Low income and the dynamics of single parenthood:

Accumulation of disadvantage among never-married mothers?

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Introduction

In many western societies, marriage and childrearing have gradually become disconnected (Cherlin 1992). As is well-known, three processes are underlying this trend. First, divorce has increased dramatically, which implies that more and more women are living with their children while being divorced. Second, cohabitation has increased which means that an increasing number of men and women have children while they are not (yet) married. Third, there are increasing numbers of never-married women who have a child without living together with the father of the child. Although this third category is numerically the least important, it is also the clearest case where marriage and fertility are disconnected.

American research has shown that among unmarried mothers, the never-married group has increased more over time than the divorced group (Casper and Bianchi 2002). The cohabiting group has also grown over time, but less strongly than the never married group, suggesting that there has been an increase in the component of single never married mothers over time. In the Netherlands – which is the country we study – similar trends have occurred. In 1970, 4% of all births occurred out of

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wedlock, at the turn of the century, this has increased to 40% (Meulen and Graaf 2006). Although most of these children are born to cohabiting parents, there are also never-married single mothers. Surveys in the Netherlands estimate that about 20% of children born out of wedlock were born to women who did not live with a partner.

The group of never-married single women who have a child is a interesting because they differ in a number of important respects from married women and also from other groups of single mothers. American studies show that 58% of never married single mothers live below the poverty line, compared to only 9% of married parents (Casper and Bianchi 2002). Poverty rates are also high among single mothers who are divorced or separated, but never-married women stand out. Other American studies show that 41% of these mothers are high school dropouts and 65% of them are black. Whether such patterns also apply to the Netherlands is not known.

Given the obvious importance of parents' financial resources for children's well-being and adult outcomes, the poverty of women who have a child outside of marriage has given much cause for concern (Sigle-Rushton and McLanahan 2002). An important assumption behind this concern is that unmarried women who have a child outside of marriage remain unmarried and, partly as a result, remain in the lower income groups of society. If most of these women eventually marry or start living with a partner, the concern may be premature. If most of these mothers remain single for a prolonged period of time, the concern is indeed justified. For this reason it is important to study the household dynamics of single mothers. More specifically, it is important to know how often single women enter a cohabiting or married union in the years after their first child is born and to what extent such a transition alleviates some of the financial problems they face.

There is some American research which has studied the household dynamics of unmarried mothers. Using the *Fragile Families and Child Wellbeing Study*, Carlson, McLanahan and England find that 24% of single never-married mothers were married or cohabiting one year after the birth; 76% were still alone by that time (Carlson, McLanahan, and England 2004).[2] Using large-scale survey data from the U.S., Moffitt and Rendall show that the average duration of a child being raised by a single mother is about five years (Moffitt and Rendall 1995). Although the first five years are essential for a child's adult outcomes, this *average* also suggests that many

[2] This number combines percentages for three different groups in Table 2 of the quoted study.

single mothers do not live alone for very long. How this compares to other countries, like the Netherlands, is not yet known.

A related, and perhaps even more important issue, is the degree to which the chances of finding a (new) partner for single women who just became mothers are related to their initial income position. If especially the better-off single mothers are more likely to enter a union, inequality is further increased. It would suggest a notion of accumulation: Poor women being more likely to have a child on their own *and* more likely to remain single later on. The notion of accumulation needs to be tested with a dynamic analysis of the link between the mother's income and her household situation.

From research on marriage formation, it is known that a low and unstable income deters union formation, especially marriage formation (Oppenheimer 2003). The most common interpretation of this finding is that childrearing is costly—this is called the income effect. When considering women's income, the income effect (via childrearing costs) is counteracted by an independence effect which delays or deters marriage formation among high-earning women. For this reason, it is not clear what to expect for the effect of income (Carlson, McLanahan, and England 2004). Poor single mothers may be more in need of a well-earning husband, which would increase their chances of union formation, but they are also less able to contribute to a stable household income, which would reduce their chances of finding a new partner.

The problem is complicated by the fact that the father of the child will in many cases by the most likely candidate for union formation. The fact that these mothers live alone in the first place is in part due to the low or unstable income position of the father in the year of the birth. In these cases, union formation will be unlikely. To the extent that the income positions of mothers and fathers are related, one would expect that the poorest single mothers are also least likely to enter a union, unless they find someone else than the (poor) father.

Little is known about income effects on union formation of single mothers. The few previous studies which were done in the United States do not reveal clear effects. Carlson, McLanahan, and England do find positive effects of women's income on cohabitation and marriage, but most of the effects fail to reach statistical significance (Carlson, McLanahan, and England 2004). In the Carlson study, the effects for marriage also pertain to cohabiting women but the effect for cohabitation pertains to single women and this effect is in the positive direction as well. Moreover,

Carlson et al. also find clear positive effects of women's education on cohabitation. Single women who are high school dropouts, for example, are much less likely to enter a cohabiting union. These findings are therefore at least suggestive of the notion of accumulation: The poor more often become single mothers and they also more often remain in that state.

In this paper we use tax and registry data from the Netherlands to study the association between income and motherhood. We focus on women who are single in the year in which their first child was born. We first describe their income position relative to married or cohabiting women who had their first child. Subsequently, we examine changes in their living arrangements. The panel window is 1989-2000 so that on average, we can describe household changes in the first five years after the first birth. Next, we examine the economic and demographic determinants of union formation after the first birth.

Tax data have clear advantages. The income variables are (presumably) quite reliable and have low numbers of missing cases (compared to reports in surveys). The level of panel attrition is extremely low and the number of cases we have is quite large. Given the small size of the group of single never-married mothers in society, registry data are in fact the only way in which a *representative* sample of this special group of women can be studied. The number of never-married and single women who have their first child during the panel is about 700. A disadvantage of tax data is that many other potentially relevant characteristics are not included, hence, we are not able to replicate the rich set of covariates that is considered in the American *Fragile Families* study. As control variables we are able to include the age of the mother, her ethnic background, city residence, and the presence of other adults in the household.

Our research questions can be formulated as follows:

(a) How does the income position of never-married single women who become mothers compare to the income situation of married or cohabiting women who become mothers?
(b) How does the partner situation of never-married single mothers change in the years after their first birth?
(c) What are the effects of income on the chances of never-married single mothers to enter a marital or cohabiting union after their first birth?

The first question will be answered by comparing married and never-married women who become mothers. The second two questions focus only on never-married single

mothers. We also examine the role of other adults who live with the mother (e.g., parents) but we notice at the outset that this is a less important factor in the Netherlands than it is in the United States.

Analyses

Income differences at the time of birth

The data consist of a sample of individual respondents who live in the Netherlands. All ages were sampled (from age 0). The sample is based on individuals but it may happen that more than one person in a household is sampled. Information on all other household members is also available, but these persons are not the sample units. The panel began in 1989 and has been followed annually through 2004 (we use data up to 2000). The data collected are from tax registers and matched information from the municipal registry, which includes information on living arrangements. We focus on women who have a first child during the panel period.[3] For all the women who become mothers, we have income data for the calendar year before the year in which the child was born and income data for all subsequent years. The living arrangement of the mother is assessed by looking at the end of the calendar year in which her first baby was born. Results in Table 1 show that of all first births, 80% were to married mothers, 16% were to cohabiting mothers, and 5% were to unmarried single mothers.

We also use information from sample members who were baby's themselves but for them, no information is available for the calendar year that precedes the birth year. Hence, this group is not used in the first descriptive income comparisons (still needs to be added to second analysis).

To answer our first descriptive question, we compare single mothers, cohabiting mothers, and married mothers, using the income level in the year of the birth of the baby. Because the groups differ in a number of other important respects, we conduct multinomial logit analysis in which the living arrangement is regressed on income variables and a number of control variables. More specifically, we control for ethnicity, age, and city residence.

[3] It is possible that some women who have their first child during the panel already had a child before the panel period began, but this child should then have left the mother before the panel period began, which is probably a situation that seldom occurs.

We use two income measures. The first is standardized income which is household income divided by the number of household members adjusted for differential costs of adults and children and for economies of scale (using the modified OECD adjustment). This is an often used measure of an individual's economic position. The second measure we use is the same as the previous except that no economies of scale are applied to the number of adults. To clarify this, a let us look at the example of two adults and one baby and one adult and one baby. In the first measure, two adults count as 1.7 and one baby counts as 0.3, hence, household income is divided by 2 for the married mother and by 1.3 for the single mother. In the second measure, we divide household income by 2.3 for married mothers and by 1.3 for single mothers (no economies of scale). The difference between the results for the two measures allow us to see to what extent economies of scale are responsible for the income differences.

We compare single mothers not only to married mothers but also to cohabiting mothers because this is an important issue in American research. As we will see, the results for cohabiting women in the Netherlands differ quite substantially from their position in American society.

Table 2 presents the regression results. We see a negative income effect on the odds that the mother is single rather than married. Mothers in the lowest income group (lowest quintile) have a 3.7 times higher odds of being single (rather than married) than mothers in the middle income group. The income effect is more or less continuous: each higher income group has a lower chance of being single during the first birth. Part of these effects are due to the economies of scale that couples enjoy. When we exclude these economies of scale, mothers in the lowest income group have 1.88 times higher odds of being single than mothers in the middle income group. This is clearly smaller than in the first model but it is still a large effect. The effect also remains continuous.

We also see that there is a nonlinear age effect. Teenage mothers are almost three times more likely to be single than mothers of age 25-29. At the same time, mothers of 35 and older are about four times more likely to be single than mothers of age 25-29. Hence, the single mothers are a quite heterogeneous group, consisting of very young women who may perhaps not have been fully ready to have a child and older women for whom further postponement of children is a risky strategy. The other

independent variables also have significant effects. Caribbean mothers and mothers living in large cities are more likely to be single than other mothers.

Is unmarried cohabitation also more common among poor women? Our analyses suggest that there is a negative income effect on unmarried cohabitation as well, although the effect is weaker than it is for the comparison between single and married women. Poor women have a 1.4 times higher odds of cohabiting than average women. The effects of the other independent variables (age, ethnicity, urbanization) have similar albeit smaller effects.

Changes in living arrangements

How do the living arrangements of the three groups of mothers change over time? Figure 1 shows the percentages married, cohabiting, and single for each year after the first birth. The figures is presented separately for the three living arrangements in the birth year. The figures are essentially outflow tables. Focusing first on the single mothers at birth, we see that as time goes on, an increasing number of single women start living with a partner. The increase is especially strong in the first year but continues after that. The plateau seems to be reached in the seventh year at which time about half of the single mothers are no longer single. We also see that outflow into marriage is somewhat more common than outflow into cohabitation. These results confirm our expectation that being single as a new mother is not at all a stable state.

Next we look at cohabiting mothers. The strongest pattern here is the increase in the percentage of mothers who marry. In the seventh year about half of these mothers are married. This increase seems to continue after the seventh year. This suggests that the traditional order of marrying and having a child is currently often reversed. In recent times, marriage often follows the first birth. We also see that this happens not immediately after the first birth but also later. Impressionistic evidence supports this: we often see children present at their parents' wedding. We also see that cohabiting is not a stable state. Of cohabiting mothers, more than ten percent is single after seven years (the percentage of married mothers who become single (left graph) is trivial in comparison). These are the fragile families that American researchers have observed in their own society.

Income effects on changes in living arrangements

To analyze the effects of income and other independent variables on changes in living arrangements, we use discrete time event-history analyses (survival models). The data are transformed into a person-year file. The risk period starts at birth and ends when the person experiences a change in living arrangement or at the last year of measurement. Duration dependency is taken into account by including a dummy-variable for each year after the year of birth, hence no functional form is imposed on the duration effect. Income, ethnicity, age, and urbanization are time-varying independent variables. The analyses are done on women who are single in the year of birth and there are two events possible: marriage or cohabitation. We analyze this using a multinomial logistic regression model where remaining single is the reference group. This is equivalent to a competing risk model (Yamaguchi 1991). We also present an analysis where the events of marriage and cohabitation are combined. Results are presented in Table 3.

Is there an income effect on the odds of union formation? Table 3 shows that there is a significant positive income effect. Hence, the higher the income level of single mothers, the more likely it is that they will start living together with a partner. To put it differently: poor single mothers remain single. The effects are strong and more or less linear. Effects are somewhat weaker for marriage than for cohabitation but the patterns are the same.

It is also interesting to discuss some of the other effects. First, we see an effect of age. Older single mothers are less likely to enter a union than younger single mothers. There is no difference between teenage mothers and mothers of age 25-29. One interpretation of these differences is that older mothers have a comparative disadvantage in the marriage market by combining older age and a prior birth from someone else, which reduces the options of having additional children with a new partner. We also see a negative effect of ethnicity: Caribbean mothers are more likely to remain single. This suggests that for these women, being a single mother may also have been more a matter of choice and less a matter of constraints. Additional births after the first birth increases the chances of union formation, which seems understandable: If there is a new birth, there is also a new potential partner.

We have so far shown that outflow out of singlehood is less common among the poor. Is inflow into singlehood also more common among poor women? In Table

4 we present additional analyses which focus on the chances of married (and cohabiting) women to become single. Here too, we find a very strong (negative) income effect. The poorer the couple is, the more likely it is that the couple splits up. Negative income effects on divorce have been shown before in the Netherlands and elsewhere (Kalmijn, Loeve, and Manting 2007). The new finding here is that this effect also applies to couples who just became parents.

Conclusion and discussion

We first find that women who have their first birth outside of a union are more likely to be poor. There are probably several reasons for this. The most important reason is the lack of a male breadwinner, but there may also be selective entry into single parenthood among lower social strata. For example, poor women may be less attractive marriage candidates and they may be faced with poor marriage candidates (poor men), which makes them more likely to remain single. Whether preferences also play a role is less clear. Most studies show that the higher educated (and hence, the higher income groups) have *weaker* marriage and family values than the lower educated (Kalmijn and Kraaykamp 2007). The higher educated also have more permissive values on sexual behavior than the lower educated (Kraaykamp 2002). Hence, we believe that differences in preferences would work the other way around—they would increase the chances of higher status women to become single mothers. What may play a role, however, are differences in the use of contraception. There is evidence showing that higher educated women use modern contraceptives more often (Frisco 2005). This increases the chances of an unwanted pregnancy among lower status women and unwanted pregnancies are one of the causes of single motherhood. In this paper, our prime concern was not the explanation of the economic position of single mothers, but rather a description of their position.

Our second concern was in the dynamics of single motherhood. To what extent are single mothers able to escape from their position? To the extent that the lack of a male breadwinner is one of the main reasons for poverty, we would expect that union formation would also be a way out of poverty. Hence, it is important to examine changes in the living arrangements of single mothers. We see that about half of the single mothers marry or start living together with a partner within seven years after the first birth. This suggests that many children born to single mothers will also

escape from their disadvantageous economic position. This would be some good news, but the question is which mothers are able to escape from singlehood? Our event-history analyses show that especially mothers who are not poor are the ones who escape from this situation. Poor mothers appear to be less likely to enter a marital or cohabiting union than mothers in an average income situation. We conclude that single mothers are not only more likely to be poor at the time of first birth, the poor are also more likely to *remain* single in the years after the first birth. In this sense, there seems to be an accumulation of disadvantage in this small group in Dutch society.

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Table 1

Marital status at the end of the year of first birth

Married	11,658	79.5%
Cohabiting	2,320	15.8%
Single	679	4.6%
Total	*14,657*	*100.0%*

Table 2
Multinomial logit regression of marital status in year of first birth on income, age, ethnicity and urbanisation (odds ratio's)

	Income adjusted for economies of scale			Income unadjusted for economies of scale		
	Cohabiting vs married		Single vs married	Cohabiting vs married		Single vs married
Income						
lowest quintile	1.40		3.71	1.35		1.88
2nd quintile	1.08	ns	2.16	1.04	ns	1.81
3rd quintile	1.00		1.00	1.00		1.00
4th quintile	0.84	*	0.35	0.84	*	0.47
highest quintile	0.74		0.16	0.76		0.20
Age						
younger than 20	1.81		2.57	1.83		3.63
20-24	1.40		1.31	* 1.41		1.54
25-29	1.00		1.00	1.00		1.00
30-34	1.37		1.50	1.36		1.39
35 and older	2.13		4.06	2.12		3.88
Surninamese or Antillean	2.09		3.15	2.11		3.51
Other non-Dutch	0.72		0.56	0.72		0.68
Large city	1.68		3.89	1.68		4.12

All odds ratio's are significant at the 0.01 level unless otherwise indicated
ns = not significant ($p>0.05$); * $p<0.05$
N = 14,513

Table 3
Logit and multinomial logit regression of the transition out of singlehood after the birth a the first child (odds ratio's from discrete time event history models)

	Partner vs single		Married vs single		Cohabiting vs single	
Income (equivalent)						
lowest quintile	0.53		0.65	*	0.47	
2nd quintile	0.41		0.41		0.41	
3rd quintile	1.00		1.00		1.00	
4th quintile	1.46		1.06	ns	1.69	
highest quintile	2.49		2.52		2.47	
Age						
younger than 20	0.60	ns	0.81	ns	0.42	ns
20-24	0.91	ns	0.72	ns	0.10	ns
25-29	1.00		1.00		1.00	
30-34	0.72		0.71	*	0.73	*
35 and older	0.49		0.50		0.49	
Additional birth	2.28		2.02		2.44	
Surninamese or Antillean	0.74	*	0.85	ns	0.68	*
Other non-Dutch	1.05	ns	1.36	*	0.89	ns
Large city	0.67		0.70	*	0.65	

All odds ratio's are significant at the 0.01 level unless otherwise indicated
ns = not significant ($p>0.05$); * $p<0.05$
N person years = 5,618

Table 4
Logit regression of the transition out of marriage after the birth a the first child (odds ratio's from discrete time event history models)

	Single vs married	
Income (equivalent)		
lowest quintile	6.57	
2nd quintile	2.07	
3rd quintile	1.00	
4th quintile	0.66	
highest quintile	0.59	
Age		
younger than 20	0.40	*
20-24	1.35	*
25-29	1.00	
30-34	1.19	*
35 and older	1.18	ns
Additional birth	0.61	
Surninamese or Antillean	3.16	
Other non-Dutch	0.90	ns
Large city	1.91	

All odds ratio's are significant at the 0.01 level unless otherwise indicated
ns = not significant ($p>0.05$); * $p<0.05$
N person years = 81,849

Figure 1.- Outflow charts by initial living arrangement at the time of birth