

Mega projects: Worth the Cost?

A Study of Three Boston Mega projects and Their Impact on Their Neighborhoods.

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Abstract:

This thesis asks the question: why do urban megaprojects create a negative public perception for staying on budget, and seeks to determine if the economic gain for the city is worth the cost despite the potential backlash and setbacks? To answer this question, we examined three cases studies in the City of Boston: The West End Redevelopment, The John B. Hynes Auditorium (now the John B. Hynes Convention Center) and the Seaport World Trade Center. They have been selected based on the simple fact that they have had time to mature and that there is historical data to support claims of economic success or failure. Each of these projects was funded by a mixture of public and private funds, were met with moderate to severe resident opposition, encountered multiple hiccups and setback, and changed the shape of the neighborhoods in which they were built. Despite this, all produced ongoing benefits for the Boston in terms of property values, increased taxes, jobs, and revitalization of dilapidated areas. There was, however, significant differences in how much economic benefit was captured in each project. This should be dependent on what the area looked like before the projects, and how the project was executed. While mega projects might, universally, produce some economic benefit, certain projects can truly justify their cost, while others do not.

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Chapter 1: Introduction

The growth and planning of modern day cities has always included the incorporation of megaprojects into their framework¹. Indeed, many American cities herald their megaprojects as a symbol of progress². They are transportation infrastructure, tourist attractions, redevelopments of entire neighborhoods, or projects that reach to the sky; they are unique and distinctive to their home town not seen anywhere else in the world. A cities' greatest physical achievement can make it famous, spur economic growth, and bring a city to the international stage.³ Yet megaprojects are also rife with controversy, corruption, disparity and wasted capital.

Megaprojects in the 20th Century

During the twentieth century, specifically in the post WWII era, megaprojects found their way to become the apple of every city politician's eye; a grand project to tie one's name to. The Federal government encouraged this type of growth with easy to access funding and loose mandates. Yet, despite the free flow of capital, and tremendous growth spurred by these investments, many do not remember this time fondly. Megaprojects all over the country overblew their budgets, were delivered late, and seemed to line the pockets of the richest at the expense of the poorest. As American cities were abandoned for white suburbia, many of these projects were an attempt to

¹ Doucet, Brian. "Variations of the Entrepreneurial City: Goals, Roles and Visions in Rotterdams Kop Van Zuid and the Glasgow Harbour Megaprojects." *International Journal of Urban and Regional Research* 37, no. 6 (2012): 2035-051. Accessed April 15, 2018. doi:10.1111/j.1468-2427.2012.01182.x.

² Glaeser, Edward. "How Skyscrapers Can save the City." *The Atlantic*, March 2011. Accessed April 15, 2018.

³ Leslie, Jacques. "The Trouble with Mega Projects." *The New Yorker*, April 11, 2015. Accessed April 15, 2018. <https://www.newyorker.com/news/news-desk/bertha-seattle-infrastructure-trouble-megaprojects>.

draw the “right” kind of people back into urban areas. When the dust settled, megaprojects were viewed by some as inefficient and harmful, rather than rehabilitative.

With the passage of time and changes in tastes, Americans once again find themselves drawn to urban life. Specifically, in Boston, Massachusetts, with the resurgence in New Urbanism in urban design and city planning initiatives, there comes the need for megaprojects to be incorporated back into city planning decisions. The tenants of this movement are based on the New Urbanist model that harkens back to pre-WWII, before cities were designed to accommodate the wide spread use of the car. New Urbanism encourages mixed use and transit oriented development and walkable communities.⁴

Relevancy for Planners and Real Estate Developers in Boston

Whether it is the need for new infrastructure, such as the Green Line expansion, or the redevelopment of underutilized areas, such as the Seaport District, Boston is undergoing a process of rapid changes and urbanization. Fueled by a combination of an improved economy since The Great Recession of 2008, the increase in high paying jobs, and a simple shift in tastes from suburban to urban livings, Boston, is now looking to redevelop some of its older areas on a larger scale to accommodate these new opportunities. Current large scale projects are drawing criticism, encouragement, hope, and backlash. As Boston moves to take its place in America as a bio-pharma and tech hub, it might seem, to the average Bostonian, like the entire city is perpetually under construction. Large projects such as Seaport construction, the InkBlock in

⁴ Boeing, Geoff, Daniel Church, Haley Hubbard, Julie Mickens, and Lili Rudis. “LEED-ND and Livability Revisited.” *Berkeley Planning Journal* 27, no. 1 (January 1, 2014). <http://escholarship.org/uc/item/49f234rd>.

Chinatown, One Charlestown near Bunker Hill, and the redevelopment of the Mary Ellen McCormack Public housing signal significant changes in Boston, with direct impact on the public and public funds.⁵ The development theme of this decade seems to be to build up, densify, and urbanize. There are some, in Boston, who see this as a step in “the right direction.” Urbanization represents a more sustainable way of life. There are, however, others who still bear scars of remembrance; those who recall the last time Boston took an interest in Megaprojects – the 1960s-1980s, when many of these projects exceeded their budgets, and failed to meet the high expectations of the City.

Socio-economic effects

One of the strongest negative connotations with megaprojects is the negative socio-economic effects it might have on the city, namely gentrification, and subsequent relocation of long term residents who are pushed out because they cannot keep up with rents being driven up by newcomers to the neighborhood⁶. Megaprojects typically take place in areas of cities with historically lower rents, property values, and a corresponding lower Area Median Income (AMI). From wide scale displacement due to the West End Redevelopment project to the modern-day fears surrounding gentrification, megaprojects can have real and significant negative impacts on poor communities, immigrant communities, and communities of color. Furthermore, the place

⁵ "Windevelopment Chosen to Redevelop Mary Ellen McCormack Public Housing Development." Boston.gov. August 11, 2017. Accessed April 15, 2018. <https://www.boston.gov/news/windevelopment-chosen-redevelop-mary-ellen-mccormack-public-housing-development>.

⁶ Lim, Heeji, Jeeyeop Kim, Cuz Potter, and Woongkyoo Bae. "Urban Regeneration and Gentrification: Land Use Impacts of the Cheonggye Stream Restoration Project on the Seoul's Central Business District." *Habitat International* 39 (2013): 192-200. doi:10.1016/j.habitatint.2012.12.004.

making effects of megaprojects can fundamentally change the shape and feel of a neighborhood, and it not always compatible with the long-time residents' desires.⁷

While it can also be argued that the positive economic aspects generated by the megaproject can benefit the entire area, the recipients of these benefits are typically not the residents of the community in which the project is built. Even if they do receive some benefits, the return on the investment is usually greater for the investors in the project, and the middle and upper level earners who take most of the permanent jobs that are generated.

While this thesis will not evaluate megaprojects from this angle, this perspective and reality facing cities must be acknowledged and a part of the larger conversation when planning a megaproject. The catastrophic effects of the 1960s ushered in an attitude of “do no harm” meaning many megaprojects were not built for fear of these impact. The effects of this time period also ties greatly into the controversy surrounding megaprojects, and generates more intense scrutiny of overspending and miss steps. With the new urban renewal era beginning in the 1980s and spring boarding these developments into action, many of these traumas are resurfacing, and residents are beginning to wonder, “what will happen to us this time?”

Unfortunately, this thesis has neither the space nor the scope to fully analyze these impacts. Gentrification and displacement are a topic unto themselves and have proven to be incredibly difficult to quantify and draw definitive conclusions regarding the real effects on long term residents. This is for several reasons: first, low income persons tend to find it more difficult to

⁷ Shaw, Kate, and Geua Montana. "Place-Making in Megaprojects in Melbourne." *Urban Policy and Research*34, no. 2 (2014): 166-89. Accessed April 15, 2018. doi:10.1080/08111146.2014.967392.

stay in place regardless of gentrification, due to unsteady streams of income and shaky job tenure, second; some have argued that, because of the way the American real estate system works in general – with higher income persons systematically pushing out lower income persons in desirable neighborhoods – avoiding gentrification entirely is impossible under current conditions.⁸ Even if a higher income person were to deliberately move to a high income neighborhood, they would still increase the rents in that area and drive out lower income persons. Those residents would then, in turn, move to a lower income area, repeating the cycle until gentrification had taken place anyways.

Finally, there is also an aspect of “what-if” researchers must contend with when arguing that projects should not have been greenlit. Many American cities were in a rapid “death spiral” when these harmful projects were initiated.⁹ This can make it difficult to make definitive statements regarding the socio-economic fates of those displaced, and those whose communities were sacrificed for the economic enrichment of a city. Planners can only learn from the lessons of the past and hope to make the distribution of benefits from development this time around more equitable.

⁸ Hertz, Daniel. “There’s Basically No Way Not to Be a Gentrifier.” CityLab. Accessed March 4, 2018. <http://www.theatlanticcities.com/housing/2014/04/theres-basically-no-way-not-be-gentrifier/8877/>.

⁹ Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

Economic Benefits and Costs verses Time

Even when evaluated from a purely financial standpoint, megaprojects can be hard to justify to the taxpayer. Ingrained in the American psyche is the principle that more government involvement equals more waste, and megaprojects certainly provide an excellent justification for this line of thought. Because of the necessary government involvement, megaprojects often become grotesque displays of inefficacy when contrasted with smaller private sector projects, and can quickly sour public opinion. They can seem enormous at the time of development, and perhaps even years after their completion.

The purpose of this thesis will be to re-evaluate these controversial Boston megaprojects in a modern context, taking the lengthy passage of time into account. The analysis will be to determine if, despite all their flaws, megaprojects are still economically viable, and should be pursued perhaps with more reasonable expectations and accommodations. By the end of the analysis, the thesis will seek to prove these megaprojects to be economically and financially beneficial to the City of Boston.

Key Goals:

This thesis will begin by outlining some of the common issues with megaprojects and try to understand why they have earned the reputation of being wastes of state and federal capital when compared to smaller projects. It will examine the financial cost of megaprojects, and attempt to explain why megaprojects go overbudget with such frequency, what can be done about it, and if these projects are being evaluated with an appropriate lens when considering the size and scope of the development. Too often, planners have found megaprojects to be extremely beneficial,

from a financial standpoint, despite gross overspending. Crucial to studying these projects is the determination of why these projects go over their stated budgets, and question whether this needs to be built into the financial analysis from the start.

After determining the budget framework, this thesis will investigate three case studies in Boston, Massachusetts which have had time to show financial growth, and impacts on the neighborhoods surrounding them. These studies: West End Redevelopment, Hynes Convention Center, and The World Trade Center Seaport, all possess certain commonalities typical for megaprojects: they were expensive, there was significant pushback, their value is still debated, and they came to re-shape the neighborhoods in which they are located.

The analysis of these projects seeks to determine if they were financially “worth-it” in the long run. To make such a determination, this thesis will ask:

- 1. What are the short and long term financial performance of the megaprojects?**
- 2. What explains poor financial performance?**
- 3. Who are the main actors in advancing, managing, and evaluating megaprojects?**
- 4. What are the benefits of these projects for their neighborhood and the City ?**

Chapter 2: Literature Review

Financial performance

Today, megaprojects are generally classified as “an extremely large-scale investment project.”

Megaprojects are typically defined as costing more than US \$1 billion and attracting a lot of public attention because of substantial impacts on communities, environment, and budgets.

Megaprojects can also be defined as "initiatives that are physical, very expensive, and public"¹⁰.

They exist in broad categories, including, but not limited to: transportation infrastructure, public buildings, power plants, and seaports.¹¹ The primary goals for this type of investment can be summarized as “: (1) national economic development; (2) regional development; (3) social welfare through providing new meaningful careers in employment, by providing security, health and education and by providing a base for cultural growth; and (4) sustainability of the environment by management and improvement in natural resources and ecological systems.”¹²

While not every megaproject undertaken can produce significant results on every level, there is a hope among residents that the development will change the neighborhood for the better.

¹⁰ Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

¹¹ Dimitriou, Dimitrios J., John C. Mourmouris, and Maria F. Sartzetaki. “Economic Impact Assessment of Mega Infrastructure Pipeline Projects.” *Applied Economics* 47, no. 40 (August 27, 2015): 4311. doi:10.1080/00036846.2015.1026591.

¹² Ibid.

In the United States, cities are typically responsible for funding developments themselves and rely heavily on private for-profit investment.¹³ This means that to undertake expensive megaprojects, cities must partner themselves with private developers, some of whom might also act as an investor as opposed to acting solely as a contractor. Because of this, municipal governments must take care to ensure their finished project can be viewed as “profitable” from an investment standpoint, often by means of generating income post construction.¹⁴ For example, a developer might be allowed to build, and then collect revenue from a parking garage built to serve a large building complex. The revenue stream would serve to boost the private investors returns in the short term, while they waited for the new development to attract tenants, or induce a rise in the value of their property. The trouble is, private developers often think “short term” while megaprojects can take decades to realize their true value.¹⁵

This public private partnership fundamentally changes the dynamic between developers and city planners.¹⁶ What was once an adversarial relationship becomes a cooperative one, held together by the glue of shared community interests. For smaller projects, the “Development Triangle” consists of three main actors: the private sector, the municipal government, and the lender.

Typically, in these deals, the private sector, in these cases generally the real estate developers, try

¹³ . Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Stokvis, Jack R. “Development Triangle: A Partnership for City Economic Revitalization.” *National Edition*, December 1983, 42–43.

to squeeze out as much profit as possible, while the municipal government, often a city planning board or the planning department, tries to restrain the developer for the good of the community.

The lender often does not enter the scenario until the deal is nearly finalized.¹⁷

“The Development Triangle” is different. In this partnership structure, each of the actors brings its strength to the table. The planning board uses its power to ease regulations and smooth out the “red tape” a developer might otherwise face. They might also contribute financially through the procurement of grants and monies set aside for the redevelopment of the city. The real estate developer brings additional funding and financing tools to decrease the cities’ investment in the project. In exchange, however, the city takes on some of the risk the developer usually carries by itself. Furthermore, it is important to note that, while a developer might be willing to take on a less profitable megaproject for the betterment of a city, they must also make some profit.

The lender is the final actor on the development itself. Unlike in typical developments, in the development triangle the lender is often involved much earlier. It is also on the city to provide guarantees and more expedient processing so that the lender can turn out what is termed as a bankable loan. This is essentially just a loan with less risk.¹⁸

¹⁷ Ibid.

¹⁸ Ibid.

It is essentially in the reduction of risk where the public sector and the municipal government can bring real value to the deal. Real estate developers and institutional investors alike evaluate potential deals in a simple format. Each development, no matter how large or small, is broken down to a stream of cash flows. A higher net operating income (NOI) yields greater income and capital returns. This is weighted against the risk that the NOI might be lower, a scenario directly exacerbated by, and drastically impacted by, the municipal red tape put upon the development by the public sector. In a standard real estate deal, these delays can strongly affect the project's cost of development, sometimes leading to an additional loan, or the sale of the project prior to completion, increasing the risk of the project, thereby minimizing returns.¹⁹ Within the "Development Triangle" framework, however, the public sector can directly protect both the lenders' and the developers' bottom lines by releasing these firms from the hindrances of some regulations, and by expediting approval processes. By working in tandem, these projects can become more profitable for all three actors.

Late and Over-Budget

Because of the large investment needed, long time-lines and large disruptions, megaprojects can attract significant media attention, and in many cases, controversy. In fact, one of the most common perceptions of the modern day mega projects is the abysmal failure to adhere to their set upon budget, timeline and, in some cases, even the parameters specified when the project began. Danish economic geographer, Bent Flyvbjerg, through his research, has postulated what is now

¹⁹ Guy, Simon, John Hennberry, and Steven Rowley. "Development Cultures and Urban Regeneration." *Sage Publications, Inc.*, *Urban Studies*, 39.7 (June 2002): 1181.

known as the “Iron Law of Megaprojects”: they can be considered a success if they are on time, on budget and to specified parameters. Flyvbjerg estimates one in a thousand megaprojects fall within all three of these categories simultaneously, with one out of every ten megaprojects coming in at projected costs.²⁰ Very often, when these projects “fail”, the public experiences frustration and even anger at the assumed corruption or ineptitude. While all three factors contribute to this negative perspective, this thesis will focus solely on the cost overruns.

The literature suggests several reasons as to why megaprojects “fail” according to the cost aspect of the Iron Law. The first is the lack of knowledge surrounding the project. Unlike smaller projects, because megaprojects are often unique, with different parameters in different sites for different budgets, there is little institutional knowledge for the actual costs, risks and benefits for these projects.²¹ As such, it is more difficult to forecast an appropriate budget for a megaproject, than it is to estimate a budget for a mixed use residential building. Because of this, projects tend to have a sort of “brake-fix model”. Inexperienced managers encounter unforeseen problems and tend to them as they come up. This often creates a pause in the work, while the projects managers reorganize themselves, delaying the project and incurring cost along the way.²²

²⁰ Flyvbjerg, Bent. “What You Should Know About Megaprojects and Why: An Overview.” *Project Management Journal* 45, no. 2 (February 2014): 10. doi:10.1002/pmj.21409.

²¹ Flyvbjerg, Bent, Mette K. Skamris holm, and Søren L. Buhl. “How Common and How Large Are Cost Overruns in Transport Infrastructure Projects?” *Transport Reviews* 23, no. 1 (January 1, 2003): 71. doi:10.1080/01441640309904.

²² Flyvbjerg, Bent. “What You Should Know About Megaprojects and Why: An Overview.” *Project Management Journal* 45, no. 2 (February 2014): 12. doi:10.1002/pmj.21409.

Another reason for this frequent under estimation is the nature of the estimates themselves.

“Various cost estimates are made at different stages of the process: project planning, decision to build, tendering, contracting, and later renegotiations. Cost estimates at each successive stage typically progress toward a smaller number of options, greater detail of designs, greater accuracy of quantities, and better information about unit price. Thus, cost estimates become more accurate over time...”²³. Underestimation of the costs in the planning and decision process become even more transparent when one considers development industry. Contractors competing for work act in their own self-interest and might be willing to under estimate to outbid a competitor.²⁴

Actors on Megaprojects

The final suggested reason for cost underestimation is the input of the political decision makers in charge of the project. Leaders of major cities have responded to the globalization of the world and economy by using megaprojects to inject jobs, capital, trade, housing and tourism into their cities. ²⁵ Others will use megaprojects to cement their legacies and make their mark upon a city and be remembered well. Megaprojects offer a unique way of doing this in that they quite literally re-shape cities both physically and socio-economically, and that they often provide a consequence free path to achieve greatness. Because of their long timelines, many politicians are

23 Flyvbjerg, Bent, Mette Skamris Holm, and Soren Buhl. “Underestimating Costs in Public Works Projects: Error or Lie?” *Journal of the American Planning Association* 68, no. 3 (September 30, 2002): 281. doi:10.1080/01944360208976273.

24 Ibid.

25 Fainstein, Susan S. “Mega-Projects in New York, London and Amsterdam.” *International Journal of Urban and Regional Research* 32, no. 4 (December 1, 2008): 768. doi:10.1111/j.1468-2427.2008.00826.x.

no longer in office by the time the project costs finally become concrete. It is then up to the politicians taking over the office to try and reign in the overblown budget.

Beyond economic and personal incentives, politicians face public pressures to proceed with megaprojects their constituents find to be particularly interesting or engaging.²⁶ This is countered with the fiscally responsibility to choose the development project with the highest *internal rate of return*²⁷ for the city and the private stakeholders in the project. This can create an optimism bias towards a one project over another and generate an underestimation of costs to skew the project's IRR higher, and allow the political actor to make the decision to proceed.²⁸

It is precisely for this third reason, the under estimation of a megaproject to allow it to begin, that the literature theorizes the underestimation to be deliberate in many cases. Tackling the first cause of underestimation, the lack of institutional knowledge, it must be noted that when samples are taken the mean percentage by which the megaprojects missed their intended budget, skews

26 Flyvbjerg, Bent, Mette Skamris Holm, and Soren Buhl. "Underestimating Costs in Public Works Projects: Error or Lie?" *Journal of the American Planning Association* 68, no. 3 (September 30, 2002): 287. doi:10.1080/01944360208976273.

27 Internal rate of return (IRR) is a metric used in capital budgeting measuring the profitability of potential investments. Internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows from a project equal to zero. IRR calculations rely on the same formula as NPV does. - <http://www.investopedia.com/terms/i/irr.asp>

28 Morris, Sebastian. "Cost and Time Overruns in Public Sector Projects." *Economic and Political Weekly* 25, no. 47 (1990): M154.

towards underestimation.²⁹ This suggests a definite bias towards under estimation versus over estimation. Furthermore, with ever increasing availability of data, the percentages by which megaprojects “miss their mark” should diminish over time. It does not.³⁰ It thereby stands to reason, that the political decision makers might have a deliberate bias in allowing the under estimation for the project to be greenlit.

Politicians are not, however, the only actors that cause megaprojects to fall short of expectations. When a city decides to undertake a project, it must issue a competitive Request for a Proposal (RFP) in search of developers. In general, the developers with the holistic “best” plan, which includes budget, will be awarded the work. They in turn will seek out contractors, architects and engineering firms to complete the work. This process also needs to be, by law, competitive. Because of the multiple rounds of competitive bidding, it is easy to see how the initial price tag on a megaproject can be driven down. Estimates of the work are typically given with optimistic times lines, labor needs, and material pricing, leaving plenty of room for a megaproject to go over budget.

Of course, costs on megaprojects cannot be fully explained without an understanding of the private sector – both the developers and the investors – but for whose funding, the project would be infeasible. Investors and private sector developers are often painted as “the source of the

²⁹ Flyvbjerg, Bent, Mette Skamris Holm, and Soren Buhl. “Underestimating Costs in Public Works Projects: Error or Lie?” *Journal of the American Planning Association* 68, no. 3 (September 30, 2002): 286. doi:10.1080/01944360208976273.

³⁰ Ibid.

problem” when megaprojects are introduced to communities; an unsavory partner who does not have the community or the cities’ best interest at heart. In some senses this is true.

The typical structure for real estate projects, from conception to completion, from a developer’s standpoint, is short term. Developer’s purchase land and build on credit – credit which is determined by the expected NOI of the project when it is complete, and occupied – a period called “stabilization.” The stream of revenue the project is expected to produce has a direct impact on how for much the projects can be sold. The developer, expecting a high sale price, borrows funds to complete the project, then sells it, pays off the debt and captures anything above that (the project’s equity) as profit in addition to their developer’s fee. In some cases, the building is sold upon completion, but in others, development companies, particularly larger companies with management divisions, might manage the project themselves. Even if they intend to keep the project, however, the ownership horizon the developer’s project is rarely beyond a decade.

While investors might last longer in terms of having a stake in the project, they are often a step or so removed from the building itself. Equity investors expect a portion of the cash-flow produced from a project after it has been completed, and a portion of proceeds from the sale or refinance of the project.

It is in the best interest of both the developer and in investor to charge the highest rents possible, and set the projects’ usage to maximize NOI, and land value. It is also in the developer and the

investor's best interests for surrounding properties to mirror the high standards set by this project. As will be shown, later in this thesis, if the understandable yet not benevolent, interests of the investors and the developers do overtake the project, the consequences can be devastating for the community and for the city as a whole.

Benefits of Megaprojects

If megaprojects are such poor investments, why do municipalities undertake them at all? First, it had been shown in the literature that megaprojects, in general have positive impacts on communities.³¹ What can be frustrating to residents and investors, however, is the intangible quality of some of these benefits, and the length of time these benefits take to be realized.

Because megaprojects are so vastly different, comparing them to one another is almost impossible. The “Iron Triangle” method of evaluation only holds when evaluating megaprojects from a short term, development standpoint, and does not take other impacts into effect. Taking a step back, some scholars have begun to look at megaprojects not as a sole project, but as a program of project designed to tackle a specific problem within an area.³² Evaluating

³¹ Dimitriou, Dimitrios J., John C. Mourmouris, and Maria F. Sartzetaki. “Economic Impact Assessment of Mega Infrastructure Pipeline Projects.” *Applied Economics* 47, no. 40 (August 27, 2015): 4310–22. doi:10.1080/00036846.2015.1026591.

³² Lehtonen, Markku. “Evaluating Megaprojects: From the ‘iron Triangle’ to Network Mapping.” *Evaluation* 20, no. 3 (July 1, 2014): 278–95. doi:10.1177/1356389014539868.

megaprojects from this lens, allows for the socio-economic benefits, which have been well-documented³³, fall into place.

Holistically speaking, areas tend to fare better, in terms of economic prosperity, when megaprojects have been completed, regardless of whether or they are a success when measured by the Iron Triangle. Quantitatively, megaprojects have been known to increase property taxes in the areas in which they are complete, raise land values through higher rents, both retail and commercial, and generate more construction in the area. This multiplier effect is exactly what politicians are banking on when they make the determination to proceed with a project.

Boston and Megaprojects

Boston, Massachusetts, is a city that has become infamous for its seemingly disastrous megaprojects. From the socio-economic implications of the clearing of the West End, to the almost comical overspending on The Big Dig, Boston has become a city where some would argue that it would be best to leave well-enough alone. But, though Boston is certainly doing well today, mid-century Boston was looking at a vastly distant future.

³³ Korytářová, Jana, and Vít Hromádka. “The Economic Evaluation of Megaprojects – Social and Economic Impacts.” *Procedia - Social and Behavioral Sciences*, Selected papers from the 27th IPMA (International Project Management Association), World Congress, Dubrovnik, Croatia, 2013, 119 (March 19, 2014): 495–502. doi:10.1016/j.sbspro.2014.03.055.

In truth, Boston began its decline in the early 1900s, when textile manufacturing companies moved out of the City and to the American South, where labor was significantly cheaper. The Great Depression pushed Boston further into a slump, but, unlike much of the country, which recovered in the Post WWII Era, Boston remained depressed, causing business and higher earning individuals to flee to the suburbs.

Exacerbating this issue was the larger than life political personality of Michael Curley, a dominant figure in Boston politics from through the 1920s and 1930s. Curley earned a reputation for political corruption and cronyism which had the dual impact of hindering Boston's ability to receive federal grant money to rebuild the City, and discouraging businesses from moving to or staying in Boston.

Boston was not alone in this predicament. Many older cities across the country had fallen into a "death spiral" post WWII.³⁵ With the boom in American prosperity, came the migration of higher learning individuals and, with them, high paying jobs, out to the suburbs. Inner city downtowns fell into disrepair, and many politicians were left scrambling to stop the decline.

For better or worse, the deposition of Michael Curley with the 1949 Mayoral Election of John B. Hynes, brought about a new era in Boston planning and development. Like many of his

³⁵ Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

counterparts in other cities, Hynes sought to take advantage of the federal funds offered in the Federal Housing Act of 1949 for the redevelopment of his inner city.

Because the Federal Housing Act was deliberately targeting housing, a common usage of the funds became slum clearance. The West End neighborhood had been classified as “blighted” by local banks, and was proven to have a significant portion infested with vermin by appraisers.³⁶ This made it relatively easy for city planners to justify a complete redevelopment; flattening old tenements, and rebuilding. Unfortunately, the speed of the demolition, and the gradual movement away from resettlement of those who had been living in the tenements, drew horrified reactions from residents. To this day, the West End Redevelopment is still rife with controversy.³⁷

Following the demolition of the West End, came luxury housing, high end shopping, and office space back to the Downtown area.³⁸ Boston’s population began to expand for the first time in decades and businesses made their way back into the city. Today, the area where the West End once stood is a thriving economically porous area, as is most of Boston. With the introduction of megaprojects into the City, it seemed to have turned itself around.

³⁶ O’Connor, Thomas H. *Building a New Boston: Politics and Urban Renewal, 1950–1970*. Boston : Northeastern University Press, 1993.

³⁷ Ibid.

³⁸ Ibid.

Chapter 3: Methodology

The purpose of this thesis will be to demonstrate the economic value megaprojects have to cities despite over bloated budgets and controversies. The analysis portion will be case study based using: The Seaport World Trade Center of Boston, the West End Redevelopment, and the Prudential Center. These projects have been selected because they are municipally driven megaprojects that have been complete for at least 25 years, and therefore have had time to impact their surrounding areas. Each project will be evaluated independently from the others, using news articles written about the project during the time of their planning and development, the United States Decennial Census, and the American Community Survey 5 Year Estimate 2006-2010 to replace the Census for the year 2010.

The projects will be evaluated on two levels, which can best be broken down into people and property. To do this, the study will use information about the census tract in which the project was developed as well as adjacent tracts, to compare factors including but not limited to total population, household income, rent levels, and home prices, and social perspective, which will seek to determine the impact on neighborhoods for each project.

The economic analysis will encompass comparing changes in rent, income, and home prices from the census tract containing the project, as well as any other census tract that falls within the “walkshed” of the project. For the purposes of simplicity, this will simply refer to adjacent census tracts. The changes in these metrics will be compared to Boston as a whole. The projects and the tracts used to represent their “neighborhoods”, is presented in the table below:

The metrics that were chosen for this project were categories from the long-form census, discontinued in 2010, but taken over by the American Community Survey. The variables were can be found on the following table.

People							Property	
1930	T1. Total Population		T201. Unemployment Rate				T121. Value of Owned Non-Farm Homes	T119. Rent For Rented Non-Farm Homes
1940	SE:T1. Total Population	SE:T34. Educational Attainment for Population 25 Years and Over	SE:T48. Unemployment Rate				SE:T91. House Value	
1950	SE:T1. Total Population	SE:T17. Educational Attainment for Population 25 Years and Over	SE:T27. Unemployment Rate	SE:T20. Household Income			SE:T65. House Value	
1960	SE:T1. Total Population	SE:T44. Educational Attainment for Population 25 Years and Over	SE:T60. Unemployment Rate	SE:T89. Household Income			SE:T160. House Value (100% Count)	SE:T165. Gross Rent
1970	SE:T1. Total Population	SE:T22. Educational Attainment for Population 25 Years and Over	SE:T56. Unemployment Rate	SE:T66. Family Income	SE:T93. Poverty Status Of Unrelated Individuals Age 14+		SE:T119. Value For Owner Occupied Housing Units	SE:T116. Gross Rent (Housing Units With Cash Rent)
1980	SE:T1. Total Population	SE:T31. Educational Attainment for Population 25 Years and Over	SE:T40. Unemployment Rate For Civilian Population	SE:T52. Household Income (In 1979 Dollars)	SE:T100. Poverty Status In 1979 (short version)			SE:T89. Gross Rent (In 1980 Dollars)
1990	SE:T1. Total Population	SE:T22. Educational Attainment for Population 25 Years and Over	SE:T29. Unemployment Rate For Total Population 16 Years And Over	SE:T41. Household Income In 1989 Dollars	SE:T95. Poverty Status In 1989 For Population 18 to 64	SE:T96. Poverty Status In 1989 For Population 65 years and over	SE:T79. House Value for Specified Owner-Occupied Housing Units	SE:T81. Gross Rent for Specified renter-occupied housing units
2000	SE:T1. Total Population	SE:T40. Educational Attainment For Population 25 Years And Over	SE:T73. Unemployment Rate For Civilian Population In Labor Force 16 Years And Over	SE:T92. Household Income In 1999 Dollars	SE:T181. Poverty Status In 1999 For Population Age 18 to 64	SE:T182. Poverty Status In 1999 For Population Age 65 And Over	SE:T162. House Value For All Owner-Occupied Housing Units	SE:T165. Gross Rent (Housing Units With Cash Rent)
2010	SE:T1. Total Population	SE:T25. Educational Attainment for Population 25 Years and Over	SE:T37. Unemployment Rate for Civilian Population In Labor Force 16 Years and Over	SE:T56. Household Income (In 2010 Inflation Adjusted Dollars)	SE:T115. Poverty Status In 2010 for Population Age 18 to 64	SE:T116. Poverty Status In 2010 for Population Age 65 and Over	SE:T100. House Value for All Owner-Occupied Housing Units	SE:T102. Gross Rent (Housing Units with Cash Rent)

Figure 2. – Matrix of Census and ACS Variables

From the outset, several specific decisions needed to be made. The following section will explain decisions made, by year:

1930

1930 does not contain tract data as none was available. All data from 1930 will pertain to the entirety of Suffolk County. The data was not discarded because it was decided that it would be valuable to lengthen the analysis of city-wide data, particularly in light of the alleged “down-hill slope” Boston was taking, mentioned in the literature review. In this data set, non-farm homes and non-farm rent was substituted for what will later become Gross Rent and, Home value, respectively.

1970

In 1970, household income was not collected – Family Income has been substituted for this variable to preserve the continuousness of the analysis.

1990, 2000, and 2010

In 1990 the Census began breaking poverty rates down by age. This study combines them to get an aggregate poverty rate for all adults.

It is important to note that this data does not include median income, rent or home value, despite the data being available for many of the years. The reason for this was the lack of continuity in the data. With too many missing years, it would have been difficult to discern a true trend.

Furthermore, a median cannot be calculated from the raw data for gross data, places, persons and

homes into value brackets. While the totals are known, the distribution amount in the bracket is not. While the average would have been calculable from gross data, it would not have reflected a true picture of these areas in several years, due to outliers.

Justification for each Variable

Total Population:

In general, total population is a good indicator of city economic health. Cities that are prospering tend to grow. Therefore, total population is an important indicator for positive change in Boston.

Educational Attainment:

Educational attainment of a population can be indicative of economic progress. For this study the level of “at least some college” was chosen to be traced through the decades. At first glance, this data might seem slightly skewed, as Boston is home to many college students who might be transient and not residents themselves. It is acceptable despite this, however, as universities tend to propel economic activity.

Household Income:

Household Income was also selected as a “people” variable. In the course of a century, Boston went from a working-class city, to a bio-pharmaceutical and technology hub. With the changes time and projects bring, income will naturally increase.

Poverty Rate:

Poverty rates was the final “people” variable selected, to demonstrate more or less poverty in project neighborhoods than compared to the rest of the city.

Gross Rent:

Gross Rent, which is defined as rent plus utilities, was chosen as the first of two “property variables. As was previously explained in the literature review, rents generate the value of a property, by virtue of the stream of income or NOI that they produce.

House Value:

The final variable chosen was the value of homes. Property value to the most direct tie to the changes in these neighborhoods, driven by their projects.

Inflation

To accurately reflect the effects of inflation, this study accounts for changes in the value of the dollar that has occurred over the decades. For variables that involve dollar amount, all values are now represented in 2018 dollars. To make this adjustment, a Consumer Price index (CPI) from the United States Department of Labor was used. The inflator needed to bring the dollar amount from the year the data was collected, up to 2018. The CPI’s used are detailed in the table below:

CPI Inflater Index to 2018\$		
Census Year	Year Dollars	Multiple
1930	1929	14.56
1940	1939	17.79
1950	1949	10.37
1960	1959	8.59
1970	1969	6.99
1980	1979 / 1980	3.65 / 3.2
1990	1989	2.06
2000	1999	1.52
2010	2009	1.19

Figure 3. – Consumer Price Index Inflaters from the US Department of Labor.

Stages of Manipulation

All data involving monetary amounts was downloaded with its original income brackets – i.e. the download did not adjust for inflation. Once the data from the census tract and its surrounding tracts were transferred, two values were selected: the value of each variable for the census tract, and the value of aggregate of the census tract of the project and the surrounding tracts. The data was then transferred to Microsoft excel. From excel the monetary brackets for the census tract variable were adjusted up to their 2018 values. To avoid gaps, values that were whole dollar amounts and represented the end of bracket were given an additional \$0.99, For example: If a range of gross rent was \$200 - \$399, the adjusted bracket would become \$200 - \$399.99. The next bracket would begin at \$400.

These brackets were then again adjusted. Each monetary amount was inflated to a 2018 value. This allowed growth to be analyzed without incorporating the effects of inflation which are normal in any circumstances, regardless of whether or not a project has been built.

The final step in the process was to normalize the brackets across several decades. For simplicity's sake, the number of brackets was reduced to five for Household Income, Gross Rent, and House Value. The challenge then became to neatly fit all values in their proper bracket when the parameters of the bracket census brackets, no longer fit the five intervals which would become the final analysis.

To preserve the percentages of the population that was supposed to fall in each bracket, an even distribution of values within each bracket was assumed. This is likely not true, but, without exactly values, it is impossible to definitely assign each census response into its true bracket. Under the assumption of an even distribution, brackets which needed to be split were done to with the following method.

The CPI adjusted dollar amount at the low end of the bracket was subtracted from the dollar amount at the end of the new bracket. Then, the dollar amount at the end of the new bracket was subtracted from the dollar amount from the end of the old bracket. Then the first amount was divided but the sum of the first two equations to attain a percentage. The process was then repeated for the second calculated amount. Each percentage was then multiplied by the number of persons who fell within that split bracket, and sorted into their new categories'.

For example:

A bracket representing Home Values was \$100,000 to \$300,000 and contains 10 homes. The Home Value brackets used for this study are \$0 - \$200,000, \$200,000 - \$400,000, \$400,000 - \$600,000, \$600,000 - \$800,000 and \$800,000+. To divide the \$100,000 - \$300,000 original bracket, subtract \$100,000 from \$200,000 for \$100,000. Then subtract \$200,000 from \$300,000 for \$100,000. Then take the first \$100,000 and divide it by $\$100,000 + \$100,000$, to get 50%. Then multiply the 50% times the number of persons in the bracket, ten, to get five. Therefore 5 homes will be put into the \$0 - \$200,000 bracket for the final analysis. \$100,000 divided by $\$100,000 + \$100,000$, multiplied by 10 homes for 50% or five homes, will then be added to the \$200,000 - \$400,000 bracket.

This process was repeated for four data sets from 1940 - 2010: each project and all of Boston.

The variables affected by this process were Household Income, Gross Rent, and House Value.

Figures

Once the data was adjusted to fit 2018 dollars, it was put into figures for high level analysis. The following figures were chosen to represent each variable.

Total population:

Total population was a simple line chart for All Boston, but was a bar chart in each project. The bar chart compared the population of the project tract to the population of the entire neighborhood to see if they grew together or if the tract became a large portion of the

neighborhood through its project. All Boston was excluded from this chart as the population for Boston would have been too high to capture on the same bar graph.

Educational Attainment:

Educational attainment – specifically “at least some college” – was graphed linearly in the All Boston tract, but was represented as a triple bar graph for each project. This was because, as time passed, a higher percentage of the population was attending college, so it was important to see if the projects were accelerating that variable holding the general acceleration constant.

Household Income:

Household income was the only “people” variable which used brackets. To represent this data, stacked bar figures were made to demonstrate the income make-up of the population. For projects, two figures were made, one for the tract itself, and one for the neighborhood.

Poverty Rates:

The poverty rate figures were created in a similar fashion as the educational attendance figures. Each project chart has all three sets of variables: project tract, surrounding tracts, and all Boston. This allows for the visualization of how each project is affecting poverty levels near them, isolating them from the rest of Boston.

Gross Rent:

Gross rent is the first of the “property” variables, and is represented with two stacked bar figures, one for the tract of the project and one for the neighborhood.

Home Value:

Home value is represented the same way as Gross rent.

Maps

Maps were used in the following section to show the project tracts and neighborhood tracts.

These maps are based off the of 2010 census map. It is important to note, however, that this does not affect the geographic area, and the numerical analysis adjusts for renamed census tracts.

Chapter 4: Analysis³⁹

The West End Redevelopment

U.S. Census Tract: 203.01

Year(s) – 1960s

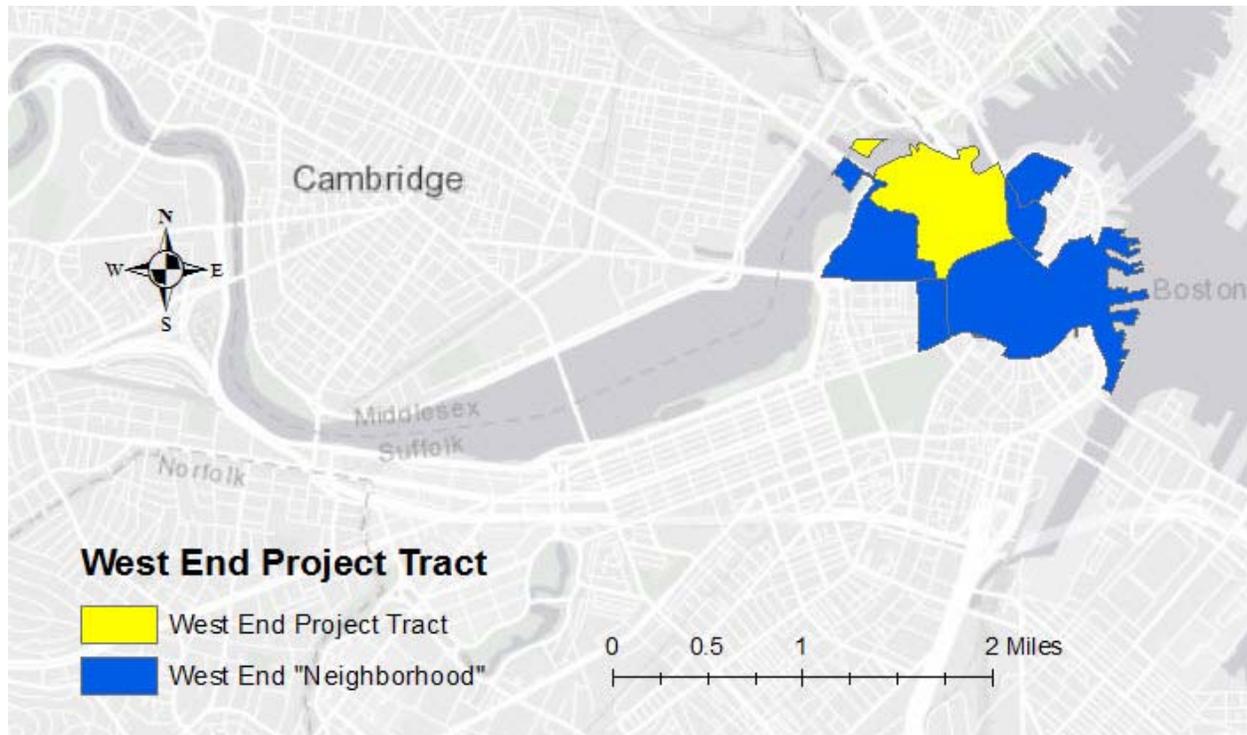


Figure 4.1 – Map of West End

History:

Perhaps one of the most famous, or in this case, infamous, examples of downtown revitalization, was the Redevelopment of the West End in Boston. As previously mentioned, Boston had been

³⁹ All Boston Charts found in Appendix

in a state of steady decline since the early 1900s, and politicians were desperate to stem the flow of high income residents and jobs out to the suburbs. For the City of Boston, the culprit for this erosion of economic prosperity was the tenement neighborhood in the West End.

It is important to reiterate that the accounts of the state of this neighborhood were varied depending on who was asked and what was their stake in the redevelopment. Researchers, and the actual tenants of the West End, recall a vibrant immigrant neighborhood, with a strong sense of community and belonging. It has already been noted that, while the buildings themselves were dilapidated, the units within the building were generally clean and well-cared for, indicating that the residents could not be classified according to the popular philosophy at the time that poverty was merely a character flaw, and could be solved with the removal of poor conditions.

Appraisers, inspectors, and banks, on the other hand saw a dangerous, overcrowded, structurally unsound neighborhood; a vermin-infested fire hazard. Neither group purports an inaccurate account.

It can be argued that the real trouble with the redevelopment of the West End began when financial incentives began to override promises made to residents. While the project was still in the planning phase, redevelopment would include safe, affordable housing that current West End residents could move back into, and that the demolition of the neighborhood would occur as a rate sustainable with relocation efforts. One investor in particular, Jerome Rappaport, was

particularly interested in seeing a return on his investment, specifically in terms of the property values of the land.⁴⁰

In the end, the West End redevelopment consisted of “2300 luxury apartments, 2 offices building 3 shopping areas and a garage for 1200 cars.”⁴¹

Data:

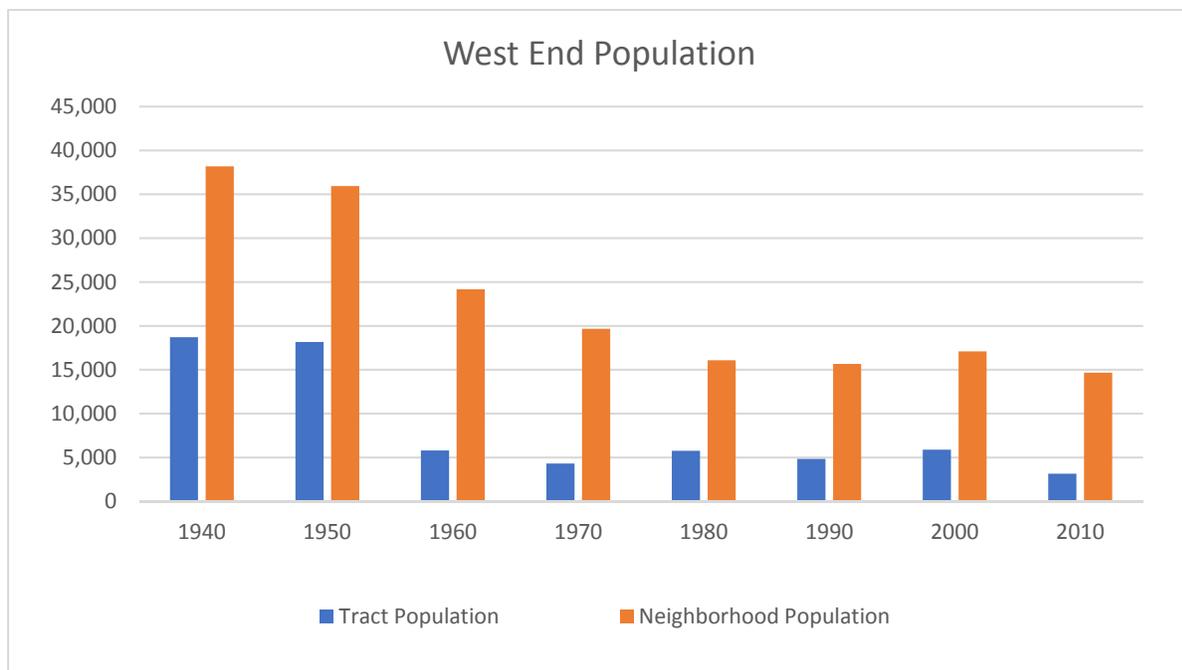


Figure 4.2 Population of West End

⁴⁰ O’Connor, Thomas H. *Building a New Boston: Politics and Urban Renewal, 1950–1970*. Boston : Northeastern University Press, 1993.

⁴¹ Gavin, Alexander. *The American City: What Works, What Doesn’t*. Third. New York: New York : McGraw-Hill Education, 2014.

The West End – due to the relocation of residents and clearance of residential buildings, actually saw a loss in population from which it has still not recovered.

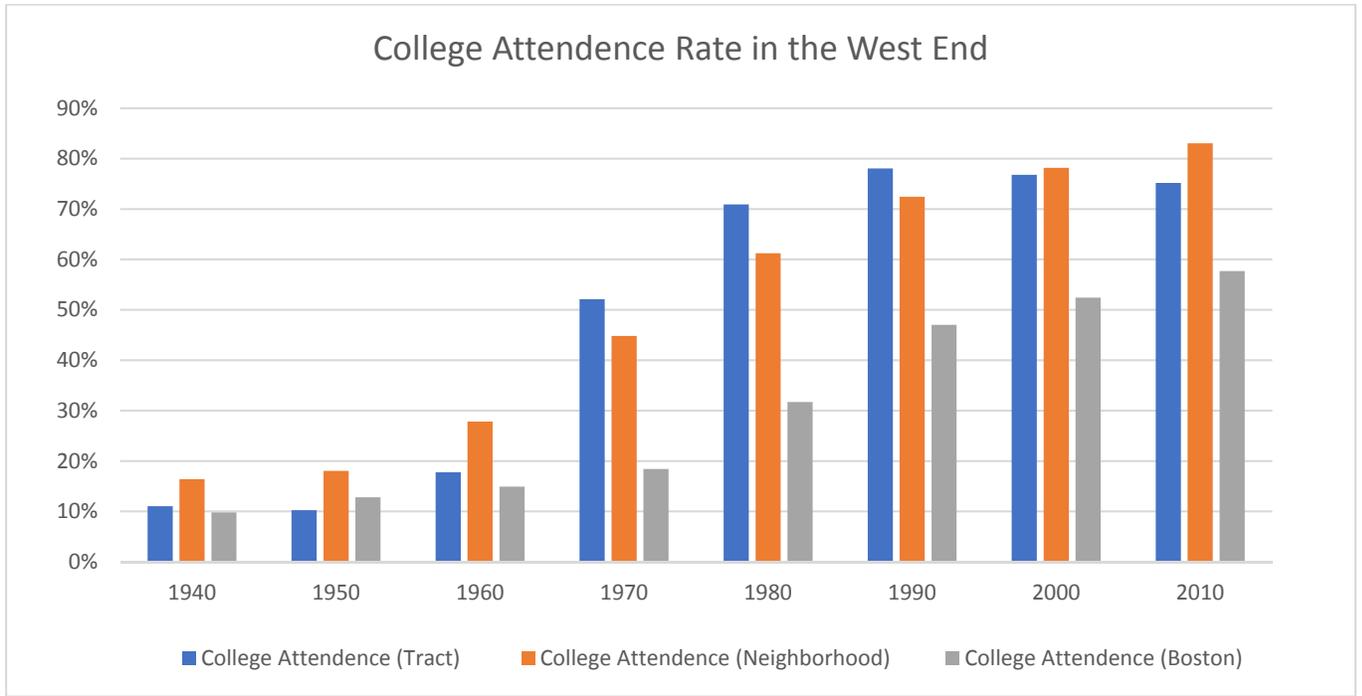


Figure 4.3 – College Attendance Rates

Post-redevelopment, West Enders saw an increase in the rate of college attendance.

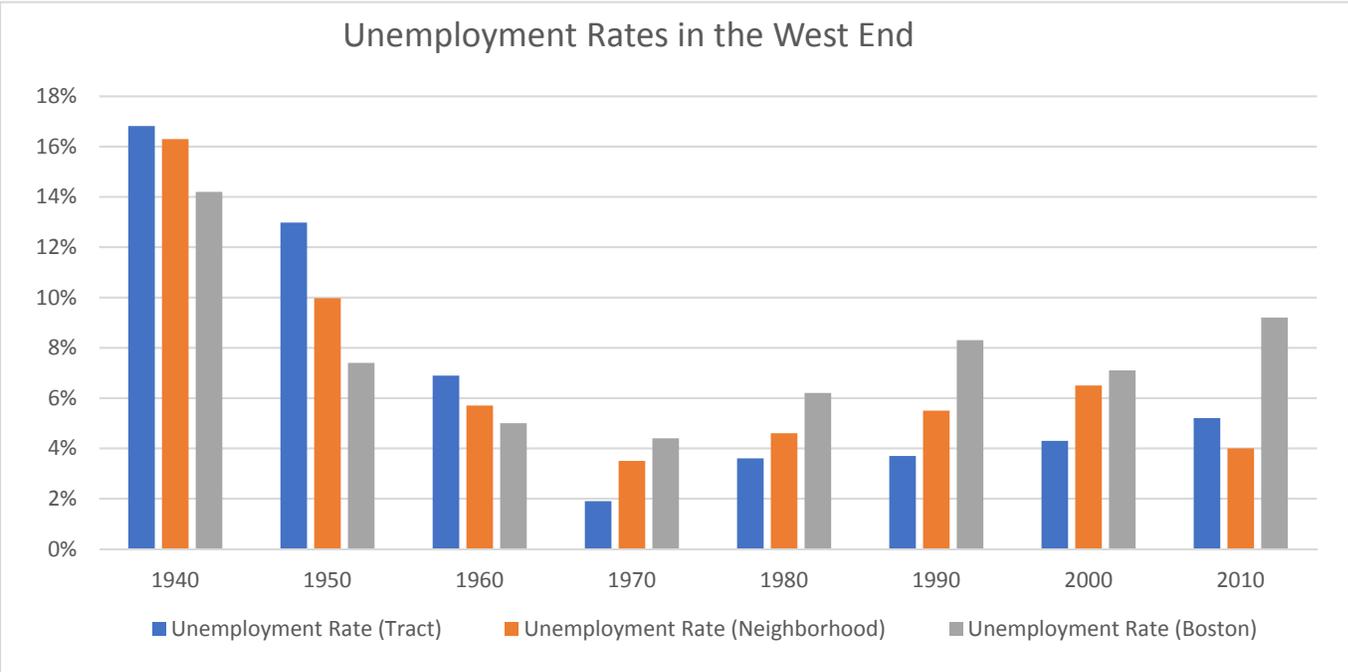


Figure 4.4 Unemployment Rates

While this study does not include unemployment rates for the years 1940 and 1950, it should be noted that post1960 unemployment rates fell below that of Boston for the first time, and have consistently stayed there.

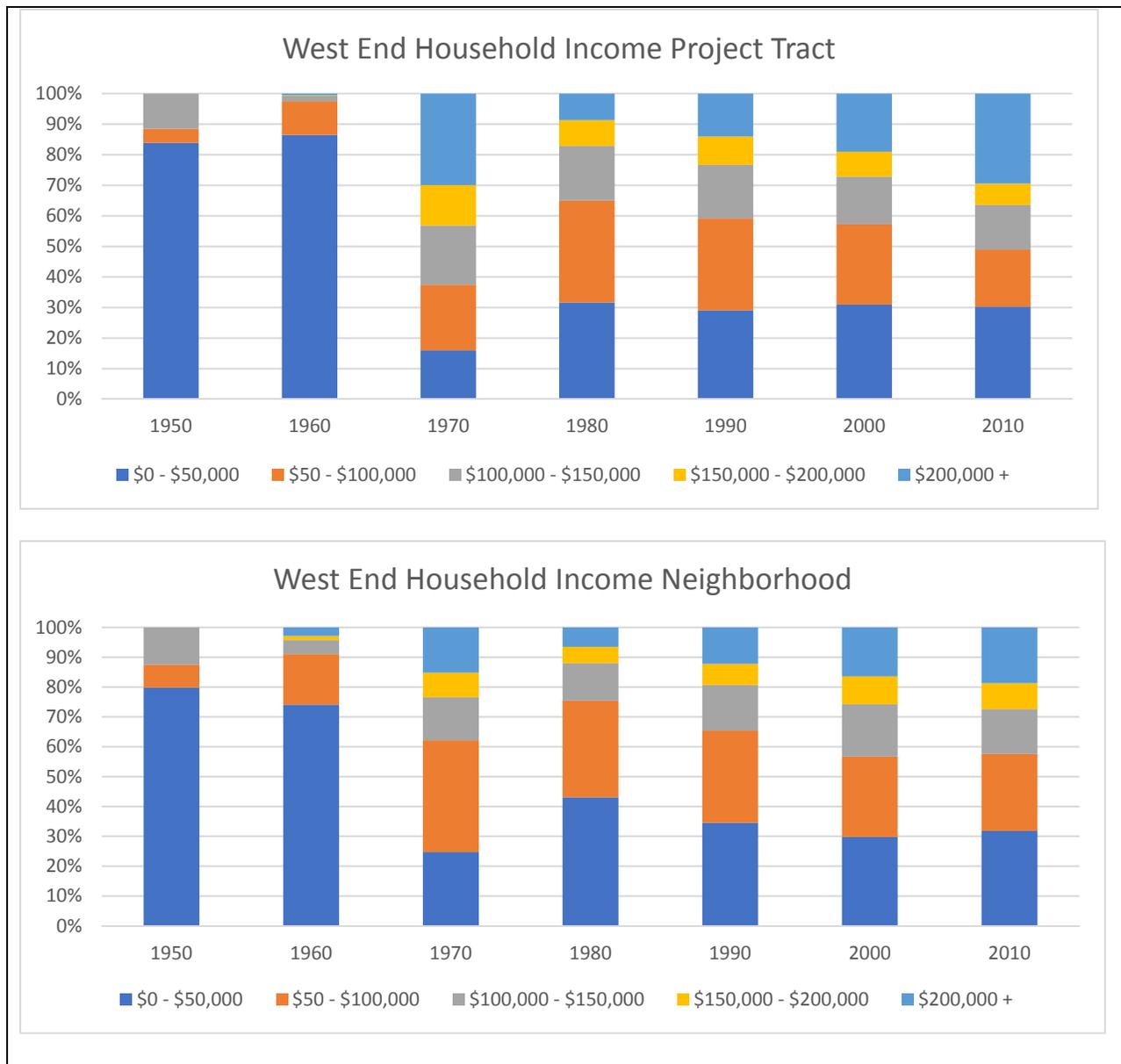


Figure 4.4 West End Household Income

Similarly, West End income sharply increased post project.

When compared to all Boston, one can see that the West End Redevelopment brought the West end on par with the rest of the City, and held its growth constant.

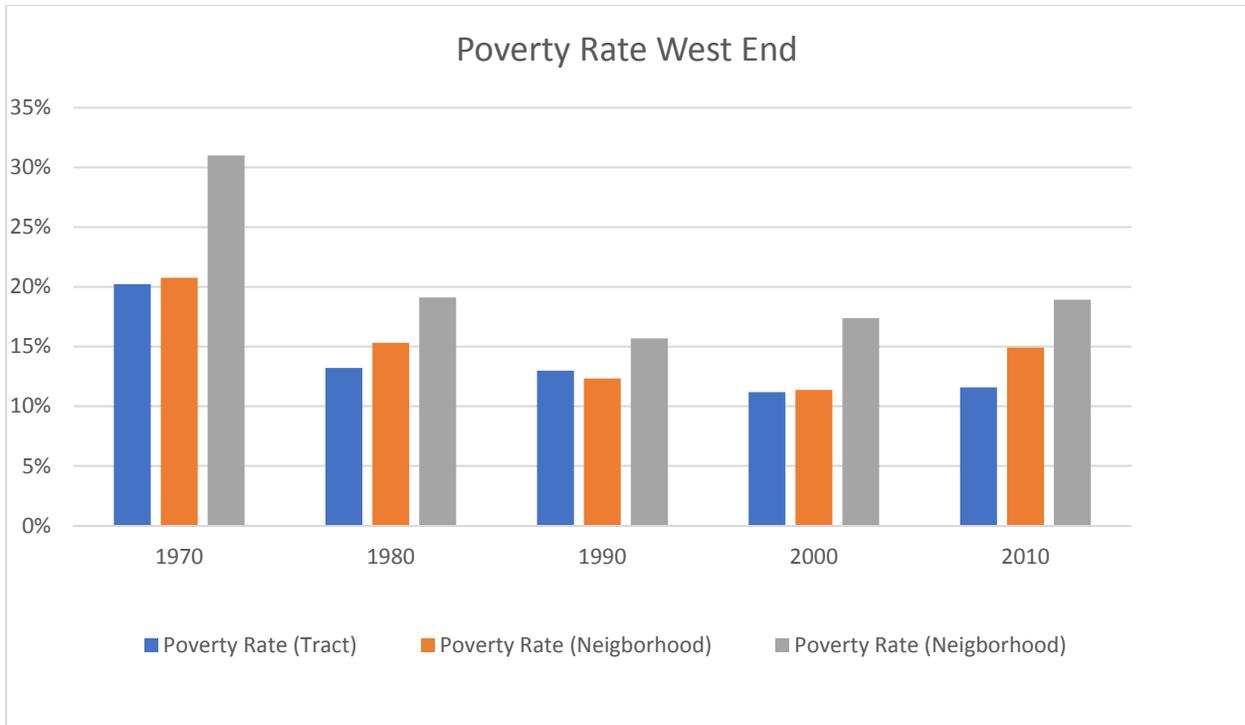


Figure: 4.5 Poverty Rates in the West End

It is important to note that poverty rate data only began to be collected after the West End Redevelopment had occurred, and its residents relocated. Because of this, the change induced by the project cannot be seen. The after-effect however, show a neighborhood with lower rates of poverty than the rest of the City.

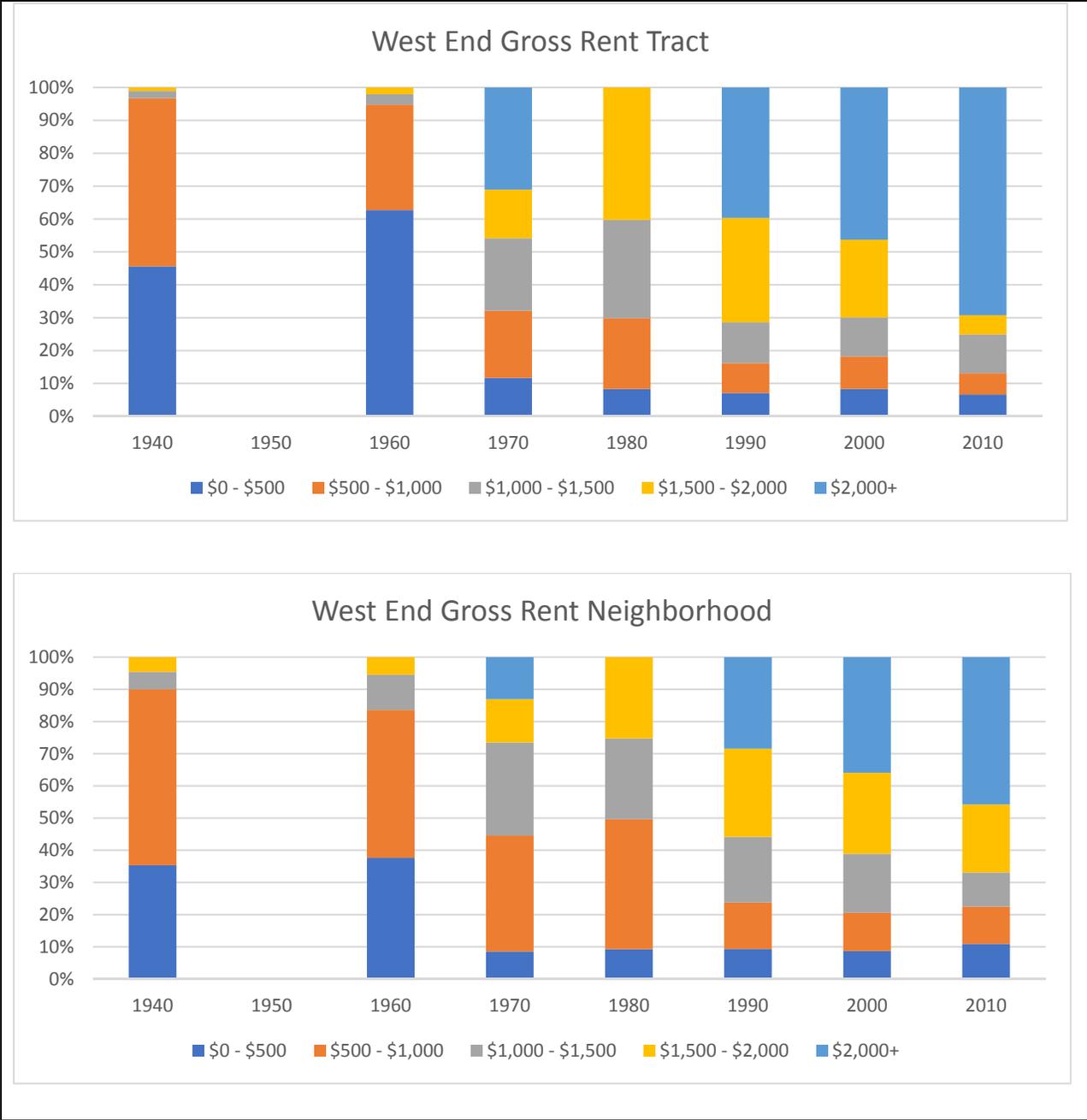


Figure 4.6 – West End Gross Rent

It can be seen here, however, that until the redevelopment occurred, and even sometimes after, rent growth was not keeping pace with the rest of the City. Gross rent that had been stagnant, begin to rise. While the neighborhood surrounding the West End saw a definite increase in rents, it was nowhere near as pronounced as in the project tract itself.

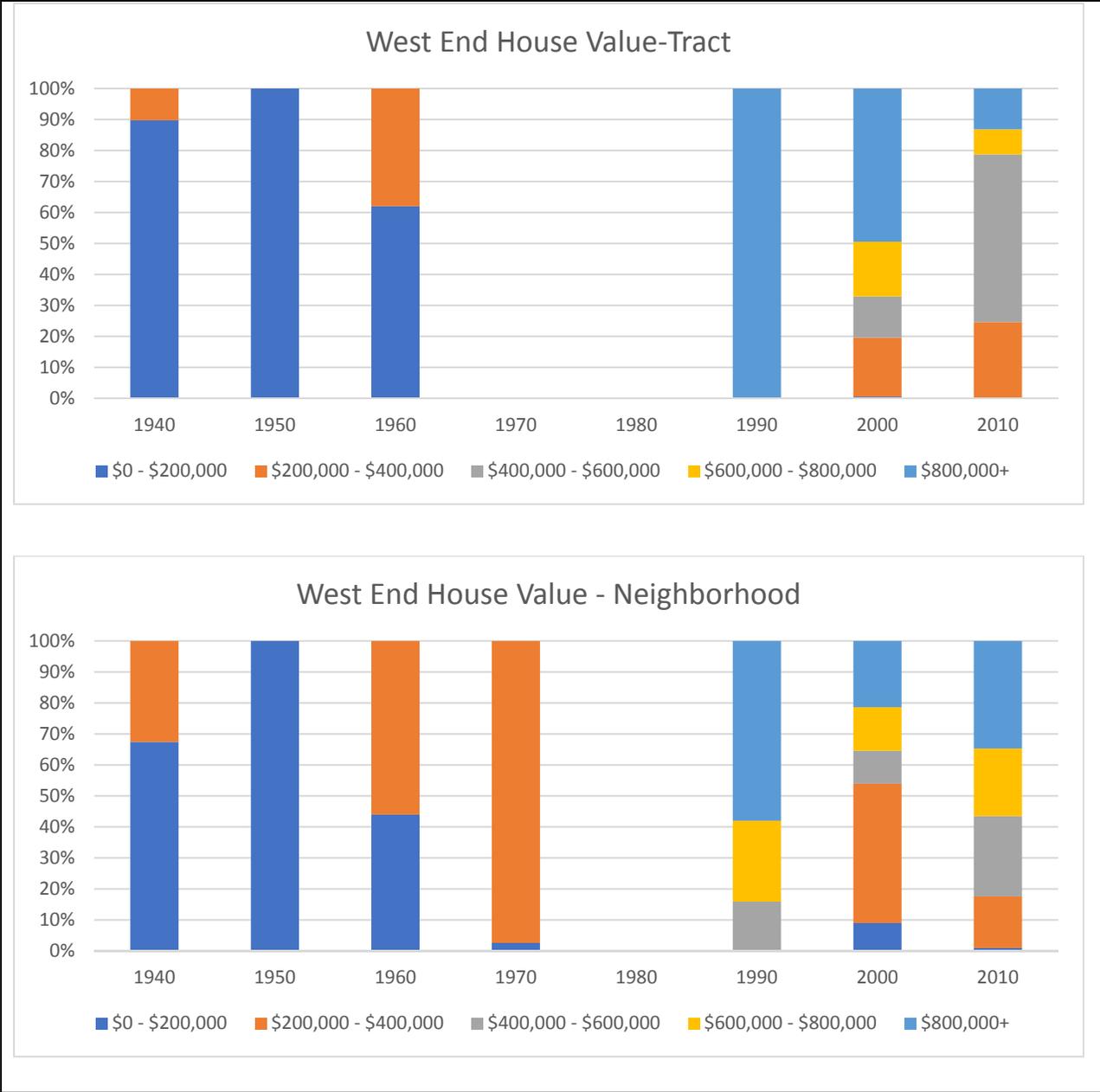


Figure 4.6 – West End House Value

As with rents, property values also increased.

Perceptions:

Despite evidence for the economic growth the West End Redevelopment did for the City of Boston, residents still feel the project left a scar on the population and that the city was made

worse by the completion of the project⁴². While it is impossible to say what would have happened had the project would not have been completed, the clearing of the West End did mark the end of an economic slump for the city and the beginning of what has been several decades of prosperity. While this might have generated a net benefit in a utilitarian sense, it still must be acknowledged that the management of the West End Redevelopment project was astoundingly poor, and those who were forced to bear the brunt of the discomfort were the most vulnerable of the population. While it is important to maintain, innovate and improve areas of the cities to keep them competitive from a business standpoint, the West End Redevelopment stands as an example of how not to mitigate the fall-out for residents.

⁴² Clauss, Kyle Scott, and Kyle Clauss. "Kyle Scott Clauss." Boston Magazine. September 25, 2015. Accessed April 15, 2018. <https://www.bostonmagazine.com/news/2015/09/25/gentriwatch-bra-west-end-museum/>.

Hynes Convention Center

U.S. Census Tract 106

Year- 1963 and 1986

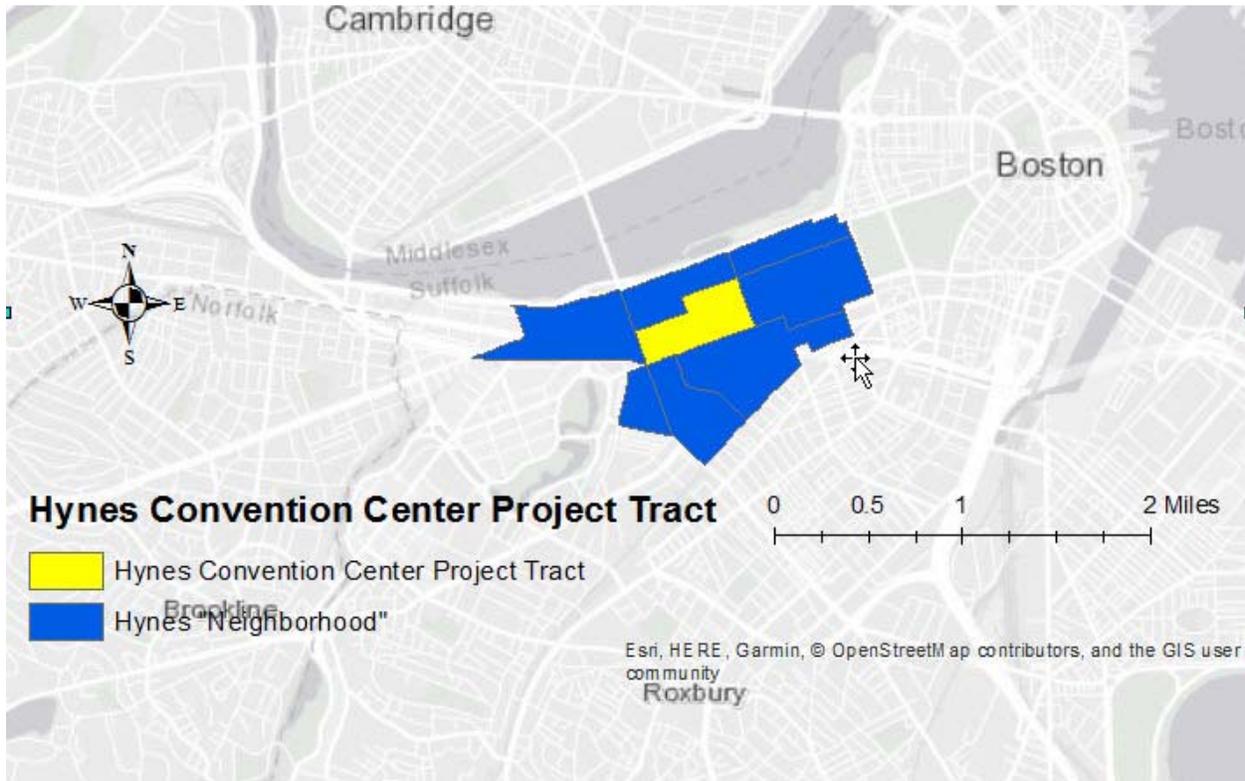


Figure 5.1 – Map of Hynes Convention Center Area

History:

Convention centers as tools of urban renewal and economic development remain contentious at best. The increase of federal funds the government made available to cities in the 1970s made them a popular choice for politicians and planners to enhance the downtown areas of cities, as well as the reputation of their city on the national stage. In fact, in less than a decade, the number

of convention center across America grew by 50%.⁴³ This increase was either because of or a self-created demand for conference center space. Around this time, the amount of conferences held annually doubled every five years, while the need for floor space increased at 9% per year.⁴⁴

For the communities in which they were built, convention centers could provide many benefits. The addition of a convention center to a city automatically created jobs. It has been estimated as far back as 1983 1,100 to 1,900 permanent jobs are created for every 100,000 delegates a convention center draws.⁴⁵ These jobs are typically low skilled, like hotel industry, food and beverage service and retail workers, and therefore would help mitigate some of the socio-economic damage urban renewal through redevelopment might cause. In addition, convention centers are almost always constructed in areas with cheap land costs and serve a dual purpose to counter-act blight.⁴⁶ Furthermore, the host city will also enjoy a substantial increase in taxes from the delegates alone.⁴⁷

⁴³ Fenich, George Girard. "The Dollars and Sense of Convention Centers." Ph.D., Rutgers The State University of New Jersey - New Brunswick, 1992. <https://search-proquest-com.ezproxy.library.tufts.edu/docview/303997651/abstract/4DE532A4CB2B415DPQ/1>.<https://search-proquest-com.ezproxy.library.tufts.edu/docview/303997651/abstract/4DE532A4CB2B415DPQ/1>.

⁴⁴ Ibid.

⁴⁵ Gavin, Alexander. *The American City: What Works, What Doesn't*. Third. New York: New York : McGraw-Hill Education, 2014. p. 91

⁴⁶ Ibid

⁴⁷ ibid

Beyond job creation, a convention center has been known to increase tourism, an industry that is a growing source of revenue for many cities.⁴⁸

While the benefits of the convention centers are easy to recognize, when examined from a financial perspective there is some contradictory data. The first concerning piece of information, is that convention centers are not fiscally self-sustaining, and will always require subsidies from the community.⁴⁹ This can make convention centers seem like a poor investment for communities. Unlike many other types of developments, convention centers do not have long term tenants, and produce sporadic bursts of income.⁵⁰ Additionally, many of the stated benefits of the increased tourism convention centers draw are unsubstantiated, and might be due to an overall growth in tourism and not specifically attributable to the newly constructed convention center.⁵¹

Construction of what is now known as the John B. Hynes Memorial Convention Center began in 1963 as the John. B. Hynes Memorial Auditorium. The original development was built over a 28 acre railroad yard in Boston's Back Bay, and was intended to prevent further blight from

⁴⁸ Fenich, George Girard. "The Dollars and Sense of Convention Centers." Ph.D., Rutgers The State University of New Jersey - New Brunswick, 1992. <https://search-proquest-com.ezproxy.library.tufts.edu/docview/303997651/abstract/4DE532A4CB2B415DPQ/1>.

⁴⁹ Ibid.

⁵⁰ Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

⁵¹ Ibid.

spreading through the area.⁵² Like most megaprojects at the time, the Auditorium was intended to help revitalize the City of Boston by draw local businesses to the City. While the auditorium itself did bring in delegations, the effects on the surrounding area left something to be desired.

When first constructed, the Auditorium did not include anything other than convention space, leaving a long solid block of granite at the street-scape on Boylston.⁵³ Needless to say pedestrians avoided it, dampening the revitalization effects it was intended to have on local businesses.

Then, 1986, to keep pace with the development of larger convention centers in other major cities, the City of Boston allocated \$100 million towards the expansion of the Auditorium. The redesign was by the architectural firm, Kallman, McKinnell & Wood, the same firm which design Government Center Plaza.

From the beginning of the project the Hynes Convention Center seemed to look like another typical over-bloated government endeavor. The allocated funds were spent almost entirely on the additional land acquisition, and surveying.⁵⁴ By the time of its opening in 1988, the newly renamed John B. Hynes Memorial Convention Center had cost the City more than \$234

⁵² Gavin, Alexander. *The American City: What Works, What Doesn't*. Third. New York: New York : McGraw-Hill Education, 2014.

⁵³ Ibid.

⁵⁴ Ibid.

million.⁵⁵ For this price, the convention center had been expanded and had added 450,000 sqft of rentable space for permanent retail establishments.⁵⁶ Additionally, in anticipation of its opening the City of Boston had increased its hotel room stock from 6,000 to over 14,000.⁵⁷

Admittedly, though, the addition of retail space, while successful, did not increase the foot traffic as the shops were in an enclosed glass complex.⁵⁸ There is also some question as to whether or not the increase in tourism was due to the convention center as tourism had been, and continued to rise steadily around the time of the redevelopment.⁵⁹

⁵⁵ Times, ALLAN R. GOLD Special to The New York. “Amid Debate, Boston’s Convention Center Opens.” *The New York Times*, January 23, 1988. <http://www.nytimes.com/1988/01/23/us/amid-debate-boston-s-convention-center-opens.html>, <http://www.nytimes.com/1988/01/23/us/amid-debate-boston-s-convention-center-opens.html>.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Altshuler, Alan A., and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington, D.C. : Cambridge, Mass: Brookings Institution Press ; Lincoln Institute of Land Policy, 2003.

⁵⁹ Gavin, Alexander. *The American City: What Works, What Doesn’t*. Third. New York: New York : McGraw-Hill Education, 2014.

Data:

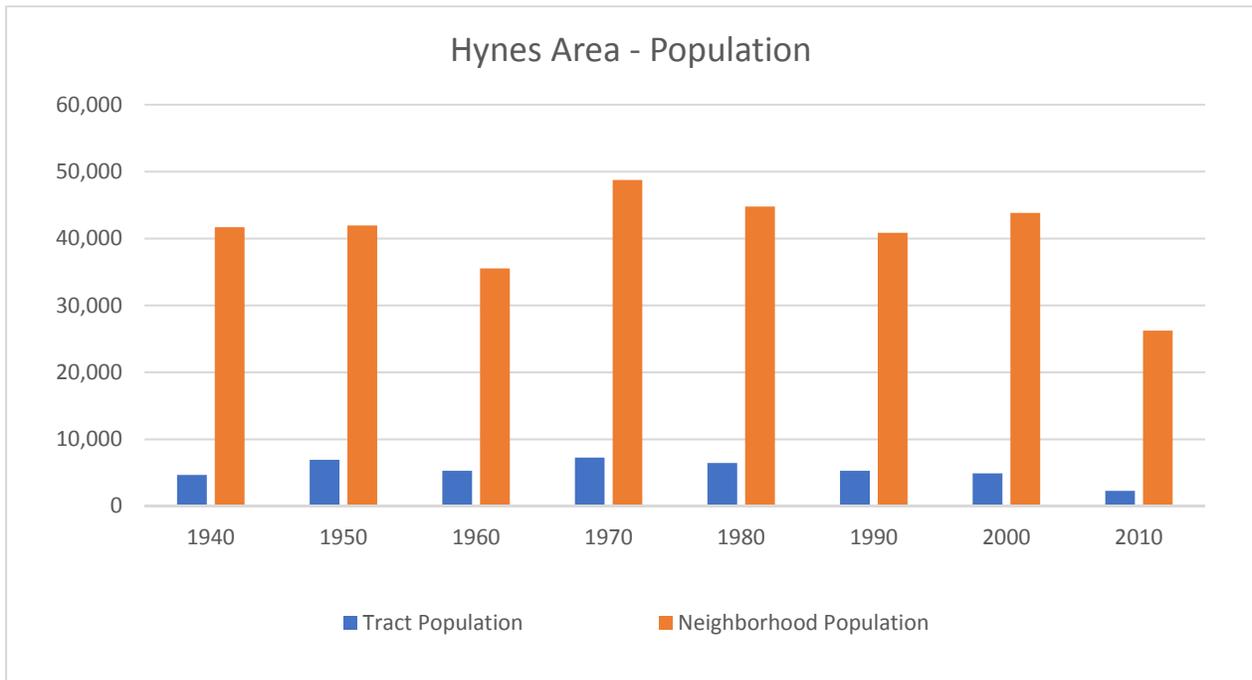


Figure 5.2 – Hynes Area Population

The tract on which Hynes is located does not have much in the way of residential real estate, but the surrounding tracts show that the neighborhood was largely unaffected in terms of population.

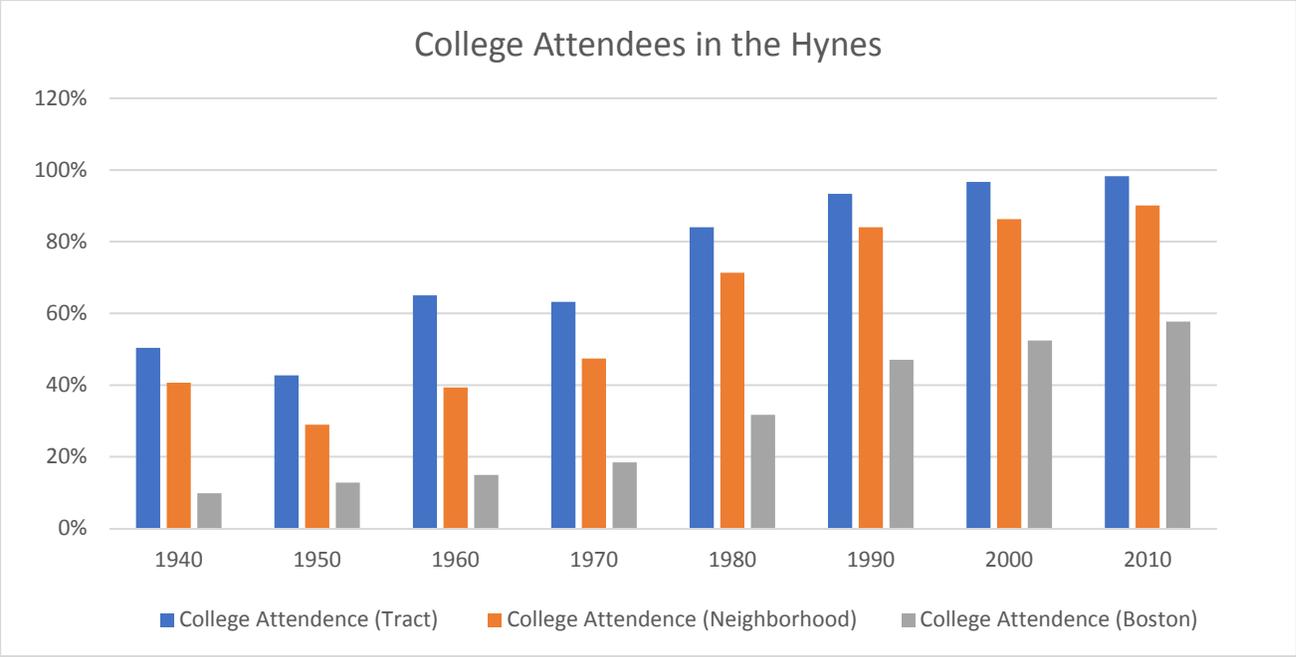


Figure 5.3 – Hynes Area College Attendance Rates

Similarly, the amount at which the college attendance rate stands over Boston is relatively unchanged.

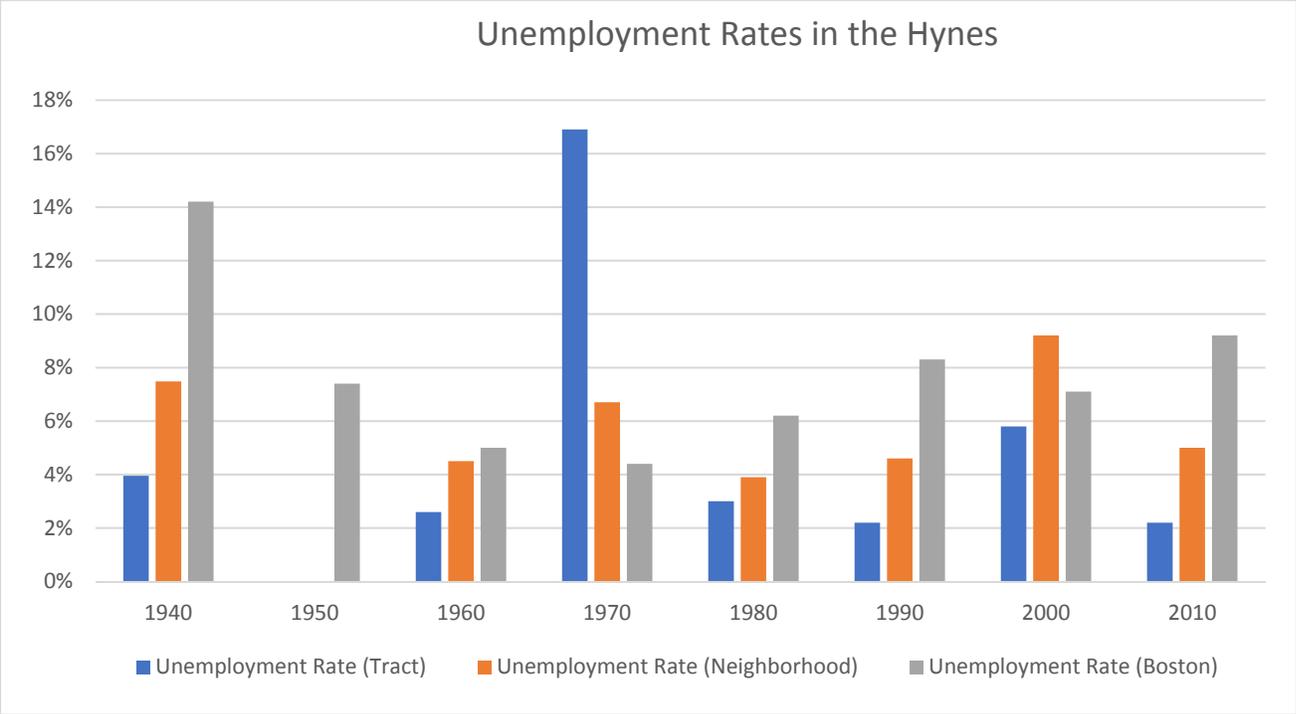


Figure 5.4 Unemployment Rates in Hynes Area

Aside from an enormous outlier in 1970s the project and neighborhood tracts all experience lower than normal unemployment rates.



Figure 5.5 Household Income in the Hynes Area

Income has also been steady.

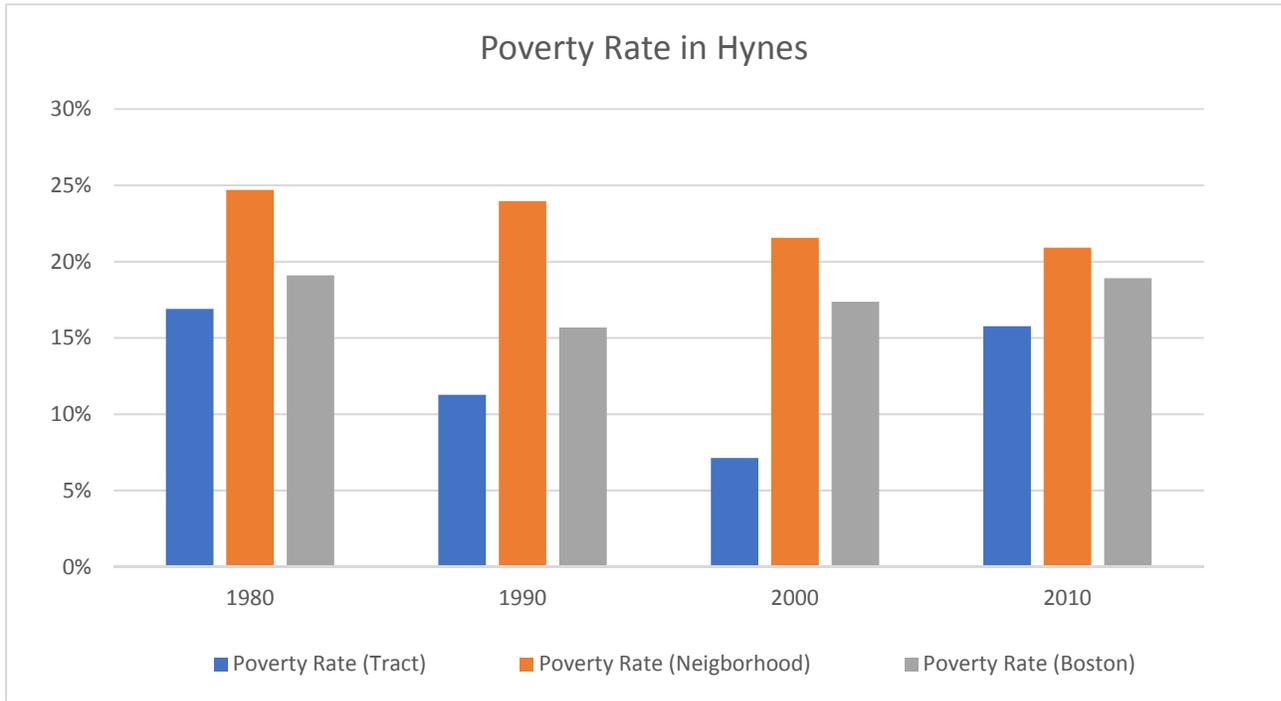


Figure 5.6 Poverty Rates in the Hynes Area

While pre-project data is unavailable, it is interesting to note that the project neighborhood experiences higher than Boston poverty rates, perhaps indicating severe income inequality skewing the data.



Figure 5.7 – Hynes Area Gross Rent

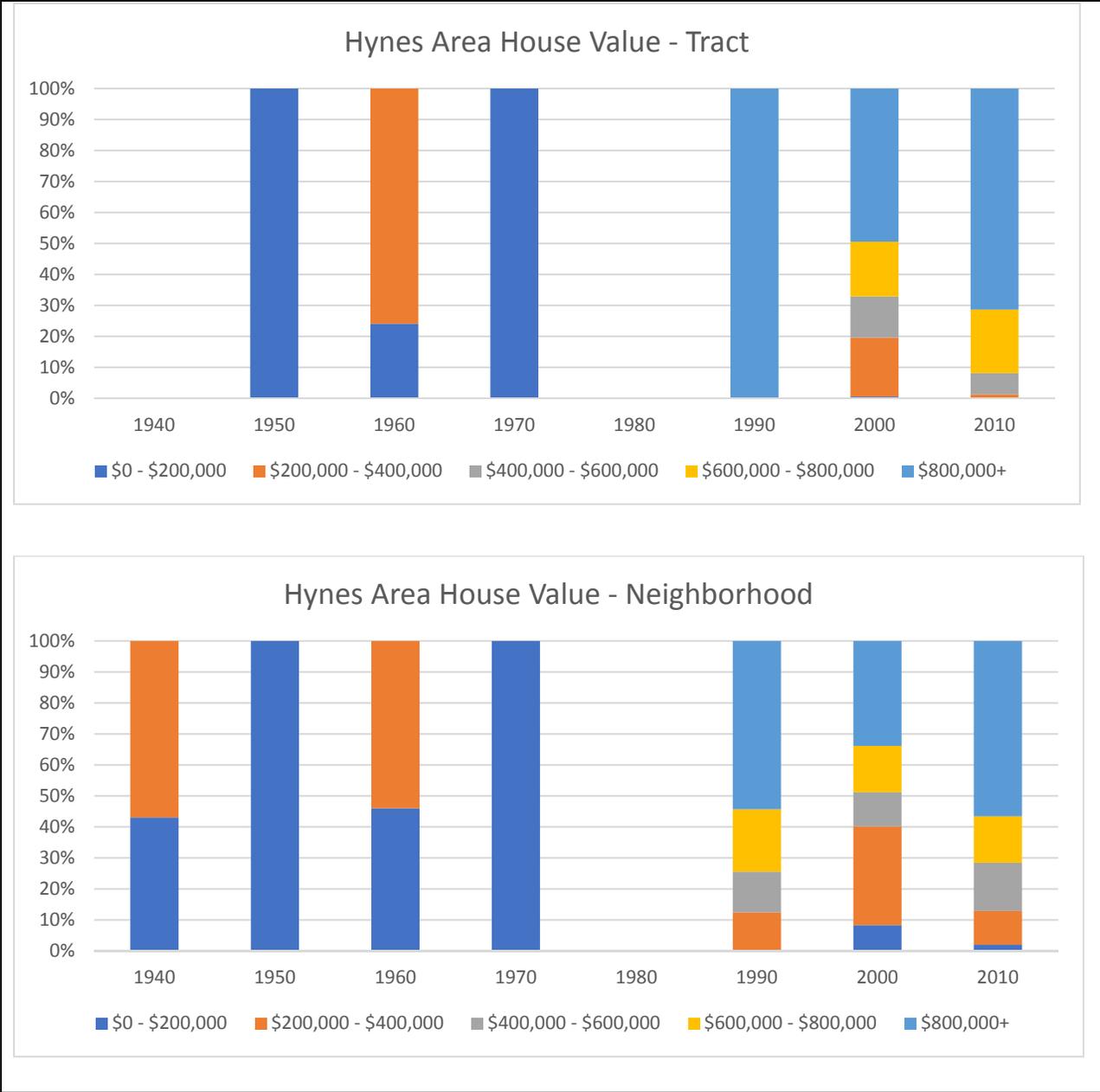


Figure 5.8 – Hynes Area House Value

Rent and property values tell a similar story of slower growth pre-project, and a modest acceleration post project.

Conclusion:

The Hynes Convention Center was Boston's entry onto the national stage as a "business destination". While the Boston Exhibition Center would ultimately become Boston's primary convention hub, by constructing the Hynes Auditorium, and then expanding it to become the Hynes Convention Center, Boston was able to signal to the country that it was officially open for new business development.

Seaport World Trade Center – Tract 606

Year: 1986 and 1991

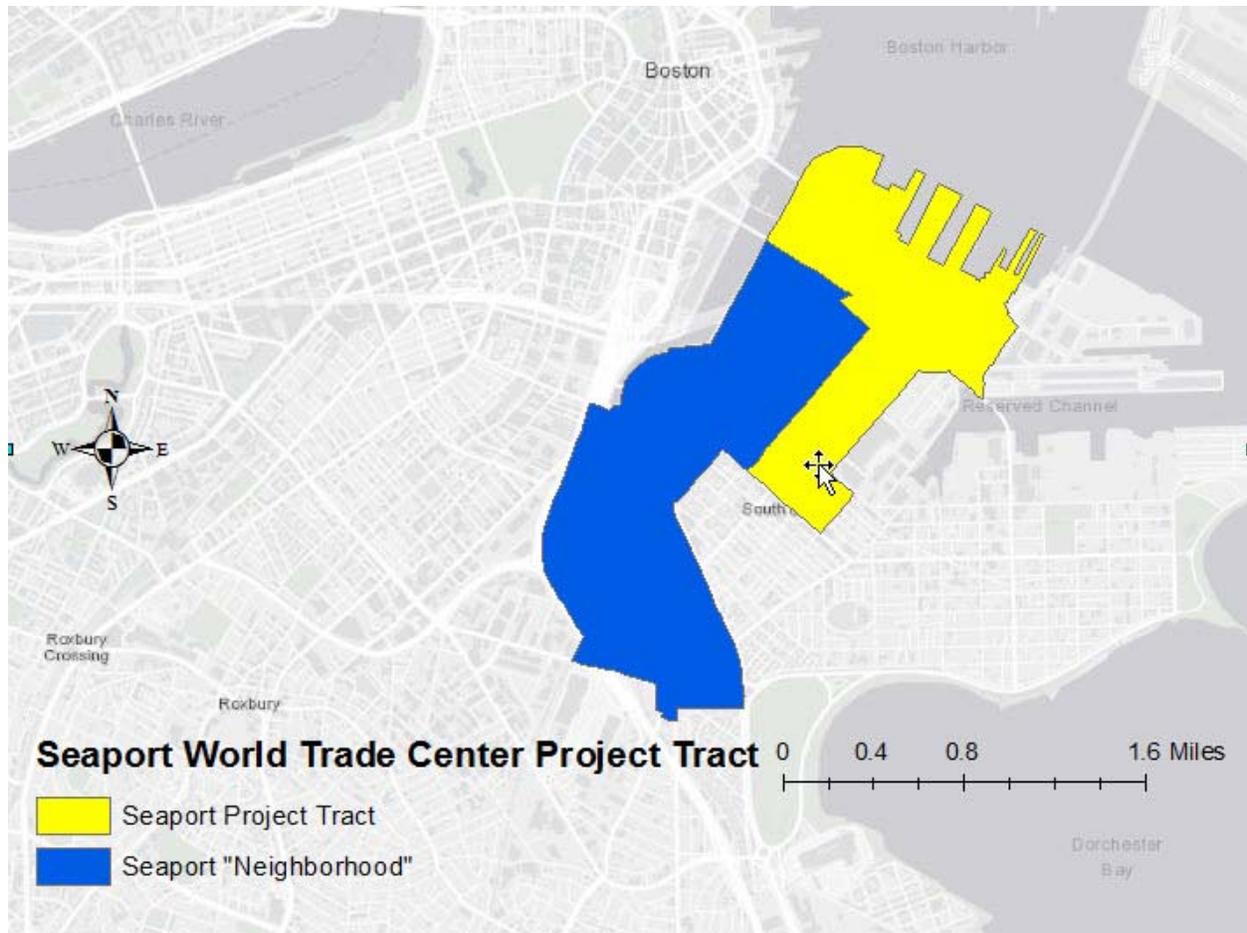


Figure 6.1 – Seaport World Trade Center Neighborhood

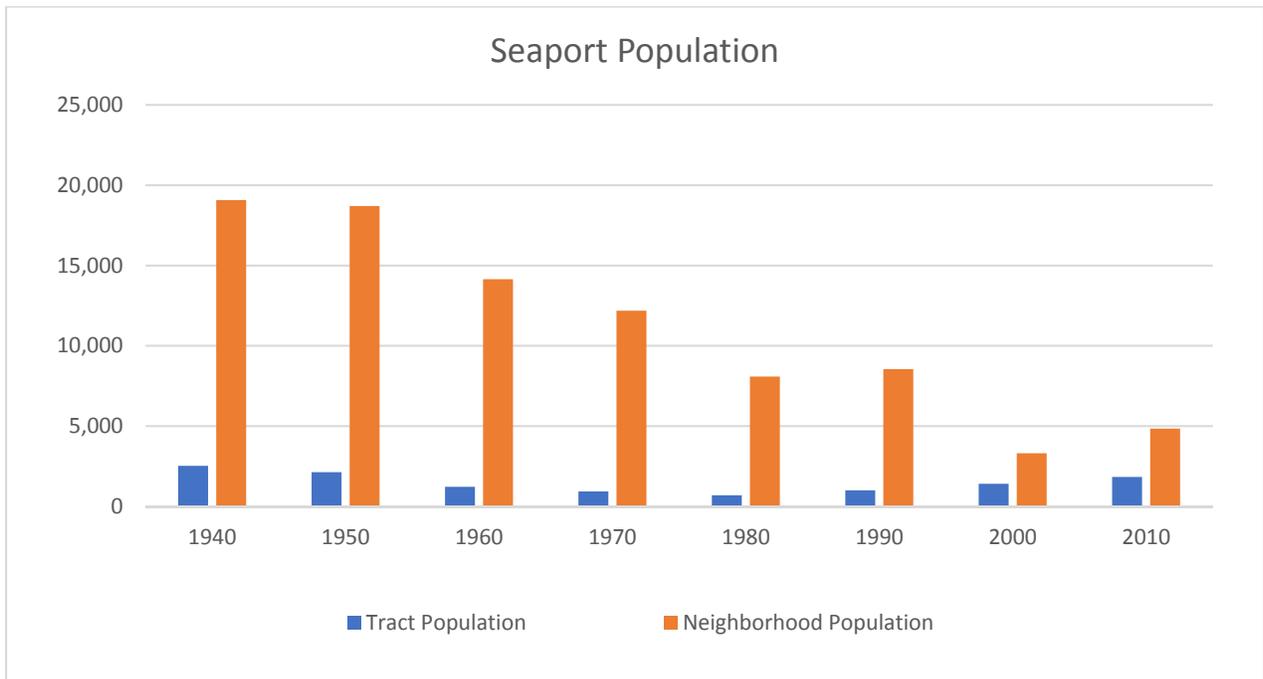
History:

Unlike the prior two case studies, the Seaport World Trade Center was not built near any urban core. It is also the most recent of the three case studies, and hails from the era of “due no harm” when it comes to planning and executing megaprojects. Built in 1986 on what was then known as Commonwealth Pier 5, the Seaport World Trade Center occurred at a time when the Boston Harbor front had been in a steady decline for decades, and the privatization of the Boston

waterfront was at its beginning.⁶⁰ The area in which the Seaport World Trade Center was built, was primarily known as “a parking lot” by residents of the City. Also, unlike the previous two projects, the Seaport World Trade center saw a more dramatic and immediate effect. To begin with, when the convention center was created, it required the construction of hotel space to cope the predicted demand.

Then, in 1986-1992, the Seaport World Trade Center saw a dramatic expansion of hotel and office space on Commonwealth Pier, beginning what would become a complete revitalization of the area.

Data:



⁶⁰ Butterfield, Fox. “About Boston: Search for Dock Adds Twist to Search for Lobster.” *New York Times*. June 4, 1984. ProQuest Historical Newspapers: The New York Times with Index.

Figure: 6.2 Seaport Population

The tract on which the project is located is fairly commercial.

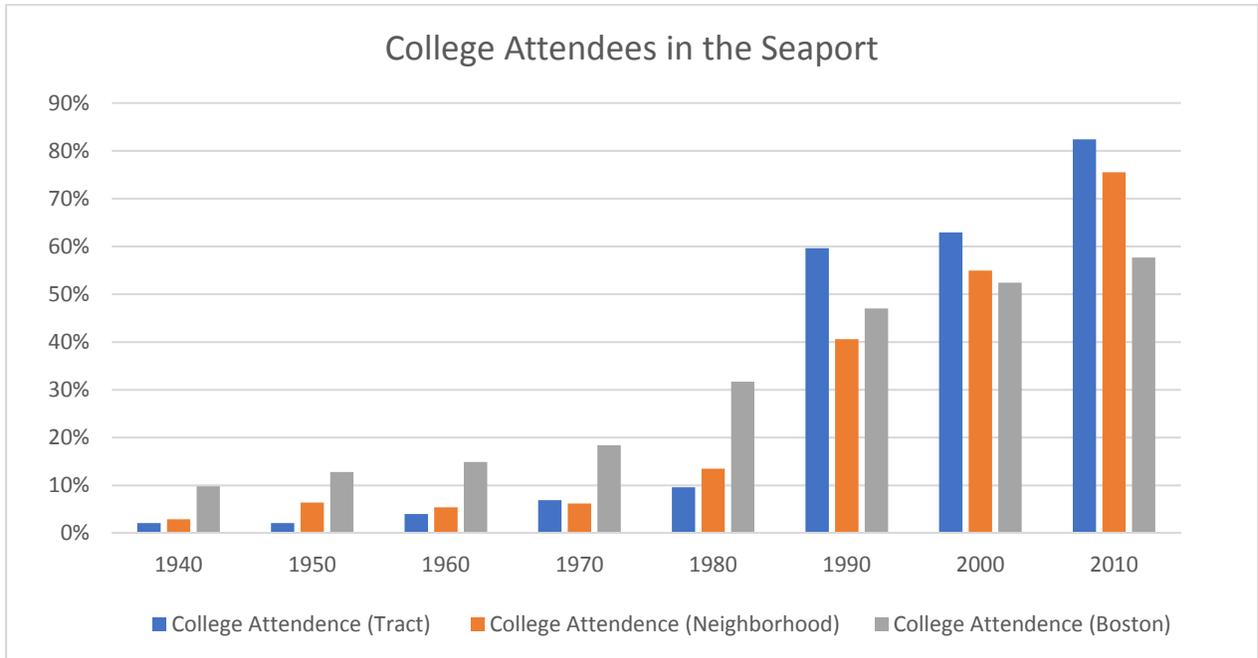


Figure 6.3 – Seaport College Attendance Rates

Beginning in 1990, the Seaport held more college attendees than the rest of Boston.

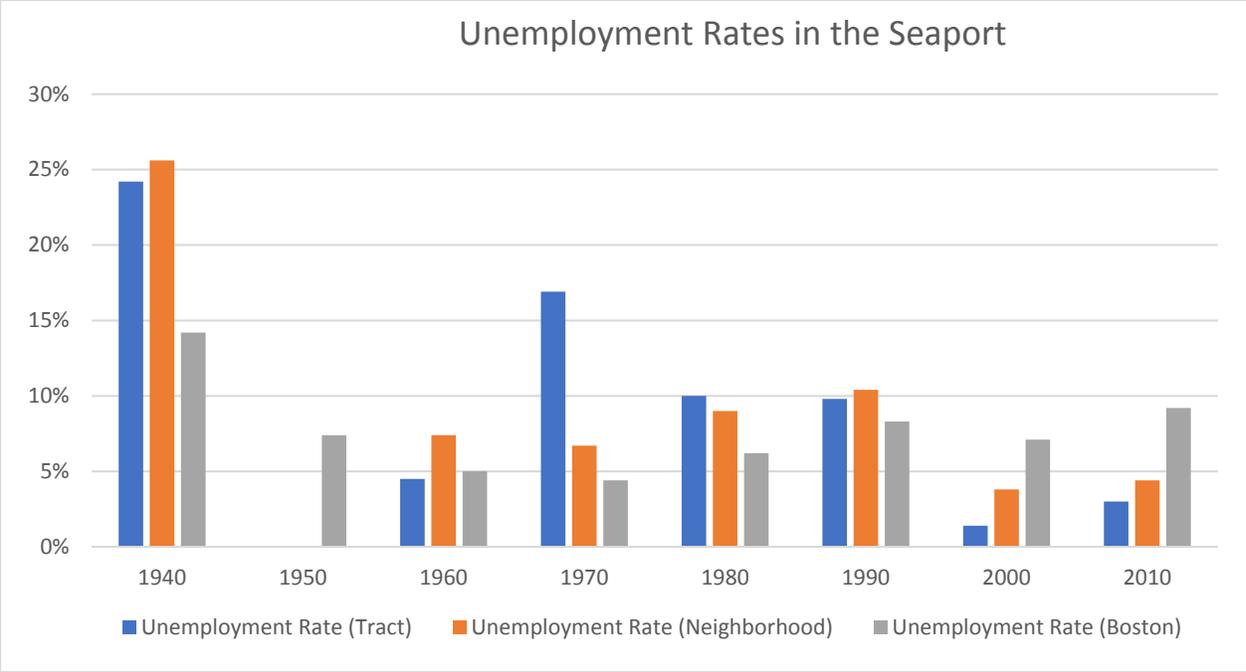
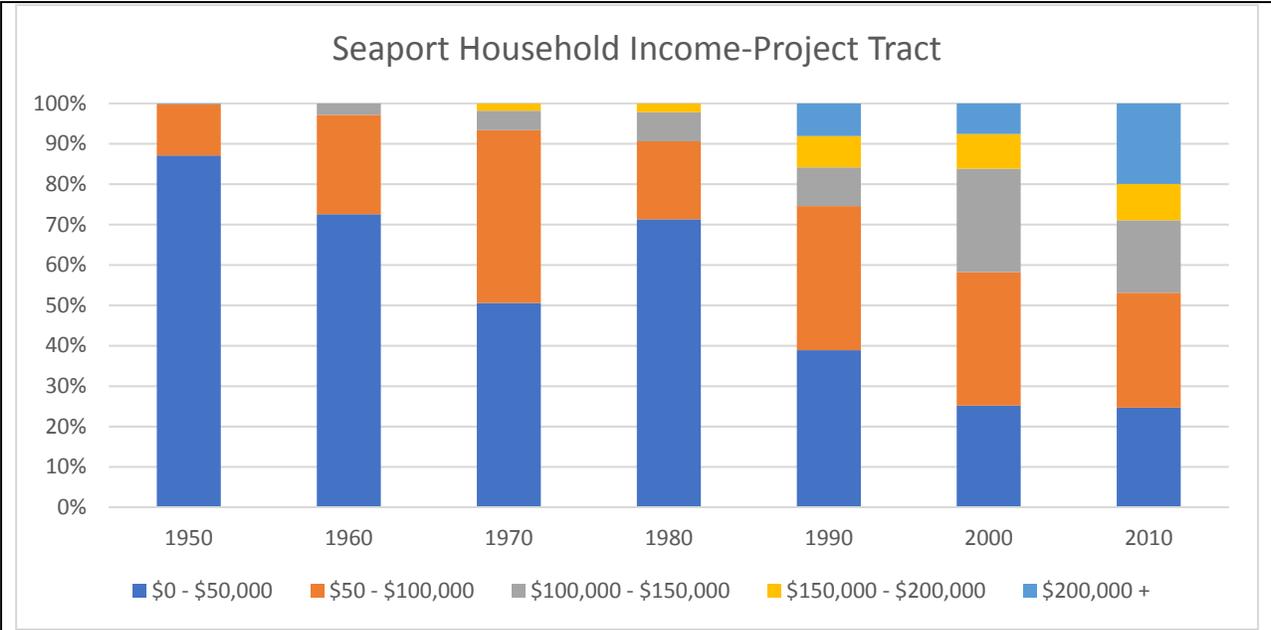


Figure 6.4 – Seaport Unemployment Rates

Unemployment also leveled off and fell after the project.



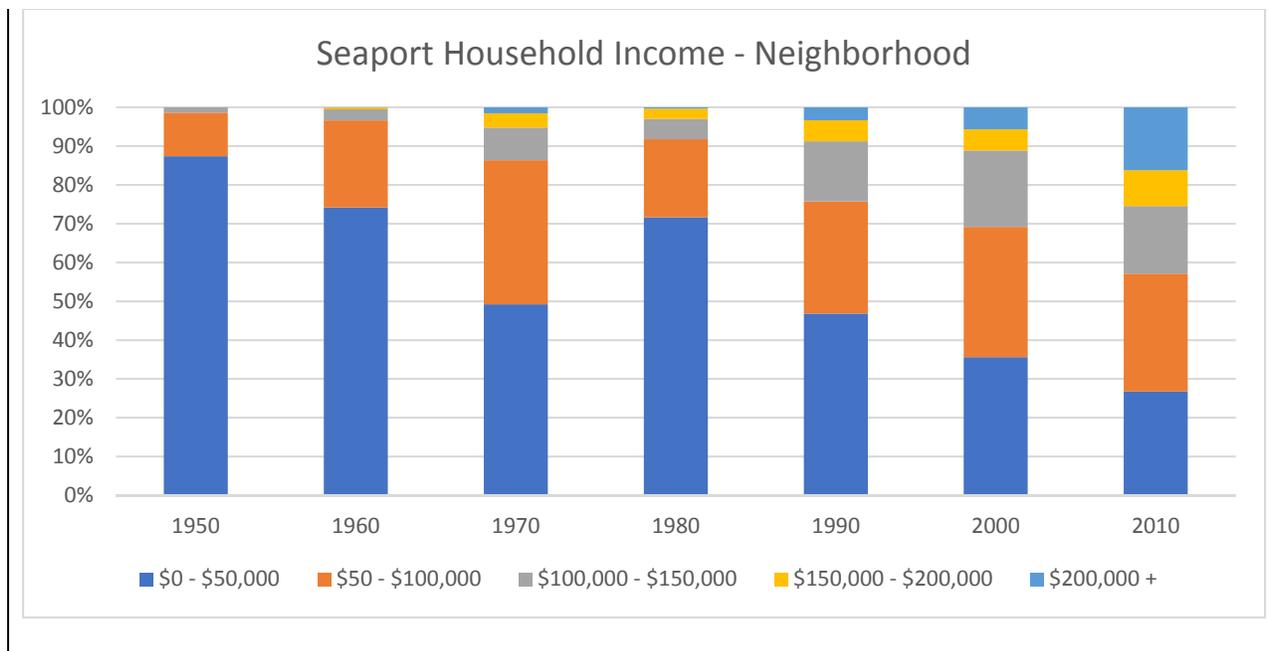


Figure 6.5 – Seaport Household Income

Keeping in line with the higher rates of college attendance, incomes also when up faster – particularly for the small population residing in the tract itself.

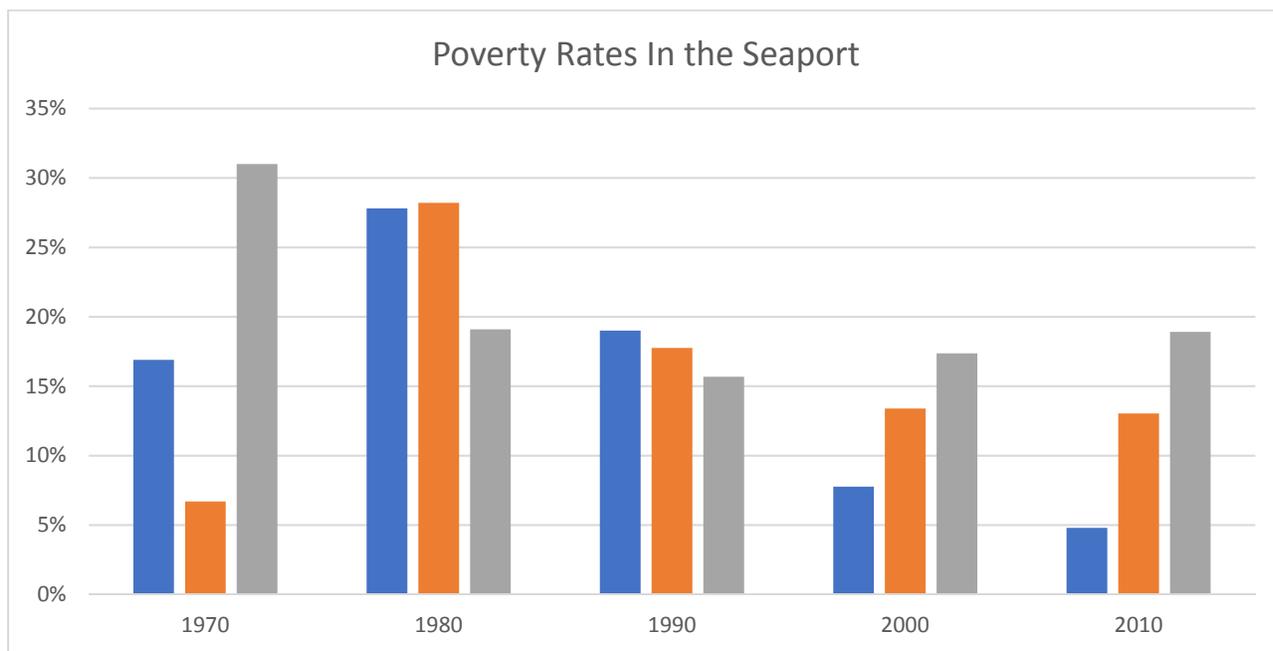


Figure 6.6 – Seaport Poverty Rates



Figure 6.7 – Seaport Gross Rent

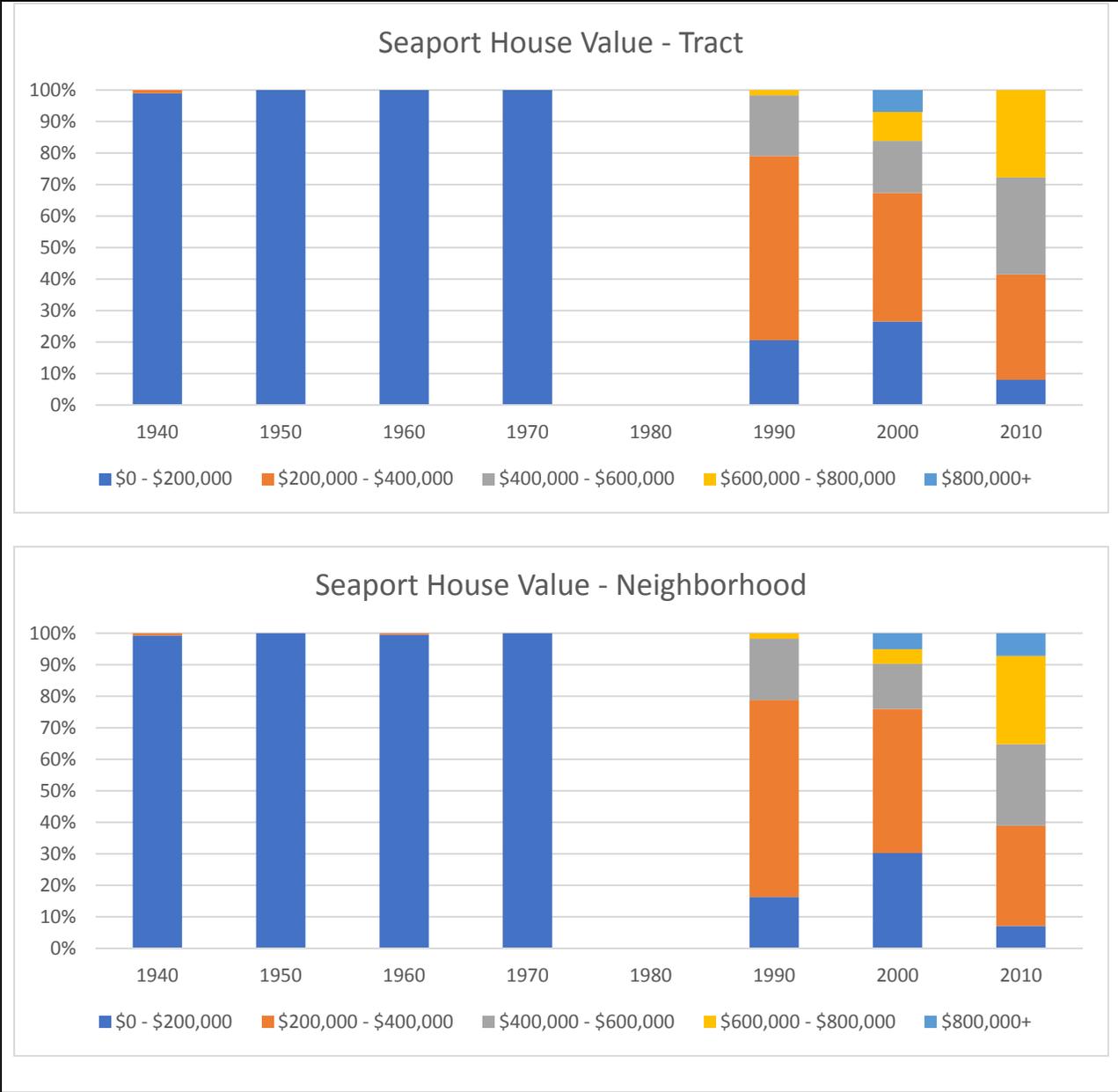


Figure 6.8 Seaport House Value

Rent and property values demonstrate the largest jump in prosperity. With the construction of the Seaport World Trade Center, property values went from virtual stagnation to tremendous growth.

Conclusion:

The Seaport is one of the most changed areas in Boston today, as well as one of the most in-demand neighborhoods. This stands in stark contrast to what it was prior to the construction of the Seaport World Trade Center.

Summary

	West End	Hynes Convention Center	Seaport World Trade Center	Variables
Before Project	=	+	-	<i>Percentage of College Attendees</i>
	=	+	-	<i>Employment (Lower Unemployment Rate)</i>
	=	+	-	<i>Household Income</i>
	=	+	-	<i>Gross Rent</i>
	=	=	-	<i>House Value</i>
After Project	+	+	+	<i>Percentage of College Attendees</i>
	+	+	+	<i>Employment (Lower Unemployment Rate)</i>
	+	+	+	<i>Household Income</i>
	+	+	+	<i>Gross Rent</i>
	+	+	+	<i>House Value</i>

Figure 7.1 Summary Matrix

“+” – Equates variable with an approximate “better than the rest of Boston” value
 “=” – Equates variable with an approximate “around the same as the rest of Boston” value
 “-” – Equates variable with an approximate “worse than the rest of Boston” value

Figure 7.1 showcases the changes each neighborhood faced in each census variable before and after each project. Here, it can be seen that, while all project neighborhoods are performing better with respect to the rest of Boston, the only truly transformative project was the Seaport World Trade Center. The neighborhood surrounding the Hynes Convention Center experienced little

change other than house value. The West End, while it did improve from roughly equal to that of Boston, to better than Boston, these estimates do not take the removal of a large portion of the population into account. As previously mentioned, it is likely that the dramatic decrease in population, particularly the portion more affected by poverty, has skewed this statistic.

Chapter Five: Conclusion:

As cities across America change, urbanize, and densify it is important to remember the role megaprojects play in shaping and guiding this progress. Megaprojects are important to cities because they could completely change the shape of a neighborhood, re-organize infrastructure, solve major planning concerns and implications, and promote channeled growth within an area of the city. On the other side of this, when mismanaged, they can also create inequalities, overspend taxpayer dollars, change the original vision the City initially agreed too, take far longer than the projected timeline, and be influenced by private sector interests. Why then are they worth the costs?

This thesis sought to answer four key questions through analysis of three case studies:

1. What are the long term and short term neighborhood impacts of Megaprojects?

To answer this question, it was important to select three megaprojects which has been build several decades ago. From the literature, it was show that megaprojects do not have the normal return on investment timelines smaller private projects do. This is for a variety of reasons, but it is most greatly affected by megaprojects' inability to stay on their anticipated construction schedule and be completed on the initially recommended budget. The extra time and money needed to complete the project are not mirrored in the returns the project produces in the expected timeline, giving the illusion that the project "wasted the City's money". This is not necessarily true. Much of Megaprojects' value comes from a longer timeline, and the multiplier effect from the neighborhood it has reshaped.

Because of the enormous expense needed to complete the project, it is impossible to put a megaproject on the same financial timeline as smaller, more predictable projects.

Census Analysis

When looking at the results of the census tract comparison, it is difficult to determine if megaprojects are worth the trouble they bring to residents, cities and administrations.

While the West End saw positive increases in the selected economic variables, some would argue that the dip in population might be the cause. The poor were simply relocated out of the tract. The neighborhood surrounding the Hynes convention Center also, proved interesting to compare, as it remained largely unaffected by the project. It is possible that the residents in this particular neighborhood were doing well already, and there wasn't a significant amount of room for improvement.

The Seaport proved to be the only case where the area benefited from the project in any real or tangible way. This is possibly because of its low use and population prior to the project, tracts which the other two projects did not have.

2. What explains the poor results of megaprojects?

Actors

When examined critically, it is easy to see why, on the surface, megaprojects perform so poorly. According to the literature, megaprojects face obstacles other projects do not, such as lack of experience on the part of the developer, as all megaprojects are relatively unique to their location, the desire to understate costs and time line to ensure project

approval from the cities' planning board, the disconnect in motivation between private and public actors, community pushback, and uncoordinated organizational structure from the actors.

Evaluation Methods

When the dust clears, and the project is complete, megaprojects are often subjected to the “Iron Law of Megaprojects” by academics, city planners and investors alike: On time, on budget and to the original specifications. If these are the standards one seeks to judge megaprojects, all projects will be deemed failures. It can be argued, however, that the Iron Law of Megaprojects” is not the correct way to evaluate a project. When considering a megaproject, it's mere construction is just the beginning of the benefits (and detriments) it brings to a city.

Megaprojects, even if they do not bring a positive return on investment on their own balance sheets, can influence their surrounding area to drive a multiplier effect and bring prosperity to an area. Also, though this is more difficult to quantify, one might consider the converse of the construction of a megaproject in a specific area. Namely, what would happen had the project not been built. It can be seen in many of Boston's Megaprojects that, while this factor cannot be proven, quantified or modeled in a spreadsheet, many of the areas where these projects were built would have been worse off had the project been vetoed.

3. What are the benefits of Megaprojects?

Benefits of megaprojects include deification, improvements to infrastructure, neighborhood revitalization and economic prosperity where the projects are built. Boston experienced an increase in land and housing values, an increase in population, a growth in business, and, in the case of the Seaport World Trade Center, the opening of a new real estate market for the city.

Limitations of this Analysis

This thesis gave a very broad overview of the neighborhood impacts of megaprojects on cities, using Boston as a case study. There are, however, several key elements that would have made this study stronger. Development budgets and finalized pro formas were not publicly available for these projects, meaning it is impossible to determine exactly how much these three case studies went over budget, which items were inflated, and at what point in time this this occur. Without working directly with the firms and the people involved on the projects, it is impossible to determine such factors.

Another issue is the census itself. As was previously noted, since the variables measured by the census have not remained constant throughout the decades, and it was necessary to use proxies to measure effects. While proxies can be helpful to identify overall trends, they lack the ability to determine specificity in each type of impact. Furthermore, they allow space for unaccounted variables – for example: Family is a very specific type of household, while Household is much more inclusive. It is possible that the numbers for Family would have been very different had the category includes other types of households from the get-go.

Besides the categories themselves, the census blocks have been redrawn several times to best accommodate Boston's growing and changing population. The tracts used in the analysis attempt to maintain sameness in geographical area throughout the study.

The limitations of the census tracts are also due to the fact that groupings of census tracts do not necessarily constitute a "neighborhood" in the traditional sense of the word. Neighborhoods - Back Bay, the Seaport, Downtown, or The North End for example - are defined more so by their people, amenity options, and transit options, rather than lines drawn by the State government. While governments might try to capture a sameness when drawing these tracts, they are not perfect. Additionally, neighborhoods are fluid, and the boundaries might shift within a ten year period. To truly capture a neighborhood, one might have to speak to real estate agents to draw current boundaries, and then synthesize data on a parcel by parcel level.

A final limitation to using census tract data, it that it fails to capture other effects of major development, such as increases in jobs, attraction of investment in the area- foreign and domestic, federal and private, improvements in transportation, and the multiplier effect each of these variables has going forward.

Furthermore, it must be acknowledged that this review is more qualitative than quantitative. This is because of ever-shifting nature of city demographics and the nature of the business cycle, and

the inter-relatedness between cities and the rest of the global economy. It is safe to assume that many of these indicators of economic prosperity might have happened without the project, or are unrelated to the projects altogether. Trying to draw correlation and causation from these projects would have been impossible to do without more financial data from the projects themselves, and a more detailed account of the neighborhoods surrounding these projects. From the broad view granted in this study, it can be seen that none of these tracts became economically worse post project, and in turn swings for the better right after the development of these projects was completed

The final limitation is a lack of first-hand knowledge which might have been gained through interviews of planners, real estate developers, politicians and residents involved in the redevelopment. Were the study to be repeated, these sources could shed valuable light on the construction of these megaprojects, and outline the decision making that went into their planning.

Recommendations for further study:

The limitations of this analysis indicate that there is, in fact, more work to be done on this topic. Reshaping the boundaries of the neighborhood would give potential researchers more targeted data points, pro formas from the projects could lend insight into exactly how much the City of Boston invested and/or overinvested in these projects. Finally, a tally of additional investment tied to the neighborhood could demonstrate how investment breeds more investment in the areas surrounding completed megaprojects.

A final note:

It is considered basic planning common sense that large scale development, unless terrifically mismanaged, can improve the economic prosperity of a city. Based on these case-studies, however, it might be safe to venture a guess that the location of the project, and the current demographics of that particular area might enhance or detract from the benefits of the project. Of the three projects, the Seaport World Trade Center had the greatest impact. It was also in the least developed portion of the Boston. The West End gained prosperity by removing a large swath of the population, and Back Bay did not see significant improvement. Only the Seaport can claim the type of total transformation that makes megaprojects and all of their costs easy to justify.

Appendix:

All Boston Figures

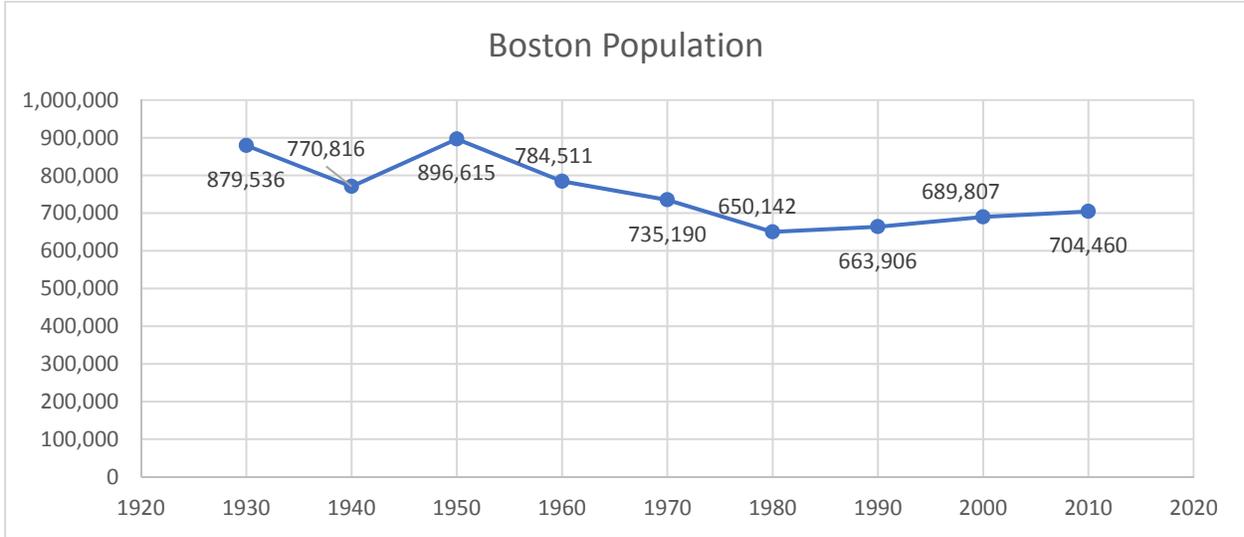


Figure 8.1 Suffolk County MA Population

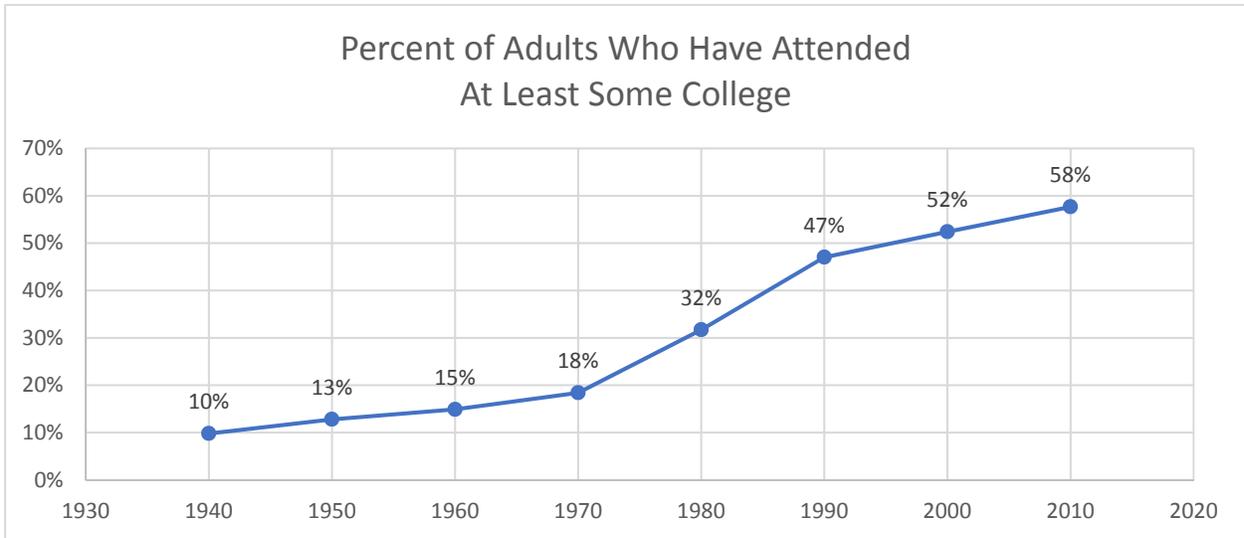


Figure 8.2 – Suffolk County MA College Attendance Rates

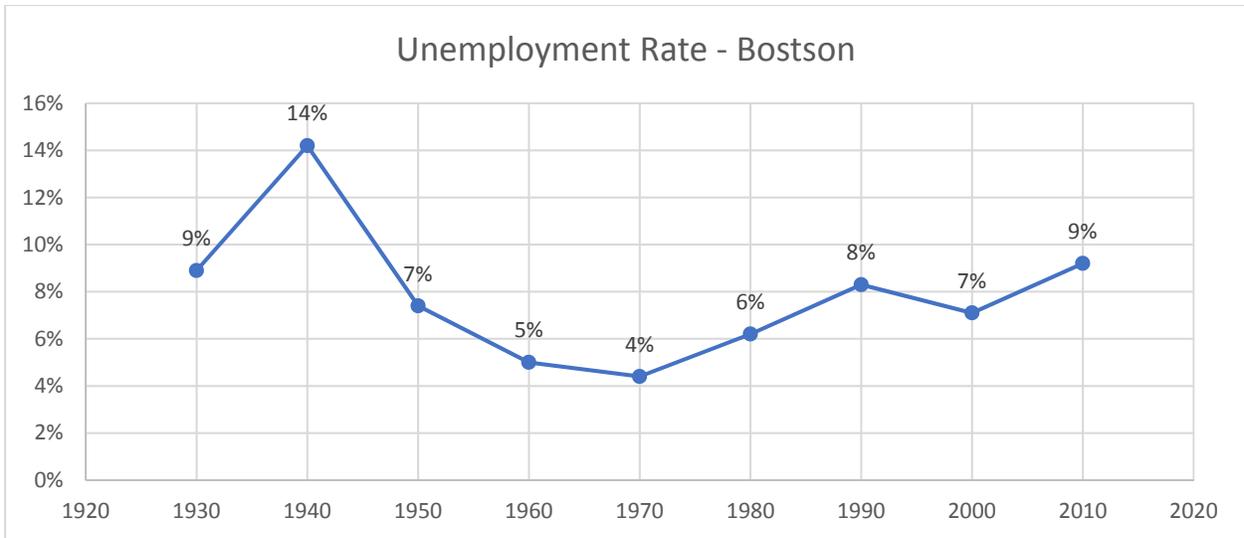


Figure 8.3 – Suffolk County MA Unemployment Rate

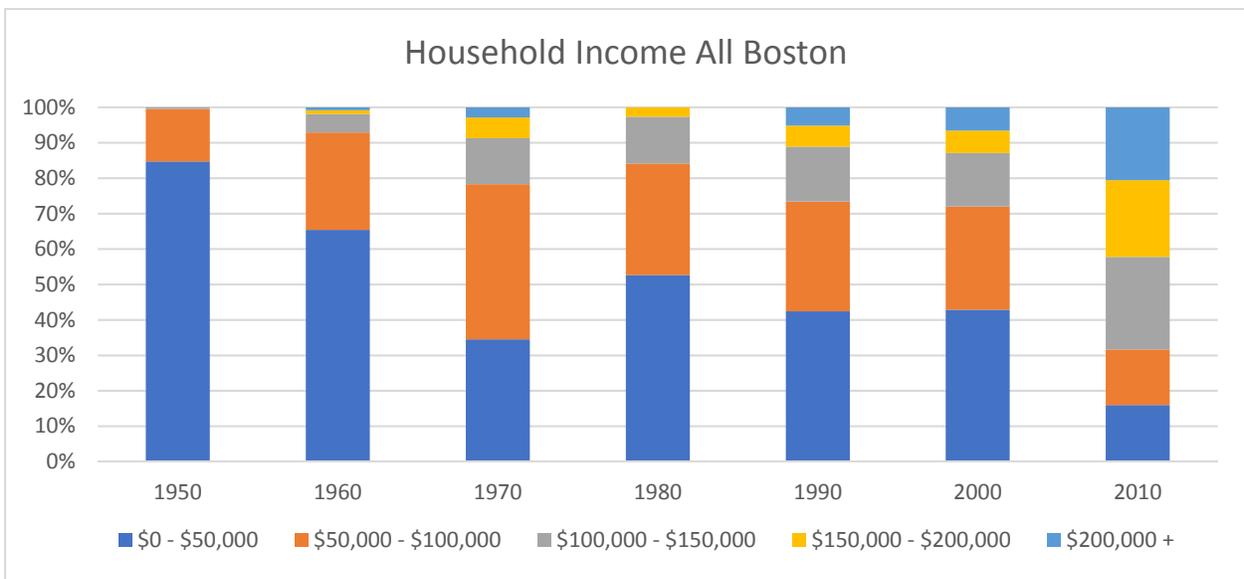


Figure 8.4 – Suffolk County MA Household Income

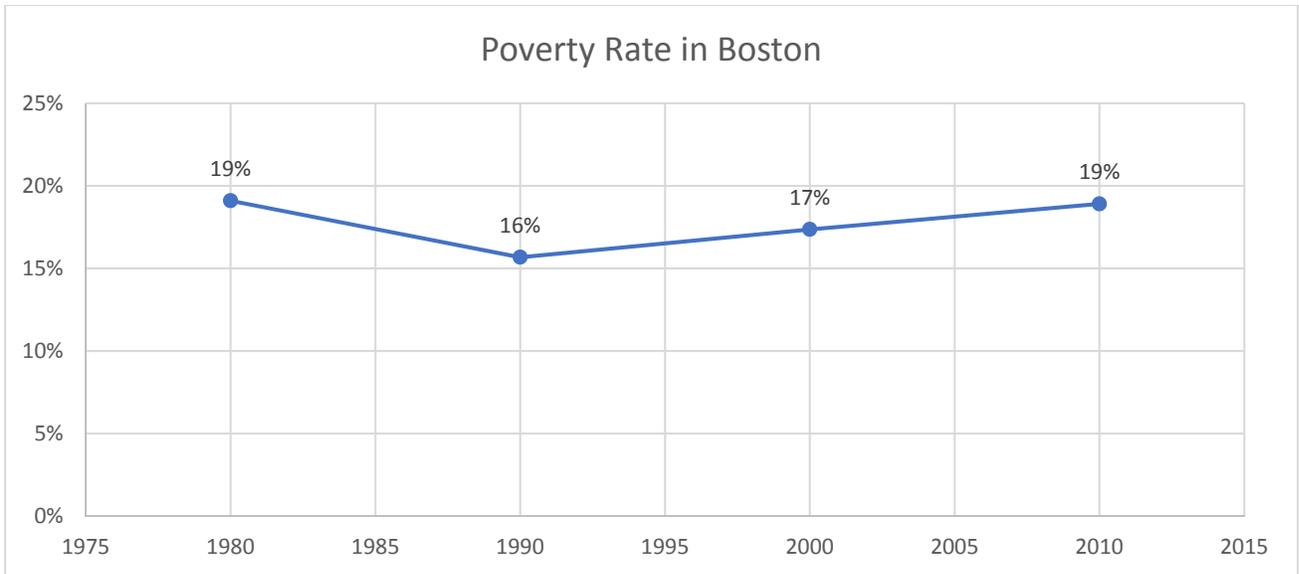


Figure 8.5 Suffolk County Poverty Rates

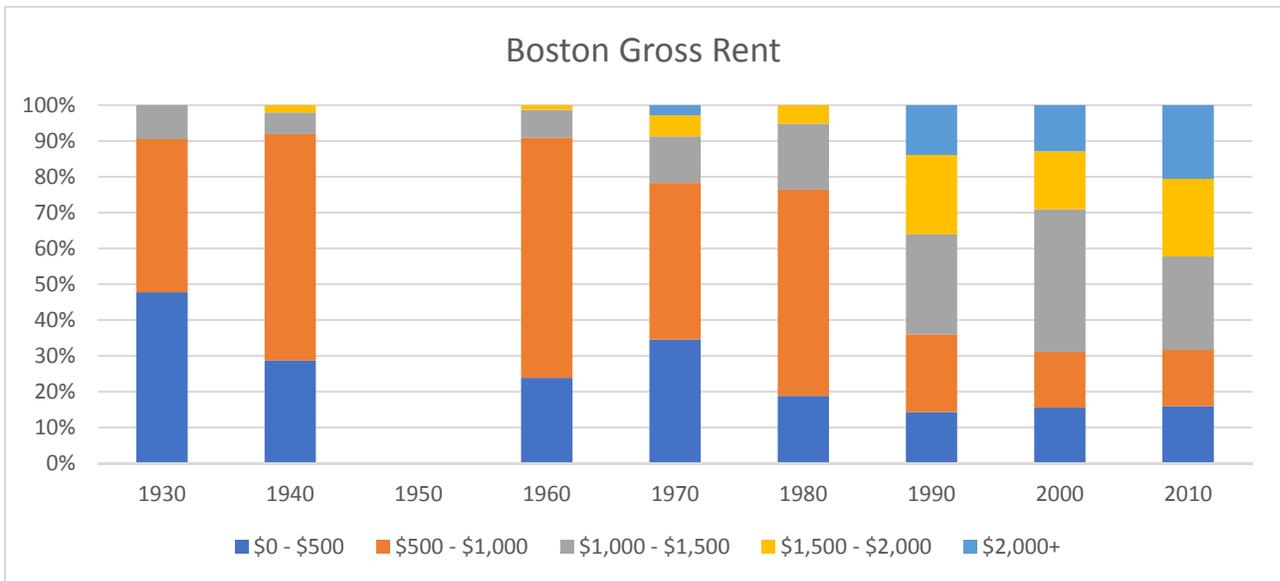


Figure 8.6 Suffolk County MA Gross Rent

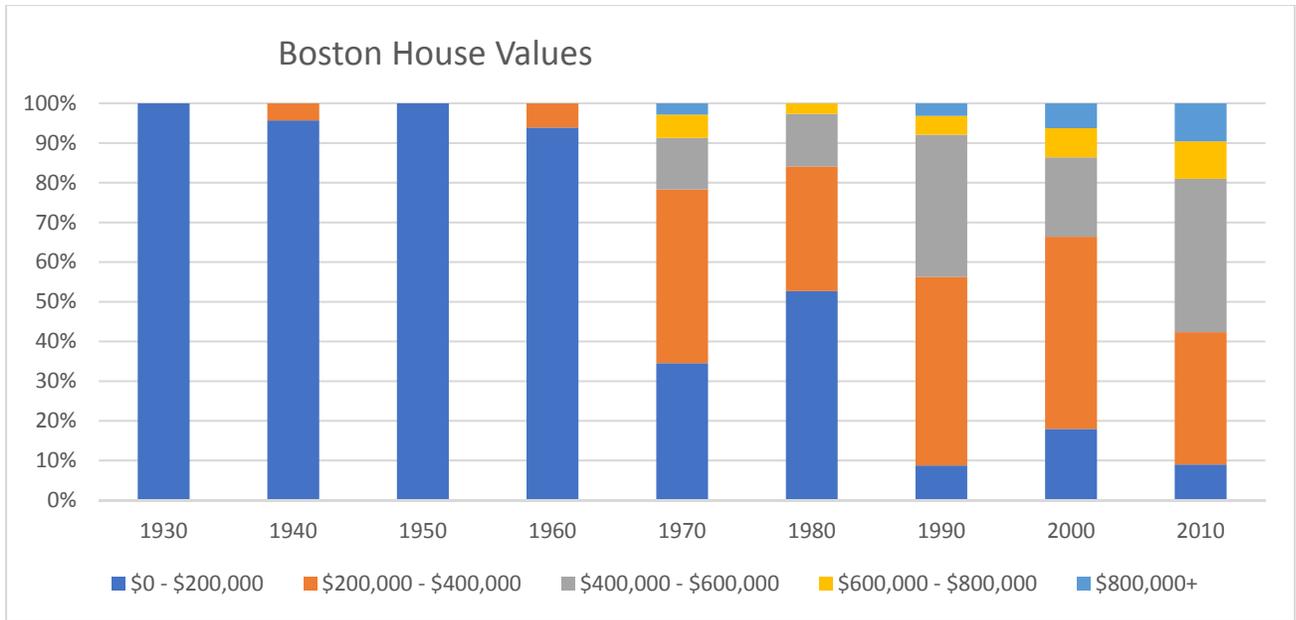


Figure 8.7 Figure 7.1 Summary Matrix

“+” – Equates variable with an approximate “better than the rest of Boston” value
 “=” – Equates variable with an approximate “around the same as the rest of Boston” value
 “-“ – Equates variable with an approximate “worse that the rest of Boston” value
 “NA” – data was not available for that variable

Red – Data collected before the project*

Yellow – Data collected after the project

*Some projects took place throughout a decade, but data is a snapshot of the census year. If the project was not complete by the date of the census year, it was counted as “before the project”

Suffolk County MA House Value

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