Economic Development Policy and Local Services: The Case of Child Care

Mildred E. Warner and Zhilin Liu[1]

Abstract

Increased attention is being given to the role of local services, such as child care, in economic development. While not considered a driver for growth, we argue such services are a critical component of a balanced economic development strategy. We discuss various perspectives on conceptualizing the role of local service sectors: as exports, as import substitution, as human capital investments and as social infrastructure for the broader economy. We construct input-output models for each of the 50 U.S. states and find linkage effects for these local sectors are similar or higher than other sectors that are more typical targets for economic development policy. We recommend economic development policy include support for local service sectors such as child care.

Local Services and Traded Sectors: A Balanced Growth Approach

In this paper we explore the tension between the current export/productivity focus of economic development policy and the need for investment in local services and social infrastructure. We explore different ways to conceptualize the regional economic contribution of local services and argue economic developers should pursue a balanced approach which gives attention to both export industries and local services in economic development policy. Specific attention is given to

International Journal of Economic Development
Volume Seven, Number 1, pp. 25-64
2005

the case of child care, a local service sector that currently receives scant economic development attention.

There is a tension in economic development policy today between the traditional focus on export base promotion, recognition of the need to target investments to enhance productivity, concern over the relative importance of worker vs firm strategies, and the role of social supports. Traditionally economic development policy in the United States has focused primarily on export promotion as a means to bring new income into the regional economy. Tax abatements to attract outside investment continue to be the primary economic development strategy employed by state and local governments (Warner 2004) despite their limited effectiveness (Bartik 2003, Lynch 1996). While some success has been made in shifting economic development attention toward productivity investments through technology, management, labor, capital and physical infrastructure (Bartik 2003, Lynch 2004a), there is a lively debate over whether these strategies should be focused on export oriented industries (Porter 2003), on occupations (Markusen 2004), or on locally serving sectors which enhance quality of life (Florida 2002).

Michael Porter has pointed to the role of business clusters and a focus on traded services as a strategy to promote economic revitalization in our nation's cities (2003, 2000, 1995). He argues a sustainable economic development strategy would

invest in engines for growth. The increased tax base and employment generated from investment in traded sectors could be used to cover the costs of social supports.

Recent work by Markusen et al (2004) finds that the local industry sectors are the largest component of most city economies and the most rapidly growing. Thus if job growth is a primary goal of economic development policy, then investment in locally serving sectors is justified because it provides important support to local economies and critical work experience and income development opportunities for workers. Even Porter (2003) credits local (untraded) jobs as accounting for 67% of total employment and higher rates of job growth than the traded sectors in his analysis of the entire United States. As the job commitment between workers and employers weakens, economic development policy should focus on occupations (and occupational clusters) rather than industries, as workers are a source of productivity and entrepreneurial growth in the regional economy (Markusen 2004, Feser 2003, Christopherson 1990) and they are less locationally mobile than capital.

Florida shares this focus on the worker in his 2002 book, *The Rise of the Creative Class,* where he argues there is a creative class of workers who promote innovation and entrepreneurship. Florida's work gives new force to quality of life arguments in economic development by arguing cities should be tolerant of diversity and invest in

museums, theaters, parks, restaurants and coffee shops to attract talented people (Florida and Gates 2001). These are the spaces where the creative class hangs out, shares ideas and comes up with the innovative ideas for tomorrow. However, Florida's definition of quality of life does not emphasize public education or social services that serve the broad spectrum of society. Florida's focus is on a certain class of worker - well educated, often single, mobile, who is looking for a high quality of entertainment and cultural life. His model does not address the social supports needed by the service workers who staff the coffee shops and museums that the creative class likes to frequent. However, his recent book, *The Flight of the Creative Class*, acknowledges the need to build a creative society and address the social inequalities that are becoming more pronounced in a world of dramatically uneven economic development (Florida 2005).

The community economic development movement stands in contrast to the Porter and Florida proscriptions, by investing in local services and social infrastructure as preconditions for growth. By building access to capital, providing job training, child care and support for micro-entrepreneurship, community developers have attempted to build a foundation for broader economic development (Clavel et al 1997, Groozner 1998). Porter (1995, 1996) has challenged the community economic development approach for focusing on poor people's needs instead of business needs and the potential for economic productivity.

However, belief that investments in social supports would naturally follow other economic development efforts fails to recognize the importance of planning and community organizing to achieve such investments. It also underestimates the foundational role such supports play in enabling low income workers to participate in the economy (Harrison and Glasmeier 1997).

In this paper we suggest the productivity focus of Porter on traded sectors, and Florida on the creative class could be extended to include a more balanced approach which considers the role of local services and social supports as part of the infrastructure for productivity in economic development. By balancing concern for productivity with the need for job growth and the importance of social infrastructure (often provided by local untraded services) we believe a more balanced economic development approach can be achieved.

Trade and the Role of Services

How do we treat services? They can be treated as similar to exports, as an import substitution strategy, justified for their human capital development impact, or for their importance as the social infrastructure for broader economic development. Treating services as exports is narrow, but powerful because many state and local economic developers base their economic development policies primarily on an export logic. Service sectors, such as transportation, hospitals,

and education are being reinterpreted for their ability to draw outside money to the local and regional economy, and therefore have gained increasing attention as important economic development targets (Pendall et al 2004, Blackwell et al 2002).

However, we argue services like child care should be valued as economic sectors in their own right. They play an important social support function as well as promoting human development in the long term. Because the child care sector is primarily market based in the United States, it would benefit from economic development attention to address the challenges it faces as an underdeveloped market sector. We will address each of these perspectives on services and then present input-output models to demonstrate the child care sector's importance in terms of its large size and strong linkages with other sectors.

Services as Exports

Many contemporary regional economic models are built on an export base theory of growth. Exports are the driver that brings new wealth into the regional economy. This is the point Porter makes when arguing an inner city development strategy needs a source of new revenue (other than government) to be sustainable. With 80 percent of all employment in service sectors, economists have worked to justify incorporating services into standard regional economic models. Typically they divide services

into two groups: producer services and consumer services. Producer services are then treated similar to manufacturing, the argument being that their output can be sold to businesses outside the region and thus form part of the export economic engine (Drennan 2002, Hansen 1994, Stabler and Howe 1988).

Consumer services still pose a problem, however, because demand is primarily local and there is little export element to these sectors. The major notable exception is tourism, a sector composed of services such as hotels and restaurants which attract consumers from outside and thus generate "export income" (Wagner 1997, Jeffrey and Hubbard 1988). This argument has been extended more recently to justify economic development investments in higher education and hospitals (e.g. Blackwell et al 2002. Pendall et al 2004).

An important problem with such formulations is that they justify public investments in these services *not* for the role they play in local human development and social infrastructure in the regional economy – the primary purpose of health and education – but rather for their export income generating potential in serving consumers from outside. The political logic that naturally flows from such arguments is to undermine the notion of a public good. Another problem is that they avoid addressing the fundamental issue of the role of local consumer demand in the local economy. Similarly, producer services to businesses within

the region may be even more important for regional competitiveness, but are harder to justify from an export base framework.

Import Substitution and Local Consumption

Another approach to the service sector which gives more attention to local demand has been forwarded by Williams (1997). He argues if services were not available in the regional economy, they would have to be purchased from outside – leading to a leakage. Thus consumer services play an 'import substitution' role in the regional economy by preventing such leakage. Such import substitution strategies have become popular economic development strategies, especially in depressed rural areas (RMI 1997). In fact many economists now recognize that traditional economic theory underestimates the potential for import substitution (Markusen et al 2004) in part because export oriented approaches underestimate the importance of learning and knowledge accumulation (Bruton 1998: 904).

How is local consumer demand relevant? Some economists argue that internal trade and demand can generate regional growth (Hoover and Giritani 1999). Let's take a few examples. Porter has shown there is considerably more unmet consumer demand in the inner city than previously recognized (1995). He has developed data and mapping to justify why increased retail development would be profitable (ICIC 2004), and has been successful in encouraging private retail

firms to overcome their past practices and invest in inner city markets (BCG and ICIC 1998). This argument was part of the rationale behind the New Markets Tax Credit program. Markusen et al (2004) argue that drops in prices of imported goods have caused local demand to expand more rapidly in residentiary services, and job growth in these non basic sectors has been faster than growth in the export base sectors in the fifty largest metropolitan areas. Although such sectors are not considered drivers of economic growth, they play a critical foundational role in regional economic development and thus are worthy of economic developers' attention. Florida (2002) echoes this argument by recognizing the importance of recreational and service sectors in creating a quality of life that attracts and retains a creative class of workers.

Services as Human Development

Economic development, at its most fundamental level should promote human development (Sen 1999). Schultz (1968) first popularized the notion of human capital and since then much attention has been given to job training as a critical part of most economic development strategies (Bartik 2003, Eberts and Erickcek 2002). The business community has become increasingly interested in the role of schools in economic development. More recently the importance of child care has become a major public policy issue both for its long term impact on the future work force (Dugger 2004, CED 2002,

Heckman 1999) as well as its short term impact in enabling parents to work (Kimmel and Hoffman 2002, Kimmel 2006).

Services as Social Infrastructure

Social infrastructure in the U.S. typically emphasizes community-based networks (Sharp et al 2002) and services such as housing, health care, education and child care (Clavel et al 1997, Warner and Liu 2006, Warner et al. 2003). Most of the literature on public investment has focused on physical infrastructure and, despite considerable debate, has generally found positive short and long term effects (Aschauer 1989, Bartik 2003, Bhatta and Drennan 2003). While some of these services are public goods and the sole responsibility of government, others are mixed public/private goods that involve significant amounts of private sector provision. Housing is an example where the private sector dominates and Community Development Corporations have played a critical role in linking private and public funds to promote investment in inner city neighborhoods (Vidal 1995, Clavel et al 1997). Investments in quality of life are considered part of economic development because they promote business and labor productivity.

The Case of Child Care

Child care is an interesting sector because its economic importance stems from each of the four above mentioned impacts. It is perhaps best known for its impact on the human development of

children (Barnett and Ackerman 2006). But it also plays a critical social support function, providing the infrastructure of care that enables parents to work. Child care has been described as a "sheer necessity," especially for working mothers (Kimmel and Hoffman 2002). Although child care is not an export industry, it does attract export income in the state economy through the ability of states to draw down federal child care subsidy funds which have increased almost three fold since welfare reform in 1996 (Warner et al 2003). But in this article we want to focus on the impact of the child care sector as an economic sector in its own right. How does it compare in employment, output and regional economic linkage to other sectors more traditionally considered important to economic development?

Over 50 states and localities recently have conducted regional economic impact assessments of their child care sectors (Warner 2006). This work grows out of a practical concern that the child care infrastructure is inadequate for worker's needs. Shortage of affordable high quality care reflects problems with the regional child care market in responding to parental demand for care (Helburn and Bergman 2002). Parents face serious affordability constraints due to the lack of public investment in this education sector as compared to the significant public investment in public (K-12) and higher education (Mitchell et al 2001). Lack of effective consumer demand leads to low quality in the sector.

Employers also feel the crunch when child care failures reduce employee productivity (Galinsky and Johnson 1998). Recognition that child care forms part of the social infrastructure for economic development has caused coalitions of business, government and child care leaders to come together around the country and argue that child care be included as part of economic development policy (Dugger 2004, Stoney 2004, Warner 2006, Warner et al 2004a).

Children need higher quality care in order to promote their own brain development (Shore 1997) and school readiness in the short term (CED 2002). In the long term underinvestment in the social infrastructure of child care has negative implications for the future workforce. Some economists have argued that child care has better long term rates of return than many more typical economic development investments (Rolnick and Grunewald 2003, Lynch 2004b, Heckman and Masterov 2004).

But is the child care sector, as a service sector based on local consumer demand, an appropriate target for economic development policy? A look at the state studies on child care's economic impacts shows that the sector is one composed of a very large number of small firms, micro-enterprises in fact, for which management training and capital constraints are serious problems. For example the NYS study found 22,000 registered providers, 15,000 of which were family based providers (Warner et al. 2004b). The

lack of mechanisms to encourage provider networking frustrates attempts to achieve economies of scale. Traditional economic development strategies focused on management training, business clusters and capital investment could be applied to the sector (Warner et al 2004a). Despite relatively high direct employment, estimated at 119,000 in the New York State study for example, the sector suffers from low wages and high labor turnover which themselves erode service quality for children (Warner et al 2004b). These problems could be addressed through workforce development policy. Thus the need for, and potential benefits from, economic development interventions seem clear. However, targets for economic development typically are selected because of their broader regional economic impact, not simply the positive impact on the sector in question.

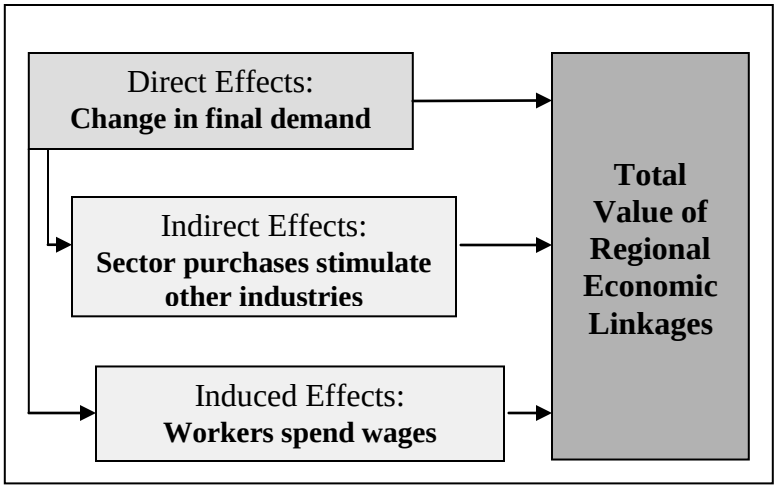
In the next sections of this paper we present a comparison of the child care sector to other sectors deemed important in economic development. We compare these example sectors on total output in the state economy, total employment, and the multiplier or linkage effects for output and employment. This analysis does not attempt to address the long term human development impacts of child care or the parent labor mobilization effects. Rather it compares the child care sector on standard input-output modeling data typically used in economic development policy debates. Even on these short-term economic indicators we find child care ranks

relatively high and thus suggest it can be an appropriate target for a more balanced economic development strategy.

Input-Output Modeling, Multipliers and Child Care

Regional economic models often are used to justify economic development investments. Multiplier analysis gives an estimate of what the short term impact of an increase in employment or final demand in one sector might mean for the regional economy. Input-output models are especially useful in estimating multipliers or linkage effects between sectors in the regional economy (Warner and Liu 2006). I-O modeling is based on an export base theory of growth where final demand drives the regional economy. The input-output matrix provides a picture of inter-sectoral linkage within the regional economy. However, along with exports, final demand in an I-O framework includes household consumption, investment/dissavings, and government purchases - all of which are capable of driving an I-O model (Pratt and Kay 2006). Change in final demand stimulates sectors' purchases (backward linkage) from other sectors and induce purchases of workers who spend their wages (See Figure 1). Multiplier analysis thus estimates these backward linkages (purchases) in the regional economy.

Figure 1. Sectoral Linkage Effects in an I/O Framework

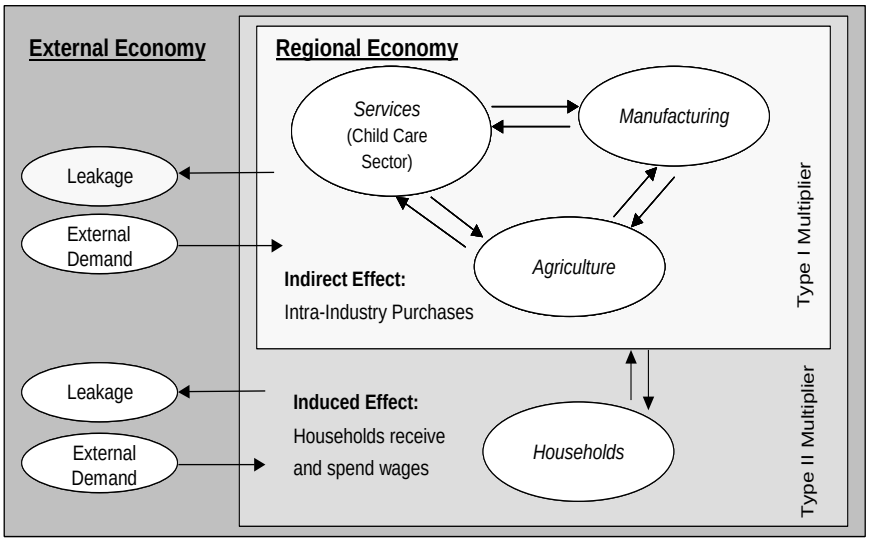


Multipliers are determined by building an I/O matrix which specifies the inter-industry flows of payments among all sectors in the economy. Input-output (I-O) tables based on Bureau of Economic Analysis data are developed for all areas of the U.S. and updated annually. We use IMPLAN data programs from 2000 to run models for all 50 states and the District of Columbia. The IMPLAN model includes 528 economic sectors (4 digit SIC in manufacturing and 2-3 digit for other sectors) and one of these is Child and Day Care Services.

Multipliers measure how much new employment or output, ceteris paribus, would be generated in the regional economy short term as a result of an increase in final demand for one sector.

Type I multipliers measure the indirect effects of industry purchases within the regional economy. Type II multipliers include both the indirect (industry purchases) and induced effects (impact of household spending which is treated as endogenously related to wages). See Figure 2.

Figure 2. Model of the Regional Economy



Some economists argue that only Type I multipliers can be applied to sectors where households represent a significant proportion of final demand. In such cases only the inter-industry purchases would be included in the calculation of linkage effects. Type II multipliers, which include household effects, are useful for descriptive purposes but household spending can not then be considered part of external demand since household

spending is already inside the Type II modeling framework. However, government spending such as federal child care subsidies can be considered external in a Type II framework. For more information on the accounting frameworks see Ribeiro and Warner 2004 and Liu et al 2004. Type SAM multipliers with households endogenous would be an alternative formulation for measuring the effects of household linkages.[2] We present Type I, Type II and Type SAM multipliers for comparison purposes.

Porter (2003) acknowledges the importance of inter-industry linkages in ensuring the productivity of business clusters and includes locally traded industries within his clusters because of the critical support role they play for the cluster as a whole. Porter acknowledges input-output analysis serves as a good tool for measuring linkages because of the availability of systematic data across all states, but he does not conduct such an analysis to derive his clusters. Florida (2002), likewise, recognizes the 'linkage' effects of quality of life investments in promoting innovation.

Using our input-output analysis, we present data on the linkage effects of some more basic infrastructure and service sectors that support productivity and quality of life for the population as a whole. We give special attention to one sector, child care, and find its regional economic linkage is comparable or superior to that of other typical economic development targets. We conclude that while traded sectors are important, balanced

growth also requires investments in the sectors that support the workers and industries that export.

Analysis and Results: Multiplier Comparisons

We built our state level input-output models using a standard input-output modeling software, IMPLAN, the most widely used input-output modeling program by economic developers and by the state child care studies. See Warner 2006 for a complete list of these studies. Child care multipliers are compared with the overall mean and median in each state economy and the medians of three aggregated sectors traditionally considered primary (agriculture), secondary (manufacturing) and tertiary (services). Then we compare child care to other typical social and physical infrastructure sectors. Lastly we compare child care to selected "quality of life" sectors like those discussed by Florida, and a few key examples of "traded" sectors that appear in Porter's (2003) analysis of traded clusters.

Economy-wide Comparisons

The child care sector tends to have stronger backward linkage than other sectors as measured by its output multipliers because it tends to purchase more locally from other sectors in the economy. All formulations - Type 1, Type II and SAM – produce output multipliers for child care which are higher than the overall economy mean and median, and higher than the median values for

the three aggregated sectors (agriculture, manufacturing and services).[3] See Table 1.

Child care employment multipliers, by contrast, tend to be lower than other sectors (Table 1). The child care sector is itself a labor intensive sector and does not purchase many labor intensive inputs. Multipliers only capture the employment impacts of the sector itself and its backward linkages to other sectors – not the labor mobilization effects of child care on parent workers. However, it is possible to use input-output models to test for the short term impact of a shock to the state economy should the child care sector fail. One of the states using input-output analysis to look at the child care sector, Connecticut, constrained the input-output model for lack of child care and showed a 10 percent drop in overall employment for the state (McMillan and Parr 2004).

Table 1. Multiplier Comparisons: Child Care, Economy-wide Averages and Aggregated Sectors

		Output Multipliers			Employment Multipliers		
		Average	Max	Min	Average	Max	Min
Child Care	Type I	1.49	1.60	1.32	1.27	1.34	1.17
	Type II	1.91	2.17	1.64	1.50	1.62	1.32
	Type SAM	1.84	2.08	1.52	1.47	1.57	1.25
Overall Mean (515 sectors)	Type I	1.33	1.50	1.21	1.59	1.77	1.36
	Type II	1.66	1.89	1.50	2.23	2.62	1.85
	Type SAM	1.61	1.83	1.30	2.13	2.51	1.63
Overall Median (515 sectors)	Type I	1.31	1.39	1.19	1.41	1.51	1.23
	Type II	1.64	1.82	1.46	1.96	2.24	1.59
	Type SAM	1.59	1.75	1.28	1.87	2.12	1.37
Agriculture Median (sectors 1-27)	Type I	1.34	1.53	1.07	1.27	1.72	1.02
	Type II	1.63	1.85	1.41	1.50	2.33	1.07
	Type SAM	1.59	1.80	1.27	1.47	2.26	1.04
Manufacturing Median (sectors 58-432)	Type I	1.31	1.40	1.17	1.47	1.57	1.28
	Type II	1.61	1.79	1.42	2.07	2.36	1.70
	Type SAM	1.56	1.73	1.24	1.97	2.23	1.43
Services Median (sectors 463-509)	Type I	1.29	1.36	1.21	1.18	1.23	1.14
	Type II	1.79	1.99	1.60	1.49	1.61	1.38
	Type SAM	1.70	1.89	1.36	1.44	1.55	1.24

Source: Results derived from models using IMPLAN 2000 data
N = 50 States plus District of Columbia

To understand why child care output multipliers would be so high we looked at how IMPLAN treats the child care production function and its variation from state to state. Across all 50

states and the D.C., we found services and FIRE (Finance, Insurance and Real Estate) account for two thirds of all child care industry purchases on average, and 74 and 59 percent respectively of these purchases are made locally. By contrast, only a third of child care purchases come from manufacturing and only a fifth of these are made locally. See Table 2. Thus the local dependence of inter-industry purchases in services and FIRE explains the higher Type I multipliers for child care.

Table 2. Child care sector industry purchases: total and local shares

	Purchase as percent of total child care expenditure			Percent locally purchased by child care		
	Mean	Min	Max	Mean	Min	Max
Manufacturing	12.80	11.08	14.49	21.13	4.68	31.37
FIRE	12.00	10.39	13.58	59.13	32.46	69.99
Services	26.72	23.13	30.23	74.40	40.40	90.78
All industries	61.28	53.04	69.34	60.46	40.64	71.75

Notes: Mean: Average proportion across 50 states plus D.C.
Min: Minimum proportion across 50 states plus D.C.
Max: Maximum proportion across 50 states plus D.C.
Results derived from models using IMPLAN 2000 data

Type II multipliers include household expenditures. IMPLAN has nine income classes and the household expenditure patterns are based on the Bureau of Labor Statistics Consumer Expenditure Surveys (BLS 2002). These data do not vary at the subnational level except as the mix

of income classes varies by state. Expenditure patterns vary by income class, and for lower income classes expenditures are dominated by basic necessities which are more likely to be available in the state economy. Consumer research finds that low income households spend more than they make[4] and dissavings in an I-O framework would be counted as higher local expenditure. Taxes and savings (which are leakages in an I-O framework) would be higher for higher income classes (Dynan et al 2004). The dominance of low paid households among child care workers and in the service industries where child care makes most of its purchases will cause Child Care's Type II and SAM multipliers to be higher.

Comparisons with Other Economic Sectors

Infrastructure Sectors

We compare the child care sector with three specific sectors known as important physical or social infrastructure sectors in the regional economy, and find that child care has similar backward economic linkage. Using averages across all 50 states and the District of Colombia we find child care has similar output and employment multipliers to social infrastructures such as private Elementary and Secondary Schools, and College Education. These sectors are more likely to purchase their inputs within the state economy – generating the stronger backward linkage. The output multipliers for transportation are lower because transit has specialized capital inputs that

are more likely to be purchased from outside the state economy, leading to leakage. Employment multipliers for child care are slightly higher than for the other infrastructure sectors. Education is a labor intensive sector and many of its input purchases are from sectors with lower labor usage – thus the lower employment multiplier. Local Passenger Transit, though a physical infrastructure, is also labor-intensive.

On direct measures of employment and output we see child care is larger than elementary and secondary schools or passenger transit. Colleges and universities are the highest on both output and employment – a recognition of the importance accorded the sector in our economy.[5] Despite receiving limited public subsidies, child care output is still larger than public transit - a reflection of its importance to parent workers.

Table 3. Child care comparisons to other economic sectors*

Sectors	Output Multipliers		Industry output**	Employment Multipliers		Industry employment
	Type I	Type II		Type I	Type II	
Child care	1.49	1.91	638.76	1.27	1.50	14,221
Infrastructure Sectors						
Elementary and Secondary Schools	1.30	1.91	490.55	1.10	1.31	17,181
College, Universities and Schools	1.22	1.84	1,239.73	1.09	1.37	32,205
Local Interurban Passenger Transit	1.26	1.72	564.10	1.10	1.35	12,306
Quality of Life Sectors						
Eating and Drinking	1.34	1.72	6,541.80	1.13	1.31	171,711

Amusement and Recreation Services	1.28	1.69	1,180.51	1.11	1.26	36,518
Traded Sectors						
Wholesale	1.22	1.62	18,830.43	1.28	1.86	148,545
Retail - e.g. Apparel and Accessory Stores	1.22	1.60	1,242.18	1.10	1.30	26,315
Business Services - e.g. Management and Consulting Services	1.34	1.81	3,236.14	1.38	1.91	33,880
Financial services - e.g. Banking	1.24	1.48	10,446.98	1.53	2.20	41,552
Tourism - e.g. Hotel and Lodging Places	1.31	1.71	2,992.06	1.21	1.50	42,303
Manufacturing – e.g. Tool and Die	1.19	1.63	401.93	1.17	1.71	4,126

*Average of the 50 states and the District of Columbia.
** millions of dollars
Results derived from models using IMPLAN, 2000 data.

Quality of Life Sectors

We use Eating and Drinking, and Amusement and Recreation Services as two examples of "quality of life" sectors. Typically these sectors are not thought of as traded but they are a critical source of employment and provide work experience and income development as lower rungs on the job ladder (Markusen et al 2004). Like the social and physical infrastructures described above, they primarily meet local consumption demand. Unlike the sectors described above, however, they are not social infrastructure that provides basic support to the wider population, but instead represent market-based personal services more typical of those emphasized by Florida (2002).

Comparing the traditional backward linkage measured by multipliers, we see these two sectors have lower output and employment multipliers than child care but higher direct employment and output (Table 3). The output multiplier shows that the inter-industry purchase patterns are less likely to be captured locally and the employment multiplier shows these industries are likely to purchase from other industries that are less labor intensive. State economic development policy requires an assessment of alternative choices, and multipliers are often used to justify state economic development investment in such sectors (e.g. sports stadiums, Colclough et al 1994). However, economists at the Federal Reserve have challenged this focus suggesting child care would be a better investment (Rolnick and Grunewald 2003) both in the short and long term.

Traded Sectors

We select six specific sectors for comparison: Wholesale sector[6], Apparel and Accessory Stores representing a retail sector, Hotel and Lodging Places representing a service sector closely linked to tourism, Banking representing financial services, Management and Consulting Services representing business services, and Tool and Die as a critical manufacturing sector. Each of these sectors is a more typical target for economic development policy. Porter (2003) used location quotients and gini coefficients to separate traded from untraded sectors and then used locational correlation of employment to build his sector clusters. Porter's

method for building clusters was not based on estimates of actual purchase supply linkages among firms. Our multiplier analysis directly assesses how the purchase patterns among these sectors affect linkage in the regional economy and thus provides a real estimate of linkage, something Porter only assumes.

Our comparison between child care and these traded sectors shows, interestingly, that none of these sectors has larger output multipliers than child care (Table 3). The child care sector purchases more locally than these other sectors and therefore can contribute more to local economic output from a one dollar increase in final demand. Child care employment multipliers are relatively similar to Apparel and Accessory Stores and Hotel and Lodging Places. Each of these three industries is labor intensive, as reflected in their high direct employment numbers. Wholesale, Management and Consulting Services, and Tool and Die all have employment multipliers similar to child care at the Type 1 level but higher at the Type II level. This reflects a different pattern of employee/household spending in the industries linked to these sectors. Banking has the highest employment multipliers among the group.

In contrast to the infrastructure sectors, our selected "traded" sectors show greater differences in output and employment multipliers and in their direct output and employment. This demonstrates that being classified as "traded" does not necessarily ensure higher linkage, output or

employment in the regional economy. Although Porter justifies his emphasis on traded clusters in part because of their linkage effects, he limits his analysis of linkage to delineating clusters. While we believe this is a useful contribution, we have taken the next step, recommended by Porter, to use the quantitative capacity of input-output modeling to measure these backward linkage effects. Our empirical analysis shows the linkage effects of many of these support service industries is quite high, even when compared to some sectors that are proxies for Porter's traded sectors. This raises the question of how we value the economic development contribution of a sector. A closer look at Porter's (2003) traded clusters shows many local untraded services included in these clusters (such as laundry clustered with business services). Thus Porter's cluster analysis approach has suggested what our multiplier analysis confirms – a strong linkage between traded and non-traded services in the regional economy.

Conclusion

How to promote regional economic development is a much debated question. The importance of trade and productivity is critical, but we believe a comprehensive economic development strategy also should include attention to the local services that support these traded sectors. The importance of local services to the economy is illustrated, in part, by their large employment and their relatively large regional economic linkage effects. For local services which also provide social

support, such as child care, their effect on parents and on the future workforce are an additional benefit to the regional economy that is not captured in the multiplier analysis above.

In this article we have argued it is time to include local services, such as child care, in economic development policy. Rather than treat services as an export proxy, we argue these sectors deserve economic attention in their own right. Their high levels of employment and strong linkage to other sectors in the regional economy make them important contributors to the regional economy. Economic developers use multipliers from input-output modeling to justify new public investments in certain key industries. In our analysis we find that child care's multipliers compare similarly to those for other infrastructure and quality of life sectors. While some of these sectors have been the targets of economic development investment, child care generally has not. The relative rank and size of this regional impact calls for greater attention to be given to the child care sector. This, in addition to the sector's importance as a social infrastructure supporting both parent workers and human development of the future workforce, makes it a worthy target for economic development policy.

References

Aschauer, D. A. (1989). Is public-expenditure productive? *Journal of Monetary Economics* 23(2): 177-200.

Barnett, W. S. and Ackerman, D.J. (2006). Costs, Benefits, And The Long-Term Effects Of Preschool Programs, *Community Development: Journal of the Community Development Society* 37 (2):

Bartik, T. J. (2003). *Local Economic Development Policies*. Kalamazoo, MI: Upjohn Institute for Employment Research.

Bhatta, S.D. and Drennan, M.P. (2003). The economic benefits of public investment in transportation - A review of recent literature. *Journal of Planning Education and Research*. 22 (3): 288-296.

Blackwell, M., Cobb, S. and Weinberg., D. (2002). The economic impact of educational institutions: issues and methodology. *Economic Development Quarterly*. 16 (1): 88-95.

BCG (Boston Consulting Group, Inc.) and ICIC (The Initiative for a Competitive Inner City). (1998). "The business case for pursuing retail opportunities in the inner city". Report retrived on October 18th, 2004, from the ICIC Website, http://www.icic.org/Documents/pdf_2_The_Business_Case.pdf.

Bruton, Henry J. (1998). A reconsideration of import substitution. *Journal of Economic Literature*. 36:903-36.

BLS (Bureau of Labor Statistics) (2002). Consumer Expenditures 2000. Report 958. http://www.bls.gov/cex/csxann00.pdf

Christopherson, Susan. (1990). Emerging patterns of work. In T. Noyelle (ed), *Skills, Wages, and Productivity in the Service Sector*. Pp. 11-30. Boulder, CO: Westview Press.

Clavel, P., Pitt, J., & Yin, J. (1997). The Community Option in Urban Policy. *Urban Affairs Review, 32*(4), 435-458.

Colclough, W.G., Daellenback, L.A., & Sherony, K.R. (1994). Estimating the economic impact of a minor league baseball stadium. *Managerial And Decision Economics*. 15 (5), 497-502.

Committee for Economic Development. (2002). *Preschool for All: Investing in a Productive and Just Society*. Retrieved October 16, 2003, from http://www.ced.org/docs/report/report_childcare.pdf.

Drennan, M.P. (2002). *The Information Economy and American Cities*. Baltimore, MD: Johns Hopkins University Press.

Dugger, R.H. (2004). A Briefing on the Economic Value of a Child--Assuring Growth and Job Creation. Washington, DC: Tudor Investment Corporation.

Dynan, K.E., Skinner, J., & Zeldes, S.P. (2004). Do the rich save more? *Journal of Political Economy*. 112(2): 397-444.

Eberts, R.W., & Erickcek, G. (2002). The Role of Partnerships in Economic Development and Labor Markets in the United States. *Upjohn Institute Staff Working Paper, No. 02-75.*

Feser, E. J. (2003). What regions do rather than make: A proponed set of knowledge-based occupation clusters. *Urban Studies*. 40(10): 1937-1958.

Florida, R. (2005). *The Flight of the Creative Class: the New Global Competition for Talent*. New York: Harper Business.

Florida, R. (2002). *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books.

Florida, Richard and Gates, Gary. (2001). Technology and tolerance: the importance of diversity to high technology growth. Paper for the Center on Urban and Metropolitan Policy, Washington, DC: The Brookings Institution.

Galinsky, E. and Johnson, A. (1998). *Reframing the Business Case for Work-Life Initiatives*. New York, NY: Families and Work Institute.

Goozner, Merrill. (1998) The Porter prescription, *The American Prospect*. Princeton: May/Jun 1998. 56-65.

Granovetter, Mark. (1973). The strength of weak ties. *American Journal of Sociology*. 78 (6): 1360-1380.

Hansen, N. (1994). The strategic role of producer services in regional development. *International Regional Science Review*. 16 (1-2): 187-195.

Harrison, B. and Glasmeier, A.K. (1997). Why business alone won't redevelop the inner city: A friendly critique of Michael Porter's approach to urban revitalization – Response. *Economic Development Quarterly*. 11 (1): 28-38.

Harrison, B. (1992). Industrial Districts: Old Wine in New Bottles. *Regional Studies*. 26 (5): 469-483.

Heckman, J. (1999). Policies to Foster Human Capital. Cambridge, MA: National Bureau of Economic Research.

Heckman, J. and Masterov, D. (2004). The Productivity Argument for Investing in Young Children. In *Working Paper 5*. Chicago: Invest in Kids Working Group, Committee for Economic Development.

Helburn, S.W., & Bergmann, B.R. (2002). *America's Child Care Problem : The Way Out* (1st Palgrave ed.). New York, N.Y.: Palgrave for St. Martin's Press.

Hoover, E.M. and Giarratani, F. (1999), An Introduction to Regional Economics, in *Web Book of Regional Science* West Virginia University Regional Research Institute http://www.rri.wvu.edu/WebBook/Giarratani/contents.htm accessed Oct 2004.

ICIC (Initiative for a Competitive Inner City). (2004). Report for the State of the Inner City Economies Project. Retrieved on October 18th, 2004, from ICIC website http://www.icic.org/Documents/Inner%20City%20and%20Econ%20Perf.pdf.

Jeffrey, D and Hubbard, N.J. (1988). Foreign tourism, the hotel industry and regional economic-performance. *Regional Studies*. 22 (4): 319-329.

Kimmel, J. (2006). Child Care, Female Employment and Economic Growth, *Community Development: Journal of the Community Development Society* 37 (2):

Kimmel, J., & Hoffman, E. P. (2002). *The Economics of Work and Family*. Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.

Liu, Z., Ribeiro, R., & Warner, M.E.(2004). *Comparing Child Care Multipliers in the Regional Economy: Analysis from 50 States*, Ithaca, NY: Cornell University Department of City and Regional Planning. http://government.cce.cornell.edu/doc/pdf/50States.pdf.

Lynch, R.G. (1996). *Do State and Local Tax Incentives Work?* Washington, D.C.: Economic Policy Institute.

Lynch, R.G. (2004a). *Rethinking Growth Strategies: How State and Local Taxes and Services Affect Economic Development*. Washington, D.C.: Economic Policy Institute.

Lynch, R.G. (2004b). *Exceptional Returns: Economic, Fiscal and Social Benefits of Investment in Early Childhood Development*. Washington DC: Economic Policy Institute.

Markusen, A. (2004). Targeting Occupations in Regional and Community Economic Development. *Journal of the American Planning Association*. 70(3): 253-268.

Markusen, A., Schrock, G., & Barbour, E. (2004). Making the City Distinctive: A Guide for Planners and Policymakers. Paper presented at the annual conference of the Association of Collegiate Schools of Planning, Portland, Oregon, October 21-24, 2004.

McMillan, Stan and Parr, Kathryn (2004). The Economic Impact and Profile of Connecticut's ECE Industry. Connecticut Center for Economic Analysis, Univ. of CT: Storrs, CT.

Mitchell, Anne, Stoney, Louise and Dichter, Harriet. (2001). *Financing Child Care in the United States: An Expanded Catalog of Current Strategies*, 2001 Edition E.M. Kaufman Foundation: Kansas City. Available at: http://www.emkf.org/youth_development/childcare2001/index.cfm

Pendall, R., Drennan, M.P., & Christopherson, S. (2004). Transition and Renewal the Emergence of a Diverse Upstate Economy. Washington, DC: Brookings Institution Center on Urban and Metropolitan Policy.

Porter, M.E. (1995). The Competitive Advantage of the Inner City. *Harvard Business Review, 73*(3), 55-71.

Porter, M.E. (1996). An economic strategy for America's inner cities: Addressing the controversy, *Review of Black Political Economy*. 24(2/3): 303-36

Porter, M.E. (2000). Location, Competition and Economic Development: Local Clusters in a Global Economy, *Economic Development Quarterly* 14(1):15-34.

Porter, M.E. (2003) The Economic Performance of Regions, *Regional Studies* 37(6&7): 549-578.

Pratt, J.E. and Kay, D.L. (2006). Beyond Looking Backward: Is Child Care a Key Economic Sector? *Community Development: Journal of the Community Development Society* 37 (2):

Riberio, R., & Warner, M.E. (2004). *Measuring the regional economic importance of early care and education: The Cornell methodology guide*, Ithaca, NY: Dept. of City and Regional Planning, Cornell University.
http://government.cce.cornell.edu/doc/pdf/MethodologyGuide.pdf.

RMI (Rocky Mountain Institute), (1997). *Economic Renewal Guide*. Snowmass, CO: Rocky Mountain Institute.

Rolnick, A., & Grunewald, R. (2003). Early Childhood Development: Economic Development with a High Public Return, *FedGazette* March 2003. Federal Reserve Bank of Minneapolis.

Schultz, T. (1968). Institutions and rising economic value of man. *American Journal of Agricultural Economics*. 50 (5): 1113-1122.

Sen, A.K. (1999). *Development as Freedom*. New York: Knopf.

Sharp, J.S., Agnitsch, K., Ryan, V, et al. (2002). Social infrastructure and community economic development strategies: the case of self-development and industrial recruitment in rural Iowa. *Journal of Rural Studies*. 18 (4): 405-417.

Shore, R. (1997). *Rethinking the Brain: New Insights into Early Development*. New York: Families and Work Institute.

Stabler, J.C. and Howe, E.C. (1988). Service exports and regional growth in the postindustrial era. *Journal of Regional Science*. 28(3): 303-315.

Stoney, L. (2004). Framing Child Care as Economic Development: Lessons from Early Studies. Ithaca NY: Department of City and Regional Planning, Cornell University. http://economicdevelopment.cce.cornell.edu

Vidal, A.C. (1995). Reintegrating Disadvantaged Communities into the Fabric of Urban Life: The Role of Community Development. *Housing Policy Debate, 6*(1), 169-231.

Wagner, J.E. (1997). Estimating the economic impacts of tourism. *Annals of Tourism Research*. 24 (3): 592-608.

Warner, M.E. (2006). Putting child care in the regional economy: Empirical and conceptual challenges and economic development prospects. *Community Development: Journal of the Community Development Society, 37(2).*

Warner, M.E., & Liu, Z. (2006). The importance of child care in economic development: A comparative analysis of regional economic linkage. *Economic Development Quarterly,* 20(1): 97-103.

Warner, M.E., Adriance, S., Barai, N., Halla, J., Markeson, B., Morrissey, T., & Soref, W. (2004a). *Economic Development Strategies to Promote Quality Child Care*. Ithaca, NY**:** Cornell University Department of City and Regional Planning. http://government.cce.cornell.edu/doc/pdf/EconDevStrat.pdf.

Warner, M.E., Frye, C., Crawford, S., Gonzalez, E., Goodman, A., Kissam, A., McGowan, C., Odekom, K., Ribiero, R., Sandoz-Dennis, M., & Snilsberg, T. (2004b). *Investing in New York: An Economic Analysis of the Early Care and Education Sector*. Albany, NY: NYS Child Care Coordinating Council.

Warner, M.E., Ribeiro, R., & Smith, A.E. 2003. Addressing the Affordability Gap: Framing Child Care as Economic Development. *Journal of Affordable Housing and Community Development Law, 12*(3), 294-313.

Williams, Colin C., (1997). *Consumer services and economic development.* London; New York: Routledge.

Endnotes

[1] Mildred Warner is Associate Professor and Zhilin Liu is a Ph.D. candidate in the Department of City and Regional Planning at Cornell University. Contact mew15@cornell.edu. We would like to thank James Pratt, David Kay, Louise Stoney, Ted Bradshaw, Andrew Isserman and the anonymous reviewers for helpful comments on earlier drafts. This research is part of the larger Cornell University Linking Economic Development and Child Care Research Project supported by the US Department of Health and Human Services, Administration for Children and Families, Child Care Bureau research funds (90XC0003), the US Department of Agriculture Hatch Research Program administered by Cornell Agricultural Experiment Station (NYC-121524), and by the W.K. Kellogg Foundation.

[2] The IMPLAN PRO software now uses the SAM default (which better accounts for savings, taxes and disposable income) to calculate the Type II multiplier. Because SAM multipliers account for transfers of savings, taxes and disposable income in and out of the region, in relation to commuting patterns, Type SAM multipliers are slightly lower than Type II but the relative rankings across sectors are the same.

[3] For overall comparisons we only include IMPLAN sectors 1-515 that have non-zero 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 models. (IMPLAN Manual: 238-239). 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 46 sectors in services (sectors 463-509). Statistical tests of significance are not required because we run models for the entire population of all 50 states and our means are the value for the population, not a sample.

[4] According to the Consumer Expenditure Survey for 2000, households in the lowest quintile of income spent 234 percent of their income, whereas the highest quintile only spent 68 percent (BLS 2000).

[5] We use IMPLAN data for these comparisons. IMPLAN employment figures come from the CEW and may undercount sectors with large numbers of non-employer firms, such as child care. IMPLAN estimates for output capture more of the child care sector because they are based on consumer expenditure surveys.

[6] Wholesale, though at the 1-digit level in the SIC code system, has only a single sector in the IMPLAN modeling system. It shows up in many of Porter's clusters and thus serves as a good example of a "traded sector."