binary	Binary variable depicting whether there is a common VET system (CRC 1342)	Year
Non-formal enrollment rate	Participation	Enrolment trends	Non-formal	edu_nfe_enroll	Metric	Participation in non-formal education activities (CRC 1342)	0-100 percentage
Enrollment rate in pre-school education	Participation	Enrolment trends	Pre-primary	edu_pre_enroll	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Enrollment trend in primary education	Participation	Enrolment trends	Primary	edu_pri_enroll	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Enrollment trend in primary education male	Participation	Enrolment trends	Primary	edu_male_enroll_pri	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Female Enrollment trend in primary education	Participation	Enrolment trends	Primary	edu_fem_enroll_pri	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Enrollment trend in secondary education	Participation	Enrolment trends	Secondary	edu_sec_enroll	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Enrollment trend in secondary education female	Participation	Enrolment trends	Secondary	edu_fem_enroll_sec	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Enrollment trend in secondary education male	Participation	Enrolment trends	Secondary	edu_male_enroll_sec	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Introduction of standardized teacher training	Legislation	Standardization	Teacher education	edu_intr_teach_train	Date	Year of the introduction of standardized teacher training (CRC 1342)	Year



Indicator name	Category 1	Category 2	Category 3	Technical name	Scale	Short description	Unit
Standardized teacher training binary	Legislation	Standardization	Teacher education	edu_intr_teach_train_bin	Binary	Binary variable depicting whether teacher training is standardized (CRC 1342)	Yes/No
The enrollment rate in tertiary education	Participation	Enrolment trends	Tertiary	edu_ter_enroll	Metric	Own aggregated enrolment trend (CRC 1342)	0-100 percentage
Abolishment of between school tracking	Legislation	Regulation	Tracking	edu_abl_sys_strat	Date	Year of the abolishment of between-school tracking (if applicable) (CRC 1342)	Year
Age of first selection	Legislation	Regulation	Tracking	edu_first_select	Metric	Age at which students are selected to different schools (CRC 1342)	Age
Between school tracking binary	Legislation	Regulation	Tracking	edu_track	Binary	Binary variable depicting whether students are tracked into different schools (CRC 1342)	Yes/No
Introduction of a stratified education system	Legislation	Regulation	Tracking	edu_intr_sys_strat	Date	Year of the introduction of tracking into different schools (CRC 1342)	Year
Government expenditure on education as a percentage of total government expenditure	Resources	Financial		edu_pub_exp_pct_total_exp	Metric	Government expenditure on education as a percentage of total government expenditure (CRC 1342)	0-100 percentage
Pupil/Student to teacher ratio	Resources	Personnel		edu_pup_teach_ratio	Metric	The average number of pupils per teacher at a given level of education. (CRC 1342)	average number of students for one teacher
Abolishment of public funding for private schools	Legislation	Privatization		edu_abl_pub_prv_mix	Date	Year of the abolishment of public funding for private schools (if applicable)(CRC 1342)	Year
Introduction of public funding for private schools	Legislation	Privatization		edu_intr_pub_prv_mix	Date	Year of the introduction of public funding for private schools (CRC 1342)	Year
Introduction of public-private mix binary	Legislation	Privatization		edu_intr_pub_prv_mix_bin	Binary	Binary variable depicting whether private schools receive public funds for education (CRC 1342)	Yes/No
Civic education compulsory binary	Curriculum	Religion and Ethics		edu_civic	Binary	Binary variable depicting whether civic/ethics education is compulsory (CRC 1342)	Yes/No
Marxist-Leninist education compulsory binary	Curriculum	Religion and Ethics		edu_marx_lenin	Binary	Binary variable depicting whether Marxist-Leninist education is compulsory (CRC 1342)	Yes/No
Religious education compulsory	Curriculum	Religion and Ethics		edu_relig	Binary	Binary variable depicting whether religious education is compulsory (CRC 1342)	Yes/No

Figure 1: Cumulative introduction indicators



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