



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DiSIA**

DIPARTIMENTO DI STATISTICA,  
INFORMATICA, APPLICAZIONI  
"GIUSEPPE PARENTI"

# Demographic Change and Official Statistics

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Istat



# Outline

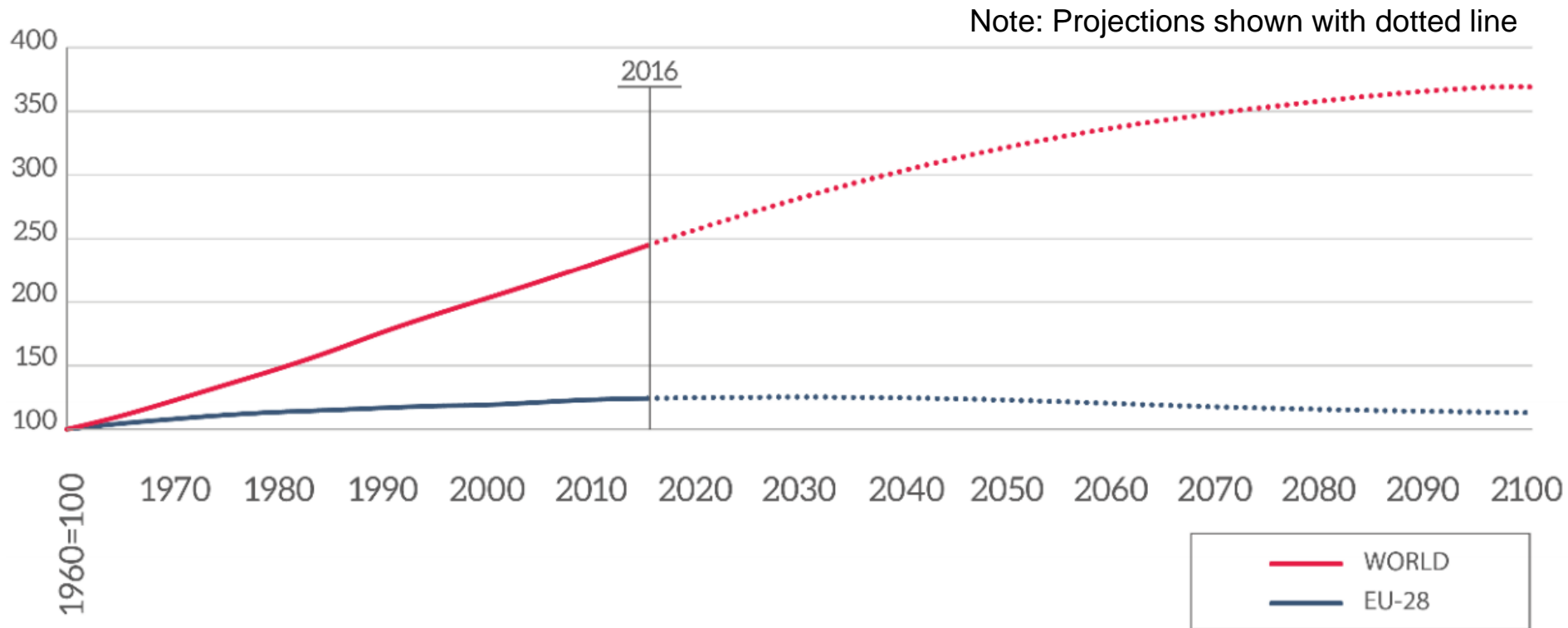
## **Daniele:**

- Demographic change
- Fertility trends in the era of uncertainty
- Open questions
- Challenges for Official Statistics

## **Eleonora:**

- Data from official statistics
- How Official Statistics react to such challenge

# Demographic Mega-Trends



# Europe Demographics

- **Life expectancy, fertility, and migration** are the three demographic forces that are altering the make-up of Europe's population
- Analyzing the demographics has become increasingly important, since most projections suggest that **ageing populations** will be a major challenge for the EU in the future
- **Migration play an important** in fighting against the population aging of European societies
- **Fertility is the game-changer**

# Two is Best?

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## POPULATION AND DEVELOPMENT REVIEW

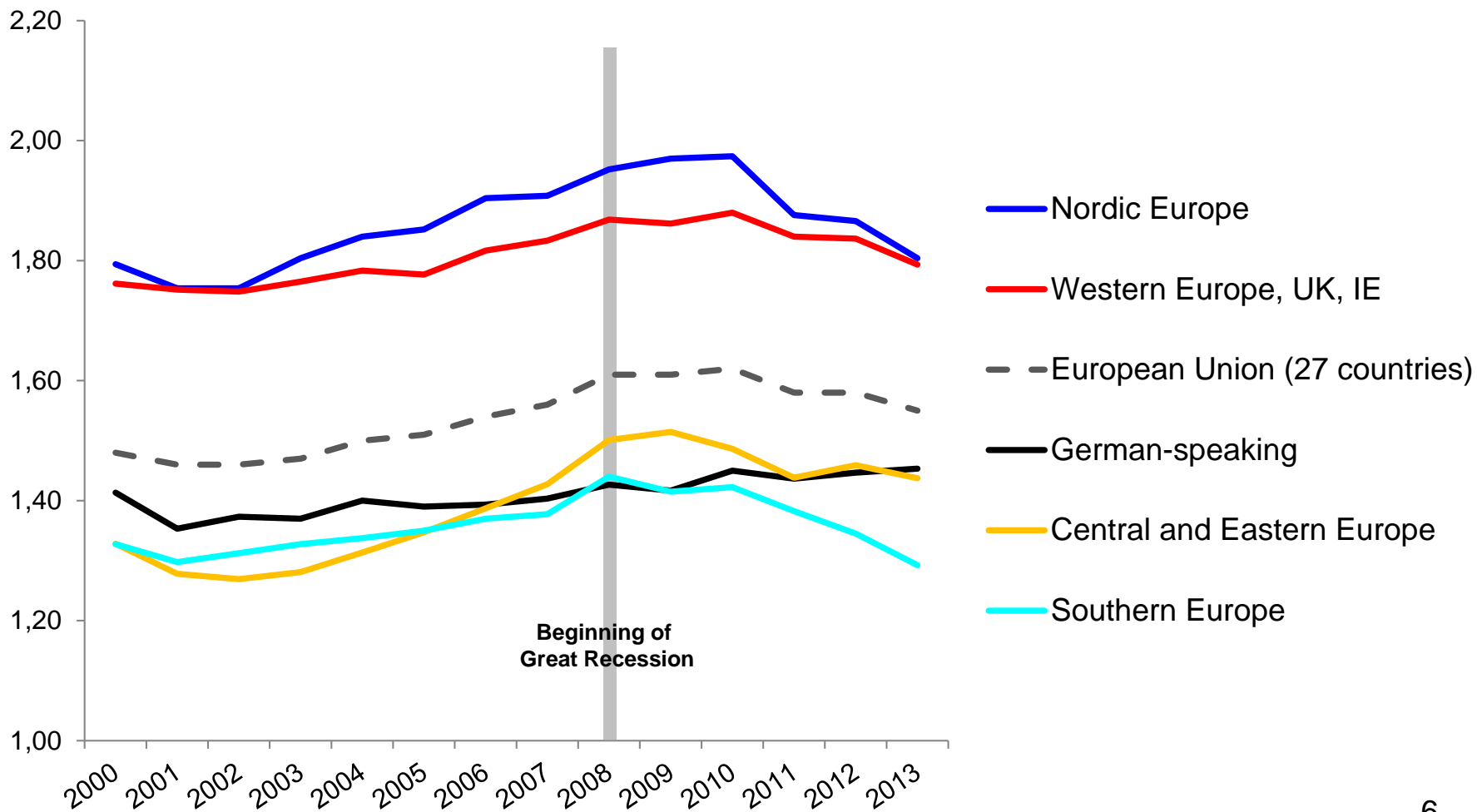
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### Two Is Best? The Persistence of a Two-Child Family Ideal in Europe

Tomáš Sobotka, Éva Beaujouan

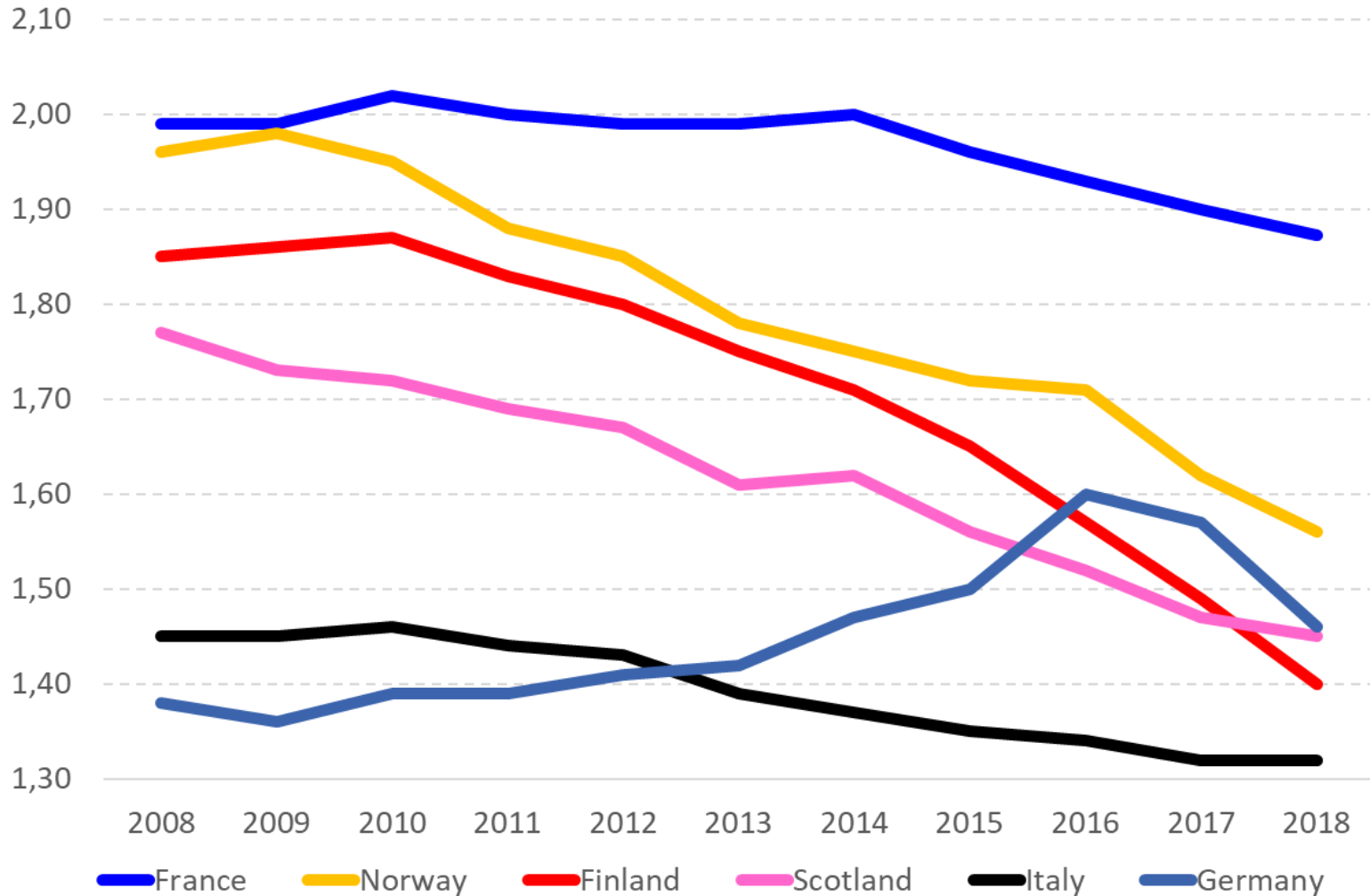
# The *Great Recession*

## Total Fertility Rate 2000-2013



# A New Fertility Winter

## Total Fertility Rate 2010-2018



# The Rise of Uncertainty

- The increasing speed, dynamics, and volatility of outcomes of **globalization**, and the new wave of **technological change**, make it **increasingly difficult for individuals to predict their future** and choose between alternatives and strategies
- The **Great Recession** has renewed the view that globalization is unpredictable and “out of control”
- This generates an extraordinary level of **uncertainty**, which represents the **game-changer** in contemporary societies and **family life courses**
- The recent COVID-19 emergency has reinforced the perception that **we are living in the era of uncertainty**



# The “Traditional” Forces of Uncertainty

- At the micro-level, empirical tradition operationalizes the forces of uncertainty through objective indicators of **actual and past individuals’ labor market situation**
  - Papers addressing the relation between fertility and **unemployment or temporary jobs** are now booming (e.g. Barbieri et al. 2015; Kreyenfeld 2010, 2015; Vignoli, Drefahl & De Santis 2012; for a **meta-analysis**: Alderotti, Vignoli & Baccini 2018)
  - Importance of **persistence of employment uncertainty** in young adults’ life courses (Özcan, Mayer & Luedicke 2010; Pailhé and Solaz 2012; Busetta, Mendola & Vignoli 2018)
  - Not only employment: **Housing uncertainty** (Mulder 2006; Kulu & Milewski 2007; Vignoli, Rinesi & Mussino 2013; Tocchioni, Berrington, Vignoli & Vitali 2019)

# Open Questions

- What are the driving forces of fertility decline in **Nordic countries** after a Great Recession that, in “hard numbers”, they really never experienced, or, at least, not to any relevant extent?
- **What are the drivers of the new fertility winter that contemporary European societies are currently facing?**



# Open Questions

- The **European post-crisis shift toward very low fertility rates came as highly unexpected**, especially in Nordic countries,
- not only because they have been much less severely hit by the economic crisis,
- but also because they represent a benchmark in terms of **gender equality** and **female labor market participation** (Esping-Andersen and Billari 2015; Goldscheider et al. 2015), **youth emancipation** (Billari 2004), and **diffusion of new family forms** (Lesthaeghe 2010).

# Do We Understand Economic Uncertainty?

- **Economic uncertainty**: the lack of clarity about future economic prospects (Bloom 2014); i.e. **unknown probability distributions to possible outcomes** (Knight [1921] 2002; Beckert 1996)
- **Uncertainty is about the future**, not about the present or the past
- (Cumulative) employment disadvantage – and its perception – just identify the “**statistical shadow of the past**” and tell us little about **uncertain futures**
- To properly address the effects of fundamental uncertainty on family dynamics we need to change perspective, recognizing that economic uncertainty is a **prospective notion**

# Narratives of the Future

- **Fundamental uncertainty** needs to be conceptualized and operationalized taking into account that people use **works of imagination**, producing their own **narrative of the future** (Bronk and Beckert 2018; Boyer 2018; Tuckett 2018)
- **Uncertainty is anchored in Narratives:** imagined futures embedded in social elements (Bronk and Beckert 2018)
- Personal narratives of the future are potent driving forces of reproductive **decisions in spite of / according to uncertainty**, irrespective of structural constraints and their subjective perception

# The Power of Narratives



# Press and Media Shared Narratives

**CORRIERE DELLA SERA** / ECONOMIA  
**The New York Times**

IL DATO ISTAT

Sale i  
10,6%

## Are You Ready for the Financial Crisis of 2019?

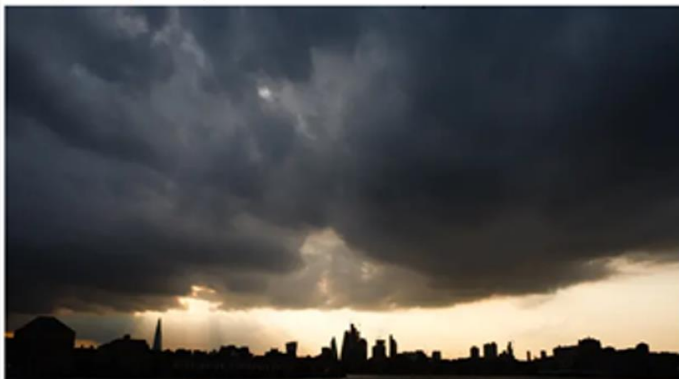
... could get bad for everyone

Search jobs Sign in Search International edition  
**The Guardian**  
News Opinion Sport Culture

Money Property Pensions Savings Borrowing Careers

## Storm ahead? Here's how to prepare for a financial crisis

As the IMF warns a downturn could be coming, we examine  
how you can protect yourself



**WELT** Abon  
HOME WELTPLUS LIVE-TV MEDIATHEK POLITIK WIRTSCHAFT SPO

## Die überraschende Rückkehr der Inflation

Veröffentlicht am 30.10.2018 | Lesedauer: 4 Minuten

**POST** ITALIA MONDO POLITICA TECNOLOGIA INTERNET SCIENZA CULTURA ECONOMIA SPORT MEDIA  
ECONOMIA | MERCOLEDÌ 20 FEBBRAIO 2019  
**Siamo messi molto male**  
Lo dicono i numeri esposti oggi sul Corriere, intanto che il governo si occupa d'al

Consulter  
le journal

# Le Monde

ACTUALITÉS ▼ ÉCONOMIE ▼ VIDÉOS ▼ OPINIONS ▼ CULTURE ▼ M LE MAG

ÉCONOMIE

## 2019, année à risque pour l'économie mondiale

La crainte d'une guerre commerciale et de la fin de la croissance américaine pèsera sur la  
conjoncture.

Par Marie de Vergès · Publié le 24 décembre 2018 à 06h39 · Mis à jour le 24 décembre 2018 à 12h18



# Global Political Uncertainty



## 'My Brexit nightmare': readers on how the uncertainty is affecting their lives

We ask readers in Britain and Europe to tell us how they are coping





# Fertility in the Era of Uncertainty

- The focus on past and actual structural constraints is not enough to explain the new fertility winter in Europe
- “Net of factors” that operationalize the “statistical shadow of the past”, young adults might postpone fertility because their narrative of the future is uncertain
- Given the recent **COVID-19 emergency**, the specter of the future is even more relevant in understanding demographic change
- More research is needed to study of **fertility dynamics** in the **era of uncertainty**

# Research needs survey data

- To address these new challenges we necessarily need survey data
- **Survey data** that collect information about individuals' employment/economic status and their future-oriented perceptions vis a vis family life courses
- We need an integrated demographic data system that collects **family, employment, and education histories** complemented with survey data that include questions on opinions, attitudes, perceptions over major social changes
- We also need **panel data on families** that include rich socio-demographic information

**Questions?**

# How Official Statistics Respond

**Official statistics that answer to some question about Italian demographic scenario:**

- Data from social surveys give information about individuals (FSS, SILC, LFS):
  - <https://www.istat.it/it/archivio/237448>
  - <https://www.istat.it/it/archivio/4152>
  - <https://www.istat.it/it/archivio/8263>
- Data from registers give information at a macro level (Births register, Resident Population)
  - <https://www.istat.it/it/archivio/235964>
  - <https://www.istat.it/it/archivio/231884>

# How Official Statistics Respond

## Official statistics data:

### 1) Surveys

- <https://www.istat.it/it/informazioni-e-servizi/per-i-rispondenti/elenco-delle-rilevazioni>

### 2) Registries

- [http://demo.istat.it/index\\_e.html](http://demo.istat.it/index_e.html)
- <http://dati.istat.it/?lang=en>

The screenshot displays the 'Geo demo' section of the Istat website. At the top, there are logos for 'Geo demo istat.it', 'Demography in Figures', and 'Istat Italiano'. Below the logos, a navigation bar contains the word 'Credits'. The main content area is divided into three columns. The left column features a 'resident population' section with a list of years from 2012 to 2019 and a 'demographic balance' section with years 2017, 2018, and 2019. The middle column has a 'More' section with text about data collection and a 'Last updates' section with dates and titles for 'Monthly Demographic Balance' reports from March 2020 and February 2020. The right column contains an 'elaborations' section with a list of links to 'Life Tables', 'Population Projection', and 'Intercensal population estimates' for various time periods.

**Geo demo** istat.it

**Demography in Figures**

**Istat** Italiano

**Credits**

**resident population**

**Resident Population**  
by age, sex and marital status on  
1st January  
**Year 2019**  
**Year 2018**  
**Year 2017**  
**Year 2016**  
**Year 2015**  
**Year 2014**  
**Year 2013**  
**Year 2012**

**demographic balance**

**Demographic Balance**  
and resident population on 31th  
December  
**Year 2018**  
**Year 2017**

**More** recent official data on resident population in the Italian municipalities are available in this site. Data are collected from the Population Register Offices and will be updated from time to time with the last available year. Elaborations on main demographic phenomena are also available.

**Last updates**

**27 March 2020 - Monthly Demographic Balance**  
Monthly demographic balance and resident population, January-November 2019

**28 February 2020 - Monthly Demographic Balance**  
Monthly demographic balance and resident population, January-October 2019

**elaborations**

- ▶ **Life Tables**  
of the Population by province and region of residence  
**Years 1974-2018**
- ▶ **Population Projection**  
**Years 2018-2065**
- ▶ **Intercensal population estimates**  
Population at Jan 1st by age and sex  
**Years 2002-2011**  
**Years 1992-2001**  
**Years 1982-1991**
- ▶ **Intercensal population estimates**  
Demographic balance  
**Years 2001-2011**  
**Years 1991-2001**

# How Official Statistics Respond

## - Theme

- <https://www.istat.it/en/analysis-and-products/a-z-statistics>

## A-Z STATISTICS

**ANALYSIS AND PRODUCTS**  
DATABASES  
DATASETS  
MICRODATA FILES  
Recognition  
PRESS RELEASES  
PUBLICATIONS  
DATA VISUALIZATIONS  
Interactive charts  
INTERACTIVE CONTENTS  
Baby names  
OPEN DATA IN ISTAT  
**A-Z STATISTICS**  
METHODS AND TOOLS

**A B C D E F G H I J K L M N**  
**O P Q R S T U V W X Y Z**

**Accidents** - 29 documents  
**Accommodation establishments** - 14 documents  
**Accomodation** - 12 documents  
**Accounting** - 70 documents  
**Accounts** - 160 documents  
**AGE** - 8 documents

**Agritourism** - 18 documents  
**Agritourism farms** - 5 documents  
**Agro-food** - 18 documents  
**Agrochemicals** - 4 documents  
**AIR** - 6 documents  
**Air monitoring stations** - 3 documents  
**Aircrafts** - 6 documents

## - Time availability

- <http://seriestoriche.istat.it/index.php?id=18&L=1>

# FSS

**Families, social subjects and life cycle survey collects retrospective histories on:**

- family,
- employment,
- educational histories.

**Time series data: 1998, 2003, 2009 and 2016**

**International comparability through GGP (<https://www.ggp-i.org/>)**

# FSS

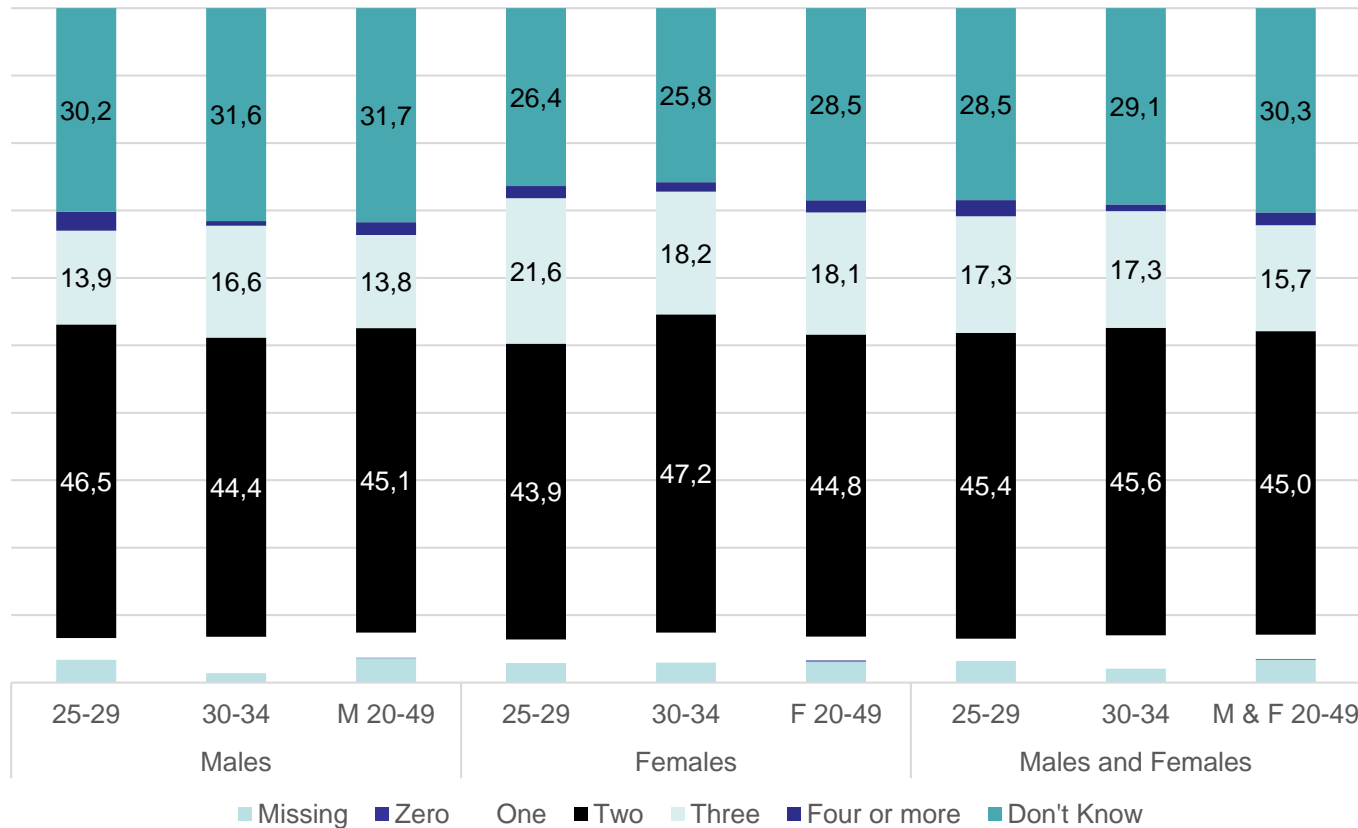
## Main thematic areas:

- **Household structure:** family, family commuters, permanence and leaving family of origin, emerging family forms;
- **Kinship networks:** map of non-cohabitants kinship;
- **Informal aid networks:** solidarity networks of aid given and received by non-cohabitants;
- **Social mobility:** both intergenerational and intra-generational;
- **Life cycle:** unions' formation and dissolution, childbearing, stepchildren, fecundity intentions, opinions and attitudes;
- **Labor market participation:** current job, job histories up to a maximum of 11 episodes.



# FSS

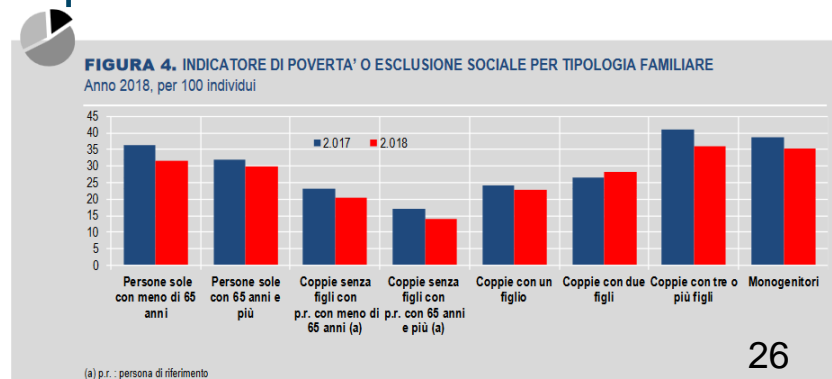
Ideal number of children for Childless



- “Don’t know” still high in the part of population who has the right age to have children
- Two is always “the best”

# Silc

- EU-SILC is a **multi-purpose instrument** mainly focuses on income and detailed income components are collected mainly at personal level although a few components are collected at the household level
- It collects many other information covering housing, material deprivation, labor, health, demography, education
- It provides two types of data:
  - ✓ **Cross-sectional data** pertaining to a given time or a certain time period
  - ✓ **Longitudinal data** pertaining to individual-level changes over time, observed periodically over a four year period



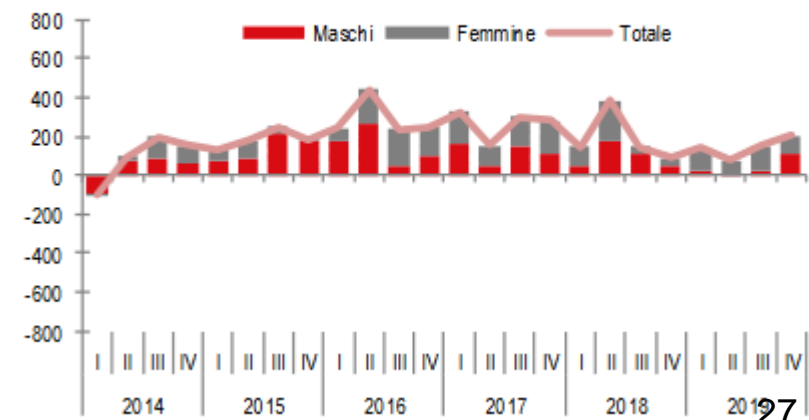
# LFS

## Labour Force Survey contents:

- A) informations about respondent;
- B) employment during the sampled week;
- C) **main working activity**;
- D) secondary working activity;
- E) previous employment;
- F) job search;
- G) employment services and employment agencies;
- H) professional training and **education**;
- I) self-perceived employment condition;
- L) **household structure**;
- M) information by the interviewer;
- N) pending coding.

FIGURA 7. OCCUPATI PER GENERE

I 2014- IV 2019, variazioni tendenziali assolute in migliaia di unità



# How Official Statistics Respond

**Some examples in deep:**

- **Births registry**
- **Resident population registry**
- **Marriages, separations and divorce registry**

# Births Registry

- From 1999
- municipal territorial level (and by census section)
- sex of birth
- date of birth (of the born)
- place of birth
- citizenship (of the born)
- age of the mother (single year of) and cohort
- age of the father (single year of) and cohort
- marital status of the mother
- marital status of the father
- citizenship of the mother
- citizenship of the father.

# Births Registry

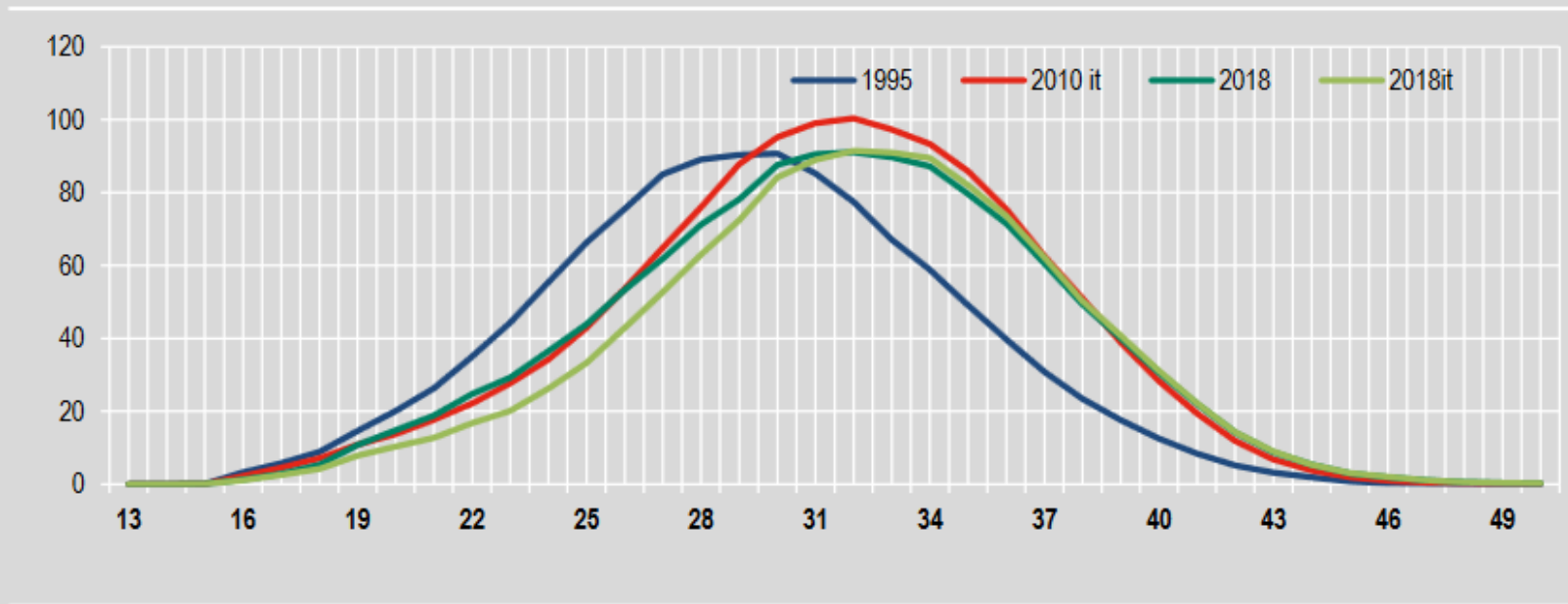
## Main fertility indicators:

- **TFT,**
  - **average age at birth for women resident and distinguished by marital status or citizenship**
- **municipal level and by administrative or non-administrative supra-municipal territorial areas (metropolitan areas, province, region and breakdown).**

# Births Registry



**FIGURA 4. TASSI DI FECONDITÀ SPECIFICI PER ETÀ DELLE DONNE RESIDENTI IN ITALIA**  
Anni 1995, 2010 e 2018, valori per 1.000 donne



# Challenges for Official Statistics

- **Retrospective data are jeopardized by memory effect and social desirability**
  - **Intentions (i.e. leaving home, starting a cohabitation, having a/another child) should be linked to register data to verify their satisfaction**
  - **Employment histories are more and more complex and diversified, new techniques should be designed**
- **The pillar of the new arrangement of Istat data collection is the Integrated System of Registers**



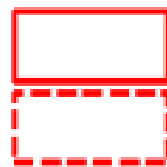
# Integrated System of Registers

## *Integrated System of Registers (ISRs)*

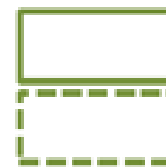
<u>Units</u>	<u>Statistical Populations</u>	<u>Variables</u>														
		<u>Base</u>			<u>Extended</u>						<u>Thematic</u>					
		$X_1$	$X_i$	$X_n$	$Y_1$	$Y_i$	$Y_n$	$Y'_1$	$Y'_i$	$Y'_n$	$Z_1$	$Z_i$	$Z_n$	$Z'_1$	$Z'_i$	$Z'_n$
$U_1$	$P_1$	[Blue Box]			[Red Box]						[Green Box]					
.....																
$U_i$																
$U_m$	$P_2$	[Blue Box]			[Red Box]						[Green Box]					
$U_{m+1}$																
.....																
$U_{m+i}$																
$U_{m+p}$																
$U_{m+p+1}$																
.....																
$U_{m+p+i}$																



**Base  
Statistical  
Registers  
(BSRs)**



**Extended  
Statistical  
Registers  
(ESRs)**



**Thematic  
Statistical  
Registers  
(TSRs)**

**Questions?**



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