

Estimation of Fertility in Colombia through an adjustment for coverage of births with immunization records

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Introduction

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- a) Analysis of coverage of EEVV births through the Administrative Register PAI
- b) Estimation of fertility from the adjusted information births

3. Results

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- b) Coverage analysis at the departmental level
- c) Analysis of coverage at the municipal level
- d) Estimation of Fertility in Colombia through a coverage adjustment births from immunization record

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DANE
Para tomar decisiones



1. Background



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1. Background

DANE in his innovation efforts and statistical use of administrative records looks for generate alternatives to produce demographic information and suggest solutions to the limitations on coverage of vital statistics in the territories, which represents the greatest challenge to monitor dynamics of the population.

Traditionally in Colombia, the study of fertility, specifically it derived from the following sources of information:

- Population census
- Surveys
 - ✓ Demographic and Health Surveys (DHS)
 - ✓ Household Survey is used.
- Vital Statistics (EEVV).



1. Background

For this study we had the following administrative records:

- Expanded Program on Immunization (PAI).
- Births Vital Statistics (EEVV).
- Individual Register of Providers of Health Services (RIPS).

Description of available sources



2. Methodology



2. Methodology

In this exercise, were analyzed: levels, trends, dispersion, absolute differences, relative differences, participation and coverage between records to show the results of statistical analysis based on administrative records

- a) **Analysis of coverage of EEVV births through the Administrative Register PAI:** Coverage analysis was conducted at the national, departmental and municipal levels. In the domestic case, the goal was to make a comparison between records, determining trends, levels and dispersion
- b) **Estimation of fertility from the adjusted information births:** After the national correction in the level and trend of EEVV births, these new totals are used to adjust the number of live births by age of the mother of EEVV, preserving the age structure.

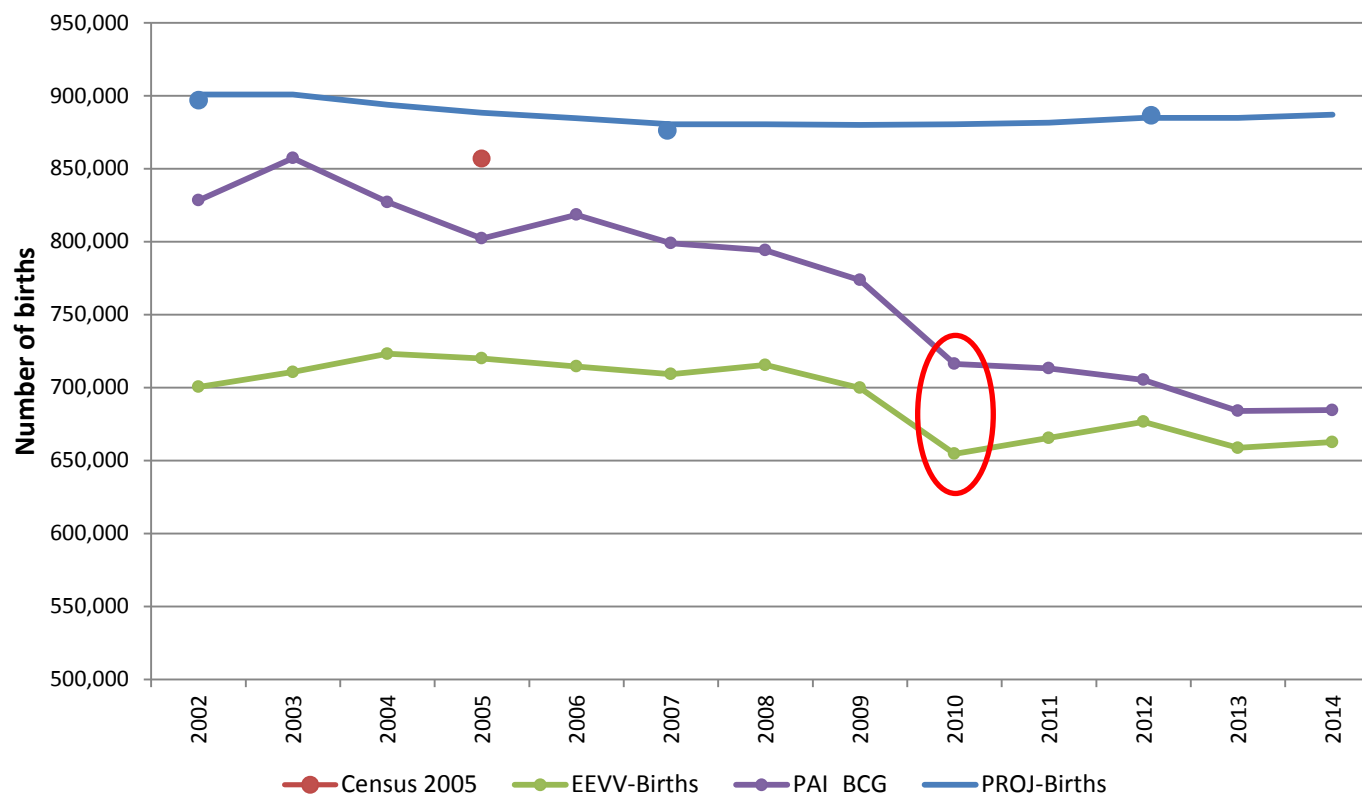


3. Results



3.1. Analysis of coverage at national level

Births vital statistics registration, PAI register (BCG) and quinquennial estimates from 2002 to 2014

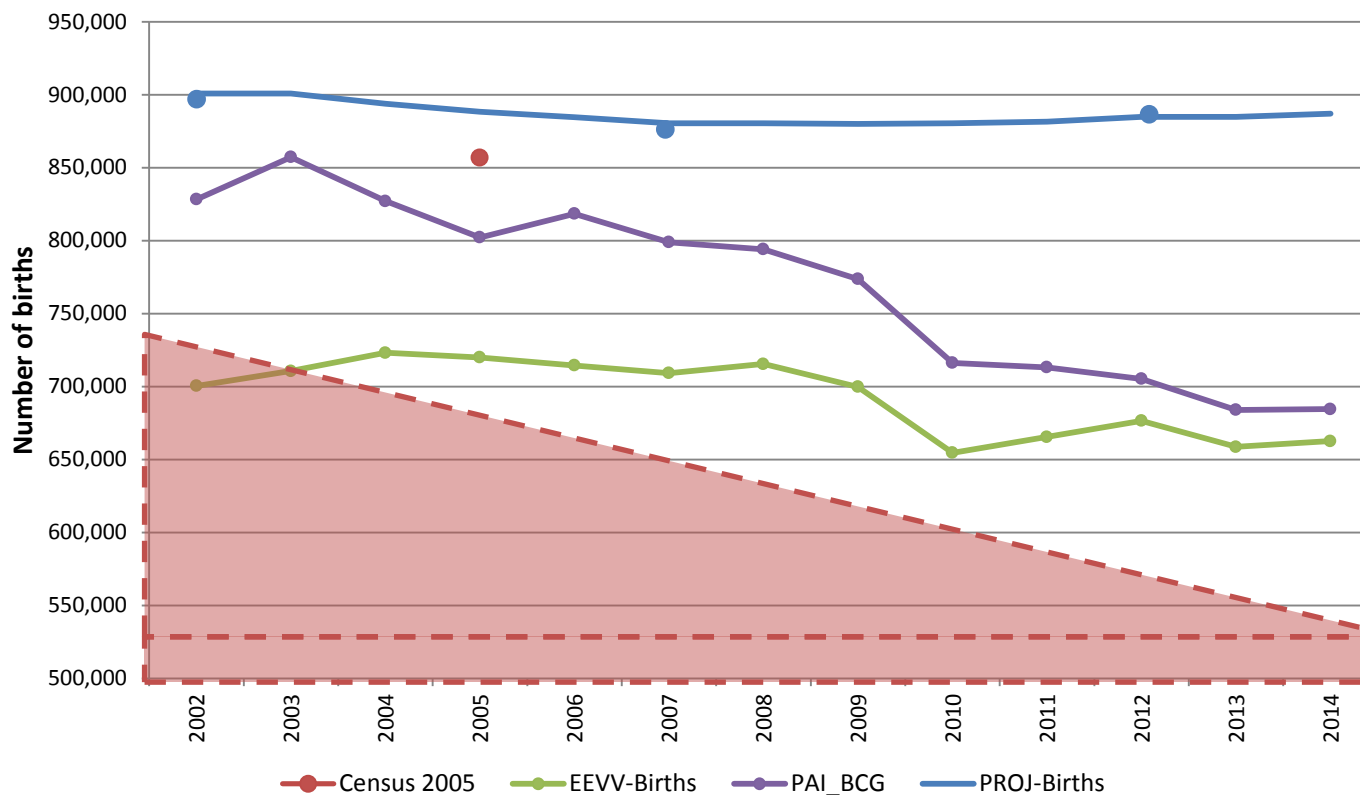


Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.1. Analysis of coverage at national level

Adjustment level and trend EEVV series

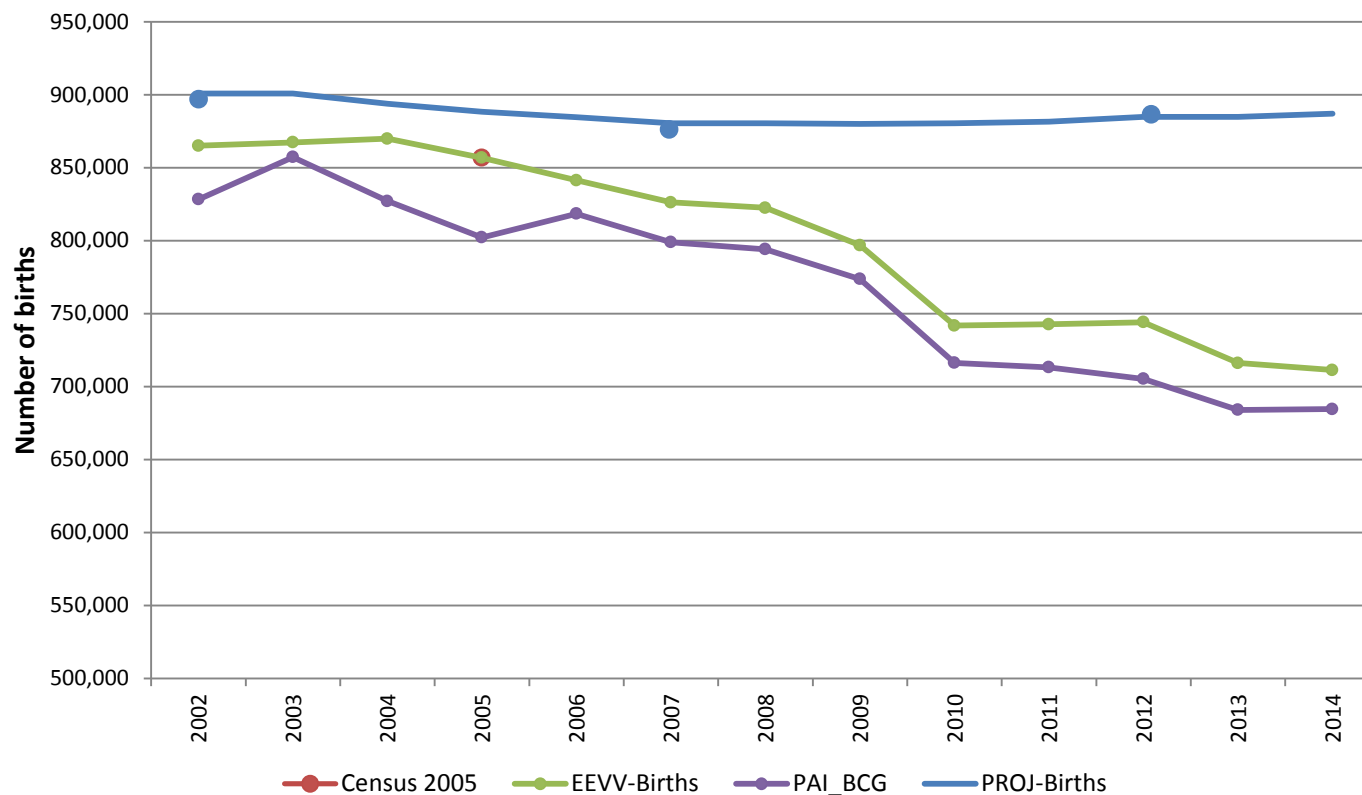


Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.1. Analysis of coverage at national level

Trend setting and level applied to the birth of the EEVV from immunization record



Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.2. Coverage analysis at the departmental level

DEPARTMENTS	Relative difference (EEVV/PAI)					Absolute difference (PAI-EEVV)					Percentage distribution of undercoverage	
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2013	2014
NACIONAL	91%	93%	96%	96%	97%	61.657	47.638	28.434	25.202	20.683		
AMAZONAS	78%	81%	87%	83%	89%	369	328	241	296	192	1%	1%
ANTIOQUIA	99%	99%	95%	99%	100%	724	919	4.058	740	100	2%	0%
ARAUCA	107%	132%	102%	101%	97%	-304	-1.082	-67	-44	117	0%	0%
ATLANTICO	100%	101%	105%	98%	99%	-72	-345	-1.866	772	351	2%	1%
BOLIVAR	82%	91%	94%	94%	95%	6.804	3.457	2.203	2.303	1.877	7%	7%
BOYACA	98%	102%	97%	99%	99%	369	-324	474	230	146	1%	1%
CALDAS	101%	107%	103%	102%	102%	-160	-673	-270	-245	-205	0%	0%
CAQUETA	76%	76%	89%	75%	92%	2.309	2.369	1.007	2.607	658	8%	2%
CASANARE	96%	86%	91%	92%	89%	274	999	652	553	753	2%	3%
CAUCA	78%	73%	94%	96%	86%	4.437	5.478	1.089	690	2.640	2%	9%
CESAR	81%	82%	79%	90%	95%	4.338	4.648	5.301	2.405	1.082	7%	4%
CHOCO	51%	52%	51%	58%	55%	4.921	5.149	5.353	4.384	4.825	13%	17%
CORDOBA	72%	89%	99%	98%	101%	9.182	3.732	296	537	-323	2%	0%
CUNDINAMARCA	100%	101%	105%	105%	105%	-341	-864	-6.456	-5.996	-6.408	0%	0%
GUAINIA	68%	66%	54%	66%	66%	256	312	402	296	302	1%	1%
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RISARALDA	98%	100%	100%	100%	100%	265	3	48	1	-15	0%	0%
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SUCRE	93%	98%	101%	98%	103%	1.068	248	-101	264	-395	1%	0%
TOLIMA	85%	91%	94%	97%	99%	3.184	1.820	1.246	461	251	1%	1%
VALLE	90%	89%	91%	93%	96%	6.026	6.808	5.984	3.957	2.543	12%	9%
VAUPES	71%	74%	92%	79%	43%	247	225	62	163	508	0%	2%
VICHADA	73%	63%	70%	60%	49%	266	380	369	584	792	2%	3%

Source: DAE and MSPS – Expanded Program on Immunization (PAI). Own calculations

(*) Bogotá is contained in the department of Cundinamarca. Because of the large volume of human mobility due to the quality of health centers in the capital city.

(**) Data for 2014 is preliminary.



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Source: DAE and MSPS – Expanded Program on Immunization (PAI). Own calculations

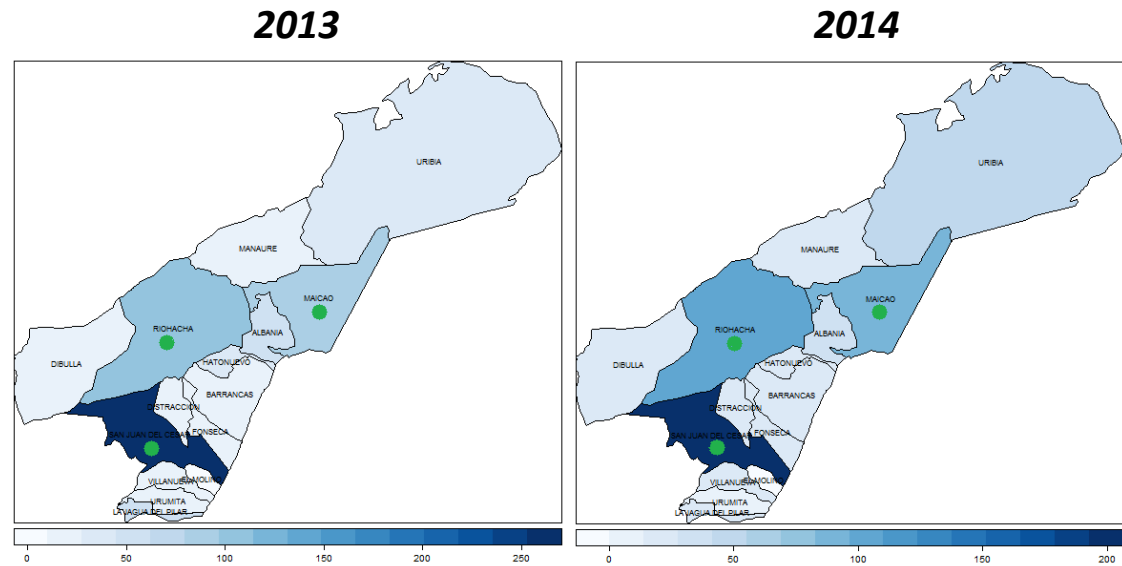
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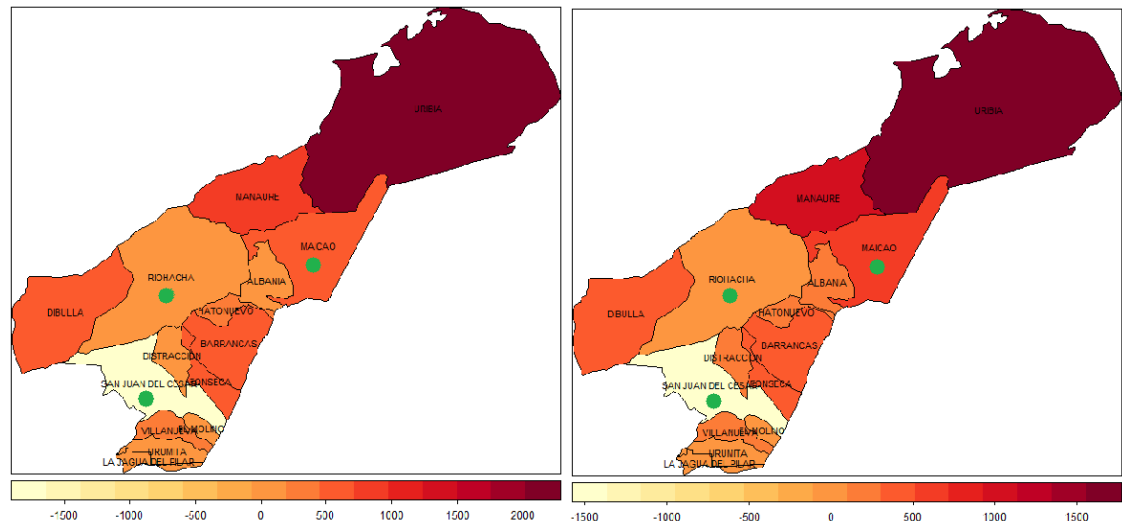


3.3. Analysis of coverage at the municipal level

*Relative differences
(EEVV / PAI)*



*Absolute differences
(PAI-EEVV)*



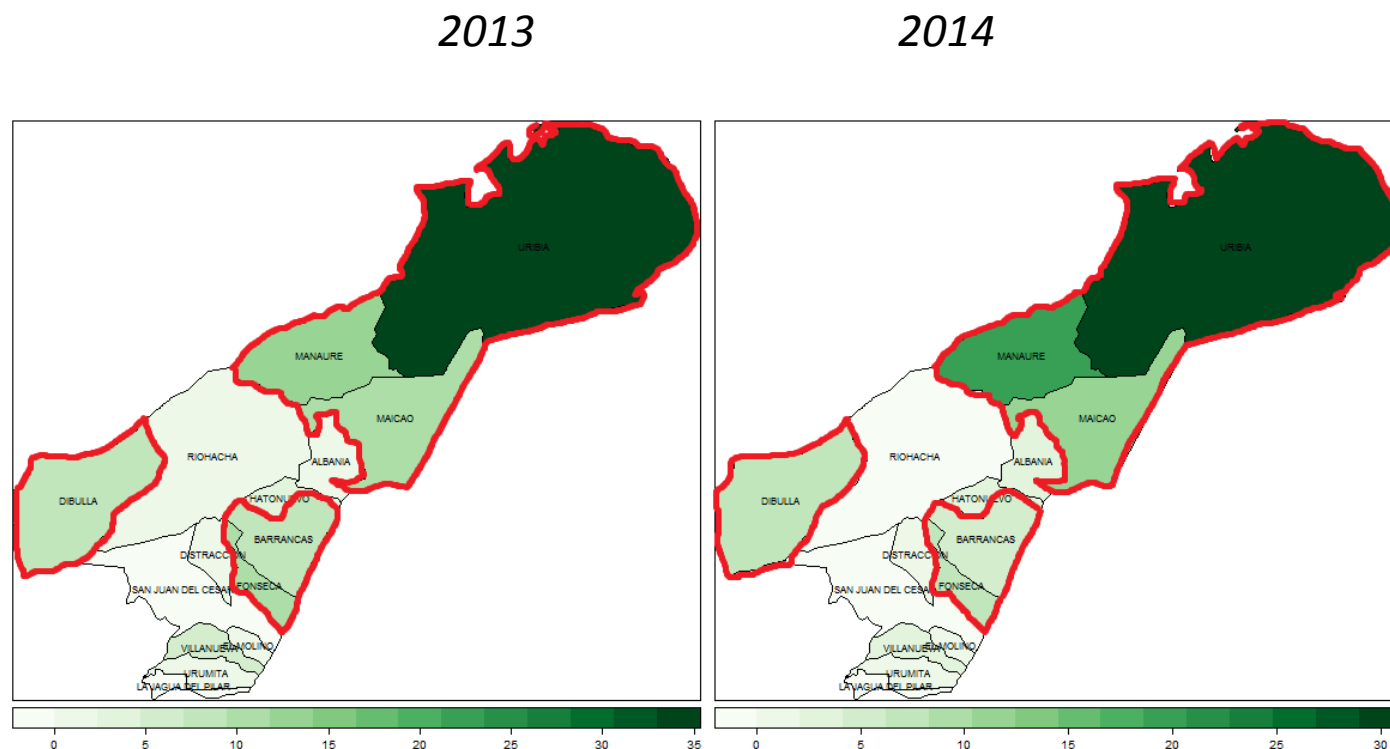
Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.3. Analysis of coverage at the municipal level

Where can we improve the coverage of EEVV in La Guajira?

The 6 municipalities highlighted in the figure, of the 15 in the department, 82% and 83% of under-coverage focuses on the department in 2013 and 2014 respectively



Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.4. Estimation of Fertility in Colombia through a coverage adjustment births from immunization record

Age-Specific Fertility Rate and Total Fertility Rate of adjusted EEVV

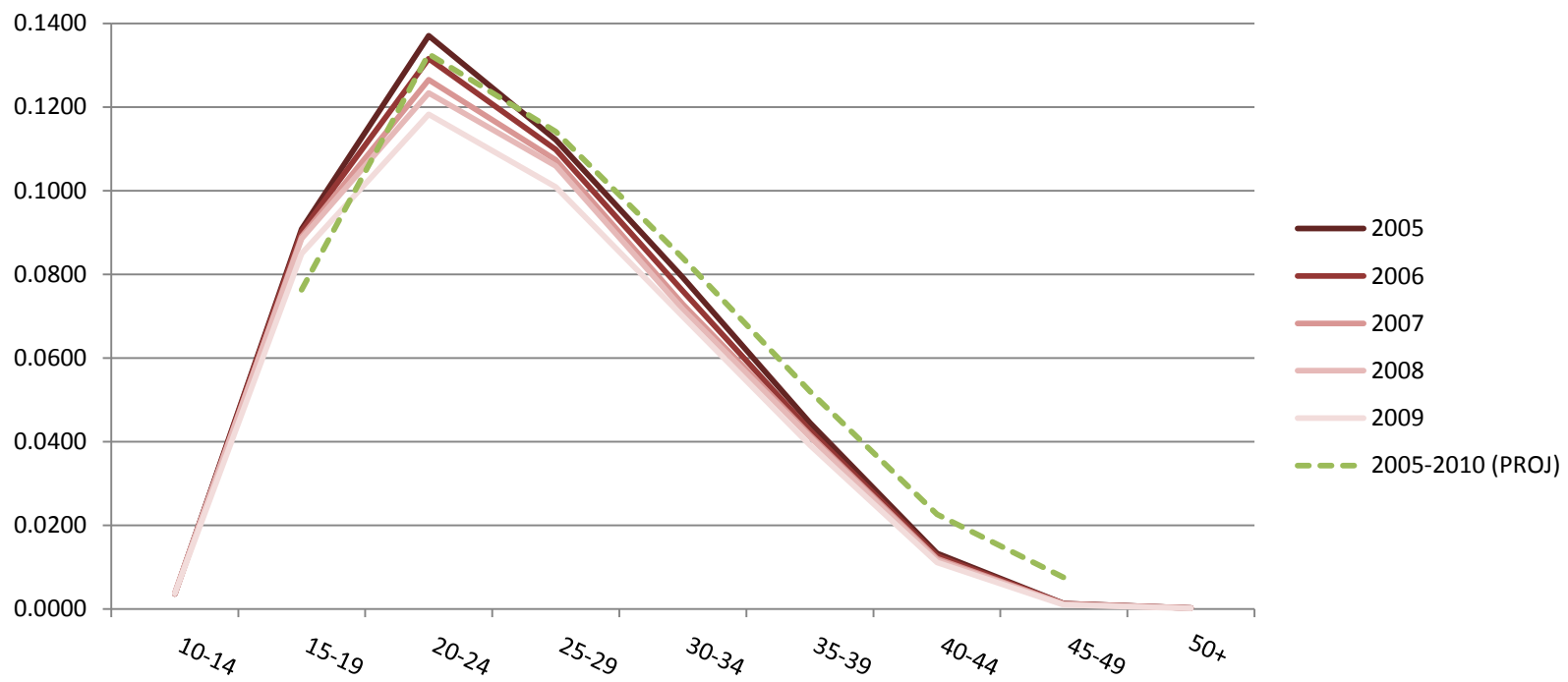
		AGE-SPECIFIC FERTILITY RATES PER YEAR											
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
AGE OF THE MOTHER	10-14	0,003	0,004	0,004	0,004	0,004	0,004	0,004	0,003	0,003	0,003	0,003	0,003
	15-19	0,093	0,093	0,091	0,090	0,089	0,089	0,085	0,079	0,078	0,080	0,075	0,071
	20-24	0,142	0,141	0,137	0,132	0,127	0,123	0,118	0,108	0,107	0,106	0,101	0,099
	25-29	0,115	0,114	0,112	0,110	0,107	0,106	0,101	0,092	0,090	0,087	0,083	0,083
	30-34	0,083	0,082	0,079	0,076	0,073	0,072	0,070	0,066	0,067	0,066	0,064	0,064
	35-39	0,045	0,045	0,045	0,043	0,042	0,041	0,039	0,036	0,036	0,035	0,034	0,035
	40-44	0,014	0,014	0,013	0,013	0,012	0,012	0,011	0,010	0,010	0,010	0,010	0,009
	45-49	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001
	50+	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
TFR		2,49	2,47	2,41	2,34	2,27	2,24	2,14	1,98	1,96	1,94	1,85	1,83

Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.4. Estimation of Fertility in Colombia through a coverage adjustment births from immunization record

Age-specific fertility rates projected for quinquennial (2005-2010), compared with adjusted EEVV for the same period

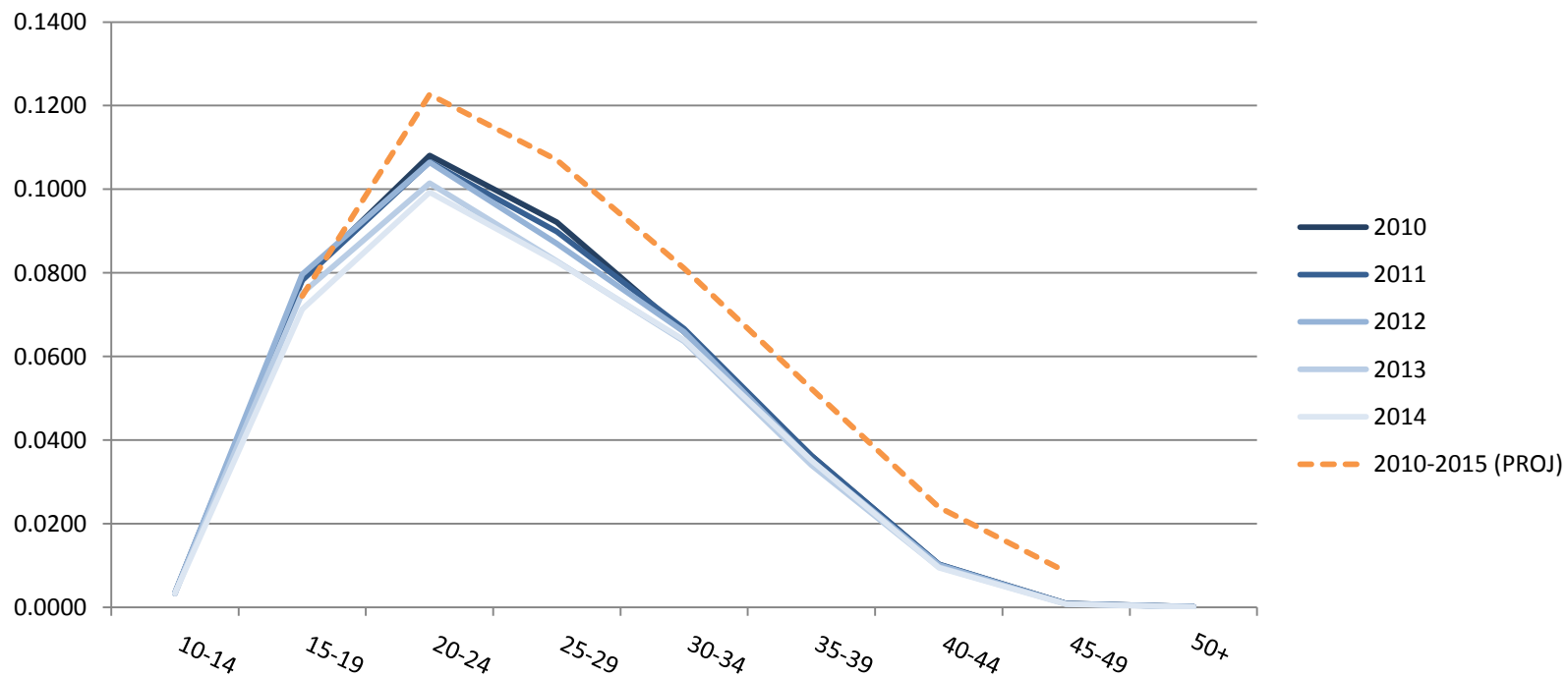


Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



3.4. Estimation of Fertility in Colombia through a coverage adjustment births from immunization record

Age-specific fertility rates projected for quinquennial (2010-2015), compared with adjusted EEVV for the same period



Source: DANE and MSPS – Expanded Program on Immunization (PAI). Own calculations



4. CONCLUSIONS



4. CONCLUSIONS

1. The overestimation that presents the projections of births in the country is evident. Therefore, it is important to have access to an updated census information, also to verify the quality of immunization records.
2. The estimation exercise developed from the PAI represents a way to investigate and describe the dynamic retrospective of fertility, ensuring timely and quality estimates. Thus, with access to vaccines information given to pregnant women of childbearing age and, it will get feature a complete source for estimating fertility in the future for the country.
3. Likewise, since the exercises are carried out currently by DANE for integration and generation of statistics from administrative records, PAI information is useful to complete data for the experimental statistical register of population, and be able subsequently develop exercises reconstruction of family structures, among others studies.



4. CONCLUSIONS

4. This allows us to approach DANE with the institution responsible for registration of vaccines, which is essential in order to show the importance of registration for future population statistics in Colombia.
5. The growing global interest in analyzing information related to adolescent fertility, as a tool for understanding the development in the country. Colombia currently has information of 2005 census for the count of fertility in women aged 12 and older. Hence, the need to work with information vital statistics, to reconstruct and analyze live births for all age ranges mothers, in complementarity way with census information.
6. The conditions of undercoverage in departments such as La Guajira, hinder their statistical monitoring for understanding the demographic and epidemiological dynamics to identify and analyze important factors in the life conditions of this population.



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Thanks

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Para tomar decisiones



**TODOS POR UN
NUEVO PAÍS**

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