Lone Motherhood and Self-reported Health: Does Paid Work matter?

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Abstract

In this paper we study the association between being employed and lone mothers' self-reported health in Switzerland. Lone parenthood is a growing phenomenon in many European countries. There is an increasing concern about the observed negative health outcomes of lone parents and their children, lone mothers in particular are overrepresented among individuals at risk of poverty and unemployment, and such conditions are most often related to bad health. According to the literature, labour market participation fosters better physical health either by attenuating economic hardship or by improving psychological wellbeing. Hence, the fact that in Switzerland lone mothers are overrepresented among recipients of social welfare benefits and are often out of the labor market, may critically increase their health risk. We argue that lone mothers' subjective health benefits from working, independently from income levels, at a higher level than mothers living with a partner. Using the Swiss Household Panel (SHP, waves 1999-2011), our analyses suggest that all mothers benefit from health advantages when in paid work. Yet, lone mothers who are out of the labor market have a higher probability of being in bad heath, especially those holding an upper/lower secondary degree. Among working mothers only, being lone mother is instead associated with a higher probability of good health when working full-time *vs.* part-time, while the contrary applies to mothers in couple. We conclude that lone mothers are more at risk of suffering from multiple disadvantages due to the interactions between their labor market situation and health status.

Keywords: lone mothers, self-reported health, employment, Switzerland.

1. Introduction

Differentials in both physical and psychological health outcomes have been attributed to a number of individual and family characteristics–such as socio-economic status, education, type of resources available within the households–, but also to contextual factors, which are mainly shaped by the labor market structure and the welfare system, even where the latter is particularly supportive and generous (Fritzell, Ringbäck Weitoft, Fritzell, & Burström, 2007; Ringbäck Weitoft, Haglund, & Rosén, 2002; Whitehead, Burström, & Diderichsen, 2000).

Since being in good health has been found to be positively associated with living in a couple (Ringbäck Weitoft, Burström, & Rosén, 2004) and with being employed (Huber et al.

2011; Machin and Manning 1999), it is crucial to look at how health outcomes associate with events occurring where family and the labor market participation domains intersect. These latter life domains have undergone major changes in most of the Western societies in the last three decades. On the one hand, the evolution of gender roles in the society translated in an increasing presence of women in the labour force (OECD, 2001) and thus in a greater share of double-earner households. However, such evolution paired with a much slower change in the repartition of responsibilities within the household (Nomaguchi & Milkie, 2003) and in the welfare state support schemes for working parents. The consequent rise in work-family reconciliation hardships–mostly bore by women–generates situations in which mothers are often under stress and experience role conflicts (Bianchi & Milkie, 2010). On the other hand, the increasing union dissolution rates increased the number of lone parents households, the largest majority of which are lone mothers (OECD, 2014). For the latter, work-family reconciliation issues are even more crucial, since lone mothers in principle cover simultaneously the main earner and the main carer roles.

Work-family reconciliation might become too challenging when women experience lone motherhood: the absence of a partner to share the trade-off between the increase need of care and income emerging with lone parenthood, may lead to the decision to drop out of work. This is likely to result in the higher exposure of the entire household to poverty risk. However, it is a fact that in many countries, lone mothers on average work more compared to mothers in couples (OECD 2014), either because welfare-to-work schemes rule the access to welfare support or welfare schemes are residual and/or target poor and marginal household.

Although paid work is not always the most effective path out of poverty (Huber, Lechner, & Wunsch, 2011; Bauman, 2002) it is often a necessary condition to tee off a virtuous circle improving psychological and physical health, both directly and indirectly threaten by experiencing lone parenthood (Ringbäck Weitoft et al., 2004). However, empirical evidence on the relationship between paid work and health for lone parents is mixed. In fact, some research shows that working is negatively associated with health (Macran, Clarke, Sloggett, & Bethune, 1994), while some other finds the opposite pattern (Friedland & Price, 2003).

The literature shows that labour market participation of lone mothers may associate to better health for lone mothers. One mechanism is due to a straightforward income effect: wage translates into an improvement of the household economic situation and a reduction of economic hardships (Wickrama et al., 2006; Hope, Power, & Rodgers, 1999; Conger & Elder, 1994). The second mechanism applies to be in paid work in general and concerns the positive

effects of employment on self-esteem, feelings of competence, self-reliance, and self-efficacy (Ross and Bird 1994). Finally, labor market participation fosters the creation and maintenance of a specific social capital, which represents a potential source of social support to be activated in case of need.

However, despite the potential effects on income, self-esteem, and social capital, there is evidence for negative relationships of paid work on lone parents' health. The main explanation comes back to work-family reconciliation difficulties, concentration of multiple responsibilities, and time-squeeze for employed lone mothers. In other words, when mothers cover multiple roles, as main carer and main breadwinner, paid work may create additional stresses which prevent them to profit from benefits driven by being in paid work (Burstrom et al., 2010; Dziak, Janzen, & Muhajarine, 2010; Avison et al. 2007).

Two closely interrelated factors connected to employment mediate the association between lone parents' paid work and their health status: education and job characteristics understood as working time. As far as education is concerned, the mediation passes through the averagely higher availability of private resources (relational and economic resources) that highly educated mothers can access compared to lower educated mothers. In addition, better skilled women have a stronger labour market attachment: on the one hand, they have higher expectations concerning their work career, and, on the other hand, they have more power in bargaining favourable work and work-family friendly conditions with their employers than lower educated women (DiPrete & Buchmann, 2013; Esping-Andersen, 2009). It follows that lower educated lone mothers are more likely to solve the carer-earner trade-off by fully relying on welfare support. This results in an overrepresentation of low-skilled lone mothers among welfare benefit recipients. In other words, non-economic rewards, like flexible schedules or convenient temporary working time re-arrangements may make the difference in the possibility to conciliate care and work, even irrespective of income levels. However, the evidence is mixed concerning the fact of having part-time or full-time employment in general and the related health status (Costa, Sartori, & Akerstedt, 2006; Conway & Briner, 2002; Waldron, Hughes, & Brooks, 1996). To the best of our knowledge, there is no research addressing directly the association between household structure, working time, and health outcomes.

Lone parenthood might represent a stressful transition, which may trigger consequences for different life domains, especially in societies in which the level of acceptance for raising children outside of marriage is low (Baranowska-Rataj, Matysiak, & Mynarska, 2013), or in which the welfare state support for parents is limited. Switzerland

scores rather high in both characteristics. On the one hand, 65% of the population agree on the necessity for children to be raised in a household with both parents (another 20% do not have a strong belief on that), and 55% thinks that small children suffer when mothers work (OFS, 2015). On the other hand, and consistently so, Switzerland numbers among the market-oriented family policy model with a scanty set of work-family reconciliation policies and a widespread social scheme against poverty (Bertozzi & Gilardi, 2008; Armingeon, Bertozzi, & Bonoli, 2004). In such context, differentials in education and in the possibility to decide on shorter or longer working times are likely to generate heterogeneities in health outcomes for lone mothers, both within this subpopulation subgroup and when they are compared to mothers in couples.

Thus, Switzerland represents an extremely interesting case study to analyse the relationship between the work and care trade-off for parents in different household structures: given the specific welfare and gender systems, the association of employment and health might vary according to the family structure, education, and work characteristics, resulting in multiple disadvantages for some groups more than for others. Given this background, we explore the Swiss context and ask the following questions:

1. How does household structure associate with self-reported health?

1a. Do self-reported health and labour market participation associate for lone mothers and mothers in couples?

1b. Does education mediate this association differently for lone mothers and mothers in couple?

2. Do working hours associate with health outcomes differently for lone mothers and mothers in couple?

By using the Swiss Household Panel data, we provide descriptive empirical evidence for Switzerland on the complex relationship between health and lone parenthood is mediated by working status, education, and working hours arrangement.

2. Theoretical background: Family structure, employment, and self-reported health

2.1 The relationship between employment and health

A huge amount of research has assessed how employment positively associates with better physical and mental health and wellbeing (Huber et al. 2011; Machin and Manning 1999; Mechanic 1998; Korpi 1997; Darity and Goldsmith 1996), in most of the cases

irrespective of working hours or job quality (Caroli & Godard, 2014; Bardasi & Francesconi, 2004). This association is particularly strong for women compared to men (Cai, 2010; Catherine E. Ross & Mirowsky, 1995). As shown by Waghorn & Lloyd (2005) in their review, when the employment experience is positive, then self-esteem increases as well as subjective wellbeing and health.

Systematic reviews on self-reported health's determinants and evolution over time show that results concerning its association with employment is indifferently positive as a factor of change for selected subpopulations (namely women without children and women older than 40 with children) or negative when cumulated with other stress factors (Cullati, Rousseaux, Gabadinho, Courvoisier, & Burton-Jeangros, 2014). Accordingly, two scenarios emerge according to the role accumulation and the multiple social role hypotheses (Sieber, 1974): on the one hand, coping with multiple social roles is thought to harm individuals' health due to the multiple burdens and the following increase in stress (Barrett & Turner, 2005; Christopher, England, McLanahan, Ross, & Smeeding, 2000; Mejer & Siermann, 2000; Stronks, van de Mheen, Looman, & Mackenbach, 1998); on the other hand, individuals' health might benefit from additional support, economic resources, and non-economic rewards resulting from being involved in social spheres other than the familial one.

2.2 The relationship between family structure and health

Comparing lone parents and parents in couples is extremely interesting for studying the association between health and family structure. In fact, research in different disciplines on several Western countries shows that individuals in couples experience higher psychological wellbeing and physical health than widowed, divorced, or never married ones (Mirowsky & Ross, 2003; Cairney, Boyle, Offord, & Racine, 2003; Wickrama et al., 2006). The same is true when considering life expectancy (Schumacher & Vilpert, 2011; Koskinen & Martelin, 1994). However, when taking a longitudinal perspective, it has been argued that the transition to lone parenthood itself might in fact represent an improvement in women's health and life satisfaction due to the previous negative partnership experience (see Benzeval, 1998 for a review, Baranowska-Rataj et al., 2013).

2.3 The causality issue

The relationship between employment and health and between household structure and health are not easy to disentangle, firstly because reverse causality might be at work, and secondly because health and work profiles are jointly shaped (Adams, Hurd, McFadden,

Merrill, & Ribeiro, 2003). Two main hypotheses are put forward: on the one hand, the *social causation hypothesis* states that labour market participation improves health for both men and women (Catherine E. Ross & Mirowsky, 1995; Bird & Fremont, 1991), and that individuals in couples benefit from additional emotional support that fosters, in turn, better health. On the other hand, the *selection hypothesis* argues that healthy individuals are more likely to be part of the active population and to get jobs (Cai & Kalb, 2006; Goldman, 2006; Macran et al., 1994), and that they positively select themselves into marital or cohabitation relationships. Furthermore, the combination of selection and environmental factors potentially affecting health differences between lone and partnered people are hardly distinguishable in practice, and can finally be driven by unobservable variables affecting both health and employment (Zapf, Dormann, & Frese, 1996).

Jointly shaped processes and reverse causality are pervasive in many studies involving subjective assessments of like life satisfaction, wellbeing, and levels of happiness. In a comparative study on life satisfaction, for instance, Headey and Muffels (2014) have clearly shown that variables usually studied as determinants of life satisfaction are likely to be, also, its consequences. They show that in dynamic models, in most cases dependent and independent variables simply reverse their role acting on each other in turn. Hence, one-way causation models risk to overestimate the effects of a given variable on life satisfaction. In reality a complex inter-temporal relation exists and can be disentangled only through time-lagged models over an extended period of time. More generally, to separate these mutual influences requires panel data with big sample size able to follow individuals for long periods of time through various events.

2.5 Lone mothers, paid work and health

The transition to lone parenthood implies experiencing a qualitative and quantitative change in roles: becoming main breadwinner and primary care-provider in the household pairs with decreasing emotional and economic support due to the absence of the partner. In fact, the transition to lone parenthood itself translates into an overall reduction in the disposable income for women who most of the time have custody over the children (de Regt, Mortelmans, & Marynissen, 2013; Manting & Bouman, 2006; Targosz et al., 2003; Jarvis & Jenkins, 1999; Lipman, Offord, & Boyle, 1997).

Mothers in general experience less continuous working history compared to both men and non-mothers. Furthermore, even when working, women in couple perform as secondary earners (Blossfeld & Drobnic, 2001), and for this reason they are financially vulnerable in the

case of separation or divorce. Weak labor market attachment or underemployment (Friedland & Price, 2003) before lone parenthood make it hard to react to the new configuration of care and income needs and generate spill-over effects in other life-domains, such as health.

The evidence on the consequences on health of this configuration of factors is mixed. On the one hand, multiple roles are found to prevent lone mothers to profit of the positive association between paid work and health (Dziak et al., 2010; Avison, Ali, & Walters, 2007; Burström, Diderichsen, Shouls, & Whitehead, 1999). On the other hand, for lone mothers employment is found to be associated with better physical health conditions, even after controlling for socioeconomic status (Rodriguez, 2002). Nevertheless, lone mothers are overrepresented among individuals at risk of poverty and unemployment, and since the latter are associated with bad health, the positive relationship between employment and health might be fully mediated by the increase in income due to the engagement in paid work.

Although paid work is not always the most effective path out of poverty, it is often a necessary condition to improve psychological and physical health (Ross & Bird, 1994), which are dimensions in which lone parents–as already mentioned–usually score worse than individuals in couples (Huber et al., 2011; Mirowsky & Ross, 2003). Evidence on the mediating effect of income is mixed: a not negligible share of health disparities between lone mothers and mothers in couples would then be accounted for by socioeconomic differences (Benzeval 1998), so that labor market participation positively affects lone mothers' health status only indirectly and due to the increase in the disposable income (Burstrom et al. 2010; Benzeval 1998; Conger and Elder 1994).

2.5.1 Lone mothers, paid work and health: the importance of education and working hours

Changes in the processes leading to lone parenthood (Kiernan, Land, & Lewis, 1998) are likely to interact with traditional factors of social inequalities, like education. The difference in education between lone mothers and mothers in couples was larger in the past, yet it still persists to some extent (Avison et al 2007). The major reason behind such change is that lone mothers are no longer mainly middle-aged widows and low-skilled single mothers from poor family backgrounds, but mostly previously partnered mothers who went through separation and divorce. Since divorce has become widespread across social and age groups, new within-group inequalities in health outcomes (but also in other life domains) might emerge. This hypothesis is supported by findings regarding the relative increase in levels of good health and the parallel increase in health inequalities (Tarkiainen et al. 2012), which might be due to composition effects in the population of lone parents.

Overall, there is a persistent association between education and health (Huber et al., 2011; Ross & Mirowsky, 2010; Machin & Manning, 1999), even after controlling for SES or income (Rodriguez, 2002). This association has been found to be causal by a vast amount of research (see Grossman, 2004 for a review). Yet, longitudinal studies show that education has only moderate cumulative effects on health trajectories (Cullati, 2014) and no effects on changes on the health gradient over time (Sacker, Worts, & McDonough, 2011). In this perspective, moderating and mediating effects of paid work on the association between family structure and health interplay with additional factors, related to individual resources driven (directly and indirectly) by the educational level (Brown, Roberts, & Taylor, 2010) and to job-related factors. This applies particularly to women (Cai, 2010; Ross & Mirowsky, 1995).

In general, contrary to less skilled women, highly educated women show a stronger labour force attachment (DiPrete & Buchmann, 2013) and have access to better paid jobs and more stable contracts (Barbieri, 2009; Kalleberg, 2000; Gagliarducci, 2005). When experiencing lone motherhood, this is likely to result in a pool of resources highly educated lone mothers can mobilize to manage work-care re-conciliation. In fact, they have access to a wider range of resilience strategies, either because holding better-paid jobs help indirectly in bypassing the cost of childcare, or because of a stronger bargaining power they have thanks to their higher qualification with employers for re-arranging working hours for a certain period of time.

On the contrary, less skilled women have a much narrower range of available options to cope with the increase in demand of income and care they experience when the transition to lone parenthood occurs. They are thus are more prone to fully rely on welfare. Such lone mothers are then more likely to be unemployed and thus potentially have less access to social support (Ross & Mirowsky, 2010), or to be in low-paid and temporary jobs which do not ward off poverty. Since low-paid and temporary jobs, as well as unemployment in general are associated with worse health (Pirani & Salvini, 2015; Caroli & Godard, 2014; Schaffner & Ehlert, 2011), and since these labor market arrangements are more diffused among low-skilled lone mothers, the latter may suffer from additional disadvantages.

Despite the evidence on the moderating effect of paid work driven by non-economic rewards on the overall population and irrespective of labor market arrangements, when comparing lone mothers and mothers in couples the working hours arrangement might make the difference in how being employed actually correlates with health. In general, in most of the Western countries, women suffer from part-time wage penalties (Bardasi & Gornick, 2008): if being in paid work associated positively with health only through income effects,

then holding a part-time job would not be enough for fostering positive externalities in terms of health outcomes. Evidence concerning working part-time or full-time in association with health for lone mothers is mixed: full-time or stable employment is found to improve poor single mothers' mental health (Zabkiewicz, 2010), or, on the contrary, working (especially full-time) affects health more negatively than for mothers in couples (Burström et al., 1999). At the intersection of the trade-off between care and income on the one hand, and the way the welfare state ensures and preserves from poverty risk on the other hand (Christopher et al., 2000; Mejer & Siermann, 2000) we find–once again–the arena where multiple disadvantages can proliferate.

2.6 The Swiss context

In Switzerland welfare provisions for families are notably weak (Monnier, 2006). In addition, highly expensive public childcare and marriage-based taxation combined together operate as a disincentive on women's labor force participation (Bütler & Ruesch, 2007). The high incompatibility between work and family results in high shares of maternal part-time work (FSO, 2013; FSO, 2009) as a way to weaver between competing roles. As it has been noted, the Swiss welfare arrangement is based on the one-and-a-half-earner model with men working full-time and women adjusting their working hours to their care obligations (Stutz & Knupfer, 2012; Giraud & Lucas, 2009). Despite only one mother out of four is not working (FSO, 2013), after childbirth the non-egalitarian model of within family arrangement of household tasks and childcare holds (Kellerhals & Widmer, 2012). Although men slightly increased their participation in housework and childcare, women still perform most domestic work, even when both partners are employed (Bianchi, Sayer, Milkie, & Robinson, 2012; Bianchi, Milkie, Sayer, & Robinson, 2000).

The Swiss labor market provides low employment protection, scoring below the average in the OECD countries (OECD, 2013). The unemployment insurance is based on individual contributions and benefits. Therefore, it is left to individuals with care responsibilities to "choose" part-time employment. Such compromise reduces their financial entitlements accordingly. Therefore working mothers, who more often enter into less stable, part-time, and lower-paid jobs than men are particularly penalized unless they can count on their partner's income and security (Stutz & Knupfer, 2012). The transition to lone motherhood for many women opens a period of employment and economic insecurity. This has severe consequences for lone parent households' economic situation and those might trigger additional stress, which might affect in turn lone mothers' health.

The share of children under 25 living in one-parent households is 13% (OFS 2015 on 2013 data) in the country. The majority of lone parents are women (89% in 2000[1]). Lone parents because of widowhood and single parenthood represent a minority, while most lone parents are mothers and experiencing lone parenthood as a consequence of both legal arrangements for children after separation or divorce and social norms about parenthood in general. In fact, both laws and social norms tend to see mothers as more entitled than fathers to everyday-care for children. Even though women are increasingly active in the labor market (Swiss Labor Force Survey 2011), their earning is lower than that of men, given the low female work intensity and employment rates (Bühlmann et al., 2012) and the persistent gender pay gap. Therefore lone mothers' households are over-represented among the households defined as at risk of poverty (FSO, 2013).

Despite the unequal gender role system, the low labor protection, and a weak set of family and work-family reconciliation policies, the Swiss welfare state guarantees a relative fair social protection rights (Bertozzi, Bonoli, & Gay-des-Combes, 2005; Bonoli, 1999). In this setting, lone mothers with unfavourable labor market perspectives have little incentives to take up paid work rather than claiming social benefits. Yet, in the short run this may appear to mothers in general and even more to lone mothers a good strategy to optimize scarce economic and time resources. However, in the long run, staying out of the labour market can bring a number of negative consequences, such as the activation of "blaming the poor" mechanisms, the depreciation of both social capital and skills, which undermine future employability perspectives. It follows that, if lone mothers are funnelled through social assistance for long period of time, they might experience bad subjective health as an indirect consequence of inactivity and psychological distress. Employment increases status, power, and economic independence, as well as noneconomic rewards such as social support and recognition from others (Catherine E. Ross & Bird, 1994; Bird & Fremont, 1991). Such benefits may translate into better health.

3. Hypotheses

Against this scenario, we advance the following hypotheses on the association between paid-work on self-reported health for lone mothers compared to mothers in couples.

[1] OFS 2005: Atlas suisse des femmes et de l'égalité: http://www.bfs.admin.ch/bfs/portal/fr/index/regionen/thematische_karten/gleichstellungsatlas/familien_und_haushaltsformen/allein_erziehende_muetter.html

We firstly consider whether the household structure associates with self-reported health (research question 1): we expect that–after controlling for possible confounders–*lone mother report to suffer from a worse health compared to mothers in couple (hypothesis 1)*. The literature suggests that the stress due to the double role of being the only breadwinner and the primary carer prevent lone mothers to profit of the beneficial effects of paid work. When institutional work-family reconciliation schemes are poor, like in Switzerland, lone mothers can hardly compensate the trade-off between care and work.

When dealing with research question 1a, we advance that besides to the mediating effect of the increase in income, *paid work is positively associated to self-reported health for lone mothers to the same extent as for working mothers in couples (hypothesis 1a)*.

We asked to what extent education might have a mediating effect (research question 1b). We expect a *positive association of paid work with health for higher educated mothers and negative or neutral associations for lower educated mothers. Compared to mothers who live with a partner, such effects shall be stronger for lone mothers (hypothesis 1b)*.

Finally, we asked what could be the effect of employment spells and arrangements in working-time (research question 2). We expect *part-time work to be more negatively associated with health than full-time work for lone mothers (hypothesis 2)*. In the Swiss welfare system, being at work would prevent lone mothers from accessing to welfare schemes which target poor households, but the income from a part-time employment would not be sufficient for easing the economic distress of a main and only earner with children. The potential positive spill-over effects of work on health would be prevented for lone mothers working part-time.

4. Data and methods

4.1 Data and sample

In order to disentangle the relationship between lone motherhood, health, and employment status in Switzerland, we use the Swiss Household Panel (SHP). The SHP follows a random sample of households in Switzerland on an annual basis since 1999. All household members older than 14 are interviewed using CATI procedures. We use all waves available until 2011, as these waves contain our variables of interest. Over this period of time 1999-2011, the SHP consisted of two samples, the initial 1999 sample (5074 households and 7799 household members) and a refreshment sample added in 2004 (2538 households and

3654 household members). In 2011 a total of 4495 households and 7584 individuals participated in the study.

Response rates at the household level were 64% in the first wave of the first sample (1999) and 65% in the first wave of the second sample (2004). At the individual level, response rates (conditional upon household participation) were 85% and 76% respectively. Attrition rates were relatively high in the first few waves, but went down considerably afterwards. About 65% of the original 1999 and 2004 samples still participated in 2011. Overall non-response bias in the SHP is mild and comparable to other panel studies (Lipps, 2009).

We constructed two groups selecting women aged 19 to 54 living in households with at least one child younger than 18: the first group includes lone mothers, namely separated, divorced or lone mothers at childbirth, and not living with a partner (but may have a partner living elsewhere), regardless of their legal marital status; the second group includes mothers living in a couple, being either married or cohabiting. In 1999 there were 137 lone mothers and 929 mothers living with a partner/the father of their children. All waves taken together yielded a sample of 2,111 persons and 10,542 observations. Overall, 14% of the observations concerned lone mothers. To test our hypotheses on job related characteristics, we only used working mothers. This sample contained 1,815 individuals with 7,689 observations (17% of the observations concerned lone mothers).

4.2 Dependent variable

Self-reported health was measured with the question "*Talking about your health, how do you feel right now?*"[2]. The measure was dichotomized by collapsing the categories *"very well"* and *"well"* to indicate good health, and *"so and so (average)", "not very well",* and *"not well at all"*, to reflect bad health. We chose to dichotomize the dependent variable, because its distribution was very skewed. In fact, considering the category "so and so" as good health would have left us with a highly unbalanced dependent variable, since only 1.6% of the observations would have been coded as "bad health". This is consistent with previous findings in different context, where the level of self-reported health is assessed on the highest

[2] We ran the same models using different measures of health (or connected to specific aspects of health), both objective and subjective. The more objective measures (e.g. «how often do you go to the hospital») seemed to fail in the attempt to capture health conceived in the sense we specified in the previous sections, or were not available for all waves, affecting substantially the sample size. Concerning more subjective measures of health such as depression, optimism, and life satisfaction, results go in the same direction and report the same significance as by using self-reported health. Results are available upon request. In general, for a review on the self-reported health's predictive power of mortality cf. Idler & Benyamini, 1997.

level of the scale considered (Calmonte, Galati-Petracca, Lieberherr, Neuhaus, & Kahlmaier, 2005; Krokstad, 2002; Liu & Hummer, 2008; Blaxter, 1990) Linear models treating self-reported health as a continuous dependent variable yielded comparable results (available upon request). Furthermore, as shown by (Cullati et al., 2014) testing the distances between answer options when questions on self-reported health are asked, when five options are available the intermediate (usually "good" or "average") it turns our to be much closer to those expressing bad than to those expressing good health.

4.3 Explanatory factors

Our main independent variables in the models using the total sample are employment status and education. Employment status has two categories: holding a paid job or not. Unemployed and inactive individuals were grouped together in the not working group. Of the total sample 73% were in paid employment. Education was measured as the highest level of education achieved in eleven categories, ranging from incomplete primary education to postgraduate education. We recoded this variable into three categories: lower secondary education, upper secondary education and tertiary education. The majority of the sample had upper secondary education (74%).

When examining only the group of working women (i.e. when selecting only working episodes), we included several work characteristics. The first is working time, split in three categories and representing the main explanatory variable: part-time less than 50%, part-time 50-80%, and full-time (80-100%). The majority of the sample worked in small part-time jobs (64%) and only 12% of the mothers were working full-time.

4.4 Control variables

In line with the literature on the topic, we control for characteristics of the household (number of children and age of the youngest child[3], cf. Baker, North, Alspac, & Team, 1999; Beatson-Hird, Yuen, & Balarajan, 1989) and age of the mothers (in years). We also control for support received by family and friends (Osborne, Berger, & Magnuson, 2012; Cairney et al., 2003). Practical help and emotional support from friends and family are measured on a scale of 0 to 10 where 0 is "not at all" and 10 "a great deal", related to the question "If

[3] From a life course perspective, it would have been interesting to test whether the age of the child has a different effect on health of lone mothers compared to health of mothers living with a partner. Unfortunately, the sample size did not allow for additional interactions, especially considering that we would need to interact several age categories in order to fully account for different levels of need for care according to the age of the children.

necessary, in your opinion, to what extent can these relatives/ friends provide you with practical help (this means concrete help or useful advice)", and "To what extent can these relatives/friends be available in case of need and show understanding, by talking with you for example?". We also control for the use of paid external help with housework or childcare (yes/no). Finally, we control for income (logged) after taxes and including social benefits. Table 1 displays the descriptive statistics for all variables in our models.

(Table 1 here)

4.5 Analytical strategy

We used a multilevel mixed effects logistic regression to model our binary outcome variable, in which: i) the log odds of the outcome is modelled as a linear combination of the predictor variables when data are clustered or when there are both fixed and random effects (Brüderl, 2010; Halaby, 2004); and ii) observations at different points in time (level 1) are nested within individuals (level 2). This model is particularly suitable when one wants to control for within-person unobserved factors that are time invariant and that might be correlated with the independent variable.

We estimated different linear multilevel mixed models. Firstly, we assess the relationship between our main independent variable (lone mother *versus* mother living in a couple) and self-reported health. Secondly, we tested the interaction between lone motherhood and employment status, while controlling for the potential confounders mentioned above. Then, we consider if and to what extent our main association of interest varies across educational gropus.

Finally, by selecting only working episodes, we scrutinize more in depth how household structure differently correlates with health outcomes when looking at different working hours arrangements.

5. Results

In Table 2, models 1 to 8 show results from the first set of multilevel mixed regression models estimating the association between subjective health and family structure, progressively adding controls. The general research question 1 concerned the differential in self-reported health between lone mothers and mothers in couples. Consistently with hypothesis 1, lone mothers report worse health than mothers in couple (model 1) even after

controlling for employment status (model 2), different types of help from different networks (model 6), and the interaction between family structure and employment status (model 7). The related odds ratios are negative and statistically significant. However, as estimates from model 3 and 7 show, when controlling for income, the overall difference in health outcomes between lone mothers and mothers in couples are no longer significant, even thought the direction of the relationship remains the same.

Hypothesis 1a stated a positive association between being in paid work and self-reported health for both lone mothers and mothers in couples. The models show that before controlling for potential economic benefits (i.e. income), employment is positively and significantly associated with better self-reported health for lone mothers (model 3)[4]. However, once income is accounted for (model 5) as well as when controls for different kinds of helps are included (model 7 and 8), the odds ratios still go in the expected direction, but estimates are not significant anymore. Hence, we do not find the expected positive association between work and health neither in the case of lone mothers nor for mothers in couple. Our findings suggest rather that being in paid employment and health outcomes are stronger associated for lone mothers than for mothers living with a partner. These results only weakly support the idea that having a paid job associate with positive spill-over effects on health, independently from income driven effects.

(Table 2 here)

We further explored whether these first results hide heterogeneities according to educational attainment. We expected (hypothesis 1b) that especially employed highly educated mothers would benefit from better health, and that this association would be stronger for lone mothers compared to mothers living in a couple. Figure 1 shows the predicted probabilities for the association between employment status and household composition and self-reported health by different levels of education. Contrary to our expectations, we found that among higher educated mothers there was little difference between working and non-working lone mothers and mothers in couples. All groups are in relatively good health compared to lower educated mothers. Neither do we find any support for our expectation that

[4] In additional analyses, the predicted probabilities of being in good health for the four comparison groups (lone mothers and mothers in couples both working and not working) estimated from model 8 show that only lone mothers who are not in paid employment stand out: their predicted probability of being in good health is lower (.91) compared to the other groups (.94-.95). The difference with the other groups is, however, not significant. As most lone mothers are in paid employment, the sample of not working lone mothers is rather small, producing a relatively large confidence interval.

among lower educated mothers work would have a negative association with health. Although the differences between the groups are not significant, it is the non-working mothers who score somewhat lower on health compared to the working mothers, both single and partnered. One group in Figure 1 stands out: not working lone mothers with an upper secondary education. This group scores the lowest on self-reported health, although the difference with the other groups is, again, not significant. These results refine the ones from Table 2, by showing that it is only a specific group of not working lone mothers who score lower on self-reported health, rather than non-working lone mothers in general.

(Figure 1 here)

Finally, hypothesis 2 focused on the importance of working hours for the health outcomes of lone and coupled mothers. More specifically, we looked at working part-time (either short or long) or full-time. We expected part-time to be more negatively associated with health than full-time for lone mothers, because–given the Swiss welfare–being at work itself prevents them from the opportunity to access to welfare schemes targeting poor but part-time wage is not sufficient for easing economic distress, and thus fostering beneficial spill-over effects on health. Models 9 to 12 in Table 3 show the results from the second set of the mixed effects models estimating the probability of being in good health on a selected sample of working episodes[5]. Model 11 shows that lone mothers arrangements that envisage more working hours are positively associated with better health. This holds even after controlling for income (model 12).

(Table 3 here)

Figure 2 displays the predicted probabilities of being in good vs. bad health for mothers in couples and lone mothers including an interaction of household composition with size of the job (small part-time, part-time or full-time). We find that the predicted probability to be in good health is quite similar in all groups, except for lone mothers with a small part-time job (less than 50%). Differences fail to reach significance, this group scores lower on self-reported health compared to any other combination of household type and working

[5] Additional models were run adding three satisfaction measures related to work (Dziak et al., 2010), all measured on a scale of 0=not at all satisfied to 10=completely satisfied: satisfaction with income (M=7.1), satisfaction with working conditions (M=8.0), and satisfaction with the atmosphere at work (M=8.6). Estimates for our variables of interest did not change and we opted for a more parsimonious model given the sample size.

arrangement, although the difference is not statistically significant. This finding suggests that fewer work hours may imply more flexibility for work-life balance, but it may also signify a weaker position on the labour market, which comes with negative consequences for health.

(Figure 2 here)

6.Concluding remarks

The aim of this paper was to contribute to the literature on the interrelation between family, health, and employment spheres. We focused in particular on the association between self-reported health, household structure and labor market participation of mothers in a context characterized by a generous welfare protection against poverty, but poor work-family reconciliation policies and gender system which encourage women to be second earners and not on equal footing with men on the labor market.

We expected that in such context lone mothers would be under more stress than mothers in couple when working, and when working full-time, once income levels are taken into account, because of their double role of main earner and primary carer. This was not the case: lone mothers benefit from the positive consequences of working to the same extent as mothers in couples, provided they have sufficient income.

What seems to make the difference for self-reported health is mothers' education and their working-hours arrangement. On the one hand, only jobless lone mothers have a lower probability of being in good heath compared to all other mothers, and especially so when they have a secondary degree (intermediate level of education in Switzerland). On the other hand, lone mothers who work part time (< 50%) report worse health conditions than mothers in couple with similar employment rates or lone mothers working full-time. In sum, our results suggest that lone mothers who do not rely on welfare support but do have limited bargaining power on the labor market (signalled by their low part-time rate and/or intermediate level of qualifications) represent a vulnerable group suffering from specific disadvantages in terms of health. It is plausible to attribute these effects on the limited financial, social, and time resources available to them in order to conciliate work and family responsibilities and possibly to their more uncertain perspectives in the labor market.

This work has a few limitations, which we would like to acknowledge The main limitation is the focus on association, rather than the causal relationships between health, employment, and lone parenthood. In a dynamic perspective, these are interrelated processes

and the association we measured might be the consequence of reverse causation mechanisms. Our empirical results may therefore be the consequence of two-ways selection processes. A truly longitudinal analysis could overcome such limitation, but also in this case two-way causation might be pervasive (Headey and Muffels 2014). We should not underestimate the interest of exploring simultaneous associations in life course conditions across interdependent life domains. The great value of this kind of analyses is for instance to identify specific populations who suffer from multiple disadvantages, which are the combination of several parallel conditions, and direct policy measures accordingly. In the case of lone mothers in Switzerland it would appear useful to target employment conditions for those lone mothers with weaker positions in the labor market. A second limitation of the study concerns the sample size for the population of lone mothers: the small sample size increased confidence intervals in our estimations and reduced significance in the differences across subgroups.

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Tables and Figures

Table 1 distribution of the main dependent and independent variables. SHP data, waves 1999-2011. Authors' calculations. Note: for continuous variables minimum and maximum values in parentheses.

	Whole sample			Only working episodes		
	%	Mean	s.d.	%	Mean	s.d.
Self-reported health						
bad	12.0			11.3		
good	88.0			88.7		
Status						
Mother in couple	85.9			82.8		
Lone mother	14.1			17.2		
Working status						
employed	73.2			-		
unemployed	26.8			-		
Education						
Lower secondary	12.2			11.1		
Upper secondary	74.2			74.0		
Tertiary	13.6			14.9		
Age of the mother (19-59)		39.6	6.1		40.0	6.0
Age of the youngest kid in the householeshold (0-18)		7.5	4.9		8.1	4.9
Number of kids (0-8)		2.0	0.8		1.9	0.8
Household income logged (3.5/7.0-15.3)		11.2	0.6		11.3	0.5
*Practical help from family (0-10)**		7.4	2.4		-	-
*Practical help from friends (0-10)**		7.4	2.1		-	-
*Emotional help from family (0-10)**		8.0	1.9		-	-
*Emotional help from friends (0-10)**		8.2	1.6		-	-
*External help (0-1)**		0.3	0.4		-	-
Number of episodes observed (0-12)		5.4	3.6		5.8	3.6
Working arrangement						
Part-time max 50%	-			63.7		
Part-time min 50%	-			23.6		
Full-time	-			11.9		
N. episodes		*10,542*			*7,689*	
N. individuals		*2,111*			*1,815*	

* based on 9.402 episodes for 2.033 individuals

Table 2 Mixed effects logistic regression model predicting the probability of good self-reported health. Odds ratios (OR) and z-scores. Source: SHP data, waves 1999-2011. Authors' calculations.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	OR	z	OR	z	OR	z	OR	z	OR	z	OR	z	OR	z	OR	z
Mother in couple (ref.)	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Lone mother	0.64	-2.80	0.62	-2.98	0.34	-3.24	0.82	-1.21	0.55	-1.72	0.42	-2.39	0.67	-2.48	0.64	-1.18
Lower secondary educ. (ref.)	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Upper secondary educ.	1.97	3.91	1.91	3.77	1.88	3.67	1.78	3.38	1.77	3.34	1.75	3.12	1.76	3.18	1.65	2.79
Tertiary educ.	1.56	2.03	1.49	1.82	1.48	1.80	1.28	1.13	1.28	1.15	1.50	1.77	1.50	1.78	1.31	1.17
Unemployed (ref.)			0	-	0	-	0	-	0	-	0	-	0	-	0	-
Employed			1.33	2.66	1.22	1.79	1.22	1.89	1.17	1.40	1.31	2.23	1.38	2.84	1.26	1.92
Income (log)							1.37	3.93	1.35	3.69					1.34	3.22
Employed#Lone mother					2.07	2.10			1.58	1.30			1.74	1.46	1.40	0.88
Practical help from family											1.03	1.41	1.03	1.41	1.03	1.22
Emotional help from family											1.04	1.57	1.04	1.56	1.04	1.55
Practical help from friends											0.99	-0.54	0.99	-0.54	0.99	-0.48
Emotional help from friends											1.04	1.01	1.04	0.99	1.04	1.01
External help											0.83	-1.62	0.83	-1.62	0.81	-1.88
Age	0.97	-2.19	0.97	-2.10	0.97	-2.13	0.97	-2.35	0.97	-2.35	0.99	-0.55	0.99	-0.57	0.97	-1.73
Age of the youngest kid	1.01	0.42	1.00	0.12	1.00	0.12	1.00	-0.07	1.00	-0.06	1.22	2.91	1.22	2.89	0.99	-0.69
N. of kids	1.27	3.47	1.27	3.50	1.27	3.53	1.27	3.51	1.27	3.53	0.98	-1.43	0.98	-1.39	1.22	2.92
Year	1.02	1.22	1.02	1.01	1.02	1.02	1.01	0.47	1.01	0.49	1.00	0.13	1.00	0.14	1.00	-0.20
_cons	21.69	6.31	17.95	5.93	19.20	6.07	0.68	-0.39	0.87	-0.14	8.21	3.62	7.82	3.53	0.41	-0.78
N.	*10,542*		*10,542*		*10,542*		*10,542*		*10,542*		*9,402*		*9,402*		*9,402*	

Table 3 Mixed effects logistic regression model predicting the probability of good self-reported health. Odds ratios (OR) and z-scores. Source: SHP data, waves 1999-2011, only working episodes selected. Authors' calculations.

	Model 9		Model 10		Model 11		Model 12	
	OR	z	OR	z	OR	z	OR	z
Mother in couple (ref.)	0	-	0	-	0	-	0	-
Lone mother	0.76	-1.54	0.91	-0.50	0.50	-2.94	0.61	-2.05
Lower secondary educ. (ref.)	0	-	0	-	0	-	0	-
Upper secondary educ.	1.62	2.27	1.57	2.13	1.60	2.19	1.55	2.07
Tertiary educ.	1.14	0.52	1.03	0.12	1.14	0.51	1.04	0.15
Part-time max 50% (ref.)	0	-	0	-	0	-	0	-
Part-time min 50%	1.25	1.60	1.22	1.38	1.12	0.70	1.10	0.61
Full-time	0.89	-0.62	0.86	-0.81	0.69	-1.81	0.67	-1.95
Income (log)			1.28	2.26			1.25	2.06
Part-time max 50%*lone mother (ref.)					0	-	0	-
Part-time 50%-80%*lone mother					1.84	1.85	1.74	1.70
Full-time 80%-100%*lone mother					2.79	2.61	2.76	2.57
Age	0.98	-1.30	0.98	-1.43	0.98	-1.29	0.98	-1.41
Age of the youngest kid	0.99	-0.66	0.98	-0.78	0.99	-0.72	0.98	-0.82
N. of kids	1.31	3.35	1.31	3.33	1.32	3.46	1.32	3.45
Year	0.99	-0.32	0.99	-0.59	0.99	-0.33	0.99	-0.56
_cons	23.91	5.55	1.73	0.43	24.92	5.62	2.31	0.65
N.	*7,689*		*7,689*		*7,689*		*7,689*	

Figure 1 Mixed effects logistic regression model predicting the probability of good self-reported health according to education, household composition and working status. Control variables: number of kids below 18 in the household, age of the youngest child, age of the mother, equivalized household income. Control variables are set to their mean. Source: SHP data, waves 1999-2011. 95% confidence intervals (CI). Authors' calculations. Estimates in Table A2 in the Appendix.

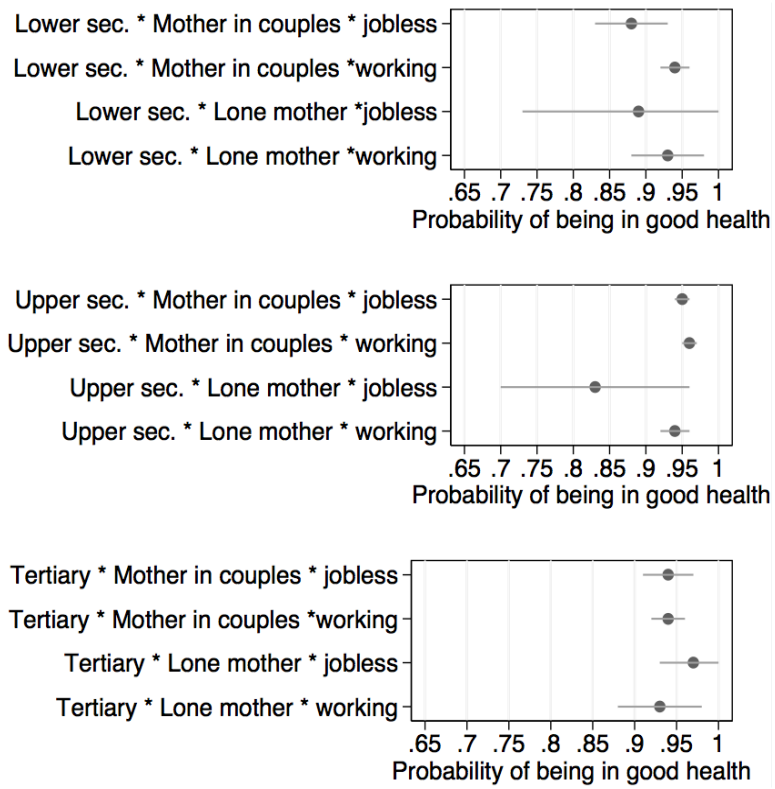
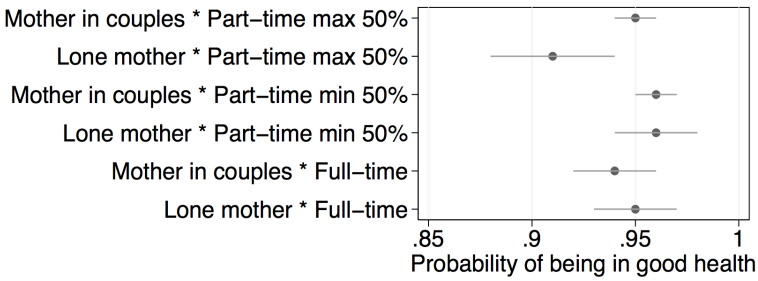


Figure 2 Mixed effects logistic regression model predicting the probability of good self-reported health according to education, household composition and working status. Control variables: number of kids below 18 in the household, age of the youngest child, age of the mother, equivalized household income. Control variables are set to their mean. Source: SHP data, waves 1999-2011, only working episodes selected. 95% confidence intervals (CI). Authors' calculations. Estimates in Table A2 in the Appendix.



Appendix

Table A 1 Mixed effects logistic regression model predicting the probability of good vs. bad self-reported health according to mother's education, household composition and working status. Control variables as in Figure 1. Control variables are set to their mean. 95% confidence intervals (CI). Source: SHP data, waves 1999-2011. Authors' calculations.

	Predicted probabilities	95% CI min.	95% CI max.
*Lower secondary education**			
Mother in couple*unemployed	0,88	0,84	0,93
Mother in couple*working	0,94	0,92	0,96
Lone mother*unemployed	0,88	0,75	1,00
Lone mother*working	0,93	0,88	0,99
*Upper secondary education**			
Mother in couple*unemployed	0,95	0,94	0,96
Mother in couple*working	0,96	0,95	0,96
Lone mother*unemployed	0,83	0,80	0,96
Lone mother*working	0,94	0,94	0,96
*Tertiary education**			
Mother in couple*unemployed	0,94	0,92	0,97
Mother in couple*working	0,94	0,92	0,96
Lone mother*unemployed	0,97	0,94	1,00
Lone mother*working	0,93	0,89	0,97
N,episodes	*10,542*		
N,individuals	*2,111*		

Table A 2 Mixed effects logistic regression model predicting the probability of good self-reported health according to education, household composition and working status. Control variables: number of kids below 18 in the household, age of the youngest child, age of the mother, equivalized household income. Control variables are set to their mean. Source: SHP data, waves 1999-2011, only working episodes selected. 95% confidence intervals (CI). Authors' calculations.

	Predicted probabilities	95% CI min.	95% CI max.
Mother in couple*Part-time max 50%	0.95	0.94	0.96
Lone mother*Part-time max 50%	0.91	0.88	0.95
Mother in couple*Part-time min 50%	0.96	0.95	0.97
Lone mother*Part-time min 50%	0.96	0.94	0.98
Mother in couple*Full-time	0.94	0.91	0.96
Lone mother*Full-time	0.95	0.93	0.98
N.episodes	*7,689*		
N.individuals	*1,815*		