THE STATE OF CHILDREN FROM BIRTH TO AGE 5 ACROSS DEVELOPED NATIONS: HOW DO THEIR EARLY CHILDHOOD POLICIES COMPARE?

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A thesis submitted to the Department of Global Health for honors
Duke University
Durham, North Carolina
2017
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1. **Abstract:**

Early childhood development (ECD) has a lifelong impact on individuals and leads to positive outcomes for entire societies. The experiences children have from birth to age 5 are critical in supporting cognitive and socio-emotional development throughout their lives. ECD should encompass quality healthcare, education, and care from parents and caregivers. As high-income countries with a leadership position in the world, member countries of the Organization for Economic Cooperation and Development (OECD) promote economic growth, prosperity and sustainable development within societies across the globe through data collection and analysis followed by policy discussions and recommendations. Therefore, their status in the field of ECD can inform the rest of the world on effective policies and programs.

In this study, I look at the quality of early childhood policies and services within OECD nations. I first use quantitative data to rank each of the 35 OECD countries in each of three domains of early childhood development: family support, health, and education. The top and bottom four countries in each domain were:

<table>
<thead>
<tr>
<th>Top Countries in Family Support</th>
<th>Bottom Countries in Family Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
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</tr>
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<td>Switzerland</td>
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<table>
<thead>
<tr>
<th>Top Countries in Health</th>
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<tbody>
<tr>
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<tr>
<td>Sweden</td>
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<tr>
<td>Czech Republic</td>
<td>Mexico</td>
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<table>
<thead>
<tr>
<th>Top Countries in Education</th>
<th>Bottom Countries in Education</th>
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<td>Israel</td>
<td>Turkey</td>
</tr>
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<td>Germany</td>
<td>United States</td>
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<td>Canada</td>
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<tr>
<td>France</td>
<td>Greece</td>
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</tbody>
</table>
At this stage, we can already notice that the United States ranks poorly in all domains of ECD. I then qualitatively analyze these high and low performing countries within each category to understand what policies and programs might be behind their positive and negative outcomes, respectively. This analysis shows that inequality is a major driver of poor outcomes within OECD countries, and that universal coverage might be an effective strategy to raise the entire country’s population, as seen in the top performing countries. Therefore, establishing policies promoting equality may be the solution to improve the state of young children in the United States.
2. **Introduction:**

Early childhood development (ECD) has direct effects on economic, health and social outcomes for individuals and society. The experiences children have during their first years of life are critical for supporting cognitive and socio-emotional development and have a lifelong impact. The neurobiology behind brain development shows it is easier, more efficient and more cost-effective to build strong beginnings than to repair compromised beginnings later in life (Figure 1). In the field of economics, Heckman showed that rates of return on investments made during prenatal years and early childhood are sizeable and greater than investments made at older ages (Figure 2). He also showed how adverse early environments create deficits that drive down productivity and increase social costs. Additionally, increasing access to ECD increases fairness and equity of opportunity and reduces achievement disparities by allowing young children from all backgrounds to build an early skill set, giving them the opportunity to do well in school and professionally. Increased access to ECD programs also allows mothers to return to the labor market, leading to greater economic productivity. We can therefore improve societies through investments in young children and their caregivers, which will have positive outcomes across multiple sectors in the long term. Following the adoption of the Sustainable Development Goals, early childhood development has become a critical part of the global development agenda.
The ability to change brains decreases over time.

Source: Center on the Developing Child at Harvard University (n.d.)

The Organization for Economic Cooperation and Development (OECD) is a forum founded in 1961 where the governments of 35 countries (Table 1 and Figure 3) with market economies work together to promote economic growth, prosperity and sustainable development. They do this through extensive data collection and analysis, followed by discussion of policy regarding the information obtained, leading to policy decisions and implementation by governments. The OECD is a setting where governments can share experiences, seek solutions to common problems, identify good practices and coordinate domestic and international
policies. As an organization, the OECD measures productivity and global flows of trade investment, predicts future trends and sets international standards in areas ranging from agriculture and tax to the safety of chemicals. OECD Member countries also account for 63 percent of world GDP, three-quarters of world trade, 95 percent of world official development assistance, and over half of global energy consumption, but only 18 percent of the world’s population. Given the global leadership position that these countries hold in the world, their status and performance in the field of early childhood development is central. The United States has traditionally not kept up with other OECD nations in investing in ECD, but could potentially learn from the experiences and successes of its OECD partners. Because despite being a leader in many cutting-edge investment in development for decades, the United States has not kept up with the evidence demonstrating the importance of investing early and holistically in children to ensure healthy and productive communities.

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<th>Mexico</th>
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</table>

Table 1: OECD member countries.
In this paper, I use quantitative indicators to evaluate each OECD country’s performance in each of the health, education, and family support sectors of ECD, and I analyze these indicators to rank the countries in each of these sectors. I then carry out a more in depth qualitative analysis of the top four and bottom four countries in each sector. The goal of the qualitative analysis was to identify trends and common practices that characterize the top and bottom performing countries. However, I do not imply a causal relationship between the policies explored in the qualitative analysis and the rankings obtained in the quantitative analysis, but simply an observation of association and possible best practices. I conclude by proposing potential solutions as countries move forward in the improvement of early childhood development.
3. **Quantitative analysis of OECD Countries**

*Method*

To compare countries to one another, I identified online data banks with indicators relating to early childhood health, education and care and family policy. The OECD Family Database and the World Bank were my two main sources of data. Within these banks, I recorded all the relevant indicators and classified them into the three domains: early childhood health, early childhood education and family support. The indicators found for early childhood health were rates of diphtheria, tetanus, pertussis (DTP) vaccination, measles vaccination, low birth weight, infant mortality rate (deaths per 1,000 live births) and maternal mortality ratio (deaths per 100,000 live births). The indicators for early childhood education (ECE) were ECE enrollment rates, national expenditure on ECE, and pre-primary enrollment rate. The indicators found for family support were length and pay of maternal and paternal leave, work flexibility and percent of GDP spent on family benefits.

Once I had this large and varied set of indicators, I looked for trends in the data, such as one country or set of countries performing highly or poorly in all indicators. No trends were apparent across all indicators, or even within each domain, and OECD nations that were high performers in one domain did not necessarily perform well across all domains. Next, I ran Pearson’s correlation tests for each possible pair of indicators. Again, this did not yield significant results. Finally, I ranked all the countries within each indicator and gave them a percentile based on their ranking. I did this ranking based on percentiles because some indicators were missing values for certain countries, so by using percentiles I could compare indicators with a varying number of data points. For example, for an indicator with all 35 countries, an increase in ranking by one place would be associated with a 2.86 increase in
percentile (i.e., 1/35 x 100), while for an indicator missing values for 8 countries, an increase in ranking by one place would be associated with a 3.70 increase in percentile (i.e. 1/27 x 100). I then took the percentile score for all the indicators within each of the family support, health and education domains and estimated the average percentile for each domain to produce a final ranking of countries per domain (Table 2). The only exception to this rule was the vaccination rate indicator. Since most countries had very good rates and had very similar values, I did not want to give too much weight to such a small difference. Therefore, I averaged the rates for DTP and measles vaccination, and gave countries with rates above 95% a score of 100, those with rates between 90% and 95% a score of 75, those with rates between 85% and 90% a score of 50, those with rates between 80% and 85% a score of 25, and the one country with an average rate below 80% a score of 0. This way the difference in vaccination rates is acknowledged and taken into account in the calculation of average health percentile, but is not given too much weight.

**Results**

The highest and lowest performing countries in each domain were:

**Top Countries in Family Support**
- Sweden
- Norway
- Finland
- Austria

**Bottom Countries in Family Support**
- United States
- Switzerland
- Mexico
- Israel

**Top Countries in Health**
- Finland
- Sweden
- Iceland
- Czech Republic

**Bottom Countries in Health**
- Turkey
- United States
- Chile
- Mexico

**Top Countries in Education**
- Israel
- Germany
- Norway
- France

**Bottom Countries in Education**
- Turkey
- United States
- Canada
- Greece
Tables 2. a), b) and c) present all the indicators and their associated percentiles as well as the average overall percentile for each country in the family support, health and education domains, respectively. In my qualitative research, I used the four countries with the highest percentile as the best performing countries (in blue), and the four with the lowest percentile as the worst performing countries (in yellow).

<table>
<thead>
<tr>
<th>OECD Countries</th>
<th>Maternal leave</th>
<th>Paternal leave</th>
<th>Work flexibility</th>
<th>% GDP on family benefits</th>
<th>AVERAGE PERCENTILE</th>
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Table 2. a) Family support data, percentiles and rankings.
<table>
<thead>
<tr>
<th>OECD Countries</th>
<th>Vaccinations</th>
<th>Measles immunized (%)</th>
<th>Score</th>
<th>Numbers of births</th>
<th>Percentile</th>
<th>Numbers (per 1,000 live births)</th>
<th>Percentile</th>
<th>Maternal mortality (per 100,000 live births)</th>
<th>Percentile</th>
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Table 2. b) Early childhood health data, percentiles and rankings
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Table 2. c) Early childhood education data, percentiles and rankings.
4. Qualitative analysis:

Methods

For the qualitative analysis, I read peer-reviewed research papers, government websites and publications as well as informal websites and blogs to understand country-specific policies and programs and gain insight on reasons why countries might be ranked highly or poorly in specific sectors. To find these sources, I searched specific terms for each sector. For family policy, I searched within each country “maternal leave policies,” “paternal leave policies,” “parental leave policies,” “family support policies,” “family policies” and “work flexibility.” For early childhood health, I searched within each country terms such as “prenatal care,” “access to prenatal care,” “pregnancy,” “giving birth,” “childhood vaccinations,” and “children’s healthcare.” For early childhood education, I searched terms such as “early childhood education policies,” “preschool and kindergarten,” “access to early childhood education,” and “early childhood education and care.” I then read through all the outputs of these searches to find appropriate sources and useful information.

Results

The qualitative analyses will be reported below for each country separately, summarized by section in tables 3, 4, 5, 6, 7 and 8, and then integrated into general conclusions in the discussion.

A. Family Support: highly ranked countries

Sweden

Sweden obtained its first place ranking because of its very high workplace flexibility, high federal spending on family support, and favorable paternal leave policies. Gender equality is a foundation of Swedish society, who’s gender equality policies ensure that women and men
have the same opportunities, right and obligations in all areas. Regardless of gender, everyone has the right to work, support themselves and balance career and family life.\textsuperscript{10} Sweden was the first country in the world to adopt paid paternal leave in 1974, and the policy has since then been several times reformed to reinforce gender equality.\textsuperscript{11} Sweden has an extensive welfare system allowing for parents to share 480 days of paid parental leave (of which 90 days are allocated specifically to each parent) when a child is born or adopted. While fathers are taking an increasingly large share of this parental leave (figure 8), women still use most of the days while men use on average one fourth. For 390 days, parents receive 80\% of their pay (up to a maximum of 942 Swedish Krona (SEK) per day), and for the remaining 90 days they are paid SEK 180 daily. Parents who are not employed are also entitled to paid parental leave.\textsuperscript{12} The parental leave days can be taken at once or as partial days, giving the right to parents to shorten their working hours by up to one fourth, until the child is 8 or has completed the first year at school.\textsuperscript{13} This generous parental leave is paid for by the social security system higher tax rates.\textsuperscript{14}

Parental leave benefit is part of a larger parental insurance which consists of pregnancy benefits (used for women in occupations considered dangerous), parental benefits (aimed at the care of newborn children in the home) and temporary parental benefits (leave for care of sick children). Temporary parental benefit provides up to 120 days off work, paid at 80\% of normal earnings, to care for sick children between the ages of 0 and 12. For children with serious illnesses there is no limit on the number of days. Additionally, two reforms were introduced in 2008 as part of parental benefits. The first reform, the \textit{gender equality bonus}, gives an extra economic bonus to parents who share parental leave equally. The second, the \textit{child home care allowance}, allows one parents to stay at home with children 1 to 3 years old instead of using the public day care for an allowance of 300 euros a month tax-free. Social insurance supports
families further through child allowance (flat-rate benefit of SEK 1050 per month\textsuperscript{15} that parents of all children residing in Sweden receive), care allowance for sick and disabled children (covers additional costs or loss of income caused by the disability), housing allowance (mainly aimed at single parents with low income and high rent\textsuperscript{16}), and maintenance support (paid to the parent living with the child in the case of parents separating). These policies have had several positive consequences, including a relatively high fertility rate, high female work force presence (almost equal to that of men), and low poverty among children.\textsuperscript{17} To maintain these services, Sweden spends 3\% of its GDP on family benefits related to children and families\textsuperscript{18} and has a tax-to-GDP ratio of over 50\%.\textsuperscript{19}

![Figure 8](image)

**Figure 8:** Increasing share of parental leave benefit days taken by fathers, 1974-2007

**Source:** Swedish Social Insurance Agency
Norway

Norway earned its high ranking due to its maternal and paternal leave policies, flexibility in the work place, and generous spending on family support programs in general. Norway’s parental leave and pay compensation policies reinforce equal opportunities for men and women, promote women’s labor market participation and encourage men to spend more time with their children. In 1993, Norway established a four-week paternity quota, which set aside four weeks of the parental period exclusively for the father. Today, parents can choose between 49 weeks of leave at 100 percent coverage or 59 weeks at 80 percent coverage. Three of the weeks are reserved for the mother before the birth, and as of 2014 ten weeks have a paternal quota and ten weeks have a maternal quota. The remainder of the weeks (26 or 36 depending on the plan chosen) are to be shared. If the father does not take his quota, the ten weeks are subtracted from the shared period. The mother may choose to start her maternal leave up to 12 weeks before her due date, and these weeks are then subtracted from the shared period. It is also possible to postpone the parental benefit period until the child turns 3 if parents do not wish to use it all at once. However, the mother has the obligation to take 6 weeks after the birth for health reasons. Other than during these first six weeks and the three weeks before birth, parents may choose to take their leaves simultaneously. Non-employed mothers also receive support through a flat-rate payment of 46,000 Norwegian krone (NOK) (4,951 euros) per child. After the first six weeks after birth, parents are allowed to combine all or part of the parental leave period (or parental money period) with part-time work, thus prolonging the period of parental money. To be eligible for this leave, mothers and fathers alike must be employed for six of the last ten months prior to birth and earn at least half of the basic national insurance benefit payment over the previous year. Following the parental leave period, each parent is entitled to one year of unpaid
leave. Parents can also receive a cash benefit (cash-for-care) of NOK6,000 (645 euros) a month for a child between the ages of one and two if they do not use publicly funded ECEC services. All the same rules apply for adoption, except for the 9 weeks of obligated maternal leave surrounding birth.\textsuperscript{23}

Despite being funded by federal taxation\textsuperscript{24}, these generous paid parental leave periods have also been found to be beneficial for the economy, as the parental leave and early childcare subsidies are offset by the increase in GDP created by mothers remaining in the workforce. Paternal leave has made Norwegian fathers become more active parents rather than just secondary caregivers and has allowed mothers and fathers to be viewed more equally in the job market, leading to one of the highest ratios of female-to-male earned income.\textsuperscript{25} Finally, these policies have also lead to a relatively high fertility rate in Norway, as gender equity and family support policies are positively associated with second and third births, respectively.\textsuperscript{26}
Finland

Like Norway, Finland obtained its high ranking due to its maternal and paternal leave policies, high flexibility in the work place, and generous federal spending on family support programs in general. Ongoing benefits exist until the child reaches the age of 17. Women can start maternity leave between 50 and 30 working days (5-8 weeks) before delivery, and the government then pays a maternity allowance for 105 working days (about 4 months). This allowance is offered to all women, including those who are self-employed, unemployed or students. Paternity leave is offered for up to 54 working days (about 9 weeks), of which up to 18 days can be at the same time as the mother. Following maternal leave, parental leave, child care leave and partial child care leave can be shared between the mother and the father. The parental allowance period lasts approximately six months after the end of maternity leave, and it requires proof of a medical examination of the mother between 5 and 12 weeks after childbirth. One is eligible to apply for these parenthood allowances if one is covered by the Finnish social security and has been covered by health insurance in Finland or other EU or EEA member state or Switzerland for at least 180 days before the due date.

Following parental leave, mothers and father can stay home to take care of their child under the age of 3. This leave is unpaid and cannot be taken by both parents at the same time, but they are assured the same or a similar job when they return and are entitled a child home care allowance. If they wish to work, they can also receive a private day care allowance. After the child turns 3 and until the end of his or her second school year, parents can take partial care leave allowing them to work fewer hours to spend more time with their child, although the mother and father cannot take this partial leave at the same time. Finally, parents can receive a monthly child benefit payment for children under the age of 17. Single parents get higher child benefit
payments, and special care and help is available for disabled or sick children. Housing support is also available in the form of general housing allowance, state-guaranteed housing loans and tax subsidies for housing loans. These allowances are intended to assist with housing-related costs of low-income families. Finally, social assistance is available as income security for families with no income or insufficient income to cover essential everyday expenses, in order to promote the independence of families. This social welfare system is based on government-assisted municipal social welfare services, in which the local authorities (municipalities) are responsible for providing the social welfare services, but the basic services that must be available are defined by law.
Austria

Finally, Austria obtained its high ranking in the family support domain because of its favorable maternal and paternal leave policies and its high flexibility in the workplace. Austrian mothers are entitled to a paid maternity leave of 16 weeks (8 weeks before childbirth and 8 after) with full income replacement, followed by five parental leave options which can be shared between the mother and the father. Parental leave can last from 12 to 30 months, or 15 to 36 months if both parents participate. The first four options provide a flat-rate leave allowance of €436 a month for 30 months or 36 months if both parents participate, €624 for 20 or 24 months, €800 for 15 or 18 months, or €1,000 for 12 or 14 months, while the fifth provides 80 percent of the parent’s income for 12 or 14 months. The same regulations for parental leave apply for adoption. While Austria does not require father to take paternal leave, families get longer parental leave if the father takes a part of it. However, starting March 1, 2017, fathers will have a statutory paternity leave and benefits. They will get a leave of 28 to 31 days paid at 22.6 euros a day, paid by the employee’s local health insurance fund, and will receive the same level of employment and social security protection during the leave. Parents are required to take at least 3 months of parental leave, one month of which they can take simultaneously. This parental leave can be used full time until the child is two, or part-time until the child is four. Working parents are also entitled to take unpaid parental leave until their child turns two, and to work part-time until their child is seven.

Financial benefits also exist to reconcile work and family life. The main financial benefits are the family allowance and childcare allowance, which are paid by the Family Burden Equalization Fund. Family allowance is paid to all families with dependent children, with increased benefits for families with two or more children and special support for severely
disabled children. Childcare allowance is available under two models. Flat-rate childcare allowance can be claimed whether or not a parent was employed prior to the birth of the child. Income-related childcare allowance allows working parents who earn more to take time off to look after their children for a limited period.\textsuperscript{40}

Table 3: High performing countries in family support: summary of qualitative findings

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible explanations for high performance</th>
</tr>
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</table>
| Sweden  | o Gender equality as a foundation for society  
|         |   o 480 days of parental leave shared between mothers and fathers, with at least 90 days for each and a gender equality bonus  
|         |   o Parental leave can be taken as partial leave so parents can shorten their working hours until their child has completed the first school year  
|         |   o Parental benefits to care for children at home  
|         |   o Social insurance support families: child allowance, care allowance for sick and disabled children, housing allowance, maintenance allowance  
|         |   o Consequences: high fertility rate, high female work force presence, low poverty among children  
|         |   o 3\% of GDP on family benefits; 50\% tax-to-GDP ratio  
| Norway  | o Equal opportunity for men and women to promote women’s labor market participation and encourage men to spend more time with their children  
|         |   o 49 or 59 weeks of parental leave shared between the parents, at 100\% or 80\% coverage, respectively.  
|         |   o 10 weeks have a paternal quota and 10 have a maternal quota  
|         |   o The mother can start her leave up to 12 weeks before birth, and has an obligation to take 6 weeks after birth.  
|         |   o Parents can also extend the leave period by working part time.  
|         |   o Cash benefits for all parents.  
|         |   o Benefits to the economy: parental and early childhood subsidies offset by the increase in GDP created by mothers remaining in the workforce.  
| Finland | o Maternity leave starts 5 to 8 weeks before delivery and is followed by a 4 month long maternity allowance. This applies to all women (including self-employed, unemployed and students)  
|         |   o Paternity leave lasts up to 9 weeks.  
|         |   o Six month parental leave are available for parents to share after the maternity leave period; followed by unpaid leave available until the child is 3.  
|         |   o Parents can take partial care leave and work fewer hours once their child starts school.  
|         |   o Monthly child benefit payment, housing support and social assistance are also available for families in need.  

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| Austria | 16 weeks of maternity leave (8 before birth and 8 after) with full income replacement, followed by parental leave ranging from 12 to 36 weeks shared between the mother and the father. Different combinations of length of leave and income replacement are available.  
Parents are required to take at least 3 months of parental leave, one of which can be taken simultaneously by the mother and father.  
Families get longer leave if the father takes part, and as of this March, father get a statutory paternity leave of 28 to 31 days.  
Parents are also entitled to unpaid leave until their child is two, and part-time work until their child is seven.  
Family allowance and childcare allowance are available to all families, to help reconcile work and family life by allowing working parents to spend more time with their children. |
B. Family support: low ranked countries

United States

The United States was ranked last because of the absence of maternity or paternity leave and very low spending on family benefits. The United States ranks last in every measure when it comes to family policy. The U.S. is the only OECD country that does not mandate paid maternity leave and one of nine countries that has no paternal leave policies. Parental leave contributes to fewer low birthweight births, fewer infant deaths, higher rates of breastfeeding—which has numerous health benefits for infants and mothers—, longer parental lifespan, improved mental health and increased long-term achievement for children. The US is the only wealthy nation that does not provide a form of legal guarantee for new parents to take time off with their newborn child. The only US federal legislation in place is the Family Medical Leave Act, which only provides unpaid time off for workers in companies with more than 50 employees if they have worked there for the past 12 months and for at least 1250 hours. Additionally, significant inequalities in parental leave are found across economic, educational and racial groups. The top 40% of wage earners are 2.5 times more likely to have access to paid leave compared to the bottom 40%. This trend pushes inequalities further as the children most at risk of poor outcomes are those whose parents do not get leave. One explanation for this lack of paid leave is the unique American view of democracy. The country was founded on values of individualism and equality of opportunity, but since it was never a monarchy or feudal society like many European companies, there is a lack of awareness of class division. Additionally, the business community is opposed to the government telling them how to institute expensive leave policies, and argues businesses should figure it out on their own.
Five states have laws that offer paid leave. California offers six weeks of leave at 55% pay, but with no job security; New Jersey offers six weeks at two thirds pay; Rhode Island offers four weeks at 60% pay; Washington has a law offering leave at partial pay, but the law has never been funded or put into effect; and in 2016 New York passed paid family leave legislation that will offer 12 weeks of leave at two-thirds pay by 2021. In April 2016, San Francisco became the first city in the US to approve six weeks of fully paid leave for mothers and fathers, including same-sex couples, who give birth to or adopt a child. Fifty-five percent of their pay is paid for by employee-financed public disability insurance, while 45 percent is covered by employers. Despite these improvements, there remains no organized movement in the US pushing for parental leave, and there are no important financers or a well-planned strategy as found in other important movements, which makes progress difficult. Instead the push is simply coming from evolving demographics. Today, almost 70 percent of mothers with children under 18 work, and many single mothers represent the sole income for their family. Additionally, since parental leave will be paid by workers themselves who put aside a little money every week, it does not represent a big cost for the government or for companies. Additionally, in 2015, Obama announced a presidential memorandum giving federal employees up to six weeks of paid leave. He also declared in his State of the Union speech in 2014 that it was time to update “outdated workplace policies” to fit 21st century families, and emphasized that family leave, child care and flexibility in the workplace were basic needs. Hopefully this will encourage progress in the parental leave campaign and push the US to increase their currently meager financial spending on child support.
Switzerland

Switzerland obtained its low ranking because of its short maternity leave, absence of paternity leave and low spending on family benefits. Switzerland is divided into cantons and communes, which are responsible for family policy. Therefore, family policy can be organized very differently from one canton to another. Many non-governmental organizations are also subsidized by the state and carry out certain tasks in the family policy sector. Given this division of responsibilities and the high number of actors involved, the organization of family policy is complex.\textsuperscript{51} In general, new mothers are obligated to take eight weeks of leave and are entitled to 16, starting on the day of delivery. The first 14 weeks are paid at 80 percent of usual earnings up to $192 per day, while the last two are not. Women can also be exempted from work before birth if they present a medical certificate indicating special medical and health reasons. Maternal leave is funded by the Loss of Earnings Compensation fund, which is finances equally by employees and employers who pay each 0.225 percent of their earnings. To be eligible, women must have contributed for nine months to the Old Age and Survivors Insurance and must have worked for at least five months of the nine months preceding birth.\textsuperscript{52} Fathers have no statutory entitlement to paternity leave. Employers must allow the employees to take their hours and days off work in addition to vacation time, but the presence, length and payment of paternity leave depends on the company and employer.\textsuperscript{53} As financial support for families, a birth allowance of $2000 is allocated for the birth of any child whose mother has been residing in Switzerland for at least 9 months before the birth, and a family allowance of $300 a month is available for each child from birth until the age of 16. This family allowance is not automatic, however, and must be requested to the OCAS (\textit{Office Cantonal des Assurances Sociales} – Cantonal office of social insurance).\textsuperscript{54}
This inadequacy in current legislation concerning paternity and parental leave has led to a high number of motions and initiatives by parliamentarians, lobby groups and government commissions, asking for generally applicable policies at the federal level. So far, 26 motions have been rejected. The latest motion, which granted fathers two weeks of statutory paternity leave, was rejected in April 2016, because, according to right wing politicians, it is not the government’s place to intervene. However, many argue these policies and refusal to change are a barrier to equality between men and women. Gender inequalities also persist because after the birth of a child, the organization of the labor market and the lack of childcare services compels mothers to work part-time to combine work and family. The topic of work-family reconciliation regularly reaches the political agenda, but there have been few practical advances.
Mexico

Mexico obtained its low ranking because of relatively short maternity leave, very short paternity leave and low national spending on family benefits. The Mexican Federal Labor Law (MFLL) gives women 12 compulsory weeks of fully paid maternity leave, 6 weeks of which are before birth while 6 are after birth. In case of adoption, maternity leave is six weeks long. If the leave is extended, women are entitled to 50 percent of their salary for up to 60 days. Additionally, if the mother presents a medical doctor authorization, 4 of the 6 weeks of leave prior to birth can be transferred to after the birth. The social security system pays for 75% of the woman’s salary, and the employer pays the remaining 25%. To be eligible, employees must have contributed to social security for at least 30 weeks in the last 12 months before the start of maternity leave. If the employee’s social security contributions are lacking, the employer is responsible for paying the entire salary. Once they return to work, mothers are entitled to two 30-minute breastfeeding breaks per day during the nursing period. If this is not possible, mothers can negotiate to reduce their work shift by one hour. If returning to work within one year of childbirth, women are entitled to return to their employment. For fathers, employers are obligated to provide only five days of paid paternity leave, and the same applies to adoption. When it comes to work flexibility, it is up to the employer and employee to agree on modified working conditions.

It is illegal to lay off an employee or force her to resign for being pregnant or for changing her marital status or childcare arrangements. However, pregnancy discrimination remains common and mostly unpunished and not reported. Many women are still asked to take a pregnancy test as a requirement for work and are being dismissed, having their wages lowered or not having their contracts renewed for getting pregnant. Additionally, these maternal and
paternal leave benefits only apply to parents in the formal economy, so most workers who do not have access to social security do not receive any parental leave benefits. Only 40% of male employees are affected, and in 2011, maternity leave benefits only covered 19.7% of births.\textsuperscript{64} Finally, due to high socioeconomic disparities, high poverty rates, deficient educational systems, and lack of opportunities and assistance available to certain sectors of the population and lack of aid, we see high rates of child labor in Mexico, with a total of 3 million working children in 2011.\textsuperscript{65}
Israel

Israel was ranked poorly because of its relatively short maternity leave and very short paternity leave. However, it’s national spending on family benefits was higher than that of the United States, Switzerland and Mexico. In Israel, employees who have worked at least 12 months for the same employer get 26 weeks of maternity leave, of which they can use up to seven weeks before birth. An employee who has worked less than 12 months prior to leave is only entitled to 14 weeks. During this maternity leave, employees do not receive a salary, but rather to a maternity allowance from the National Insurance Institute (NII). An employee is entitled to 14 weeks of maternity allowance if she has paid National Insurance contributions for 10 of the 14 months or 15 of the 22 months prior to her maternity leave. If she has contributed for 6 of the 14 months preceding leave, she is entitled to 7 weeks of maternity allowance. The amount of maternity allowance is determined based on the mother’s salary, but is limited to 1,495 NIS ($386) per day. For the remaining weeks of maternity leave, an employee receives no maternity allowance. These weeks of unpaid leave continue, however, to count towards her seniority with regards to social benefits. A mother may extend her unpaid leave for up to a quarter of the time she has worked for the same employer. A father who is given paternity leave by his employer or who is self-employed and stops working to replace his spouse during part of her maternity leave is entitled to a paternity allowance from the NII. In June 2016, Israel approved for the first time six days of paternity leave for all father. Until then employers had no obligation to allow employees to take paternity leave. The new law requires employers to do so, although the six days are at the expense of other forms of time off: three days are taken from the employee’s annual sick leave and the other three from annual vacation days.
After a child’s birth, the family may receive a child allowance until the child is 18, if they are entitled to a subsidence benefit from the NII. This amount varies based on the number of children and their birthday. For children born up to May 31, 2003, the first child received NIS 150 ($40) a month, the second and third NIS 188 ($50), the fourth NIS 336 ($89) and the fifth and subsequent NIS 354 ($93). For children born after May 31, 2003, the amount is the same for the first three children, but the fourth child now also receives NIS 188 ($50) and the fifth only gets NIS 150 ($40). Policy makers are debating whether or not to cut further or increase their child allowances. Cutting them further could push over 40% of children below poverty, but the Bank of Israel argues that increasing these payments independent of means testing would encourage larger families and non-employment, which would perpetuate poverty.

Table 4: Low performing countries in family support: summary of qualitative findings

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible explanations for poor performance</th>
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| United States | o No mandated paid maternity leave and no paternal leave policies.  
               | o The only federal legislation in place is the Family Medical Leave Act which provides unpaid time off for workers who have worked in companies with over 50 employees for at least 12 months.  
               | o Inequalities: top 40% of wage earners are 2.5 times more likely to have paid leave than the bottom 40%. This furthers inequalities for children already at risk.  
               | o 5 states have laws that offer leave with partial pay: California and New Jersey offer six weeks, Rhode Island offers four, Washington has a law but it has never been put into effect, and New York will offer 12 weeks by 2021. As of 2016, San Francisco provides 6 weeks of fully paid leave for mother and father. |
| Switzerland  | o Separate cantons oversee their family policy.  
               | o New mothers must take 8 weeks of leave and are entitled to 16, the first 14 of which are paid at 80% of usual earning.  
               | o Women can be exempted from work before delivery if they have special medical and health reasons.  
               | o Fathers have no statutory entitlement to paternity leave.  
               | o 26 motions to change this have been rejected. Gender inequality persists because of this refusal to change along with poor childcare services. |
| Mexico | o Mothers get 12 compulsory weeks of fully paid maternity leave (6 weeks before birth and 6 after), followed by up to 60 days of leave paid at 50% of their salary.  
  o Eligibility requirements: employees must have contributed to social security for at least 30 weeks in the previous 12 months.  
  o Mothers are entitled to two 30-minute breastfeeding breaks a day when they return to work.  
  o Fathers are entitled to 5 days of paid paternity leave.  
  o Pregnancy discrimination is still common.  
  o These policies only apply to parents in the formal economy, so in 2011, maternity leave benefits covered only 19.7% of births.  
  o High rates of child labor (3 million working children in 2011) due to high socioeconomic disparities, high poverty rates, poor education system and lack of aid. |
|---|---|
| Israel | o Employees who have worked for at least 12 months for the same employer get 26 weeks of maternity leave, of which 7 can be used before birth. If the employee has worked for less than 12 months she is entitled to 14 weeks.  
  o Mothers receive a maternity allowance from the National Insurance Institute during their leave, which depends on the mother’s salary and history of national insurance contributions.  
  o Mothers can extend their unpaid leave for up to a quarter of the time they have worked for the same employer.  
  o As of 2016, fathers are entitled to six days of paternity leave, although these days are taken from other forms of time off.  
  o Families can receive a child allowance until the child is 18, independent of income. These allowances have been cut recently, and cutting them further would push 40% of children below poverty. |
C. Early childhood health: highly ranked countries

Finland:

Finland was ranked so highly because of its very high immunization level, low rate of low birth weight births, and low infant mortality rate and maternal mortality ratio. Care for pregnant women starts early in pregnancy. Once the pregnancy has been confirmed, women visit the maternity clinic at least once a month\textsuperscript{73} - as part of the basic healthcare arranged by the municipalities\textsuperscript{74} - where public-health nurses who specialize in pregnancy and child development monitor their well-being and that of the fetus. These nurses conduct different types of tests and check-ups, as well as provide the mothers with information, support and advice on matters surrounding pregnancy (such as maternity leave and financial matters). Most public health centers organize classes for parents to prepare them for childbirth and discuss other related topics. The expecting mother also meets with a doctor at least two or three times during her pregnancy. Visiting the doctor and the maternity clinic are both free of charge, as health care services are funded through general taxation.\textsuperscript{75}

Most women give birth in the municipal hospital in their area of residence, which the public health nurse indicates in advance. Following the birth of the baby, mothers stay in the hospital about 3 to 4 days if everything went well. The charge depends on the number of days spent in the hospital rather than the specific procedures and is about $19\text{ a day. The bill can be paid later either through a personal bank or through a living allowance that families without means can apply for. If parents choose a hospital other than the municipal hospital associated with their area of residence, the cost will be a lot higher.}\textsuperscript{76} However, the National Health Insurance (NHI) still reimburses about 30 percent of the cost of private health care services deemed necessary for the treatment of pregnancy or childbirth. In 2005, about one third of all
children and 5 percent of adults also had private insurance. Following the birth of a child, a $152 maternity grant is available for all Finish mothers. This grant has existed since 1937 when it was first introduced for low-income mothers, and in 1949 it became available to all mothers. It was originally provided by the National Board of Social Welfare and the Government Purchasing Centre, but it is now offered by Kela, the provider of social security benefits for all residents of Finland. Mothers also receive a maternity package from Kela, which contains essential baby items such as baby clothes (bodysuits, trousers, coveralls, cap, winter outwear, socks and mittens), bedding, a bath towel, bibs, personal care items, a cuddle toy, and a book.

During a child’s first year, nine regular check-ups are scheduled at the municipal children’s health clinic. Children then go for six more check-ups until they reach school age. For these check-ups, extensive medical examinations are organized in collaboration with other professionals involved in the child’s care and the family’s life, in order to promote the health of the child and the well-being of the entire family. Finally, universal child allowances are available to all children under 17 living in Finland, independent of family income or property. The amount begins at $104.5 a month, and increases with the number of children and for single parent families. This set of free healthcare services and child subsidies could be what makes Finland such a high performing country in the early childhood health domain.
Sweden:

Midwives are at the center of prenatal care and delivery. Employed by the government and equally distributed between urban and rural areas\textsuperscript{82}, licensed midwives follow all pregnant women, as they are responsible for normal childbearing women and are assisted by doctors for women at high risk\textsuperscript{83} or if complications occur during pregnancy\textsuperscript{84}. Midwives are the main providers of pregnancy care for women, and this maternity care is free for patients as it is covered by state health care benefits\textsuperscript{85}. Prenatal care also includes free or subsidized courses to prepare the mother for delivery through coaching sessions and group support. Many Swedish hospitals have spaces where new mothers and their partners can stay for two or three days after delivery so nurses can provide postnatal care for the newborn and the mother.\textsuperscript{86} Pregnant mothers only receive one ultrasound during their pregnancy, along with blood and urine tests, blood pressure and heartbeat checks for the mother and fetus respectively, and nutritional advice.\textsuperscript{87} This system emphasizes the view that pregnancy is a normal condition rather than an illness, but is also economically efficient for the healthcare system.\textsuperscript{88}

All children have access to free healthcare that is subsidized by federal taxation. The health system focuses on preventive care, so children get regular developmental checks, immunizations (DTP, Inactivated Polio Vaccine - IPV, Haemophilus influenzae type B - Hib, Pneumococcal Conjugate Vaccine - PCV, Measles Mumps and Rubella - MMR, Human papilloma virus - HPV), illness care, hospitalization, and dental work.\textsuperscript{89} Parents also receive a monthly child allowance to help with the costs of caring until their child is 16. This allowance is available for everyone, and is $116 (or 1050 SEK) a month for one child, increasing with the number of children.\textsuperscript{90} This attention to young children has a long history in Sweden. In the 1930s, the Child Health Care Program was established. As part of this program, on top of the
normal medical check-ups and vaccinations, preschoolers had four developmental check-ups: at eighteen months, two and a half years, four years and six years. The program was expanded in the 1960s to include problems such as feeding or sleeping difficulties, developmental delay, aggression, disobedience, or trauma following parental divorce. The visits took place at the Child Health Care Center, in the home, in day-care settings or in nursery school, and were free of charge as they were considered preventative health care. The Child Health Care Program also provided support for mothers at risk because of a late initiation of prenatal care, a poor relationship with a partner or mother, or a lack of interest in the growing fetus. As in Finland, we can see here the effectiveness of free healthcare services and childcare subsidies at improving the health of infants and young children throughout the country.
Iceland:

Iceland was ranked highly specifically because of its low rate of low birth weight births and very low infant and maternal mortality rates. Pregnant women who have lived legally in Iceland for the previous six months or more have access to prenatal care free of charge. Prenatal examinations take place in local healthcare centers, while risky pregnancies and serious problems are directed toward two specific hospitals: Landspitali Hospital Gynecology Ward in Reykjavik and Akureyi Hospital Division of Gynecology. The first medical exam is planned between the eighth and twelfth week of pregnancy and is followed by nine more for women pregnant with their first child or six more for those who have already had a child. Prenatal care is led by midwives in collaboration with doctors and other specialists. Women can choose the hospital they give birth at, and there is no charge as long as they have health insurance in Iceland.\(^{92}\) Anyone residing legally in Iceland for at least six months is automatically covered by the Icelandic social security system.\(^{93}\) Following birth, a mother can return home within 36 hours if she and the baby are in good condition. Following discharge, they receive home service from midwife for a few days, free of charge. However, this is not available in all parts of Iceland. Finally, a follow-up examination by a doctor or midwife is suggested between six to ten weeks after birth to assess the health of the mother and provide her with advice. Infant and child care are also free of charge.

Throughout early childhood, vaccinations are administered according to a set schedule. At 3 months and again at 5 months, a child is vaccinated against whooping cough, diphtheria, tetanus, haemophilus, influenza, polio and pneumococcus. At 6 and 8 months, the child receives vaccinations against Meningococcus C. At 12 months, the child is again vaccinated against whooping cough, diphtheria, tetanus, haemophilus, influenza, polio and pneumococcus to
strengthen its immunity. At 18 months, the measles, mumps and rubella vaccine is administered, and finally at the age of 4 the whooping cough, diphtheria and tetanus vaccination is repeated once more. As we saw in the quantitative data, the vaccination rate in Iceland is only 90 percent, despite this rigorous schedule.
Czech Republic:

The Czech Republic ranks highly because it has very high rates of early childhood vaccinations. This high rate might occur because children can attend a nursery or preschool only if they have received the required vaccinations, have evidence of immunity against a particular disease, or have evidence they cannot be vaccinated due to health reasons. Vaccinations are provided free of charge, and any citizen or foreigner residing in Czech Republic even temporarily has the obligation to accept vaccinations, whether regular, special or emergency vaccinations.95

High levels of prenatal and neonatal care have resulted in low infant mortality and morbidity. However, the prevalence of low birth weight births has increased significantly in the last 10 years.96 One possible issue is the extra examination recommended throughout prenatal care, leading to the risk of over-medicalization, which may increase sources of stress, fear or anxiety. Another possible issue is that prenatal care provided by a midwife is not covered by health insurance. Health literacy and knowledge about critical health risk factors such as smoking, alcohol, drugs and stress increases with higher levels of education and long-term contact with a midwife in prenatal courses.97 Given this relationship, we can see how women with lower education levels and of lower socio-economic status would be prone to a more unsafe pregnancy. All Czech citizens, permanent residents or those with ling-term working permits have access to full coverage health insurance through the largest public insurance company, which is Vseobecná Zdravotní Pojišťovna (VZP) (or General Healthcare Insurance).98 Wilhelmonová et al. suggest that prenatal educational programs be provided free of charge with the support of public health insurance companies such as this one.99
Table 5: High performing countries in early childhood health: summary of qualitative findings

<table>
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<tr>
<th>Country</th>
<th>Possible explanations for high performance</th>
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| Finland        | o High coverage rates for pregnancy care, which begins early in pregnancy with monthly visit to the maternity clinic free of charge.  
o Very few out-of-pocket expenses for maternity and child health care services.  
o Mothers stay in the hospital 3 to 4 days after the birth of the baby. In public hospitals, the cost is about $19/day, which is paid for by the parents or through a living allowance if they do not have the means.  
o The National Health Insurance reimburses 30% of the cost of private health care services deemed necessary.  
o After birth, all Finish mothers can receive a $152 maternity grant and as well as a maternity package containing all essential baby items.  
o Nine check-ups are schedules at the municipal children’s health clinic throughout the child’s first year, followed by six more until they reach school age.  
o Universal child allowances are available to all children under 17, independent of income. |
| Sweden         | o Midwives are the main provider of prenatal care and delivery.  
o Maternity care is covered by state health care benefits and is free for patients.  
o Prenatal care includes preparation courses, coaching and support groups.  
o Minimal testing emphasizes pregnancy as a normal condition rather than an illness and is economically efficient.  
o All children have access to free healthcare subsidized by federal taxation.  
o Focus on preventative care through regular developmental checks and immunizations.  
o All parents receive a monthly child allowance to help with the cost of caring until the child is 16. |
| Iceland        | o Prenatal care is free for women who have lives in Iceland for over six months  
o 7 to 10 medical exams led by midwives  
o With health insurance, there is no charge for hospital births. New mothers stay in the hospital for 36 hours, followed by home service from a midwife for a few days, which is also free.  
o Icelandic social security system covers anyone living in Iceland for at least six months  
o Set vaccination schedule throughout early childhood. |
| Czech Republic | o Children can attend nurseries and preschools only if they have received the required vaccinations, which are provided for free.  
o Any citizen or temporary foreigner is obligated to accept vaccinations.  
o High levels of prenatal care resulted in low infant mortality and morbidity but may have led to over-medicalization, leading to increased stress, fear or anxiety. |
- Prenatal care is not covered by health insurance, so women of lower education levels or socioeconomic status are prone to more unsafe pregnancies.
D. Early childhood health: low ranked countries

Turkey:

Turkey was ranked poorly because of its high rate of low birth weight births and high infant mortality rate and maternal mortality ratio. Depending on the treatment, the cost of essential medical care can be covered partially or in full by insurance, if the hospital has an agreement with insurance company. Parents must cover the costs of some treatments and services they opt for. However, women with no social security or medical insurance get free medical services and can give birth in state hospitals. For vaccinations, the Turkish Ministry of Health established a timetable of compulsory vaccinations, which is regulated under Turkish legislation. Newborns are vaccinated against hepatitis B within 48 hours of birth, and once the child reached 3 months, BCG (tuberculosis), DTP (diphtheria, tetanus and pertussis), Hib, and OPV (polio) vaccinations are scheduled. At age one, MMR (measles, mumps, rubella) vaccine is administered, and vaccinations against chicken pox and hepatitis A are recommended. This seems like a positive and impressive array of policies and does not explain Turkey’s poor outcomes.

In a study by Cindoglu and Sirkeci (2001), the researchers looked at the relation between the number of prenatal care visits and five independent variables: educational attainment, total number of pregnancies, type of place of residence (access to healthcare facilities), ethnicity and welfare status. They found that educational attainment had the highest positive correlation with the number of prenatal care visits. This is because education directly affects women’s sense of empowerment and control over their bodies, resulting in higher demand for health care. Total number of pregnancies was negatively correlated with the amount of prenatal care, because as women become more knowledgeable about pregnancy they seek less medical attention. Place of
residence also impacted prenatal care utilization because of an uneven distribution of healthcare facilities, which are more concentrated in cities. Unexpectedly, the researchers found that women’s ethnic background did not significantly correlate with their behavior regarding prenatal care. Finally, women of higher socioeconomic status also access more prenatal care because they can afford to spend the time and money to receive care. Based on their findings, the authors propose better education, better housing facilities and better healthcare facilities in order to empower women and increase the use of the available prenatal care services. Therefore, inequality in education and socioeconomic status leads to an uneven use of the health services available.

What seems to make Turkey stand out even more is that, while the number of women receiving prenatal care is higher than ever before, the quality of this prenatal care is lacking, as a study by Bulut et al. found. The quality is lowest in poor neighborhoods, which negatively affects the utilization of services. First, the hospitals serving low and middle income families had insufficient human resources and infrastructure for antenatal care, which made it difficult for providers to give high quality care. This difficulty suggests a need for investing in primary health care services and hospital-based antenatal care, as well as national guidelines for care. Second, in these same hospitals, information and counseling were very limited and no information was given to women about warning signs during pregnancy, preparation for birth or maternal and infant health after birth. This lack of information was because care providers were overburdened and sometimes felt women were too ignorant and that this information should be provided elsewhere before women reach the hospitals. This information gap suggests a need for an increase in client awareness and expectations, inclusion of information and counseling provision as part of maternity care, and improvement of work conditions and provider attitudes. Finally,
the researchers found that tetanus toxoid immunization, promotion of proper nutrition (including iron and folate supplementation), breast feeding counseling and blood pressure checks (indicating possible hypertension, one of the most frequent causes of maternal death) were lacking in the low and middle income neighborhood hospitals studied.\textsuperscript{104}

In 2002, the Health Transformation Program was established, which aimed to improve public health, provide health insurance to all citizens, expand access to care and develop a patient-centered system to reduce inequities and improve outcomes. Since then, utilization of maternal and child health services has increased and child mortality has decreased significantly, especially in rural and socioeconomically disadvantaged communities.\textsuperscript{105} However, given Turkey’s ranking, we see there is still room for further improvement.
**United States:**

Like Turkey, the United States was ranked poorly because of its high rate of low birth weight births and high infant mortality rate and maternal mortality ratio. A literature review by Phillippi (2009) found several barriers to prenatal care in the United States.\(^\text{106}\) On a societal dimension, some women do not believe they need prenatal care because of cultural beliefs and previously uncomplicated pregnancy or because they were feeling well. Others report a fear of medical examinations. Another very common barrier is the cost of prenatal care: on top of medical fees, the cost of such care includes transportation, parking and childcare for existing children (as many clinics are not child friendly). On the structural dimension, common barriers reported by pregnant women were the location and hours of clinics, the wait time for an initial appointment as well as at the clinic, and the cost of services and payment options (especially for women that do not qualify for Medicaid). Women also reported a lack of cultural and language sensitivity of clinic staff who had negative attitudes and provided poor quality of care. Finally, the main barrier in the medical dimension was a lack of a consistent provider.

Many of these barriers can be addressed through interventions targeted at clinic institutions, staff and providers. Examples of such interventions include placing clinics near public transportation, changing clinic hours, including play areas for children, installing flexible payment plans, hiring multilingual staff, reducing wait times, facilitating continuity with one provider, increasing knowledge about the importance of prenatal care and providing an orientation visit to women who might fear or be unfamiliar with the medical procedures.\(^\text{107}\)

Another study by Coley and Aronson (2013) based in North Carolina found that racial status was a determinant of adverse birth outcomes.\(^\text{108}\) The study found that African-American mothers experienced higher rates of low weight births and preterm births than White mothers.
While quality of prenatal care did have a small impact on outcomes, the researchers found that it was unclear whether this difference in the quality of care was the main cause of this difference in birth outcomes. Other studies have shown a gap in health care across race and income groups in the US. An expansion of programs such as Medicaid that help narrow the gap in use of health services between ethnic groups can help reduce inadequate care over time. While the Affordable Care Act has helped many families, those who are too wealthy to be eligible for Medicaid but too poor to afford private insurance are still left uninsured. The Children’s Health Insurance Program (CHIP) covers children in this situation in all states. CHIP has led to an increase in insurance coverage, increased utilization of primary and preventative care, improvement in children’s health status. However, access to CHIP still needs to be facilitated, for example by mandating automatic coverage for all newborns, incentivizing multiyear continuous eligibility for newborns and infants, and mandating the coverage of pregnant women.
Chile:

Chile is ranked poorly among OECD countries specifically because of its high infant mortality rate and maternal mortality ratio, despite having seen a large decline in infant mortality over the past few decades (Figure 4). In 1950, Chile had an infant mortality rate of 136.2 per 1000 live births, and most of these deaths were fully or partly due to malnutrition. Today the infant mortality rate is 8.1 per 1,000 live births.¹¹² One study found that this was due to the establishment in 1952 of the National Health Service (NHS), whose main goal was to improve maternal and child health. Programs and interventions were developed in collaboration with public health experts and based on specific criteria, including a holistic vision of health care, a multidisciplinary health care team, an increase in research and training in action (by integrating public health services with universities), continuous evaluation, and an improvement in the quality of epidemiological data. Additionally, a strategy to fight malnutrition was implemented through powdered milk donations to young children and to pregnant and lactating women enrolled in NHS ambulatory clinics. These food programs led to a decline in malnutrition rates from 40 percent in the 1950s to less than 3 percent by 2000.¹¹³ To address perinatal care, the public health authorities implemented neonatal intensive care units (NICUs), the use of surfactant to treat respiratory distress syndrome (a common cause of newborn death), and special training for nurses and pediatricians. Finally, programs to treat acute respiratory infections, surgically correct congenital heart defects, and expand immunization were also established. All these programs are free of charge in public facilities.¹¹⁴ Chile’s increase in annual per capita income and decrease in the number of people living in poverty the 1990s have also been found to have played a role in the reduction of infant and maternal mortality.¹¹⁵
However, another study found that Chile’s mortality burden was unequally distributed and that the infant mortality rate had stagnated among uneducated mothers. Infant mortality rates were found to be strongly correlated with maternal education and head of household employment status. Despite the previously described efforts, inequities persist, leading to a stagnation in the reduction of national infant mortality rates due to increased infant mortality in the low maternal education group between 1995 and 2005. Geographic inequalities persist as well, with high infant mortality in the poorer northern regions, the southern indigenous regions, and the densely populated Santiago metropolis. The study suggests the need for the creation of more family-community care and outreach programs, as this high infant mortality in disadvantaged populations is due to an underutilization of health care services. Finally, there are also inequalities in vital statistics coverage, leading to a possible underreporting of infant deaths among socioeconomically disadvantaged populations. This reminds policymakers to look past national rates for public health, but rather at the most vulnerable social groups.
Mexico:

Like Chile, Mexico is ranked poorly specifically because of its very high infant mortality rate and maternal mortality ratio. The top causes of under-five mortality in 1990 were diarrheal diseases, lower respiratory tract infections, asphyxia and birth trauma, chronic bronchitis, low birth weight, and measles, all of which are related to malnutrition. Huge wealth disparities persist in Mexico, and socio-economic status is an important health determinant, as SES is associated to nutrition and access to health services, prenatal care behavior and quality hospitals. Most infant deaths occur inside the hospital, and hospital characteristics such as material, human resources and quality have an important impact on infant mortality rates, as the hospitals of poorest quality have a likelihood of death twice as high as those of highest quality. To improve these outcomes, improvement of prenatal care, enlargement of hospital infrastructures and human resources, and a reorganization of the system for larger and equal pediatric institutions are essential. The quality of health services is also related to maternal mortality, showing the necessity to develop more efficient prenatal programs and an increased training in obstetric care and emergency. There is also a significant difference between the quality of prenatal care quality in public and private settings, suggesting a need for quality reporting, training, accreditation, and regulation. The high inequality in infrastructure leads to an inequality in coverage of services dependent on a structured health system such as obstetric care by skilled personnel (as opposed to preventative action that does not require infrastructure, such as early initiation of breastfeeding). As we saw in Chile, evaluations often look at national levels and fail to show the variations within the country, which prevents the distribution of resources to marginalized populations.
Despite its low ranking among OECD countries, Mexico has seen a great improvement in the rates of infant mortality (Figure 5), which went from 44.9 deaths per 1000 live births in 1990\textsuperscript{126} to 11.3 in 2015.\textsuperscript{127} The reduction in mortality in children under five stems from several public health programs that aimed to bridge primary health care services and households through demand-driven, highly cost-effective and large-scale interventions. The provision of oral rehydration salts (ORS) to millions of children with diarrhea as part of the \textit{Semanas Nacionales de Salud}, or National Health Weeks, helped reduce the mortality by diarrhea. The \textit{Programa de Agua Limpia}, or Clean Water Program, established adequate water regulations, and provided purified drinking water by chlorinating water tanks and promoting boiling and the use of chlorine tablets within the home. Proper disposal systems for excreta and monitoring of sewage treatment plants and drainage systems also helped decrease the occurrence of cholera outbreaks. Additionally, the \textit{Programa de Vacunacion Universal}, or Universal Vaccination Program, was established to increase vaccination coverage and improve data on the vaccination coverage of children. Mexico immediately saw a decline in cases of polio, diphtheria and measles, and achieved equity in immunization across the country. In 1997, the federal government also put in place a conditional cash transfer program called \textit{Oportunidades}, in which low-income families in rural areas receive cash benefits if they regularly attend health clinics to receive health and nutrition services. The programs also provided food supplements to underweight children below the age of 4. Finally, in 2006 the Mexican Ministry of Health introduced the \textit{Programa Nacional Arranque Parejo en la Vida} (APV), or the Equal Start in Life National Program, aimed at reducing maternal and perinatal morality rates by promoting social and community participation, strengthening maternal and perinatal health care through a reorganization of the primary and
emergency levels in marginalized areas, and training traditional midwives and skilled alternatives.\textsuperscript{128}

![Graph showing decreases in infant mortality rates in Mexico](image.png)

**Figure 5:** Decrease in infant mortality rates in Mexico  
**Source:** Sepúlveda et al. 2007

**Table 6: Low performing countries in early childhood health: summary of qualitative findings**

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible explanations for poor performance</th>
</tr>
</thead>
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| Turkey     | o Essential medical care is covered partially or in full by insurance, but parents cover the costs of extra treatments and services.  
             | o Women with no social security get free medical services and can give birth in state hospitals.  
             | o Timetable of compulsory vaccinations established by the MoH  
             | o BUT huge inequities remain: educational attainment, place of residence and socioeconomic status are correlated with the number of prenatal care visits.  
             | o Quality of prenatal care is lacking, especially in poor neighborhoods: insufficient human resources and infrastructure and lack of counseling and information available for women |
| United States | o Barriers to prenatal care on a structural dimension: location and hours of clinics, wait time for initial appointment and at the clinic, lack of consistent provider, and cost of prenatal care (medical fees, transportation, parking, childcare for existing children).  
                     | o Barriers to prenatal care on a social dimension: cultural beliefs, fear of medical examinations and lack of cultural and language sensitivity of clinic staff |
- Racial status is also a determinant of adverse birth outcomes: African-American mothers experience higher rates of low weight births and preterm births than White mothers.
- Gap in health care across race and income groups.
- Children’s Health Insurance Program covers children whose family is too wealthy for Medicaid but too poor to afford private insurance. Access to CHIP still needs to be facilitated, by mandating coverage of all newborns for example.

**Chile**
- Decline in infant mortality over the past few decades due to the establishment of the National Health Service, aimed at improving maternal and child health. The NHS established programs to increase research and training, fight malnutrition, increase perinatal care, and expand immunizations.
- BUT the mortality burden is unequally distributed and the infant mortality ratio has stagnated among uneducated mothers.
- High infant mortality persists in poorer northern regions, southern indigenous regions and dense Santiago metropolis.
- Lack of statistical coverage leads to a possible underreporting of infant deaths among socioeconomically disadvantaged populations.

**Mexico**
- Huge wealth disparities persist, and socio-economic status is an important health determinant: it is associated to nutrition and access to health services, prenatal care and quality hospitals.
- Inequalities in hospital and prenatal care quality: impact infant mortality rates and maternal mortality.
- Evaluations often fail to show the variations within the country, thus preventing the distributions of resources to marginalized populations.
- Top causes of under-five mortality in 1990 were all related to malnutrition (diarrheal diseases, lower respiratory tract infections, asphyxia and birth trauma, chronic bronchitis, low birth weight and measles)
- Great improvements since 1990, thanks to public health programs which increased access to primary health care services, reduced mortality by diarrhea, established clean water regulations and proper disposal systems, increased vaccination coverage, provided food supplements to underweight children, and trained traditional midwives and skilled alternatives in maternal and perinatal health. Conditional cash transfers also encouraged low-income families to attend health clinics.
E. Early childhood education: highly ranked countries

Israel

In Israel, preprimary enrollment was at 113 percent in 2014. Preprimary school enrollment can exceed 100% because over-aged and under-aged students are included in the ratio of total enrollment (regardless of age) to the population of the age group that officially corresponds to the level of education. In Israel, preschool begins as soon as age two and is sponsored by the government. Children below the age of 3 are under the supervision of the Ministry of Industry, Trade and Labor, which operates and supervises educational institutions for children up to the age of 3. This Ministry overlooks day care centers and pre-nursery play groups, operated under the Day Care Center Inspection Law of 1965, which regulates the appointment of inspectors allowed to enter any licensed day care center. The Compulsory Education Law of 1949 required compulsory studies for every child from the age of 5 until the age of 15. Initially, education was only free starting at the age of 5, but the Ministry of Education has recently extended free education to cover children ages 3 and 4 under the Free Compulsory Education Law to exempt parents from paying tuition for children aged 3 and 4. Already in 2004, the state funded pre-school education for almost 100,000 children from disadvantaged population groups, constituting 36% of their age group. Additionally, programs are in place to aid children with special needs below the age of 5.

In order to narrow the gap caused by socioeconomic factors, the Ministry of Education, Culture and Sports decided to develop a required core curriculum for the kindergartens consisting of four pillars. These pillars are (1) language – linguistic literary skills, cultivation of self-expression abilities, and reading and writing skills; (2) mathematics, science and technology – logical thinking, primary mathematic concepts and familiarity with the technological
environment; (3) arts – cultivation of ability and experience in music, movement and the arts; and (4) life skills – health education, social skills, physical education, road safety. The goals of this national curriculum are to promote cognitive skills, instill life skills, social skills and values, encourage personal relationships, an independent personality and a capacity to treat others with respect and tolerance, encourage linguistic and symbolic literacy as well as acquaintance with technology and artistic expression, and instill skills to make children life-long learners.
Germany

In Germany, preschool enrollment was at 110% in 2012, making it a top performing country in early childhood education. Preschool care options include Kinderkrippe (crèche, for babies and children up to three years), Kindergarten (for children between 3 and 6 years), Kitas (children’s daycare center offering after-school and pre-school activities for children up to 11 or 12), and privately run child-minding services. The cost of public childcare is based on income, number of children and hours required per day. Kindergartens charge between 80 and 120 Euros a month, based on these factors. However, the German government encourages parents to have children by providing tax credits to help with childcare costs and financial incentives to parents who take time off work to raise children, during which they receive 67% of their net income. The government also subsidizes some kindergartens run by religious communities. Finally, if daycare institutions close during the holidays, the public youth welfare must ensure alternative supervision for children whose guardians cannot supervise them. For very young children, private childcare and nannies are also a popular choice. These child minders generally take groups of 4 to 5 children in their homes and must go through training to be certified by the Child Care Services.

The Social Code – Book VIII, Elimination of child labor, protection of children and young persons, is the federal legislation for children and youth welfare. Established in 1990, it was amended in 1992 to include the legal right to a Kindergarten place for all children between the age of three and six, when they start school. In 2008, it was amended again by the Children Promotion Act, which expands care to children under the age of three. This expansion was first put in place by increasing the number of places available for children under three in existing daycare centers and child-minding services. Since 2013, there is a legal entitlement to a
place in day care for children passed the age of one. Due to this recent expansion of day care to children under three years of age, the number of facilities offering daycare exclusively to children from three years up has decreased, while the number of facilities offering day care to a wider range of ages has increased. This change was led by the Federation, Lander (states) and local authorities to fulfill the legal right to early childhood education and care in child care or child-minding services starting at the age of one, as established by the Social Security Code VIII. These efforts have successfully led to a rise in day care uptake.
Norway

In Norway, children between the ages of 0 and 5 are cared for in kindergartens, which are integrated into the national educational system. These pedagogical institutions are beneficial for children, and they are also a path towards equality between genders as they allow parents to work or study.\textsuperscript{143} The central government in Oslo oversees funding and legal/regulatory aspects of Early Childhood Education and Care (ECEC), thus ensuring a relatively unified standard of services. Municipalities (434 total) are in charge of running early childhood education and care institutions.\textsuperscript{144} The Kindergarten Act, first established in 1975, establishes guidelines for kindergarten operation and states that kindergartens are run by the municipalities. These local authorities approve and provide guidance to kindergartens, and ensure the current rules are applied and that there are enough places for all children. The Kindergarten Act also states that head teachers and pedagogical leaders must be trained pre-school teachers or have other college-level qualifications for working with children, and that there must be one pedagogical leader for 7-9 children under the age of three and for 14-18 children over the age of three. Finally, the Kindergarten Act also gives a framework plan for the content and tasks of kindergartens, gives parents a legal right to participation in the pedagogical activities, and states that kindergartens must integrate children’s social, ethnic and cultural background (including the language and culture of indigenous Sami children) into their curriculum.\textsuperscript{145} In 2009, the government established the legal right for each child to have a place in kindergarten.\textsuperscript{146}

Enrollment in kindergarten is optional and requires parental fees. However, Norwegian educational policy is centered around the idea that children and young people have an equal right to education, regardless of where they live, gender, social and cultural background, or special needs.\textsuperscript{147} Kindergartens are financed 80\% by public grants from municipalities and by the state,
and 20% by parental fees. To maintain equity and access for all, local authorities are obligated to provide a sufficient number of places to fulfill the individual legal right to a place in kindergarten. A maximum parental fee set by the national budget every year was put in place: in 2011, this fee was set at slightly above $300 a month in 2011. Municipalities provide discounts for siblings (30% discount for the second child and 50% for the third) and discounts or free kindergarten places for low-income families. Municipalities also ensure that children with disabilities or under the care of child welfare services have priority for admission. The government gives additional economic support to municipalities with language minority children in order to enhance integration and language development. The school staff is also responsible for making all children feel included and important, regardless of their level of functioning, age, gender and family background. While some parents choose not to send their children to kindergarten, most Norwegian parents believe that kindergartens are a natural part of caring for children over the age of one. Most kindergartens are open five days a week, ten hours each day. When the Kindergarten Act was passed, only 7% of children were in kindergarten. Since 1975, there has been a growing involvement of the state in the development of kindergartens as well as of public interest, leading to over 90% of children attending kindergarten today.
France

In France, child care and early education are run by separate ministerial organizations. For children under 3, the Direction Générales de l’Action Sociale (General Direction for Social Action) is responsible for non-school ECEC and is affiliated with the Ministère des Affaires sociales, du Travail et de la Solidarité (Ministry of social action, work and solidarity) and the ministère de la Santé, de la Famille et des Personnes handicapées (Ministry of Health, Family and Handicapped persons). Together, and supported by the national family allowance fund (Caisse Nationale des Allocations Familiales), they develop regulations for the different forms of non-school ECEC: publicly subsidized home-based care (i.e. parental care – in which 64% of families participate), accredited family day care providers (18%) and crèche services (8%).

For children above the age of 3, the universal model of pre-school education, the école maternelle, is in place as part of the national education system. This program is fully funded and organized by the State, under the auspices of the Ministère de la Jeunesse, de l’Éducation nationale et de la Recherche (Ministry of Youth, National Education and Research), that define the schools’ curriculum, opening hours and operations. Almost 100% of children between the ages of 3 and 5, and 35% of 2-year-olds attend écoles maternelles, viewed as an essential step toward educational success. École maternelles are organized into three sections: petite section, moyenne section and grande section (little, medium and big sections), for children ages 3, 4 and 5 respectively. Children below the age of 3 can also attend écoles maternelles, but in specialized facilities adapted to their needs.

Most French preschools are public, with 15079 public preschools and 137 private preschools in 2014. These public écoles maternelles are completely free, except for meals, and are funded by several parties. The State is in charge of paying the school staff. Municipalities
own the school buildings and assure their construction, reconstruction, extension, fixing, equipment and functioning. Any activity taking place during class time must be free, but parents may be asked to subsidize activities outside of school (outings) that exceed class time. If the family cannot pay, municipalities and other associations have available solutions. The *Caisse des ecoles* (School fund) provides help to families in need, and covers services such as lunch and after school guard, and activities such as outings and trips. It is an obligatory municipal establishment, funded by grands and subsidies by the community and state. Finally, the *Cooperative scolaire* (School cooperative) teaches students how to come up with and realize a common project. The school cooperative is funded by its own activities (fundraisers, parties, shows) or donations. We can hypothesize that the coordination of funders and cooperation among agencies contributes to France’s success in the early childhood education domain.

### Table 7: High performing countries in early childhood education: summary of qualitative findings

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible explanations for high performance</th>
</tr>
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| Israel    | o Preschool begins at age two and is sponsored by the government.  
          | o Ministry of Industry, Trade and Labor operates educational institutions for children up to 3.  
          | o Compulsory Education Law of 1949 requires compulsory studies for every child from the age of 5.  
          | o Under the Free Compulsory Education Law, education is free starting at age 3.  
          | o To help narrow the gap caused by socioeconomic factors, the Ministry of Education established a core curriculum for all kindergartens emphasizing four pillars: (1) language, (2) mathematics, science and technology, (3) arts, and (4) life skills. |
| Germany   | o Preschool care options: *Kinderkrippe* (babies and children up to three), *Kindergarten* (children between 3 and 6), *Kitas* (after-school and pre-school activities for children up to 11) and private child-minding services certified by the Child Care Services.  
          | o Cost of public childcare based on income, number of children and hours requires per day.                                                                                                                                              |
| Norway | - All children below the age of 6 have the legal right to kindergarten, and all children passed the age of one have a legal entitlement to a place in day care.  
- Kindergartens are integrated into the national educational system and care for children below the age of 5, and very child has the legal right to a place in kindergarten.  
- The central government oversees ECEC, ensuring a unified standard of services.  
- The Kindergarten Act establishes guidelines for kindergarten operations, states that head teachers and leaders must be trained, gives a framework for the content and tasks of kindergartens, and states that kindergartens must integrate children’s social, ethnic and cultural background into the curriculum.  
- Enrollment is optional, and kindergartens are financed 80% by public grants and 20% by parental fees. A maximum fee is set yearly by the nation budget, and discounts and free kindergarten places are available for low-income families and in municipalities with language minority children. |
| France | - Child care and early education are run by separate ministerial organizations.  
- For children above the age of 3, pre-school education (écoles maternelles) is part of the national education system.  
- Most French preschools are public, funded by several parties and free for parents.  
- Vast coordination of funders and cooperation among agencies to run preschool education. |
F. Early childhood education: low ranked countries

Turkey

Preprimary enrollment in Turkey was at 28% in 2013. Despite Turkey’s recent socioeconomic progress and demographic changes, fewer than 30 percent of children between the ages of 3 and 6 attend pre-primary education. This low coverage is mainly due to the fact that pre-primary education is not compulsory and that pre-primary students are not eligible for the student transportation subsidies available at other levels of education. Specifically, children from economically disadvantaged families have significantly less access to ECE than those from high socioeconomic status (SES) families\textsuperscript{157}, and disparities remain regarding pre-school education opportunities and success rates.\textsuperscript{158}

The Ministry of National Education (MoNE) is responsible for pre-primary education in Turkey and provides Ana Okullari (kindergartens) for children ages 3 to 6, Ana Sınıfları (pre-primary classes) for children ages 5 to 6, or Uygulamalı Anasınıfı (‘practical’ nursery classes) for children ages 3 to 6 (originally established within vocational schools). These public pre-primary institutions are free of charge, aside from parental contributions for meals and cleaning materials.\textsuperscript{159} Additionally, due to recent efforts, Turkey has seen a great increase in pre-primary education attendance (Figure 6).
The government has recognized the critical role of early childhood investments in enhancing economic productivity and achieving equitable growth and has made considerable steps over the past decade in improving the education of children from 0 to 5 years old, starting with the commitment to ensure universal access to kindergarten for 5- to 6-year-old children.\textsuperscript{160} Recommended by the World Bank to achieve this expansion of ECE coverage include: ensuring equity in access by targeting public spending progressively, starting with the disadvantaged groups; enhancing the quality and accountability in Turkey’s ECE subsector by enforcing national quality standards; increasing the involvement of private and not-for-profit actors in the ECE sector to make management more effective; and ensuring adequate funding to ECE by raising the current level of 0.03\% of GDP to 0.23\%.\textsuperscript{161} The General Directorate of Basic Education of the MoNE is implementing the “Strengthening Pre-School Education” project to establish new regulations and quality standards for ECE. This project aims to provide quality ECE to disadvantaged children and families and strengthen the quality of existing services.\textsuperscript{162}
United States

Preprimary enrollment in the United States was 71% in 2014 for children below the age of 6. Early childhood education and care (ECEC) in the U.S. includes a wide range of part-day, full-school-day and full-work-day programs run by educational, social welfare and commercial services, but categorical funding and diverse societal values prevent the integration of all these programs. While most children ages 3 to 6 in the United States are in school, preschool enrollment remains below the average OECD rate (Figure 7) and is heavily influenced by socioeconomic factors such as household income, parental education levels, race and ethnicity. Children from low socioeconomic status families are less likely to participate in preschool, with 40% of low income 3- to 4-year-old children enrolled versus 56% of those from wealthier households. Preschool participation is also less common for 3- and 4- year olds whose parents have low educational attainment, as well as for those from Hispanic and Native American families. Finally, there are huge geographic disparities, with highest enrollment levels in States along the East Coast and lowest enrollment rates concentrated in the western half of the country. In 14 states and the District of Columbia, kindergarten attendance is mandatory, while in the remaining 36 states school districts are required to provide kindergarten but parents can decide whether or not to enroll their children. Additionally, only 10 states are required to offer full-day kindergarten.
There is no national child and family policy or national ECEC policy in the U.S. However, the government plays an important role in ECEC policy-making and goal-setting (focused on children at risk) to facilitate the states’ implementation of programs based on the needs of their region. With the rise of labor force participation of women with young children and of single-mother households has led to an increased interest in ECEC. However, 6 out of 10 4-year-olds are still not enrolled in publicly funded pre-school programs. Therefore, states have increased their investment in preschool to expand publicly funded preschool programs, and the federal government has undertaken the Head Start program to expand and increase the quality of early learning, the Early Learning Challenge program to fund the implementation of an integrated system of ECE programs and services, as well as the Preschool Development Grants program to expand the number of children enrolled in high quality preschool programs in high-need communities. These partnerships between the federal government and states is just beginning but has already led to significant progress in the funded states.
Canada

Pre-primary enrollment in Canada was 74% in 2013. Although full- or part-time center-based child care coverage has been increasing steadily, a large gap between need and provision remains. Various kinds of regulated child care exist – full-day centers, part-time preschool, family child care and school-age child care – but their prevalence varies significantly between provinces and territories, with Quebec holding a 60% share of total public spending on regulated child care in 2012. Overall, public funding is very low compared to demand and international standards. Despite most territories subsidizing some of the costs of regulated child care for some low/modest income parents, a high monthly parental fee remains, with an average across Canada of $674 for preschoolers in 2012. Quebec has the lowest fees, set at $152 a month, thus skewing the national average. Responsibility for child care is gradually shifting from community services to education ministries: in 2012 six provinces gave their ministries of education responsibility over child care, leading to these provinces offering kindergarten for a full school-day for 5-year-olds. Child care remains heavily in the for-profit sector, with 58% of space expansion between 2010 and 2012 and a total of 30% of Canadian center spaces in the for-profit sector.168

As in the US, no national program exists for early childhood education and care (ECEC). Instead, 10 provinces, three territories and the federal government are all involved in regulating, funding and shaping ECEC programs.169 Provincial and territorial governments are primarily responsible for the design and delivery of ECEC policies and programs. The federal government funds programs including fiscal transfers to provinces and territories to be spent on early childhood development programs and services, transfers to individuals through child care, maternal and paternal benefits, tax expenditures, and programs for special populations such as Aboriginal communities.170
In Greece, there is a cultural emphasis on the important role of mothers’ presence and care in early childhood years, strong family ties and reliance on extended family for childcare support. Therefore, even 40 years ago it would have seemed strange to leave a child in someone else’s care. However, following Greece’s rapid development and after joining the European Union in 1981, the promotion of gender equality highlighted the importance of childcare provision. Twenty years ago, Greece was the EU country with the least developed formal childcare services (privately and publicly funded), which led to great efforts to extend the publicly-funded childcare infrastructure. Kindergartens (nipiagogeion) are the first formal pre-primary educational stage, serving children 4 to 6 years old. They are compulsory for children ages 5 and 6 since 2006. Kindergartens in the public and private sector are both under the supervision of the Ministry of Education and are based on a newly introduced national curriculum. Early childhood education is also offered in Child and Infant Centers under the auspices of local government organizations or in private pre-school education centers. Kindergarten attendance is free of charge, and Child and Infant centers require monthly fees based on families’ economic capacities. Standard kindergartens operate between 8 am and 12:30 pm, and whole-day kindergartens operate until 4:00 pm. Before the age of 4, the only available extra-familial structure for early childhood care are day care centers/nurseries (pedikos/vrephonipiakos stathmos), offering care 8-9 hours a day, five days a week and under the supervision of the Ministry of Interior, Health and Welfare or the Ministry of Education.

Despite these improvements, there remains an under provision of formal center-based childcare for preschool age groups, with only 10% of 0 to 3-year olds and 60% of 3- to 6-year-olds in formal center-based care in 2006. While public kindergartens and some municipal day-
care centers are officially free, significant burdens and operational costs unofficially remain at the charge of parents. Due to the decentralization of the system, all public day care centers were transferred to local authorities, leading to discrepancies across the country in fees, access and quality of services. Additionally, there is a lack of trained personnel and appropriate buildings to provide services, leading to a limited availability of ECEC services. Finally, legislation does not support cooperation between parents and kindergarten teachers, leading to a communication gap between school and family in which parents are viewed as intruders in the work of teachers.

Table 8: Low performing countries in early childhood education: summary of qualitative findings

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible explanations for poor performance</th>
</tr>
</thead>
</table>
| Turkey    | o Pre-primary education is not compulsory, and children from low SES families have significantly less access to ECE leading to disparities regarding pre-school opportunities and success rates. One common barrier is transportation.  
  o Ministry of National Education is responsible for pre-primary education and provides public pre-primary institutions free of charge.  
  o Great increase in pre-primary education attendance recently, due to the government’s recognition of the critical role early childhood investments play in enhancing economic productivity and achieving equitable growth.  
  o “Strengthening Pre-School Education” project aims to provide quality ECE to disadvantaged children and strengthen the quality of existing services. |
| United States | o Wide range of part-day, full-school-day and full-work-day programs run by educational, social welfare and commercial services, but categorical funding and diverse values prevent the integration of these services.  
  o Preschool enrollment is influences by socioeconomic factors such as parental income, education levels, race and ethnicity.  
  o Huge geographic disparities: kindergarten is mandatory in only 14 states, and only 10 states are required to offer full-day kindergarten.  
  o No national child and family or ECEC policy, but states have recently increased their investment in preschool to expand publicly funded programs, and the federal government has started to expand pre-school programs in partnership with the states. |
<p>| Canada    | o Child care coverage has seen a steady increase, but a gap remains between need and provision. |</p>
<table>
<thead>
<tr>
<th>Province</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No national program exists for ECEC: provinces and territories are responsible for the design and delivery of ECEC programs, while the federal government provides various forms of funding.</td>
</tr>
<tr>
<td></td>
<td>The prevalence of regulated child care (full-day centers, part-time preschool, family child care) varies significantly between provinces and territories, with Quebec holding a 60% share of total public spending on regulated child care.</td>
</tr>
<tr>
<td></td>
<td>Most territories subsidize some of the costs, but a high monthly fee remains.</td>
</tr>
<tr>
<td>Greece</td>
<td>Great efforts in the past 20 years to extend the publicly-funded childcare infrastructure.</td>
</tr>
<tr>
<td></td>
<td>Free kindergartens service children from 4 to 6 years old, and are compulsory for children ages 5 and 6. They are under the supervision of the Ministry of Education and based on a national curriculum.</td>
</tr>
<tr>
<td></td>
<td>Despite this availability of free services, an under-provision of formal center-based childcare for preschool-aged children remains, because significant burdens and operational costs unofficially remain at the charge of parents.</td>
</tr>
<tr>
<td></td>
<td>Decentralization led to discrepancies across the country in fees, access and quality of services.</td>
</tr>
<tr>
<td></td>
<td>There is also a lack of trained personnel and appropriate buildings, and a communication gap between schools and families.</td>
</tr>
</tbody>
</table>
5. **Discussion**

The first step of this study was the quantitative analysis, which allowed me to rank OECD countries in three domains: family support, early childhood health and early childhood education. Within each domain, I could then identify a set of high performing countries and low performing countries. The four highest and lowest performing countries in each domain were:

<table>
<thead>
<tr>
<th>Top Countries in Family Support</th>
<th>Bottom Countries in Family Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>United States</td>
</tr>
<tr>
<td>Norway</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Finland</td>
<td>Mexico</td>
</tr>
<tr>
<td>Austria</td>
<td>Israel</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Top Countries in Health</th>
<th>Bottom Countries in Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>Turkey</td>
</tr>
<tr>
<td>Sweden</td>
<td>United States</td>
</tr>
<tr>
<td>Iceland</td>
<td>Chile</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Mexico</td>
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<table>
<thead>
<tr>
<th>Top Countries in Education</th>
<th>Bottom Countries in Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Israel</td>
<td>Turkey</td>
</tr>
<tr>
<td>Germany</td>
<td>United States</td>
</tr>
<tr>
<td>Norway</td>
<td>Canada</td>
</tr>
<tr>
<td>France</td>
<td>Greece</td>
</tr>
</tbody>
</table>

Based on the qualitative review of each of these countries in these domains, two major trends emerged. First, inequality is a major characteristic of the lowest tier, specifically in the health and education domains. Second, universal coverage appears to be an effective way of combatting inequality and improving a country’s performance, as seen in the highest ranked countries. Overall, there seems to be a trade-off between individual choice, which is promoted in the United States, and high national tax, laws and policies providing support to all families, a model found in most of the top performing countries. Therefore, an important question is where the appropriate balance lies between promotion of individuality and a more communal societal model.
Inequality as a major player in all three domains

Inequality plays an important role in all three domains studied. Specifically, in the health and education domain, inequality is a strong driver of negative outcomes for young children. A surprising finding of my study is that countries ranked lowest do not have poor outcomes for children throughout their entire population. Instead, there are subsets of the population that have very high living standards in which children have access to quality healthcare and education and their parents have the time, money and resources to care for them. However, the huge inequality present in these countries leads to other poorer subsets of the population on the other hand not having access to these services and benefits, which brings the countries’ ranking down overall. In the health domain, the four bottom countries (Turkey, the United States, Chile and Mexico) were ranked so low in large part because of inequality of access to quality healthcare. In Turkey, women with higher educational achievement and of higher socioeconomic background had higher access to prenatal care, and due to an uneven distribution of healthcare facilities concentrated in cities, women and children in rural areas have lower access to health services. In the United States, along with poor access to healthcare coverage for people of low socioeconomic status, racial status is a major determinant for adverse health outcomes at birth, pointing to an inequality in care between different ethnic groups. In Chile, infant mortality rates are strongly correlated with the mother’s education level and family income, as well as with the family’s geographic location, with higher mortality rates in poorer, indigenous, and dense regions. In Mexico, inequality also drives the country’s poor outcomes, as socioeconomic status remains an important health determinant associated with low access and utilization of health services, prenatal care and quality hospitals.
In the education domain, the bottom countries (Turkey, the United States, Canada and Greece) were also ranked poorly because of unequal access to early childhood education (ECE) within the country. In Turkey, children from economically disadvantaged families have less access to pre-primary education because they do not receive transportation subsidies allowing them to attend school. In the United States, geographic disparities as well as socioeconomic factors such as household income, parental education levels, race and ethnicity impact preschool enrollment rates, because there is no national ECE policy. Similarly, in Canada there is no national ECE policy and different territories subsidize ECE differently. High parental fees for ECE and the for-profit nature of child care services add on to the inequality of access. This trend continues in Greece, where unequal access to ECE stems from a decentralized system leading to discrepancies across the country in fees, access and quality of service.

In the family support sector, poor rankings were not explained by inequality. Countries ranked poorly because of low family support on a national level, though inequality further exacerbates the low status of families already struggling. For example, in the United States there is no national maternity or paternity leave and very low spending on family benefits. Therefore, other than in certain states or cities where parental leave has been established, a parent’s access to parental leave depends on their place of employment. Higher wage earners are more likely to have paid leave, leading to inequalities in parental leave across economic, educational and racial groups. Since the children most at risk of poor outcomes are those whose parents do not get leave, we can see how this inequality in parental leave further worsens the status of children in low socioeconomic families. Similarly, in Mexico, while parental leave policies are in place for workers in the formal economy, only the workers who have access to social security receive parental leave and benefits, leading to negative outcomes for children whose parents do not have
access to social security. In all countries with short to no national parental leave, those who can afford to take unpaid time off are favored.

*Universal coverage as a possible solution*

Using the example of countries ranking highest, it seems like universal coverage could be a way to combat inequality, although this study does not prove causality. In the family support sector for example, countries ranking highest have nationally established long paid parental leaves for all employees as well as high federal funding on family support. In Sweden, Norway, Finland, and Austria, paid parental leave ranges from 6 months to 36 months and are almost equally split between mothers and fathers, thus promoting equality between men and women in the work force and in family life. The government is able to subsidize these parental leaves and family benefits because of the welfare system and high federal taxation in place. Especially in the US, some may see this as a waste of government money, but as we saw in a Norwegian study, the parental leave and early childcare subsidies are offset by the increase in GDP created by mothers remaining in the workforce.

In the early childhood health domain, in Finland all mothers receive a maternity package and grant following birth, and a universal child allowance is available to all families with children under 17, regardless of income. In Sweden, all maternity care is free as it is covered by state health care benefits, and all children have access to free healthcare thanks to federal taxation. Similarly, in Iceland prenatal care, hospital births and home care by a midwife after birth are free of charge, as anyone who has lived in Iceland legally for at least six months is covered by the social security system.

In the education domain, universal coverage also raises the whole country’s ECE performance. As we saw through this research, in Israel all preschool beginning at the age of
three is free and sponsored by the government, so that all children, regardless of their background, have access to the national core curriculum put in place to bring the socioeconomic gap. In Germany, all children aged one and above have the legal right to be in day care or school, and the cost of public childcare is based on income and number of children. In Norway, all children also have a legal right to a place in kindergarten, which is financed 80% by public grants and 20% by parental fees. Subsidies are available for low income families who cannot afford the fees to ensure that all children have equal access to education regardless of where they live, their gender, their social and cultural background or special needs. Finally, in France public preschools are completely free for all children.

One major barrier to universal coverage, however, is cost. Most countries probably cannot afford to expand early childhood programs universally without increasing taxes or compromising other sectors. Universality is a trade-off that will pay off in the future through the participation of women in the workforce and the increased productivity of the future generations affected by quality early childhood development programs and policies. However, this payoff might take a long time, and countries might not be willing or able to invest in these programs for outcomes so far out, specifically if they require restructuring their entire taxation and funding system and compromising the outcomes of other areas with more immediate and tangible outcomes. One solution might be for the government to start by compensating or giving incentives to companies who promote universal coverage by expanding their healthcare and education programs to young children from low income families or by providing parents with longer parental leave. This way the country can start seeing some of the financial benefits of universality before making it a nationwide policy, thus decreasing the cost of implementation.
Recommendations for the United States

Despite being one of the wealthiest and most powerful nations in the world, the United States finds itself last or second to last in each of the three domains studied in this paper. As the “leader of the free world,” this poor ranking seems quite shocking. There are many possible explanations for this poor ranking. My study suggests that the United States’ strong desire to remain a country where each state is independent and each man and woman is free to make their own decisions harms our youngest generation. Unfortunately, the United States cannot expect all children to have an equal start in life without establishing national guidelines for early childhood health, education and family support and by expecting each parent to finance all their children’s needs without much help or direction from the government. To do so, the country would have to find a middle-ground between the engrained “every man for himself” mentality, which promotes hard work, perseverance, and determination, and the American Dream aspiration, with which all children grow up, believing they can do anything they put their mind to. For this to be true, however, all children need to start on an equal playing field, with adequate healthcare and education for all. We can only hope to achieve this if the US makes some compromises and starts establishing programs proven to be successful in other OECD countries such as national laws, policies, and funding programs in all areas of early childhood.

If a child is born into a low-income family with parents who do not have access to adequate healthcare before and after birth, who cannot send their child to preschool and who cannot take time off work to take care of the child while providing for them simultaneously, this child will from the youngest age be behind his or her peers who were given a better start in life. It seems paradoxical that covering everybody would lift everybody, and that this approach would work better than a targeted approach. In the United States, the lowest tier receives some small
benefits, but the threshold to be eligible is so low that many people who need support do not get it. One solution may be to raise the threshold of eligibility. However, even this is not what other countries do. Instead, the top performing countries offer support to all. Given the importance of the early childhood years for lifelong development, and given how high the returns of investments in early childhood are, the United States should use the successes of other OECD countries as an example.

Limitations

This study has several limitations. On the quantitative side, due to the wide variety of information I found in several data banks, which was collected by different organizations, there was no homogeneous set of data containing all the desired indicators collected in the same manner and following the specific guidelines. Therefore, the countries do not all have the exact same data available to make comparisons, so there could be discrepancies in the results. Additionally, certain data sets I used were missing values for a few countries, which could skew the results, despite having been accounted for in the calculations. For example, although Italy was cited in several articles as being a leader in early childhood education (ECE), my data analysis did not place Italy in the top four countries in ECE. Furthermore, all the rankings were calculated manually, rather than using a code, which could have led to errors and unintentional bias. On the qualitative side, the lack of access to and clarity of official government policies, the language barrier for certain countries and the absence of condensed information about early childhood and parenting in several countries led to an occasional reliance on non-official or non-peer reviewed literature and could have led to some oversights. Finally, it is very difficult to make causal inferences only from reviewing the literature, so the conclusions and recommendations are based solely on observation of association.
Next steps

This type of study is useful because it allows us to gain insight and make informed hypotheses, however it does not provide us with empirical proof. Therefore, a country implementing policies would need to evaluate their impact rigorously. This study opens a wide set of questions regarding how low performing countries can use the example of high performing ones to improve their early childhood policies to better the condition of young children and families. Specifically, how can they design evidence-based policies, implement them and evaluate their effectiveness? Ideally, randomized trials would allow us to verify these findings and prove causality. However, in studies involving human subjects, randomized trials are often neither feasible nor ethical. Instead, a country could follow a quasi-experimental study design, in which they implement parental leave, health or educational policies in certain counties first, evaluate the outcomes compared to areas that did not receive the policy, and then, if the results are positive, scale-up the policy implementation to other counties and eventually the entire country. Following this implementation strategy, the most effective evaluation method would be a stepped-wedged model, in which counties are randomly crossed over from the control group (areas where the policy is not implemented) to the experimental group (areas exposed to the policy implementation) until the whole country is covered.

If I were to pursue this study further, I would be interested to compare the early childhood policies of countries recently integrated into the OECD with those of currently developing countries. Specifically, I would like to look more in-depth into the health and educational policies of countries such as Chile, Mexico and Turkey put in place in the last few decades, which resulted in a significant decline in infant and maternal mortality as well as an increase in pre-school attendance. While their performance in these domains is still below the
OECD average, their rapid progress could help inform other countries currently going through a similar economic and demographic transition.
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