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Abstract

Industrial recruitment continues to play a significant role in the development of manufacturing industries in the U.S. South. Still, there are signs of shifting practice that not only emphasize a different set of regional advantages from earlier decades but equally help bolster those same advantages to anchor outside firms to the region. This article presents a case study of the strategic use of industrial recruitment to build out North Carolina's biopharmaceutical manufacturing industry. This case study helps shed light on how recruitment practices can be designed and improved to support continued manufacturing job growth, but in ways that also limit the recruitment of potentially footloose establishments. As such, it presents an alternative perspective to recent studies of industrial recruitment that focus narrowly on efforts to limit or curb locational incentives for industry attraction.

Keywords

industrial location, industry, industrial policy, jobs, economic development incentives/tools, state and local economic development policy

Southern industrialization has long been associated with the practice of industrial recruitment—that is, economic development activities aimed at building out a manufacturing base by attracting outside businesses to a region. But as recent economic history demonstrates, many of the same attributes (e.g., cheap labor, low taxes, minimal regulation, and low unionization) that once made the U.S. South an especially attractive location for manufacturing firms have increasingly become a source of regional vulnerability. This reflects the rise of industrializing economies in Asia and Latin America that now outcompete the U.S. South on many of these same locational “advantages.”

Despite this challenge, there are signs of manufacturing resilience and even rebirth in parts of the U.S. South. New manufacturing industries—from advanced materials/composites and nonwoven textiles to medical devices and biopharmaceuticals—are taking hold, and in the process are creating quality job opportunities for both new labor market entrants and workers displaced from traditional southern industries (Kalafsky, 2006; Lowe, 2007; Walden, 2008). Similarly, established southern manufacturing industries, such as furniture and hosiery, are remaking themselves by specializing in design-intensive products and processes (Tewari, 2005; Willis, 2005). The growth and transformation of the southern manufacturing base is often attributed to “endogenous” economic development strategies, namely,

those aimed at nurturing and developing “homegrown” industries and entrepreneurial enterprises. A closer look, however, reveals the continued importance of industrial recruitment. Yet, there are also signs of shifting recruitment practices that not only emphasize a different set of regional advantages (e.g., quality labor, strong research supports, and established industry networks), but also help bolster these same regional advantages to firmly anchor both local and nonlocal firms to the region. Ultimately, these reformed practices are helping to end the vicious cycle of manufacturing recruitment and disinvestment.

This article presents an analytical case study of the strategic use of industrial recruitment to build out North Carolina's biopharmaceutical manufacturing industry. This case study helps shed light on how recruitment practices can be designed and improved to support continued manufacturing job growth, but in ways that also limit the recruitment of potentially footloose establishments. The following questions guide the case study analysis: What role does industrial

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recruitment play in building out and transforming a local manufacturing base? How are connections forged between recruitment activities and other economic development tools and targets (e.g., workforce development initiatives, innovation strategy, entrepreneurial and small business development supports)? How do these connections temper and guide the recruitment process?

To answer these questions, in-depth interviews with economic development practitioners and analysts, industry experts, and company executives conducted between 2005 and 2009 are used. In addition, strategic planning documents, media reports, and other secondary accounts relevant to the case were analyzed. This case study is situated in an evolving literature on industrial targeting and long-range economic development planning. As such, it presents an alternative perspective to recent studies of industrial recruitment that focus more narrowly on efforts to limit or curb the use of locational incentives for industry attraction. Although incentive reform is an important aspect of improved recruitment practice, this article argues that we also need a better understanding of how communities situate recruitment activities within a larger economic development plan or strategy. By studying strategic recruitment efforts on the ground, we gain insights not only into how cities and communities can further embed recruited firms in a region, but also how they can use this as an enhanced tool for building out and stabilizing important manufacturing industries and jobs.

Embedding Recruitment

The use of incentive-backed industrial recruitment to facilitate the expansion of manufacturing establishments and jobs remains a source of intense academic and public debate. Many economic development scholars continue to recommend putting an end to the practice of using tax breaks and other financial giveaways to recruit new businesses to a community (Cobb, 1993; Eisinger, 1988; Markusen & Nesse, 2007; Peters & Fisher, 2004). For the manufacturing sector in particular, there is considerable concern that communities are simply throwing good money at firms that are likely to relocate again within a few years—a characterization that reflects the high rate of off-shoring by U.S. manufacturing firms (Gereffi, 2006; Lazonick, 2005). Still, given the sustained popularity of incentive-backed recruitment and the difficulty in pushing through state or federal legal challenges to incentive use, scholars are increasingly turning their attention to mediated strategies that can make incentive-granting processes more locally accountable (Bartik, 2005; Weber, 2007).

Three mediating strategies have been featured in recent economic development scholarship. The first involves improved use of analytical techniques for evaluating a potential recruitment deal and specifically, calculating the level of subsidy or incentive a community might offer a prospective

investor (Bartik, 1991, 2005; Luger & Bae, 2005). Key to this strategy is better methods for estimating the costs and benefits of a prospective incentive deal and for limiting excessive incentive use. A second, related approach involves improved contract negotiations between practitioners and businesses targeted for recruitment (Gilbert, 1995; Schweke, 2007; Weber, 2007). Beyond strengthening the analytical power of cost-benefit models, better negotiating strategies help ensure that companies receiving publicly funded recruitment incentives are held to strict performance standards, be they investment, employment, or wage thresholds. Scholars who place emphasis on the negotiation process and formal contractual mechanisms often recognize certain factors outside of the control of local developers that could affect a locality's relative bargaining power, including the level of urban amenities and existing industrialization of a region. Still, this approach also acknowledges considerable room for economic developers across diverse geographic landscapes to improve their "deal-making" skills and strategies (Weber, 2007). A final approach focuses on participatory governance to create additional layers of oversight that can encourage and foster more accountable incentive use (Leroy, 1997, 2007). Involvement by outside interests, including labor unions, school boards, and social service agencies, not only helps reinforce the use of performance-based incentives but can also help create new support mechanisms and partnerships for ensuring that these standards are achieved (Lowe & Morton, 2008; Schweke, 1999; Wolf-Powers, 2010).

At first glance, these three approaches emphasize distinct aspects of the recruitment process. Yet, what connects all three is the *centrality* they place on the incentive itself—that is, how much a community is prepared to offer a company as part of its industrial recruitment effort and what it will ask for in return. Each action is designed to help communities retain control over the incentive-granting process and, in turn, place limits on how much they give away to firms they are seeking to recruit or even retain. For some scholars, communities that combine these various strategies are better positioned to "rein in capital" and provide a potential counterbalance to site location consultants who narrowly represent the financial interests of the prospective business (Markusen & Nesse, 2007).

Attempts to limit or control incentive use are clearly important and worth pursuing, but it is important to also recognize that incentives are just one aspect of industrial recruitment. By limiting analysis to the narrow window of time in which incentives and their contractual terms are negotiated, we risk overlooking how other features of industrial recruitment evolve and interact at the local and regional levels and whether and how this dynamic interaction creates conditions for improved economic development practice. More important, by studying incentive deals in isolation, there is the risk of potentially overemphasizing the importance of the incentive offer in local economic development planning and thus

encouraging communities to privilege, rather than downplay, an incentive-centric development strategy. Instead, by studying recruitment activities in context, we may be in a better position to reduce incentive overuse and abuse by identifying the specific institutional influences that give rise to higher order recruitment practice.

A successful recruitment deal—defined here as the ability to both attract *and* anchor a recruited firm to a region or locality—typically requires close coordination across various types of economic development supports, including workforce development assistance, technical assistance programs, and even cluster-targeting initiatives (Fitzgerald, 2004; S. Goetz, Deller, & Harris, 2009). Furthermore, state and local economic developers, including those who focus most of their time on recruitment activities, are not simply passive beneficiaries of these supports. Rather, they can also play a central and active role in encouraging and advocating for continued support and use of these assets. As this suggests, the economic developer assigned responsibility for recruitment efforts does not act in a policy or institutional vacuum. Developers who spend the majority of their time recruiting firms often work closely with economic development organizations and practitioners whose primary responsibility is supporting industrial innovation and upgrading, workforce development, or entrepreneurship. These interactions create the possibility for strengthening recruitment efforts through greater institutional coordination and strategy sequencing. They can also foster strategies that encourage practitioners to take a long-range approach to industrial recruitment, recognizing the need for continued action in order to anchor recruited firms to the region (Mayer, 2005).

To some extent, this has been recognized by scholars who have studied the emergence of what is commonly referred to as “third wave” economic development strategies—namely, strategies that promote strategy coordination and active partnerships across various fields of policy and planning (Bradshaw & Blakely, 1999; Eisinger, 1988; Glasmeier, 2000). Still, while acknowledging the possibility for coordinated economic development, studies of “third wave” strategies are mostly dismissive of industrial recruitment, downplaying its status in relation to other, less controversial strategies, such as investment in worker training programs or support for small business development (Bradshaw & Blakely, 1999; Eisinger, 1988). As a result, we lack deep knowledge of existing variation in industrial recruitment practices and specifically, the conditions under which these practices can be enacted in more strategic and development-enhancing ways.

Clearly, economic development is a politically-charged endeavor, and numerous studies have helped capture the challenges that exist for practitioners whose work is directly tied to political outcomes, and more specifically to the reputation and standing of elected officials (Dewar, 1998;

Eisinger, 1995; Logan & Molotch, 2007; Molotch, 1976; Reese & Rosenfeld, 2001; Wolman & Spitzley, 1996). Therefore, any analysis of industrial recruitment must also recognize the political motivations and influences that potentially complicate strategy formation and implementation at both the state and local levels. Legitimate concerns have been raised that elected officials at all levels of government prioritize recruitment activities at the expense of other economic and social goals because doing so essentially allows them to take credit for new jobs at well-publicized factory openings and ribbon-cutting ceremonies, even if the longer-term gains associated with these efforts are less significant than with others (Reese & Ye, 2011; Rubin, 1988; Wolman & Spitzley, 1996). Some scholars also point to the influence of power brokers within a city or region who support this form of economic development activity simply to increase their return on high-profile real estate investments (Logan & Molotch, 2007; Molotch, 1976; Wolman & Spitzley, 1996).

It also appears that the ability of economic development practitioners to buffer against these various pressures is largely undermined by uncertainty and informational asymmetries associated with the recruitment process itself (Reid & Gatrell, 2003; Rubin, 1990). Often, information about a prospective firm, including its industry affiliation and growth trajectory, is tightly controlled or deliberately withheld by site location agents (Markusen & Nesse, 2007). This ultimately makes it difficult, if not impossible, to fully assess and evaluate a potential deal and determine its true relevance and cost for the region (Bartik, 2005; Weber, 2002). This can be especially true at the local level, where resources and information-sharing opportunities are severely constrained (Weber, 2007). Faced with considerable uncertainty, it is not surprising that local economic development practitioners admit to feeling isolated and powerless, thus reinforcing the pressure they may face to act in “symbolic” rather than strategic ways (Rubin, 1988, 1989).

Obviously, much of the uncertainty they face reflects the inherent difficulty of managing complex economic processes and transactions and the fact that most economic actors and activities are not confined to a single locality, region, or even nation (Wolman & Spitzley, 1996). Still, despite the ambiguous and politically charged nature of their work, economic development practitioners have also been known to take bold and decisive steps that not only improve their ability to influence and shape development outcomes, but to do so in ways that also protect against potentially damaging power plays (E. G. Goetz, 1990; Reese & Rosenfeld, 2001; Sassen, 1990). Furthermore, practitioners have collaborated and interacted in innovative and impactful ways to facilitate greater information sharing and to help institutionalize deliberative processes for defining and redefining policy priorities in the face of constantly changing economic and political environments (Block, 2008; Eisinger, 1995; Lowe, 2007; Sabel, 1992; Sabel & Reddy, 2007; Schrank & Whitford, 2009).

By examining efforts like these in the context of industrial recruitment, we not only gain a better understanding of the ways that economic development practitioners can assist one another in making their daily jobs more effective and meaningful, but we can ultimately help elevate the reputation and professional standing of those practitioners who strive to improve the act of recruitment itself. With this in mind, we turn next to the details of the North Carolina case.

Biomanufacturing Recruitment in North Carolina

The development of North Carolina's life science industry is often held an example of good practice in the area of workforce development and career ladder formation (Fitzgerald, 2006; Lowe, 2007). It also provides an excellent illustration of the use of strategic industrial recruitment to expand the state's manufacturing sector. Recruitment efforts in life sciences date back several decades and initially involved chemical-based pharmaceutical firms. Recruitment continues to play a key role in industrial development today and has resulted in an especially high concentration of biomanufacturing facilities in North Carolina. As a result, the state's life science industry is not simply a jobs generator for highly educated individuals—though here, too, it is recognized as a national leader (DeVol et al., 2004; Lowe, 2007). Rather, it differentiates itself from those in other states by using strategic industrial recruitment to also provide quality employment opportunities for less educated labor market entrants and especially for those displaced from declining manufacturing industries in the state.

A Highly Trained Workforce

Strategic recruitment efforts date back several decades and reflect an innovative and evolving workforce development partnership in biomanufacturing. This partnership initially emerged in response to a growing demand for workforce training by an established industrial enzyme manufacturer in North Carolina. This history has been well documented elsewhere (Fitzgerald, 2006; Lowe, 2007), but several highlights are worth noting.

In the mid-1990s, the Danish company Novozymes took steps to expand its U.S. production base, and as a result needed a mechanism for retraining and recruiting new employees to operate additional production lines at its facility in Franklinton, North Carolina. The company initially turned to the local community college in its jurisdiction, Vance-Granville Community College, for assistance in creating a customized training program that included specialized modules in cell fermentation and related biomanufacturing techniques. The North Carolina Biotechnology Center (Biotech Center), a state-funded biotechnology agency that was incorporated in 1984, soon recognized an opportunity to use this

customized training support as a cornerstone for a larger, general-use training initiative.

Interestingly, early industrial recruitment efforts involving biomanufacturers provided a crucial vehicle for curriculum development. In the early 1990s, the Biotech Center worked closely with the North Carolina Department of Commerce on several highly publicized recruitment deals. One involved Massachusetts-based biotechnology giant Biogen, which at the time was looking for a site to build a large-scale manufacturing facility to produce Avonex, a human therapeutic used in the treatment of multiple sclerosis. This recruitment effort included a commitment by the North Carolina state government to provide subsidized vocational training and assistance in recruiting and pre-screening prospective employees. Human resources managers at Biogen worked closely with training experts from the Biotech Center and Community College System to build on the existing Vance-Granville curriculum. Additional feedback in curriculum design was provided by several other pharmaceutical-related companies in the state that had expressed interest in similar training support (Fitzgerald, 2006). The outcome of this process was BioWork, a semester-long, 128-hour, general-enrollment course that covers basic techniques in biomanufacturing and good manufacturing practices. Today, this program is offered at a dozen community colleges in the state and maintains an annual enrollment of close to 1,000.

By involving multiple companies in the early phases of BioWork curriculum development, the Biotech Center helped create an open communication channel for tracking and responding to changes in industry training and employment needs. This relationship was formalized in 2002 through the Biomanufacturing and Pharmaceutical Training Consortium. Consortium members include representatives from North Carolina State and North Carolina Central universities, as well as original participants from the Biotech Center, Community College System, and the biopharmaceutical sector via a statewide industry association, NCBio. Together, these various institutional actors have helped advocate for policies and resources to develop a nested training system that supports most occupations within the biopharmaceutical field.

In addition to creating BioWork, which is designed primarily for entry-level job seekers with lower levels of education (i.e., a high school degree or GED), the Consortium has also helped to expand associate degree programs, as well as 4-year university degrees in specialty technical areas (Lowe, 2007). These efforts cross the traditional community college–university divide and have helped foster partnerships involving both types of educational institutions. As one example, members of the Consortium were instrumental in the creation of North Carolina State University's Biomanufacturing Technical Education Center (BTEC), a multiuse training center that shares pilot manufacturing facilities with the North

Carolina Community College Capstone Center. Students from both institutions, as well as incumbent workers, can access specialty training courses at this \$30 million biomanufacturing training facility (Lowe, Goldstein, & Donegan, 2011). A 2007 consulting report estimated that between 2003 and 2006, more than 2,800 students received some form of training in biopharmaceuticals through the state's Community College System (Christophersen, 2007; Reid & Gattrell, 2003). Since that time, additional training supports have been developed by Consortium members in an effort to further expand this labor market reach.

This coordinated workforce development infrastructure has helped established biopharmaceutical firms in the state expand their production capabilities and has enabled others to transition from more traditional, chemical-based manufacturing processes to biologics. Additionally, this infrastructure plays a key role in North Carolina's continuing biomanufacturing recruitment efforts. State and local economic recruiters, with assistance from previously recruited biomanufacturers in the state, actively promote this institutional asset to prospective investors. In fact, this system is often the first attribute mentioned during an initial recruitment contact. Staff from the Community College System also reinforce this message through their active participation in the recruitment process. To deepen this role, BioNetwork, the life science training initiative within the Community College System, established a full-time industrial liaison position. Before this position was created in 2007, representatives from the Community College System were often involved later on in the recruitment process and only when it was necessary for state recruiters to secure a letter guaranteeing community college assistance for worker training. With the urging of their industrial liaison, BioNetwork representatives have been able to participate earlier in discussions with prospective biomanufacturers, and as a result have been better positioned to address specific questions about existing and emergent state training supports and also to customize each training package to meet the needs of individual firms. The involvement of workforce development experts early on in the recruitment process only helps reinforce quality training and skills availability as top locational advantages for prospective biomanufacturers.

Divide and Conquer

Economic development entities, including the North Carolina Department of Commerce, whose primary economic development function is industrial recruitment, clearly recognize the value of the state's workforce development infrastructure. Not only do these entities strongly recommend that state agencies continue to support its expansion, but they also ensure life science firms outside of the state are also clued in to this institutional resource and long before they are actually in a position to short-list

North Carolina sites for new manufacturing facilities. This ability to "get out in front" of these firms stems from an innovative institutional partnership that was established between the Department of Commerce and the North Carolina Biotechnology Center.

The basis for this partnership emerged initially in the late 1980s when the Biotech Center aided Commerce developers in recruiting a biotechnology firm and vaccine manufacturer Praxis Biologics Inc., whose research base was in Rochester, New York.¹ During the 1987 Praxis deal and subsequent deals in the late 1980s and early 1990s, Biotech Center staff helped developers tap dense networks of research scientists and university administrators who were in a position to convince company executives of the state's continually expanding research strengths and institutional supports in biopharmaceuticals. In some cases, these meetings involved university scientists who had been recruited to the state with funding from the Biotech Center's "Eminent Scholars" program. Industrial recruitment efforts involving other biologics firms throughout the 1990s, including the highly publicized Biogen case mentioned earlier, helped reinforce complementarities and synergies among the activities of these two state-funded organizations.

The Biotech Center and Department of Commerce took steps to formalize this relationship in 2001 through the creation of a joint position in economic development. The goal was to assign the individual selected for that position to guide state and local industrial recruitment activities in biomanufacturing. In 2005, changes were made to this position such that its official employment affiliation was with only one organization, the Biotech Center. Still, even today, the Department of Commerce continues to play an active role in supporting this post, including contributing partial salary support.

Since July 2003, this position has been held by Bill Bullock, a trained scientist with earlier work experience at a successful midsize biotechnology firm in San Diego, California. As a Biotech Center employee, Bullock is given considerable flexibility and breathing room to work on and integrate prerecruitment activities. Unlike more traditional economic developers, his job performance is not evaluated solely on the basis of successful or completed recruitment deals, but rather on the quality and depth of his relationships with companies that may become future recruits. To identify and build relationships with these companies, Bullock draws on his academic training and employment history in life science. This not only provides him with considerable knowledge of the inner workings of the biotechnology industry, but as a result of this scientific training, he is able to converse easily with scientists he meets at biotechnology and related life science conferences. Through these exchanges, he is able to track and monitor the technology development of early and midstage biotechnology firms and determine which establishments might be poised to move into manufacturing

within coming years—for a typical biotechnology firm, especially given protracted federal regulatory requirements, this can take up to 10 years from the time researchers first identify a potential therapeutic application.

Although traditional economic developers may also be in a position to track biotechnology firm development, Bullock's scientific training and industry experience give him added insights into specific obstacles and opportunities, including financial or regulatory milestones that can affect the development trajectory of an early or midstage biotechnology company. At the same time, this background gives him added credibility within the scientific and biotechnology business community. As a former employee of the Department of Commerce's International Trade Division, Bullock is also well positioned within economic development networks in the state.

Using information gathered from various sources, Bullock is able to determine when a biotechnology company is ready for an initial "meet and greet" event involving a larger recruitment team from the state. Often, this can occur several years before a midstage company is ready to make a move into biomanufacturing or an established firm is in need of a new facility. This can result in a longer prerecruitment time horizon than most traditional economic development organizations would be inclined to support. A recent example of this involves the company Novartis. Bullock made initial contact with executives from a midstage biotechnology firm Chiron at a 2004 bioconference. The acquisition of Chiron by Novartis in early 2005 eventually resulted in an international search for a new vaccine-manufacturing site. As a result of Bullock's early networking efforts, North Carolina remained on the company's radar and was internally promoted by former Chiron executives and scientists retained by Novartis; as described in more detail below, Novartis announced in 2006 that it would build a \$600 million vaccine production facility in Holly Springs, North Carolina.

Drawing on existing connections between the Biotech Center, Department of Commerce, and Community College System, Bullock and his support staff put together teams of actors that best reflect the specific manufacturing trajectory of the company in question. At a minimum, each team includes a representative from Commerce and the Community College System. When meeting with smaller, midstage biotechnology firms, additional representatives are usually brought in from the region's research universities, such as University of North Carolina-Chapel Hill, North Carolina State University, and Duke University. The involvement of university affiliates, including faculty members, is an added draw for smaller companies that are seeking to deepen their research activities at the same time that they take steps to move downstream into manufacturing. Additionally, university scientists have helped open up lines of credit for small and medium-sized firms by vetting their science on behalf of potential financiers in the state. This is

aiding state recruitment efforts by providing a specialized service that is not only attractive to small and medium life sciences firms, but given continued financing challenges, may prove more valuable to prospective firms compared with traditional "cash" giveaways. In contrast, larger, late-stage biotechnology and biomanufacturing firms, especially those with existing manufacturing, tend to be more interested in speaking with workforce development experts about available workforce skill and training supports that cross a variety of technical and scientific occupations. This enables the firms to assess the depth of the local labor market and determine whether they can recruit most of their employees from within that labor market, thus saving considerable employee recruitment and relocation costs.

This front-end work by the Biotech Center enables economic developers from North Carolina's Department of Commerce to direct their energy and resources to other kinds of recruitment support activities. One important activity is helping communities throughout North Carolina prepare and position themselves as quality sites for biomanufacturers and related life science firms. Commerce staff, particularly those with a specialization in life sciences, meet regularly with local developers who have expressed an interest in attracting a biomanufacturing facility to their region. Commerce carefully catalogs community attributes that are likely to be most attractive to a prospective biomanufacturer. In doing so, they often encourage local developers to reach out to their respective community colleges to familiarize themselves with the kinds of training assistance that are locally and regionally available. Equally, they help local developers identify regional labor market strengths and weaknesses that can influence a location decision. When a biomanufacturing company eventually submits a call for proposals to Commerce, state developers work with local developers to put together their proposal packet and provide them with research assistance to fill informational gaps. After a company has presented its final short list, Commerce will solicit feedback from site location consultants and transmit this information back to communities not on the list to make them aware of specific selection criteria and in the process help identify areas for future improvement. The Biotech Center assists Commerce with community preparation activities by cohosting informational seminars on biotechnology and related manufacturing processes in an effort to broaden local developer understanding and awareness of this sector and its platform technology.

This division of labor, in which the Biotech Center brings to the table extensive industry and company knowledge while Commerce works behind the scenes preparing communities for proposal development, has an important effect of promoting higher-order recruitment practices by helping to control the incentive granting and negotiation process. In essence, by engaging with company executives and scientists early on in the process, Biotech Center staff are in a position not only to identify life sciences firms that are *most*

interested in basing their location decision on the availability of skilled workers and industry development supports, but can also help raise company expectations about the benefits of these same supports. Furthermore, by vetting most prospective biomanufacturing firms that express interest in locating in the state, Bullock and his team find themselves in a position to identify and engage companies that initially emphasize incentives and to refocus the discussion toward other state assets, especially the quality of the workforce and vocational training supports. This strategy helps mitigate the impact of companies that are clearly interested in only the incentive offer—whether that is motivated by a lack of financing or instead reflects an interest in gaining strong counter offers on which to build negotiations with competing states or localities.

Commerce, through this partnership, also helps ratchet up incentive standards by reducing the possibility that a community enters the biomanufacturing recruitment process underprepared and therefore is at risk for downplaying or overlooking key regional assets. By preparing the community far in advance, Commerce puts the locality in a much stronger bargaining position and at the same time helps reinforce standard operating practice around incentive negotiations, including requiring clawbacks and strict performance criteria. Equally, by working closely with communities and by tapping Biotech Center knowledge about specific industrial prospects, Commerce is in a position to put forward select communities that offer the best combination of assets for a given firm. Admittedly, this puts Commerce in a potentially delicate situation that could open it up to criticism that it is simply playing favorites. To protect against such claims, Commerce draws on its partnership with the Biotech Center to also broaden the types of life science firms that are recruited or encouraged to expand within the state. With this goal in mind, both organizations also work together to identify a subset of biotechnology and related life science firms, including those with applications in agriculture or animal husbandry, that typically consider locating manufacturing facilities in more remote and rural areas of the state. The two organizations have also commissioned labor market studies outside of the Research Triangle regional economy to identify and better market regional skill specializations that might be attractive to, yet underutilized, by the industry.

The Case of Novartis

A high-profile example involving Novartis—a multinational biopharmaceutical company with headquarters in Basel, Switzerland—is illustrative of the state's strategic recruitment efforts. As indicated earlier, recruiters from the Biotech Center had reached out to company executives in 2004 with the goal of securing a future manufacturing facility. In July 2006, Novartis announced it had selected Holly Springs as its main U.S. site for the Novartis Vaccines and Diagnostics

U.S. Flu Cell Culture Facility, a large-scale vaccine manufacturing plant based on cell fermentation technologies. For Holly Springs, a relatively small, yet fast growing town of 22,000² in North Carolina's Research Triangle metropolitan region, this recruitment effort was viewed as a major economic development success. Not only will the facility generate more than 400 manufacturing-related jobs when it goes on-line in 2012, but based on the scale of this investment—currently estimated at close to \$1.2 billion as a result of several facility expansions—it is anticipated to generate direct tax revenues for the town of approximately \$2 million per year.

As with most recruitment efforts of this magnitude, incentives were offered by both local and state governments. More than \$20 million was initially committed by the Town of Holly Springs alone,³ with an additional \$21 million from the state government and approximately \$2 million from Wake County. The town's contribution consists of \$7 million in infrastructure investments, including a road expansion and upgrades and extensions to existing water and sewer lines. The remaining \$8.3 million from the town was used to purchase land from the owner of the city's industrial park and provide a clearing and grading allowance to Novartis. North Carolina's Department of Transportation agreed to reimburse Holly Springs some of the roadway improvement costs by the year 2014. A federal grant from the U.S. Economic Development Administration and one from the North Carolina Golden LEAF Foundation, which focuses on state economic development, were also secured by Holly Springs to partially offset the cost of public infrastructure improvements. The remaining liability for the town is expected to be covered in less than 10 years by Novartis's local tax contributions.

Both state and local incentives are held to strict performance criteria that specify minimum investment and employment thresholds. The incentive contract drafted by the town also includes "clawback" mechanisms that enable the town government to take back control of the land title should Novartis fail to meet specified performance targets. The town generated its incentive package using a well-tested cost-benefit model that was developed and analyzed with the help of state and county economic development practitioners. A well-respected attorney from the area, one with considerable experience writing incentive contracts for industrial recruitment deals, worked with the town attorney to legally protect its financial assets and interests. According to Jenny Mizelle, Holly Springs' director of economic development, the town's legal team ensured that site location consultants working for Novartis were aware that clawbacks and performance criteria were standard operating procedure in the region and were nonnegotiable terms.

But this deal represents more than a case of good contract negotiations leading to local restraint in incentive granting. The Novartis case is a reflection of many of the strategic

recruitment efforts outlined above. In 2001, 5 years before Novartis shortlisted Holly Springs as a potential manufacturing site, Jenny Mizelle and her staff identified biomanufacturing as a target industry for their community. This reflected input they received from life science recruiters from the Department of Commerce and economic developers from Wake County who had worked closely with state agencies, including the Biotech Center, on earlier biomanufacturing recruitment efforts. Based on this advice, the Town of Holly Springs commissioned a 4-month branding study in 2001 to test the assumption that Holly Springs could be successfully marketed as a location for life science manufacturing.

Mizelle and her staff also began attending informational and educational sessions on biotechnology and biomanufacturing hosted by the Biotech Center and other state and regional agencies. These sessions included several international biotechnology conferences that were also attended by representatives from the Biotech Center and Commerce. In addition to helping Mizelle connect with executives from target businesses, these events opened up opportunities to establish relationships with key industry allies in North Carolina, including O'Brien/Atkins Associates, a specialty design and engineering services firm that helps build biomanufacturing facilities in the region. Through their discussions at these events, Mizelle and her staff learned of the broader institutional supports that were most important to biomanufacturing firms, including workforce development assistance. They were then in a position to map these supports and provide evidence that Holly Springs was within close reach. They also learned about the occupational profile of the region's labor market and specifically which professions and technical skills were of most value to a biomanufacturer. By submitting proposals to Commerce for earlier biomanufacturing projects, they also gained firsthand knowledge of the proposal submission process and at the same time received extensive feedback on specific aspects of their proposals that needed strengthening.

Finally, through their contacts with state and county economic developers, Mizelle and her staff were able to gather extensive information on incentive-granting options and also learn about the performance standards Commerce and Wake County used in earlier biomanufacturing recruitment deals. Drawing on this information, as well as on support from the town manager and the Holly Springs Town Council, Mizelle was able to put together a competitive package to offer Novartis. As Mizelle herself acknowledged, when deeply immersed in the day-to-day work of putting together a recruitment offer for a prospective investor, it is easy for a local economic developer to "get giddy" and in the process make certain allowances that may not be deemed advisable given local resource limitations and constraints. Yet, her embeddedness within a broader institutional support network, as well as the lead time this provided her for preparing for negotiations with Novartis, helped ensure she stayed within reasonable

incentive granting limits. Moving through this institutional support network also reinforced her relative bargaining power by instilling the message that there was real value, well beyond any incentive offer, for Novartis in choosing to locate its facility within this particular community.

A key asset that Mizelle and partners featured was the quality of the region's workforce and training infrastructure. Reflecting this, the *Atlanta Journal-Constitution* newspaper quoted the chief executive of the company's vaccine and diagnostic division stating the "main reason for selecting this site (in Holly Springs, North Carolina) was the availability of a highly trained work force." The newspaper went on to report that while Georgia offered Novartis a significantly larger incentive package, "North Carolina got serious about reforming its public education system more than a decade ago. If Georgia is still going to have any chance at winning in this league, it, too, must improve public education" (McNaughton, 2006). The importance of this evolving workforce development system on the location and expansion decisions of other biomanufacturing firms has been noted elsewhere.

To end the Novartis story here at this point, when the ink on the contracts is still drying, would miss an opportunity to also consider the next phases of economic development planning used to anchor and extend the impact of this and related biomanufacturing deals in North Carolina. In essence, the institutional backdrop created by the North Carolina Biotech Center and its partner agencies not only provides a resource for ratcheting up incentive standards but, more important, ensures that these communities have the institutional support needed to extend and deepen the developmental contribution of the companies they successfully recruit.

Within weeks of the Novartis announcement, Mizelle and her support staff in Holly Springs drew on this support when they transitioned quickly into their new role as intermediaries to help Novartis staff connect with local suppliers and service providers. Mizelle and her staff had already developed a local database containing background information on more than 200 Holly Springs-based businesses, which they drew on to facilitate local sourcing opportunities. Initially, these exchanges were fairly informal and based on requests from Novartis staff or a local business to facilitate networking opportunities. Then in early 2009, Mizelle joined forces with the town's Chamber of Commerce to organize an event they called "Meet Novartis." Business owners from Holly Springs and neighboring towns were invited to attend to learn about various Novartis sourcing and service needs.

Related efforts are currently underway to promote local hiring by Novartis. In this case, Mizelle and her staff have worked closely with Holly Springs High School and Wake Technical Community College. The goal is to encourage recent high school seniors who have not yet committed to attending college to consider enrolling in an Associate Degree program at Wake Tech so they will be competitive for jobs at

Novartis when its facility moves into commercial production in 2012. They are also working closely with high school teachers and administrators to find resources to help introduce biotechnology education into the classroom in an effort to increase student awareness and interest in this technology area and its related technical and scientific occupations. As one illustration, Mizelle and other staff from the Town of Holly Springs convinced Novartis staff to dedicate one day in April 2009 to improving the town's high school science infrastructure. As part of its annual Community Partners Day, Novartis, along with other companies in the community, provided several dozen volunteers and building materials to create an outdoor science trail and teaching space.

To help strengthen local employment and educational opportunities in life science. Mizelle and her staff have also attended professional development courses, including several outside the state, to learn about innovative strategies for connecting economic and workforce development activities. With this in mind, they have also reached out to education and training experts at the Biotech Center and Community College System for additional input and advice. Interestingly, Mizelle sees a strong link between increases in local hiring and future recruitment and business expansion opportunities within her community, insofar as Novartis' increased interest in hiring Holly Springs residents provides a powerful signal to other businesses of the depth and strength of the local labor market.

Bringing It Home

It is important to recognize that Holly Springs' efforts involving Novartis are part of a larger, coordinated effort by institutional actors in the state to expand the economic impact of biomanufacturing and pharmaceutical firms that locate within North Carolina. The Biotech Center, Department of Commerce, and Community College System work closely with recruited firms, including those that were recruited to the state several decades ago, in an ongoing effort to guide hiring, sourcing, and business expansion decisions.

Several channels exist that enable the Biotech Center and Department of Commerce to maintain close communication with established firms in the state. The Biotech Center, for its part, engages both "homegrown" and recruited biopharmaceutical firms in working groups that focus on issues as diverse as changes in federal regulatory requirements, financial market development, and emergent vocational and technical training needs. It also invites company executives from these firms to attend regularly scheduled Biotech Center events. Commerce too connects to previously recruited biomanufacturing firms on a regular basis as part of its existing industry division. In this case, a Commerce developer is assigned responsibility for staying in touch with firm executives in their jurisdiction with the goal of identifying additional areas for Commerce support. This can include helping

a firm manage facility expansion, identify new or emergent markets, or invest in workforce upskilling.

Interestingly, ongoing recruitment efforts in biomanufacturing only help strengthen connections between Commerce, the Biotech Center, and previously recruited firms. When recruiting a new firm, site location consultants often request private meetings with executives of existing biomanufacturing facilities in the state. Developers from Commerce and the Biotech Center work closely with executives from these facilities to schedule and prepare for these meetings. During these contacts, developers from Commerce and the Biotech Center often learn about expansion opportunities at existing facilities. They also make note of emergent challenges facing these companies that they could help mitigate with additional assistance from their respective organizations or from other institutional partners. These efforts are reinforced by the North Carolina Community College System, which provides ongoing outreach and training assistance to established firms and, in the process, helps ensure these firms continue to benefit from and value the state's workforce development commitment.

As this suggests, the original negotiations surrounding a recruitment deal are not the only moment in time when broader economic development goals and standards can be promoted. Rather, institutional actors who initially helped recruit firms to the state also continue to work to identify and resolve new and emergent challenges as part of their ongoing efforts to anchor these firms in North Carolina. In this regard, recruitment and retention activities are tightly woven together and thus difficult to uncouple or evaluate in isolation.

Transferable Lessons

In considering transferable lessons for other states and localities, one could possibly dismiss the Novartis deal as an exceptional case with limited potential for replication outside of a few robust regional economies. After all, biomanufacturing is concentrated in North Carolina's vibrant and resilient Research Triangle region. As a result, established and newly recruited firms in this industry benefit from a decades-long commitment to promoting science and technology development in the state, institutionalized initially through the creation of North Carolina's Research Triangle Park in the 1950s. Furthermore, the region has weathered the recession quite well, reflecting a dynamic mix of complementary industries that share overlapping labor and resource needs. This helps make the job of industry recruiters significantly easier and potentially more satisfying. Given this, what opportunities exist for places that may not start off with similar institutional endowments or locational advantages?

A key take away is not that other places should simply replicate the same institutional structures found in North Carolina, but rather that they should consider what might be gained from the practices these institutions jointly devise and

embrace. The institutional actors involved in recruitment efforts in North Carolina are powerful in their own right. Still, they recognize existing informational and resource gaps that necessitate a collaborative approach—an approach that may be especially appropriate for places facing severe budget constraints and resource limitations. With this in mind, the North Carolina case study helps illustrate the importance of involving various industrial and economic development-related organizations in the recruitment planning process. As we have seen, involvement by the North Carolina Biotech Center and Community College System not only complements the work of state and local economic developers but also keeps their recruitment activities focused and in check. Additionally, this partnership helps tip the balance of power away from site location consultants by limiting their ability to control or conceal important information (Markusen & Nesse, 2007; Reid & Gatrell, 2003).

Still, it is important to also recognize that the formation of these partnerships is not likely to occur overnight nor without some element of conflict. This may be especially true for regions that are struggling with budget constraints that make individual institutions especially vulnerable. In the North Carolina case, conflicts in need of resolution emerged early on between Commerce and the Biotech Center. As this case suggests, one way to create conditions for fostering such partnerships is to begin with a manageable first project, which for North Carolina involved the Praxis recruitment deal in 1987. This deal helped each organization demonstrate its respective contribution to the process at the same time that it created confined project space for problem solving and trust building. Efforts to formalize these partnerships can be further aided by the movement of individuals across organizational and institutional boundaries. As indicated earlier, Bill Bullock previously worked at Commerce before moving to the Biotech Center in 2003. Similarly, the industrial liaison for BioNetwork at the Community College System was a former Commerce recruiter with considerable life sciences recruitment experience. This not only helps ensure there is common “language” for strategy coordination but equally helps each participant understand and strengthen his or her own agency’s contribution to the process, as well as that of their partners.

A second lesson relates to industrial targeting and, specifically, efforts to embed recruitment activities within a larger planning effort that is organized around a specific industrial sector or set of related sectors. Admittedly, this is less likely to occur at the local or county level, where it may be harder for economic developers to control or guide the location decisions of multiple companies within a narrow set of industries or sectors—this is especially true for communities facing industrial decline and, thus, may struggle with the task of identifying appropriate industrial replacements. Still, at the state or regional level, industry or sector-targeting efforts can involve strategic recruitment efforts, and these can help guide local recruitment decisions and actions. The

list of targeted sectors will undoubtedly differ depending on the context. This, however, makes the North Carolina case even more relevant as it suggests that involvement of agencies at multiple scales is not simply needed for places hoping to also promote biomanufacturing, but may be essential for matching industrial targets to specific regional advantages, labor market strengths, and industrial legacies. In this context, recruited firms can help fill gaps within a local supply chain and also diversify employment opportunities by focusing on complementary activities within a region’s existing industrial mix. In this regard, there may be important synergies between recruitment efforts, workforce development, and the promotion of “homegrown” entrepreneurship, which a targeted industrial approach can also support (S. Goetz et al., 2009; Greenstone, Hornbeck, & Moretti, 2008).

Our third case lesson relates to enhanced state and local interactions. As this case illustrates, it is important for state-level participants of these recruitment partnerships to reach out to local communities and increase the frequency with which they engage with those responsible for local economic development activities. This is especially true for communities that are located outside of metropolitan areas or whose economic position is more precarious, as these communities often have less bargaining power during the recruitment process (Weber, 2007). Although Holly Springs is located within the greater Research Triangle metropolitan region, it was still a relative newcomer to the recruitment process and therefore was potentially vulnerable given a lack of previous recruitment experience and success. By embedding local developers within an institutional support network well before they had a recruitment deal to work on, state agencies helped strengthen the town’s relative bargaining position. This suggests the need to further extend the reach of these institutional networks in an effort to improve recruitment practices in more remote areas of a state. Recognizing this, some scholars have suggested that state agencies be given sole responsibility for all incentive-backed recruitment efforts (Bartik, 2005). Given the move toward greater, rather than lesser, decentralization in economic development planning (Block, 2008; Schrank & Whitford, 2009), an alternative approach involving active outreach, education, and standard setting by state-level agencies may be a more achievable policy goal.

As a final note, it is important to acknowledge that while North Carolina has made great strides in reforming its recruitment practice and by adopting a more strategic and targeted approach that places considerable limits on the process, it still faces obstacles to diffusing the model developed for biomanufacturing to other industries and across spatial boundaries. As indicated earlier, most recruited biomanufacturing facilities have located within the state’s 13-county Research Triangle regional economy and thus have helped extend employment opportunities to less-educated job seekers within the region’s well-established life science industry. By focusing recruitment efforts on manufacturing activities, state and regional agencies

have helped pull down the industry career ladder to reach less advantaged segments of the population. This contribution makes biomanufacturing an especially attractive target for more remote regions of the state that have also struggled with declining employment in traditional manufacturing industries, like textiles and furniture production. Yet simply expanding the industry's manufacturing footprint comes with an added risk in places that may have fewer regional advantages or resources to anchor recruited firms. As mentioned earlier, attempts have been made to identify subsets of biomanufacturers that have particular needs that more remote regions are well suited to address (e.g., a desire to be in close proximity to an agricultural customer base, to agricultural inputs, or to a workforce with agricultural experience and knowhow). An ongoing policy challenge is ensuring that all actors involved scrutinize each deal with these attributes and connections in mind, as without this, efforts to retain a recruited firm could prove especially difficult given geographic distance from other industry supports and resources.

Related to this, there continue to be inconsistencies in recruitment practices across industry lines. Attempts have been made to apply similar recruitment standards and approaches to other industry targets in North Carolina, including textiles, aerospace, and military technologies. As with biomanufacturing, state agencies collaborate and in the process have established robust sector teams that focus, guide, and temper recruitment and retention efforts within these target sectors. But more can be done to extend and institutionalize this approach for other emergent and established industries. The Great Recession and its aftermath has exposed cracks within important North Carolina industries and has revealed potential limits to disjointed and less-structured approaches to recruitment. As one example, we have seen several questionable recruitment deals, including some involving relaxed employment and wage standards in industries like microelectronics and information technology that have historically been important job generators for the state. These industries have also seen considerable employment fluctuations in North Carolina in the postrecession period. This stands in contrast to the postrecession development of biomanufacturing, which despite industry consolidations and downsizings nationwide has provided steady employment growth for North Carolina as firms continue to select the state when combining and concentrating activities and facilities. This divergence suggests an opportunity for cross-industry learning and policy diffusion even within the state.

Recruitment as a Tool for Manufacturing Resilience

As this case study illustrates, industrial recruitment, if implemented well, can be a powerful economic development tool for strengthening U.S. manufacturing industries and labor markets. The recent economic downturn and slow

labor market recovery provides an opportunity for encouraging wider adoption of higher order recruitment practices. On the one hand, communities are searching for strategies that generate long-term job opportunities for local job seekers and often with an eye toward higher paying manufacturing jobs. On the other hand, hard local budget constraints necessitate fiscally prudent, yet high-impact approaches.

In featuring the North Carolina biomanufacturing case, our main goal is to show first and foremost that industrial recruitment efforts need to be evaluated on the basis of more than just the negotiations leading up to and crystallized within an incentive offer. As this case illustrates, institutional partnerships and coordinated actions taken before, during, and after a specific incentive-backed recruitment deal can help encourage communities to be tempered and strategic in their incentive use rather than desperate and reactive. The strategic recruitment efforts featured in this case help discourage communities from simply "giving away the store"—a criticism common of incentive-backed recruitment practice. Rather, the North Carolina biomanufacturing case illustrates that what matters most in the recruitment process are efforts to ensure a good fit between the prospective company and host community, such that the incentive is neither the key industrial attractor nor retainer.

Under these circumstances, incentives are overshadowed by the presence of a more sophisticated and interconnected set of regional assets. As this case study illustrates, strategic recruitment efforts that feature these assets not only help further embed recruited firms in a region and thus expand their economic development contribution but, more important, also encourage practitioners and policymakers to also protect these assets to the benefit of recruited and homegrown firms alike.

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Notes

1. Praxis, a subsidiary of chemical manufacturer American Cyanamid, was eventually acquired by Wyeth Pharmaceuticals in 1994. Under Wyeth's control, the Sanford-based vaccine-making facility would eventually expand to employ more than 1,400 workers.
2. As a reference point, the town's population in 1990 was around 900.
3. Between 2006 and 2009, the town raised \$5 million in state and federal funding that helped reduce the local incentive commitment to \$15 million.

References

- Bartik, T. J. (1991). *Who benefits from state and local economic development policies?* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Bartik, T. J. (2005). Solving the problems of economic development incentives. *Growth and Change*, 36, 139-166.
- Block, F. (2008). Swimming against the current: The rise of a hidden developmental state in the United States. *Politics & Society*, 36, 169-206.
- Bradshaw, T. K., & Blakely, E. J. (1999). What are "third-wave" state economic development efforts? From incentives to industrial policy. *Economic Development Quarterly*, 13, 229-244.
- Christophersen, K. (2007). *The economic contribution of the NCCCS BioNetwork Initiative*. Raleigh, NC: BioNetwork.
- Cobb, J. C. (1993). *The selling of the South: The Southern crusade for industrial development*. Chicago: University of Illinois Press.
- DeVol, R., Wong, P., Bedroussian, A., Wallace, L., Ki, J., & Murphy, D. (2004). *Biopharmaceutical industry contributions to state and U.S. economies*. Los Angeles, CA: Milken Institute.
- Dewar, M. E. (1998). Why state and local economic development programs cause so little economic development. *Economic Development Quarterly*, 12, 68-87.
- Eisinger, P. (1988). *The rise of the entrepreneurial state*. Madison: University of Wisconsin Press.
- Eisinger, P. (1995). State economic development in the 1990s: Politics and policy learning. *Economic Development Quarterly*, 9, 146-158.
- Fitzgerald, J. (2004). Moving the workforce intermediary agenda forward. *Economic Development Quarterly*, 18, 3-9.
- Fitzgerald, J. (2006). *Moving up in the new economy: Career ladders for US workers*. Ithaca, NY: ILR Press.
- Gereffi, G. (2006). *The new offshoring of jobs and global development*. Geneva, Switzerland: International Labor Organization.
- Gilbert, J. L. (1995). *Accountability mechanisms: Smart bombs in the bidding wars, or false sense of security?* (Master's thesis). Massachusetts Institute of Technology, Cambridge. Retrieved from <http://dspace.mit.edu/handle/1721.1/66364>
- Glasmeier, A. K. (2000). Economic geography in practice: Local economic development policy. In G. L. Clark, M. P. Feldman & M. S. Gertler (Eds.), *The Oxford handbook of economic geography* (pp. 559-579). Oxford, England: Oxford University Press.
- Goetz, E. G. (1990). Type II policy and mandated benefits in economic development. *Urban Affairs Review*, 26, 170-190.
- Goetz, S., Deller, S., & Harris, T. (2009). *Targeted regional economic development*. New York, NY: Routledge.
- Greenstone, M., Hornbeck, R., & Moretti, E. (2008). *Identifying agglomeration spillovers: evidence from million dollar plants*. Cambridge, MA: National Bureau of Economic Research.
- Kalafsky, R. (2006). The manufacturing sector in the South: Status and recent trends. *Southeastern Geographer*, 46, 259-277.
- Lazonick, W. (2005). Corporate restructuring. In S. Ackroyd, R. Batt, P. Thompson & P. S. Tobert (Eds.), *The Oxford handbook of work and organization* (pp. 577-601.). Oxford, England: Oxford University Press.
- LeRoy, G. (1997). *No more candy store: States and cities making job subsidies accountable*. Washington, DC: Good Jobs First, Institute on Taxation and Economic Policy.
- LeRoy, G. (2007). Nine concrete ways to curtail the economic war among the states. In A. Markusen (Ed.), *Reining in the competition for capital* (pp. 183-198). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Logan, J. R., & Molotch, H. L. (2007). *Urban fortunes: The political economy of place*. Berkeley: University of California Press.
- Lowe, N. J. (2007). Job creation and the knowledge economy: Lessons from North Carolina's life science manufacturing initiative. *Economic Development Quarterly*, 21, 339-353.
- Lowe, N. J., Goldstein, H., & Donegan, M. (2011). Patchwork Intermediation: Challenges and opportunities for regionally coordinated workforce development. *Economic Development Quarterly*, 25, 158-171.
- Lowe, N. J., & Morton, B. J. (2008). Developing standards: The role of community benefits agreements in enhancing job quality. *Community Development*, 39, 23-35.
- Luger, M., & Bae, S. (2005). The effectiveness of state business tax incentive programs: The case of North Carolina. *Economic Development Quarterly*, 19, 327-345.
- Markusen, A., & Nesse, K. (2007). Institutional and political determinants of incentive competition. In A. Markusen (Ed.), *Reining in the competition for capital* (pp. 1-42). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Mayer, H. (2005). Taking Root in the Silicon Forest: High-technology Firms as Surrogate Universities in Portland, Oregon. *Journal of the American Planning Association*, 71(3), 318-333.
- McNaughton, D. (2006, July 21). Our opinions: State suffers from incentive fever. *Atlanta Journal-Constitution*, n10A.

- Molotch, H. (1976, September). The City as a Growth Machine: Toward a Political Economy of Place. *American Journal of Sociology*, 82(2), 309-332.
- Peters, A., & Fisher, P. (2004). The failures of economic development incentives. *Journal of the American Planning Association*, 70(1), 27-37.
- Reese, L., & Rosenfeld, R. A. (2001). Yes, but . . . : Questioning the conventional wisdom about economic development. *Economic Development Quarterly*, 15, 299-312.
- Reese, L. A., & Ye, M. (2011). Policy versus place luck: Achieving local economic prosperity. *Economic Development Quarterly*, 25, 221-236.
- Reid, N., & Gatrell, J. D. (2003). Uncertainty, incentives, and the preservation of an industrial icon: The case of Toledo jeep. In N. Phelps & P. Raines (Eds.), *The new competition for inward investment* (pp. 99-118). Cheltenham, England: Edward Elgar.
- Rubin, H. J. (1988). Shoot anything that flies; claim anything that falls: Conversations with economic development practitioners. *Economic Development Quarterly*, 2, 236-251.
- Rubin, H. J. (1989). Symbolism and economic development work: Perceptions of urban economic development practitioners. *American Review of Public Administration*, 19, 233-248.
- Rubin, H. J. (1990). Working in a turbulent environment: Perspectives of economic development practitioners. *Economic Development Quarterly*, 4, 113-127.
- Sabel, C. (1992). Studied trust: Building new forms of co-operation in a volatile economy. In F. Pyke & W. Sengenberger (Eds.), *Industrial districts and local economic regeneration* (pp. 215-250). Geneva, Switzerland: International Institute for Labour Studies.
- Sabel, C., & Reddy, S. (2007). Learning to learn: Undoing the Gordian Knot of development today. *Challenge*, 50(5), 73-92.
- Sassen, S. (1990). *Beyond the city limits: A commentary*. In J. Logan & T. Swanstrom (Eds.), *Beyond the city limits: Urban policy and economic restructuring in comparative perspective* (pp. 237-242). Philadelphia, PA: Temple University Press.
- Schrank, A., & Whitford, J. (2009). Industrial policy in the United States: A neo-Polanyian interpretation. *Politics & Society*, 37, 521-553.
- Schweke, W. (1999). Linking incentives and employment programs. *Accountability: The Newsletter of the Business Incentives Clearinghouse*, 1(3), 1-8.
- Schweke, W. (2007). Do better job creation subsidies hold real promise for business incentive reformers? In A. Markusen (Ed.), *Reining in the competition for capital* (pp. 161-182). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Tewari, M. (2005). Non-local forces in the historical evolution and current transformation of North Carolina's furniture industry. In H. W. J. Peacock & C. Matthews (Eds.), *The American South in a global world* (pp. 113-132). Chapel Hill: University of North Carolina Press.
- Walden, M. L. (2008). *North Carolina in the connected age: Challenges and opportunities in a globalizing economy*. Chapel Hill: University of North Carolina Press.
- Weber, R. (2002). Do better contracts make better economic development incentives? *Journal of the American Planning Association*, 68(1), 43-55.
- Weber, R. (2007). Negotiation the ideal deal: Which local governments have the most bargaining leverage? In A. Markusen (Ed.), *Reining in the competition for capital* (pp. 141-160). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Willis, R. (2005). Voices of Southern mill workers: Responses to border crossers in American factories and job crossing borders. In H. L. W. James, L. Peacock & C. R. Matthews (Eds.), *The American South in a global world* (pp. 138-151). Chapel Hill: University of North Carolina Press.
- Wolf-Powers, L. (2010). Community benefits agreements and local government. *Journal of the American Planning Association*, 76(2), 141-159.
- Wolman, H., & Spitzley, D. (1996). The politics of local economic development. *Economic Development Quarterly*, 10, 115-150.

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