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*Descriptive Finding*

**Births to single mothers: Age- and education-related changes in Poland between 1985 and 2010**

**Zuzanna Brzozowska**

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## **Births to single mothers: Age- and education-related changes in Poland between 1985 and 2010**

**Zuzanna Brzozowska<sup>1</sup>**

### **Abstract**

#### **BACKGROUND**

In Poland the share of non-marital births has increased steadily for more than two decades. Studies differentiating between births to unmarried partnered and unpartnered women are rare.

#### **OBJECTIVE**

This paper examines the age- and education-related changes in the share of births to unpartnered women in a setting characterised by a rising non-marital birth ratio.

#### **METHODS**

I use Polish birth registers for the years 1985 to 2011, which cover all births between 1985 and 2010 and contain some information on the parents (e.g., date of birth, education, and marital status at the time of the child's birth).

#### **RESULTS**

In the analysed period the share of births to unpartnered women was stable at a level of 3%-5% of all births. Substantial increases were only noted among the least educated and teenage mothers, whose values exceeded 20% and 30%, respectively, in 2010. The share of teenagers among unpartnered mothers rose from around a quarter to more than one-third.

#### **CONCLUSIONS**

In Poland the share of births to unpartnered women remained stable in the period 1985-2010, but the number of the youngest and least educated mothers in this share increased.

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## 1. Introduction

Under state socialism Poland had a stable non-marital birth ratio of around 5% until the mid-1980s (Szukalski 2004). Thereafter the ratio rose steadily to 22% in 2012 (Eurostat 2013). The forces driving this upward trend are known to be a faster decline in marital than in non-marital fertility (Bolesławski 2001, Kotowska et al. 2008), along with women's lower propensity to marry once they are pregnant (Baranowska 2010, Brzozowska 2012). However, what has not been studied much is the distinction between births to unmarried partnered, as opposed to single<sup>2</sup> women. This paper examines the trends in the share of births to unpartnered mothers by education and age in Poland in the period 1985–2010.

## 2. Data and methods

The data were taken from Polish birth registers and covered all births between 1985 and 2010 (for estimating marital and non-marital birth rates I also used the 2011 birth register). Multiple births were counted as single births. Hence, the dataset used for the analyses encompassed women who gave birth in the given period rather than children born. Besides information on the newborns the birth registers also contained some data on the parents at the time of the child's birth, e.g., date of birth, date of marriage if applicable, marital status, education, and the number of children the mother had previously given birth to. The dates of birth and marriage and the marital status were taken from legal documents (ID cards, marriage and divorce certificates), whereas information on education and parity was provided by the parents. Additionally, I used the female mid-year population structure by age as contained in the demographic yearbooks, and the female population structure by age and marital status obtained from the 1995 Polish population micro census and the 1988, 2002, and 2011 Polish population censuses (CSO 1989, 1996, 2003, 2013).

For married couples, paternity is established automatically once the father's ID card and the marriage certificate have been presented at the register office. For unmarried couples, paternity is established by a formal acknowledgement signed by both the child's mother and father. No information on the father, i.e., unknown fatherhood, indicates not only that the child's father does not have an emotional bond with his child and the child's mother (Štípková 2013), but also that mothers who want to receive child support face lengthy legal proceedings. Thus I took the lack of information on the father as a proxy for being a single mother at the time of giving

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<sup>2</sup> I use the terms 'single' and 'unpartnered' interchangeably.

birth. By doing so I might have slightly underestimated single motherhood, as it is unlikely that all registered fathers live in partnership with their babies' mothers. Unfortunately there was no way to thoroughly test the proxy as, to the best of my knowledge, no dataset contains explicit information on mothers who do not have a partner at the time they give birth. A year-by-year check against the Polish Generations and Gender Survey (GGS) yielded satisfactory results: the estimated shares of mothers who were single when they gave birth were similar to those obtained from the birth registers with the help of the proxy (average difference: one percentage point in the period 1985-2008, see Table 2 in Appendix). Therefore, missing information on the father seems to be a very good proxy for single motherhood. However, it should be noted that in the GGS partnership was defined as marriage or cohabitation; hence women not living together with their partners, i.e., women in a living-apart-together partnership, were classified as single.

I excluded births to widows (0.3% of all cases) from the analysis as the dataset did not contain information on the husband's date of death, which made it impossible to decide whether the late husband or a new partner was the child's legal father. I classified children of divorcees and women living in separation as non-marital. By law, children born up to 300 days after divorce or separation are regarded as being born in wedlock: the divorced or separated husband is presumed to be the father (Sejm of the People's Republic of Poland 1964). However, in Poland it takes at least a few months to get a divorce and to acquire the legal status of a divorcee. I therefore worked with the assumption that only few women get pregnant by their husband when the couple is on the brink or in the middle of a divorce. In most cases the newborn is probably the child of a man to whom the mother is not married. But even if my assumptions were wrong or only partially true, the share of divorcees and women living in separation at the time of giving birth (i.e., the potentially biased results) amounted to 1.6% (1.9% if widows are included).

I excluded 0.15% of the cases because of missing information on the mother's education. Adding this percentage to the births to widows yields a total of 0.45% cases that were excluded. The final dataset thus contained 12,158,821 cases (see Table 1 in Appendix).

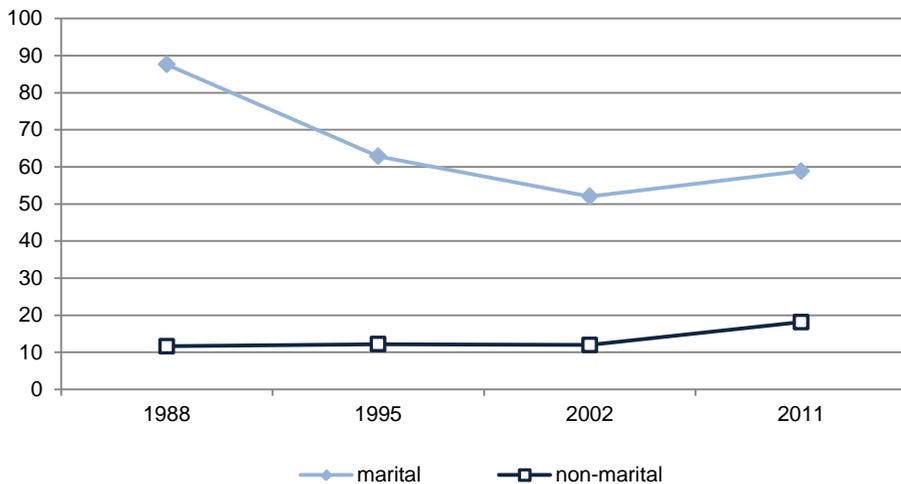
The trends were analysed by mothers' age and education at the time of giving birth. Education was divided into four categories: primary or less (ISCED-97 0-2), basic vocational (ISCED-97 3C), secondary including post-secondary non-tertiary education (ISCED-97 3AB and 4), and tertiary (ISCED-97 5 and 6).

### 3. Results

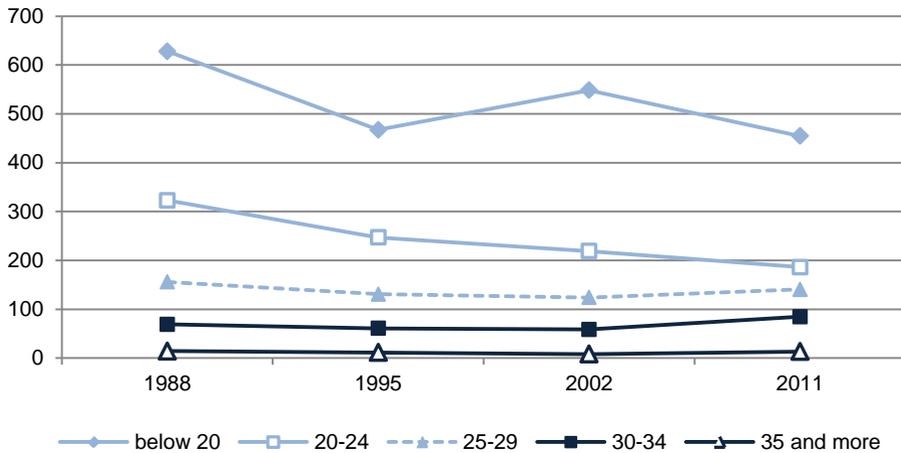
#### 3.1 Trends in marital and non-marital fertility

The estimates (Figure 1a) show that while the marital birth rate declined sharply between 1988 and 2002, the number of non-marital births per 1,000 unmarried women oscillated around 12 at that time. Between 2002 and 2011 both marital and non-marital birth rates rose substantially from 52.06 and 11.97 to 58.85 and 18.15, respectively. When analysed in five-year age groups (Figure 1b and 1c) the trends in marital fertility among women aged 25 and more were very similar to the general trend. Among the 20–24 year-olds marital fertility declined continuously (from 323 to 186 marital births per 1,000 married women) and among teenagers the figures fluctuated between 628 and 455. Between 1988 and 2002 non-marital fertility decreased a little in the three oldest groups and varied slightly in the two youngest groups (between 6.2 and 7.5 among teenagers and 16.4 and 19.3 among the 20–24 year-olds). During the last two years observed it increased substantially in all age groups.

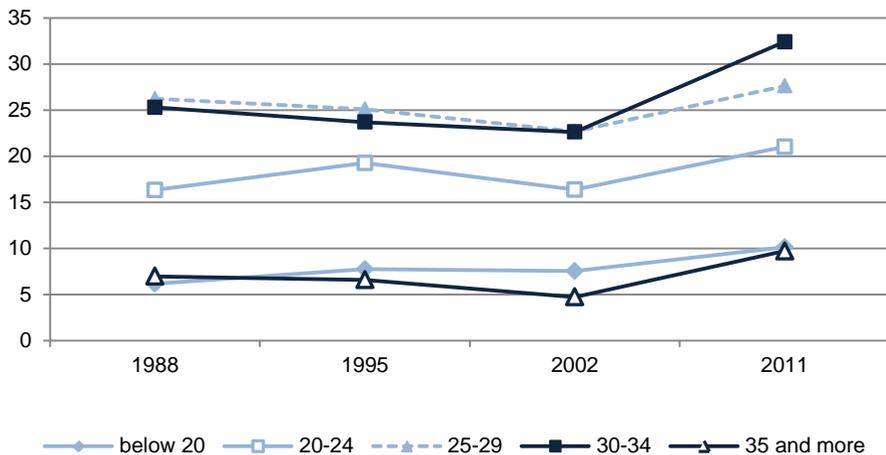
**Figure 1a: Non-marital and marital births per 1,000 unmarried and married women, respectively, aged 15–49, Poland 1988–2011**



**Figure 1b: Marital births per 1,000 married women, by age, Poland 1988–2011**



**Figure 1c: Non-marital births per 1,000 unmarried women, respectively, by age, Poland 1988–2011**

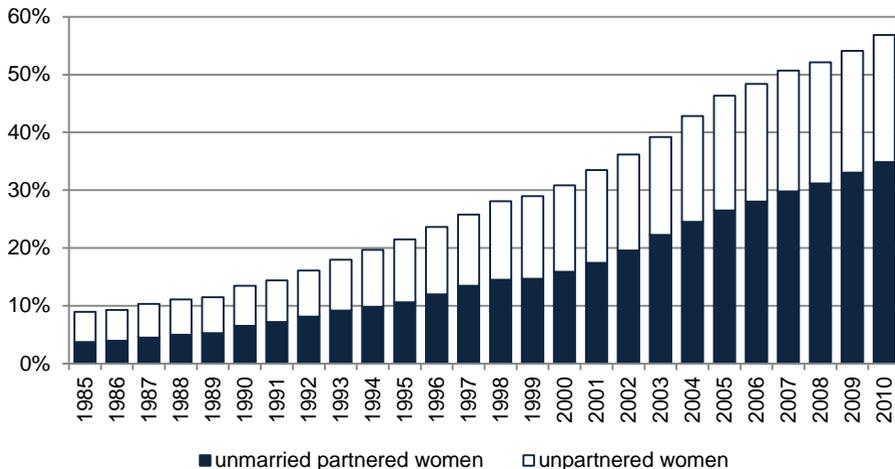


Source: Own calculations based on the female population structure by age and marital status (population micro census 1995, population censuses 1988, 2002, and 2011) and births by mothers' age and marital status (birth registers 1988, 1995, 2002, and 2011).

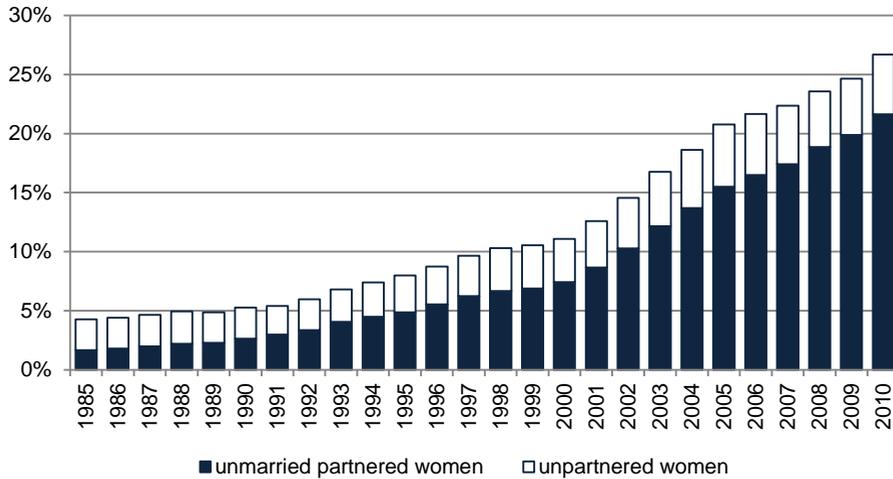
### 3.2 Educational differences among single mothers

Figures 2a-d show an increase in the non-marital birth ratio between 1985 and 2010 in all educational groups, albeit at a very different pace: from 9% to 57% among the least educated and from 3% to 10% among the highly educated. The higher the education, the later and slower non-marital childbearing began to spread, but it has proliferated noticeably faster in all educational groups since the year 2000. Except for the least educated, the increase in the non-marital birth ratio was almost entirely driven by a growing share of births to partnered women, while the percentage of births to single mothers remained low throughout the analysed period. In 1985 it was 3% among mothers with basic vocational education and 2% among those with secondary and tertiary education; in 2010 it amounted to 5%, 3%, and less than 1%, respectively. Among women with primary education the share of single mothers was already higher in 1985 (5%) and grew faster (to 22% in 2010), but was still outweighed by the percentage of births to unmarried women who had a partner (4% in 1985 and 35% in 2010). Thus, the educational differences in the share of non-marital births to both partnered and unpartnered women grew in the course of time. At population level the proportion of births to single mothers remained rather stable varying between 3% and 5% (see Table 2 in Appendix).

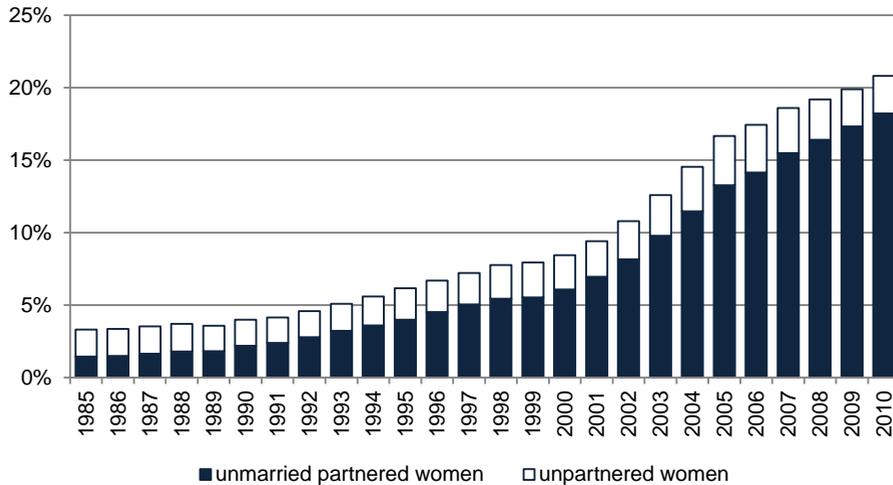
**Figure 2a: Share of non-marital births to partnered and unpartnered women among all births, primary education**



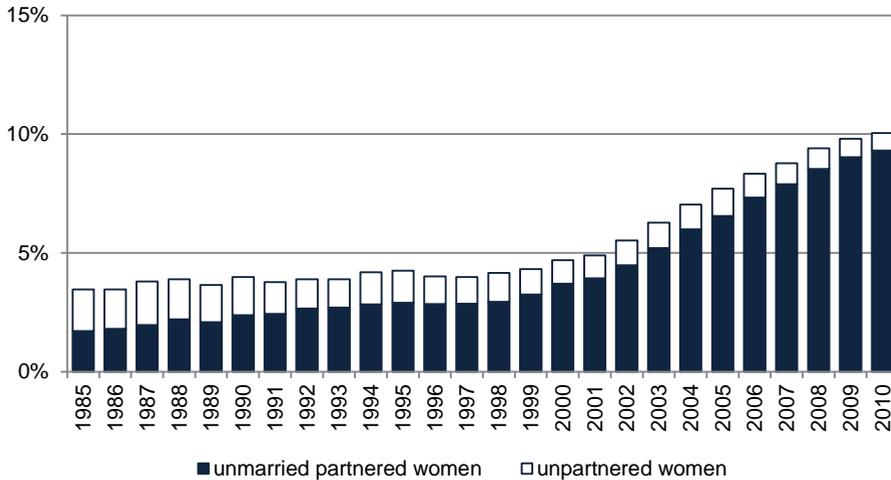
**Figure 2b: Share of non-marital births to partnered and unpartnered women among all births, basic vocational education**



**Figure 2c: Share of non-marital births to partnered and unpartnered women among all births, secondary education**



**Figure 2d: Share of non-marital births to partnered and unpartnered women among all births, tertiary education**



Source: Own calculations based on birth registers 1985-2010.

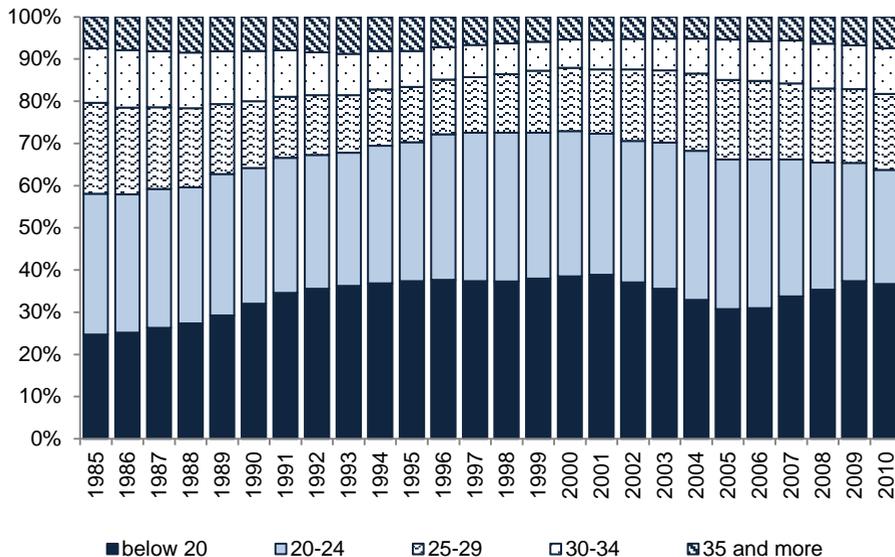
### 3.3 Age-related changes among single mothers

The age composition of single mothers (Figure 3) shows that giving birth without having a partner is a pattern mostly found among young women. In the analysed period on average one-third was below age 20 (compared to one-seventh for all first births,<sup>3</sup> see Figure 6 in Appendix). The share of teenagers in this group increased from 26% to 35%, while that of women in their early 20s slightly decreased (from 33% to 28%). The shares of women aged 25–29 and 30–34 dropped from 22% and 12% to 12% and 6%, respectively, until the mid-1990s and early 2000s, and then rose up to 19% and 10%, respectively. The share of the oldest category (aged 35 and more) oscillated around 7%. Overall, the age distribution of single mothers did not change radically over time. The age distribution of all first-time mothers, however, underwent considerable changes: the share of teenagers grew from 15% to 19% until 1993 and then shrank to 8% in 2010. The percentage of the 20-24 year-olds remained stable until 1995 (over 50%), when it started to decline (28% in 2010) and was only outweighed by the share of 25–29 year-

<sup>3</sup> As births to single mothers are overwhelmingly (around 70%) of order one, I refer to first births whenever I compare births to single women and all births.

olds, which almost doubled to more than 40% in 2010. The share of the oldest categories (i.e., mothers aged 30–34 and older than 34) almost tripled and exceeded 17% and 4%, respectively (see Figure 6 in Appendix). Thus the changes in the age structure of single mothers and of all first-time mothers are characterised by a reverse development: while the former got younger over time, the latter got older.

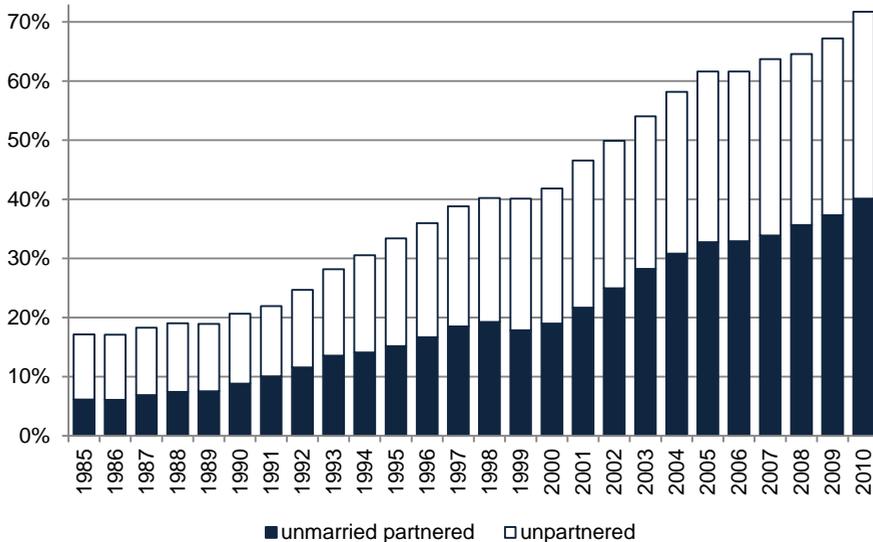
**Figure 3: Age composition of single mothers**



Source: Own calculations based on birth registers 1985–2010.

The share of births to single women increased mostly at young ages: while it was stable at the level of 1%–3% among mothers aged 25 and above it slightly increased among those aged 20–24 (from 3% in 1985 to 7% in 2006; it then dropped to 5.5% in 2010, see Figure 7 in Appendix). The figures for teenagers, however, almost tripled, starting from less than 11% in 1985 and reaching 32% in 2010. In the same period the non-marital birth ratio among teenagers soared from 17% to 72% (Figure 4). Hence, the share of births to singles among all non-marital births to teenage mothers declined from 64% to 44%.

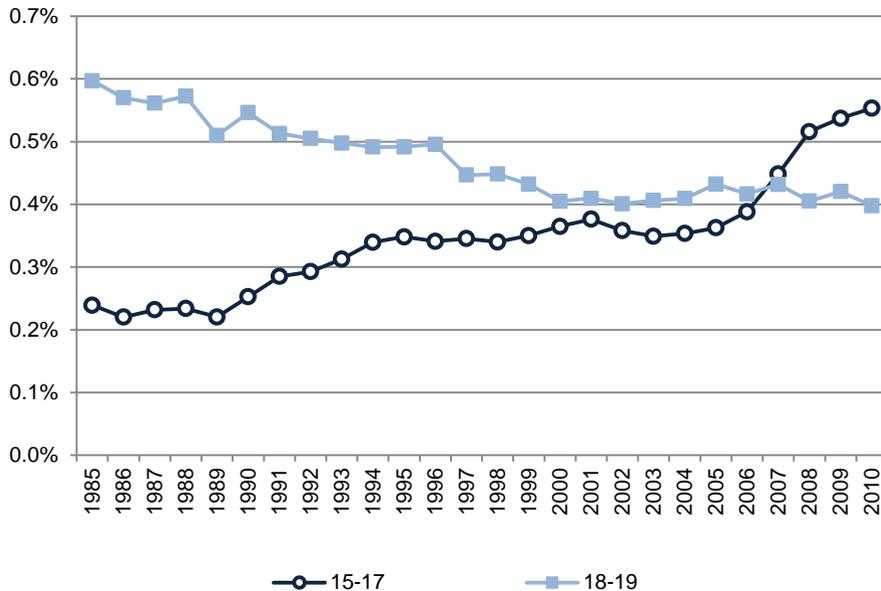
**Figure 4: Share of non-marital births to partnered and unpartnered women among all births to teenagers**



Source: Own calculations based on birth registers 1985-2010.

Moreover, teenage single mothers became younger over time. While the share of those aged 18–19 amounted to almost two-thirds in 1985, it dropped to slightly more than one-third in 2010. The share of teenage single mothers aged 16 and 17 doubled, reaching one-fifth and two-fifths, respectively (see Figure 8 in Appendix). This means that in 2010 more than eight in ten teenage single mothers were still in education, which is compulsory up to age 18 in Poland. The percentage of those with primary (ISCED-97 1 or 2) education grew from 68% in 1985 to 85% in 2010 (results not shown).

The picture is similar when we analyse the trends for the share of teenagers who have a baby but no partner (Figure 5). In 1985 the probability of single motherhood was higher for older teenagers, but in 1993 the 17 year-olds, and in 2009 the 16 year-olds, outweighed those aged 18–19. While the percentage of single mothers among girls aged 18 and 19 decreased over time, the shares among those aged 15–17 more than doubled (see Figure 5). This was the only age group in which the probability of single motherhood increased, while it decreased in all other age groups. At the same time, the probability of becoming a mother for a teenage girl oscillated below 1% for the 15–17 year-olds and dropped from 7% to less than 3% for those aged 18–19 (results not shown).

**Figure 5: Share of teenagers who become single mothers, by age**

Source: Own calculations based on the female mid-year population structure as contained in the demographic yearbooks 1985-2010 and on birth registers 1985-2010.

#### 4. Discussion and conclusion

This study shows that, similarly to the non-marital birth ratio, the share of births to unpartnered women is very strongly and negatively linked to education. Between 1985 and 2010 the vast increase in the non-marital birth ratio was related to a rise in the share of children born to unmarried partnered women. The percentage of births to single women was stable at a level of 3%-5% throughout the analysed period.

The educational differences in the share of births to single mothers became larger over time, ranging from 2% to 5% in 1985 and from 1% to 22% in 2010. The percentages were stable in the two better-educated groups, but increased among the poorly educated (i.e., those with primary and basic vocational education), whose share in the population of mothers giving birth between 1985 and 2010 shrank from 53% to 24% (from 45% to 18% for first births).

As educational attainment rose and single mothers were still most numerous among the least educated, they became a much more selective group than they had been in the 1980s and 1990s. In 2010 half of them had primary education and two-thirds were younger than 25. The substantial increase in the share of births to singles in the least-educated group resulted from a growing percentage of teenagers among poorly educated single mothers: in 2010 it exceeded 60%, of which around 80% were younger than 18 and still in compulsory education when they became pregnant. Moreover, girls aged 15–17 were the only group in which the probability of single motherhood increased over time.

All in all, the vast increase in the non-marital birth ratio did not go along with a significant increase in the share of births to single mothers. However, single motherhood became more age- and education-specific in the course of time.

## **5. Acknowledgments**

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## Appendix

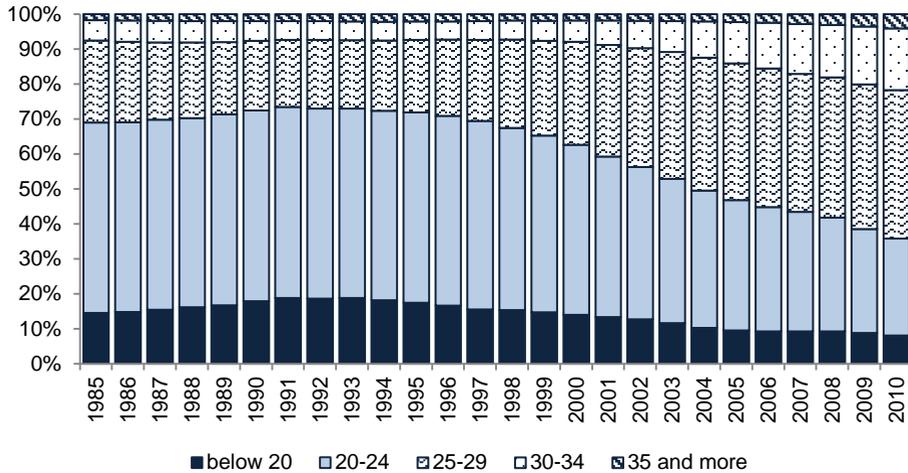
**Table 1: Number of births included in the analyses, Poland 1985–2010, by education and age**

	By education				By age				
	primary	basic vocational	secondary	tertiary	below 20	20-24	25-29	30-34	35 and above
1985	146,860	211,427	278,647	44,339	43,089	245,570	228,884	115,444	48,286
1986	132,670	202,469	262,481	40,805	40,851	228,338	210,888	109,753	48,595
1987	121,255	199,467	248,724	37,670	40,645	217,926	194,719	105,060	48,766
1988	114,316	197,828	242,134	37,702	41,393	210,810	185,728	104,772	49,277
1989	100,493	188,575	224,130	34,253	40,067	197,903	166,928	96,542	46,011
1990	97,868	195,999	217,347	33,380	44,375	198,980	159,108	94,122	48,009
1991	97,311	196,150	213,978	33,704	46,340	198,645	154,322	92,197	49,639
1992	91,368	184,004	201,508	32,037	43,380	186,397	145,023	85,207	48,910
1993	86,798	180,345	189,922	30,590	40,951	176,786	137,470	81,497	50,951
1994	82,011	172,537	182,358	30,875	38,389	167,803	132,289	77,877	51,423
1995	74,894	160,971	170,861	31,049	35,422	158,769	126,341	70,809	46,434
1996	69,945	154,907	165,989	33,713	33,360	153,666	125,055	68,235	44,238
1997	64,605	145,656	159,801	36,587	30,947	147,092	122,844	64,733	41,033
1998	58,756	137,015	154,138	40,057	30,106	138,411	121,788	62,014	37,647
1999	55,684	128,546	150,234	43,592	28,617	131,208	122,264	60,057	35,910
2000	53,111	122,625	149,747	49,674	27,672	126,660	126,147	60,361	34,317
2001	49,486	112,760	145,546	56,304	25,742	116,245	127,076	61,613	33,420
2002	45,174	103,606	138,587	62,250	24,018	105,798	125,795	61,985	32,021
2003	41,786	96,198	135,397	71,801	22,162	100,569	127,120	64,714	30,617
2004	40,043	90,724	136,262	83,254	20,190	97,058	131,229	70,356	31,450
2005	38,210	85,692	141,131	95,049	19,174	94,918	135,810	77,866	32,314
2006	38,480	79,451	143,586	108,422	19,142	92,791	138,364	85,662	33,980
2007	38,475	76,482	147,587	121,440	19,806	92,261	140,900	93,994	37,023
2008	39,328	74,354	154,865	139,138	21,035	92,927	149,476	103,406	40,841
2009	37,929	67,820	152,922	154,859	20,371	86,628	152,923	109,084	44,524
2010	35,548	61,159	146,193	166,684	18,406	79,374	151,721	112,091	47,992
2011	30,633	52,449	129,978	163,287	15,589	68,947	138,872	105,836	47,103

**Table 2: Share of single mothers estimated from birth registers (1985–2010) and the Polish GGS (1985–2008)**

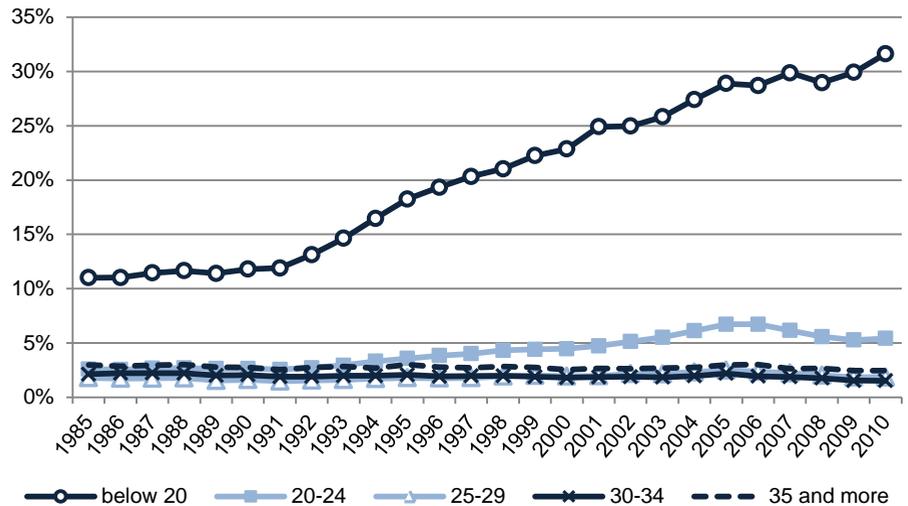
year	birth register	GGS (weighted)	absolute difference
1985	0.03	0.03	0.00
1986	0.03	0.02	0.01
1987	0.03	0.02	0.01
1988	0.03	0.02	0.01
1989	0.03	0.01	0.02
1990	0.03	0.02	0.01
1991	0.03	0.02	0.01
1992	0.03	0.02	0.02
1993	0.03	0.02	0.01
1994	0.04	0.03	0.01
1995	0.04	0.02	0.02
1996	0.04	0.03	0.01
1997	0.04	0.06	0.02
1998	0.04	0.03	0.01
1999	0.04	0.04	0.00
2000	0.04	0.03	0.01
2001	0.05	0.06	0.01
2002	0.05	0.05	0.00
2003	0.05	0.06	0.02
2004	0.05	0.07	0.02
2005	0.05	0.04	0.01
2006	0.05	0.05	0.01
2007	0.05	0.07	0.02
2008	0.04	0.04	0.01
2009	0.04		
2010	0.04		

**Figure 6: Age composition of first-time mothers, Poland 1985–2010**



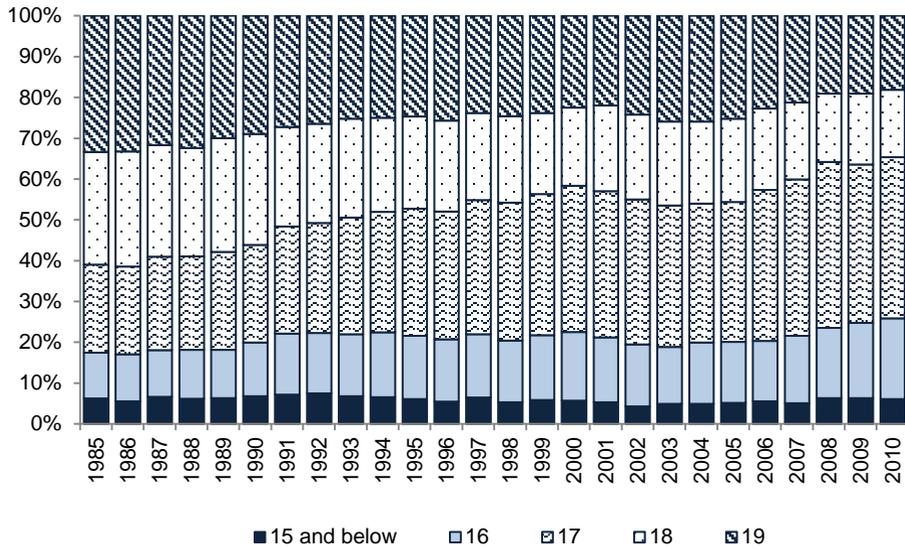
Source: Own calculations based on birth registers 1985–2010.

**Figure 7: Share of births to single women among all births, by age, Poland 1985–2010**



Source: Own calculations based on birth registers 1985–2010.

**Figure 8: Age composition of teenage single mothers, Poland 1985–2010**



Source: Own calculations based on birth registers 1985–2010.

