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ARE CHILDCARE SUBSIDIES GOOD FOR PARENTAL WELL-BEING? EMPIRICAL EVIDENCE FROM THREE COUNTRIES

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Public policies aimed at families, especially those with preschool children, have grown in terms of both their importance and interest in recent years. Many countries have introduced or reformed their maternity and parental leave regulations, as well as their childcare subsidy system. These subsidies can be transferred directly to the parents or given to childcare centres that then provide free or low-fee childcare. The Scandinavian countries, the United Kingdom, France and New Zealand all spend over one percent of their GDP on childcare and pre-primary education (OECD 2013). In 2002, the European Council set out the so-called Barcelona targets: that each country should, by 2010, provide childcare to a minimum of 90 percent of children aged three up to mandatory school age, and to at least a third of all children under three years of age (European Commission 2008). While improving the well-being of the population in general, and of parents and children in particular, may be a goal of such policies, their more immediate intention is often to promote equal opportunities in employment between men and women. Indeed, increases in childcare subsidies are usually accompanied by higher female labour force participation, especially among less socioeconomically advantaged women (Lefebvre and Merrigan 2008). This increase in the labour supply, and its associated rise in daycare attendance, can in turn have consequences for children's human capital development (Baker, Gruber and Milligan 2008), and is also

related to an increase in women's share of contributions to household income, which has implications for intra-household spending patterns (Haeck, Lefebvre and Merrigan 2014).

In this article, based heavily on Connolly's own research on the topic (Brodeur and Connolly 2013), we investigate the relationship between childcare and parental well-being. First, what do we mean by parental well-being? What are the mechanisms by which childcare can influence well-being? What is the evidence base? Should we be interested in the overall effect of childcare subsidies – which includes and partly takes place via an increase in maternal employment – or should we try to net out the effect of work on well-being? This touches upon the key issues of work-life balance, the sharing of household responsibilities and changing gender roles. Indeed, an increase in the female labour supply, while objectively a positive outcome through the higher income, as well as the greater freedom and empowerment that it offers, can have negative consequences on subjective well-being (SWB). For example, women who seem to “have it all”, i.e. both a family and a career, report lower levels of SWB than mothers without a career (Bertrand 2013).

As more and more advanced countries ponder whether or not to invest in early childhood education, with its associated impact on children's cognitive and non-cognitive development, we should also be assessing the effects of such policies on parental well-being, which is both a goal in itself, and a mechanism through which children's well-being and development are affected. This article takes an international perspective and summarises years of research on Canada (in particular the province of Quebec), Germany and the United States. As will be shown, the evidence is mixed, reflecting the diversity of institutional contexts and government interventions, as well as effects stratified by the parents' socioeconomic situation. For example, in the United States, where childcare subsidies are typically given directly to low-income single mothers and are tied to work requirements, those subsidies have been found to have detrimental effects on mothers' well-being. In Germany and in Quebec, state-subsidised daycare centres offer low-fee childcare options to parents, and their availability has had positive effects for the average parent,



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² Photographs: © UQAM | Service de l'audiovisuel, photographie: Émilie Tourneval, 2012.

although effects vary according to the parents' income group. While low-income parents seem to be better off, high-income parents are worse off.

What is well-being?

Well-being is a broad concept that describes how good people feel and how they perceive their lives. Although there is no consensus on its definition, it generally relates to quality of life and encompasses both mental and physical health, as well as various dimensions like economic, social or emotional well-being. Well-being need not, however, be equivalent to utility, at least not in the way economists typically think of utility. Hence individual utility maximisation may not coincide with well-being maximisation. This explains why rational individuals can make choices that actually lead to lower well-being, and highlights the fact that the notions of utility and welfare may not be interchangeable.

There are many ways to measure well-being (Kahneman, Diener and Schwarz 1999). Objective measures can be used, both at the micro level (e.g. income, social connections, job loss) and at the macro level (e.g. economic conditions, environmental quality, health-related measures like mortality and morbidity, or political voice and governance-related indicators like the presence of free media or the quality of the judicial system). These objective measures are undoubtedly related to quality of life and are generally easier to collect than their subjective counterparts. But to ignore subjective measures altogether, based on the argument that they are unreliable and not comparable across individuals or regions, would leave us with a narrow and incomplete view of reality. Among the commonly-used measures of SWB are life satisfaction and happiness. Both capture related, but different concepts (Deaton and Stone 2013). Life satisfaction, as well as satisfaction with specific areas of life such as work, marriage/relationships, work-life balance or health, are examples of evaluative measures, which require a certain cognitive effort on the part of the survey respondent. By contrast, hedonic measures such as happiness and affect are based on instantaneous experiences. Other self-reported well-being variables often collected in surveys and related to parental well-being are measures of parenting stress and maternal depression.³

³ The reader wishing to learn more about well-being and economics is referred to Easterlin (2002) and Stutzer and Frey (2012).

By which mechanisms might childcare affect well-being?

Most of the literature on this topic tries to assess the effect of childcare subsidies, whether given directly to the parent (like in the United States) or indirectly through the provision of subsidised childcare in low-fee daycare centres (like in Quebec and Germany). Both types of subsidies work through the same transmission channel: subsidies are akin to higher wages, because they reduce the costs of childcare, and hence the costs associated with work (or alternatively, they increase the opportunity costs of leisure). The primary effect of such subsidies is to increase parental labour supply, and the magnitude of this effect depends on the elasticity of labour supply. As such, these subsidies are more likely to increase the work intensity of women, since their labour supply tends to be more elastic than men's and they typically have lower levels of employment to start with.

More work can affect parental well-being through various mechanisms (Herbst and Tekin 2014). First, more time spent working necessarily means less time spent doing other activities. This change in time allocation can impact well-being negatively if the displaced activities (leisure, childcare, etc.) were more pleasant than work, which is usually not very highly rated (Kahneman et al. 2004). This is especially true for the type of jobs held by people with a more marginal attachment to the labour force (i.e. low-paid, with unpredictable or nonstandard schedules or hazardous work conditions). Furthermore, longer working hours can also lead to increased stress and difficulties in combining the dual demands of work and family responsibilities. Often the burden of household tasks does not decrease even although the time available for them does. Working parents are thus left to accomplish them under increasing time pressure and stress.

Second, more work increases family income, and so do childcare subsidies, even if they have no effect on parental work. This income effect can have an influence on well-being: the question of whether money can buy happiness has been extensively studied. While no strong consensus emerges, more income is generally linked to increased levels of SWB, but only up to a point. Among the issues raised in the literature are the nonlinear effect of income (leaving poverty is probably beneficial, but additional income for an already-rich person does not have much effect) and whether absolute or relative income matters more. The extra income can also bring changes in consumption, but the direction of the effect

on well-being is unclear: the additional income could be used to promote a healthy lifestyle by enabling the purchase of more fresh fruits and vegetables, but it could also help enable the purchase of more alcohol and cigarettes. In the context of increased childcare subsidies, Haeck et al. (2014) show that more income in the hands of mothers affects the expenditure structure within a household by raising the budget shares of expenditure related to children, family goods and services with a collective aspect.

More directly related to childcare, subsidies and the extra income they bring can also help pay for higher-quality childcare. While the main effect of this increased quality is on the child's development and happiness, parents can also derive satisfaction from knowing their child is receiving high quality and welfare-enhancing care. Related to quality is the issue of the stability of care and the reduced strain associated with childcare arrangements, both of which can be improved with the additional money brought by subsidies, thus reducing stress and increasing well-being. Finally, some government interventions may explicitly target the quality of childcare, for example by sponsoring and promoting centre-based care over informal care, even if they do not have an income effect on parents.

Before moving on to the evidence, we need to pause and reflect on what we are trying to estimate when we want to find the effect of childcare on well-being. Is it the overall effect of some child-care-related policy that is estimated, or only a certain transmission channel of it? For example, Healy and Dunifon (2014) argue that holding participation in the labour market constant is necessary to isolate the effect of childcare subsidies on family well-being, given that maternal employment can affect well-being in various ways. Most studies, however, take a more holistic view and try to assess the overall effect, including the changes in employment. This approach may be more appropriate in that it addresses the complex issues of work-life balance and changing gender roles. The employment effects of subsidies are generally felt by women, whose income in a couple usually pays for childcare, given that the alternative to sending the kids to daycare is generally perceived to be the mother staying at home with them. But if gender roles are slowly evolving such that women still bear the brunt of household responsibilities even when working, the extra work may overall decrease women's well-being, even if it brings in additional income, along with a sense of purpose or control over life. Likewise, men's identity as the family's breadwinner can be threatened

by increased female employment. Hence gender role implications probably exist that need to be taken into account.

What is the evidence?

While many papers have studied the effect of childcare subsidies on parental employment (Lefebvre and Merrigan 2008) and others have looked at the effect of employment on well-being (Chatterji, Markowitz and Brooks-Gunn 2013), few papers have explicitly tried to estimate the impact of the subsidies on parental well-being. Some are based on cross-country comparisons at either the micro or macro level, in which measures of well-being and perceived work-life balance are explained by various factors typically including the availability of childcare as measured by the fraction of preschool children attending public care facilities (Treas, van der Lippe and Tai 2011; or see literature review in Schober and Schmitt 2013). These studies come to conflicting results regarding the size and direction of the effect of childcare provision, but that is hardly surprising given the diversity of institutional settings and varying types of government interventions. In this review, we only report the findings of papers focusing on the impact of country- or region-specific interventions on parental well-being.⁴ Table 1 summarizes the studies' data, methodology, outcomes studied and findings of these papers. It is worth noting that we focus more on the direction of the effects than their magnitudes, given the variety of outcomes and policies under study.

Canada/Quebec

In 1997, the government of Quebec, Canada's second-largest province by population and GDP after Ontario, introduced a childcare policy providing highly subsidised care through low-fee (CAD five, later raised to CAD seven and CAD 7.30) public daycare centres. The policy was implemented over a few years, and eventually provided childcare access to all preschool children – although the number of actual slots available was not always large enough to accommodate the demand. Three studies have used the Quebec policy as a natural experiment, comparing the outcomes in Quebec with those in the rest of Canada, where no such policy was implemented. The policy, while admittedly costly for

⁴ A study not reported here is that by Yamauchi (2010) on Australia, which finds that an increased availability of childcare decreases perceived childcare search costs and increases mothers' satisfaction with their amount of free time available, especially for less-educated mothers.

Table 1

Effects of childcare subsidies on well-being			
Study and data	Methodology	Outcomes	Main results
Canada/Quebec			
Baker, Gruber and Milligan (2008) Data: National Longitudinal Study of Children and Youth (NLSCY), cycles 1 (1994-95) to 5 (2002-03)	Difference-in-differences, comparing Quebec with the rest of Canada, before and after the introduction of subsidised childcare.	Mother and father's self-reported health, family dysfunction index, mother's depression score, satisfaction with relationship.	Negative effects on mother's depression scores (more depression), on father's health and on satisfaction with relationship.
Kottelenberg and Lehrer (2013) Data: NLSCY, cycles 1 (1994-95) to 7 (2006-07)	Replicate Baker et al. (2008) with two additional cycles of data. Instrumental variable (IV) approach: childcare attendance is instrumented by the policy to recover local average treatment effect. Inverse propensity weighting (IPW) method: non-parametric logit predicts probability to attend childcare, which is used as weight to recover average treatment effect. Sub-samples: mothers who work, mothers who do not.	Mother and father's self-reported health, family dysfunction index, mother's depression score.	Negative effect on mother's depression scores (more depression) in the IV model. Negative effects on father's health and on family dysfunction (more dysfunction) and positive effect on mother's depression (less depression) in the IPW model.
Brodeur and Connolly (2013) Data: Canadian General Social Survey, 1998, 2003 and 2005	Triple-differences with demographic and socioeconomic controls and time trend, comparing Quebec with the rest of Canada, before and after introduction of subsidized childcare, and parents of young children to others. Sub-samples: men/women, low/high education, married or not.	Main: life satisfaction and happiness. Additional: satisfaction with work-life balance, stress, self-reported health and sleeping problems.	Small overall decrease in life satisfaction. Large and positive (negative) effects on both life satisfaction and happiness for lower- (highly) educated men and women.
Germany			
Kröll and Borck (2013) Data: German Socio-Economic Panel (SOEP), 2006-10	OLS models where outcome is regressed on indicator of formal childcare use, individual characteristics, regional characteristics, state and time fixed effects. IV models where childcare use is instrumented by the aggregate rate of formal childcare usage in the district. Sample: mothers only.	Maternal mental health, maternal physical health, mother-child interaction index and the various types of interactions.	Large negative effect of childcare usage on maternal physical health in IV model. OLS coefficients small and not statistically significant. Effects on mental health positive but not statistically significant. Positive effect on mother-child interaction index in IV model, mainly driven by interactions at playground and watching TV.
Schober and Schmitt (2013) Data: German SOEP from 2007 to 2011, Families in Germany Study (FID) 2010-11, administrative records	Fixed-effects models where outcome is regressed on child-care provision (the percentage of children who attended childcare in the county/year), control variables and time and county fixed effects. Sample: mothers and fathers with a child under three.	Maternal and paternal satisfaction with life overall, available childcare, family life, health and personal income.	Positive effects for all outcomes for West German mothers; and for available childcare and family life for East German mothers. Positive effects for available childcare for West and East German fathers; and for family life for West German fathers.
United States			
Herbst and Tekin (2014) Data: FFCWS, Early Childhood Longitudinal Study Kindergarten Cohort (ECLS-K) and DDB Worldwide Communications Life Style Survey	OLS models where outcome is regressed on an indicator of subsidy receipt, family characteristics, census tract characteristics and state fixed effects. IV model where subsidy receipt is instrumented by distance to nearest social services agency. Ordered probit model where life satisfaction categories are regressed on amount of childcare subsidies, demographic and state-level controls and various fixed effects and time trends. Samples: women only for FFCWS, unmarried women for ECLS-K and DDB.	Overall health, anxiety, depression, parenting stress, life satisfaction.	Negative effects on overall health, depression (more depression) and parenting stress (more parenting stress). Marginally more anxiety. Negative effects on life satisfaction, especially for low-income mothers.
Healy and Dunifon (2014) Data: Fragile Families and Child Wellbeing Study (FFCWS)	OLS and logit models where outcome is regressed on an indicator of subsidy receipt and control variables. Propensity score (PS) models where subsidy receipt is modelled to recover average treatment effect. Sample only includes working mothers.	Parenting Stress Index, maternal depression.	Marginal increase in parenting stress in OLS model. No statistically significant effects in PS models.

Source: Authors' compilation from literature.

Quebec's public finances, is generally well-regarded by the parents whose upfront costs are extremely low and whose kids generally get access to good-quality centre-based care. Baker et al. (2008) were the first to put a dent in this enthusiasm by documenting the detrimental effects of the policy in terms of children behaviour and parental well-being. As reported in Table 1, they used a simple difference-in-differences framework, comparing Quebec with the rest of Canada, before and after the introduction of subsidised childcare. They found that the policy had negative effects on mother's depression scores (more depression), on father's health and on satisfaction with their couple relationship. Kottelenberg and Lehrer (2013) deepened Baker et al.'s (2008) analysis, by using the same data, but using two more cycles of the survey (covering four more years). They find the same results, persisting over the longer time period. But they also use two more identification strategies to refine their understanding of the effects. Using an instrumental variable (IV) strategy to recover a local average treatment effect, they are able to show that the negative impacts of the policy on maternal depression are driven by the families that started using childcare as a result of the subsidies. Moreover, using an inverse propensity weighting method, they find a small, but positive average treatment effect of the policy on maternal depression (i.e. less depression for the average mother).

Using another data set containing life satisfaction and happiness measures, Brodeur and Connolly (2013) use a triple-differences model to estimate the effect of Quebec's childcare policy on SWB, in which a difference between parents of preschool children and other adults is added to Baker et al.'s (2008) and Kottelenberg and Lehrer's (2013) difference-in-differences model. They find a small overall decrease in life satisfaction, but the interesting results emerge when the sample is split according to education level. They find large and positive effects on both life satisfaction and happiness for lower-educated men and women. These findings are consistent with an income effect priming over any potential negative channel (e.g. difficult work-life balance) for lower-educated, hence on average lower-earning, parents. The story for highly educated parents is reversed: large and negative effects are found. This could reflect a number of transmission channels, from poorer outcomes for children affecting parents, to increased competition for a limited number of childcare slots, to changing reference groups and social norms.

Germany

Germany has experienced a large increase in the provision of subsidised childcare in formal centres in recent years. The federal government has implemented a number of measures over the years to promote early childhood education and care: since 1996, children aged three and over have been entitled to a slot in a formal centre (kindergarten) for at least four hours a day; since 2005 children under the age of three should be able to receive formal childcare if their parents work; and since 2013 all children aged one and over are entitled to a childcare slot. Although parents pay a contribution based on their income, formal care is highly subsidised, and therefore less expensive than private care and below the OECD average (Schober and Schmitt 2013).

Two papers have used the variations over time and across regions in the provision of formal childcare to tease out its effects on parental well-being. Kröll and Borck (2013) estimate OLS models where the outcomes of maternal mental and physical health and various mother-child interactions are regressed on an indicator of formal childcare use, individual characteristics, regional characteristics and state and time fixed effects. Given the endogeneity of childcare usage, they also estimate IV models where childcare use is instrumented by the aggregate rate of formal childcare usage in the relevant district, which varies substantially in Germany between East and West, primarily for historical reasons. They find that childcare usage has a significant negative effect of on maternal physical health in the IV model, but no effect on mental health. They also find a positive effect on their mother-child interaction index in IV models, mainly driven by more interactions at the playground and while watching TV. While they note that the large negative effect on physical health represents a local average treatment effect, thus reflecting the condition of mothers who only use childcare as a result of increased local formal childcare rates (the "marginal users" of childcare), they do not really provide insights as to why they find negative effects on physical health. Perhaps those marginal users suffer more fatigue and stress from working and increased exposure to germs through their children than the "average user", who was already working and using childcare services.

Schober and Schmitt (2013) use a fixed-effects model to estimate the effect of formal childcare availability on various measures of satisfaction: satisfaction with life overall, with available childcare, with family life, with health, and with personal income. In their reduced-form

models, the county/year average outcome is regressed on the percentage of children who attended childcare in the county/year and on control variables, with time and county fixed effects. They find generally positive effects, with childcare provision being positively related to all outcomes for West German mothers, to satisfaction with available childcare and family life for East German mothers, to satisfaction for available childcare for West and East German fathers, and to satisfaction with family life for West German fathers. No statistically significant negative effects were found, contrary to other studies. The authors note that in Germany the expansion of formal care has focused on creating facilities that allow mothers to work part-time, which is not the case in Quebec for example (Haeck et al. 2013). The possibility to work part-time may hence contribute to an easier and less stressful work-life balance.

United States

In the United States, the provision of childcare is typically not through public formal care centres like in Quebec or Germany, but through the private sector. The federal and state governments, however, provide some childcare subsidies directly to economically disadvantaged parents. Since the welfare reform of 1996, the subsidies require the parents to be working, and consequently a large number of studies have tried to evaluate their effect on employment, while few have focused on well-being. Herbst and Tekin (2014) is the most comprehensive of all, drawing conclusions from three nationally representative data sets on top of presenting the American childcare subsidy policy and discussing the mechanisms by which well-being may be affected. Using OLS models where the outcome is regressed on an indicator of subsidy receipt, family characteristics, census tract characteristics and state fixed effects, IV models where subsidy receipt is instrumented by the distance to the nearest social services agency, and ordered probit models where life satisfaction categories are regressed on the amount of childcare subsidies, demographic and state-level controls and various fixed effects and time trends, they find that subsidies are generally associated with worse maternal health (overall health, parenting stress, depression) and poorer mother/child interactions. They note, however, that the effects are larger for women who did not work prior to subsidies, suggesting that the detrimental effects could be short-run and reflect an adjustment shock, as mothers adapt to the dual responsibilities of home and market work.

Healy and Dunifon (2014) find similar results using OLS and logit models: more subsidies, holding work constant, marginally increase parenting stress and increase depression for mothers of boys. However, consistent with a larger income effect for the very poor, subsidies also decrease parenting stress for those living in deep poverty. All of these effects lose their statistical significance when the authors use propensity score models where subsidy receipt is modelled to recover average treatment effects. It is worth noting, however, that Healy and Dunifon (2014) try to hold work constant, whereas many of the detrimental effects may be due to increased employment, so in that sense their findings of no effects are less surprising.

Conclusion

As more and more countries consider whether and how to invest in early childhood education and care, childcare subsidies are becoming an important policy tool. It is important to not only understand their impact on parental employment and child development, but also on parental well-being. Mothers' and fathers' well-being is important in and of itself, as governments should strive to improve their citizens' welfare. But it is also relevant for the future of our economies, as happier and healthier parents have been shown to have a positive effect on their children's cognitive and non-cognitive development. The evidence reviewed in this article reports both positive and negative effects found in the literature. This ambiguity reflects the diversity of institutional contexts and government interventions. Detrimental effects have been found in cases where subsidies give less-educated women incentives to work, leading them to juggle the dual tasks of market work and household responsibilities such as in the United States (although not in Canada). Positive effects have been found for the average parent, especially when the labour market accommodates mothers' part-time work more readily, as in Germany. Yet negative effects have also been found among highly educated mothers and fathers in Quebec, perhaps echoing changing gender roles, and evidence that the ideal of "having it all" may be pushing parents who try to pursue a career and raise a family at the same time to higher levels of stress and lower happiness. More than ever, we need to tackle the issue of the adequate balancing of work and personal life, if we want to be able to raise children to their full potential while allowing women to achieve the same labour market outcomes as men.

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