
Educational opportunity across the Auckland region: The relationship between early childhood facilities and demographic and socio-economic characteristics¹

*Diana E. Guild, Lecturer, Centre for Education, Auckland College of Education
and Robert L. Guild, University of Auckland*

Abstract

We examine the spatial equity (i.e. even geographical spread) and efficiency of the distribution of early childhood educational facilities with respect to population characteristics and funding policies. Providers receive varying levels of funding depending upon the type of service, age of children served and level of quality (as measured by Ministry of Education determined standards). Providers therefore vary in their exposure to effective demand. This project will test whether this variable exposure has affected the spatial distribution of different types of services through market and public sector responses to facility location. The results of this project will be presented in early 2000.

Introduction

A research project is currently underway in which we examine the spatial equity (i.e. even geographical spread) and efficiency of the distribution of early childhood educational facilities with respect to population characteristics and funding policies. There is a variety of early childhood education services in Auckland that cater for children between two weeks and five years of age, although different types of programmes concentrate on different age groups. Providers receive varying levels of funding depending upon the type of service, age of children served and level of quality (as measured by Ministry of Education determined standards). Providers therefore vary in their exposure to effective demand. This project will test whether this variable exposure has affected the spatial distribution of different types of services through market and public sector responses to facility location. The findings have implications for public funding and location policies. The results of this project will be presented in early 2000.

According to the Ministry of Education, just over 50% of children participate in some form of licensed early childhood education in New Zealand (Ministry of Education, 1998). In the Auckland region, the figures are similar: about 47% receive some form of early childhood education. It is important to investigate, in light of both historical

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and current research, the distribution of early childhood programmes in relationship to demographic and socio-economic characteristics within the Auckland region. Are certain types of programmes found only in certain communities or associated with specific socio-economic characteristics? What are the implications for the equitable provision of early childhood education? If differences in the spatial distribution of centres exist and are associated with the socio-economic characteristics of the population, then access to educational opportunity is compromised.

It is clear from a range of studies that high-quality early childhood programmes benefit young children and their families (Podmore, 1993, 1994a, and Wylie, 1994). However, accessing early childhood care and education arrangements may be problematic for some families (Podmore, 1994b). In a ground-breaking study in 1975, Barney concluded that although kindergartens and playcentres (in the Auckland region) were reasonably evenly spread over all types of city residential areas, they were not used proportionately by families from different socio-economic strata. He found that high socio-economic status (SES) families were over-represented, middle SES families were proportionately represented, and low SES families were under-represented.

More recent studies indicate that the provision and location of early childhood education services are not just a geographic problem, but one of social equity as well. Studies elsewhere indicate that 80% of parents categorised as high SES enrol their children in early childhood education programmes, as opposed to about 50% of all low and middle-income families (Boorstein, 1990; Fuller and Liang, 1995). Providers responded to this market by increasing the supply of early childhood education programmes in affluent communities. However, the market is less robust and less responsive in lower SES communities (Fuller and Liang, 1995).

Varying levels of funding are received by early childhood education providers depending on the type of service, age of children served and level of quality (according to criteria specified by the Ministry of Education). Providers therefore vary in their exposure to effective demand, determined by the potential clientele and the clientele's willingness and ability to pay (Fuller and Liang, 1995). This variable exposure may have affected the spatial distribution of different types of programmes through market and public sector responses to facility location, compromising access in some areas.

The findings of our research will have implications for public funding and location policies. If mismatches exist between some types of facilities and the population in certain areas, providers are not adequately serving the region. There is then, an argument in favour of intervention through location and programme funding policies. Conversely, if no mismatches exist, then intervention in facility location and funding policies is not warranted.

Research Questions

This research project investigated the following questions:

- Does the geographic location pattern of early childhood education facilities match the demographic distribution of the 0-5 year-old population within the greater Auckland region?
- If the location pattern of early childhood education facilities does not match the demographic characteristics, is the mismatch associated with the socio-economic characteristics of the population?
- If the location pattern of early childhood education facilities does not match the demographic characteristics, is the mismatch associated with the type of programme and type of funding?

Investigation of these questions is to determine if there is adequate provision of a variety of early childhood facilities in the Auckland region. The findings will have implications for the location of both private and public facilities as well as funding policies.

Summary of Literature

Barney's early study into the availability of early childhood facilities in New Zealand (1975) indicates that at the time, there was an even spread of facilities across the Auckland metropolitan area region. He concluded that *superior* preschool provisions did not exist in high income and high socioeconomic suburbs in Auckland; that a reasonably equal distribution of services over all income areas appeared to exist. However, more recent studies conducted overseas have found that although preschool

supply may be sufficient overall (Willer, Hofferth, Kisker, Devine, Hawkins, Farquhar, and Glantz, 1991), the degree of distributional equity varies among locales, conditioned by levels of household income, parental education, family structure, and the surrounding policy environment (Fuller and Liang, 1996). In most countries, services are unequally distributed throughout different areas; access to services therefore depends considerably on where a family lives (Melhuish and Moss 1991; Queralt and Witte, 1998; Siegel and Loman, 1991). The following sections summarise the findings of the literature regarding relationships between the provision of early childhood services and factors of household income, parental educational level, and ethnicity. They also report the effects of attempts to address inequities of child care availability through government policy.

Household income

Variability in household income is clearly associated with preschool availability (NICHD Early Child Care Research Network, 1997; Fuller and Liang, 1996; Becerra and Chi, 1992). Low income families have limited resources to support their child care needs (Becerra and Chi, 1992). Queralt and Witte (1998) found that the lowest-income areas had a very low supply of full-time centre places for young children. Lower income families have a more limited choice of type of early childhood centre because the more affluent families are better able transport their children out of the immediate community to the preschool of their choice (Boorstein, 1990). In addition, research in the US indicates that when family income is low or childcare prices are high, parents choose centre-based care less frequently, opting for cheaper family day care (Fuller, Raudenbush, Wei, and Holloway, 1993).

Family SES and quality of care may be confounded. Lythe (1997), NICHD Early Child Care Research Network (1997), and Boorstein (1990) suggest that children from different income groups access early childhood services of similar quality. However, Phillips, Voran, Kisker, Howes, and Whitebook (1994) found that lower-income families are able to access centres which provide poorer quality care compared with families with greater financial resources. Children from higher income families were more likely than either their middle- or low-income peers to be cared for by more competent teachers in more developmentally appropriate settings. Interestingly, the most uniformly poor quality of care was found in centres that served predominantly middle-class families. Other studies have also indicated that some poor families as well as affluent families benefit from access to high quality centres because of

childcare subsidies, while lower middle class parents can neither afford to send their children to higher quality centres nor draw subsidies that will improve their access to higher quality care (Fuller, et al., 1993). Poor children received poor quality care in home-based settings (NICHD Early Child Care Research Network, 1997). Interestingly, higher fees were not found to indicate better preschool education. Higher fees were generally not charged in richer communities (Boorstein, 1990).

Education

Research into the relationship between education and child care use and availability indicates that parental education level is one of the strongest determinants of child care. Better educated parents are consistently less likely to place their children in the care of a relative, spouse or partner, or babysitter (Singer, Keiley, Fuller, and Wolf, 1998; Hofferth and Wissoker, 1992). Child care providers respond to demands of highly educated parents for more preschooling by raising supply in their communities. This positive relationship between parental education and supply is maintained even after taking into account the effects of family income (Fuller and Liang, 1995, 1996).

Ethnicity

There is contradictory evidence in the relationship between ethnicity and child care usage. Singer et al. (1998) found only small differences in child care use by race and ethnicity, while Becerra and Chi (1992) found that age, marital status, income and ethnicity were not significant factors in child care use. Of the small differences that were found, Becerra and Chi suggest that a pattern of kinship and friendship ties as well as SES factors may contribute to the small differences. In contrast, Hofferth and Wissoker (1992) found that ethnicity does make a difference. It may be that variability across ethnic communities in the organized supply of centres or family daycare homes may further contribute to differences in the rate of selecting nonparental care (Singer et al., 1998). In addition, some of the interethnic differences were found to correspond to differences in maternal education and to higher rates of single-parent households found in Black communities (Hofferth, West, and Henke, 1994), further confounding the issue.

Policy Developments

Policymakers at various levels in many countries have attempted to address the inequities of child care availability linked to family income and social-class stratification. Methods used include subsidizing child care expenditures directly through vouchers, reduced fees or increasing other family income through tax credits. Assertive government action has yielded progress toward distributional equity. In the United States, policy effects are suggested by higher preschool availability observed in northeastern states where state governments have subsidized the preschool sector more generously (Fuller and Liang, 1996).

Michalopoulos, Robins, and Garfinkel (1991) conducted simulations which indicated that a refundable child care tax credit would distribute child care benefits more equally across the population. The tax credit would increase the share of subsidies received by low income families, as well as induce a considerable increase in expenditure on childcare. Hofferth and Wissoker (1992) found that subsidizing child care expenditures directly through vouchers and reduced fees or increasing other family income through tax credits consistently increased the use of early childhood centres. However, though targeted subsidies, vouchers, and tax credits may relieve private costs faced by parents, support new places for additional children or raise staff salaries etc., these policy remedies do not necessarily yield additional resources that improve quality (Holloway and Fuller, 1992). In addition, Melhuish and Moss (1991) suggest that systems of tax relief on day care costs tended to benefit higher income families, who are more likely to have access to a wider variety of services and better quality provision anyway.

Reliance on market forces thus raises an important concern over whether poor families have equal access to quality child care. There is little evidence to show that market forces alone will lessen inequities in the quality of care available to low income families (Fuller, et al., 1993). If quality varies systematically with family income or with access to public subsidies, then it becomes a significant equity issue affecting child care (Phillips, et al., 1994).

Methodology

The methodology requires a spatial comparison of facility location with population characteristics, using a computerised geographic information system. The data considered are all in the public domain.

The analysis will compare data on facility location provided by the Ministry of Education with data on demographic and socio-economic characteristics of the population from the 1996 New Zealand Census (Statistics New Zealand, 1996).

The analysis will map the locations of approximately 800 early childhood facilities and match them to surrounding population characteristics, including age distributions, household incomes, distance and transport options, and ethnicity. Each area of the Auckland region can then be compared to all others using the full range of demographic and socio-economic data contained in the New Zealand Census.

Statistical tests for differences between areas will include spatial correlation, ANOVA, and chi-square tests. Since the causes of any mismatch between facility location and the population are of primary interest, the magnitude of the influence of socio-economic characteristics will be determined through regression analysis.

This project seeks to determine if there is adequate provision of a variety of early childhood education facilities in the Auckland region. The findings which will be reported in 2000 will have implications for both private and public location and funding policies.

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