Chapter 12
The Pro-Family Workplace: Social and Economic Policies and Practices and Their Impacts on Child and Family Health

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Abstract Social and economic policies designed to improve working conditions and employee well-being in adulthood have often resulted in the unintentional improvement of the health of children and their parents. Unfortunately, the USA is behind in implementing such policies and is losing ground in the health of its families compared to most other industrialized countries. We present historical patterns of infant mortality and women's life expectancy, both indicators of child and family health, over time and across the USA and other industrialized countries. Using a predominantly ecosocial framework, we review the channels or mechanisms that may link social or economic policy to a physiological change in children and/or their close family members. We continue to review a range of family and labor policies and evidence linking specific family and work policies to child and family health outcomes. We argue that, despite challenges, the identification of social and economic policies that impact the work/family interface and promote family health and well-being is critical and that the conditions which improve health for families will likely require modification in the public policy arena.

Introduction

Public policies have been among the major drivers of improvements in child and family health over the last centuries. Initially, public health policies regarding water sanitization, milk pasteurization, vaccination (Rosen, 1958), and basic hospital

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practices regarding infectious diseases (Jarvis, 1994; Semmelweis, 1861/1983) were responsible for major decreases in infant and maternal mortality. In the mid-twentieth century, medical practices reduced infant mortality substantially as the profession learned how to prevent neonatal deaths (Cutler & Meara, 1999; Paneth, 1995; Williams & Chen, 1982). There is a great deal that has been written about the ways in which these critical public health and medical policies and practices have impacted infant and child health and development. Our goal is substantially different; it is to focus on the social and economic policies that have been implemented over the last 40–50 years primarily aimed at improving working conditions, the work/family interface, workplace flexibility, and retirement policies so that men and women in the labor force would be able to take care of their own health and that of their families. Our hypothesis is that these *non-health care policies* designed to improve working conditions and employee well-being in adulthood (albeit with some attention to well-being for children and families) had fundamental and often unintentional consequences of being "pro-family," thus improving the health of children and their parents. To be clear, some labor policies, including child labor policies and antipoverty policies especially for single mothers, had quite explicit intentions in terms of improving children's health and well-being; however, our point is that these policies have not been adequately evaluated so that the health benefits can be understood and documented. Included in this category of social and economic policies and practices are those related to paid or unpaid vacation or leave, workplace flexibility, family policies more generally (childcare, parental leave), and economic incentives including the Earned Income Tax Credit (EITC) in the USA.

We begin with a brief description of the historical patterns of infant mortality and women's life expectancy over time and across industrialized countries. We focus initially on these outcomes as bellwethers for other health indicators. Infant mortality as an indicator of child well-being has the advantage of being available for many countries over long periods of time, though harmonization is not as tight as we would optimally like. Here, we also discuss cross-country comparisons in health and, briefly, raise the notion of relevant work and family policies that might account for some of the variations we see across time and place. Following the discussion of infant mortality and women's life expectancy, our discussion is built on a theoretical model drawing largely on ecosocial frameworks of disease causation. The goal is to understand at a theoretical level what the channels or mechanisms might be that could lead from a social or economic policy to a physiological change in children and/or their close family members. This model incorporates dimensions that interact and are capable of explaining spillovers across networks as well as crossovers in domains of well-being (meaning that policies improving worker productivity, for instance, might also impact health—for better or worse). In the next section of the chapter, we review and interpret the evidence linking specific family and work policies to child and family health outcomes. There are several outstanding studies that have been done in this area and a larger number of studies in which the links to health outcomes are not as well defined, though the labor or economic benefits of such policies are well known. Finally, we draw conclusions and make recommendations.

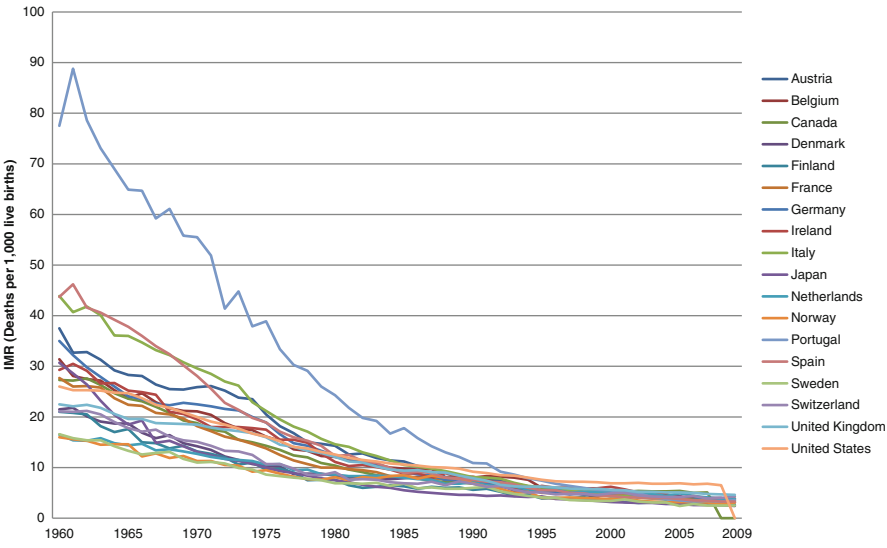
A major rationale for evaluating social and economic policies in terms of child and family health is that the conditions which improve health for families will likely

have to be modified in the public policy arena. Identification of policies that prove to be harmful to health is as important as evaluating those that are likely to have positive effects. Over and over again, we have learned that asking parents, for instance, to change behavior in the absence of a supportive social and economic context is not fruitful. Few people change without a supportive environment. We have also learned from a host of public health interventions that changing public policy, for instance, prices of tobacco or occupational and environmental exposures, has more substantial health impacts than asking individuals to stop smoking or to wear safety gear and avoid toxic exposures. We suspect the same is true with regard to family health. Finally, if social policies have spillover effects and thus improve the health of children and their families, they may be much more cost-effective than policy makers realize. In current times of economic cutbacks, such policies need to be evaluated fully for the range of outcomes that may result so that the true costs and benefits are understood.

By way of background, from 1950 to 1990, the lives of American women changed dramatically: Women flooded into the labor force but maintained high fertility. Divorce and single parenthood increased, while mobility away from extended family became common. In 1950, 59% of American women aged 25–45 lived with children under 14, 94% of those mothers were married, and only 18% were employed (Ruggles et al., 2004). In 1990, the percent of women aged 25–45 who lived with children was similar (55%), but 80% of those mothers were married, and 64% were employed. Most single mothers were employed (65%), working an average of 38 h per week. By 2000, 79% of mothers with children from 6–17 were in the labor force (Ruggles et al., 2004). Trends between 1950 and 2000 in Europe looked differently: Although female labor market participation grew quickly in many countries, fertility declined; single parenthood grew more slowly; and annual hours of work per employee declined (Eurostat Yearbook, 2002; Ruggles et al., 2004). By 1990, 22% of US children under age 14 lived in a household with only one adult, compared to only 6% in the EU-15 countries. Despite these social changes, US policies most relevant for working mothers changed little. The USA was an outlier among high-income countries for having weak labor laws and limited family protection policies (Gornick & Meyers, 2004). As we illustrate below, in 1960, the USA ranked 12th in infant mortality and 11th in women's life expectancy among the 34 OECD countries. By 1980, the rankings were 18 and 13 and, in 2008, 30 and 28, respectively (OECD, 2009b, 2009c). Most other OECD countries have now overtaken the USA in health and longevity for children and adults.

Infant Mortality in Industrialized Countries, 1960–2009, and Parallel Trends in Women's Life Expectancy

Comparisons over time and place in infant mortality can provide clues about country-level exposures, including work and family policies and practice. In addition, because child health and well-being is heavily dependent on parental (especially maternal) health, we also show parallel trends in life expectancy (LE) for



Organization for Economic Cooperation and Development. (2009c). Maternal and infant mortality. http://stats.oecd.org/Index.aspx.

Fig. 12.1 Infant mortality rates (1960–2009)

women. Health is an intergenerational and family experience and is dynamically interwoven with family-level exposures (see, for instance, Barker, Chap. 1). Infant mortality rates are widely accepted as a proxy for well-being. Aside from being widely available, the indicator is closely linked with socioeconomic status, access to health care, and the health status of women of childbearing age (CBO, 1992; MacDorman et al., 1994). Infant mortality has also been found to correlate strongly and significantly with other measures of overall population health, including disability-adjusted life expectancy. Thus, infant mortality data remains a strong tool for understanding health trends of children and adults alike (Reidpath & Allotey, 2003). Despite its utility, it is important to note that cross-country comparisons of infant mortality are not without methodological shortcomings. Rates are calculated based on the number of deaths of infants up to 1 year of age per 1,000 live births in a given time period. However, what constitutes a live birth is controversial. In the United States, for example, very premature births are often included in birth and mortality statistics, whereas in other industrialized countries with lower infant mortality rates, they may not (CBO, 1992).

The following figures show trends in infant mortality rates and female LE for a subset of 18 OECD countries over the last half century.

As shown in Fig. 12.1, beginning first with trends in infant mortality, in 1960 the infant mortality rate in the USA was 26 deaths per 1,000 births, compared to an average of 40.4 among all OECD countries. Countries such as Iceland, Norway, and Sweden had infant mortality rates ranging from 13 to 16.5, with the UK at 22.5 and Spain and Italy at roughly 43 deaths per 1,000 births. By 1970, infant mortality

in all OECD countries had improved but by varying degrees for different countries. Nordic countries again excelled in infant health with mortality rates between 11 and 13 deaths per 1,000 live births (though Iceland's rate did not change and, thus, its relative rank fell). Most impressive, infant mortality in Japan declined from 30.7 to 13.1 (rank 19 to 4) between 1960 and 1970. Mortality rates and ranking improved in countries like France, Germany, and Canada during this period, and while absolute rates declined, relative mortality in Spain, Italy, and Portugal remained fairly constant from 1960 to 1970. In other countries, such as the USA and UK, the relative rankings among OECD nations worsened while overall infant mortality rate improved (20 and 18.5 deaths per 1,000 live births and ranking 13 and 16 out of 34 countries, respectively).

In 1980, the infant mortality rates of Sweden, Finland, Norway, Denmark, the Netherlands, and Switzerland had decreased further (6.9, 7.6, 8.1, 8.4, and 9.1 deaths per 1,000 live births, respectively). Rates in Japan continued to improve immensely, securing the second lowest infant mortality rate among OECD countries (7.5 deaths per 1,000 live births). France and Canada also experienced relative and absolute progress (roughly 10 deaths per 1,000 live births). Perhaps most notably was Spain's mortality decline to 12.3 deaths per 1,000 live births (ranking 16 out of 34 OECD countries, compared to a rank of 24 ten years earlier). Yet again, mortality in the USA and UK improved (12.6 and 12.1 deaths per 1,000 live births, respectively), but their relative ranks fell. Mortality rates in Portugal remained strikingly high compared to other European nations at 24.3 deaths per 1,000 live births.

At the start of 1990, Japan ranked best in infant mortality among all OECD nations (4.6 deaths per 1,000 live births). With the exception of Denmark whose ranking fell to 12 in 1990 from 6 in 1980, rates in Nordic nations remained relatively low as well. Canada, Germany, and Italy experienced notable improvements in relative and absolute infant mortality (6.8, 7, and 8.1 deaths per 1,000 births, respectively), and Spain's ranking among OECD nations also continued to improve. The UK remained ranked at 15, while the relative mortality rate in the USA continued to worsen (7.9 and 9.2 deaths per 1,000 births in the UK and the USA, respectively).

A new millennium brought with it sustained improvements in infant mortality in industrialized countries. In 2000, Iceland, Japan, Sweden, Finland, and Norway continued to boast the lowest infant mortality rates in the industrialized world, though relatively poor rankings in neighboring Switzerland, Denmark, and the Netherlands persisted. Italy's overall infant mortality improved most drastically (4.3 deaths) resulting in a rank of 7 out of all OECD nations, followed by Germany, Spain, and France. Mortality in Canada, however, did not continue to improve with the same vigor as in the prior decade, and its ranking fell from 5 to 18, despite absolute infant mortality declining to 5.3 deaths per 1,000 births. Similarly, mortality in the USA and UK continued to exhibit far less impressive declines compared to their OECD counterparts, with Portugal's rank exceeding both in 2000.

Despite drastic variation in infant mortality rankings over time, almost three-fourths of OECD currently boasts infant mortality rates lower than 5 deaths per 1,000 births. In 2008, Luxemburg and Slovenia exhibited better mortality rates

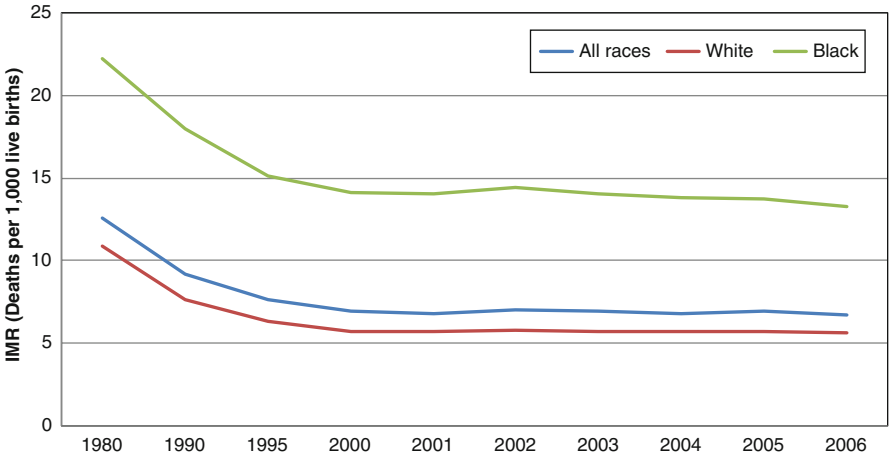


Fig. 12.2 US infant mortality rates by race (1980–2006)

(1.8 and 2.4 deaths per 1,000) than Japan, Iceland, Sweden, or Finland, despite having had rates as high as 31 and 35 deaths per 1,000 in 1960, respectively. Infant mortality in the USA has shown little additional improvement since 2000 and ranks even lower today (30 among 34 OECD countries with 4.7 deaths per 1,000 births). In addition to its lack of relative progress, drastic racial disparities within the USA are present as depicted in Fig. 12.2. Though data from all races indicate a gradual decline in infant mortality from the 1980s until just before 2000, when rates began to taper, non-Hispanic blacks in the USA consistently experienced mortality rates more than two times higher than their white counterparts.

Similar to the infant mortality rates, trends in female life expectancy indicate that the USA is losing ground, as shown in Fig. 12.3. In 1960, life expectancy for women at birth was estimated to be 73.1 years, and the USA ranked 11th behind Nordic countries (except Finland), Australia, the UK, France, and the Czech Republic where women were expected to live as long as 76 years. At this time, female life expectancy was as low as 53.7 and 66.7 years in Turkey and Portugal, respectively. Throughout the next decade, all OECD countries experienced increases in female life expectancy, and while women in nations like Norway, Iceland, and Sweden lived the longest, Finnish and Spanish women experienced the biggest strides in longevity with life expectancies rising to roughly 75 years, increasing their rank among OECD nations to 10 and 11 (up from 14 and 15 in 1960), respectively. Women in Japan and the USA were expected to live until 74.7 years of age, up from 70.2 to 73.1 ten years before, respectively. While this improvement in longevity represented a substantial increase in ranking for Japan, the USA had actually experienced a relative decline.

In 1980, America's rank fell to 13 (77.4 years). Iceland, Norway, the Netherlands, Switzerland, and Sweden all remained leaders in female longevity, and Canada joined their ranks when it was first surveyed this year (78.9), ranking 5 among all

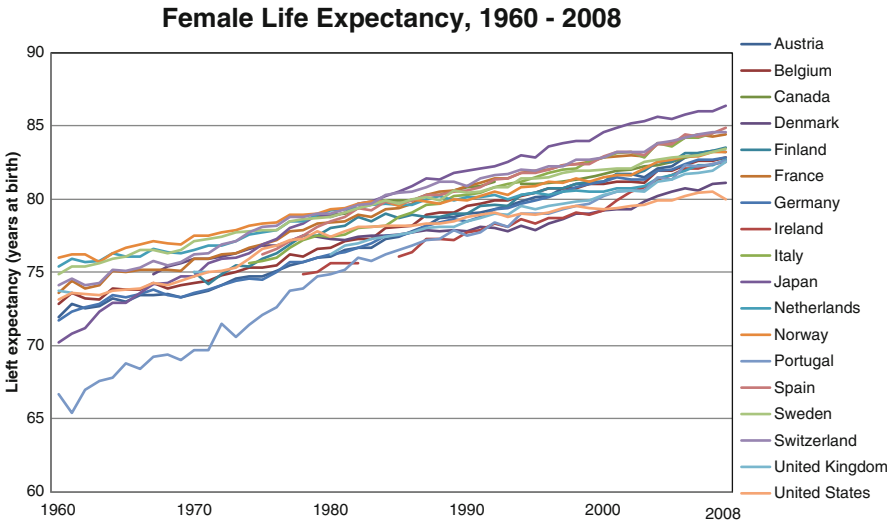


Fig. 12.3 Female life expectancy (1960–2008)

OECD nations. Female life expectancy in Japan also continued to climb to 78.8 years, ranking it 7. Similarly, Australian women began to live to an average of 78.1 years, ranking it 10 (up from 16 in 1970). Relative longevity in the UK and Ireland saw declines (ranked 17 and 23 in 1980, respectively), despite absolute female life expectancy in these countries increasing to 76.2 years and 75.6 years, respectively. A decade later, Japan was ranked number 1 in female life expectancy among OECD nations (81.9 years), followed by Switzerland, France, and Canada at roughly 81 years. Female longevity in many Nordic countries including Iceland, Sweden, the Netherlands, Norway, Finland, and Denmark experienced relative declines, and Italy's rank increased to 8. Yet again, life expectancy increased in the USA but its position among OECD nations continued to plummet.

The year 2000 continued to bring improvements in female longevity in all OECD countries. Japan continued to rank highest at 85.6 years, followed closely by Spain, France, and Italy (roughly 83 years). These rankings marked a substantial relative increase for women in Italy, compared to 10 years before. Women's longevity in Germany, Austria, and Portugal also made impressive strides this year. Accordingly, the relative position of Sweden, Iceland, and Norway declined. Similarly, the USA was ranked 24 with an estimated female life expectancy of 79.3. Eight years later, female life expectancy was ranked 28 in the USA, tied at 80 years along with Poland, Estonia, and the Czech Republic. In this short time, the following countries impressively ascended the ranks: Ireland (ranked 26 in 2000 to 20 in 2008), Israel (ranked 16 in 2000 and 8 in 2008), and Korea (23 in 2000 to 6 in 2008), although Japan, Spain, and Switzerland continue to have the highest expected female longevity among OECD nations.

Thus, in looking at both trends in infant mortality as well trends in women's life expectancy, we are struck by the parallel patterns. Particularly, with regard to the USA, we are struck by the low international standing as we enter the twenty-first century and with the fact that the USA has lost ground during this time for both women and children. We suspect that social and economic policies that frame the ways in which women can participate in the labor force and continue to participate fully in family life are taking a toll on women and their children.

An Ecosocial Framework of Work/Family Demands, Control, and Formal and Informal Support

A variety of theories exist to explain the impact of social policies on population health and, in this case, the health and well-being of children and families. Social science theories of relevance to parents, such as role enhancement theory, posit that participation in multiple roles, such as home and work, may lead to energy expansion, which in turn generates opportunities and resources such as income and self-esteem to promote health. The role enhancement literature has indicated that job–role satisfaction, also referred to as work–family enrichment or positive spillover (Greenhaus & Powell, 2006), contributes positively to individual and partner mental health as well as the psychological well-being of children of working parents (Barnett, 2004). Taking this theoretical approach one step further, it is reasonable to suggest that family-friendly policies, which contribute to the efficient and satisfying participation in roles at home and work, have the potential to positively impact the well-being of children.

Frameworks related to social networks and relationships may also be pertinent to understanding the link between social policies and child and family health. Attachment theory, first introduced by John Bowlby, suggests that formation of close emotional bonds, particularly among mothers and infants, is crucial to child and adult development as well as creation of future social relationships (Bowlby, 1969). In this model, the presence of social policies that provide parental leave, for example, are presumed to have a direct effect on child well-being by allowing parents to spend time with their offspring at key developmental junctures. Social network theorists are also concerned with the psychosocial environment, particularly those ties that "cut across traditional kinship, residential, and class groups to explain behaviors they observed such as access to jobs, political activity or marital roles" (Berkman, Glass, Brissette, & Seeman, 2000). These models propose that network structures determine individual behaviors and attitudes through the resources they make available as well as constrain. Here, traditional theorists emphasize the role of social institutions in guiding resources, and later work in this area suggests that networks operate through four primary pathways, including the provision of social support, social influence, social engagement and attachment, as well as access to resources and material goods (Berkman et al.). Thus, according to this perspective, the presence of family-oriented policies, whether they be in the form of child

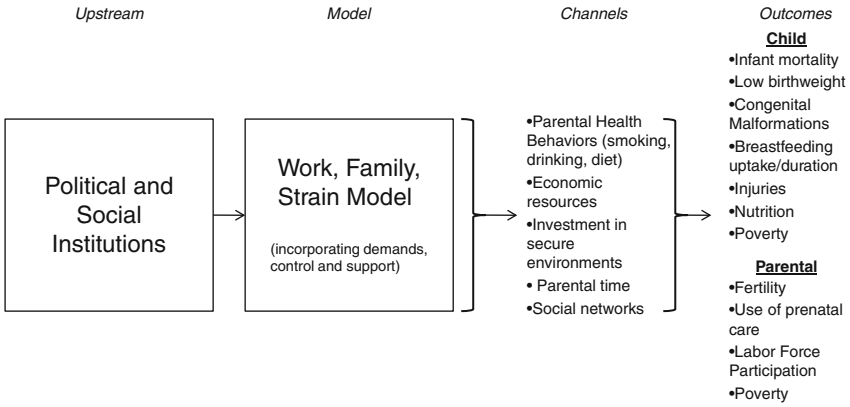


Fig. 12.4 Work, family, strain model

allowance, parental leave, childcare leave, or maternity grants, is viewed as capable of shaping health decision-making processes that impact parental and child health.

From an economic point of view, child health can be framed as a function of baseline health status, including child genetics, medical care and technology, parental time investments, income, and stochastic shock. Economists also concede that children possess a certain level of health capital at birth, as determined by attitudes surrounding prenatal care, for example, but that health capital can be improved through inputs like parental time and household goods such as immunizations and diet. Predominantly, however, this school of thought posits that parental time investments or parent's time away from work are the predominant mechanisms by which family-oriented policies affect child health and that pathways such as child genetics and medical care would not be influenced by policy-level interventions (Ruhm, 2000; Tanaka, 2005).

Despite the many theories that seek to explain how the confluence of conditions facing American children and women may impact morbidity and mortality and overall LE, the model employed here builds on a general framework, an ecosocial model of disease (Krieger, 1994). We refine this framework more explicitly to identify the dynamics between labor and family policies and demographic changes and child and family health. The ecosocial model of disease causation proposes that epidemiologic frameworks are strengthened by linking societal and biophysical determinants of disease over the life course and over historical periods. Our work–family strain model (Fig. 12.4) incorporates aspects of family context into the well-established job strain model, which relates job demands, job control, and social support to a broad range of outcomes for parents, but especially for mothers. We hypothesize that these impacts spill over to children. American women (and to a certain extent men as well) encounter demands from full-time work and high family needs, coupled with low formal support (social protection policies) and often limited informal family support. This combination is exacerbated for low-wage and

low-education workers who have little job control and often live near the poverty level. The conflicting demands associated with single parenthood and work–family tensions strongly affect cardiovascular risks such as smoking and BMI and likely also affect CVD via direct physiological consequences of chronic stress. We hypothesize that the interaction of high demands, low control, and low support leads to sustained stress, damaging health behaviors, and cumulative cardiovascular damage. Women are especially affected, but adult men increasingly suffer from many of the same work–family demands. These health effects among mothers may spill over directly to infants during in utero experiences as well as play out over their childhood via related behavioral and environmental interactions (e.g., an employed woman's ability to breastfeed). We also hypothesize that regional variation in the *distribution* or the *toxicity* (effect of exposure on disease) of work–family strain influences variations among countries and within the USA in child and family health. Variations in work–family strain may arise from differences in family demands, workplace conditions, family protective policies, or informal family supports. Of central interest in this chapter is a focus on formal or institutional supports based on family policies. Figure 12.4 depicts this model. Here, one can see the three dimensions that create work–family strain. On the left-hand side is the control dimension. On the bottom is work–family demand and along the third dimension is support. Relevant to our work here is the view that social and economic policies serve as a form of institutional support for families. We also hypothesize that families with low control and high demand will be most vulnerable and, in fact, most in need of formal and institutional support in the form of public policies.

The Evidence Linking Family and Work Policies to Child Health

Overview of Family Policies

Gornick (Gornick, 2004; Gornick & Meyers, 2004), Ferrarini (Ferrarini & Norstrom, 2010; Ferrarini & Sjoberg, 2010), Heymann (Earle & Heymann, 2007; Heymann, Earle, & Hayes, 2007), Ruhm (Ruhm, 2000), Winegarden (Winegarden & Bracy, 1995), and others have identified the range of family or work–family policies that are linked to child well-being. In so doing, they often point out that American policy makers and researchers have long noted the strength of European policy supports for working parents (Gornick, 2004; Gornick & Meyers, 2004) so that many of the common models or typologies of family policies have grown from Northern and Western Europe. There are far more types and ranges of policies regarding family well-being or work–family interface than there are rigorous evaluations of such policies. Theoretically, we are interested in the full range of policies though our review here reflects the narrower range. As Ferrarini notes, family policy institutions have a potential to affect infant mortality in different ways:

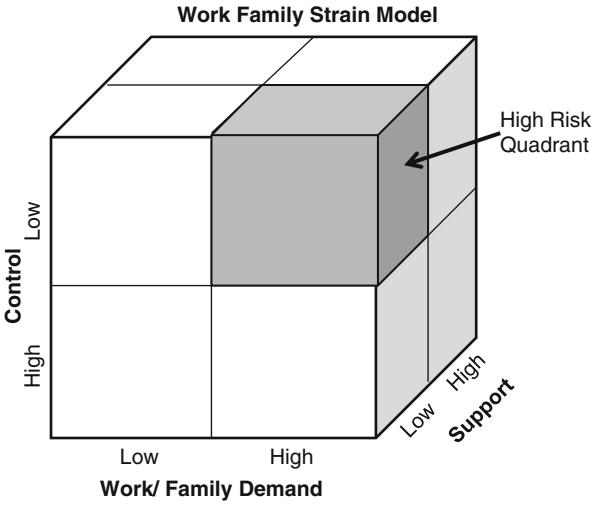


Fig. 12.5 Theoretical causal model

They can structure the time that parents can spend with their children or the income of the household either through direct contributions or indirectly through labor market behavior (Ferrarini & Norstrom, 2010). These midrange outcomes may influence child health via another set of pathways or channels including direct physiological pathways related to stress, consumption and patterns of health behaviors, and economic resources resulting in physically, emotionally, and cognitively healthier environments. Ultimately, these exposures may influence child health along a spectrum of life course exposures from basic decisions about fertility to in utero exposures and exposures during infancy and early childhood. Figure 12.5 shows this theoretical causal model.

Several models have emerged to classify types of family policies. Ferrarini and Norstrom (2010), for instance, have ways of classifying models as they provide traditional family support and/or support to dual earner families. The traditional family policy model present in many western European countries, for example, has approaches that reinforce traditional family support and highly gendered division of labor in families (e.g., flat-rate childcare leave benefits, tax deductions for the less economically active spouse). In contrast, in some Northern European countries, a newer model has emerged which encourages dual earner families to remain in the labor force (e.g., earning related parental leave, publicly subsidized services for the youngest children and the elderly) and supports gender equality. A third type is more market oriented, such as that present in the USA which falls into a minority category of countries that does not offer paid leave following childbearing, support for breastfeeding, or paid annual leave (Heymann et al., 2007). Finally, in considering the impact of these policies, one would optimally incorporate generosity of benefits into the framework as well as breadth of distribution of benefits. In this chapter, we focus essentially on those policies which are related to work or offer financial incentives to remain in the labor force while caring for family members.

We have included a few references to pension reforms which have the surprising intergenerational impact of spillover to impact the health of young children. Because the literature is sparse in this area, we have a review which points us in the direction for future evaluations of a much broader set of "family" policies.

Family Policy and Infant Mortality

Research indicates that family-oriented policies may reduce infant mortality. Almost 20 years ago, Wennemo investigated the link between public policy provisions (including family benefits) and the quality of unemployment insurance on infant mortality rates in 18 industrialized countries, including the USA, from 1950 to 1985 (Wennemo, 1993). Wennemo also demonstrated that, although economic development does impact infant mortality, it does not sufficiently explain variability across countries and that gaps may be addressed by assessing sociopolitical factors. Findings suggested that one percentage point increase in levels of family benefits may be accompanied by a reduction in infant mortality of about 0.65 per 1,000 births. Additionally, an increase in unemployment rate was associated with lowered infant mortality but much more modestly.

More recent research has continued to reveal the importance of social policies on infant mortality. In 2010, Ferrarini and colleagues examined the impact of higher family policy generosity, defined as the annual replacement of family policy benefits after taxation, on infant mortality (Ferrarini & Norstrom, 2010). These benefits, inclusive of earnings-related parental insurance, childcare leave benefits, child allowances, maternity grants, and tax deductions, were assessed in eighteen OECD countries, including the USA, from 1970 to 2000. Unlike Wennemo, Ferrarini concluded that increases in GDP, operationalized as purchasing power parity in US dollars, in postwar industrial societies may have weak or even unfavorable effects on infant mortality. Similar to Wennemo, Ferrarini suggests that family policies may be driving declines in infant mortality through mechanisms such as time to facilitate breastfeeding and other healthy newborn practices as well as availability of disposable income. Family leave policies which provide income support during leave and enable women to remain in the workforce are related to availability of disposable income.

Two years prior, Lundberg and colleagues studied the same OECD countries during the same time frame to determine the impact of family policy generosity using a measure of annual wage replacement on infant mortality (Lundberg et al., 2008). Lundberg's work, however, distinguishes dual-earner support and general family support in the analysis. The dual-earner model, embraced largely by Nordic nations, allows both mothers and fathers to combine paid employment with childcare through earnings-related parental leave benefits, universal child benefits, and childcare support. A general family support policy, on the other hand, is described as "highly

gendered" and includes flat-rate benefits for leave and childcare as well as subsidies for dependent spouses. Interestingly, Lundberg's results indicate that an increase by one percentage point in dual-earner support lowers infant mortality by 0.038 deaths per 1,000 births but that general family support was not related to infant mortality. The authors also acknowledge potential issues in extending the Nordic, dual-earner model to other countries.

Scholars have also explored the specific impact of parental leave on child health outcomes, including infant mortality. In 17 OECD countries (1959–1989), Winegarden and Bracy (1995) found that an additional week of maternity leave was associated with a modest decline in infant deaths (0.5 deaths per 1,000 live births). Pathways such as encouraged or prolonged breastfeeding and income effects are cited; however, other researchers have critiqued the study's methodological rigor (Ruhm, 2000; Tanaka, 2005). In 2000, Ruhm similarly investigated the link between paid leave (rights to job absences where the level of income support depends on prior employment) and child health in Europe. Using data from sixteen countries over the course of more than two decades (1969–1994) and controlling for time and country effects and relevant confounders, results suggest a negative relationship between leave durations and infant mortality, particularly postneonatal mortality. Specifically, a 10-week extension in paid parental leave may reduce infant deaths by 2.5–3.4%, which translated to roughly 13 fewer deaths per 1,000 live births, or upwards of 4.5% for postneonatal mortality. A limited investigation into unpaid leave found null results (Ruhm, 2000).

Building on Ruhm's work, Tanaka (2005) conducted an analysis of the impact of job-protected paid leave and other forms of parental leave on infant mortality and other child outcomes, including low birth weight and child immunization coverage in the same European countries, plus the USA and Japan, between 1969 and 2000. Here, a 10-week extension in paid leave resulted in a decrease in infant mortality of 2.3–2.5%, or roughly 10 per 1,000 live births. Consistent with Ruhm's findings, the strongest impact of paid parental leave was on postneonatal mortality. These results persisted despite controlling for other social policies such as public expenditures on parental leave and family services. Unpaid leave was not found to predict declines in infant mortality, and parental leave generally did not have a significant effect on the other child health outcomes assessed.

Other policies not specifically intended to benefit children and families appear to have spillover effects on infant mortality. In the USA, for example, it has been argued that federally mandated racial desegregation in the 1960s contributed to drastic reductions in infant mortality rates among African Americans. While racial gaps in infant mortality declined throughout the entire country during the years immediately following desegregation (1965–1971), blacks in the Mississippi Delta experienced the biggest relative gains. Almond and colleagues largely attribute this trend to dramatic improvements in access to hospitals in the Southern USA. In fact, racial integration of public health care facilities corresponds directly in terms of time and location to substantial declines in black infant mortality, which was cut in half in this 6-year period (Almond, Chay, & Greenstone, 2006).

Family Policy and Low Birth Weight

Birth weight also serves as an indicator of child health and prenatal exposures and has been shown to predict other child and adult outcomes, including infant mortality and educational level and income (McCormick, 1985; Strully, Rehkopf, & Xuan, 2010). A review by Spencer indicates the study of social policies and low birth weight may not be as pervasive as infant mortality, but that compelling evidence exists nonetheless (Spencer, 2004). Income inequality, in particular, may have significant effects on a baby's birth weight. Using national data for the USA, Kaplan and colleagues found that the percentage of total household income received by the poorest half of the population was significantly correlated with the proportion of live births weighing <2,500 g ($r=0.67$; $p<0.001$) (Kaplan, Pamuk, Lynch, Cohen, & Balfour, 1996). Two studies assessing inequities in Europe and North America identified similar trends. Lynch and colleagues concluded that inequality based on household disposable income and measured by the Gini coefficient was associated with a greater proportion of low birth weight infants ($r=0.79$, $p=0.001$) (Lynch et al., 2001). Interestingly, this relationship was reduced when the USA was excluded from the analysis. Building on the work by Lynch and colleagues with the inclusion of Israel, Muntaner et al. (2002) arrived at identical results and, while a bit qualitative, claimed that the best infant outcomes were found in countries with the strongest "welfare state" and greatest family and child supports.

Stronger empirical evidence of the impact of welfare programs on low birth weight also exists. A compelling study by Strully et al. (2010) tested the effects of prenatal poverty on low birth weight through a natural experiment of changes to Earned Income Tax Credits in the USA. The EITC is a refundable tax credit for low-income, single mothers. Similar to other welfare programs in the USA, such as Temporary Assistance for Needy Families (TANF), the policy requires women to work and is believed to improve standards of living through both increased engagement in the labor force and wages. However, unlike TANF, EITC is administered through the IRS independent of other social programs. Strully and colleagues tested a number of hypothesis including the effect of EITC on low birth weight, the potentially perverse effects of an income credit on maternal smoking, the extent to which EITC has indirect effects on family income (through unemployment incentives and earnings), and whether the effects of the credit vary by maternal characteristics such as age and education.

The sample was limited to US unmarried mothers with low education (high school degree or less) who previously experienced at least one live singleton birth in their state of residence. After controlling for state effects, including states' economic circumstances and social policies, as well as time fixed effects, Strully et al. (2010) found that the EITC increased birth weights by roughly 16 g and that income credits were associated with higher earnings and employment. No evidence of moderation by maternal education was present. However, the EITC may be most beneficial for children born to women aged 19–34. Small effects were found among young women, possibly due to their relatively modest labor participation. Negative

effects were detectable in women over 35, perhaps due to pregnancy complications that occur more frequently among women of advanced maternal age. To assess whether the type of welfare program affects low birth weight, a similar analysis of TANF was conducted and produced mixed findings. This suggests that the nature of welfare is relevant to improving child health. Interestingly, EITC was associated with reduced odds of maternal smoking by about 5%, but TANF was associated with increased smoking odds.

Strully et al.'s (2010) work provides compelling evidence of the impact of income credit policies on child health. The findings are further validated through a series of sensitivity analyses. In these checks, the authors focused on three female subgroups expected to be less affected y the EITC (married women, those with over 16 years of education, and women giving birth to their first child), relative to the study sample. Strully and colleagues also assessed descriptive birth statistics for states immediately preceding the enactment of the EITC and argued that inappropriately strong EITC–birth weight associations among subgroups or changes in maternal descriptive statistics (age, education, etc.) would raise concerns about assumptions surrounding the natural experimental design. Results, however, indicated methodological soundness. Despite these compelling results, it is important to note that Ruhm (2000) did not find a significant effect of parental leave on low birth weight, in the study described above.

Family Policy and Breastfeeding

In the industrialized world, breastfeeding has been associated with reduced accounts of diseases and conditions as varied as acute lower respiratory infections, lymphoma, childhood-onset insulin-dependent diabetes, eczema, asthma, and Crohn's disease (Lawrence, 1997). Ever-breastfed children also appear to experience lower postneonatal mortality, and their risk of death declines with breastfeeding duration (Chen & Rogan, 2004). The WHO recommends that mothers breastfeed their children for 6 months exclusively and another year and a half in conjunction with other foods (WHO, 2011). Yet, ever-breastfeeding rates vary in OECD nations, ranging from below 70% in Ireland and France to just above 75% in the USA, and 100% in Denmark, Sweden, and Norway (OECD, 2009a). Of 173 countries studied by Heymann and colleagues, 107 countries protect a woman's right to breastfeed and 73 offer paid breaks for feeding. The USA falls into neither of these categories (Heymann et al., 2007).

Parental leave has been shown to benefit mothers' ability to initiate and continue breastfeeding. In the USA, Roe and colleagues concluded that duration of leave from work and work intensity significantly affects the duration of breastfeeding. They also tested whether the opposite was true—that breastfeeding had effects on work return and intensity—and reported null results (Roe, Whittington, Fein, & Teisl, 1999). Also, among American mothers employed before giving birth, Berger and colleagues found that maternal return to work within 12 weeks of birth was

shown to reduce breastfeeding and number of medical checkups before age one, improved immunization uptake in the first 18 months, and was associated with an increase in child externalizing behaviors including aggressiveness, impulsivity, and defiance, as reported by the mother at ages three and four. These results were stronger for full-time working mothers (Berger, Hill, & Waldfogel, 2005), which is echoed by other research citing part-time work, lack of long mother–infant separations, employer-sponsored childcare, supportive work environments and facilities, and the flexibility to work at home as facilitators to breastfeeding (Jacknowitz, 2008; Johnston & Esposito, 2007). Despite this evidence, only 21 states in the USA have passed legislation to protect a woman's right to breastfeed. Texas is the only state that has passed a law declaring that mothers can breastfeed in any place they are authorized to be and created a designation for mother-friendly businesses that address flexible work schedules; access to clean, safe water; and access to private areas that allow mothers to pump (Mills, 2009). Thus, despite the clear child benefits of breastfeeding, few formal policies exist in the USA, and the support of lactation programs and facilities for working mothers is overwhelmingly left to the discretion of the employer.

Family Policy and Other Child Health Outcomes

An emerging area of research focuses on parental employment and developmental outcomes. Though much work remains, this literature suggests that children's development may benefit if mothers had more flexibility to stay home for longer periods of time. Data from the National Institute of Child Health and Human Development Study of Early Child Care found that maternal employment at 9 months ($p<0.01$) and 6 months ($p<0.10$) of age was associated with Bracken School Readiness scores at 3 years of age, controlling for quality of childcare, home environment, and maternal sensitivity. These results were more pronounced for mothers working more than 30 h each week. Employment at the first, third, or twelfth months of a child life did not have significant effects on school readiness nor was there evidence that maternal employment at any age affected child memory, learning, problem solving, or early communication (Brooks-Gunn, Han, & Waldfogel, 2002). Ruhm (2004) also assessed the effect of 20 extra maternal employment hours weekly on child cognition and found modestly lower scores for assessments in picture vocabulary scores, reading, and mathematics for young children.

Other studies highlight the role of family policy and childhood injuries and childhood poverty. In a study of six transition countries (Estonia, Poland, the Slovak Republic, Slovenia, the Czech Republic, and Hungary), family policies consisted of child allowances, earnings-related parental leave, flat-rate childcare leave, and lump-sum maternity grants. In the Czech Republic, a marriage subsidy for households with one working and another less economically active spouse was also present. Graphical depictions of policy generosity, measured as the level of benefits after taxes, indicate a negative relationship with both childhood injuries and poverty, though only a correlation for poverty was provided ($r=-0.70$ and significant at the

0.01 level). A descriptive study conducted by Immervoll and colleagues reinforces the beneficial role of European child benefits, defined as cash transfers for parents or other caregivers on behalf of dependents, on childhood poverty. This work also included a simulation of the effects of removing these benefits and found that, using 1994 data, the child poverty rate would rise from 3.1% to 7.5% in Denmark, for example (Immervoll, Sutherland, & deVos, 2001). These findings are particularly relevant given that childhood poverty appears to increase morbidity and decrease mortality over the lifespan (Evans & Kim, 2007; Galobardes, Lynch, & Smith, 2004, 2008), even after controlling for social status (Kuh, Hardy, Langenberg, Richards, & Wadsworth, 2002).

Finally, social policies may also have positive effects on child anthropometrics. In South Africa, a public pension system administered predominantly to blacks in an effort to create equity in the post-Apartheid era has been shown to have positive effects on child health and nutrition. In the mid-1990s, roughly 80% of all black South Africans received the government pension, the maximum amount of which totaled <3 dollars per day, and roughly one-third of black children under five lived with an elderly pension recipient. Height and, in particular, height-given age are believed to reflect accumulated investments in nutrition and health care throughout a child's life, and these anthropometric measures were captured among a randomly selected cohort of South African households with children 5 years or younger. Nonparametric analyses indicated that the government-sponsored pension program improved the health and nutrition of children. Over 2 years, female children in pension households gained 2 cm in height more than girls living in households not eligible for the pension (effects for boys were not significant). Of additional interest is the finding that these anthropometrical differences were present only in households in which women received the pension. While not intended as a family policy per se, this study offers evidence that programs to address income inequality have the potential to drastically improve child health outcomes, particularly in reference to and when administered by females (Duflo, 2000).

Family Policy and Fertility

Evidence also suggests that family-oriented policies may increase fertility. France, the USA, and Nordic countries have already begun to experience a modest reversal of what was previously a decline in fertility rates (Bonoli, 2008). According to Rindfuss, the correlation between female labor force participation and fertility was negative in the 1960s and 1970s but, since the 1990s, has been positive and moderately strong, suggesting that contemporary policies that promote women working outside the home may be associated with increased fertility (Rindfuss, Guzzo, & Philip, 2003). Studies across OECD countries confirm this notion. In this context, Winegarden and Bracy (1995) assessed the impact of family leave, specifically one additional week of maternity leave, and estimated that the policy had the ability to increase general fertility rates from 1.1 to 1.4 births. Other research points to the role of female unemployment and social policies, particularly those policies on childcare

and maternity payments, in determining fertility (Bonoli, 2008; Castles, 2003; Drago, Sawyer, Shreffler, Warren, & Wooden, 2011). It is important, however, to note that Castles (2003) found no association between fertility and parental leave or expenditures on family benefits, and a recent review of social policies and fertility found mixed evidence across the empirical literature (Gauthier, 2007).

Family Policy and Women's Labor Force Participation

Links between family policy and female labor force participation are somewhat sparse. As Winegarden and Bracy (1995) point out, a challenge in this area of research is varying employment classifications for parents on leave. That is, whether a woman on maternity leave is considered employed or not differs across countries. Nevertheless, the authors estimated that a marginal effect of an added week of leave results in a slight increase (0.60–0.75% points) in the labor participation rate for women aged 20–34 (Winegarden & Bracy). Similarly, Sundström (1993) attributes family policies in Sweden, the first country to offer parents paid leave following childbirth, to women's increasing labor force participation, though the author did not examine correlations between the two factors or address causality.

Conclusions

Over the last decade, there has been a growing interest in exploring the unanticipated health impacts of social and economic policies designed mainly to improve well-being, reduce discrimination, maintain family stability, and improve mobility for disadvantaged populations. In this chapter we have explored the ways in which policies, especially those social and economic policies which relate to the work and family interface, may impact the health and well-being of children. We have relied heavily on studies of such policies which have strong experimental elements, thereby avoiding some of the downfalls of observational studies where selection undermines our ability to make causal inferences. However, these evaluations have not been without significant problems. In conclusion, we outline a few reasons to continue work in this area and outline some of the challenges that exist in the interpretability of results.

Rationale for Evaluating Child Health Impacts of Social and Economic "Family" Policies

1. A major rationale to evaluating social and economic policies in terms of child health is that it is likely that conditions which improve child health will have to be modified in the public policy arena. Action to change policies that prove to be

harmful to health are as important as implementing those that are likely to have positive effects. In an era of cutbacks in traditionally liberal and social democratic countries, it may be of critical importance to identify the health impacts of such cutbacks.

2. Policy makers need research that says more than poor children are worse off—or single parenthood may be hard for both parents and children. Policy makers need potentially effective solutions—or at least the suggestion for a promising solution—to make policy. Epidemiologists, psychologists, and other social scientists have been helpful in monitoring and identifying health inequalities but could be even more effective if they evaluated potential solutions. Policy makers want reliable information on what kinds of policy changes actually lead to improvements in child health and well-being. If not, they cling to what they understand about the narrow benefits of specific medical care policies.
3. Policies often have spillover effects making them much more cost-effective than policy makers realize. These spillover effects mean that policies designed to relieve poverty may have health impacts or they may actually cross over to improve not only the health of direct beneficiaries but other family members. We are currently engaged in a study to see if increasing work place flexibility will improve health of employees *and* their families (WFHN, 2005). If such spillover effects are common, it means we are regularly underestimating the cost–benefit of such policies. Furthermore, many of the spillover effects are intergenerational in impact. Positive intergenerational impacts may help to reduce resistance to policies that are seen as favoring one group (e.g., older workers, families, recent immigrants).

Challenges that Exist in the Interpretability of Results

1. Observing changes in child health in relation to the implementation of social and economic policies is not easy. In some cases, the period of exposure may not coincide with the most sensitive etiologic period for a large number of people. Some health benefits may take years, if not decades to appear. We often lack health indicators and biomarkers of risk that would be the most sensitive indicators of impact.
2. When one policy is implemented, others often coexist. Attributing effects to one single policy may be harder than we think. While policy implementations substantially reduce selection effects, they do not solve the problem of identifying the precise causal exposure. For example, the EITC may be implemented in US states at the same time states are increasing Medicare benefits or implementing other antipoverty programs. Strully et al.'s (2010) analysis of the EITC impacts on low birth weight is an outstanding example of considering these potential joint or interactive impacts. In Europe, family policies often simultaneously changed working conditions, day care, and financial incentives. Approaches which hold place constant (some econometric approaches or time varying

analyses) help to overcome some of this concern, but clearly more thought needs to go into understanding the confluence of policies which happen closely in time and place.

3. Multiple channels are likely to mediate policy impacts on child health. These channels may be behavioral, social network related, economic, or stress reducing. Because in most cases researchers have not anticipated policy analyses, it is often difficult to gain traction on identification of the most important channels linking a broad policy to health outcomes. In observational studies designed explicitly to test a series of hypotheses, we often have more information on potential mediating mechanisms. Understanding these channels or mechanisms would enable us to further refine policies or develop new strategies to improve health. For instance, in some cases, financial resources may be the central element of family policies in terms of their impacts on child health. In other cases, financial resources may have little direct impact and time factors enabling parents to spend time with children may be the critical elements.

Identifying social and economic policies that impact the work/family interface and turn out to be truly "pro-family" and promoting of family health and well-being is critical. The USA is behind in implementing such policies and is losing ground compared to most other industrialized countries in the health of its children and their families.

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