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Does the IAB Employment Sample Reliably Identify Maternity Leave Taking?

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Does the IAB Employment Sample Reliably Identify Maternity Leave Taking? A Data Report[1]

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Note

The findings in this paper apply to the most recent scientific use files of the IAB Employment Sample, the IABS 75-01 and IABS 75-04. There are two older scientific use files of the IABS, the basic file IABS 75-95 and the regional file IABS 75-97. The author cautions against using these scientific use files to identify mothers on maternity leave if the focus of the research is to analyze the impact of expansions in maternity leave coverage on mothers' labor market outcomes. The findings in this paper also apply to the two versions of the linked employer-employee data set that can be accessed at the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research. Please see Appendix B for details.

Data Availability

The data set described in this report, the IABS 75-95 Plus, is not available to external researchers. The author was able to work with this data set within a cooperation project between the Institute for Employment Research and the German Research Foundation ("Flexibilisierungspotenziale bei heterogenen Arbeitsmärkten", Projekt 6).

1. Introduction

Researchers have long been interested in questions like: when do mothers return to work after childbirth? What is the impact of career interruptions due to childbirth on subsequent wage growth? How does parental leave legislation affect women's labor supply and wages? These questions are highly relevant in light of the recent developments in family leave policies around the world. For instance, Germany has just increased maternity benefits (Elterngeld) after childbirth to 67% of the net pre-birth income during the child's first year (BMFSFJ 2007). Other countries that have recently expanded maternity leave coverage include Canada (2003) and the U.K. (2003, 2007). The data set that has been most commonly used to address these questions in the German context is the German Socioeconomic Panel (e.g. Weber 2004, Goerlich and De Grip 2007, Vlasbloom and Schippers 2003). The GSOEP contains, in addition to detailed information on fertility and employment, a large array of background characteristics, such as martial status and husband's income. It suffers, however, from a small sample size.

An alternative data set that has been used to address similar questions is the IAB Employment Sample (e.g. Schönberg and Ludsteck 2008, Ejrnæs and Kunze 2006). The two most recent scientific use files are the IABS 75-01 and IABS 75-04.[2] The IABS has several advantages over the GSOEP; most importantly, a much larger sample size. For instance, Vlasbloom and Schippers (2003) identify 649 mothers in the GSOEP, using data from 1984 to 2000. I, in contrast, was able to identify 47,703 mothers on maternity leave between 1984 and 1993 in the IABS 75-01. A further advantage of the IABS Employment Sample is that information on the employment history and wages is measured more precisely than in the GSOEP.[3]

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[2] A detailed overview of the various versions of the IAB Employment Samples can be found in Appendix B.

[3] I provide a detailed comparison of the advantages of the GSOEP and IABS in Table 11.

A disadvantage of the IABS, compared to the GSOEP, is that the IABS does not contain direct information on childbirth. The data set does, however, include a variable that indicates an interruption of the employment relationship so that women who go on maternity leave can potentially be identified. This variable has two limitations. First, not all leave spells may be due to maternity leave. Alternative reasons include sick or disability leave. Second, since the IABS does not include direct information on childbirth, the month the child was born has to be inferred from the month the mother goes on leave. This is likely to lead to measurement error in the child's birth month and therefore in the time mothers spend at home after childbirth. Both types of measurement error may bias findings regarding the determinants when women return to work after childbirth, or regarding the impact of the duration of the career interruption on subsequent wage growth.

This paper investigates whether the leave variable in the most recent scientific use files of the IAB Employment Sample, the IABS 75-01 and IABS 75-04, can be reliably used to identify maternity leave taking. This is made possible by an extended, weakly anonymous version of the IABS 75-95. The IABS75-95 is an older version of the IABS 75-04 that includes a 1% random sample of men and women covered by the social security system. I refer to the extended version of this data set as the IABS 75-95 Plus. This data set supplements the social security records from the IABS with information on activities during employment gaps from the German Pension Register. In particular, the extended version includes, since 1986, precise information on when a woman gave birth.

I use this data set to address four questions. First, I analyze how many and which mothers go on maternity leave. Between 1987 and 1994, about 50% of mothers in West Germany, and 59% in East Germany took maternity leave. The share is likely to be considerably higher for first-time mothers. Not surprisingly, leave taking is substantially more common for mothers who were employed around conception, i.e. around 9 months prior to childbirth (around 90%). This illustrates that the IABS cannot be used to identify childbirth in general. However,

the IABS is useful if the research focus is on women who are attached to the labor market.

Second, I analyze how many leave spells in the social security data can be linked to childbirth in the Pension Register. I show that for West German women, this is the case for at least 90% of the leave spells, but only after some sample restrictions have been imposed.

Third, I analyze how the child's month of birth that is inferred from the start of the leave spell in the social security data differs from the true month of birth in the Pension Register. I find that in most cases (70%), both are the same. In 25% of the cases, the inferred birth month is over- or underestimated by one month. Measurement error in the birth month leads to measurement error in the time the mother spends at home before returning to work. This may for instance be a problem if one wants to evaluate the impact of the maternity leave legislation on women's return decisions. One may expect that an unusually high share of women return to work exactly after 36 months if the job-protection period is 36 months. Due to the particular type of measurement error in the child's birth month, however, one would expect an especially high share also 35 or 37 months after childbirth. I confirm this in Section 5.2.

Fourth, I directly investigate the biases that may arise due to the two types of measurement error in the IABS. I focus on two questions: women's decision when to return to work after childbirth, and the impact of the duration of the career interruption on subsequent wages. I first present results using only information from the social security data that is available in the scientific use files of the IABS 75-01 and IABS 75-04. I then report the "true" results, based on the information from the Pension Register in the IABS 75-95 Plus. Overall, both the IABS and the Pension Register give very similar findings. However, the IABS slightly underestimates the impact of education and age on the returning hazard. Probably most importantly, the IABS somewhat overestimates the cost of career interruptions.

I conclude that the most recent scientific use files of the IABS, the IABS 75-01 and IABS 75-04, provide a very valuable alternative data source to the

GSOEP to study career interruptions due to childbirth, as long as the focus is on women who are attached to the labor market.

The plan of this paper is as follows. I begin with a brief description of the expansions in parental leave coverage that have taken place in Germany since the late 1970s (Section 2). In Section 3, I describe the IABS 75-95 Plus used to investigate the reliability of the leave variable in the scientific use file. Section 4 presents evidence on how many and which mothers take maternity leave. In Section 5, I address two sources of measurement error in the scientific use file: I first analyze how many leave spells are due to childbirth. I then turn to measurement error in the child's birth month. In Section 6, I investigate how a noisy measure of leave taking in the scientific use file may bias findings regarding women's decision to stay at home, and regarding the impact of career interruptions due to childbirth on subsequent wages. I conclude in Section 7.

2. Background: Maternity Leave Legislation in Germany

In this section, I briefly describe the main features of maternity leave legislation in Germany. A more detailed description can for instance be found in Schönberg and Ludsteck (2008) or Kreyenfeld (2001). Since 1968, mothers are entitled to paid maternity leave 6 weeks before and 8 weeks after childbirth. During this ‘maternity protection’ period, the firm is not allowed to dismiss the mother, and the mother has the right to return to a job that is comparable to the job she held before childbirth.

Since the late 1970s, there have been several expansions in leave coverage. Figure 1, taken from Schönberg and Ludsteck (2008), provides a visual overview of the reforms. The first reform took place in May 1979. It increased the job-protected maternity leave period from 2 to 6 months. This reform also turned the right of a leave of absence during the first 8 weeks following childbirth into an employment ban. During the first two months following childbirth, mothers received their full salary, while payment between the third and sixth month following childbirth was roughly equal to 375 Euros per month (Zmarzlik et al.

1999). This corresponds to about one third of women's average pre-birth earnings.[4] Only women who were employed before childbirth were entitled to maternity benefits.

In January 1986, the job-protection period was increased from 6 to 10 months and a further increase to 12 months starting in January 1988 was announced. An important component of this reform was that fathers became eligible for leave taking. However, the proportion of fathers taking pa-rental leave is very small; in 2001 it was 1.6% (Engstler and Menning 2003). A further component of this reform was that all mothers, regardless of their employment status prior to childbirth, became eligible for maternity benefits. During the 6 weeks prior to and 8 weeks following childbirth, the maternity benefit remained unchanged from mothers' pre-birth earnings (or 300 Euro if the mother was not employed before childbirth). Until December 1993, maternity benefits were equal to 300 Euros from the third to the sixth month after childbirth, independently of the mother's (or the father's) income prior to childbirth.[5] This corresponds to about 20% of women's average pre-birth earnings.[6] From the seventh month onwards, maternity benefits were means-tested and depended on the annual net family income two years before childbirth. The majority of women received benefits longer than 6 months; in 1986, for instance, this proportion was 83.6% (Engstler and Menning 2003, BMFSFJ 2000).

In July 1989 and July 1990, the job-protected leave period was further raised to 15 and 18 months, respectively. In January 1992, the job-protected leave period was increased from 18 to 36 months. Maternity payments still ended at 18 months, but were to be extended to 24 months one year later. The most recent policy reform took place in January 2007. This reform increased the maternity

[4] Own calculations based on the IABS 75-01.

[5] In January 1994, an income cap was introduced and couples whose gross annual income exceeded approximately 70,000 Euros (≈ 50,000 for singles) no longer qualified for the maternity benefit between the third and sixth month after childbirth (Zmarzlik et al. 1999). The income cap has been reduced several times since 1994.

[6] Own calculations based on the IABS 75-01.

benefit to 67% of the net pre-birth income during the child's first year. If the father takes parental leave as well, benefits are paid for two additional months (BMFSFJ 2007b).

Several states, including Bavaria, Baden-Wuerttemberg, Saxony, and Thueringen, pay maternity benefits in addition to the federal benefits. For instance, since 1986, Baden-Wuerttemberg pays 200 Euros per month for additional 12 months, once the federal benefit has expired. Since July 1989, Bavaria pays 250 Euros per month up until the child's second birthday, also starting with the expiration of the federal maternity benefit. Similar rules exist in Saxony and Thueringen since 1992.

3. Data Description and Sample Selection

The analysis in this report is based on an extended, weakly anonymous version of the IABS 75-95 (Bender et al. 2000). The weakly anonymous version of the IABS 75-95 differs from the scientific use files of the IAB Employment Samples in that little to no steps have been undertaken to anonymize the data. Although the findings in this paper are based on the original social security data, they apply to the most recent scientific use files of the IAB Employment Sample, the IABS 75-01 and IABS 75-04. However, I caution against using the scientific use files of the IABS 75-95 and IABS 75-97 to identify maternity leave spells if the focus of the research is to analyze the impact of maternity leave policies on mothers' labor market outcomes. Please see Appendix B for details.

The IABS 75-95 is a 1% random sample of social security records, available for the years 1975 (1992 for East Germany) to 1995. The data set includes all men and women who during this period held at least one job for which social security contributions have to be paid.[7] In addition to a wide variety of background characteristics, such as age, education, industry, and occupation,

[7] Information on marginal jobs that are exempt from social security contributions (i.e. jobs that (in 2008) pay less than 400 Euros per month) is included in the IAB Employment Samples from 1999 onwards only. Marginal employment may be particularly common for women with young children.

the data set includes precise information on wages, on when the individual switched employers, when she entered and left unemployment, and when she interrupted her current employment relationship. This information is reported by firms, and mis-reporting is subject to penalties. The data set does not contain information on the individual's activities during employment gaps. To mention only a few possibilities, a woman may be self-employed, retired, or taking care of her children.

The IABS 75-95 is extended in two ways. First, it is supplemented with information on activities during employment gaps from the German Pension Register. A detailed description of this data set with one extension as well as the Pension Register can be found in for instance Wuebbeke (2005) or Prinz (1997).[8] The Pension Register includes information on career interruptions if the activities during the career interruption entitle the individual to a pension. This is currently the case for employment gaps due to, and the activity variable in the Pension Register therefore distinguishes between, military service, full-time education, sick leave, disability, child care. More specifically, the extended IABS 75-95 contains, for women, precise information on their children's birthday. Unfortunately, prior to 1986, data on fertility is incomplete. This is because child care constitutes a pension claim only for children born after December 31st 1985. Before 1986, women could voluntarily report the birth of their child to the Pension Register, while after 1986 the registration offices (*Einwohnermeldeämter*) automatically forward this information to the Pension Register. The Pension Register does not contain (direct) information on whether the mother is on leave from her employer.

Is the information on childbirth in the Pension Register (after 1986) complete? In 1986, the Pension Register records 4,508 births to (West) German citizens. In the same year, 567,310 children were born in West Germany to German

[8] This data set with one extension of the IABS 75-95 has been used by, among others, Beblo and Wolf (2002), Bender et al. (2003), and Beblo et al. (2006) to analyze the impact of career interruptions on wage growth.

citizens.[9] Hence, the extrapolated number of births in the Pension Register is about 20% (4,508,000 versus 567,310) lower than the actual number of births. This is not surprising, as the IABS 75-95 only includes women who were employed and paid social security contributions at least once between 1975 and 1995. Not recorded are for instance children to civil servants (e.g. teachers) or self-employed mothers who never were employed within the social security system. Overall, the IABS Employment Samples cover approximately 77% of the workforce (Bundesagentur für Arbeit, 2004), suggesting that for those women who were at least once employed within the social security system, the information of childbirth in the Pension Register is (close to) complete.

Unfortunately, the registration offices do not report information on birth order. Hence, the first child observed in the data may in fact be the second or third child.

The second addition to the IABS 75-95 is that, for all women and men included in the IABS 75-95, social security records are extended to the year 2003. Hence, the extended version of the IABS 75-95 allows researchers to observe men's and women's employment and unemployment history over the period from 1975 to 2003. Information on employment gaps from the German Pension Register, however, is available only till 1995. I refer to the IABS 75-95 with two extensions as the IABS 75-95 Plus.[10]

The IABS contains a variable that has been used first by Ejrnæs and Kunze (2006) to identify whether a woman has given birth and took maternity leave. Firms in Germany are required to report that a mother is on maternity leave because since mothers are not allowed to work the first two months after childbirth. The leave variable (btyp) is created by the IAB based on information reported by the employer why the employment relationship was interrupted. The variable distinguishes, in addition to regular employment spells (btyp=1) and unemployment spells (btyp=7), five values (Table 1). The btyp variable is equal to

[9] Source: Statistisches Bundesamt, Germany.
[10] This data set with two extensions of the IABS 75-95 has been used by Müller (2007). She refers to the two extensions as supplement I and II.

2 if the employer reports the employment relationship as interrupted, and the employment relationship stops at December 31st, and is continued at January 1st the following year. The btyp variable takes the value 3 if employers report a wage equal to zero, but do not report an interruption of the employment relationship. The btyp variable is equal to 4 if the employer reports the relationship as interrupted, and the employee continues to work with this employer, while it is equal to 5 if the employee returns to a different employer. Finally, the btyp variable takes the value 6 if the employee never returns to the labor market.

Three problems may arise when using this variable to identify childbirth. First, there may be women who give birth, but do not go on maternity leave. Second, not all leave spells in the IABS are due to childbirth. Other reasons why a woman may take a leave of absence from her employer include sick or disability leave. Third, since the IABS does not contain direct information on children's birthdays, the child's birth month has to be inferred from the month the mother goes on maternity leave. This is likely to lead to measurement error in the month of birth, and therefore in the time the mother stays at home before returning to work.

The extended version of the IABS 75-95 allows me to address each problem. I construct three samples to do so. Sample A consists of all women who give birth between January 1987 and December 1994.[11] Here, the information on childbirth comes from the Pension Register, while the information on leave comes from the social security data of the IABS 75-95. I use this sample to analyze how many women who give birth take maternity leave.

Sample B consists of all women with at least one leave spell between January 1987 and December 1994 in the social security data of the IABS 75-95 Plus. I

[11] I exclude the first (1986) and last (1995) year of the Pension Register for the following reason. As I describe in Appendix A, I define a leave spell due to maternity leave if there is a birth six months before or after the start of the leave spell. This is not possible for (all) births in the first and last year of the Pension Register. There is no reason to delete these years from the analysis for researchers who work with the IABS only.

use this sample to analyze how many leave spells in the social security data are due to childbirth, rather than due to sick leave, etc.

Sample C includes all women who give birth between January 1987 and December 1994 according to the Pension Register and go on maternity leave according to the social security data. I use this sample to analyze the relationship between the month a woman goes on maternity leave and the month she gives birth.

For East German mothers, the sample is restricted to the years 1993 and 1994. A detailed variable description can be found in Appendix A.

4. How Many Mothers Take Maternity Leave?

One shortcoming of the IABS is that allows researchers to identify whether a woman has gone on (maternity) leave, but not childbirth in general. For instance, if a woman quits her job as soon as she finds out that she is pregnant and does not take a leave of absence from her employer, one would observe an employment gap in the IABS. Similarly, if a woman goes on maternity leave for her first child, and has her second child while still on leave (which is, due to the long job protection period in Germany, not uncommon), there will be no record of the birth of the second child. In this section, I analyze how many mothers go on maternity leave in Germany. Findings are based on Sample A.

Results can be found in Table 2. Columns 1 to 3 report the share of women who take maternity leave among all women, while columns 4 to 6 refer to women who were employed around conception, nine months prior to childbirth. The table distinguishes between West and East Germans, as well as between women with German and foreign citizenship. Due to the small number of observations, I have dropped women with a foreign citizenship in East Germany from the sample. For women in West Germany, the share of women who take maternity leave increased from 47.8% in 1987 to 52.0% in 1994. Women with a foreign citizenship are somewhat less likely to go on maternity leave (about 47%), whereas in East Germany leave taking is more common (about 59%). These

numbers may seem low. Notice, however, that they refer to all births, and I will provide evidence that leave taking is likely to be considerably higher for the first birth in Table 3. It is important to bear in mind that if a mother has a second child while still on maternity leave, or while on a marginal job that is exempt from social security contributions, the IABS does not record a leave of absence for the second birth.

Not surprisingly, substantially more women take maternity leave if they were employed nine months prior to childbirth. For women in West Germany, the share is about 90% and has remained roughly constant over time. The share is somewhat lower for women with a foreign citizenship and in particular for women in East Germany. Table 2 also provides information on how many women are employed around conception (small number in parentheses). This is the case for about 50% of mothers in West Germany, regardless of citizenship, and about 65% of mothers in East Germany.

It may seem surprising that some women who were attached to the labor market prior to giving birth do not use the option to take maternity leave, especially since leave taking does not imply any obligations on the side of the mother. In particular, women on maternity leave are not required to return to their previous employer. Note, however, that since 1986 all mothers in Germany are entitled to maternity benefits even if they were not employed prior to childbirth. Moreover, pregnant women are eligible for unemployment benefits. Hence, quitting the job soon after conception may be optimal for mothers who do not expect to return to the labor market (and to their current employer in particular) any time soon. In my sample, about one third of women who are working 9 months prior to childbirth but do not take maternity leave are observed to claim unemployment benefits prior to childbirth, and do not return to the labor market for at least 6 years.

I provide more information about the determinants of leave taking in Table 3. The first column pools women in East and West Germany. The remaining columns report results separately for women with German and foreign citizenship in West Germany and women in East Germany. In addition to the variables

reported, I control for the year the woman gives birth. East German women are more likely to go on maternity leave both conditional and unconditional on pre-birth characteristics, such as education and age. This is not the case for women with a foreign citizenship: although overall they are less likely to take maternity leave than German citizens (Table 2), the sign flips if one conditions on pre-birth characteristics. For both foreign and German citizens and women in East and West Germany, older mothers are more likely to go on leave. With the exception of East German women, the relationship between leave taking and education is non-monotone, and the medium-skilled who completed an apprenticeship are the most likely to take maternity leave.

For women in West-Germany, I also include indicators for birth order as additional regressors. I do not do this for East German women because here fertility data is available for the years 1992 to 1995 only. Note that these estimates are likely to present a lower bound for the true impact of birth order on leave taking, since fertility data is incomplete before 1986. Yet, there is a strong negative relationship between birth order and leave taking: among German citizens, women are 36.4% less likely to take maternity leave for their second than their first (recorded) child, and 45.0% less likely for their third child. The pattern is the same for foreign citizens, although the impact is smaller in magnitude. This suggests that the share of first-time mothers who take maternity leave is considerably larger than the overall share of 50% reported in Table 2.

5. Leave Spells in the IABS and Maternity Leave Taking

In this section, I address the two sources of measurement error in the social security data: first, not all leave spells may be due to childbirth; and second, the child's birth month is likely to be measured with error.

5.1 How Many Leave Spells in the IABS Are due to Maternity Leave?

One problem of the social security data is that the leave variable does not distinguish between alternative reasons for leave taking. While maternity leave (for women in the child bearing age) is likely to be the most common reason, other reasons include illness, disability, and military service. Next, I use the IABS 75-95 Plus to analyze how many leave spells in the IABS are due to maternity leave.

Table 4 displays the share of leave spells that are due to childbirth. Findings are based on Sample B. I report results separately for women with German and foreign citizenship in West Germany, as well as women in East Germany. For women in West Germany, I further distinguish between all leave spells and the first leave spell observed in the data.[12] Researchers may be interested in the latter restriction if they would like to study the return to work after the birth of the first child. It is, however, important to bear in mind that the first leave spell in the social security data is only a proxy for the first birth.

When I impose no restrictions, only 55.37% of all leave spells, and 58.55% of first leave spells, for West German women are due to childbirth. For women with foreign citizenship and women in East Germany, the share is even lower. The share increases by about 20 percentage points if I restrict the sample to women in their child bearing age, between 18 and 40. Among the spells deleted due to this restriction, about 2% are due to childbirth. The share of "correct" leave spells increases if the age restriction is made more stringent. For instance, when I delete women older than 35 from the sample, 71.63% of leave spells of women with a foreign citizenship are due to childbirth, compared to 64.80% when I delete women older than 40. However, the more stringent age restriction also increases the share of leave spells that are due to childbirth, but erroneously deleted from the sample, from about 2% to about 10%. The reminder of this paper restricts the

[12] I do not do this for East German women since 96% of all leave spells refer to the first leave spell. This is because the social security data is available from 1992 onward only.

sample to women between 18 and 40. Depending on the research question, other researchers may prefer more stringent restrictions.

In Germany, mothers are not allowed to work 8 weeks after childbirth, and may go on maternity leave 6 weeks before childbirth. A second sensible restriction therefore is to delete "short" leave spells. When leave spells shorter or equal to 2 months are deleted in addition to women younger than 18 and older than 40, the share of leave spells that are due to childbirth increases by roughly 10 percentage points. However, notice that the share of correct births that are wrongly deleted from the sample increases from about 2% to about 11%, suggesting that some maternity leave spells are shorter than 2 months, despite the employment ban during the first 8 weeks after childbirth. Restricting the sample to spells longer than or equal to 3 months further increases the share of leave spells due to childbirth, but only slightly. This more stringent restriction also raises the probability that a true maternity leave spell is deleted from the sample from about 11% to about 18%. Throughout the reminder of this paper, I restrict the sample to spells longer than or equal to 2 months.

After these restrictions have been imposed, the share of "wrong" leave spells is considerably larger if the leave spell started in January than in any other month. This is mostly, but not entirely, due to leave spells for which the btyp variable takes the value 2, i.e. employment relationships which the employer reports as interrupted, and which stop at December 31st and continue at January 1st the following year. This suggests that most spells for which the btyp variable is equal to 2 are not due to maternity leave. In addition, the share of leave spells that are not due to maternity leave is somewhat higher if the spell starts at the first of a month.

The next row in Table 4 reports the share of true leave spells after spells that start at the first of a month have been deleted. The results are similar if I delete leave spells where the btyp variable is equal to 2 instead. This restriction increases the share of leave spells due to childbirth by about five percentage points for all groups. However, it also increases the share of erroneously deleted true leave spells by about 5 percentage points.

As a final restriction, I delete leave spells that are preceded by a spell in apprenticeship training. This is motivated by different maternity leave legislations for regular employees and apprentices. The final share of leave spells in the IABS that can be linked to childbirth in the Pension Register is 89.19% for West German women for all leave spells, and 91.36% for first leave spells. The share is up to 10 percentage points lower for women with a foreign citizenship or for East German women.

Note that these findings treat the information in the Pension Register as the true data, and the social security data as measured with error. If the information on children's birthdays in the Pension Register is incomplete or measured with error, then a leave spell in the social security data of the IABS could be due to childbirth, although there is no record of childbirth around the start of the leave spell in the Pension Register. The shares in Table 4 are therefore best interpreted as lower bounds for the true shares.

What explains the "wrong" leave spells in the IABS? The first row in Table 5 reports, among erroneous leave spells, the share for which we observe, during employment gaps, an activity other than maternity leave in the Pension Register. Results are based on Sample B, but restricted to leave spells that are not due to childbirth. When I impose no additional restrictions, 49.35% of leave spells for West German women can be linked to an activity in the Pension Register. The share increases to 55.38% when I impose my preferred restrictions, i.e. when I restrict the sample to women between 18 and 40, to spells longer than 2 months, to spells that do not start on the first of a month, and to spells that are not preceded by a spell in apprenticeship training. By far the most common activity is sick leave (about 40%), followed by disability leave (about 9%). These numbers imply that in about 5% of leave spells in the IABS (i.e. 0.1*0.5)[13], the social security data in the IABS and the Pension Register provide inconsistent information. This may be the case either because the information in the Pension

[13] I.e., around 10% of leave spells are not due to childbirth, and of those, half cannot be linked to any other reason of leave taking in the Pension Register.

Register is incomplete, or because the IABS data contains employment interruptions that are in fact permanent separations.

5.2 Measurement Error in the Month of Birth

A third shortcoming of the social security data is that the child's birth month has to be inferred from the month the mother goes on maternity leave. This is likely to lead to measurement error in the time mothers spend at home after childbirth. Next, I provide evidence on this type of measurement error. Findings are based on Sample C. I additionally impose my preferred restrictions; i.e. I restrict the sample to women between 18 and 40, to spells longer than 2 months, to spells that do not start on the first of a month, and to spells that are not preceded by a spell in apprenticeship training.

Since in Germany mothers are allowed to go on maternity leave 6 weeks before birth, I approximate the birth month of the child as 6 weeks after the mother went on leave. Table 6 reports the share of births where the birth month imputed from the IABS coincides with that observed in the Pension Register, or occurs one or two months before or after. In 69.28% of all leave spells of West German women (column 1), the IABS measures the birth month correctly. In about 12%, I either over- or underestimate the true birth month by one month. The table also reveals that I am more likely to underestimate the birth month in the IABS than to overestimate it (17.7% versus 13.0%). This is not surprising, as women who are sick during pregnancy are likely to go on leave earlier. The shares are similar in East Germany (column 5), or when I consider the first spell only (column 2). However, measurement error in the month of birth in the IABS is somewhat larger for women with foreign citizenship (columns 3 and 4).

I would again like to stress that these findings treat the information in the Pension Register as the true data, and the social security data as measured with error. If the information on children's birthdays in the Pension Register is measured with error, then the imputed birth month from IABS could be the correct birth month, although the Pension Register indicates otherwise.

Consequently, the share of births for which the birth month imputed from the IABS and the birth month recorded in the Pension Register is again best interpreted as a lower bound for the share of births for which the IABS measures the birth month correctly.

6. The Consequences of Using a Noisy Measure of Maternity Leave Taking

The analysis so far has shown that, after some appropriate restrictions have been imposed, the vast majority of leave spells in the IABS are indeed due to childbirth. However, any sample based on the IABS is likely to contain some erroneous leave spells that cannot be linked to childbirth. For West German women, the share of erroneous leave spells is at most 10%, while it may be as high as 20% for women with a foreign citizenship or for women in East Germany. In addition, the month a woman gives birth, and therefore the time she spends at home before returning to work, is measured with error in the IABS. In this section, I provide a first analysis of whether measurement error in the IABS may lead to serious biases. I concentrate on two key questions: the woman's decision when to return to work, and the impact of the career interruption on wages after childbirth.

6.1 True Maternity Leave Spells and Observable Characteristics

The extent to which measurement error in the IABS biases estimates crucially depends on how it is related to observable characteristics, such as birth month, education, or age. I investigate this in Table 7 and 8. Results are based on Sample B. Additionally, I impose my preferred sample restrictions. In particular, leave spells that start at the first of a month have been dropped from the sample. Panel A in Table 7 displays the share of correct leave spells by imputed birth month. I distinguish between women in West and East Germany, between women with a foreign or German citizenship, and between all and the first spell. For West German women, the share of correct leave spells varies from 87.15%

in May to 91.77% in September. I just fail to reject the hypothesis that the birth month has no impact on whether the leave spell is due to childbirth or not at a 10% level (p-value 0.103). Importantly, although on average the share of correct leave spells is somewhat lower in May than in other months, this pattern is not observed every single year. For women with a foreign citizenship and East German women, the variation in the share of correct leave spells across birth months is, due to the smaller sample size, considerably larger. Again, there is no clear pattern across years.

In Panel B, I report results from linear probability models where the dependent variable is equal to 1 if the leave spell in the IABS can be linked to childbirth in the Pension Register. In line with findings in Table 4, leave spells are less likely to be correct for women in East Germany, whereas foreign citizenship no longer has a negative impact on whether or not the leave spell in the IABS is due to childbirth. For all groups, the probability that the leave spell is due to childbirth increases with education and age, and decreases with the number of the leave spells.

Table 8 presents a similar analysis, with an indicator variable whether or not the month of birth is measured correctly as the dependent variable. Findings are based on Sample C. I again impose, in addition to the restrictions mentioned in Section 3, the following restrictions: women must be between 18 and 40, spells must be longer than 2 months, spells must not start at the first of a month, and spells must not be preceded by a spell in apprenticeship training. There appears to be no clear relationship between the month of birth and a correct measurement of the birth month. With the exception of women in East Germany, the incidence of a correct measurement increases with education and age.

To sum up, the incidence of whether or not a leave spell in the IABS is due to childbirth is not random, but is correlated with, for instance, education, age, and the number of the leave spell. The share of wrong leave spells is, however, not strongly correlated with the month of birth. The same holds for measurement error in the month of birth.

6.2 True versus Estimated Time Away from Work

Since several observable characteristics, such as education, help to predict both types of measurement error in the IABS, one may worry that the IABS cannot be reliably used to identify career interruptions due to childbirth. Next, I use descriptive as well as regression tools to compare the time mothers spend at home after childbirth in the IABS (where career interruptions due to childbirth can only be approximated) with that in the Pension Register (which includes precise information on childbirth). Findings are based on Sample B, and I impose my preferred sample restrictions. In Figure 2a, I plot the share of women who return to work t months after childbirth in the IABS. It is important to bear in mind that throughout the time period considered, the IABS does not include information on jobs for which social security contributions have to be paid. Hence, if a mother accepts a so-called 'marginal' job after childbirth that is exempt from social security contributions (i.e. jobs with a monthly salary of (in 2008) less than 400 Euros), there is no record of this employment in the IABS. Maternity leave duration is computed as the time between the month the mother returns the work and the approximated month she gives birth (based on the month she takes maternity leave). Hence, maternity leave duration is based on the social security data only, and can therefore be computed from the scientific use file of the IABS 75-01 and IABS 75-04. I also plot the share when the sample is restricted to spells that are due to childbirth. Here, I include spells that start at the first of a month in the sample, since there is no economic reason for excluding them. The analysis is now based on the month of birth observed in the Pension Register, as opposed to the imputed month of birth in the IABS. Maternity leave duration is computed as the time between the month the mother returns to work, obtained from the social security records of the IABS, and the month she gives birth, obtained from the Pension Register. Hence, the approximation based on the IABS contains two sources of measurement error: first, the sample includes

some spells that are not due to childbirth, and second, the month of birth - and thus time at home - is measured with error.

I display results separately for West Germans, women with a foreign citizenship, and women in East Germany. Clearly, the share of mothers who return to the labor market after 2, 10, 12, 15, 18, 24, and 36 months after childbirth exceeds that in any other month. These dates coincide with some important dates in the maternity leave legislation in Germany. Throughout the time period considered, the job-protection period was successively increased from 10 months in 1986 to 36 months in 1992. Moreover, after 2 months, the maternity benefit sharply drops from the full salary to 300 Euros per month, which is about 25% of the average salary. Furthermore, since 1993 (1988 in Baden-Wuerttemberg and 1989 in Bavaria), maternity benefits are paid for 24 months, while the job-protection period is 36 months. Finally, two East German states (Saxony and Thueringen) pay maternity benefits for additional 6 months, which may explain the unusually high share of women returning 30 months after childbirth in East Germany.

Clearly, the share of women returning at the 10th,12th, ... month is higher based on the "true" data from the Pension Register than that based on the approximated social security data in the IABS. This is expected because of measurement error in the month of birth in the IABS. The second most important difference between the true and approximated data is that the approximated data overestimates the share of women who are returning very early, within 4 months after childbirth. A further inspection shows that this is because of the inclusion of leave spells that are not due to childbirth in the IABS data, rather than due to measurement error in the month of birth. That is, erroneous leave spells in the IABS tend to be shorter than leave spells that are due to childbirth.

I provide further findings in Figure 2b, again separately for West German women, women with a foreign citizenship, and women in East Germany. The figure compares the Kaplan-Maier survival estimates based on the approximated IABS data with those based on the true data from the Pension Register. The figure confirms that unusually many mothers return to work around the time the

job-protection or maternity benefit period ends, and this share is higher based on the Pension data than based on the IABS data. More importantly, the approximated survival curve always lies below the true survival curve, and runs roughly parallel to the true survival curve. Hence, the IABS data overestimates the share of women who return to the labor market early, within the first 4 months after childbirth, whereas the share of women returning later on is estimated more or less correctly.

Researchers and policy makers may also be interested in how observable characteristics, such as education, age, or wages, affect women's return decision. In Table 9, I report results from (non-parametric) proportional hazard models, and compare estimates based on the approximated IABS data with those based on the Pension Register. For the Pension Register, I distinguish two samples: the first sample includes spells that start at the first of a month, while these spells are excluded in the second sample. Panel A pools women in East and West Germany and women with German and foreign citizenship; Panels B to D display results for each group separately. In addition, I report results separately for all spells and first spells. This is motivated by the previous finding that the share of leave spells in the IABS that can be linked to childbirth in the Pension Register is somewhat higher for the first spell (Table 4). A coefficient of greater than 1 implies that the variable increases the hazard rate, while a coefficient of smaller than 1 implies that the variable decreases the hazard rate.

Table 9 reveals several interesting patterns. First, all variables have the expected signs, in both the true and approximated data. Education, wages prior to childbirth, and working full-time prior to childbirth all increase the hazard rate, while age decreases it. Moreover, the hazard rate declines with the expansion of the maternity leave period over the sample period.

Second, the approximation based on the IABS slightly underestimates the impact of education on the hazard rate for all groups. This may be because both sources of measurement error are less severe for better educated workers. Similarly, age has a more negative impact on the hazard rate in the approximated IABS data than in the true Pension data; again, this could be

because both types of measurement error are more severe for younger workers. The IABS data also underestimates the impact of living in East Germany on the hazard rate. All other coefficients are very similar for the approximated IABS data and the true Pension data. In particular, the estimates for the impact of the leave period are almost identical for the true and approximated data.

Third, the biases tends to be slightly larger for women with a foreign citizenship or East Germans than for West German women for whom both types of measurement error is slightly lower. Fourth, excluding spells that start at the first of a month in the Pension data has very little impact on the estimates. This suggests that dropping these spells in the IABS is unlikely to pose any problems.

6.3 True versus Estimated Impact of Time Away from Work on Wages

Next, I compare the impact of the time at home after childbirth on the wage drop following childbirth in the IABS data (where career interruptions due to childbirth can only be approximated) with that in the Pension Register (which includes precise information on childbirth). Findings are based on Sample B, and I impose my preferred sample restrictions. I further restrict the sample to women who return to the labor market within 6 years of childbirth. As in the previous section, the approximation based on the IABS contains two sources of measurement error: first, the sample includes some spells that are not due to childbirth, and second, the month of birth, and thus time at home, is measured with error.

I estimate first difference models. My dependent variable is the difference between the first log-wage observed after childbirth and the pre-birth log-wage. I regress this variable on the number of months the mother stays at home after childbirth, her education, age and age squared, the change in full-time status before and after childbirth, and dummy variables for the birth year. Results can be found in Table 10. Panel A displays results for West German women, while Panels B and C report results for women with a foreign citizenship and East German women, respectively.

The most important pattern that emerges from the table is that the IABS data somewhat overestimates the negative impact of career interruptions on the wage drop following childbirth, in particular for West German women. For this group, the estimate based on the IABS data implies that spending one additional year at home after childbirth reduces wages by 7.0%. The true estimate based on the Pension Register, in contrast, is only 5.3%. The bias is similar when the sample is restricted to the first spell (6.5% versus 4.7%). The pattern is similar for women with foreign citizenship and women in East Germany: the impact on career interruptions is more negative (or, in the case of East German women, less positive) in the IABS data than in the Pension Register. One explanation for this finding is that the IABS sample includes women who are on leave from their employer because they are sick, and not because they have given birth. Wage losses due to sick leave may exceed those due to maternity leave.

Also notice that it makes little difference in the Pension Register whether or not we include maternity leave spells that start at the first of a month. This provides further evidence that this restriction is unlikely to bias results.

A further interesting finding that emerges from Table 10 is that the wage penalty associated with longer career interruptions is substantially larger for West German women than for women with a foreign citizenship or for East German women, in both the IABS data and the Pension Register. In fact, the estimates in Table 10 suggest that staying at home longer has a positive impact on the wage drop following childbirth. However, this finding has to be interpreted with considerable caution. This is because East Germany experienced a substantial wage growth throughout the early and mid-1990s. Since the fertility data for East Germany exists only from 1992 to 1995, it is difficult to disentangle the impact of career interruptions from that of aggregate wage growth.

7. Conclusion

The two German micro data sets that most commonly used to study the effects of childbirth or leave taking in the German context are the IAB Employment

Sample and the German Socioeconomic Panel. I summarize the main advantages and disadvantages of each data set in Table 11. The main advantage of the IABS is the large sample size and the precise measurement of earnings. The main advantage of the German Socioeconomic Panel is the inclusion of a wide variety of background characteristics. In particular, the IABS does not include direct information on childbirth. It does, however, contain a variable that indicates an interruption of the employment relationship so that women who go on maternity leave can potentially be identified.

In this paper, I analyze the measurement error associated with the maternity leave variable in the IABS. My overall conclusions are positive: The vast majority of leave spells in the IABS are due to maternity leave (at least 90% for West German women), but only after certain restrictions are imposed. The child's birth month is measured correctly for at least 70% of births, and over- or underestimated by one month for a further 25%. I therefore conclude that the scientific use files of the IABS 75-01 and IABS 75-04 provide a very valuable alternative data source to the GSOEP to analyze career interruptions due to childbirth. Questions that can be analyzed with the IABS include: When do women who took maternity leave return to the labor market after childbirth? How does the time away from work after childbirth affect mothers' future wage growth? Which mothers experience the largest wage losses? Have there been changes over time? How did the expansions in leave coverage that have taken place in Germany since the late 70s affect mother's labor supply and wages? Despite some caveats, the IABS data also has advantages over some widely used data set in other countries. For instance, the Panel Study of Income Dynamics (PSID), National Longitudinal Survey of Youth (NLSY), or Survey of Income and Program Participation (SIPP) suffer, just like the GSOEP, from small a sample size, or follow individuals for a few years only so that long-term consequences of career interruptions due to childbirth cannot be analyzed.

There are, however, a number of questions that cannot be addressed with the IABS, but could possibly be addressed with the GSOEP, if the sample size is large enough (see also Table 11). Most importantly, the IABS does not allow

researchers to identify childbirth, but only leave taking. I show that between 1987 and 1994, about 50% of West German mothers go on leave, although the share is likely to be considerably higher for first-time mothers. Leave taking is substantially more common among mothers who are employed prior to childbirth. The IABS should therefore be used only if the focus is on mothers who are attached to the labor market.

Second, for fathers, only a small share of leave spells is due to paternity leave. Hence, the data set cannot be used to analyze how many fathers take paternity leave, and what are the consequences of leave taking for their future career. This is a highly relevant question in light of recent policy developments. For instance, the 2007 reform in Germany provided strong incentives for fathers and mothers to share paternity leave. Similar incentives exist for instance in Sweden, Iceland, and Austria.

Third, although the IABS includes more background information than most other administrative sets, some limitations remain. For instance, it is not possible to identify single women, or to link husbands and wives, in the IABS. Both are possible in the GSOEP. Moreover, contrary to the GSOEP, the IABS does not include information on hours worked (other than full- or part-time work), and provides no information on women who are not covered by the social security system, such as civil servants and the self-employed. A further disadvantage of the IABS, compared to the GSOEP, is that it includes Information on marginal employment (i.e. jobs with a monthly salary of (in 2008) less than 400 Euros) from 1999 only. These jobs are likely to be common among mothers with young children. Hence, whether the GSOEP or the IABS is better suited to analyze the research problem depends on the research question.

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Appendix A: Detailed Variable Descriptions

This appendix contains a detailed description of the variables used in the analysis.

· *Number of leave spells* A woman is considered to be on maternity leave if the btyp variable is between 2 and 6. (Note that all btyp spells that are equal to 2 are dropped in the final analysis because these spells start at the first of January). In order to obtain the number of leave spells, I simply add up the number of times a woman goes on leave. It sometimes happens that one leave spell starts shortly after another. If the duration between the end of the first leave spell and the beginning of the next leave spell is less than 9 months, I count the two leave spells as one leave spell. The analysis in this paper is based on the first to the fourth leave spell. This restriction eliminates about 1% of all leave spells.

· *East Germany and foreign citizenship* A woman is considered to be from East Germany if the first spell identifies her as East German. A woman is considered to be a foreign citizen if the first spell identifies her as a foreign citizen.

· *Education* Women with less than 3/10 of spells as university graduates and at least 3/10 of spells as apprentices are classified as apprentices or medium-skilled. Women with at least 3/10 of spells as university graduates are classified as high-skilled. All other women are classified as low-skilled.

· *Return to work* I require women to return to work for at least 2 consecutive months. I impose this restriction because up to 5% of women return to work for less than two months, typically right when job-protected leave expires. Many of these women take up permanent employment only many years later. Results are similar if a more stringent definition, such as working for at least 6 consecutive months, is used.

· *Pre-birth characteristics (wage, working full-time)* Pre-birth characteristics are measured around conception, i.e. nine months prior to childbirth. In the rare event that a woman is not working 9 months before childbirth, pre-birth characteristics refer to the last valid employment and wage spell prior to the leave.

· *Maternity leave* In Tables 2 and 3, I consider a mother to be on maternity leave from her pre-birth employer if the btyp variable takes a value between 2 and 6 at least once within 6 months before and after the birthday recorded in the Pension Register. I have experimented with a more stringent definition according to which the btyp variable is between 2 and 6 at least once within 3 months before and after childbirth. This has only a small impact on my findings.

· *Childbirth* The Pension Register records the birth year and birth month of all children born after December 31 1985. There is an additional variable in the data set that indicates whether a woman is eligible for a pension because of childbirth. In some rare cases, a woman has given birth according to this variable, but there is no recorded birth. In Tables 4 to 10 and Figures 2a and 2b, I consider a leave spell to be due to maternity leave if the Pension Register records a birth (including births based only on the activity variable) within 6 months before or after the start of the leave spell. Alternative definitions (such as 3 months before and after the start of the leave spell) have little effect on my findings.

Appendix B: Overview of the Different IABS Employment Samples

This section provides an overview of the different versions of the scientific use files of the IAB Employment Sample, and explains why I caution against using the two oldest versions to identify mothers on maternity leave. The analysis in this paper is based on the weakly anonymous version (and not the scientific use file) of the IABS 75-95. This data file differs from the scientific use files in that few to no steps have been undertaken to anonymize the data.

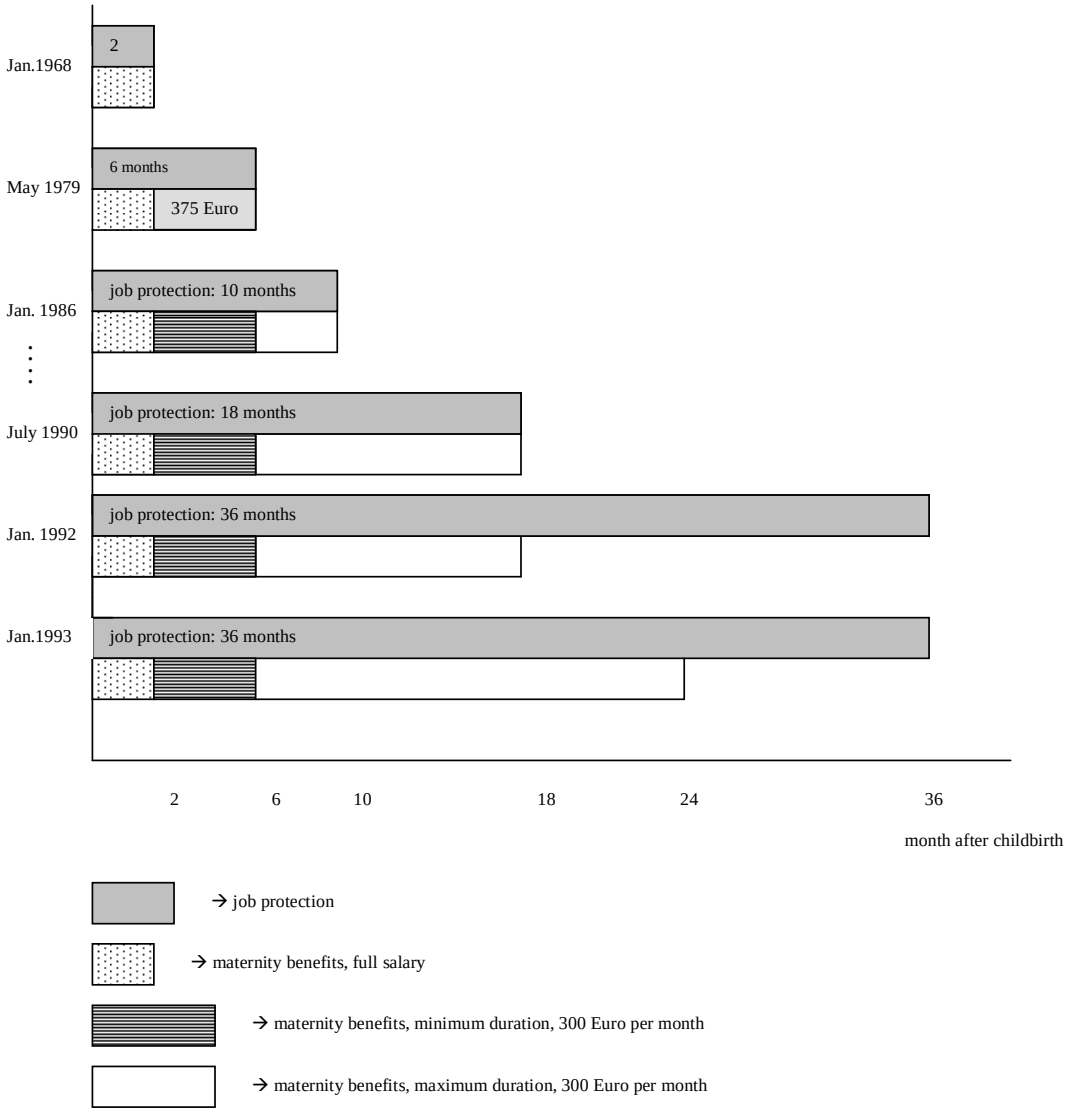
Table 1 highlights the main characteristics of the four available scientific use files (IABS 75-95, IABS 75-97, IABS 75-01, and IABS 75-04), and briefly describes how the data were anonymized in order to make it available to the scientific community. The basic file IABS 75-95 and the regional file IABS 75-97 are 1% random samples of social security records and are available for the years 1975 to 1995 and 1975 to 1997, respectively. The regional files IABS 75-01 and IABS 75-04 are 2 % random samples of social security records and are available for the years 1975 to 2001 and 1975 to 2004, respectively. In all four files, the anonymization process first involves the exclusion of certain variables, such as marital status (which has found to be unreliable). Second, some variables have been aggregated in order to prevent the identification of individuals. In the basic file IABS 75-95, this mostly concerns the regional variable that only allows to distinguish between East and West Germany, rather than the original 323 districts. In the three regional files, this mostly concerns the industry and occupation variable. In the two oldest version of the IAB Employment Sample, the IABS 75-95 and IABS 75-97, an

additional step to anonymize the data has been undertaken: all spells of an individual are moved forward or backward by a random constant. While this type of anonymization should not affect the length of the maternity leave spell, it may imply that the child's birth month imputed from the IABS (i.e. 6 weeks after the start of the maternity leave spell) is only weakly correlated with the true birth month. This is especially problematic if the researcher would like to investigate the impact of expansions in leave coverage on mother's labor market outcomes—as the birth month imputed from the IABS may indicate that the mother was entitled to, say, 36 months of leave, while she was in fact entitled to only 18 months of leave. I also would like to stress that I have not explicitly analyzed the impact of this type of anonymization on the two types of measurement error present in the IABS. I therefore caution against using these two scientific use files to identify maternity leave spells, especially if the focus of the research is to analyze the impact of maternity leave policies on mothers' labor market outcomes. This type of anonymization was dropped in the two most recent versions of the IABS Employment Sample, the IABS 75-01 and 75-04. Hence, although the findings in this paper are based on the weakly anonymized version of the IABS 75-95, they apply to the scientific use files IABS 75-01 and IABS 75-04 as well.

The weakly anonymous versions of all four data files can be accessed at the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research. Data protection is guaranteed by a special configuration of the guest researchers' workplace and disclosure reviews at the end of each research visit. These weakly data files, including the 75-95 and 75-97 versions, can be used to identify maternity leave spells.

The Research Data Centre also provides two linked employer-employee data sets that combine information on firms from the IAB firm panel with information on workers from social security records. Since the information on workers comes from the same social security records as those in the IAB Employment samples, and since individual employment spells have not been shifted forward or backward by a random constant, these data sets can be used to identify maternity leave spells.

Figure 1: Maternity Leave Legislation in Germany (Selected Reforms)



Note: Since 1986, all women -- employed before childbirth or not -- are entitled to a maternity benefit of 300 Euros per month for a minimum of 6 months. From the 7th month onwards, maternity benefits are means-tested, and depend on the annual net family income two years before childbirth. The majority of women receive benefits longer than 6 months. In January 1988, maternity leave was extended from 10 to 12 months. Two further changes occurred in July 1989 and July 1990, when maternity leave was increased to 15 and 18 months, respectively.

Table 1: The Btyp Variable in the Social Security Data

1	Regular employment spell
2	Employer reports an interruption of the employment relationship. Employment ends at December 31, and starts January 1 the following year.
3	Employer does not report an interruption of the employment relationship. The wage reported is 0.
4	Employer reports an interruption of the employment relationship. The individual returns to the same employer.
5	Employer reports an interruption of the employment relationship. The individual returns to a different employer.
6	Employer reports an interruption of the employment relationship. The individual does not return to the labor market.
7	Reception of unemployment benefits or other payment transfers.

Note : The table lists the definition of the btyp variable in the IABS that is used to identify career interruptions due to childbirth.

Table 2: How many Women Take Maternity Leave?

	All			Working 9 Months Prior to Childbirth		
	1	*2*	*3*	*4*	*5*	*6*
	West, German	*West, Foreign*	*East*	*West, German*	*West, Foreign*	*East*
1987	47.82%	48.74%		88.94%	90.08%	
	4,724	238		(50.55%)	(50.84%)	
1988	49.54%	45.42%		88.53%	87.50%	
	5,055	251		(52.42%)	(44.80%)	
1989	49.73%	43.51%		89.54%	83.69%	
	4,977	285		(52.62%)	(49.65%)	
1990	51.31%	45.85%		89.90%	84.78%	
	4,968	277		(53.20%)	(50.00%)	
1991	54.21%	43.49%		89.68%	80.45%	
	4,874	269		(55.46%)	(49.81%)	
1992	54.64%	49.25%		89.02%	83.69%	
	4,989	266		(55.68%)	(53.00%)	
1993	55.04%	48.45%	58.11%	90.40%	78.89%	81.10%
	4,809	322	518	(54.81%)	(56.07%)	(63.32%)
1994	52.01%	49.65%	59.44%	90.38%	86.81%	79.82%
	4,620	286	503	(54.46%)	(51.06%)	(65.81%)
Total	51.79%	46.78%	58.74%	89.95%	83.52%	80.46%
	39,016	2,194	1,021	(53.45%)	(51.43%)	(64.55%)

Note : The table reports the share of mothers who take maternity leave. Columns 1 to 3 refer to all mothers, and columns 4 to 9 refer to mothers who were employed 9 months prior to childbirth. Here, the share in parentheses displays the share of mothers who were employed 9 months prior to childbirth. Findings are based on Sample A.

Table 3: The Determinants of Maternity Leave Taking
(Dependent Variable: 1 if Mother Takes Leave)

	All	**West, Germans**	**West, Foreigners**	**East**
	1	*2*	*3*	*4*
	42,706	39,015	2,180	1,021
East	0.031			
	(0.014)			
Foreign	0.022			
	(0.017)			
Age	0.044	0.103	0.058	0.169
	(0.006)	(0.006)	(0.019)	(0.036)
Age^2	-0.001	-0.002	-0.001	-0.003
	(0.000)	(0.000)	0.000	(0.001)
Medium-skilled	0.154	0.167	0.062	0.240
	(0.007)	(0.008)	(0.023)	(0.045)
High-skilled	0.080	0.027	-0.008	0.231
	(0.012)	(0.014)	(0.062)	(0.055)
2nd child		-0.368	-0.167	
		(0.005)	(0.025)	
3rd child		-0.456	-0.198	
		(0.006)	(0.037)	
4th child or higher		-0.486	-0.194	
		(0.006)	(0.069)	

Note: The table reports results from linear probability models where the dependent variable is equal to 1 if the mother takes maternity leave. Findings are based on Sample A. Robust standard errors in parentheses.

Table 4: How May Leave Spells are Due to Maternity Leave?

	West, Germans	West, Germans, 1st spell	West, Foreigners	West, Foreigners, 1st spell	East
No restriction	55.40%	59.71%	44.80%	54.93%	36.12%
N	38,984	25,243	3,286	1,804	1,672
Age					
between 18 and 40	74.36%	77.55%	64.92%	72.30%	58.35%
N	28,752	19,280	2,218	1,350	1,018
true leave spells deleted	2.12%	2.03%	3.00%	3.30%	1.53%
between 18 and 35	77.61%	79.93%	71.81%	76.51%	66.36%
N	26,072	18,026	1,820	1,192	868
true leave spells deleted	10.56%	9.21%	11.26%	12.91%	3.48%
Plus duration of leave spell					
> 2 months	84.04%	85.55%	75.62%	81.48%	68.82%
N	23,929	16,184	1,735	1,096	773
true leave spells deleted	11.53%	13.56%	10.32%	13.84%	7.01%
> 3 months	84.80%	87.01%	77.81%	83.39%	70.98%
N	21,867	14,876	1,523	963	696
true leave spells deleted	17.84%	20.54%	16.28%	22.35%	11.27%
Plus leave spell not equal to 1st	88.74%	90.68%	80.81%	86.85%	78.23%
N	20,879	14,275	1,506	958	620
true leave spells deleted	16.96%	19.40%	14.33%	18.79%	11.31%
Plus spell not preceeded by app.	**89.19%**	**91.35%**	**80.85%**	**87.06%**	**78.20%**
N	20,308	13,752	1,483	935	601
true leave spells deleted	18.65%	21.84%	15.14%	20.37%	12.51%

Note: The table reports the share of leave spells in the IABS that can be linked to childbirth in the Pension Register, after imposing more and more restrictions. After deleting women younger than 18 and older than 40, spells that are shorter than 2 months, spells that start at the first of a month, and spells that are preceeded by apprenticeship training, 89.19% of all leave spells of West Germans in the IABS are due to childbirth. For women with a foreign citizenship and women in East Germany, the share is 80.69% and 78.20%, respectively. Findings are based on Sample B.

Table 5: Wrong Leave Spells

	West, Germans	West, Foreigners	East
no restrictions	49.43%	50.00%	45.22%
N	17,387	1,814	1,068
preferred restrictions	55.40%	52.46%	56.80%
N	2,195	284	131

Note: The table restricts the sample to leave spells in the IABS that are not due to childbirth, and reports the share of spells that can be linked to an activity other than childbirth (such as sick leave) in the Pension Register. The first row refers to all leave spells that are not due to childbirth. The second row imposes the preferred restrictions, i.e. women younger than 18 and older than 40, spells shorter than 2 months, spells that start on the first of a day, and spells that are preceeded by a spell in unemployment are deleted from the sample. The third row displays the share for spells that start the first of a month.

Table 6: Measurement Error in the Birth Month Variable
(Birth Month in the Pension Register Minus Imputed Birth Month in the IABS)

	West, Germans	West, Germans, 1st spell	West, Foreigners	West Foreigners, 1st spell	East
	1	*2*	*3*	*4*	*5*
<-1	0.63%	0.71%	0.48%	0.54%	0.75%
-1	12.37%	12.41%	10.53%	12.27%	10.83%
0	**69.28%**	**68.94%**	**61.62%**	**61.73%**	**70.28%**
1	12.08%	12.55%	12.71%	12.64%	10.83%
2	2.12%	1.98%	4.24%	3.97%	1.26%
>2	3.51%	3.40%	10.41%	8.84%	6.05%
N	16,532	11,454	826	554	397

Note : The table reports the difference between the birth month observed in the Pension Register and that observed in the IABS, based on the start of the maternity leave spell. Findings are based on Sample C.

Table 7: True Maternity Leave Spells and Observable Characteristics
(Preferred Sample Restrictions)

			Panel A: True Spells and Birth Month				
	All	*All, 1st spell*	*West, Germans*	*West, Germans, 1st spell*	*West, Foreigners*	*West, Foreigners, 1st spell*	*East*
1	88.20%	90.96%	88.79%	91.34%	81.90%	89.61%	83.33%
2	87.96%	91.43%	88.96%	92.11%	76.45%	86.49%	84.78%
3	89.04%	91.58%	89.80%	92.48%	81.45%	84.06%	81.48%
4	88.05%	89.62%	88.94%	90.47%	81.95%	87.18%	73.47%
5	86.05%	89.18%	87.15%	90.04%	76.56%	86.59%	75.41%
6	88.08%	89.53%	88.73%	90.25%	86.13%	88.30%	67.50%
7	89.55%	91.59%	90.14%	92.20%	80.00%	83.05%	89.83%
8	89.45%	90.91%	90.39%	92.11%	83.85%	86.67%	68.63%
9	90.69%	92.69%	91.77%	93.93%	84.00%	87.78%	71.15%
10	90.08%	92.77%	90.37%	92.89%	87.39%	94.59%	87.23%
11	86.75%	89.73%	87.98%	90.20%	75.78%	89.39%	75.00%
12	88.01%	89.40%	88.07%	90.24%	74.80%	80.49%	77.27%
N	22,397	15,277	20,308	13,752	1,483	935	601
p-value	0.076	0.088	0.103	0.097	0.149	0.384	0.115
			Panel B: Other Observable Pre-Birth Characteristics				
	All	*All, 1st spell*	*West, Germans*	*West, Germans, 1st spell*	*West, Foreigners*	*West, Foreigners, 1st spell*	*East*
East	-0.115	-0.097					
	(0.016)	(0.016)					
Foreign	0.000	0.016					
	(0.010)	(0.012)					
Medium-skilled	0.072	0.045	0.075	0.048	0.027	0.022	0.076
	(0.007)	(0.008)	(0.007)	(0.008)	(0.020)	(0.023)	(0.063)
High-skilled	0.127	0.075	0.130	0.077	0.150	0.133	0.052
	(0.012)	(0.014)	(0.013)	(0.014)	(0.057)	(0.053)	(0.084)
Log-wage	0.011	0.038	0.014	0.042	-0.018	-0.004	-0.043
	(0.006)	(0.007)	(0.006)	(0.008)	(0.024)	(0.028)	(0.047)
Age	0.146	0.138	0.147	0.136	0.120	0.095	0.185
	(0.006)	(0.008)	(0.007)	(0.008)	(0.019)	(0.024)	(0.032)
Age^2	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.004
	(0.000)	0.000	0.000	(0.000)	(0.000)	(0.000)	(0.001)
Full-time	0.025	-0.001	0.022	-0.003	0.079	0.052	-0.071
	(0.006)	(0.008)	(0.007)	(0.009)	(0.027)	(0.033)	(0.042)
2nd spell	-0.021		-0.021		-0.043		-0.085
	(0.005)		(0.006)		(0.025)		(0.102)
3rd spell	-0.090		-0.083		-0.180		
	(0.012)		(0.013)		(0.042)		
4th spell	-0.240		-0.224		-0.319		
	(0.030)		(0.034)		(0.065)		
N	22,219	15,137	20,226	13,692	1,400	868	588

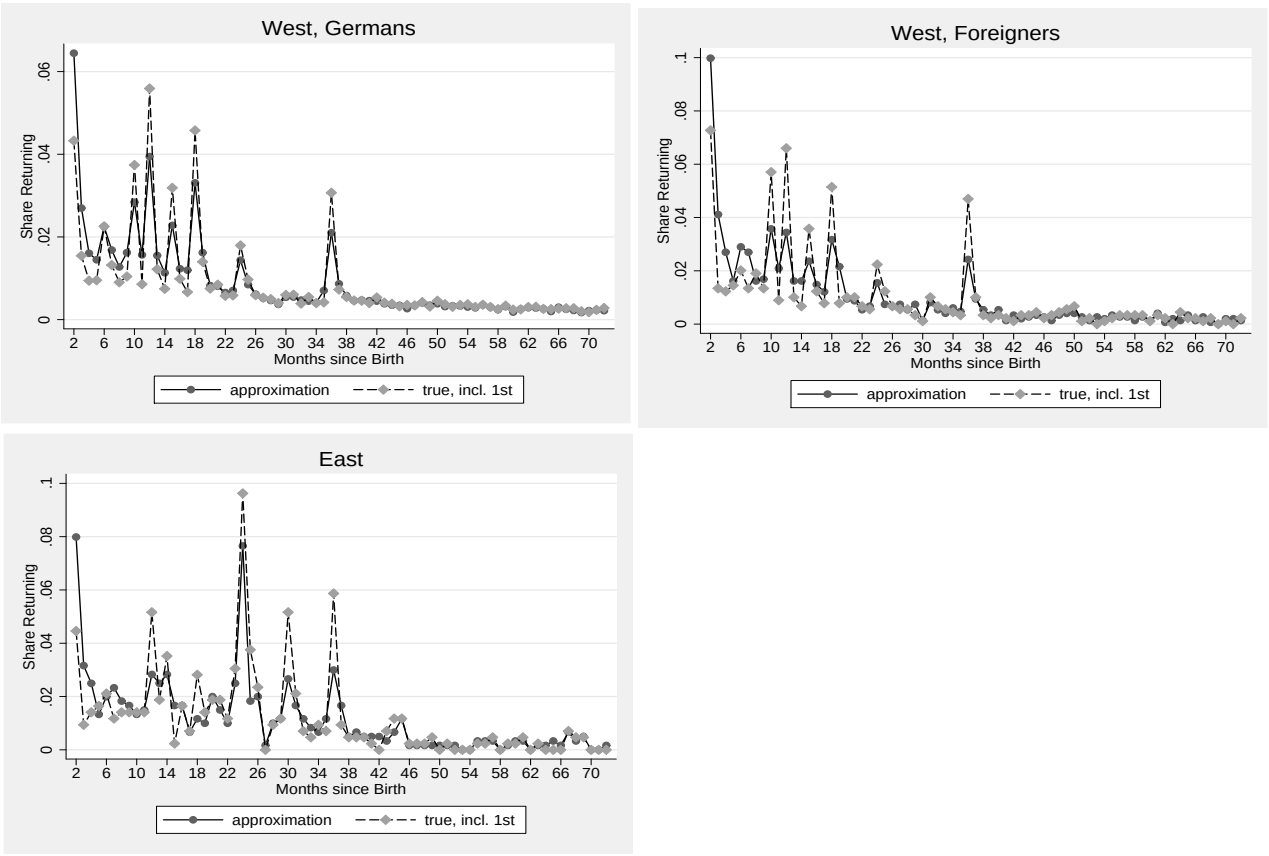
Note: Panel A displays the share of leave spells in the IABS that can be linked to childbirth in the Pension Register by month of birth (in the IABS data), after imposing the preferred restrictions. The last row rreports the p-value for the hypothesis that the birth month dummies in a linear probability model are jointly equal to zero. Panel B reports results from linear probability models where the dependent variable is equal to 1 if the leave spell in the IABS is due to childbirth. Findings are based on Sample B. Robust standard errors in parantheses.

Table 8: Correct Birth Month and Observable Characteristics
(Preferred Restrictions)

	West, Germans	West, Germans, 1st spell	West, Foreigners	West, Foreigners, 1st spell	East
	Panel A: Correct Birth Month and Birth Month				
1	68.63%	67.79%	60.27%	.6 .	76.19%
2	68.65%	69.26%	51.79%	51.35%	63.89%
3	69.35%	69.73%	70.77%	69.23%	64.52%
4	68.96%	67.32%	66.20%	59.57%	68.97%
5	70.23%	69.02%	54.29%	53.06%	66.67%
6	67.29%	67.50%	60.98%	61.54%	75.00%
7	70.52%	70.78%	52.73%	51.61%	76.09%
8	70.10%	69.91%	62.67%	67.24%	67.74%
9	70.85%	70.18%	61.33%	60.34%	74.19%
10	69.43%	68.30%	65.22%	68.75%	69.44%
11	69.26%	69.46%	62.12%	64.29%	84.00%
12	67.79%	67.78%	68.12%	69.77%	57.14%
N	16,532	11,454	826	554	397
p-value	0.692	0.821	0.496	0.650	0.655
	Panel B: Other Observable Pre-Birth Characteristics				
	West, Germans	**West, Germans, 1st spell**	**West, Foreigners**	**West, Foreigners, 1st spell**	**East**
Medium-skilled	0.041	0.029	0.107	0.101	-0.038
	(0.012)	(0.015)	(0.037)	(0.046)	(0.098)
High-skilled	0.075	0.052	0.165	0.210	-0.188
	(0.021)	(0.025)	(0.096)	(0.098)	(0.140)
Log-wage	0.024	0.048	-0.028	0.004	0.015
	(0.010)	(0.014)	(0.046)	(0.060)	(0.074)
Age	0.052	0.055	0.032	0.076	-0.029
	(0.011)	(0.013)	(0.040)	(0.049)	(0.069)
Age^2	-0.001	-0.001	-0.001	-0.001	0.000
	0.000	0.000	(0.001)	(0.001)	(0.001)
Full-time	0.020	0.015	0.044	0.011	-0.023
	(0.011)	(0.016)	(0.051)	(0.070)	(0.074)
2nd spell	0.007		0.025		-0.139
	(0.009)		(0.044)		(0.155)
3rd spell	0.005		-0.116		
	(0.018)		(0.074)		
4th spell	0.054		-0.182		
	(0.042)		(0.131)		
N	16,479	11,413	787	522	388

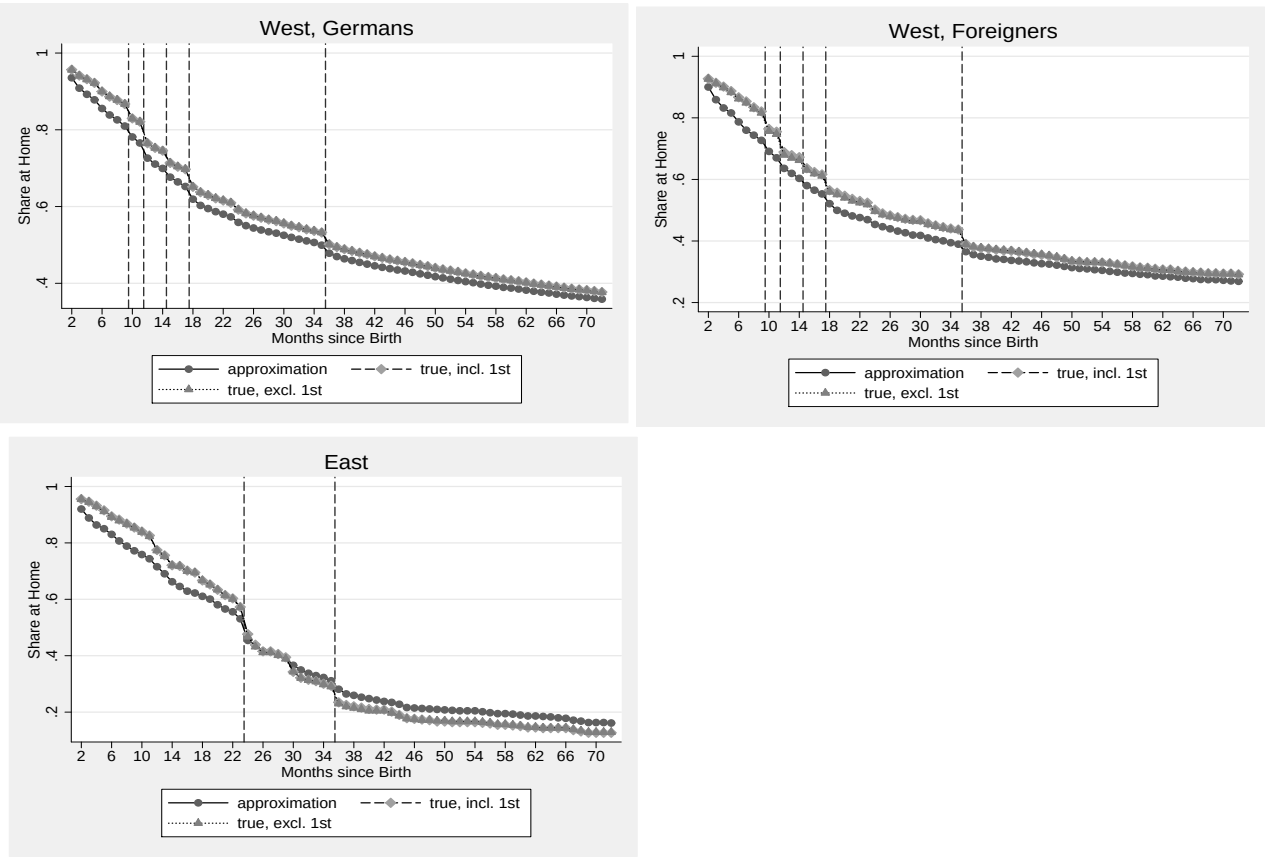
Note : Panel A reports the share of leave spells where the birth month imputed from the start of the leave spell in the IABS coincides with that in the Pension Register, by birth month in the IABS data. The last row rreports the p-value for the hypothesis that the birth month dummies in a linear probability model are jointly equal to zero. Panel B reports results from linear probability models where the dependent variable is equal to 1 if the birth month in the IABS is the same as that in the Pension Register. Findings are based on Sample C. Robust standard errors in parentheses.

Figure 2a: True versus Approximated Time at Home: Share Returning t Months after Childbirth
(Preferred Sample Restrictions)



Note: The figure plots the share of mothers who return to work t months after childbirth in the IABS data, after imposing the preferred restrictions ("approximation"). It also plots the share of mothers who return t months after childbirth for spells that can be linked to childbirth in the Pension Register. Here, I include spells that start at the first of the month in my sample ("true, incl. 1st"). The IABS data contains two sources of measurement error. First, the sample contains leave spells that are not due to childbirth, see Table 3. Second, the month of birth, and thus the time the mother spends with her child after childbirth, is measured with error, see Table 5.

Figure 2b: True versus Approximated Time at Home: Kaplan-Mayer Survival Function
(Preferred Sample Restrictions)



Note: The figure plots Kaplan-Mayer Survival estimates for the time women spend at home after childbirth in the IABS data, after imposing my preferred restrictions ("approximation"). It also plots the Kaplan-Mayer Survival estimates for spells that can be linked to childbirth in the Pension Register. Here, I include spells that start at the first of the month in my sample ("true, incl. 1st"). The IABS data contains two sources of measurement error. First, the sample contains leave spells that are not due to childbirth, see Table 3. Second, the month of birth, and thus the time the mother spends with her child after childbirth, is measured with error, see Table 5.

Table 9: True versus Approximated Leave Spells: Proportional Hazard Models

Panel A: All

	All Spells						1st Spell					
	True, 1st incl.		True, 1st excl.		Approx.		True, 1st incl.		True, 1st excl.		Approx.	
	N=18,937		N=17,655		N=22,219		N=13,180		N=12,314		N=15,137	
East	2.108	(0.095)	2.100	(0.100)	1.850	(0.080)	2.456	(0.119)	2.453	(0.124)	2.139	(0.099)
Foreign	1.313	(0.057)	1.339	(0.060)	1.309	(0.046)	1.331	(0.071)	1.366	(0.076)	1.292	(0.057)
Medium-skilled	1.023	(0.029)	1.037	(0.030)	0.990	(0.024)	0.962	(0.034)	0.974	(0.035)	0.954	(0.029)
High-skilled	1.276	(0.066)	1.312	(0.070)	1.163	(0.054)	1.235	(0.077)	1.271	(0.082)	1.180	(0.068)
Log-wage	1.190	(0.029)	1.194	(0.030)	1.204	(0.026)	1.504	(0.053)	1.512	(0.055)	1.448	(0.046)
Full-time	1.221	(0.030)	1.221	(0.031)	1.169	(0.027)	1.214	(0.046)	1.215	(0.048)	1.185	(0.041)
Age	0.940	(0.023)	0.948	(0.024)	0.898	(0.019)	0.876	(0.026)	0.884	(0.028)	0.828	(0.022)
Age^2	1.001	0.000	1.001	0.000	1.002	0.000	1.002	(0.001)	1.002	(0.001)	1.003	0.000
ML												
12 months	0.960	(0.033)	0.942	(0.033)	0.949	(0.030)	0.953	(0.040)	0.925	(0.040)	0.926	(0.036)
15 months	0.908	(0.033)	0.887	(0.033)	0.915	(0.031)	0.924	(0.041)	0.902	(0.042)	0.913	(0.038)
18 months	0.843	(0.028)	0.828	(0.028)	0.836	(0.026)	0.847	(0.035)	0.830	(0.035)	0.827	(0.031)
36 (18) months	0.779	(0.028)	0.769	(0.028)	0.776	(0.025)	0.778	(0.034)	0.768	(0.035)	0.772	(0.031)
36 (24) months	0.723	(0.024)	0.710	(0.024)	0.737	(0.022)	0.717	(0.029)	0.703	(0.029)	0.724	(0.027)

Panel B: West, Germans

	All Spells						1st Spell					
	True, 1st incl.		True, 1st excl.		Approx.		True, 1st incl.		True, 1st excl.		Approx.	
	N=17,663		N=16,479		N=20,226		N=12,206		N=11,413		N=13,692	
Medium-skilled	1.034	(0.031)	1.046	(0.033)	1.019	(0.027)	0.971	(0.037)	0.979	(0.038)	0.978	(0.033)
High-skilled	1.307	(0.071)	1.334	(0.075)	1.198	(0.059)	1.264	(0.084)	1.288	(0.089)	1.201	(0.074)
Log-wage	1.157	(0.029)	1.162	(0.030)	1.163	(0.027)	1.481	(0.055)	1.492	(0.058)	1.410	(0.048)
Full-time	1.217	(0.031)	1.213	(0.033)	1.156	(0.028)	1.199	(0.049)	1.190	(0.051)	1.152	(0.044)
Age	0.951	(0.024)	0.958	(0.025)	0.895	(0.020)	0.882	(0.028)	0.889	(0.030)	0.815	(0.023)
Age^2	1.001	0.000	1.001	0.000	1.002	(0.000)	1.002	(0.001)	1.002	(0.001)	1.004	0.000
ML												
12 months	0.974	(0.034)	0.957	(0.034)	0.957	(0.031)	0.965	(0.041)	0.937	(0.041)	0.935	(0.037)
15 months	0.919	(0.034)	0.900	(0.035)	0.925	(0.032)	0.927	(0.042)	0.907	(0.042)	0.926	(0.040)
18 months	0.852	(0.029)	0.837	(0.029)	0.839	(0.027)	0.852	(0.036)	0.834	(0.036)	0.830	(0.032)
36 (18) months	0.786	(0.029)	0.778	(0.029)	0.771	(0.026)	0.786	(0.035)	0.776	(0.036)	0.774	(0.032)
36 (24) months	0.743	(0.025)	0.730	(0.025)	0.750	(0.023)	0.736	(0.030)	0.721	(0.030)	0.744	(0.028)

Panel C: West, Foreigners

	All Spells						1st Spell					
	True, 1st incl.		True, 1st excl.		Approx.		True, 1st incl.		True, 1st excl.		Approx.	
	N=851		N=787		N=1,400		N=564		N=522		N=868	
Medium-skilled	0.984	(0.080)	0.984	(0.083)	0.870	(0.056)	0.956	(0.096)	0.974	(0.102)	0.874	(0.072)
High-skilled	0.813	(0.214)	0.981	(0.257)	0.741	(0.180)	0.872	(0.260)	1.157	(0.328)	1.040	(0.274)
Log-wage	1.582	(0.181)	1.547	(0.182)	1.494	(0.130)	1.488	(0.215)	1.417	(0.207)	1.401	(0.152)
Full-time	1.171	(0.131)	1.214	(0.140)	1.172	(0.098)	1.566	(0.219)	1.725	(0.238)	1.446	(0.158)
Age	0.899	(0.075)	0.931	(0.082)	0.932	(0.059)	0.838	(0.086)	0.850	(0.091)	0.921	(0.078)
Age^2	1.002	(0.002)	1.001	(0.002)	1.001	(0.001)	1.003	(0.002)	1.003	(0.002)	1.001	(0.002)
ML												
12 months	0.701	(0.111)	0.697	(0.116)	0.837	(0.101)	0.683	(0.150)	0.684	(0.156)	0.750	(0.133)
15 months	0.718	(0.126)	0.674	(0.126)	0.790	(0.109)	0.867	(0.261)	0.811	(0.204)	0.668	(0.135)
18 months	0.667	(0.101)	0.673	(0.105)	0.779	(0.089)	0.681	(0.136)	0.679	(0.137)	0.717	(0.116)
36 (18) months	0.628	(0.101)	0.623	(0.103)	0.823	(0.098)	0.602	(0.126)	0.598	(0.127)	0.698	(0.116)
36 (24) months	0.455	(0.068)	0.451	(0.070)	0.607	(0.068)	0.445	(0.087)	0.434	(0.086)	0.487	(0.077)

Panel D: East

	All Spells					
	True, 1st incl.		True, 1st excl.		Approx.	
	N=422		N=388		N=588	
Medium-skilled	1.027	(0.255)	1.099	(0.293)	0.810	(0.165)
High-skilled	1.319	(0.468)	1.379	(0.511)	0.978	(0.292)
Log-wage	2.376	(0.383)	2.412	(0.410)	2.652	(0.372)
Full-time	1.292	(0.206)	1.337	(0.219)	1.377	(0.180)
Age	0.834	(0.132)	0.834	(0.156)	0.891	(0.102)
Age^2	1.002	(0.003)	1.002	(0.003)	1.002	(0.002)
1994	1.114	(0.116)	1.077	(0.117)	1.034	(0.094)

Note: The table compares results from proportional hazard models in the IABS, after imposing my preferred restrictions ("Approx."), with those in the Pension Register ("true"). Here, I distinguish samples. In the first column, spells that start at the first of a month are included in the sample. In the second column, they are excluded. Robust standard errors in parentheses.

Table 10: True versus Approximated Leave Spells:The Impact of Career Interruptions on Post-Birth Wages

Panel A: West, Germans												
	All Spells						**1st Spell**					
	True, 1st incl.		**True, 1st excl.**		**Approx.**		**True, 1st incl.**		**True, 1st excl.**		**Approx.**	
	N=11,005		N=10,283		N=12,976		N=7,232		N=6,766		N=8,362	
Time at home	-0.004	(0.000)	-0.004	(0.000)	-0.006	(0.000)	-0.004	(0.000)	-0.004	(0.000)	-0.005	(0.000)
Medium-skilled	-0.109	(0.015)	-0.109	(0.016)	-0.117	(0.012)	-0.150	(0.019)	-0.151	(0.020)	-0.162	(0.016)
High-skilled	-0.035	(0.027)	-0.031	(0.028)	-0.061	(0.025)	0.019	(0.034)	0.023	(0.035)	-0.022	(0.031)
Change full-time	-0.005	(0.007)	-0.003	(0.007)	0.013	(0.006)	0.089	(0.010)	0.089	(0.011)	0.096	(0.009)
Age	-0.104	(0.013)	-0.099	(0.014)	-0.116	(0.010)	-0.156	(0.017)	-0.148	(0.017)	-0.173	(0.013)
Age^2	0.002	(0.000)	0.002	(0.000)	0.002	(0.000)	0.003	(0.000)	0.002	(0.000)	0.003	(0.000)
Panel B: West, Foreigners												
	All Spells						**1st Spell**					
	True, 1st incl.		**True, 1st excl.**		**Approx.**		**True, 1st incl.**		**True, 1st excl.**		**Approx.**	
	N=605		N=560		N=1,035		N=381		N=354		N=602	
Time at home	-0.001	(0.002)	-0.001	(0.002)	-0.002	(0.001)	0.001	(0.002)	0.001	(0.002)	0.000	(0.001)
Medium-skilled	-0.032	(0.039)	-0.019	(0.040)	-0.043	(0.029)	-0.060	(0.051)	-0.048	(0.048)	-0.039	(0.040)
High-skilled	0.115	(0.063)	0.101	(0.061)	0.053	(0.047)	0.082	(0.065)	0.066	(0.064)	0.035	(0.051)
Change full-time	0.038	(0.024)	0.044	(0.025)	0.023	(0.019)	0.018	(0.031)	0.019	(0.032)	0.004	(0.026)
Age	0.019	(0.039)	-0.003	(0.039)	-0.036	(0.028)	-0.017	(0.049)	-0.028	(0.051)	-0.060	(0.036)
Age^2	0.000	(0.001)	0.000	(0.001)	0.001	(0.000)	0.000	(0.001)	0.000	(0.001)	0.001	(0.001)
Panel C: East												
	All Spells											
	True, 1st incl.		**True, 1st excl.**		**Approx.**							
	N=368		N=338		N=495							
Time at home	0.005	(0.002)	0.004	(0.002)	0.002	(0.001)						
Medium-skilled	-0.025	(0.080)	-0.070	(0.086)	-0.082	(0.058)						
High-skilled	0.007	(0.121)	-0.047	(0.128)	-0.051	(0.085)						
Change full-time	0.034	(0.031)	0.028	(0.032)	0.010	(0.024)						
Age	0.048	(0.062)	0.018	(0.068)	-0.038	(0.039)						
Age^2	-0.001	(0.001)	0.000	(0.001)	0.001	(0.001)						

Note: The table compares results from first difference models (i.e. the difference between the logarithm of the post-birth and pre-birth wage) in the IABS, after imposing my preferred restrictions ("Approx.") with those in the Pension Register ("true"). Here, I distinguish two samples. In the first column, spells that start at the first of a month are included in the sample. In the second column, they are excluded. Robust standard errors in parentheses.

Table 11: Advantages and Disadvantages of the IABS and GSOEP

IABS		GSOEP	
Advantages	*Disadvantages*	*Advantages*	*Disadvantages*
1) large sample size 2) precise information on wages and employment			1) small sample size 2) wages and employment are likely to be measured with error
	1) no direct information on childbirth 2) no information on marital status, spousal income and labor supply, child care usage, etc. 3) no information on parental leave of fathers 4) information on marginal employment since 1999 only 5) no information on hours worked, other than full-time and part-time work 6) civil servants (i.e. teachers) and self-employed are excluded	1) complete fertility history available 2) information on e.g. marital status, spousal income and labor supply, child care usage, etc. 3) parental leave of fathers can be analyzed 4) information on marginal employment 5) information on (actual and usual) hours worked 6) covers all individuals	

Note: The table provides an overview of the main advantages and disadvantages of the IABS and GSOEP to study the impact of childbirth on mothers' (and fathers') careers.

Table B.1: Overview of the Different Versions of the IAB Employment Samples (Scientific Use Files Only)

	Short Description	Anonymization	Suitable to Identify Maternity Leave Spells?
IABS 75-95 (scientific use file)	−1% random sample −1975-1995 −detailed occupation and industry classification −only two regions, East and West Germany, can be distinguished	−aggregation of certain variables (mostly region) −exclusion of some variables −forward or backward shifting of all spells of an individual by a random constant	No, because of the forward/backward shifting of individual spells
IABS 75-97 (scientific use file)	−1% random sample −1975-1997 −aggregation of occupation and industry classifications −detailed regional classification	−aggregation of certain variables (mostly occupation and industry) −exclusion of some variables −forward or backward shifting of all spells of an individual by a random constant	No, because of the forward/backward shifting of individual spells
IABS 75-01 (scientific use file)	−2% random sample −1975-2001 −aggregation of occupation and industry classifications −detailed regional classification	−aggregation of certain variables (mostly occupation and industry) −exclusion of some variables	Yes
IABS 75-04 (scientific use file)	−2% random sample −1975-2004 −aggregation of occupation and industry classifications −detailed regional classification	−see IABS 75-01	Yes

Note: The table provides an overview of the different versions of the IAB scientific use files.

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