

25th Meeting of the Wiesbaden Group on Business Registers

Session 6

Punctual monitoring of establishments in the period 2009-2014 and its comparison against results from a study on the demography of establishments



November 2016



Introduction

- Since 1930, Mexico conducts Economic Censuses every 5 years.
- INEGI created the Statistical Business Register (SBR) in 2010; it serves as backbone for many economic surveys and institutional projects.
- One-by-one monitoring of establishments was implemented in 2014 Economic Censuses, recording demographic events on the SBR.
- INEGI developed a demographic model with data from 16 generations obtained through past Economic Censuses.
- In order to evaluate the 2014 estimations from the model, one exercise was done to compare them with the results of the demographic events recorded in the SBR.



One-by-one monitoring of establishments for period 2009-2014

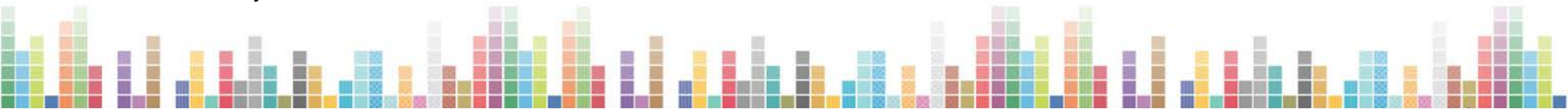
- Each establishment in the SBR was assigned with a unique CLEE identifier. This opens up the possibility of tracking each establishment for statistical purposes.
- SBR data served as starting point for 2014 Economic Census.
- During 2014 field data collection, to pinpoint demographic events (births, deaths, survivals, and changes in characteristics such as name, address and/or economic activity).
- The demographic events were recorded in the SBR.



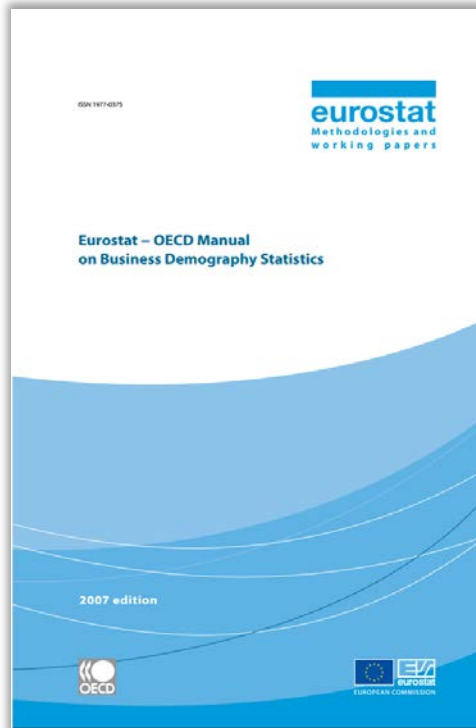
Identification of demographic events during the 2014 Economic Censuses

The following demographic events were considered, according to data recorded on the SBR:

1. **Survivals:** existing establishments from 2009 which were observed again in 2014, in accordance the continuity rules recommended by OECD.
2. **Births:** establishments which began operations after 2009, or establishments which were born from others according to the *continuity rules*.
3. **Deaths:** establishments which existed in 2009 but ceased operations according to data collected in 2014, or establishments who give rise to new ones according to the *continuity rules*.



Continuity rules

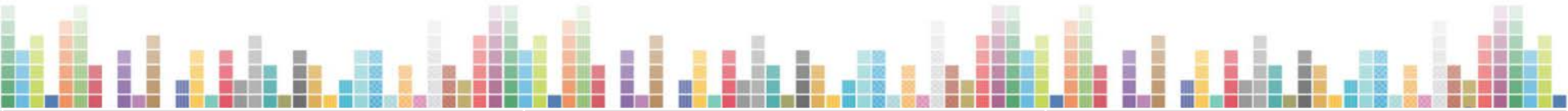


A new establishment is born from an old one if the latter changes in at least two out of three of its following characteristics:

- Business name
- Address
- Economic activity

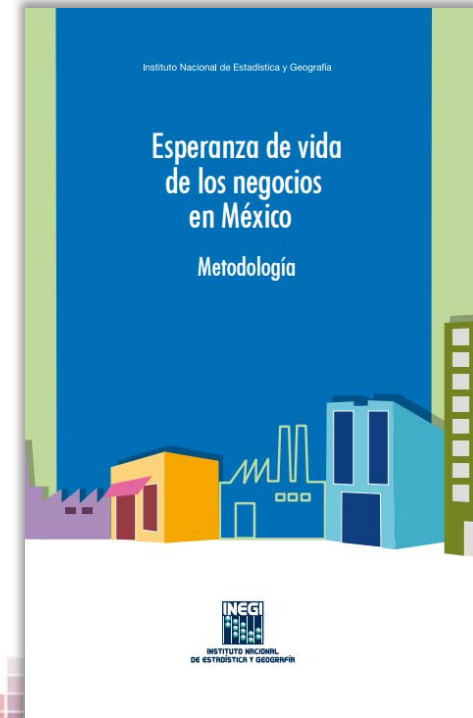
Count of demographic events recorded on the SBR for period 2009-2014

Demographic Event	Count
Survivals	2'461,851
Births	2'437,620
Deaths	1'796,420



Estimating counts of surviving establishments via a survival demographic model

- In 2014, INEGI undertook a study on life expectancy for Businesses in Mexico, producing tables of survival probabilities.
- This study used data from Economic Censuses conducted in 1989, 1994, 1999, 2004 and 2009.
- Survival probabilities were extrapolated to 2014; then, model results were compared against data recorded on the SBR.



Distribution by birth year of the establishments collected in 2009

The survival tables are applied to the 4'291,268 establishments collected by the 2009 Economic Censuses according to their birth year.

Birth year	Count	Birth year	Count	Birth year	Count
2009	343,247	1999	162,076	1909	211
2008	791,103	1998	94,306	1908	125
2007	393,089	1997	67,129	1907	74
2006	294,040	1996	56,086	1906	75
2005	252,528	1995	83,193	1905	95
2004	221,834	1994	79,136	1904	79
2003	141,738	1993	47,175	1903	75
2002	128,956	1992	51,086	1902	76
2001	108,786	1991	37,550	1901	82
2000	183,781	1990	97,590	1900 and earlier	88,630

...

Estimating counts of surviving establishments via a survival demographic model

Resulting estimations from survival model applied to the establishments collected by the 2009 Economic Censuses.

Birth year	2009 count of establishments	Estimated number of survivors				
		2010	2011	2012	2013	2014
2009	343,247	219,337	124,373	116,681	109,465	102,695
2008	791,103	448,588	420,845	394,818	370,400	347,492
2007	393,089	368,778	345,971	324,574	304,500	285,668
2006	294,040	275,854	258,794	242,789	227,773	213,687
...
Total	4'291,268	3'666,034	3'398,272	3'233,780	3'081,378	2'940,850

From the table, it can be seen that from the 4'291,268 establishments from 2009, 2'940,850 would survive and 1'350,418 would die.

Adjustment of estimations from model with the continuity rules results

Estimated number of Survivors (S)	Number of deaths according to continuity rules (DCR)	Estimated number of survivors after adjustment (S – DCR)
2'940,850	373,736	2'567,114
Estimated number of deaths (D)		Estimated number of deaths after adjustment (D + DCR)
1'350,418		1'724,154

Comparing SBR data for period 2009-2014 against estimations given by model

Demographic event	SBR counts	Estimated counts	Absolute difference	Relative absolute difference (%)
Survivors	2'461,851	2'567,114	105,263	4.3%

Deaths

1'796,420

1'724,154

72,266

4.0%



Conclusions and future work

- Survival model produced counts of survivors and deaths relatively close to that recorded in SBR; thus the importance of giving continuity to the SBR project.
- SBR consolidation will facilitate the development of studies that comprehensively model the different demographic events on establishments, in an ever more accurate way.

