



Sustainable Development's Effect on Enterprise

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Abstract. Past economic growth has supported the suburban sprawl movement, a movement that emphasizes individual car ownership and promotes Greenfield expansion. In order to promote a healthier and more economically sound future, communities should promote walking and active transportation as an alternative. Walkable cities have connectivity in their networks, linkage with other modes, fine grained land use patterns, they are perceived to be safe, have good quality paths, and have engaging path context. These cities promote social interaction and cohesion, local enterprise, and healthier standards of living. Compared to America, some European countries burn four times as many calories on active transportation alone. Binghamton could take steps to become a more walkable city by encouraging supermarkets that are within walking distance of its residents, cleaning up many of its pathways, and doing more to engage walkers in the winter months, possible by using decorative lighting or holiday decorations.

Keywords: "Walkability, Walking, Enterprise, Social Cohesion & Bonding, Health, Community, Connectivity, New Urbanism"

Binghamton Keywords: "Binghamton Regional Sustainability Coalition"

I. INTRODUCTION

The purpose of this research is to assess the impact of sustainable development on local employment trends. I will demonstrate how sustainable communities promote

long term, stable levels of employment, new job growth, and healthy living. The research will focus on how these communities attract both entrepreneurs and multinational corporations (MNCs) by providing livable spaces and retaining a talented and creative labor force.

The driving force behind sustainable development is the movement away from car culture and suburbia towards a model that emphasizes connectivity, reduced carbon dioxide emissions, a focus on local consumption, and sustainable growth. Numerous studies have shown that urban communities with large areas of green space and pedestrian-friendly layouts have, on average, lower rates of obesity and generally healthier standards of living. Walkable communities promote social interaction, foster a sense of belonging, and create place-attachment that will in turn lead to local business development and the retention of a creative minded labor force. Social interaction and daily exercise are highly correlated with better health and a healthier workforce is more productive. Multinational corporations seek out creative and skilled laborers when evaluating prospective business locations.

Increasing pedestrian traffic gives local businesses more visibility in the community. Community oriented, healthy living encourages spending at local enterprises, which in turn gives businesses the ability to expand and increase hiring. Consumer spending patterns also favor businesses that are accessible by foot and provide a wide variety of goods and services. Much like a suburban mall, walkable communities should strive to be a one-stop-shop for potential customers. Studies have also shown that the mental state of consumers will play a large role in the amount that they purchase. As opposed to fast food chains that have bright lighting and warm colors to rush customers in and out, foot traffic is more laid back and leisurely. Walking increases the amount of time that customers spend in shops increases the chances that they will revisit. This paper will also articulate the measures that downtown areas should strive to implement to make their area more appealing to pedestrians.

Walkable and green communities promote healthier living and social interactions, while fostering a sense of belonging. They stimulate economic growth and promote community development. These attributes are necessary to attract talented young workers and encourage a flourishing of local enterprise. This paper will look at what makes communities walkable, how walkable communities promote healthier standards of living and more productive workforce, walkability as a business plan, and the attractiveness of walkable and green spaces in creating place attachment.

II. Walkable Communities

Efficient transportation has become a major issue of both state and federal governments. With the Federal Highway Program's 1998 Transportation Equity Act for the 21st Century (TEA-21) states and local municipalities were able to receive funding for strategies to improve the efficiency of the transportation system. This was intended to reduce the environmental impact of transportation, reduce the need for future infrastructure investment, and "ensure efficient access to jobs, services, and centers of trade". According to Southworth, this was a milestone in the shift away from auto-centric planning because it mandated accommodation for pedestrian and bicycle

transportation in major federal projects (Southworth 1). Pedestrian needs are very different from those of drivers and the two typically contrast each-other. Southworth claims that modern transportation focuses on large scale, macro, factors, such as capacity, demand, volume, rate of flow, trip origin/destination analysis, congestion patterns, and regional land use patterns. Pedestrians and walkable communities need to focus on the smaller features, and the ability of pedestrians to access jobs, goods, and services in a relatively short distance. Southworth defines walkability as, “the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network” (Southworth 3). Southworth’s walkable community supports walking as a method of transportation, such as walking to work or shopping, and for health and recreational needs. The end goal of a walkable community is that walking is considered a normal transportation choice.

To be a walkable community, the community must have connectivity in the path network, it should be linked with other modes of transport, have fine grained land use patterns, be safe, have good quality paths, and these paths must be appealing (Southworth 4). Paths should not only provide short distances to important destinations but they must also present a high level of choices. It is also important that these paths are not interrupted by dead ends or major roadways because pedestrian traffic should be able to flow without major impediment. To be useful in every day transit across far distances, pathways should be connected to forms of mass transportation; most common are bus routes and subway systems. This is more important when facing areas that already have large amounts of sprawl or when the size of the population makes even densely populated areas very large, as is the case in most major cities. Transit should focus on supporting pedestrian traffic between mixed use areas such as connecting residential with urban areas and connecting urban areas separated by industrial developments. The most important characteristic of a walkable community is that its pathways service the daily needs. This requires that most activities can be reached within a ten to twenty minute walk, usually no farther than .5 miles (Southworth 5). Southworth defines these activities as going to, “shops, cafes, banks, laundries, grocery stores, day care centers, fitness centers, elementary schools, laibraries, and parks” (Southworth 5). Usefulness is also important in creating a “sense of place,” Vikas Mehta, in his paper on walkable streets suggests that, “By satisfying day-to-day needs, environments encourage repeated visits and increased frequency of use. This increased frequency of use ... creates a sense of place and place attachment” (Mehta 4). Safety is the most observable obstacle to a walking. In the United States, “each year 6,000 pedestrians and bicyclists are killed in traffic ... pedestrians are 23 times more likely to get killed than automobile passengers” (Southworth 5). This is not only because pedestrians cross major intersections or highways, it is also in due to a lack of designated walking space and poor “traffic calming” measures. Regardless of engaging storefronts, relevant destinations, or modern pathways if pedestrians feel threatened by the passing traffic they will not walk in that area. Pedestrians are also concerned with crime related safety. Communities should mix retail and housing complexes because pedestrians feel safer when the personalization of property is clearly visible; this is when plantings,

yard decorations, and block watch signs are visible. Intuitively, the inverse is also true; pedestrians perceive areas with graffiti, litter, and dilapidated buildings as dangerous (Metha 5).

A. Why is it Important?

The Geographical Association and Academy for Sustainable Communities defines sustainable communities as, “Places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life” (Fumega 7). Sustainable development is important because it is where people *want* to live and work; this is a major theme for local governments and enterprises. Cities want to attract business because this allows them to raise tax revenue and attract new residents. Business wants to relocate to areas where expenses are low. These expenses are either financial, as in taxes and financing, or material based, transportation related, and/or they are labor costs. Businesses want to be in an area where there is a large, skilled labor force. In a study of the Columbus area, Dave Cofer notes that the, “ability to build a high-skilled workforce is vital to the efforts in achieving a competitive advantage” (Cofer 2). This “high-skilled” workforce has been more recently referred to as the *creative class*, a term coined by Richard Florida an American academic, and he considers them to be the driving force behind the new economy, the knowledge based economy (Verdich 1).

B. New Urbanism for the Creative Class

Creativity is important for city competitiveness in regional development and planning. According to Madeleine Verdich, creativity is what will spur economic growth in the city of the future. Paraphrasing Florida’s work she says, “Quality of place ... refers to ‘the unique set of characteristics that define a place and make it attractive.’” Subsequently these have been elaborated as a combination of economic opportunity, services, leadership (business and political), values (notably tolerance and trust) aesthetics and lifestyle” (Verdich 2). Locations need to be able to provide a constantly engaging lifestyle, diversity, identity, and opportunities for social inclusion.

III. Walkability for a Healthier Lifestyle

Social interaction and cohesive family and community relationships are what are referred to as social capital. It is broken down into three main areas, bonding, bridging, and linking. Bonding consists of family ties and relationships between close friends. Bridging refers to relationships between co-workers or acquaintances and linking are ties with people outside of one’s own community (Domínguez, Arford 3). Social networks have an effect on health, “A person’s chances of becoming obese increased by 57% if he or she had a friend who became obese in a given interval” (Christakis and Fowler 1). The study also showed that obese individuals tended to interact with each other as did the non-obese individuals. This homogeneity in social circles is what is

broken up by community development. New urbanism creates a community design that allows for common public interaction among many heterogeneous groups of people. The social capital created by these bridging relationships provides access to information on both health and economic issues; this changes the opportunity structure of the individual. Researchers have shown that, “The mortality rate among those with strong social networks is one half to one third that of people with weak social ties” (Domínguez, Arford 3). This is referring to what Domínguez and Arford refer to as collective efficacy; which is, “The capacity of a neighborhood to intervene when a problem arises” (Domínguez, Arford 11). It is a measure of trust, it is the ability for a community to come together and solve a problem either on the communal or individual level. Walkability increases physical interaction; neighbors who previously wave only in passing as they drive by would otherwise chat as they passed in walking, in doing so they are sharing ideas and inquiring about well being. This increase in social interaction due to physical interaction leads to healthier living and tighter knit communities.

A. Walkability’s Effect on Health

New urban design and walkability provide for healthier lifestyles because they engage people in active transportation. Active transportation is, “Travel-related walking, bicycling, and use the use of public transit” (Bassett et al. 1). Better urban development is an important factor for health because it allows for short distance travel, this is in turn a moderate form of physical exercise. In a study by Bassett et al, seventeen countries where compared with respect to active modes of transport and body mass index (BMI). Bassett was testing for a causal relationship between active transportation and obesity (BMI > 30). In the United States only 8% of daily trips involved active transportation, and it also had the highest level of obesity, 23.9%. The correlation coefficient, a measure of goodness of fit, was $-.86$ and was significant at the 1% level. In Germany over 23% of daily trips are made by walking, 9% are biking, and 8% used public transportation, the percent of the population who was obese was only 12% (Bassett et al 5). This is more prevalent in developing nations where automobile transportation is just becoming popular. Bassett describes an experiment where they found that, “Chinese men who acquired a car experienced a 1.8 kg greater weight gain and were twice as likely to become obese compared with men whose vehicle ownership remained unchanged. These finding held even after adjusting for diet” (Bassett et al 13). More shocking is the actual distance actively traveled per person per year, Europeans walked on average three times more than Americans and biked three and a half times as much. On a calorie comparison, Europeans are spending as much as four times as many calories on active transportation, this is, “roughly equivalent to oxidation of 5 to 9 lb of fat per person per year, compared with only 2 lb in the United States” (Bassett et al 15). The quality of pathways and the walkability of an area may contribute to why in the United States the automobile is used for, “85% of trips that are 1.0 km in length, and >90% of longer trips” (Bassett et al 13). Bassett et al states that older cities with mixed land use, sidewalks, and well-developed public transit have lower obesity. Bassett et al cites a study of people from the Atlanta area where, “Each hour spent driving was associated with a 6% increase in the likelihood of being obese

and that each additional kilometer walker per day was associated with a 4.5% reduction in likelihood” and “mix land-use had a strong association with obesity, with each quartile increase in land-use mix yielding a 12.2% reduction” (Bassett et al 13). New urbanism and walkable principles design an environment that promotes better health through active transportation.

Health and Workforce Productivity

Between 2005 and 2006 obesity in children was at 17.2% for boys and 15.9% for girls. This has major health implications but it could also have drastic effects on productivity. On average, “lifetime medical expenditure for an obese 20 year old ranges from \$5,340 to \$29,460” and in 2003 as a whole the United States spent \$78.5 billion on obesity related issues (Barkin et al 2). In 2009 total health care costs were \$2.5 trillion, or 17.6% of the United States Gross Domestic Product (GDP) (Centers for Medicare and Medicaid Services). This is a problem because it means less money is available for discretionary spending and saving, which drive consumption and investment respectively, and reduces GDP growth. Obesity costs are typically separated into five classes, absenteeism, disability, premature mortality, presenteeism, and workers’ compensation (Trognen et al 1). Presenteeism is the impact of obesity on reduced productivity, in one study it was estimated that this costs the US \$9.1 billion (Trognen et al 7). According to studies selected by Barkin et al, there is a wage penalty for obesity. This means that obesity causes lower wages; in the case of women this could mean being paid as much as 12% less (Barkin et al 3). As a population, younger obese women can expect to earn as much as \$956 billion less over their lifetime, assuming a 67% adult obesity rate (Barkin et al 3). A survey of 489 employers with 7.8 million employees found that in 2008 the average annual healthcare expenditure was \$56 billion or approximately \$7173 per employee per year (Barkin et al 4). Costs are always a main concern of business, both at large multinational corporations and at small local enterprises. In 2007 the United States had over 5.4 million firms with less than twenty employees. If each of these firms employed twenty people and the health care costs were as Barkin et al estimates, then these small businesses could be spending as much as \$140,000 a year on healthcare. That is enough to employ four more people at every firm, assuming an average salary of \$33,000, which is the median salary for 90% of Americans.

IV. Urbanism for a Sense of Place

In a study conducted by Vikas Metha, to measure the walking characteristics of neighborhoods 29% percent of respondents said they choose the block they were traveling on because of the variety of uses and stores. One respondent to the survey said the biggest draw was that, “I come here to relax, think, to read, get coffee. Once in a while I play Keno” this contrast to other blocks on the same street, “I don’t come here as much. This block doesn’t have a place to come and spend time. There’s no place to sit around” (Metha 16). Metha observes that these multiuse blocks with locally owned businesses create place-attachment; one interviewee had this to say:

“I’m here once every day on average. I shop here; buy books, rent videos, [get a] haircut, buy coffee, meet people, hang out, people-watch,

walk to the 'T' stop. I prefer it for the coffee, [and the] benches. It has a more comfortable feel. The stores here meet certain needs. They are locally owned. ... I'd rather spend my dollars here" (Metha 17)

This response is important because of the way the interviewee describes their environment. This is a location where they meet people and hang out; this is an area where they feel comfortable and more importantly it is an area that they want to be personally associated with when it concerns spending habits. New urbanism and walkable communities create an environment that people want to become a part of. Social interaction and a sense of pride in one's environment help to turn a location into a destination. Community involvement leads to better community events, events which get people of all demographics to interact on a social level. Studies have shown that people want to be a part of communities where they feel like they belong, where they feel like they know people, and can make a difference.

A. Walkability for Place Attachment

Community development is a form of social cohesion that is most commonly constructed through shared experiences and a feeling of familiarity (Mehta 6). These shared experiences contribute to a sense of "collective symbolic ownership," where local businesses and gathering places take on a worth above material value, they have symbolic value to the community as a form of social identity. A sense of place comes along when there exists "the ability of a person to belong to a group and to be accepted in it and to feel attachment to it" (Metha 6). Street art, social interaction, and the all around pleasantness of the local environment is what creates a sense of place, a social bond that encourages people to be part of a community and provides reason for them to stay in that community. For walking to help create a sense of place, path content, quality, and social interaction should be considered. Walkways should aim to be as continuous as possible, with a low grade and smooth surface so that elderly and those with mobility impairments can participate. Shade trees, large planters, and sidewalk art help to separate pedestrians from traffic and make the path a more appealing environment. What this allows for is a more leisurely walking pace and encourages pedestrians to browse local shops and connect with their neighbors.

B. Community Development and Business Growth

Small firms, those with fewer than 500 employees, accounted for 64% of net new jobs creation between 1993 and 2008 (Bureau of Labor Statistics.18). Entrepreneurship and self-employment has become a major trend as resources and capital are freed because of the economic recession. In 2008, roughly 15% of all self-employed peoples were below the age of 35 (38). The correlation between self-employment and education is also strengthening, "Individuals with at least a bachelor's degree accounted for 37.1 percent of the self-employed in 2008" (39). The entrepreneur community is also much more urban based, "Rural self-employment declined 16.6 percent between 2000 and 2008, with its share of the total falling from 24 to 17.9 percent. Meanwhile, central city and suburban self-employment rose from 62.2

to 67.3 percent” (39). Areas that have a high concentration of entrepreneurial activity are designed in a way so that there is “Knowledge spillover” (Acs et al. 1). This means that people are constantly interacting with each other and there are very low barriers to the exchanging of new ideas.

V. BEST PRACTICES:

A. Binghamton Rising

Binghamton Rising is a “Think Local Be Local” organization. They are organized by the Binghamton Regional Sustainability Coalition a non-profit organization working to become a center for information on sustainability efforts and a tool to build community support for sustainable issues. Binghamton Rising promotes the building of a network of locally-owned businesses and community support for local spending as a means of recycling capital resources within the area. The goal is that through a diverse, mix use community local independent businesses can be supported and community members will become more engaged in maintain unique qualities that distinguish their community. They are working closely with the Volunteers Improving Neighborhood Environments (VINES) to use neighborhood gardens as a way of providing healthy food alternatives to areas that do not have access to grocery stores and may not have personal transportation.

B. Dublin, Ohio – Bridge Street Corridor

Dublin, Ohio is an example of a community developed on the principles of sprawl that is now refocusing on the development of the City’s central core. They have commissioned a study to focus on how this urban development can be used to build upon the character of the historic downtown; support opportunities for additional commercial, retail, residential, and mixed-use development; expand access to public places for gathering and recreation; and to meet the needs of the changing demographic and housing trends by creating mixed-use walkable environments.

C. City of Binghamton First Ward Redevelopment Plan

The program is a community-led process by which members can help in the development and implementation of area wide revitalizations. The first ward is an area where vacant properties occupy 11.9% of the total land area and the mean household income is 74% of the average household income for the city of Binghamton. The plan has four goals: economic revitalization, business development and job creation, smart growth and sustainability, and to promote higher qualities of life. The objective of the economic revitalization is to fill storefronts and attract new businesses, provide a range of services that support the daily needs of local residents, and to capitalize on the local transportation gateways. The plan also seeks to reestablish a walk-to-work community, meaning there is a strong employment center within the neighborhood, and to make the area more attractive to knowledge-based businesses. In order to be sustainable to plan tries to create walkable, pedestrian oriented neighborhoods, reuse existing

buildings and infrastructure, promote active transportation, and to allow access to locally grown produce.

VI. RECOMMENDATIONS

There are many simple and easily implementable solutions that Binghamton could implement to make the downtown area more walkable and help build a sense of place. Many of the sidewalks that connect the neighborhoods to the downtown area are covered in litter and refuse. Stricter enforcement of litter laws would raise money for the city and would help in encouraging active transportation. In the past, the city has used street sweepers to clean the streets and then aggressively implemented Zero Tolerance Code Sweeps for litter and rubbish violations. The funds raised by this could be used for winter decorations in the downtown area. The Binghamton area is very beautiful and walkable during the summer, when shade providing trees have leaves and many community events are being held. Unfortunately this is when approximately 15,000 of the city's transient residents, the students, are not around. The city should try to decorate the downtown area during the winter months that the students are around. Bright winter decorations, such as white lights wrapped around trees or snowflake lights on light posts would make the downtown area feel cozier during the cold and gray months.

The downtown area of Binghamton also lacks in several key points that directly impact its walkability score. A major problem that Vines and the Binghamton Regional Sustainability Coalition are trying to fix is the lack of grocery stores in the area. Residents that do not have access to cars for transportation are forced to pay extra money to bring grocery bags into taxis and are limited in how many bags they can bring on the bus. This forces a reliance on corner stores to supply food. The food choices carried by these locations is highly processed and lacking nutritional value. Binghamton should work to encourage the growth of local gardens and food co-ops or try to encourage a grocery store to open within the downtown area. Youth programs could be created to volunteer at these locations. That would increase their involvement with the community, their sense of ownership in the community, and educate them on better health.

Art installations would help to bring the community together, attract pedestrians, and help create an identity for Binghamton. A public-private partnership with Binghamton University could be used to finance or supply labor to art projects. Student artist could work with local community leaders to develop outlines for projects and then implementing the work could be done with the help of fraternities, sororities, and community service organizations. Areas like Washington Street could benefit from murals on the sides of buildings and more engaging flowerbeds as a means of attracting pedestrians into the shops. The paved over area across the street from Washington street would increase its pedestrian appeal if the seating options promoted longer term seating arrangements, such as small tables and chairs, and by expanding the flowerbeds to including shade providing trees. These efforts could be financed through transient occupancy taxes on large scale events such as "Spiedie Fest" or "July Fest" and also by offering advertising to local companies if they fund the

installations, much in the same way the hanging flower baskets are financed. The city could also promote “free art” and community involvement by sponsoring competition among local businesses. One example could be a competition to see who has the best winter theme painted storefront window, like they do in New York City, and have pedestrians vote on which they like best. The compensation would be mainly pride, increased store traffic, free advertising in a city publication, and maybe a modest financial incentive such as a week’s revenue from the parking meters. An event like this gets businesses to invest in local art and it brings the community together in a competitive and friendly atmosphere.

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