

The Importance of Child Care in Economic Development: A Comparative Analysis of Regional Economic Linkage

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Regional economic developers typically use input-output modeling to compare the linkage effects of different targets for economic development policy. Using input-output models for all 50 states in the United States, the authors compare child care linkage effects to economy-wide averages and median multiplier values for agriculture, manufacturing, and services. Multiplier analysis shows that child care linkage effects are similar to these more typical targets for economic development policy and provides one more reason why child care should be included as part of economic development policy.

Keywords: *child care; multipliers; regional economic impact; social infrastructure*

Increasing attention is being given to the role of local service sectors in the regional economy. Higher education and health care are now recognized as important sources of regional economic growth (Blackwell, Cobb, & Weinberg, 2002; Pendall, Drennan, & Christopherson, 2004). Markusen, Schrock, and Barbour (2004) note that local service sectors are now the highest source of employment growth for most metropolitan areas. Although economic development policy has traditionally focused on export-led growth, the increasing importance of services, especially those serving local demand, requires that economic developers give attention to the relative importance of sectors providing local services. In this article, we look at the child care sector and compare its economic linkage (multipliers) to other sectors in the regional economy.

Interest in child care has grown considerably in recent years. Across the nation, teams of economic developers, business leaders, government policy makers, and child care experts have come together to measure the size and economic importance of child care in the regional economy (Ribeiro & Warner, 2004; Stoney, 2004b). To date, 28 states and 23 local teams have conducted such regional economic analyses.¹ These studies compare census data with administrative licensing records to assess the size and structure of the formal child care sector. Although the vast majority of licensed providers are family based, the majority of children are in center-based care. Informal providers, not counted in either administrative or census data, play a critical role in providing flexibility for parents, especially those who work second and third shifts (Presser, 2003).

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But from an economic development perspective, ease of entry into the sector keeps prices and quality low, frustrating attempts to professionalize and formalize the sector.

The child care sector could benefit from economic development policy (Warner et al., 2004). Sectoral interventions could help these small providers network to achieve economies of scale (Stoney, 2004a). Capital strategies could provide funds for new center development and operating cash flow. Workforce development strategies could be used to enhance career ladders and returns to education among workers in the sector. Planning and land use regulations could be broadened to incorporate child care (Anderson, 2005).

From the Early Education Partnership in Tompkins County, New York, led by the chamber of commerce (Warner, Ribeiro, & Smith, 2003), to the efforts of *Fortune* 500 companies to craft work-and-family policies (Shellenback, 2004), business leaders recognize the critical role child care plays in supporting parent workers. But child care's economic importance extends beyond parental workforce supports. It plays a critical human development role for children, preparing them to succeed in school and in adult life. Recognition of the human capital role of child care has captured the attention of economists who find the internal rates of return for early care and education investments are quite high (Masse & Barnett, 2002; Rolnick & Grunewald, 2003).

Unlike other advanced industrialized societies where public investment and public delivery dominates, in the United States the child care sector is based primarily on private and nonprofit providers supported overwhelmingly by parent fees (Kamerman, 2001). This market-based system of care creates problems of inadequate supply, lack of access and affordability for parents, and low quality for children (Helburn & Bergmann, 2002). More public sector support is clearly required to improve the public-good aspect of child care, which is quality human capital development over the long term. However, in the short term, economic development policies can go a long way to improve the viability of the child care sector by addressing the challenges it faces as an underdeveloped market. Examples of economic development strategies that can be applied to child care include intermediaries to help cluster providers and provide critical consumer information to parents, capital and workforce development strategies to strengthen both the child care labor force and the parent workers it supports, and planning and land use strategies to link child care to transportation and housing (Warner et al., 2004).

One challenge in bringing child care into economic development policy is the need to articulate child care in traditional economic development terms. The state and local teams measuring the size of the child care sector (i.e., number of providers, child care labor force, and number of children and parents served) are taking the first step in that process (Ribeiro & Warner, 2004). But size is not the only variable considered in selecting targets for economic development interventions. Typically, economic developers also use regional economic models to measure the multipliers, or linkage effects, of a sector. Multipliers generated by input-output analysis can be used for impact analysis on sectors with large external demand or as a descriptive tool for comparing intersectoral linkage in the regional economy. We use multipliers in a descriptive mode to compare child care multipliers to other economic sectors.

METHOD AND RESULTS: MULTIPLIER COMPARISONS

We construct state-level input-output models for all 50 states and the District of Columbia. We use IMPLAN (2000a) because it is the most widely used input-output modeling program by economic developers and by the state child care studies. The IMPLAN model includes 528 economic sectors, and one of these is Child and Day Care Services.² We generate output and employment multipliers at both the Type I and Type II levels and compare child care multipliers with the overall mean and median in each state economy and the medians of three aggregated sectors: agriculture, manufacturing, and services. Then we compare child care to three typical social and physical infrastructure sectors—job training, hospitals, and water supply.

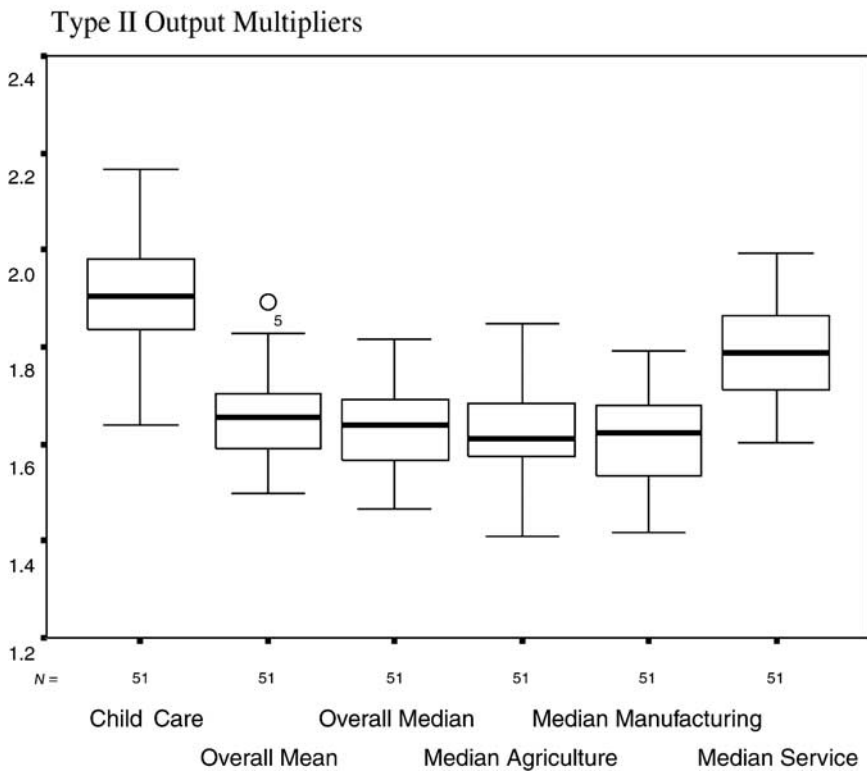
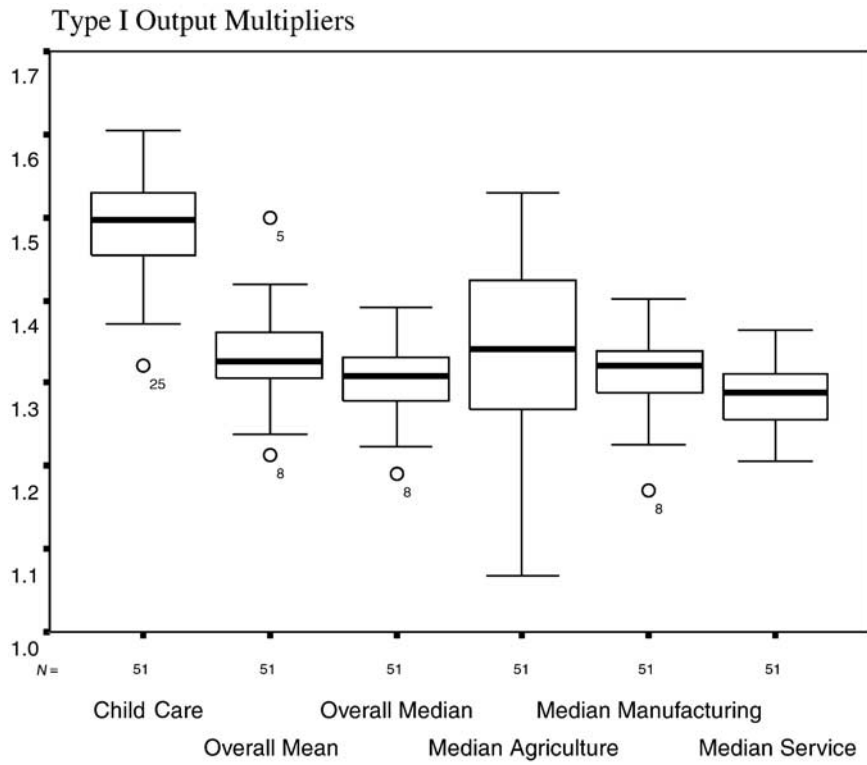


Figure 1: Comparison of Output Multipliers
 SOURCE: Results from models of 50 states and the District of Columbia ($N = 51$) based on IMPLAN (2000a) data.

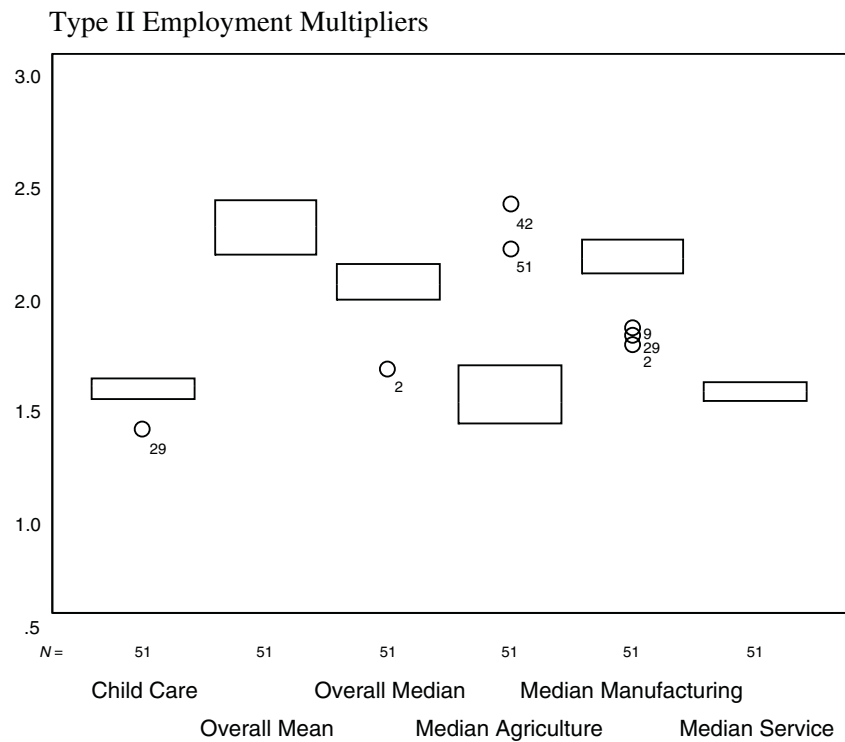
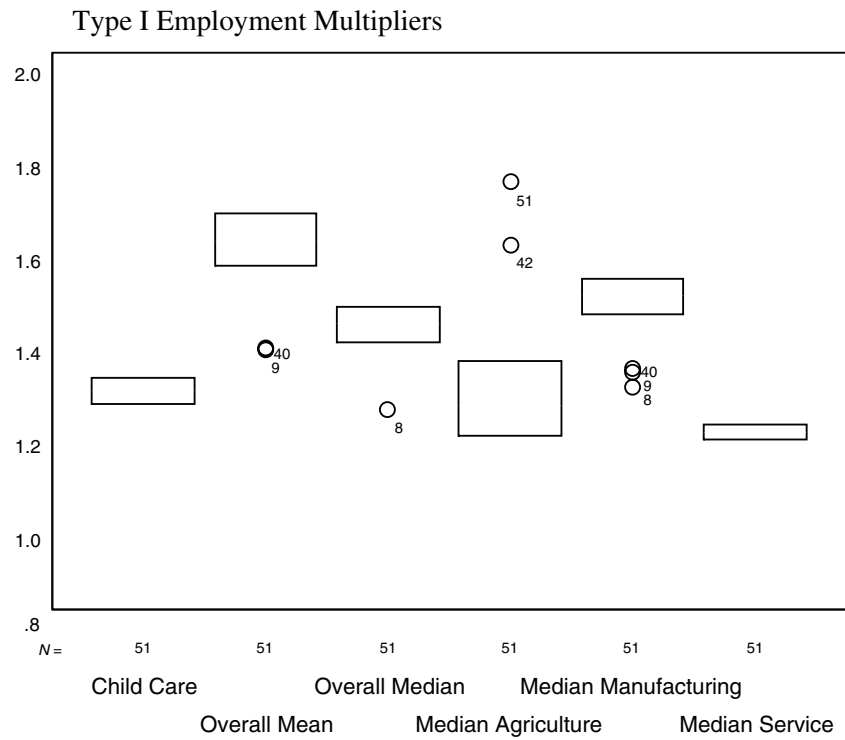


Figure 2: Comparison of Employment Multipliers
 SOURCE: Results from models of 50 states and the District of Columbia (N = 51) based on IMPLAN (2000a) data.

TABLE 1
Multiplier Comparisons: Aggregated Sectors, Child Care, and Infrastructure Sectors^a

<i>Sector</i>	<i>Output Multipliers</i>		<i>Industry Output (millions)</i>	<i>Employment Multipliers</i>		<i>Industry Employment</i>
	<i>Type I</i>	<i>Type II</i>		<i>Type I</i>	<i>Type II</i>	
Aggregated sectors ^b						
Agriculture (1-27)	1.34	1.63	5,459.75	1.27	1.50	96,525
Manufacturing (58-432)	1.31	1.61	85,145.40	1.47	2.07	373,710
Services (463-509)	1.29	1.79	66,225.20	1.18	1.49	1,032,018
Individual sectors						
Child care	1.49	1.91	638.76	1.27	1.50	14,221
Job training and related services	1.32	1.84	258.92	1.23	1.50	6,350
Hospitals	1.25	1.79	6,225.73	1.19	1.67	88,939
Water supply and sewage systems	1.33	1.67	139.67	1.84	2.68	673

SOURCE: Results from models based on IMPLAN (2000) data.

a. Average of the 50 states and the District of Columbia.

b. Median value for sector averaged across all states.

Overall Comparisons

We find the child care sector tends to have stronger backward linkage than do other sectors as measured by its output multipliers. Averaged across all states, the percentile location for child care, relative to all other sectors in each state economy, is quite high—88% for Type I output multipliers and 93% for Type II output multipliers.³ The child care sector locates in the topmost quartile across all sectors because the sector tends to purchase more locally from other sectors in the economy (e.g., its inputs are readily available in the state economy—food, toys, labor).

Next, we compare the values of child care multipliers with selected benchmark multipliers and find that child care output multipliers tend to be higher than overall mean and median multipliers across all sectors, as well as median multipliers for the three aggregated sectors of agriculture, manufacturing, and services (see Figure 1).⁴ This finding demonstrates that as a sector, child care is higher than average in terms of its backward linkage in the state economy. Child care Type I output multipliers (which measure interindustry purchases) show greater variation among the states compared to other benchmarks except median multipliers of agriculture. Type II multipliers, which include induced effects, are higher for child care than for all other benchmark sectors but comparable to median services multipliers, indicating that child care linkage is similar to other services.

Child care employment multipliers, by contrast, tend to be lower than those for other sectors (see Figure 2). Child care is a labor-intensive sector and does not purchase many labor-intensive inputs. Child care employment multipliers do not show much variation across states. We should note that the labor mobilization effects of child care (Kimmel & Hoffman, 2002) are a forward linkage not captured in the input-output multiplier. Multipliers capture only the employment impacts of the sector itself and its backward linkages to other sectors. More detailed discussions on how IMPLAN treats the child care sector can be found in Liu, Ribeiro, and Warner (2004).

Comparisons With Selected Infrastructure Sectors

When considering key social and physical infrastructure sectors, we find that child care has similar output multipliers to job training and hospitals and higher than water supply and sewage systems (see Table 1). Like child care, job training is more likely to purchase its inputs within the state economy, generating the stronger backward linkage. Hospitals and water and sewage systems have more specialized capital input needs that are more likely to be purchased outside the state economy, hence the lower output multipliers.

Employment multipliers for child care, job training, and hospitals are relatively low in contrast to those for water and sewage systems. Job training, hospitals, and child care are labor-intensive

The large output, employment, and backward linkage effects of child care contribute to its economic importance.

sectors, and many of their input purchases are from sectors with lower labor usage, thus the lower employment multiplier. By contrast, water supply and sewage systems are less labor intensive but tend to purchase inputs from sectors with higher labor usage, resulting in a higher employment multiplier.

Regional impact can be measured by more than the employment multiplier. Average direct employment for child care is larger than that for either job training or water and sewage systems, a further reflection of its importance in the regional economy. The same is true for industry output. Only hospitals show larger employment and output than child care.

The importance of child care in the regional economy comes from its relatively large output and employment and its higher backward linkage, in addition to its long-term effects on human development and its role as a social support for working parents. Unfortunately, no regional economic model incorporates all three of these effects—on children over the long term, on parent workers, and on the regional economy. But even on the short-term regional economy effects of size, employment, and linkage, child care compares favorably as an economic development target. Business leaders and economic developers at the regional level are recognizing the critical role child care plays as a social infrastructure for economic development. This comparative multiplier analysis provides yet another justification for increased economic development attention.

NOTES

1. Full details on each of these studies can be found on the Cornell University Linking Economic Development and Child Care Web site, <http://economicdevelopment.cce.cornell.edu>.

2. IMPLAN sectors include four-digit Standard Industrial Classification (SIC) in manufacturing and two- to three-digit for other sectors.

3. When calculating the percentile location of the child care multiplier, we include only IMPLAN Sectors 1-515 that have nonzero direct effects. Sectors 516-528 are "government sectors" or "special sectors" that IMPLAN assumes have zero indirect effects. We exclude these sectors from our calculations because they are treated differently from private sectors in IMPLAN (2000b, p. 238-239) models.

4. The median multipliers for the aggregated sectors are the medians for the component individual sectors in each aggregation. These include 27 sectors in agriculture (Sectors 1-27), 375 sectors in manufacturing (Sectors 58-432), and 47 sectors in services (Sectors 463-509).

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