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HAVE YOUR CAKE AND EAT IT TOO. THE WELL-BEING OF THE ITALIANS (1861-2011)

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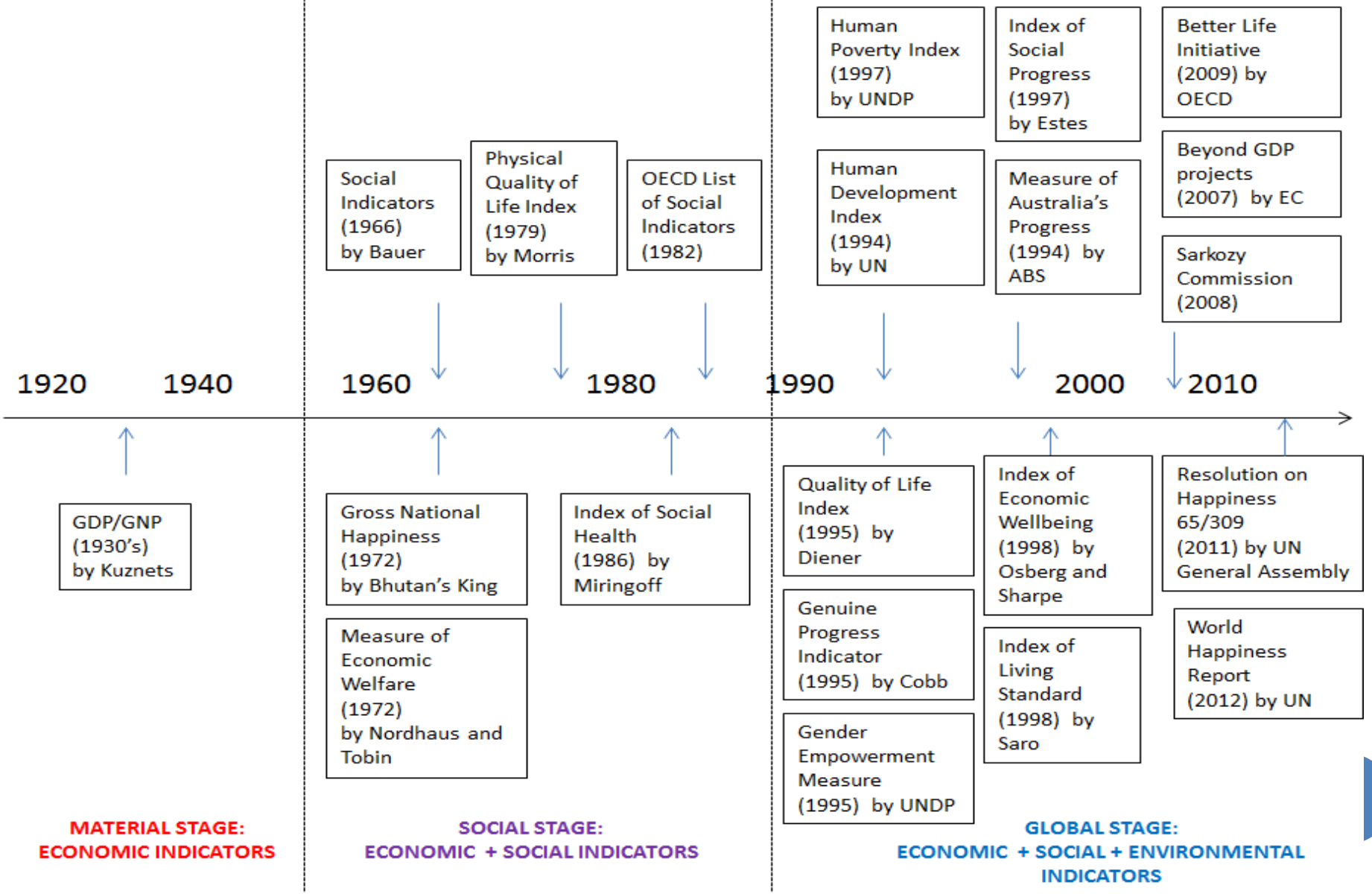
BEYOND GDP: one indicator many aims

- GDP has become a tool with which to evaluate the **economic progress** of a country.
- Over time, GDP was allocated a property that does not have: to try to measure **well-being.**
- However GDP:
  - neglects the output and production activities goods or services that do **not** pass through the **market mechanism**.
  - does **not** consider the **distribution** of resources among individuals.
  - measure only cash income products and **not the stocks** of assets and resources accumulated.
- Simon Kuznets warned 50 years ago that: "The welfare of a nation can scarcely be inferred from a measurement of national income… "

Chronological evolution of measures of progress related to GDP



Reconstructing well-being in Italy over time

"Dovremmo combattere la concezione dominante che propone un unico modello di sviluppo (il modello centrato sulla crescita di beni in commercio) accettato come l'unico valido. Dobbiamo sollecitare ogni popolazione a cercare la forma di progresso che soddisfa meglio la sua storia, le sue caratteristiche, la sua situazione, e non sentirsi inferiori solo perché un altro paese produce di più. Oggi, anche se questo può sembrare pura utopia, ci si deve però pensare"

Giorgio Fuà, Crescita Economica, 1993

HOME IL PROGETTO BES NEWS ENGLISH

bes benessere equo sostenibile

misurare e valutare
il progresso della società italiana

THE 12 DIMENSIONS OF WELL-BEING

1. Health
2. Education and training
3. Work and life balance
4. Economic well-being
5. Social relationships
6. Politics and Institutions
7. Security
8. Subjective well-being
9. Landscape and cultural heritage
10. Environment
11. Research and innovation
12. Quality of services

The Italian National Council for Economics and Labour (CNEL) and the Italian National Institute of Statistics (ISTAT) present the second edition of the "Report on Equitable and Sustainable Wellbeing" (BES 2014) analysing the **fundamental dimensions of wellbeing and progress in Italy and its territories**.

With its continued work BES seeks to become a reference point for citizens, for civil society, media and politicians, providing an overall view of the main social, economic and environmental phenomena which characterize our country.

MEASURING WELL-BEING OVER TIME

- OECD's Better Life Index: "How's life?"
- OECD's Better Life Index over time since 1820 for 25 countries: "How was life?"

- For the 150° anniversary of the Italian unification:
  - Baffigi (2011): time series of national accounts
  - Brandolini and Vecchi (2011) and Vecchi (2011): time series of some well-being indicators (GDP, education, work, health)
  - Felice and Vasta (2015): HDI for Italian regions

In this Paper

- We provide overview of long-term trends of well-being in Italy from 1861 to 2011
  - Using 42 indicators (inspired by the BES' ones)
  - Covering much more domains than previous authors

SELECTION OF DOMAINS AND INDICATORS

- We primarily follow ISTAT's BES indicators
- However:
  - Some BES domains represent **modern concepts**, hence no historical data available (Social Relations, Subjective Well-Being, Quality of Services, Landscape and Cultural Heritage)
  - Individual **preferences change over time**: excluded indicators whose meaning in terms of well-being has changed over time (violence against women)
  - In case of **data limitations**, we had to **proxy** some BES indicators
  - Time series available mainly at **census**, not yearly: need of **interpolation**

Historical BES: 42 indicators referring to 8 of the BES domains

1. Health
2. Education
3. Work
4. Economic well-being
5. Political Participation
6. Security
7. Environment
8. Research and Development

Methodology

- A composite index for each domain (Adjusted Mazziotta-Pareto index)

- Structural break analysis:
  - Test for the presence of multiple structural breaks at unknown dates in the trend of each composite indicator (Bai and Perron, 1998, 2003)

Adjusted Mazziotta-Pareto Index

- **For each BES domain**, let be a matrix with *n* rows and *m* columns representing the distribution of *m* indicators over a time span *n*.
- Let denote the matrix of the normalized indicators, obtained as follows

$$r_{ij} = \begin{cases} \dfrac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)} \cdot 60 + 70 & \text{if j is positive} \\ \dfrac{\max(x_j) - x_{ij}}{\max(x_j) - \min(x_j)} \cdot 60 + 70 & \text{if j is negative} \end{cases} \quad (1)$$

where $\max(x_j)$ and $\min(x_j)$ denote the maximum and the minimum level achieved by the indicator *j* over time, respectively.

- The composite indicator for each BES domain is obtained as:

$$MPI_i^{+/-} = M_i \pm S_i \cdot CV_i$$

Structural Breaks analysis

- The model considers a standard linear regression model with k breaks:

$$MPI_i^{+/-} = \beta_h + \varepsilon_i,$$

- Within a sub-period h the value of composite indicator is equal to the average value of that sub-period (β_h) plus a stationary error (ε_i).

- Tests the null hypothesis of no structural changes over the entire time span: H_0: $\beta_h = \beta$ for all h=1, …, k+1

  against the alternative hypothesis that the beta coefficients vary over time.

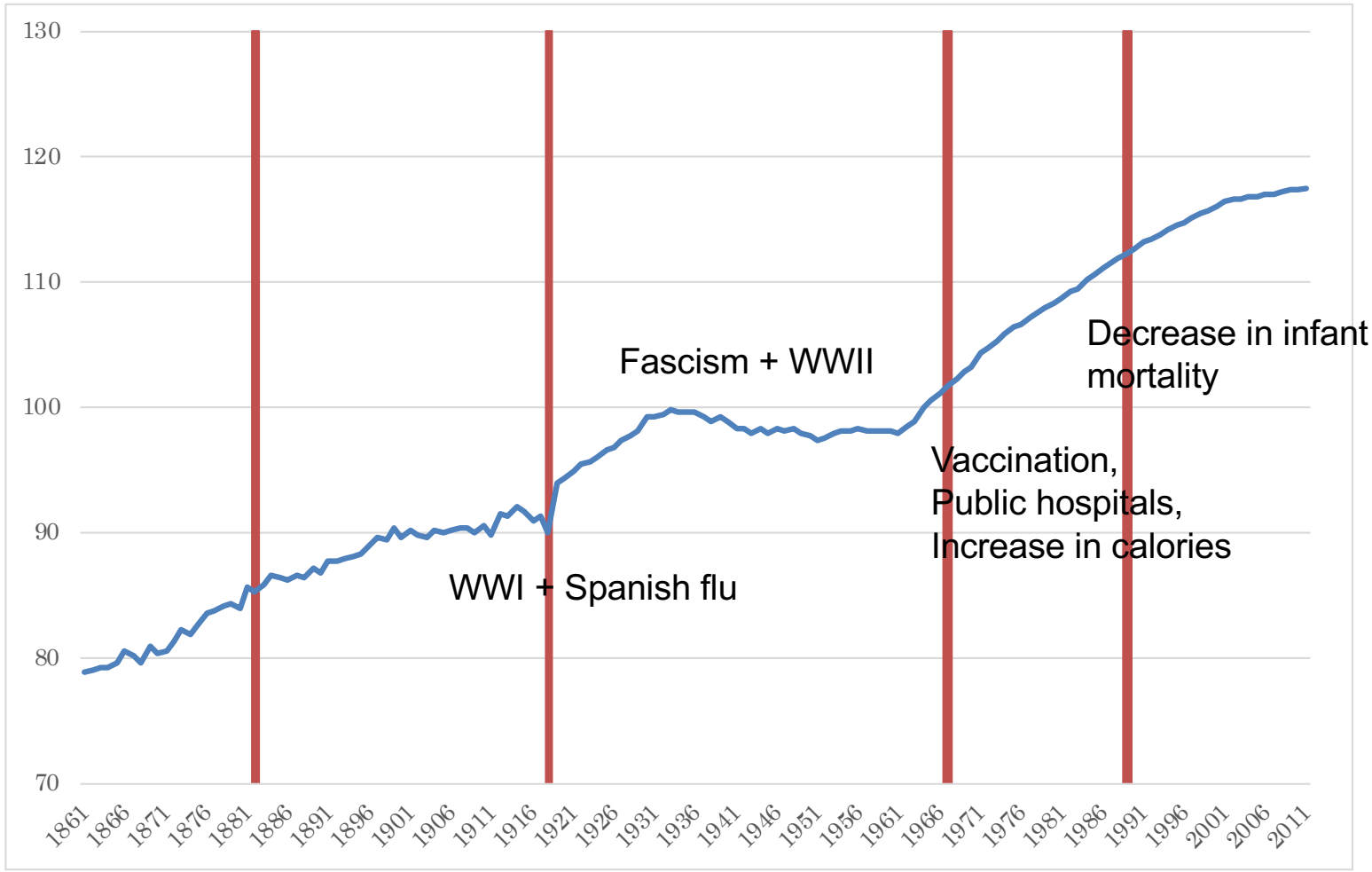
- BIC score for determining optimal number and location of breaks

Results from each domain

Health

Indicator	Source	Coverage	Sign*
Alcohol Calories	Vecchi (2011)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	-
Average Height of Males	ISTAT	Yearly 1872-1938; 1944-1985; 1987; 1990-1998	+
Infant Mortality	ISTAT	Yearly 1861-2011	-
Male Life Expectancy	Vecchi (2011)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+
Female Life Expectancy	Vecchi (2011)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+
Total Calories	Vecchi (2011)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+
Vegetable Proteins	Vecchi (2011)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+

HEALTH COMPOSITE INDEX

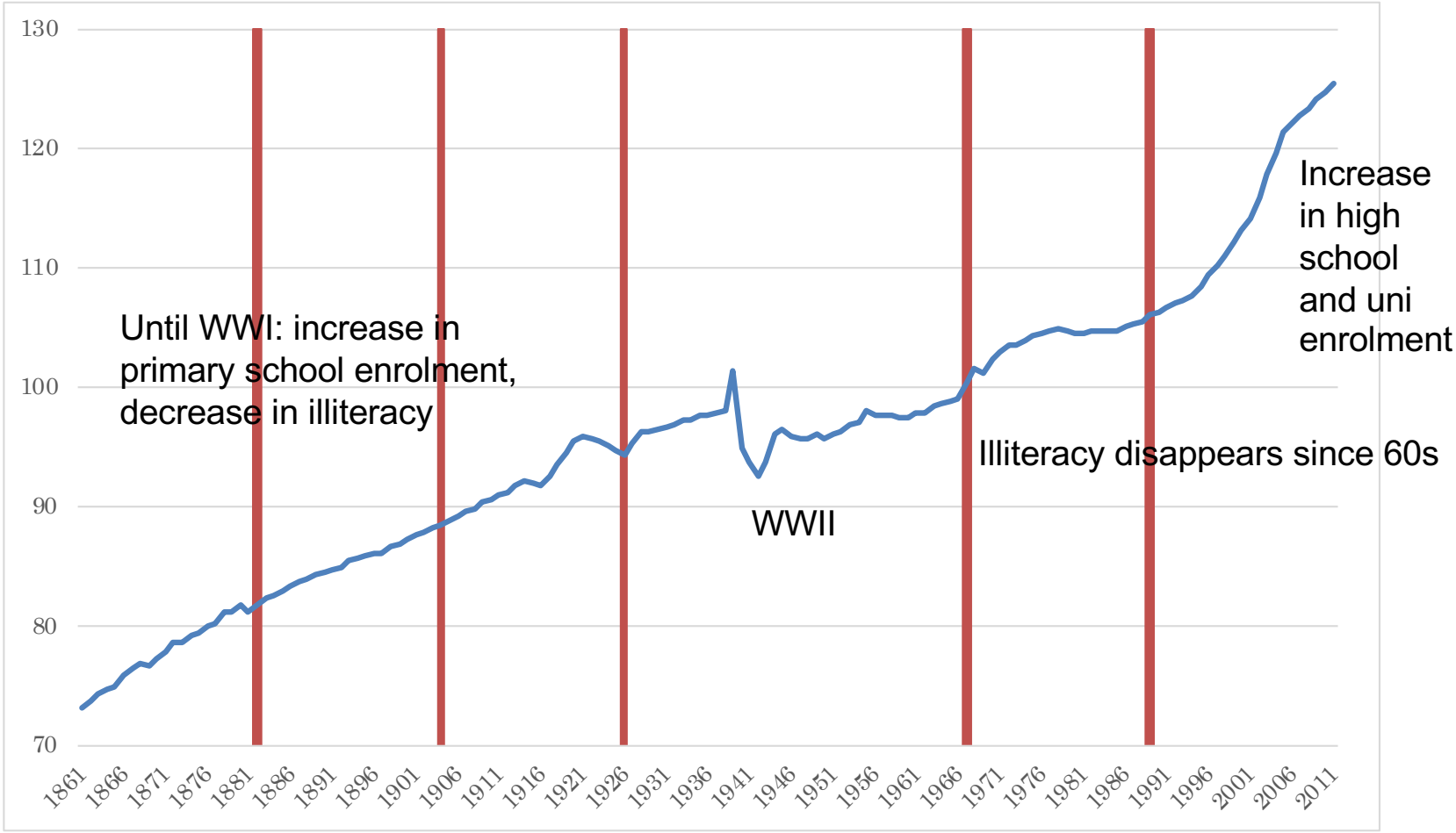


- Fascism: reduction in available calories, slower infant mortality decrease due to isolation from scientific progress (Penicillin)
- 1950s: from agricultural to industrialized society: change in eating habits, no increase in life expectancy, reduction of vegetable proteins

EDUCATION

Indicator	Source	Coverage	Sign
Average Number of Years of Education	van Zanden et al. (2014)	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+
Degree Attainment Rate	ISTAT	Yearly 1926-2011; Costant before 1926	+
Elementary School Enrolment Rate	ISTAT	Yearly 1861-2011	+
High School Enrolment Rate	ISTAT	Yearly 1861-2011	+
Illiterate Male Spouse (share)	ISTAT	Yearly 1867-1965	-
Illiterate Female Spouse (share)	ISTAT	Yearly 1867-1965	-
University Enrolment Rate	ISTAT	Yearly 1861-2011	+

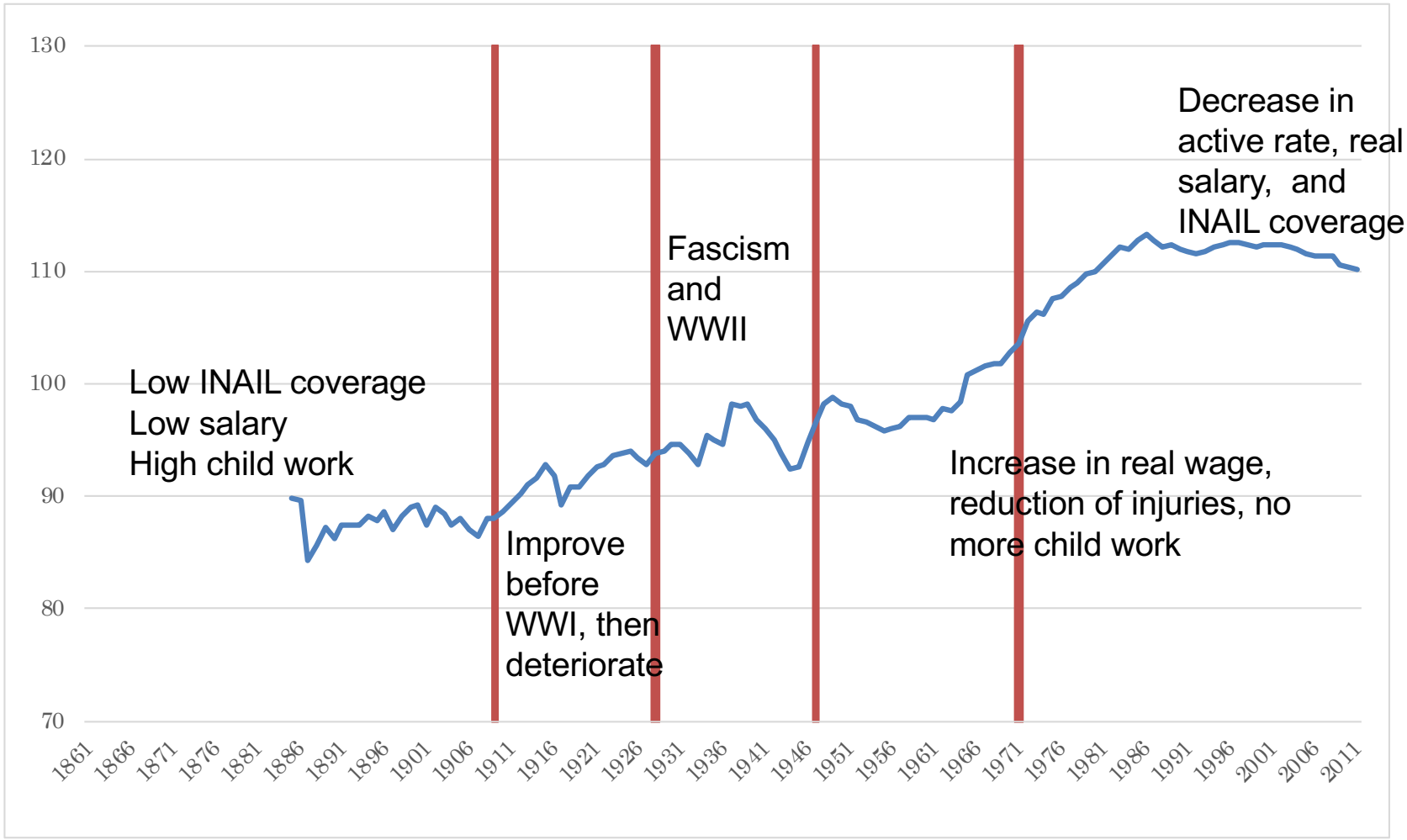
EDUCATION COMPOSITE INDEX



Work

Indicator	Source	Coverage	Sign
Activity Rate	ISTAT	Census 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951, 1961, 1971, 1981, 1991, 2001, 2011	+
Male Child Work	Vecchi (2011) & ISTAT (several years)	Vecchi Census data 1861-1961 - ISTAT 1989, 1998, 2000 - fixed to 3.10% after 2000	-
Female Child Work	Vecchi (2011) & ISTAT (several years)	Vecchi Census data 1861-1961 - ISTAT 1989, 1998, 2000 - fixed to 3.10% after 2000	-
Death Rate	INAIL	Enjuries yearly 1885-2008 / Ensured Yearly 1885-1980 and 2007-2011	-
Injuries Rate	INAIL	Enjuries yearly 1885-2008 / Ensured Yearly 1885-1980 and 2007-2011	-
Full Time Equivalent Workers/Population	Bank of Italy & ISTAT	Yearly 1885-2011	+
INAIL Coverage	INAIL	INAIL Ensured Yearly 1885-1980 and 2007-2011 / Bank of Italy Hadcount Yearly	+
Williamson's low skilled jobs salary	Williamson (1995) & ISTAT	International Real Wages 1885-1988 from Williamson / ISTAT low skilled job salary 1989-2011	+
Permanent Injures Rate	INAIL	Enjuries yearly 1885-2008 / Ensured Yearly 1885-1980 and 2007-2011	-

WORK COMPOSITE INDEX

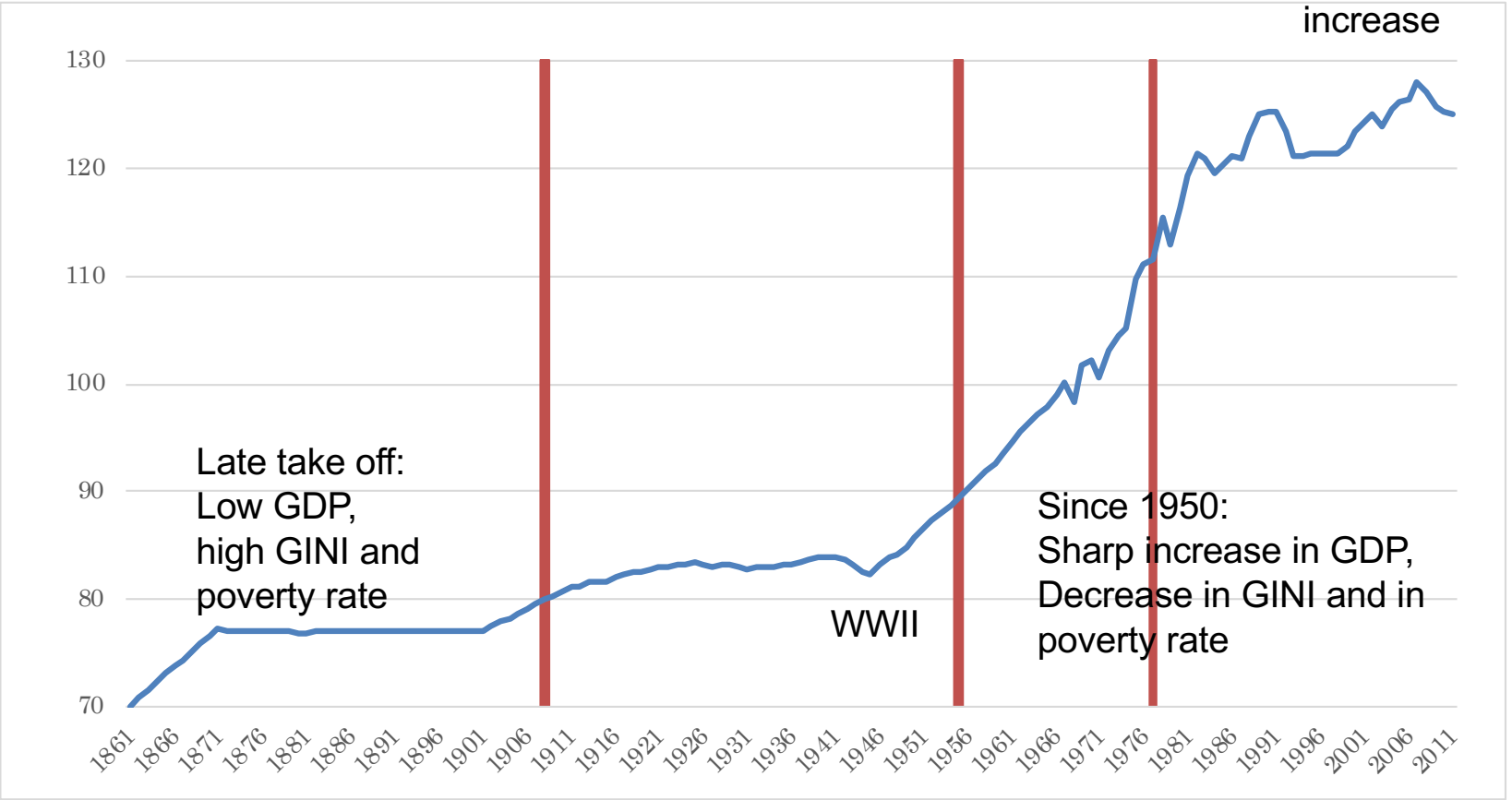


WWII: increase in Child work and injuries, reduction in real salary

ECONOMIC WELL-BEING

Indicator	Source	Coverage	Sign
GDPpc 2005 prices	Baffigi (2011)	Yearly	+
Gini Index	Vecchi (2011) & ISTAT	1861, 1871, 1881, 1891, 1901, 1911, 1921, 1931, 1948, 1967-1975, 1977-1989, 1991, 1993, 1995, 1998, 2000, 2002, 2004, 2006, 2008-2011	-
Share of population below absolute poverty line	Vecchi (2011) & ISTAT	1861, 1871, 1881, 1891, 1901, 1911, 1921, 1931, 1948, 1967-1975, 1977-1989, 1991, 1993, 1995, 1998, 2000, 2002, 2004, 2006, 2008-2011	-

Economic Well-being composite index

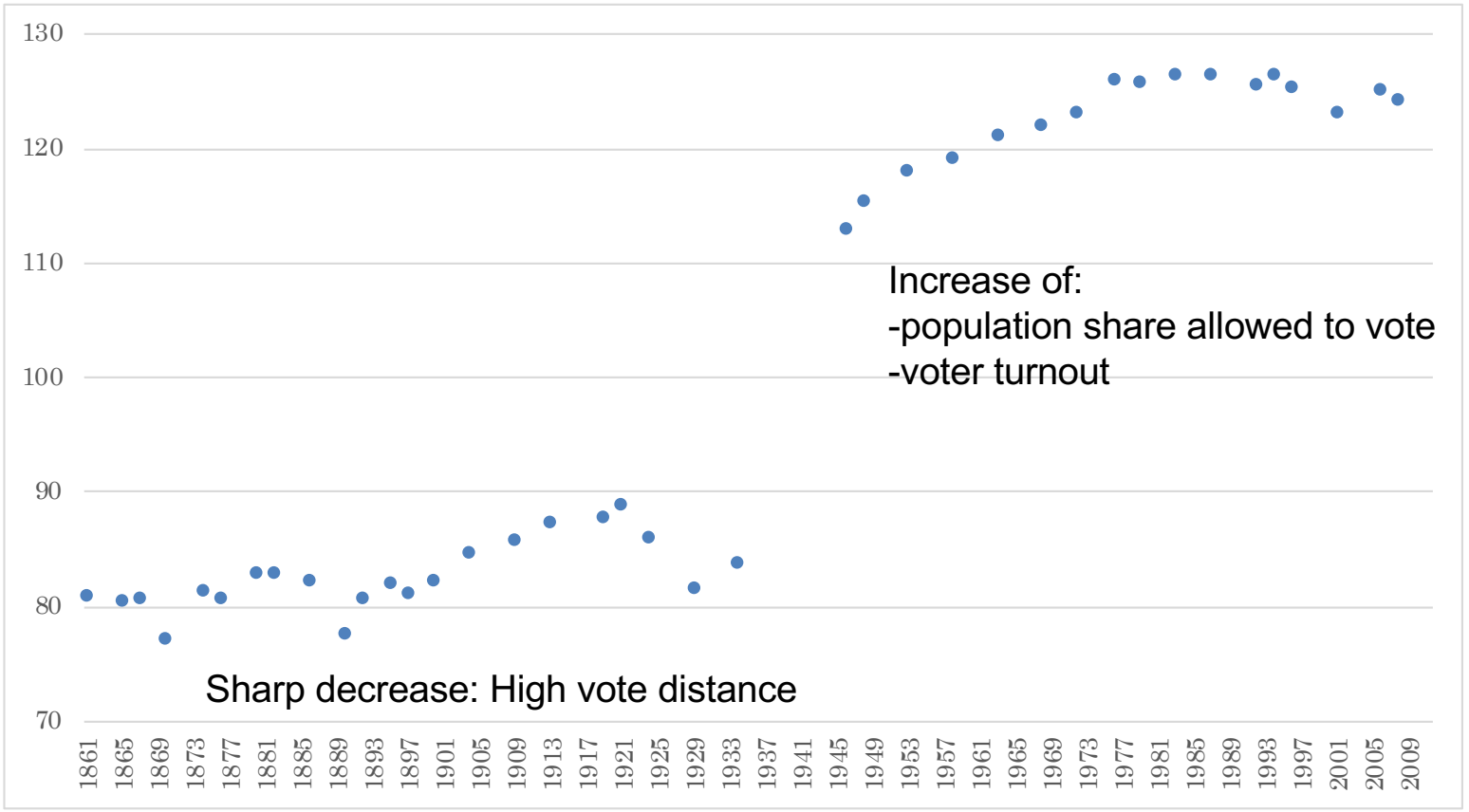


Hence, economic growth seems to be fundamental for redistribution.

Political Participation

Domain	Indicator	Source	Coverage	Sign
Political Participation	Index of Democracy	van Zanden et al. (2014)	1861, 1865, 1867, 1870, 1874, 1876, 1880, 1882,1886, 1890, 1892, 1895, 1897, 1900, 1904, 1909, 1913, 1919, 1921, 1924, 1929, 1934, 1946, 1948, 1953, 1958, 1963, 1968, 1972, 1976, 1979, 1983, 1987, 1992, 1994, 1996, 2001, 2006, 2008,	+
	Share of Population allowed to vote	Ministry of Interior	1861, 1865, 1867, 1870, 1874, 1876, 1880, 1882,1886, 1890, 1892, 1895, 1897, 1900, 1904, 1909, 1913, 1919, 1921, 1924, 1929, 1934, 1946, 1948, 1953, 1958, 1963, 1968, 1972, 1976, 1979, 1983, 1987, 1992, 1994, 1996, 2001, 2006, 2008,	+
	Vote distance between first and second party	Ministry of Interior	1861, 1865, 1867, 1870, 1874, 1876, 1880, 1882,1886, 1890, 1892, 1895, 1897, 1900, 1904, 1909, 1913, 1919, 1921, 1924, 1929, 1934, 1946, 1948, 1953, 1958, 1963, 1968, 1972, 1976, 1979, 1983, 1987, 1992, 1994, 1996, 2001, 2006, 2008,	-
	Voter turnout	Ministry of Interior	1861, 1865, 1867, 1870, 1874, 1876, 1880, 1882,1886, 1890, 1892, 1895, 1897, 1900, 1904, 1909, 1913, 1919, 1921, 1924, 1929, 1934, 1946, 1948, 1953, 1958, 1963, 1968, 1972, 1976, 1979, 1983, 1987, 1992, 1994, 1996, 2001, 2006, 2008,	+

Political Participation composite index

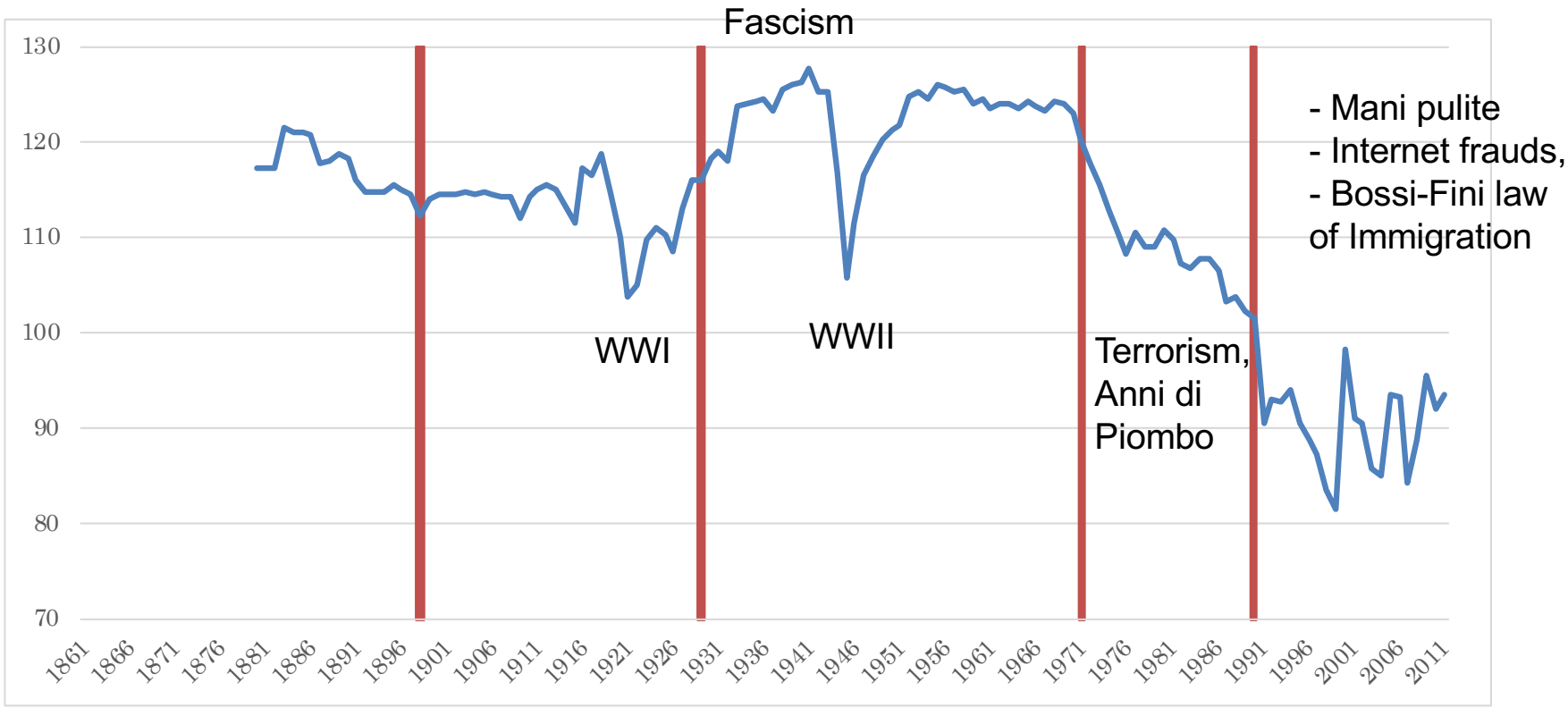


- Only for the years of general elections.
- 1861-1913: Parliament elected only by literate or rich male older than 25 years
- 1913-1945: right to vote extended to all adult males
- 1945: right to vote extended to all adult females
- 1975: voting age reduced to 18 years

SECURITY

Indicator	Source	Coverage	Sign
Homicides share	ISTAT	Yearly 1880-2011	-
Robberies and Others share	ISTAT	Yearly 1880-2011	-
Scams and Frauds share	ISTAT	Yearly 1880-2011	-
Theft share	ISTAT	Yearly 1880-2011	-
Total Crimes share	ISTAT	Yearly 1880-2011	-
Violence Resistance, Outrage share	ISTAT	Yearly 1880-2011	-

SECURITY COMPOSITE INDEX

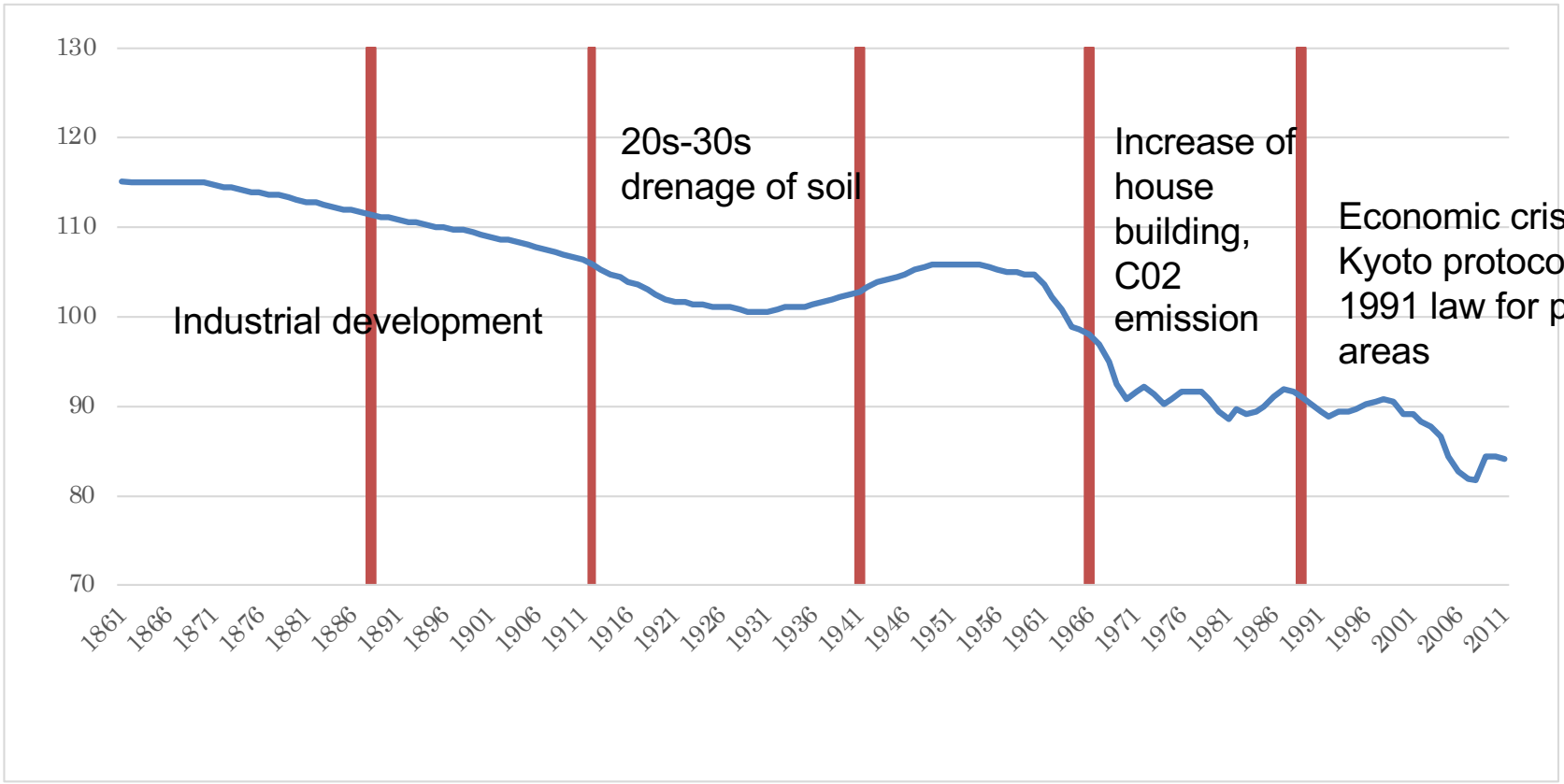


- Only REPORTED CRIMES: modification in crime legislation over time, introduction of new types of illegalities (Violence against women - “delitto d’onore” abolished in 1981)
- After 70s: **less safe not** in terms of amount of crimes (women abused also before the legalization of the crime), but in terms of **perception** of crime

ENVIRONMENT

Indicator	Source	Coverage	Sign
CO_2 Emission	van Zanden et al. (2014)	1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010	-
Houses building	Baffigi (2011)	Yearly 1861-2011	-
Species abundance	van Zanden et al. (2014)	1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010	+

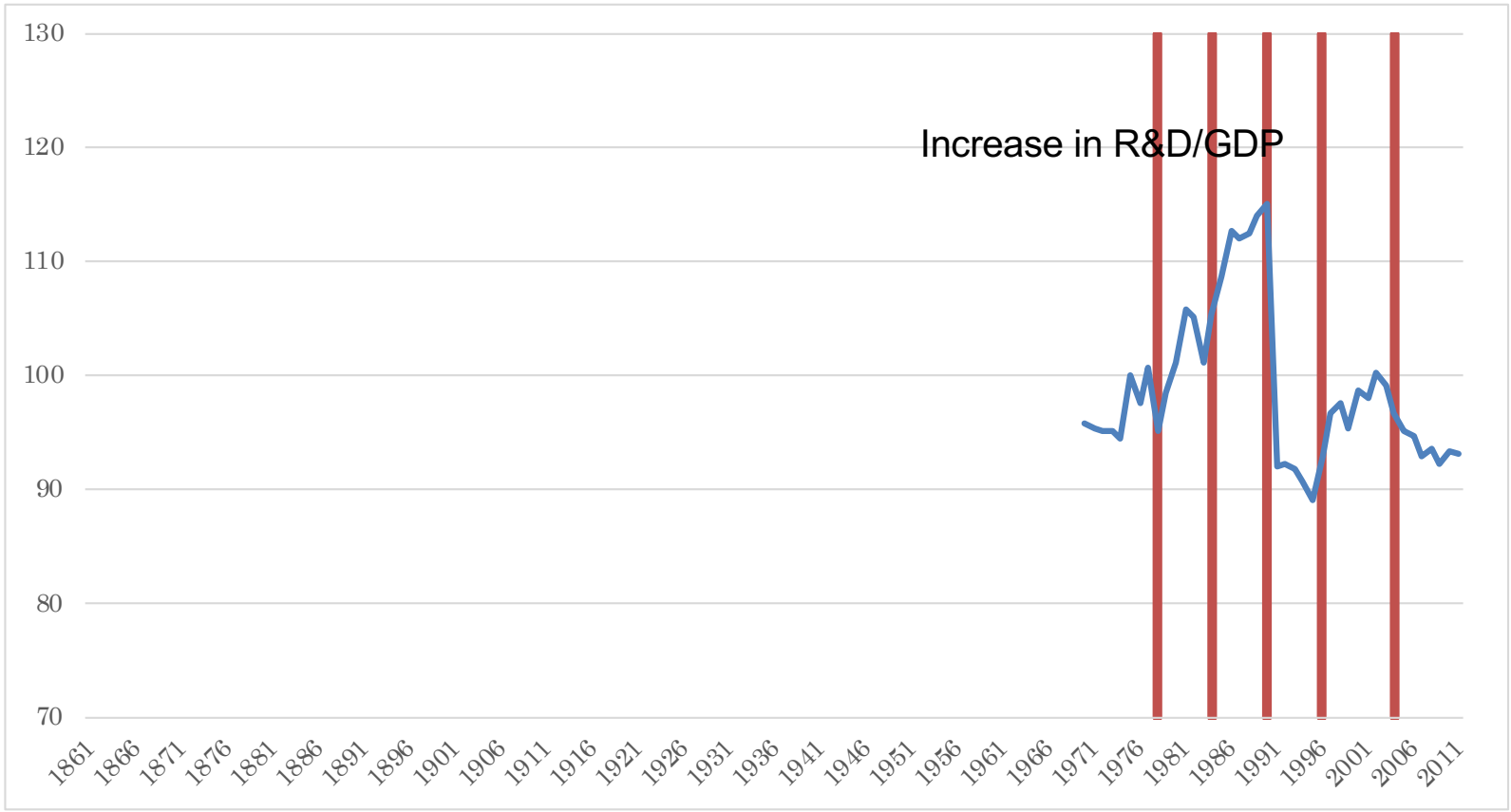
ENVIRONMENT COMPOSITE INDEX



Research & Development

Indicator	Source	Coverage	Sign
Engineering degree share	ISTAT	Yearly 1970-2011	+
Italian Patents on USPTO	Bank of Italy	Yearly 1970-2011	+
R&D/GDP	ISTAT	Yearly 1970-2011	+

R&D COMPOSITE INDEX



Decrease in engineering students and in R&D/GDP

- Constant relevant decrease of Italian patents (half from 1970 to today)
- Decline of the Italian innovative capacity

Correlation between each Domain and Economic Well-being

	Health	Education	Work	Political participation	Security	Environment	R&D
1861 - 2011	0.9375*	0.8937*	0.9357*	0.8871*	-0.7247*	-0.9350*	0.0794
1861 - 1913	0.7837*	0.8583*	-0.6499*	0.5582*	-0.2266	-0.7767*	--
1921 - 1938	-0.0095	0.1902	0.0350	-0.6645	0.2220	0.6631*	--
1950 - 1990	0.9819*	0.9510*	0.9440*	0.9716*	-0.9410*	-0.8886*	0.8679*
1990 - 2011	0.5463*	0.7258*	-0.7062*	-0.5517	0.1575	-0.8368*	0.1484

* 5% significance level

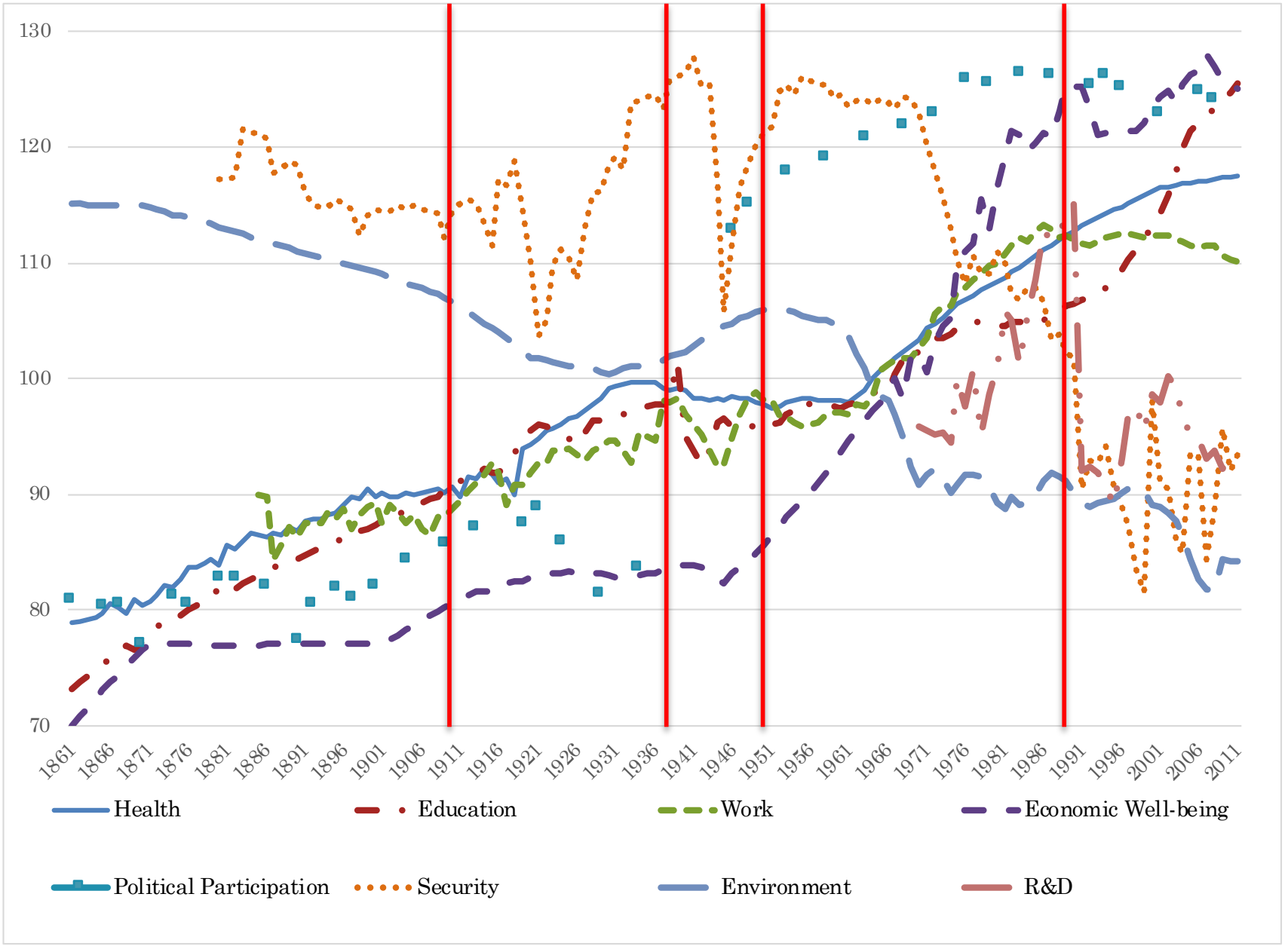
- **Pre-wars**: while GDP increases, work and security do not improve, while the others increase

- **Inter-wars**: no correlations, except POSITIVE correlation with ENVIRONMENT

- **Between WWII and 1990 ("Miracolo Italiano") all seriers strongly correlated: positively** with health, education, work, political participation and **R&D**, **negatively** with **security** and **environment**

- **Second Republic (1990-2011)**: **weaker** positive correlation with health and education, **negative** with **work** and **environment.** No correlation with political participation, security and R&D**. Any further increase in GDP does not translate into growth of other indicators (1990=threshold of "enough")**

HISTORICAL BES: AN OVERVIEW



Conclusive remarks

- In 1861, we were poorer and more unequal, lived about 30 years, 60% of income spent in food, 44% in absolute poverty.
- Today we are 13 times richer, live longer (82 years), have fewer children better educated, 5% in absolute poverty, less unequal, **but** we live in **polluted environment** and with **increasing sense of uncertainty** (**security, work, economic conditions**)
- During its 150 years Italy wanted to "**have its cake and eat it too**" by increasing GDP with the idea that well-being would have increased consequently.
- However, this multidimensional approach shows a complete different story.

THANK YOU FOR YOUR ATTENTION!