



Pioneers and Settlers in Lo-Do Denver: Private Risk and Public Benefits in Urban Redevelopment

Stephan Weiler

[Paper first received, May 1998; in final form, February 1999]

Summary. Older industrial districts, often rich with history and architecture, are paradoxically central yet decaying features of the modern US urban landscape. However, several such areas are experiencing major renaissances through individual sparks of private business investment. Lower Downtown (LoDo) Denver is a well-known example of this phenomenon; less recognised is the influential role of craft breweries in its rebirth. This paper first explores a game-theoretical framework for understanding the private strategies in such pioneer enterprises, along with the potential market failures and externalities involved. A case study of the LoDo experience is then presented to highlight both the theoretical and policy perspectives of the research.

Economically depressed urban areas face several inertial forces in their attempts at rejuvenation. Crime and dilapidated infrastructure reinforce such regions' marginalisation, despite their often central geographical location in a city. Reversing such spiralling economic development cycles requires a spark. Despite the attraction of low property prices to potential entrepreneurs, a pioneering business still must grapple with the real risk that its innovative locational choice may not be viable. Even when such initial entrepreneurial efforts are successful, many of the total rewards will in fact accrue to followers, who benefit from the revelation of a new business district through the pioneer's risk-taking.

This paper will argue that these 'first-mover' risks, along with associated market failures and spillover externalities, may jus-

tify the public support of private entrepreneurial efforts in depressed areas. Lower Downtown Denver faced such a situation in the 1980s, when bank redlining and investor preference for less-risky sites could have blocked the city's attempt at reviving its birthplace. The provision of publicly supported loans was key to the area's now legendary revival, which was itself spearheaded by revivalists of the US craft brewing tradition.

The first section considers the issues of market failures and external spillovers from the perspective of a private first-mover. A game-theoretical model is then built to help understand private investment decisions, clarifying why pioneers are unlikely without additional support. The second section reviews the recent rebirth of the craft-brewery movement, particularly in terms of its unique

Stephan Weiler is in the Department of Economics, Colorado State University, Fort Collins, Colorado 80523–1771, USA. Fax: 970-491-2925. E-mail: sweiler@vines.colostate.edu. John Hickenlooper, for his active interest in sharing his early pioneering days, as well as Steve Ellis and Bob Kling, for our game theory discussions, deserve special thanks for their support. Seminar participants at the California Institute of Technology and the Regional Science Association along with the anonymous referees provided valuable feedback.

characteristics that seem to offer a propitious match with the circumstances of crumbling red brick neighbourhoods.¹ A case study of Lower Downtown (LoDo) Denver's recent renaissance in light of the game theory model is then explored, demonstrating the relevance of the pioneering problem.

1. Reluctant Pioneers

1.1 Limited Information, Capital Constraints and Market Failure

Given perfect information, no capital constraints and fully internalised costs and benefits, the private market will provide an efficient level of entrepreneurship where net private benefits also converge on a social optimum. However, all three conditions are unlikely to be met in decaying urban areas. Imperfect information impacts both the perspectives of the potential entrepreneur and of their banker. Both effects reduce the likelihood of investment in a potentially viable area.

Information on the prospects for success are limited by precisely the fact that such pioneering ventures are entering into an untested market. Even extensive market surveys, which are unlikely to be within the budget of any individual potential entrepreneur anyway, cannot be a substitute for the actual success or failure of business investment experience. Furthermore, crucial infrastructural and political variables, such as the conditions of utilities and roads along with the public sector's future support of these services, may be particularly uncertain for an economically peripheral location.

Capital constraints may themselves arise out of the difficulties produced by imperfect information. Banks may be reluctant to lend to entrepreneurs because of the same lack of experience in the area. Financial institutions are particularly sensitive to informational risk and will give preference to lower-risk applications from areas with more established reputations (Bradbury *et al.*, 1982). Even if financing is made available, loan requirements and interest rates are likely to

be higher in these cases, which are likely to dissuade those younger, more adventurous entrepreneurs who tend to pursue such opportunities, but also tend to have the least credit history and collateral.

1.2 External Spillovers

Assuming that an entrepreneur manages to hurdle these capital and informational constraints, the benevolent opening of a new potential business district may thus occur. City planners, considering the overall social welfare implications of such efforts, fervently hope for precisely this kind of pioneer-led growth.² The public sector may in fact be the greatest direct beneficiary of successful redevelopment efforts. Reduced crime and its associated costs are immediate gains (Thaler, 1978). The establishment of a 'new' historically based urban district, with its consequent effects on civic cohesion and tourist visits, is another potential benefit. New export income can thus be generated, recycled and multiplied through a now-broader local service and trade industry. Property values and sales turnover, with clear implications for their associated tax revenues, can be a direct benefit of this revival (Bartik, 1991). Not least, an expanding new business district also provides a boost to central-city employment, which has suffered greatly since the early 1980s (Rogers, 1997).

Yet it is still the pioneer who faces all the original risk of exploration. Even if successful, she will only get a slice of eventual rewards, which will accrue mainly to the followers who can 'free ride' on the revelation of a district's viability. That individual potential entrepreneur will not incorporate these *external* spillover benefits into her calculus for investing. The result, which will be formally modelled in the next section, is that private investors will be reluctant to move into such zones first, since they shoulder all of the 'experimental' risk and eventually receive only a minor share of rewards with success.³

Such a situation argues for public support of ventures in decaying yet potentially prom-

ising districts. The external spillovers to followers, coupled with the informational and capital constraints which may artificially dissuade investors from pioneering, together provide a market failure rationale for local government assistance (Bartik, 1990; Weiler, 1999). In addition, the fact that local governments benefit from rising tax revenues (and reduced slum patrol costs) implies that such agencies themselves have an interest in promoting such redevelopment efforts.

1.3 A Game Theory Model of Pioneer Strategy

Pioneers must weigh the risky entry into a potentially innovative and profitable location, which could also leave them quite alone in failure and debt. Others might also eventually consider probing the promise of the new district, shouldering the risks of exploration while costlessly illuminating the true viability of the area for that initial entrepreneur. Each player thus needs to consider the strategic implications of their actions. Should I jump into this risky area first, risking large sunk cost losses, but also potentially gaining at least a temporary monopoly foothold? Or should I wait for another investor to test the sidewalks?

A two-person, non-co-operative game theory model can be helpful in understanding this critical first-mover decision.⁴ Figure 1 summarises an extensive form game, where each player makes a decision on whether to enter (E) the depressed area. No entry (N) results in zero profits (and zero losses). If a first-mover enters and fails, losses— L —will result. If a first-mover enters and succeeds, the first period's (monopoly) profits will be M , based on the innovative location's quasi-rents. Further profits will depend on further entry. If the first-mover remains alone, M will continue. Otherwise, competitive profit levels C will result for both entrants. This game is one of incomplete information, where a probability is assigned to the uncertainty regarding the potential for success in this district. In effect, this viability probabil-

ity p makes the reality of imperfect information tractable (Harsanyi, 1968).

This benchmark analysis focuses on the private investor's benefits and costs, addressing the question of whether purely private actors will make such ground-breaking investments. If the district is successful, spillovers to followers may dwarf the private investor's own profits, but such broader rewards will not help to motivate individual pioneers. Improving the economy of an entire community thus depends on the understandably narrower interests of potential first-movers. For simplicity, risk-neutrality is assumed, which allows a comparison of expected values to determine entry. This assumption sets an optimistic benchmark for investment; any risk-aversion would make entry even less likely in the face of an unknown viability.

Given the game's Sub-game Perfect solution to Figure 1, the first mover will receive

$$[p(M + C)] + [(1 - p)(-L)]$$

profits if she initially enters, derived from the monopoly then competitive profits she earns if the area is viable and the losses she incurs from non-viability. Both pay-offs are weighted by the probability of viability. If she does not enter, she will receive pC by virtue of her second-round entry following an alternative successful pioneer. So, the condition for entry is

$$[p(M + C)] + [(1 - p)(-L)] > pC$$

The solution is both simple and intuitive. An entrepreneur will only enter if she perceives the probability of success to be

$$p > L/(M + L)$$

In other words, if L is considerably larger than the expected one-period (or short-term) 'monopoly' profits—which seems both realistic and likely—*no one will move first*. Curious entrepreneurs are unwilling to shoulder the substantial pioneering risk-burden. Even if successful, they have to share many of the fruits of their experiment. As one banker astutely noted, "the pioneers get the arrows, and the settlers get the land".

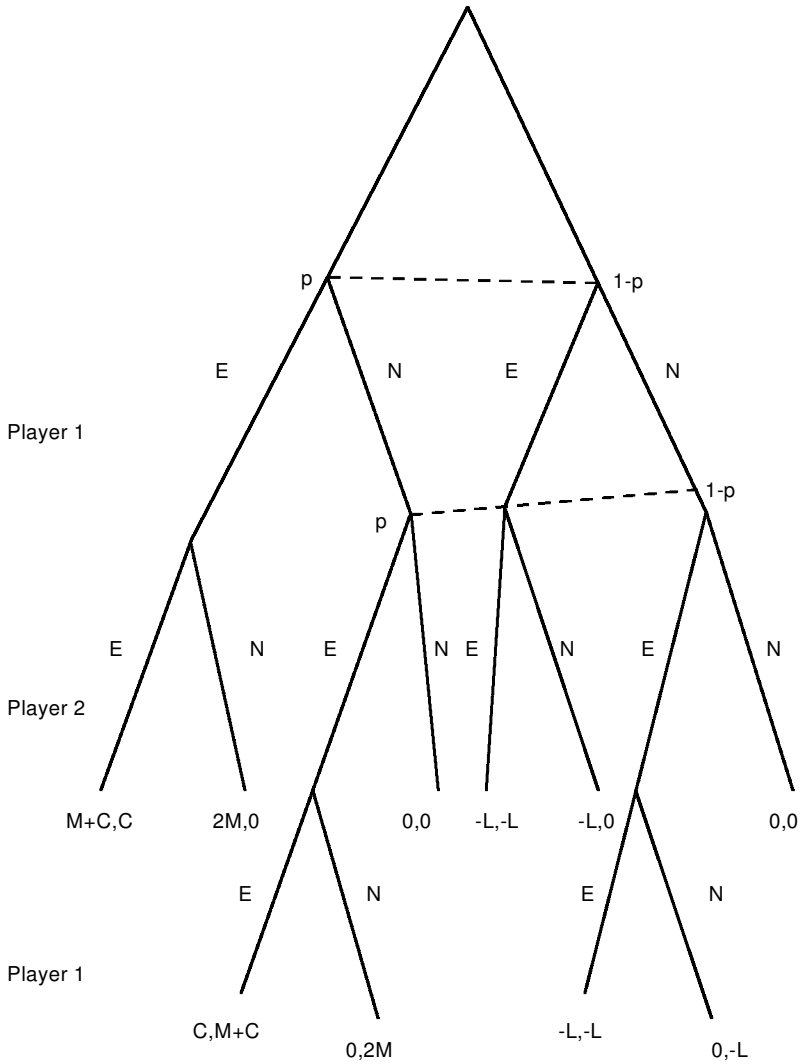


Figure 1. Note: p = viable district; $1 - p$ = non-viable district; E = enter; and N = no entry.

However, while the crucial private spark may not exist, pioneering may still be socially desirable. Spillovers to followers represent additional external social benefits in addition to those destined for the private investor. Using S to signify such spillovers, entry is socially desirable if

$$[p(M + S)] + [(1 - p)(-L)] > 0$$

Monopoly profits are social benefits, since innovative pioneering (like other new inventions) creates a market where none had ex-

isted before. However, since competitive profits are assumedly equal to the opportunity cost of capital, they are not included as a social benefit.

Social planners would therefore have a lower viability threshold

$$p > L/(M + L + S)$$

than that of the private entrepreneur. While private investors may not be willing to risk investment unless the perceived probability of viability is relatively high, social planners

would be willing to accept lower viability chances given the greater total social rewards with success. Note that introducing risk-aversion would make potential pioneers even more reluctant relative to local governments, who can spread risk and downside losses.

From another perspective, if the scale of losses L occur at a level above the acceptable private maximum but below the social planner's maximum threshold

$$[p/(1-p)](M+S) > L > [p/(1-p)]M$$

pioneering, while socially desirable, will not occur because of the vital entrepreneur's narrower focus on her own private risk and returns. In general, such private decisions will be more socially sub-optimal with greater total spillovers (S).

While establishing whether potential social benefits outweigh total costs must be considered on a case-by-case basis, it is clear that private actors, due to information and capital constraints as well as spillover externalities, may not fully understand and will not fully incorporate the overall social impact of their actions. Marginal private investments could nevertheless yield projects with considerable net social benefits. *In sum, the private market may underprovide investment to a promising depressed area.* In our scenario, a potential pioneer will wait (eternally, in this game) for another private investor to test the potholed streets first. Public support of such ventures thus may be necessary to achieve the optimal level of (private) investment in uncertain yet potentially promising zones.

2. Craft Brewing and the Rebirth of Lower Downtown Denver

2.1 *The Revival of US Craft Brewing*

The US craft-brewing industry has a long tradition which has recently been revived. The original landing of the storied settlers at Plymouth Rock was primarily due to the fact that provisions were dwindling, 'specially our beer'. Home-brewing was a traditional pastime in the early days of the US, with the

first three presidents being avid practitioners. The influence of immigrants' cultural heritages created a collage of brewing styles and traditions in the formative years of the republic, ranging from dark Irish stouts to crisp German lagers.

The period of Prohibition early this century effectively decimated the craft-brewing heritage. When Prohibition was repealed in 1933, economy-wide mass-marketing and mass-production trends shaped the preferences of the US consumer. A handful of major companies increasingly dominated the flow of light lager beer that thirsty Americans demanded, in conjunction with plants' rising minimum efficient scales and bouts of intensive advertising (Sutton, 1991).

However, hints of change began to appear. Home-brewing was resuscitated when Prohibition-era restrictions were lifted in 1978 by President Carter. In a seminal effort, Fritz Maytag rekindled the Anchor Steam beer tradition in San Francisco in the late 1960s, as an Asian Studies graduate student at Stanford. Several home-brewers began to experiment with larger operations in the late 1970s as well. Capital costs, marketing problems and quality inconsistencies initially slowed the development of this infant industry.

The 1980s, however, witnessed a veritable explosion in craft brewing. The dominance of the nation's major brewers remained unchallenged, as the top seven firms were responsible for 97.7 per cent of sales in 1985; the top two, Anheuser-Busch and Miller, alone controlled over 60 per cent. However, the new niche market began to make both a financial and a psychological impression on these formerly complacent oligopolists. After initially ignoring the young upstarts, large brewers began unprecedented product development in the craft market, launching arms-length 'stealth' beers such as Coors' Blue Moon and Anheuser-Busch's US Originals product lines.

In the mid 1980s, the craft-brewing sector was expanding by an average of over 50 per cent per year during a time of flat or declining growth in the beer industry in general. As per capita consumption of beer has further

declined from 22.7 to 21.1 gallons over the past 10 years, the craft sector now accounts for 3 per cent of a nearly 200 million barrel industry, despite being only a relative teenager (Institute of Brewing Studies, 1998). While the craft sector slowly seems to be approaching its market potential, with annual growth rates converging to about 5 per cent, these upstarts have clearly tapped an entirely new and relatively high-margin niche in an otherwise high-volume/low-margin industry. Americans are drinking less in these health-conscious times, but they seem to be substituting quality for quantity, much as they apparently have in the wine market. For the beer market, this hypothesis is supported by the fact that beer imports, generally of higher quality than their mainstream domestic counterparts, have paradoxically also shown strong growth despite their high price in a virtually flat industry.⁵

Craft breweries fall into two broad categories. Microbreweries brew primarily for the regional bottle/retail market, while brewpubs only serve their beer on-site, often with an accompanying restaurant. One can broadly think of the former as a pure manufacturer, while the latter represents a vertically integrated manufacturing-service establishment.⁶ Both sub-industries are by their nature 'niche' players, nurturing a regional comparative advantage. Different local tastes, as well as the influence of local ingredients, have engendered a range of brewing styles across the nation. Quenching Southern California brews are qualitatively foreign to the hop-accented beers of the Northwest. Information about consumers' tastes can quickly be incorporated into the product. The result is that each establishment is a reflection of the local community, with its success dependent on the brewers' flexibility.

The potential link between brewing entrepreneurs and older industrial districts appears propitious, through the convergence of private (profit) and public (re/development) interests. Former industrial areas feature large sites, offering a generic shell building for a brewing operation. Furthermore, expan-

sion is facilitated by the same building and local design elements. Most importantly, perhaps, given their decline, these areas offer inexpensive sites in a relatively central, albeit underutilised, urban location.

Yet given the incentives illuminated by the game theory model above, private actors will be reluctant to make such location choices despite potential overall benefits to society. In the case of craft breweries, considerable up-front fixed costs are required in the midst of potentially limited information and capital constraints. The brewhouse, storage and packaging facilities require considerable floor and vertical space, even for small establishments. Improvements to make buildings suitable for brewing are largely specific to the industry, and would be lost with failure. While used brewing equipment is sold in a secondary market, salvage value is limited, particularly given the now-steadying growth trend. As noted, banks tend to rely on extensive credit histories and established networks, a practice which discriminates against young entrepreneurs who have been the primary impetus behind the craft-brewing boom. Capital constraints may thus be considerable for precisely those who are the most creative and promising new industry entrants.

2.2 The Rebirth of LoDo Denver and Other Renaissance Tales

The Lower Downtown (LoDo) section of Denver is a classic site of industrial archaeology, although Cincinnati, Baltimore, San Francisco, Flagstaff and Albuquerque among others are yet further examples of a similar overlap of time, space and architecture.⁷ LoDo

is the birthplace of the city of Denver and original location for many of its urban institutions ... It is [also] one of the most sensitive and vulnerable sections of Downtown ... The district must be preserved and redeveloped through a package of actions that stimulate new economic demand in Lower Downtown, and that protect its

historic character by preserving the existing buildings (Downtown Area Plan, 1986, p. 46).

Denver's birth and youth in the mid 1800s were based on its role as the crossroads of the frontier. Initially, the boom–bust cycle of mountain mining in the early years of the territory necessitated a market base at the foot of the Rockies. The pattern of rail development later in the century cemented the city's importance to the opening of the promising West (Abbott *et al.*, 1994). Denver was a major rail hub for both north–south traffic along the front range of the Rocky Mountains and (more importantly) the east–west corridor from the East Coast, Chicago and the Plains to booming California.

With the ensuing heavy industrialisation of the US economy, Denver also became a manufacturing centre, largely as a final assembly point for the still isolated West Coast market. The (eventual LoDo) area around the Union Pacific railyard was quickly developed into a major industrial and warehouse zone, taking advantage of the proximity of the region's important rail hub. The dense central business district clustering that occurred was a hallmark of this era's railroad-boom cities (Anas *et al.*, 1998). Processing industries for the various minerals unearthed from the Rockies were based in this area, given the ore's initially high weight-to-value nature. Other industries included farming supplies, leather goods and mercantile transformation factories. A service-oriented 'downtown' business area eventually developed to the south-east, between the now-'Lower' Downtown (LoDo) and the Civic Center (see Figure 2).

But Denver's industrial centrality began to diminish early in the 20th century as Western accessibility, as well as local production of goods in the former frontier, increased. Transport infrastructure improved greatly with the combination of an interstate highway system, a nimble door-to-door trucking industry and the air travel boom. With the decreasing importance of its assembly-line scale plants and warehouses, the foundations

for the fortunes of LoDo began to crumble. While Denver remained a crossroads, its importance became more based on its role as a service and trade intermediary rather than a central manufacturing and inventory site. The LoDo industrial area went into decline, as companies boarded up their factories and warehouses. Squatting and crime increased, and liquor stores (along with their entrenched customer base) became the area's most prominent resource.

While the Larimer Square development in the late 1960s managed to restore an isolated corner of the Lower Downtown area to retail respectability, this small oasis alone never sparked a local redevelopment cycle in greater LoDo. Its location allowed visitors to access the Square across Cherry Creek from a safer, more established area, without having to traverse any of LoDo itself. While retail outlets and small galleries managed to survive on such extra-regional visitors, the lack of any core residential business never allowed for a synergistic growth between local residents and local business.

The 1970s ushered in a period of urban renewal, which focused rather on the closer-to-downtown DURA (Denver Urban Renewal Authority) 'Skyline' District. LoDo itself was excluded, given its isolation and resulting pessimism about its redevelopment prospects. That exclusion proved to be its good fortune, as considerable demolition took place in the DURA Market/Arapahoe corridor (see Figure 2), removing most vestiges of the classic late-19th-century architecture that are now being prized. A series of residential and corporate high-rises were planned for the DURA district, but Colorado's notoriously cyclical economy regularly slowed their progress.

As these developers eyed LoDo for similar prospects in the intervening boom years, citizens' groups—recognising the potential value of the remaining historical structures of LoDo—moved to protect the area. Despite the opposition of 60 per cent of the LoDo property owners, who had hoped to sell land at significant premiums to high-rise developers during economic upturns, the city passed

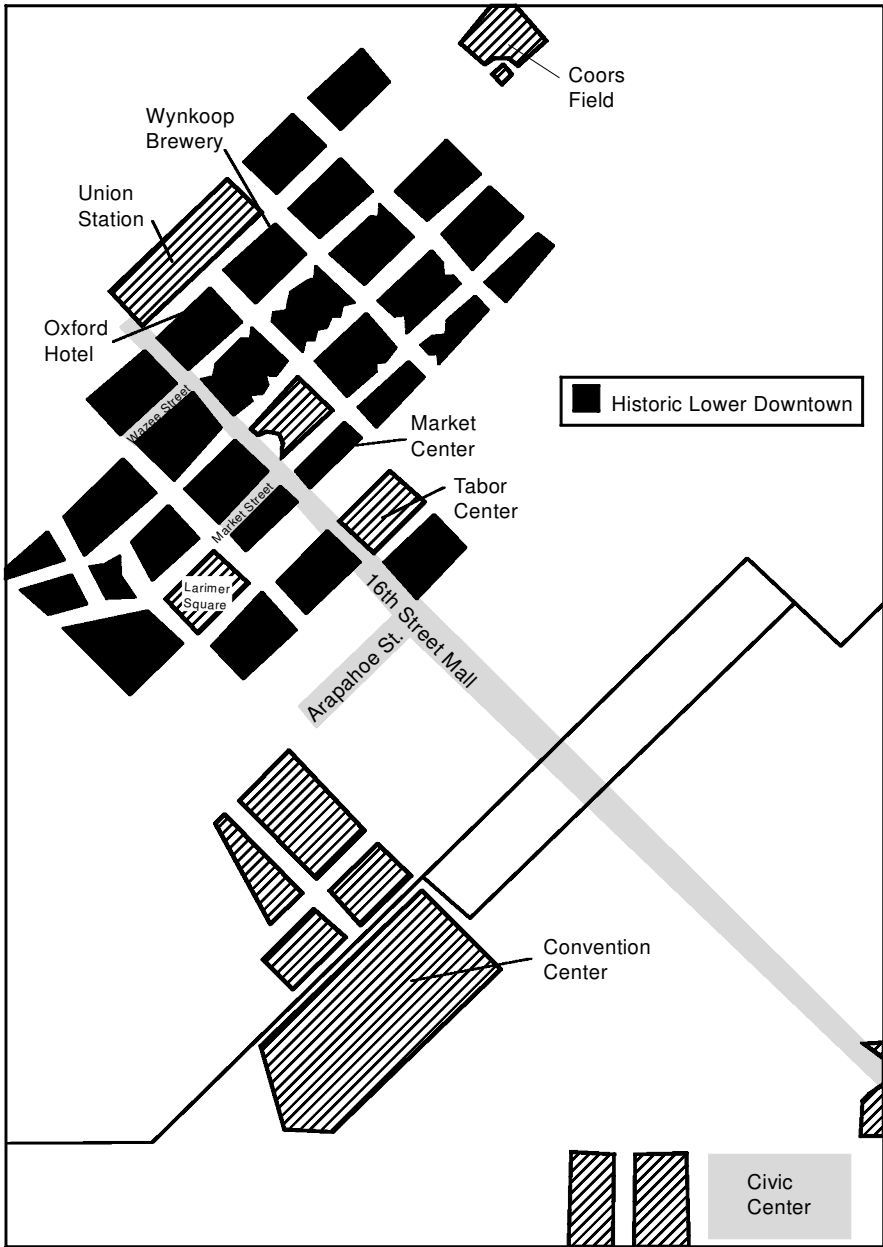


Figure 2. Downtown Denver.

a protective Historic District designation in May 1988. Using the example of Pioneer Square in Seattle and other historical redevelopment zones, they pointed to evidence of steadily rising property values and synergistic central residential/retail/business growth as a motivation for similar efforts in

Denver. The involvement of private pioneers was deemed essential; the Downtown Plan explicitly notes the negative experiences of Fort Worth, which imposed a planned scheme. In contrast, Denver planners believed a homegrown organic approach based on local entrepreneurship was more likely to

succeed in the long-term (personal interview, 1998, W. Mosher, Chair, Downtown Denver Business Partnership).

For the moment, however, LoDo still remained a warehouse shell, albeit one outfitted in picturesque red brick. The city made efforts to signal the underlying potential of the area by street-scaping and converting viaducts in the nearby Central Platte Valley to widen the potential area for redevelopment. But pioneers were still lacking. Lack of available financing was a major obstacle. Given LoDo's reputation, banks had effectively 'redlined' the area for support, entrenching its difficulties (personal interview, 1998, J. Moulton, Director, Denver Planning Office). In response, the city created a \$1 million revolving loan fund explicitly to support potential pioneers, based on remaining DURA District Skyline Funds and National Historic Trust support. Planners understood the need for private pioneers, yet also recognised the financial and reputational barriers to their entry. The belief was that if first-movers could be enticed to open the district, others would follow. However, current retail/residential/business development was still focused rather on less-risky areas in the high-growth suburbs, such as Westminster to the north.

The propitious timing of the craft-brewing trend as well as the congruence of its physical requirements were literally 'serendipitous' to the fortunes of LoDo (personal interview, 1998, W. Mosher). In the mid 1980s, John Hickenlooper and Jerry Williams (HW) began to consider the possibility of recreating in Denver the recent success of brewpubs in the San Francisco Bay Area and the Northwest. The two quickly focused on the LoDo area, given its centrality, low cost and large-scale (vertical and floor space) sites. HW also had a strong appreciation for the civic heritage of the city, and hoped to renovate at least one building's worth of LoDo's history. The noted infrastructural improvements to the area in the mid 1980s, along with its recent historical zoning, further tempted the notion of 'crossing the tracks'. However, because of bank

redlining and reluctant investors, capital was impossible to find. After 3 years of fruitless searches, HW finally co-ordinated a \$125 000, 5-year, low-interest loan based on the new revolving fund. Yet at this early stage, no other investors appeared interested in the area, and extended loan and lease negotiations never faced the pressure of a single competitive bid.

In 1988, the brewpub partners originally rented the site for the Wynkoop Brewery, the J. S. Brown Mercantile Building built in 1899, for about \$1 per square foot, which was valued for sale at about \$14 at that time (personal interview, 1998, J. Hickenlooper, Founder and President, Wynkoop Brewing Company). The current price of building space in that district is now over \$100 per square foot. When one considers the long-term property-tax windfalls alone that flowed to the city of Denver, the minimal costs of short-term loan support appear even less significant. The first few years of the brewery, though, were indeed a struggle, and were devoted to attracting a regular clientèle into the area. But its reputation for fine yet eclectic dining and accessibly characterful beers soon brought the Wynkoop to profitability.

As the original Downtown Plan and its 1996 update suggest, LoDo's characteristics make it an ideal site for the downtown's restaurant and entertainment centre. The Wynkoop was the pioneer which laid the foundation for this vision's realisation, which then became an anchor for the broader development of LoDo. Brewpubs and microbreweries continued to play a major role in the area's revival. Twelve craft operations are currently clustered within a single mile's radius, all taking advantage of the Wynkoop's (now trendy) reputation and the accessibility to rediscovered highway and rail transport links. Abundant sharing of information, ideas and staff became a feature of this 'brewery district' (Cooper, 1994; Krugman, 1991). Again, however, it was fundamentally the congruence of the industrial district's features with craft-brewery priorities that sparked this cornerstone to LoDo's revival.

The lay-out of LoDo allowed for the grad-

ual 'organic' expansion of the Wynkoop effort, first supplementing the brewpub with an upscale upstairs pool hall, and later adding three floors of residential lofts. In contrast to the relatively narrow functionality of the previously preferred high-rise vision of Downtown, the buildings that made up LoDo's warehouse and manufacturing quarters permitted multiple and often economically reinforcing uses of buildings, as in the case of the Wynkoop. Again, using craft breweries as core foundations exploited their manufacturing symmetries with the buildings' original functions. In fact, many such buildings originally were outfitted for grain loading, storage and processing, mirroring the needs for this era's brewery malt handling.

At the same time, three other pioneering tenants also tapped the newly available revolving funds to establish a large antique store, residential lofts and a publishing company. All three were similarly well-suited to the location's unique characteristics in terms of history, space and centrality; each would provide crucial cornerstones to their respective sector's eventual boom in the newly 'discovered' area. The Stuart Buchanan antique store took advantage of the LoDo's buildings' antique setting. The principals of the Wazee Holding Inc. had sought financing for developing spacious lofts in the vastness of 1732 Wazee Street, so that they could live in eclectic comfort near downtown. Yet banks considered a loan for development in such a location too risky. So, the group of eight partners formed a corporation and rented the lofts to themselves. Bradford Publishing, with its considerable space needs, simply took advantage of the low cost of square-footage in the marginal-yet-central area. Given the noted risks involved for any single pioneer, such parallel development efforts can reinforce collective pioneering (personal interview, 1998, J. Moulton).

A year after the opening of the Wynkoop and these other establishments in LoDo, previously nonchalant investors began actively to take notice of the successes of the innovative new location. The renovation of the Oxford Hotel across from the depot in the early

1990s provided further backbone for the new entertainment and restaurant district. Retailers and galleries increasingly set up shop, their way paved by the noted pioneering antique outlet, and helped to solidify the previously struggling 16th Street Mall corridor. Higher-end service businesses, such as architectural and environmental consulting, followed the parade into this newest yet oldest area of the city.

The area's promise literally snowballed with each additional entrant, as well-suited followers reacted to the promise of a new district. With the 1990s economic surge, residential developers chastened with the experience of past boom-bust cycles appreciated the lower-scale attractions of LoDo warehouses relative to high-capacity (and thus high-risk) high-rises. The industrial architecture was carefully revived with such efforts. Again following the initial pioneer, new central housing opportunities blossomed as lofts were created in the rafters of old warehouses. Such housing was particularly attractive to younger professionals, who appreciated living in a trendy area near both business and entertainment centres. The interaction between the area's new residents, new employment and the new service/retail sector reinforced each other's—and the area's—growth. The vagaries of tourist interest provide only shaky foundations for an area's redevelopment; synergies between core residents, employment and retail/entertainment can entrench them (*Downtown Denver Agenda*, 1996).

Based on the classic design of Baltimore's Camden Yard in that city's own Inner Harbor area redevelopment effort, Coors Field both reinforced and crowned the LoDo reversal. The 1990 announcement of the ballpark's construction for Denver's expansion baseball team helped to boost the prospects of brewpubs and other entertainment-based industries. But the latter also helped LoDo promise more than being simply a destination for a day at the ballpark, again highlighting the synergistic effects of snowballing development. While most of the funding was public, the willingness of city

government and the Coors family to invest in this area, which required fans to confront this former slum on a daily basis, was concrete testimony to LoDo's turnaround. The resiting of Elitch Gardens amusement park to the Central Platte Valley in the mid 1990s further indicated both the present and future promise of the area. In general, the evolution of LoDo's redevelopment clearly underlines the importance of pioneering business establishment, crucially supported by the public sector to offset constraints and incorporate spillovers.

The interspersed comparisons with other urban redevelopment efforts can be summarised by a recent consulting experience with Torrance, a small city about 30 km south-west of central Los Angeles, making a similar attempt at reviving a historic downtown area. Taking its lead from Denver and other redevelopment efforts, city planners actively sought out valuable pioneers. The reluctance of investors, however, was frustrating. Finally, after several months, a brewer with business experience proposed establishing a brewpub/restaurant in the focal area, which could establish a cornerstone for potential revival. Having little else from which to draw downtown revenue, the city nearly dissuaded this first-mover from entering through additional taxes and fees to cover local infrastructural expenses. Using the above pioneering concept and the experience of LoDo Denver, the author made a case rather for pioneer support to spearhead a redevelopment cycle. The city reconsidered, and in fact provided considerable financial assistance. The optimism that this pioneer is creating simply by the construction site has already sparked new inquiries by potential followers.

3. Conclusions

This paper argues that urban redevelopment efforts, recently centred on old industrial districts, are faced with obstacles that may make private entrepreneurs unwilling to invest in a potentially viable site. The case study of

Lower Downtown Denver, along with the congruous and serendipitous craft-brewing trend, indicates that private pioneers are crucial to redevelopment prospects but may be reluctant to play such a role. Limited information and capital constraints will tend to dissuade potential first-movers from shouldering the risk-burdens of pioneering. Yet such pioneering efforts may nevertheless yield considerable social returns through the spillover externalities that accrue to business followers. A clear justification thus emerges for the public support of such ventures, given informational market failures and external benefits to social welfare.

The reality of the evolving US political economy will force local officials to become more involved in such development issues. Changes to the welfare system will put further peripheral pressure on redevelopment efforts in stagnating areas. The steady devolvement of development planning from the national to the local arena may efficiently enhance the support given to pioneer efforts, with the introduction of local experience, resources and involvement into the development process. Analytical expertise at local levels, however, may lag behind these offices' increasing responsibilities, creating a constructive role for academics and policy consultants simultaneously to guide and train such officials (Rogers and Weiler, 1995).

The eventual advantages of such institutional strengthening may be considerable. Local planners can more easily undertake an encompassing social benefit-cost analysis, along with a calculation of private benefits and costs, to determine the cost-effectiveness of support to pioneer redevelopment efforts.⁸ Central place theory predicts particular critical threshold agglomerations which may open entire new sectors to viability (Lösch, 1954; Christaller, 1966). But, as this research demonstrates, crucial private pioneers to spark this process may not exist. In such cases, regional government has a clear efficiency-enhancing role in repairing the noted market failures. In addition, since the local treasury is likely to be among a revival's principal winners, local governments'

own self-interest may conveniently converge with efficiency considerations.

Support could range from indirect, such as upgrading existing infrastructure, to more direct assistance to entrepreneurs, such as initial tax holidays for small businesses in the zone as well as loan guarantees and subsidies (Bartik, 1991). In general, this paper's perspectives offer theoretical and case-study support for area-specific assistance to potential investors, given that the district itself represents both the obstacle and the opportunity for a benevolent cycle of development. While the value of restoring a city's history and architecture is difficult to quantify, it may also represent the most important lasting benefit in terms of its impact on a community and its people.

Notes

1. While the role of craft brewing establishments is the focus of this study, the paper's analyses may also apply to the strategic entry decisions by other potential retail and manufacturing pioneers. However, as will be shown, craft breweries are likely to be particularly well-matched with the circumstances of senescent industrial districts, and thus often represent the most promising pioneers.
2. Obviously, the assumption that planners are maximising total social welfare is subject to considerable scepticism, given the often vested interests and lobbying influences that permeate such a process. However, the goal of such economic research is precisely to determine the optimal course of action for social welfare.
3. It could be argued that such spillover externalities could be solved by means of establishing property rights over the anticipated boom area. However, as discussed above, the capital constraints even for redeveloping the site itself can be significant. Furthermore, the uncertainty that surrounds such efforts, much less their ensuing spillovers, provides an understanding of why such speculative property rights investments are in fact rare.

There is often concern whether new districts may simply be diverting business that would have occurred elsewhere in town anyway. However, reduced blight and local crime in themselves are positive benefits even if some diversion takes place. Furthermore, given the new, different and often

historical context of the zone, one could also expect that new business types and orientations may evolve based on the location. Finally, increased property values and tax receipts from a former fiscal drain add to the overall incentives for redevelopment.

4. This game is essentially a two-period game, which effectively represents the infinite game solution as well, since it models a full cycle of both initial decision-making and feedback for each player. Note that the second player's probability threshold, $L/(M + C + L)$, is lower than the first, since the 'final' player does not have the prospect of following another's experiment. While incorporating this factor into the decisional calculus makes the solution intractable, this result simply underscores the disincentives of moving first; the higher likelihood of a future entrant would further dissuade a potential first-mover. Discounting is not introduced, since it needlessly complicates the simple result and has no significant effect on the solution for any realistic measure of the discount rate or competitive profits.

Spence (1979) and Rob (1991), among others, have also explored demand revelation through entry, with its inherent spillovers to followers. However, this paper appears to be the first to consider the issue for local economic development. The additional constraints faced by entrepreneurs, especially those involved in reversing an area's reputation, along with the noted additional external spillovers to urban communities, cities' revenues and historical/architectural renaissances, seem to make such a perspective particularly compelling for development analysis.

5. One could consider this a type of empirical instrumental variables analysis, with demand for imports being related to interest in craft brews. In fact, the combined share of imports and craft brews (known as the 'high-price beer' segment) continues to rise; these beers accounted for 10.6 per cent of the 1997 market. Also, the noted saturation of the craft sector has mostly affected microbreweries. Brewpubs, with their diverse (food, drink and entertainment) attractions and highly localised markets, still tend to thrive consistently in new environs, reflected in their steadily increasing share (for example, from 10.3 per cent to 12.4 per cent between 1996 and 1997) of craft-brewing production.
6. The relative importance of informational versus capital constraints differs slightly between brewpubs and microbreweries. Brewpubs confront the reality of an increasingly suburban target clientèle, who may be

reluctant to cross into these sections of towns, even with the enticement of trendy establishments. Microbreweries are less affected by the need to attract customers into a slum area, since they focus on production and retail distribution. However, the sunk capital for such operations is a particularly heavy early burden, since their minimum efficient scale of operation is much larger. Bottling facilities have become an especially significant investment, given the recent necessity of distribution in six-packs. As noted, infrastructural requirements may be considerable, which can create unexpected constraints and further inflate capital needs in neglected urban areas. In addition, the high costs of marketing a new product along with the distribution difficulties against well-entrenched brands lead to a level of uncertainty and risk similar to that of brewpubs, with potentially far greater downside losses.

7. The latter two cities represent intriguing examples of recent US efforts to resurrect the Route 66 corridor, which shaped the Main Streets of many Western towns. Communities are hoping that nostalgia, along with several redevelopment projects, will help to revitalise historic districts.
8. Again, the potential administrative transaction costs and planner's own utility calculations may significantly affect such idealistic suggestions. However, discussing the impact of the political economy on urban planning would require a multi-volume effort.

References

- ABBOTT, C., LEONARD, S. and MCCOMB, D. (1994) *Colorado: A History of the Centennial State*. Niwot, CO: University Press of Colorado.
- ANAS, A., ARNOTT, R. and SMALL, K. (1998) Urban spatial structure, *Journal of Economic Literature*, 36, pp. 1426–1464.
- BARTIK, T. (1990) The market failure approach to regional economic policy, *Economic Development Quarterly*, 4, pp. 361–370.
- BARTIK, T. (1991) *Who benefits from State and Local Economic Development Policies?* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- BRADBURY, K., DOWNS, A. and SMALL, K. (1982) *Urban Decline and the Future of American cities*. Washington, DC: Brookings Institution.
- CHRISTALLER, W. (1966) *Central Places of Southern Germany*. Englewood Cliffs, NJ: Prentice Hall.
- COOPER, M. (1994) Rocky Mountain High: craft-brewing reaches new peaks in Centennial State, *Barleycorn*, p. 3.
- Downtown Area Plan: A Plan for the Future of Downtown Denver* (1986) Denver Partnership & Denver Planning Office.
- Downtown Denver Agenda: 1996* (1996) City of Denver.
- HARSANYI, J. (1968) Games with incomplete information played by Bayesian players, I, II, III, *Management Science*, 14, pp. 159–182, 320–334 and 486–503.
- INSTITUTE OF BREWING STUDIES (1998) *Craft Brewing Statistics*. Boulder, CO: Institute of Brewing Studies.
- KRUGMAN, P. (1991) *Geography and Trade*. Cambridge, MA: MIT Press.
- LÖSCH, A. (1954) *The Economics of Location*. New Haven, CT: Yale University Press.
- ROB, R. (1991) Learning and capacity expansion under demand uncertainty, *Review of Economic Studies*, 58, pp. 655–675.
- ROGERS, C. (1997) Job search and unemployment duration: implications for the spatial mismatch hypothesis, *Journal of Urban Economics*, 42, pp. 109–132.
- ROGERS, C. and WEILER, S. (1995) Regional science: a view from the doorway, *International Regional Science Review*, 18, pp. 259–266.
- SPENCE, A. M. (1979) Investment strategy and growth in a new market, *Bell Journal of Economics*, 10, pp. 1–19.
- SUTTON, J. (1991) *Sunk Cost and Market Structure*. Cambridge, MA: MIT Press.
- THALER, R. (1978) Note on the value of crime control-evidence from the property market, *Journal of Urban Economics*, 5, pp. 137–145.
- WEILER, S. (1999) Information and market failure in local economic development, *Economic Development Quarterly*. (forthcoming).