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American and German Mothers' Child Care Choice: Does Policy Matter?

By C. Katharina Spiess*

Summary

This paper conducts a cross-country comparison of the effects of child care policies on a mother's child care choice for her youngest preschooler using micro-level data from the United States and Germany. Separate maximum likelihood estimations for employed and nonemployed mothers demonstrate that, in the United States but less so in Germany, policy variables play an important role in explaining employed mothers' child care choices. This pattern is reversed for nonemployed mothers: nonemployed West German mothers' choices are much more affected by regulations and policies. Furthermore, the results show that the child's age plays a very important role in explaining the mother's decision for formal care, especially in West Germany.

1. Introduction

Some kind of state intervention in markets for child care can be found in all industrialized countries. There seems to be a consensus on some failure of markets for child care, or at least on the assumption that these markets are substantially different from other markets. However, there is a diverse discussion on the appropriate policy instruments for state intervention in these markets, which is reflected in the very different child care policy systems of different countries. Common to nearly all child care policy systems is the idea that state intervention is an instrument to support and protect the consumers of child care, the children and their parents. Having decided that government intervention is desirable, policy makers need to know about the effects of child care policies on the choice patterns of the consumers.

This study is an attempt to analyze these effects using micro data. In contrast to the few other studies¹ which analyze how different child care policies affect child care choices, this study takes advantage of a cross-country comparison. Two industrialized countries with substantially different child care policies have been chosen: the United States and Germany.

The remainder of this paper is organized as follows². The next section presents a brief overview of the United States and German child care policy systems. This is followed by a discussion of the models used for this analysis. In the next section the data and variables are described. After discussing the results some conclusions are presented.

2. Child Care Policies in the United States and Germany³

When describing different child care policy systems it is helpful to distinguish between fiscal and regulatory policies.

Fiscal policy in the United States can be characterized as a policy mix, which on the one hand consists of tax credits to support market work of both parents and on the other hand consists of subsidies and transfers that are mainly targeted toward the support of low-income families. These policies reflect the overall philosophy that child care is mainly the responsibility of parents and that the government should only step in when the parents' care is inadequate or deviant.

The largest program on the federal level, in terms of federal expenditures, is the child care tax credit. This tax credit enables a family with two employed parents to claim child care expenses up to \$2,400 for one child and \$4,800 for two or more children. The credit depends on family income, but is not directly related to the tax rate. In addition to the federal tax credit, most states provide a child care tax credit as well. However, in most states, these credits only benefit families to the extent that they are liable for income tax.

Besides tax credits, the federal government subsidizes child care through grants and other forms of assistance. In most instances subsidies and transfers are channeled as federal grants through state governments to the supply and demand side of the United States child care market. Large federal programs are the Social Services Block Grant (permanently authorized under Title XX of the Social Security Act) and the Child Care and Development Block Grant Program. Several interrelated federal programs are aimed at Aid for Family with Dependent Children (AFDC) recipients, persons who have just left AFDC, or persons who are at risk of enrolling in AFDC. A large amount of money for child care is allocated to the Head Start Program and the Child Care Food Program. The federal child care programs originate in different departments and agencies and there is no federal agency responsible for coordinating federal child care efforts. In addition to these federal programs, many states have enacted fiscal policies to support care in day care centers or family day care homes.

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¹ See for example, Michalopoulos, Robins and Garfinkel (1992), Hofferth and Wissoker (1992), Ribar (1992) and Hotz and Kilburn (1991, 1994) for United States studies, and Merkle (1994) for a German study.

² For a more in-depth version of this paper, see Spiess (1995).

³ For a further description of the United States child care policy system see, for example, Morgan (1987) and United States Advisory Commission on Intergovernmental Relations (1994). For the German equivalent see, for example, Deutsches Jugendinstitut (1993) and Tietze, Rossbach, and Roitsch (1989).

Regulatory policy in the United States consists mainly of minimum quality standards to guarantee a minimum quality of care, particularly in day care centers. There are no federal regulations setting forth nationwide standards of child care quality. Regulating child care is solely a state and community responsibility. State and local regulations affect day care centers and in some cases family day care homes as well. Standards vary greatly not only between states, but also on the local level. Regulations usually cover, for instance, licensing requirements, maximum group size and maximum child-to-staff ratios in day care centers and family day care homes, training requirements for care providers, and building requirements.

Fiscal child care policy in Germany differs for children below and above the age of three. The policy that focuses on children below the age of three primarily covers transfers to the demand side if parents care for their child themselves. Based on the political goal that one parent should stay at home with a young child, parents get a federal child rearing benefit for a period of two years. This benefit becomes income-dependent when the child reaches the age of six months.

The policy that is focused on older preschoolers aims to support kindergarten care⁴, mostly for educational reasons. Nonprofit organizations or communities that provide kindergarten care receive subsidies. These subsidies come exclusively from the German states and communities; in general there are no federal child care programs. The amount of the subsidies varies from state to state and between communities.

In 1992, in North Rhine-Westphalia, the most populous state in Germany, 54 percent of the operating costs and 75 percent of the investment costs were subsidized by the state and the community. Regulatory policies in the German sector for infant care cover regulations on parental leave for employed parents. Since 1992 parents can go on parental leave until the third birthday of a child. However, the main regulatory policies consist of minimum quality standards to guarantee that the quality of child care is adequate for a child's development. In Germany, regulating child care is mainly a state and community responsibility. Nevertheless, there is a federal law that gives the framework for further regulation by states and communities. The federal law requires, for instance, a license for day care centers and family day care providers who care for more than three children (in addition to the care taker's own children). German states have their own laws concerning minimum quality standards, particularly for day care centers. They regulate maximum group size and maximum child-to-staff ratios, training requirements for care providers, and building standards. In some states the service schedules and parental fees for kindergarten care are regulated as well.

3. Models

The models that are used for the empirical analysis of child care policy effects describe the choice of child care

arrangements of mothers for their youngest preschooler. Since child care in the United States and Germany is still considered to be primarily the mother's responsibility, it is assumed that she is the decision maker.

The mother's employment decision is further assumed to be independent of the child care decision⁵. However, as shown by Hotz and Kilburn (1991), when analyzing child care choices it is important to take into account that employed mothers and nonemployed mothers differ in their child care choice behavior. One major difference between those two groups is that nonemployed mothers usually have one care option more than employed mothers. Nonemployed mothers can take care of their child themselves, while every hour a mother works in the market requires an hour of care by someone else. Therefore, it is assumed that an employed mother can choose between formal care and informal care options, while a nonemployed mother can choose among formal care, informal care and sole maternal care.

For this analysis it is further assumed that a mother takes child care policies as exogenously given⁶. It is assumed that a mother's child care choice is also influenced by socio-demographic factors of the mother and her child, household characteristics, including income, characteristics of the mother's job, regional characteristics, and the price of formal care⁷.

The three different child care arrangements under investigation are defined as follows:

- *Formal care* in the United States includes day care centers, group care centers, nursery school (or preschool) and family day care homes⁸, whether they

⁴ In contrast to kindergarten in the United States the German kindergarten is a preschool program for children three years and over until they enter school. It does not belong to the German school system either legally or organizationally.

⁵ This assumption is made because this study emphasizes the effects of child care policies on child care choices in a cross-country comparison way and does not try to analyze the employment decision of mothers. However, the assumption finds further support in the fact that the employment decision is much more related to the decision between maternal care and nonmaternal care than the choice between formal care and informal care. Formal care is only one form of nonmaternal care. If a mother does not have access to this form she can substitute away from formal care with nonmaternal informal care and still be able to work in the market.

⁶ A Tiebout-type regime, in which mothers who would most benefit from a particular child care policy move into regions with such a policy, seems not to be the appropriate characterization for the United States and Germany.

⁷ See, for example, various empirical studies on a mother's child care choice published in a special issue of the *Journal of Human Resources* in 1992.

⁸ The United States data contain no category "licensed family day care", but this is another important formal care arrangement. I allow for possibilities of this arrangement by making the following assignment. If a nonrelative older than 15 years cares for a child outside the child's home in a group that reaches the minimum group size for a licensed family day care home in the state of residence, then the child is enrolled in formal care.

are primary or supplementary care arrangements. In Germany, formal care arrangements cover any combination (half day, full day) of infant day care, kindergarten and family day care. All of these formal care arrangements are directly affected by regulatory and fiscal child care policies.

- *Informal care* is defined as all other care combinations, excluding sole maternal care. This could include either primary or supplementary care arrangements, such as care in the morning or in the afternoon, with household members other than the mother, such as grandparents, or nonhousehold care arrangements with relatives or nonrelatives. These types of care arrangements are usually based on a personal relationship between the care taker and the parents and are not directly affected by state intervention.
- *Maternal care*: Children are assumed to be in maternal care if the child of a nonemployed mother is using neither formal care nor informal care.

Based on these theoretical assumptions, binomial logit models are estimated for employed mothers and multinomial logit models with three choice alternatives are estimated for nonemployed mothers.

4. Data and Variables

The primary data used in the analysis come from the National Longitudinal Survey of Youth (NLS-Y) for the United States sample (see Center for Human Resource Research 1994) and from the English Language Public Use File of the German Socio-Economic Panel (GSOEP) for the German sample (Wagner, Burkhauser, and Behringer 1993)⁹.

For this analysis two cross sections were chosen: the 1988 wave of the NLS-Y and the 1991 wave of the GSOEP. These survey years were selected because they include a special battery of questions on child care which were not asked in all survey years. The German subsample was restricted to the West German and the foreign subsample, because other research shows that East German mothers have very different patterns of child care behavior than mothers in West Germany (Wagner, Hank, and Tillmann 1995)¹⁰.

From each sample, mothers whose youngest child is a preschooler were selected. Eliminating women with missing information on key variables leaves a sample of 1,181 mothers in the United States and 784 mothers in West Germany.

It should be emphasized that only the West German subsample is truly representative of mothers with preschool aged children. The United States subsample represents only mothers who were aged 23 to 30 in January 1988 with preschoolers. This is due to the sample design of the NLS-Y. Therefore, only the child care choices of relatively young mothers are analyzed in the United States case.

The policy variables of each country were merged with the two country main data sets by the state of residence¹¹. Maximum child-to-staff ratios on the state level and different training requirements for care providers on the state level are included in the analysis as regulatory policy variables. In the case of the United States, the maximum state tax credits and state expenditures per child on direct child care and early childhood services are taken as indicators for the state's fiscal policy. In the West German case provision rates for formal care on the state level are included in the analysis. They can be interpreted as indirect effects of the different fiscal policies of the states, since entry into the West German day care market is hardly possible without subsidies by the states and communities (see section two of this paper). The subsample of nonemployed mothers in West Germany also includes a variable indicating if a mother is on parental leave¹².

For exact definitions of the exogenous variables that are used for the estimations see Tables 1 and 2.

5. Results

The results of the multinomial logit estimates are presented in Tables 3 and 4. It should be noted that the models for each subsample in each country are not entirely compatible, in the sense that the variables used differ across specification. Rather, the specifications that were chosen take country, group, and data specific characteristics into account. Because the main focus of this study is on formal care, only the marginal effects on the probability of choosing formal care are presented.

In each of the two result tables the last row shows the probability that a mother with mean characteristics chooses formal care for her youngest preschooler. It is found that employed mothers in both countries have a higher probability of choosing formal care than nonemployed mothers. Mothers in West Germany have a higher probability of choosing formal care than their American counterparts, particularly employed mothers.

⁹ The income variables used in the German subsamples are merged from the Syracuse University PSID-GSOEP Equivalent Data File (see Burkhauser, Butrica, and Daly 1995).

¹⁰ The NLS-Y cross section excludes the two supplemental subsamples of Hispanic, African American and disadvantaged youths and the military sample to avoid an over-sampling of ethnic minorities and military persons.

¹¹ The state of residence for the NLS-Y is given with the NLS-Y Geocode data while for German data the state of residence is available in the German Public Use File of the GSOEP.

¹² The information on states' child care policy variables for the United States child care market is taken from Morgan (1987), U.S. Department of Labor (1988) and Adams and Sandfort (1992). David Blau, University of North Carolina at Chapel Hill provided the information on the states' tax credits. I gratefully acknowledge this help. The sources for the German equivalents are Deutsches Jugendinstitut (1993), Statistisches Bundesamt (1992) and Tietze, Rossbach, and Roitsch (1993).

Table 1

Variable Definitions: United States Sample

Variables	Definitions
<i>Policy Variables</i>	
Expend	State's expenditures per child on direct child care and early childhood services in fiscal year 1990 (in 1991 dollars).
lnExp	Logarithm of Expend.
SmaxCC	State's maximum tax credit for child care expenditures for a household with \$15,000 of income in 1987 and two children (in 1991 dollars).
Ratio2	State's maximum child-to-staff ratio on licensed day care centers for children aged 2.25 in 1986.
Ratio22	Ratio2 squared
Ratio4	State's maximum child-to-staff ratio on licensed day care centers for children aged four years old in 1986.
Ratio42	Ratio4 squared.
Famed	Indicator variable equal to unity if state has preservice training required in family day care in 1986.
Centered	Indicator variable equal to unity if state has preservice training required for teachers in day care centers in 1986.
<i>Socio-Demographic Variables</i>	
Agem	Mother's age in years.
White	Indicator variable equal to unity if mother white.
Edu	Mother's education: highest grade completed as of May 1, 1988.
EduD	Indicator variable equal to unity if Edu above sample average of employed mothers.
<i>Age of the Child Variable</i>	
AgeK	Child's age in years.
<i>Household Structure Variables</i>	
Single	Indicator variable equal to unity if single parent household.
OtherHH	Indicator variable equal to unity if mother living in a household with other persons besides her husband and own children.
Preschl	Number of other preschoolers in the household.
School	Number of school children in the household.
<i>Household Resource Variables</i>	
Hlincom	Husband's yearly labor income in 1987 (in 1991 dollars).
LnHlincom	Logarithm of Hlincom.
<i>Job Related Variables</i>	
	Wage Mother's hourly rate of pay in current, most recent job in 1988 (in 1991 dollars).
LnWage	Logarithm of Wage.
Workt	Mother's hours worked in survey week (market work).
<i>Regional Variables</i>	
Metropol	Indicator variable equal to unity if mother is living in Standard Metropolitan Statistical Area.
South	Indicator variable equal to unity if mother's state of residence is in the South.
Source: Author.	

Table 2

Variable Definitions: West German Sample

Variables	Definitions
<i>Policy Variables</i>	
Ratio	State's maximum child-to-staff ratio on infant day care centers if child under age 3 and in kindergartens if child aged 3 and older in 1992 or earlier.
Ratio2	Ratio squared.
Bprovisf	State's slots in infant day care and licensed family day care ¹⁾ if child under age 3 and in kindergarten and licensed family day care if child aged 3 and older (per 100 children in the corresponding age group in 1990).
Bprovisfd	Indicator variable equal to unity if mother is living in state with above average value of Bprovisf.
Famle	Indicator variable equal to unity if mother is on parental leave.
<i>Price Variable</i>	
Price	State's monthly mean parental fee in infant day care if child under age 3 or in kindergarten if child aged 3 and over in 1989/1990 (in 1991 DM).
<i>Socio-Demographic Variables</i>	
Agem	Mother's age in years.
Agem2	Agem squared.
Foreign	Indicator variable equal to unity if mother is living in non-German household.
Married	Indicator variable equal to unity if mother married and husband present.
Edu	Mother's years of schooling.
EduD	Indicator variable equal to unity if Edu above sample average of employed mothers.
<i>Age of the Child Variable</i>	
AgeK	Child's age in years.
<i>Household Structure Variables</i>	
Preschl	Number of other preschoolers in the household.
School	Number of school children in the household.
<i>Household Resource Variables</i>	
Hlincom	Husband's yearly labor income in 1990 (in 1991 DM).
LnHlincom	Logarithm of Hlincom.
Wlincom	Mother's yearly labor income in 1990 (in 1991 DM).
LnWlincom	Logarithm of Wlincom.
<i>Job Related Variable</i>	
Fullt	Indicator variable equal to unity if mother works full-time (market work).
<i>Regional Variable</i>	
Country	Indicator variable equal to unity if mother living in city with less than 20,000 citizens.
¹⁾ The available slots in (licensed) family day care for children in the two age groups of interest had to be estimated. These estimation use an age distribution given by Tietze, Rossbach, and Roitsch (1993). Source: Author.	

Table 3

**Maximum Likelihood Logit Estimates for Conditional Utilization of
Different Child Care Choices of Mothers in the United States**
t-statistics in parentheses and marginal effects in brackets

Variables	Employed Mothers	Nonemployed Mothers	
	Utilization of Formal Care versus Informal Care N = 661	Utilization of Maternal Care versus Formal Care N = 510	Utilization of Informal Care versus Formal Care N = 510
Constant	-4.7070 (-1.718)	5.946 (0.909)	4.519 (0.665)
Ratio2	-0.471* (-1.957) [-0.099]	-0.204 (-0.415)	-0.058 (-0.115)
Ratio22	0.025* (1.765) [0.005]	0.015 (0.534)	0.007 (0.244)
Total Ratio2 ⁺	[-0.011]		[-0.0008]
Ratio4	0.193 (0.724) [0.041]	-0.289 (-0.449)	-0.324 (-0.486)
Ratio42	-0.005 (-0.532) [-0.001]	-0.001 (-0.071)	-0.004 (-0.190)
Total Ratio4 ⁺	[0.012]		[0.0009]
Famed	0.389 (1.635) [0.082]	0.127 (0.283)	-0.426 (-0.880)
Centered	-0.089** (-1.919) [-0.095]	-0.186 (-0.423)	-0.385 (-0.841)
InExp	-0.137 (-0.769) [-0.029]	0.010 (0.23)	0.285 (0.641)
SmaxCC	0.0005** (1.887) [0.0001]	—	—
AgeM	0.041 (0.913) [0.009]	0.160 (1.570)	0.118 (1.105)
White	0.792*** (2.719) [0.167]	0.474 (0.954)	0.195 (0.382)
Edu	—	-0.398*** (-3.457)	-0.341*** (-2.844)
EduD	—		[0.014]
AgeK	-0.024 (-0.116) [-0.005]	—	—
Single	0.171*** (2.642) [0.036]	-0.295** (-2.344)	-0.277** (-2.107)
	0.835** (2.265) [0.176]	0.811 (1.312)	0.999 (1.528)
			[-0.031]

Table 3 Continued

Variables	Employed Mothers	Nonemployed Mothers	
	Utilization of Formal Care versus Informal Care N = 661	Utilization of Maternal Care versus Formal Care N = 510	Utilization of Informal Care versus Formal Care N = 510
OtherHH	-0.078 (-0.243) [-0.016]	0.230 (0.372)	1.124* (1.786)
Preschl	-0.308* (-1.717) [-0.065]	0.862** (2.437)	0.639* (1.743)
School	-0.396** (-2.397) [-0.084]	0.567 (1.556)	0.485 (1.297)
InHhIncom	-0.011 (-0.377) [-0.002]	0.138*** (2.869)	0.161*** (3.120)
InWage	0.890*** (4.553) [0.188]	—	—
Workt	0.031*** (5.078) [0.007]	—	—
South	-0.502* (-1.793) [-0.106]	0.298 (0.494)	0.156 (0.249)
Metropol	0.411* (1.774) [0.087]	-0.103 (-0.230)	-0.051 (-0.108)
Probability of Using Formal Care (mother with mean characteristics)	0.294		0.021

*) significant at 10 percent level. — **) significant at 5 percent level. — ***) significant at 1 percent level. + "Total Variablename" stands for the marginal effects of variables which are included in the estimations with their square values too.

Source: NLS-Y 1988 (cross-sectional sample); author's calculations.

The more detailed results are discussed below, starting with the child care choices of employed mothers.

As the first column of Table 3 shows, policy variables induce employed mothers to arrange child care consumption decisions in the United States. This is true for both regulatory and fiscal policy variables.

The influence of the regulatory variables on the probability to choose formal care is not uniform. Mothers living in states with more stringent child-to-staff ratios for 2.25-year-old children in center care have a higher probability of choosing formal care than mothers living in states with less stringent child-to-staff ratios. Given the assumption that mothers do ask for quality care, this might be due to a so called "quality assurance effect" (Hotz and Kilburn 1994). However, there is also an effect of regulatory variables that works in the opposite direction. More

stringent quality standards, such as training requirements for care providers in day care centers, also decrease the probability of using formal care, perhaps due to an indirect "price effect." As more stringent quality standards for formal care increase the costs to produce this type of care, the price for formal care is expected to increase as well. Assuming that formal care is a normal good, this results in a substitution away from formal care.

Among the fiscal policy variables, the influence of the state child care tax credit variable is significant at the 5 percent level. As expected, the higher a state's maximum tax credit the higher the probability that a mother chooses formal care. However, the size of the marginal effect is rather small. An increase in the maximum tax credit of -10 increases the probability of choosing formal care by only 0.001.

Table 4

**Maximum Likelihood Logit Estimates for Conditional Utilization of
Different Child Care Choices of Mothers in West Germany**
t—statistics in parentheses and marginal effects in brackets

Variables	Employed Mothers	Nonemployed Mothers	
	Utilization of Formal Care versus Informal Care N = 313	Utilization of Maternal Care versus Formal Care N = 471	Utilization of Informal Care versus Formal Care N = 471
Constant	−6.105 (−1.045)	9.299 (1.518)	14.857 (2.346)
Ratio	−0.130 (0.676) [−0.033]	0.973** (2.052)	0.866* (1.685)
Ratio2	0.002 (0.299) [0.0005]	−0.025* (−1.850)	−0.022 (−1.475)
<i>Total Ratio+</i>	[−0.021]		[−0.021]
Bprovisfd	0.798* (1.861) [0.199]	—	—
Bprovisf	—	−0.051* (−1.893)	−0.059* (−1.895)
Price	−0.0007 (−0.196) [−0.0002]	−0.004 (−0.942)	−0.005 (−1.160)
Famle	—	−1.123 (−1.392)	−1.333 (−1.518)
Agem	0.130 (0.372) [0.032]	−0.403 (−1.149)	−0.861** (−2.442)
Agem2	−0.002 (−0.290) [−0.0004]	0.006 (1.096)	0.013** (2.522)
<i>Total Agem+</i>	[0.007]		[−0.003]
Foreign	0.169 (0.432) [0.042]	1.182** (2.177)	0.539 (0.849)
Married	−0.437 (−0.673) [−0.109]	0.591 (0.590)	3.244** (2.206)
Edu	—	0.073 (0.567)	0.020 (0.132)
Edu2	0.126 (1.342) [−0.032]	—	—
AgeK	1.212*** (7.066) [0.303]	−1.825*** (−7.087)	−1.786*** (−5.684)
Preschl	−0.420 (−1.020) [−0.105]	−0.117 (−0.278)	−0.022 (−0.047)

Table 4 Continued

Variables	Employed Mothers	Nonemployed Mothers	
	Utilization of Formal Care versus Informal Care N = 313	Utilization of Maternal Care versus Formal Care N = 471	Utilization of Informal Care versus Formal Care N = 471
School	-0.195 (-0.807) [-0.049]	-0.007 (-0.029) [-0.002]	0.385 (1.229)
InHlincom	0.072 (1.206) [0.018]	-0.008 (-0.080) [0.001]	-0.137 (-1.302)
InWlincom	-0.011 (-0.271) [-0.003]	—	—
Fullt	-0.132 (-0.033)	(-0.353)	—
Country	-0.442 (-1.252) [-0.110]	-0.219 (-0.481)	0.005 (0.009)
Probability of Using Formal Care (mother with mean characteristics)	0.382	0.027	

*) significant at 10 percent level. — **) significant at 5 percent level. — ***) significant at 1 percent level. — +) "Total Variablename" stands for the marginal effects of variables which are included in the estimations with their square values too.

Source: GSOEP 1991 (Samples A and B); author's calculations.

The effects of other variables in the estimation for employed United States mothers are also worth mentioning. Job-related variables are the most influential. The number of hours a mother works and her hourly earnings are significant at the 1 percent level. The more hours a mother works per week and the higher her hourly earnings, the higher her probability of choosing formal care. There is also an "economies of scale effect" if an informal care provider takes care of more than one child. The more preschoolers and the more school children in the household, the lower the probability that a mother chooses formal care. The "school children effect," which is significant at the 5 percent level, is stronger than the "preschooler effect." However, this could also be evidence that older siblings help take care of their younger sisters and brothers. Further, the probability of choosing formal care is higher for single mothers than others, which supports the hypotheses of a smaller set of informal care arrangements available to single mothers. The analysis also supports the result of other studies that mothers belonging to ethnic minorities are less likely to choose formal care. The importance of regional differences in the supply of formal care is demonstrated by the significance for the variables indicating whether a mother lives in the

South or in a Standard Metropolitan Statistical Area. However, the significance level is only 10 percent. Finally it should be noted that the older the child, the higher the probability that a mother chooses formal care. This coefficient is significant at the 1 percent level.

The results for employed mothers in West Germany demonstrate that their care choices are not strongly affected by policy variables (see Table 4). Only the variable indicating the regional provision of formal care is significant at the 10 percent level. Mothers living in a German state with a supply of formal care greater than the federal average choose formal care with a higher probability than the reference group. This can be interpreted as an indirect effect of different fiscal policies among the West German states.

The results in Table 4 further indicate that an employed mother's choice for formal care is mainly explained by the child's age. A comparison of the size of the marginal effects indicates that the effect of a child's age is much stronger in West Germany than in the United States¹³. For employed

¹³ This statement remains correct when the size of the marginal effects is compared as a percentage of the probability that a mother with mean characteristics chooses formal care.

mothers in West Germany a one year increase in a child's age leads to an increase in the mother's probability of choosing formal care by 0.30, while the probability will only increase by 0.04 for employed mothers in the United States¹⁴.

As demonstrated in columns two and three of Table 3, child care choices of nonemployed mothers in the United States are not affected by policy variables. The insignificance of regulatory variables might be the result of the "price effect" and "quality assurance effect" canceling each other out, so that overall a more stringent child-to-staff ratio has little effect on the probability of formal child care utilization. However, this result might also have other explanations. Nonemployed mothers need much less full-time care than employed mothers. Since their children use fewer hours of formal care, nonemployed mothers might be less concerned about either quality or indirect price effects.

Nonemployed mothers' child care choices in the United States are, however, affected by a mother's level of education. More highly educated mothers are more likely to choose formal care than less educated mothers. As with employed mothers, a child's age also explains a nonemployed mother's decision for formal care, and to an even greater extent. The probability that an employed mother with mean characteristics chooses formal care increases by 12 percent as the child becomes one year older, while for nonemployed mothers this probability increases by 48 percent. The husband's labor earnings also affect the probability of choosing formal care: a 10 percent increase in his labor earnings decreases the probability of choosing formal care by 0.05, holding all other variables fixed at their means. The variable that indicates if the mother's household includes someone in addition to family is significant at the 10 percent level only for the choice between formal and informal care. These mothers are less likely to choose formal care arrangements than mothers in the reference group, perhaps because the additional nonnuclear household members provide some informal care. The choice between maternal and formal care, and less significantly between informal and formal care, is influenced by an "economies of scale effect" as well. The more preschoolers in the household, the less likely that a mother has her youngest child cared for in formal care, which may support the hypothesis that economies of scale do occur, particularly if the mother takes care of her children herself.

Nonemployed mothers' child care choices in West Germany, in contrast to those of their United States counterparts or those of employed mothers in West Germany, are significantly affected by child care policy variables (see columns two and three in Table 4). The negative sign of the total marginal effect of the child-to-staff variables can be interpreted as the dominance of "quality assurance effect." Fiscal policy also seems to influence significantly the child care choices of nonemployed mothers. The higher

is the provision of formal care in a mother's state of residence, the higher is her probability of choosing formal care for her youngest preschooler.

As in the United States, the child's age plays a dominant role in explaining child care choices of nonemployed mothers in Germany. Mothers living in a non-German household seem to prefer to take care of their child themselves rather than having the child cared for in formal care. This effect is significant at the 5 percent level. The insignificance of this effect for a mother's decision between informal and formal care (column 3, Table 4) might give some support to the idea that the significant effect captures cultural differences and not the access to a larger set of informal care options for non-German mothers. The hypothesis that married mothers have access to more informal care opportunities than nonmarried mothers is supported by the significant influence of marital status on the probability of choosing informal care. The highly significant influence of a mother's age on her decision to choose formal care is remarkable. A closer look at the data indicates that this might be due to the fact that the older the mother the less likely is it that the child's grandmother can perform as an informal caregiver. This might be the case because older grandmothers might need care themselves. Further it is important to notice that the education of a mother does not have any significant influence on her care choice in West Germany.

6. Conclusion

Taking together, the results of the empirical analysis support the claim that child care policy affects child care choice. However, the policy effects differ by country and the employment status of the mothers.

Policy variables play an important role in explaining the child care choices of employed mothers in the United States. The "quality assurance effect" captured by the significant influence of the maximum child-to-staff ratio for 2.25-year old children shows that, all else equal, stricter quality standards increase the use of formal care by employed mothers. The results concerning the maximum state child care tax credits indicate that higher tax exemptions increase the use of formal care. However, this effect is expected to be small in magnitude. In addition, child care choice of an employed mother in the United States is significantly influenced by her hourly earnings and her weekly working hours. Overall in the United States formal care for employed mothers seems to be a care arrangement that is chosen by mothers who need more than a minimal number of hours of nonmaternal informal care and who can afford to pay for formal care. This result seems

¹⁴ It is this strong influence of the child's age that suggests further estimations based on a second subsample of the GSOEP (see Spiess 1995). The second subsample is restricted to children over three years of age.

reasonable since formal care arrangements in the United States are mostly full-time care.

In West Germany, child care choices of employed mothers are less affected by policy variables. However, the significance of the provision variables allows one to predict that the use of formal care will increase as the supply increases.

For nonemployed mothers the picture seems very different. In the United States the child care choices of this group of mothers is not explained by policy variables, but by a mother's education and her husband's income. For nonemployed mothers in the United States, the use of formal care seems less driven by its care function than by its role in a child's cognitive and social development. More educated mothers seem to appreciate the educational functions of formal care more than less educated mothers.

The child care choice of nonemployed mothers in West Germany is much more affected by regulatory variables than the care choice of employed mothers: in particular,

quality regulations have a significant influence. In addition, care choices of nonemployed mothers, like those of employed mothers in West Germany, are restricted by provision rates. The German parliament has passed a law that entitles each child aged three and older to a slot in a German kindergarten starting in 1996; the results of this study suggest that mothers will claim this right. For nonemployed mothers in West Germany, the study further demonstrates that income and education have no significant effect on their child care choices. I believe that this is because the German child care system, with its emphasis on kindergarten as the beginning of education, is acknowledged by all mothers independent of their educational background.

Apart from the effects of policy variables the effect of a child's age is worth mentioning. Independent of the country and the employment status of the mother, it is clear that a child's age plays a very important role in explaining a mother's decision for formal care.

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