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ESTIMATING CHILD-CARE DEMAND FOR STATEWIDE PLANNING

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KEY WORDS: Household survey, Child-care market, Effective demand, Resource and referral.

I. Introduction. To know who buys lottery tickets or to estimate how many children enter the child-care market, the state of Oregon conducts a biennial household telephone survey serving a variety of agency needs for information. This paper presents findings based on the 1992 Oregon Population Survey and discusses applications to a statewide effort to assess child-care needs. The Oregon Progress Board uses the information to track child-care and related economic bench-marks, while Oregon's Commission for Child Care and Child Care Resource and Referral Network require demand estimates for strategic planning.

The paper describes a continuing effort by the State of Oregon to develop better information for statewide planning for the development of child-care resources. We have two principal audiences. One is the network of regional resource and referral agencies whose job is to be the best independent source of information about the child-care market, family needs, and available resources in their geographic areas. Oregon relies heavily on statewide, regional, and county-level planning for child care and other services affecting families. The other audience is the public-policy maker whose understanding of market forces and regional differences can guide decisions on how and where to strengthen these resources for families and children.

Based on a larger report, Estimating Child Care Needs in Oregon, 1993 (Emlen and Koren), this paper describes the approach and methods used to re-analyze data from a biennial statewide household survey and to combine these sample data with population estimates. The full report measured demand, supply, and other key market forces that shape the development of child care in each region of the state. The study does not assess the quality of care nor deal fully with work and family issues but tackles questions about the availability and accessibility of child care in Oregon, and whether it is affordable. The principal contribution of the study is providing a population-based analysis of effective demand for, i.e., current usage of, paid child care and a population-based assessment of the supply of child care listed with resource and referral agencies. For the full report, send \$10 for Estimating Child Care Needs in Oregon, 1993 from the Oregon Child Care Resource and Referral Network, 1900 Front Street NE, Salem OR 97303. (503) 375-2644; FAX 503-399-9859.

II. Statement of problem. State officials are embarrassed when they cannot answer simple questions like, "How many children are in family day care?" Yet

anyone who has tried to estimate or guess such numbers by extrapolating from a variety of studies and census figures knows how frustrating it can be. The census is either out of date or not exactly what you need to know. Different reports use different age categories, define child care differently, and use numbers or percents of a different population base. The unit of analysis is the household in some reports and the child in others. Labor-force participation rates may be found for men and women, but not for mothers and fathers according to marital status, which would be more relevant to child-care responsibilities.

Thus, planners find that existing data cannot be compared or linked, and estimates of child-care demand are out of reach. Lacking a Rosetta Stone to decipher the hieroglyphic statistics from different digs, what is needed is one coherent set of data that yields all the variables required for crossing types of child-care arrangements with age of child, by marital status and labor-force participation of parents by household income, and by county or other geographic regions of the state. These are the demand data that go in the denominator. Oregon's child care resource and referral network provides the numerator which is the supply of child care that is known to agencies and accessible for referral purposes. But without both numerator and denominator for regions or for the state as a whole, there can be no percent for evaluating whether the agency's supply of accessible child care is large or small in relation to the population to be served.

III. Analytic approach.

Sources of data. The data for the analysis came from four sources: 1) The 1992 Oregon Population Survey, which was conducted by Bardsley & Neidhart Inc. for the Oregon Progress Board and co-sponsored by the State Economist, Demographic Task Force, Oregon Commission for Child Care, and a number of state agencies. These are the principal data for the study, including: age of child, type of paid care, household income, labor force and marital status of parents.

2) July 1, 1992 population estimates from the Center for Population Research and Census at Portland State University. 3) Detailed child-care patterns used to estimate family day care and unpaid care, from employee surveys conducted by Arthur Emlen & Associates, Inc. in cooperation with the Regional Research Institute for Human Services, Portland State University. 4) Child-care supply statistics compiled from the on-line CareFinder system of the Oregon Child Care Resource and Referral Network, with support from the Oregon Commission for Child Care.

Sampling. The 1992 Oregon Population Survey was conducted for the Oregon Progress Board by Bardsley & Neidhart, Inc., Laura Neidhart, President. A random digit sample of 3291 households produced at least 400 telephone interviews in each of eight regions of the state regardless of population. Calls were conducted during afternoon and evenings with at least two call backs at varied hours. Each county sample was weighted by population for representative analysis of data for the state as a whole. Of the total sample of households, 27% were households with children under age 13; thus the survey provided us with an unweighted sample of 896 households with children under age 13, with 1582 children under age 13, of whom 556 were under age 5. Weighted samples differed somewhat. The survey sample produced approximately 112 family households and 200 children under age 13 per region. Since this was a study of child care based on numbers of children, we used the Oregon child population from the 1990 United States Census as a more appropriate basis for weighting our sample than the population of all Oregonians, which includes single-person households. This weighting by child population, reduced the need for a correction for sampling bias caused by lack of home-phone ownership which is highest among single-person, non-family households. Although some families also may be priced out of home-phone ownership and hence out of the sample, a comparison of family incomes between our sample and the 1990 US Census shows very little difference, validating the representativeness of the 1992 child-care sample on a key issue. According to the 1990 U.S. Census, 35.5% of Oregon family incomes were less than \$25,000; according to the 1992 Oregon Population Survey for families with children under age 13, 32% of Oregon family incomes were less than \$25,000, and 35% of families who paid for child care had incomes of less than \$25,000. For further evaluation of Oregon Population Survey findings, see ASA Conference paper by Carter and Schafer (1993).

Sampling variability. The standard error ranges that one could expect at the 95% confidence level are as follows, remembering, however, that the child samples contain approximately 1.71 children per household; so the household samples provide a more conservative estimate of possible sampling variation. The sampling variation:

	<u>Percentages Close to:</u>		
	<u>10%</u>	<u>25%</u>	<u>50%</u>
Regions			
Households N=112	5.6%	8.0%	9.3%
Children N=200	4.2%	6.0%	6.9%
Statewide			
Households N=896	2.0%	2.8%	3.3%
Children N=1582	1.5%	2.1%	2.5%

Furthermore, when estimating numbers of children in child care, we are multiplying percentages from the survey sample times population figures, which can have the effect of multiplying sampling and rounding errors by large numbers. A percentage that is off by one percent is off by more than 5000 children out of Oregon's estimated 557,925 children under age 13.

Defining the household in terms of mothers and single fathers; dividing the pie by types of children.

We classified households as having a married mother, a single mother, or a single custodial father, and we classified single parents either as living as a lone adult or as with another adult, which is a matter of some importance since it suggests the likelihood of having adult live-in child-care resources. Two files were created: a household file and a children's file in which all children were coded according to the relevant variables of parental status. Since only 5% of the children had single custodial fathers, it was advantageous to calculate the labor-force status of children who were living with either a mother or single father, thus creating the ability in each analysis to estimate the parental status of all Oregon children, either statewide or in any region of the state.

Most of the analyses in the study calculate percentages of children, not of parents. "Parents" and "household" are defined in terms of the mother or, if there is no mother in the household, then a single custodial father. All children live with a mother or a single father. Think of all the children under age 13 as Marionberries, an Oregon favorite, in a pie on which the parents form the crust. If you slice the pie by labor-force participation of the mother or single father, then the labor-force piece is 70% of the crust on top. But that is not how the berries are distributed. Due to the fact that labor-force families are smaller, 64% of the children have a mother or single father in the labor force. In this study, when we slice the pie we usually are counting the berries, because, in estimating child-care demand, the only way to combine percentages from survey samples with population figures was to use child as the unit of analysis. The study includes the population of all children who live in households regardless of whose they are.

Primary paid care versus secondary and multiple arrangements.

The statistics on the numbers of children in paid child care are in answer to a question asked for each child in the household as to which kinds of paid care that child had (in-home, other home, center, or activities) and which kind was the primary paid arrangement. Families frequently make multiple arrangements as a family for all their children. Less frequently they make more than one arrangement for each child, and rarely they make multiple paid arrangements for each child. Most secondary arrangements consist of care at home by spouse, a variety of unpaid arrangements, or the children looking after themselves or a sibling. In the case of "primary

paid care", there is very little overlap or multiple arrangements among types of *paid* care. For in-home, other home, and centers, the primary paid-care arrangement was all the paid care families had.

Estimating demand for family day care and unpaid care. The 1992 survey asked questions about four types of paid child care for each child under age 13: in-home, other home, center, and activities. By asking about paid care in "other homes", the survey did not distinguish care by relatives from care by non-relatives, which is known as family day care. Therefore, for this study it was necessary to rely on independent employee surveys conducted by the authors to partition "other home" care. In the next biennial survey, we hope to ask about all child-care arrangements for each child, unpaid as well as paid, so we can more easily build the complete picture of the child care economy, formal and informal, market and non-market, paid and unpaid, full-time and part-time.

County sample sizes. In most of Oregon's 36 counties, the sample sizes were too small to provide accurate estimates. If one uses regional percents instead and applies them to the county population, inaccurate county estimates can result, because of the variation between counties within a region. We did both to illustrate the problem and so that those familiar with their counties could see the range of estimated demand and judge for themselves how close the two estimates came. In future years, budget permitting, larger samples will improve our ability to estimate county indicators. This is important, because Oregon relies heavily on county-level planning for child care and other services affecting families.

IV. Findings.

The total child-care economy for all Oregon children under age 13 consists of all the ways that families create or arrange child care either without paying for it or by purchasing it in the community. The findings focus on the size of the child-care market of **paid care**, that is, child care purchased by parents. The following findings describe market forces that drive the nature and extent of paid care. Later, we shall discuss what accounts for the rest of the child-care economy, that is, the unpaid care.

Use of paid care. One-third of the 557,925 Oregon children under age 13 are in care that parents purchase. Two-thirds are not in paid care, because their family composition, part-time employment, staggered shifts, division of labor and shared responsibility, as well as self care by older children, provide alternatives to purchasing care. (See V. Discussion.) Among the major kinds of paid care, nearly twice as many children receive paid care in family homes other than their own as receive paid care in centers.

Types of paid care by age of child. At no age does paid care reach 50%, but substantial numbers are in paid care up through age 11, as shown in Figure 1. Paid care is not just a pre-school phenomenon. The most frequent use of center care is for ages 3, 4, and 5; and as this pre-school specialization drops off at age 6, care in other family homes picks up the slack, becoming as frequent at age 6 as at age 2. In-home (own home) care is highest for ages 2 and 9, but is used at most ages. These figures are of the child's primary paid child-care arrangement. If secondary paid care were shown, group activities would increase 15%, but virtually all other paid arrangements are primary.

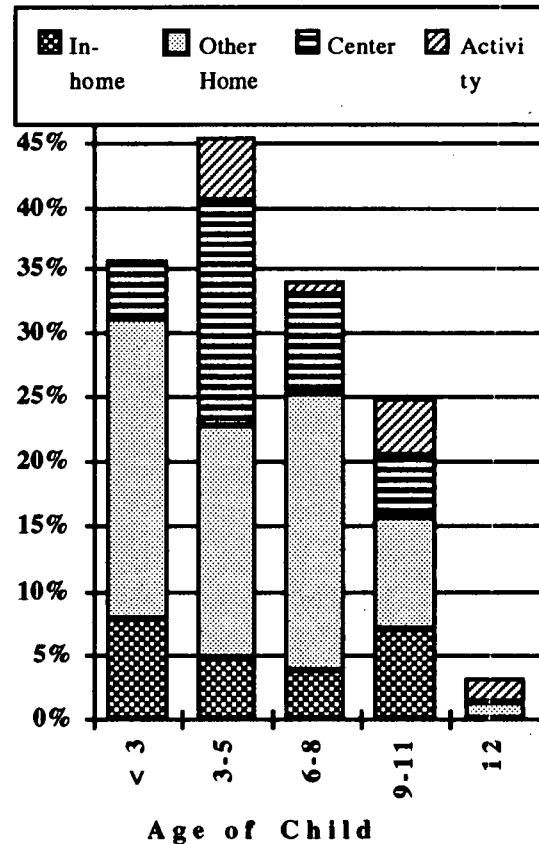


Figure 1. Percent of Children in Paid Care, By Age of Child and Type of Paid Care.

Labor force participation and paid care. Most, but by no means all, of the estimated 182,497 children in paid care have mothers or a single custodial father in the labor force. For 50% of the children that parent is working full time, 29% part-time, and for 3% is unemployed. However, the mothers or single fathers of 18% of the children are not in the labor force. Non-labor-force parents who use paid care may be in school, college, or training programs, or may be users of pre-school or other forms of supplementary care for a variety of reasons other than employment.

Marital status and paid care. When single parents have no other adult living with them in the same household, 50% of their children are in paid care, compared to 26% of the children of single parents who do have another live-in adult and 30% of the children of married couples. Oregon children of married couples make up 71% of those in paid care and 78% of all children under age 13.

Marital and employment status and paid care. Which children are least likely or most likely to be in paid care? As shown in Figure 2, it ranges from 6% for children under age 5 living with a married mother who is not employed to 87% among children under age 5 living with a lone single mother who is employed. For all Oregon children under age 13, the overall average is 33% in paid care. Lone single mothers who need to be employed have very high rates of paid care despite low household incomes, because they have no other adult at home with whom to share child-care responsibilities. In order to clarify differences, this analysis left out single custodial fathers, as well as "single" mothers who lived with another adult with whom they could share child care. Notice that the effect of the child's age is reversed when mothers are employed. Among children of mothers who are not employed, paid care increases when the children are older. Among children of employed mothers, the younger children are more likely to be in paid care, while the older ones often look after themselves after school.

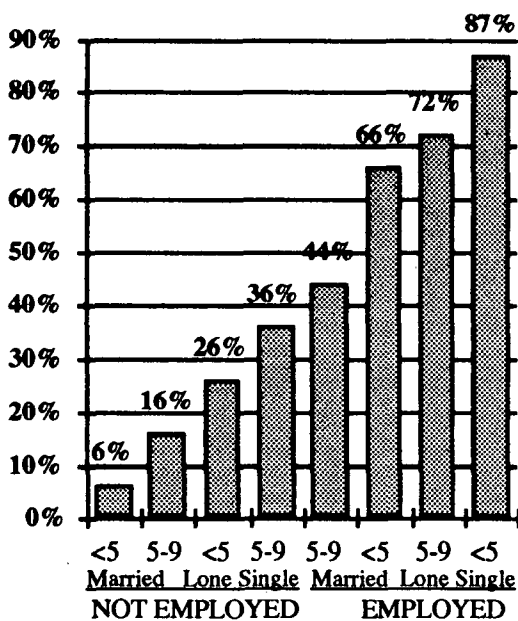


Figure 2. Percent of Children in Paid Care, By Age of Child and Employment Status of Mother: Married Mothers Versus Lone Single Mothers

Household income and the affordability of child care. Low-income households are just as likely to

purchase child care (40%) as those with high household incomes (41%), but middle-income families with household incomes of \$25,000 to \$44,999 are somewhat less likely (30%) to purchase care. Single parents (82% of whom have household incomes of less than \$25,000) have to purchase care despite a low household income, while middle-income families with two parents can rely on a spouse, stagger shifts, or work part time to avoid purchasing child care.

Oregon families experience sharp differences in their ability to afford child care. They vary widely in their household incomes, but the average amount they spend for child care remains remarkably constant at around \$3000 annually despite rising incomes. At each income level, of course, there is wide variation in the child-care expenditures of individual families, because some use part-time paid care for one child while others have two children in full-time paid care. Families purchased a mean of 21 hours of child care per week. Those with household incomes of \$30,000 paid about 10% for child care on the average. As incomes rose, the percent dropped, leveling off at around 5%. As household incomes dropped below \$30,000, the percent spent on child care steeply rose to 15% and 30%.

The Oregon Progress Board has adopted this indicator of affordability, *ten percent of household income spent on child care*, as a work-family and child-care benchmark. Those who spend 10% or more on child care are 59% of families with less than \$25,000, 27% of those with \$25,000 to \$44,999, and 7% of those with \$45,000 or more. Overall, 69% of Oregon families who purchase child care spend less than 10% of their household income on it, but there are two divergent populations on the affordability issue.

Single parents spent an average of 15% of household income on child care, with 64% spending 10% or more of their income on child care. Married couples spent an average of 6% of household income on child care, with 27% spending 10% or more of it on child care.

The need for accessible care. Statewide, 25% of children under age 13 were estimated to be either in family day care or in centers, with a range of 18% to 31% across eight regions of the state. "Family day care" which is child care in the homes of non-relatives, is less visible than centers and must be recruited by the network of agencies that provide referrals and consultation to parents seeking care. To assess the success of these agencies in marshaling family day care homes for referral purposes, we developed three indicators which are shown in Figure 3:

1) **Effective demand (current usage) as percent of population.** The number of Oregon children estimated to be in family day care is 85,800 ($\pm 2,028$) which is 15.4% $\pm 2.4%$ of the 557,925 population of children under age 13. This ranges from 12% to 20% in eight regions of the state.

2) **Agency-known supply as percent of population.** The child capacity of family day care homes listed by or known to Oregon's Child Care Resource & Referral Network is 32,478 which is 5.8% of the 557,925 Oregon population of children under age 13. Regionally, this ranges from 4% to 7%.

3) **Agency-known supply as a percent of effective demand.** The capacity of family day care homes known to R&R agencies or listed for referral purposes is 38% of the total number of children estimated to be in family day care in Oregon. This percentage ranges from 20% to 57% in the eight regions of the state.

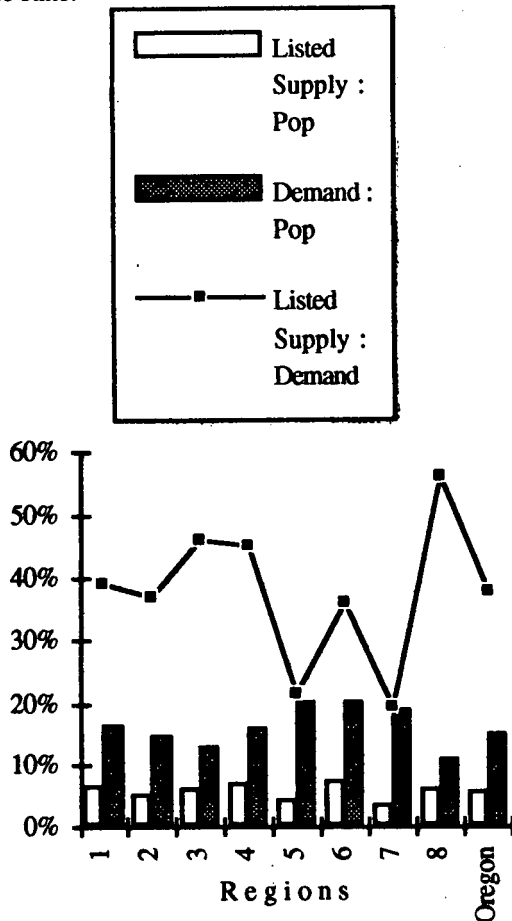


Figure 3. Family Day Care in Eight Regions : Three Indicators Measuring Effective Demand and the Accessibility of Supply.

V. Discussion.

When a family purchases child care in the marketplace, the paid care is best understood as part of a larger mosaic. In the economics of child care, there are powerful reasons why 67% of Oregon children under age 13 are not in paid care:

- Care is provided by a spouse who is not employed.
- A spouse only works part time.
- Spouses work staggered shifts, and employers offer alternative schedules.
- Child care is with an older brother or sister.

- A child is considered old enough to be alone.
- Other family members, relatives, or friends live in or come in.
- A parent works at home.
- Care in the home of a relative or friend is not paid for.
- Care is bartered or exchanged, either by formal agreement or informal reciprocity.
- Care is provided by others as an expression of obligation, service, or voluntary helping.
- Care is in a totally subsidized program such as Head Start.
- Paid-care alternatives are not attractive or do not meet parents' standards.
- Paid-care alternatives are not affordable.

These factors play in concert, in harmony or disharmony, as families divide or share responsibilities, respond to the age-related needs of their children, adapt to employment and workplace demands, and face the difficult task of finding and managing child care and possibly also elder care. The interplay of work-and-family demands with work-and-family-and-community resources is illustrated by a survey of 15 companies and agencies in Lane County, Oregon (Emlen & Koren, 1990) in which, among married parents who worked other than the regular day shift, 10% worked the same shift as their spouse, 60% worked a partly overlapping shift, and 30% worked completely different, non-overlapping shifts; and most used a patchwork of part-time paid care and care by spouse.

Existing supply equals effective demand (current usage), and it is especially difficult to estimate how much latent, potential demand for high-quality paid care or programs attractive to school-agers might translate into additional effective demand if high-quality paid care were more readily available, if more parents had a better understanding of what quality paid care is, and if they had the wherewithal to pay for it. Much of paid care fails to meet high-quality standards, and one should not assume that paid care is better for children than care at home. Both are subject to wide variation in stressful conditions and quality of life.

In general, "need for child care" is more complex than a need for new "slots" in paid care. Rather, a concept of need has crystallized in national policy as an interrelated array of considerations (Neal et al., 1993):

- the need to improve the quality of care and the understanding of quality in all of the kinds of child care that parents choose.
- the need for availability of alternatives to choose among.
- the need for accessibility of care that is close, convenient, approachable, accommodating, and offered at times that fit work schedules.
- the need for sufficient workplace flexibility for employees to be able to deal with emergencies and other family responsibilities.

- the need for affordability of child-care costs in relation to income.

Our findings about populations having widely divergent abilities to afford child care suggest divergent implications for policy. For those who are experiencing extreme financial stress and difficulty paying for child care, rent, fuel, food, clothing, and life in general, wage policy, tax policy, and sliding-scale subsidies are relevant. For those who, in relative terms, probably can afford more than they currently pay for child care and might be willing to pay more if they understood better what quality care is and what it costs and valued it more highly, consumer education might bring about a better balance in the market between ability to pay and compensation for child-care providers.

Up to now, through the cooperative efforts of public agencies, public-interest groups and the private sector, the state of Oregon has concentrated on addressing the availability, accessibility, and affordability issues and on developing measures for estimating effective demand and accessible supply. Future work will address the need to improve quality of care, along with the work and family conditions that contribute to it. Our development of the biennial Oregon Population Survey needs refinement, and fully effective use of the survey requires a larger sample from counties. Yet the survey is playing a critical role in the state's enhancement of the ability of regional resource and referral agencies to analyze local needs and resources, to advise communities, and to help funding agencies make intelligent decisions about child-care initiatives. By comparing regions, justifying priorities, and guiding strategic planning for the state, the effort creates benchmarks for focusing statewide attention on child-care and workforce goals.

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