

Urban Transportation

Measuring and predicting job accessibility on the CTA Pink Line and Red Line Extension

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Abstract

In 2024, the CTA approved a four-stop extension of the Red Line, which connects the Loop to the South Side and Far South Side of Chicago, extending the Red Line from the 95th Street/Dan Ryan station to 130th Street. The CTA claims that the extension will add 25,000 jobs to the area in the coming years through transit-supportive development, an infrastructure strategy aimed at developing residential and commercial hubs on the Far South Side. This claim raises concern; without any sources as to how this number was produced, we are skeptical about the validity of the 25,000-job number and how it was calculated. To examine the labor force effects of a CTA train line's opening, we conducted a difference-in-differences study on the opening of the CTA Pink Line using LEHD and ACS data, where we found a statistically significant but small increase in jobs for both employees and employers when comparing regions with a half-mile or mile radius from the new Pink Line stations. We then used the coefficients from the Pink Line study to conduct a prediction on the Red Line Extension, finding positive but not statistically significant predicted increases in jobs for employees but not for employers. We also explore the CTA's plans for transit-supportive development (TSD) and its potential impacts on commercial activity.

Introduction

The Chicago Transit Authority's (CTA)'s newest full train line, the Pink Line, opened in 2006, rerouting Blue Line and Green Line branches to create a connection from the Loop to the West Side and doubling the frequency of service to those stations. In the years since its opening, the CTA has reported large increases in public transit usage on the West Side, particularly for work-related purposes. However, some studies have disputed the CTA's claims that their rail projects, including the opening of the Orange Line in 1993 and the recent reopening of the 95th/Dan Ryan station on the Red Line, increased economic development or job growth around new stations, pointing towards outdated zoning and poor pedestrian accessibility as key factors. One 2013 study found that Chicago was the only city in the United States with a rail transit system that saw a decline in development around its rail stations, even as property values around the stations grew at a faster rate than the rest of the region.¹

In 2024, the CTA approved a four-stop extension of the Red Line, which connects the Loop to the South Side and Far South Side of Chicago, extending the Red Line from the 95th Street/Dan Ryan station to 130th Street. The CTA claims that the extension will add 25,000 jobs to the area in the coming years through transit-supportive development.² This claim raises concern; without any sources as to how this number was produced, we are skeptical about the validity of the 25,000-job number and how it was calculated. In particular, there are many confounding factors that would make it difficult to attribute increases in job and economic growth exclusively to the opening of the Red Line Extension. Additionally, such a prediction presupposes that job and economic growth as a result of past major CTA expansions could similarly be calculated; however, this has not appeared in any literature.

While there are some differences in the zoning and development of the areas around the Red Line extension as compared to the areas around the Pink Line, both areas were and are in need of economic growth and increased commercial activity. Further examining the economic impact of the Pink Line's openings on the West Side could produce meaningful predictions about the Red Line extension's prospective effects on the South Side, as well as policy recommendations to prevent economic decline.

Based on these questions, this study aims to first develop a model for job creation and growth on the Pink Line and then form a predictive model for job creation and growth for the Red Line Extension. We first discuss the historical and financial context behind the Pink Line and Red Line Extension, as well as plans for transit-supportive development in the regions surrounding the Red Line

¹Daniel Hertz, "Lack of Planning Along Orange Line Resulted in Missed Opportunities," StreetsBlog Chicago, June 16, 2014, <https://chi.streetsblog.org/2014/06/16/lack-of-planning-along-orange-line-resulted-in-missed-opportunities>.

²"Red Line Extension Project," Chicago Transit Authority, <https://www.transitchicago.com/rle/>.

Extension stations. We also discuss fundamental differences between the Pink Line and Red Line Extension regions, as well as zoning restrictions in both areas. Then, as directly testing the CTA's claim on the entirety of the Chicago or Cook County error would raise a number of confounding variables and would be difficult to complete using only publicly accessible data, we opt to perform a difference-in-differences study design on the Pink Line to assess if the opening of a CTA train line alone can result in any meaningful change in job growth. We also examine various quality-of-life outcomes, including commute time and housing outcomes. Then, using the interaction variable coefficients determined from the Pink Line regression, we apply them to regions near the planned Red Line Extension stations to predict how job growth might change in the coming years.

Literature Review

Pink Line Construction and Development

While the Pink Line officially opened in 2006, stations on the Pink Line predate its opening by several decades. The bulk of the Pink Line's stations previously existed as the Cermak or Douglas branch of the Blue Line, which ran from 54th/Cermak in Cicero to Polk and opened in 1896.³ At around 9,000 weekday riders, the Douglas branch had the lowest ridership of the four Blue Line branches. Additionally, the Douglas branch had experienced significant infrastructure deterioration throughout the 1990s and early 2000s, resulting in 47% of the track consisting of slow zones of 15-35 miles per hour. Discussions regarding the Pink Line were revitalized by the announcement of a \$489 million renovation of the Douglas branch, which began in 2001 and was completed in 2005.⁴ Through this renovation and eventual conversion into the Pink Line, the CTA hoped to increase service on the Forest Park branch.

As part of the Douglas branch renovations, the CTA announced plans to connect the Douglas branch to the Loop through the revival of the Paulina Connector, which would connect the Blue Line to the Lake Branch of the CTA Green Line. The Paulina Connector had previously consisted of several stations but had been deactivated in 1964; however, the CTA reappropriated Douglas branch renovation funds to restore the Paulina Connector in 2002, allowing the Blue and Green Lines to connect. While all of the stations on the Pink Line had previously existed before its opening in 2006, the Paulina Connector allowed them to connect in a manner previously impossible, increasing service

³"Pink Line," Chicago L, <https://www.chicago-l.org/operations/lines/pink.html>.

⁴"Pink Line: Cermak (Douglas) Branch," Chicago L, <https://www.chicago-l.org/operations/lines/douglas.html>.

from the West Side of Chicago to the Loop, and increasing ridership on the Blue Line's Forest Park branch by 7.1% by the end of the year.⁵

Previous Studies on the Economic Impacts of the Pink Line's Opening

While few academic studies appear to have been conducted on the CTA Pink Line's impact on economic growth, two undergraduate papers sparked both interest and inspiration for this study's research design.

Ohmes (2024) conducted a difference-in-differences study comparing census tracts surrounding the Pink Line stations with other census tracts in Chicago.⁶ The study compared 5-Year American Community Survey data from 2005-2010 and 2014-2018, including variables like household income, poverty rate, unemployment, property values, and commuting time. Ohmes found no statistically significant change in any variables between the control and treatment groups; however, the research design also showed flaws. In particular, by making the control group any region not within walking distance of a Pink Line station, no parallel trends assumption can be made, as the control group will have widely ranging populations, racial and socioeconomic demographics, property values, and geographical and topographical differences. Additionally, having such a large difference between the sample sizes of his treatment and control groups produces a much lower statistical power. Lastly, while there is variation in property values and demographic characteristics across the Pink Line, certain sections, such as the stations on the West Side, have commonalities that can be exploited for higher external validity.

Conversely, "Efficacy of Public Rail Transit-Oriented Development (TOD) Investments in Chicago" (Shimada 2024) uses a tighter differences-in-differences approach.⁷ Rather than comparing regions near the Pink Line stations with the entirety of Chicago, Shimada creates buffers of 810 meters and 1610 meters to determine the treatment and control tracts, based on Department of Transportation walkability estimates. To proxy economic and business growth, Shimada used the issuing and renewal of business licenses; additionally, he used the American Community Survey's data on median household income and travel time to work. Overall, Shimada found statistically significant growth in business license issuing and renewal in transit zones compared to non-transit zones. While business license renewal may not be a perfect substitute for economic growth, Shimada's research design had much stronger statistical power.

⁵ "Pink Line," Chicago L, <https://www.chicago-l.org/operations/lines/pink.html>.

⁶ Lawrence Ohmes, "The Pink Line in Chicago: A Difference-in-Differences Analysis," 2024.

⁷ Kazuya Shimada, "Efficacy of Public Rail Transit-Oriented Development (TOD) Investments in Chicago: CTA Pink Line's Economic and Socio Economic Effect on Transportation Communities," May 24, 2024.

It is crucial to note that there is a subtle, but meaningful difference between the development strategy of TOD, treated here and elsewhere in secondary literature referenced throughout this study, and transit-supportive development (TSD). TSD strategies aim to develop a broader swath of land, such as with the Red Line extension project, which aims to develop areas along the entire new Red Line, hoping to integrate whole communities with potential growth opportunities.⁸ TOD, on the other hand, involves development in a clearly-defined, relatively small area.⁹ Crucially, the strategies of development (incentives, interventions, etc.) are, in principle, the same between these strategies, hence why previous research on TOD was important for our research on TSD.

Red Line and Red Line Extension

Overview of Chicago Transit Budget Deficits

Chicago's rail history begins far before the 1945 establishment of the CTA, first as a railroad hub for western grain and livestock to reach eastern markets and then "a center for the manufacture of freight cars, passenger cars (Pullman Company), and, later diesel locomotives."¹⁰ With all of its external rail connections, private businessmen turned towards the growing urban population, building the first passenger rail line within the city in 1892, the Chicago and South Side Rapid Transit Line.¹¹ This system was one of the first elevated transit intracity rail networks in the world and development only continued from here as more steam lines opened up across the city, portions of which are still used in the Blue, Green, and Pink Lines through the 1890s. While initially distinct, in 1924, multiple major transit enterprises consolidated into the Chicago Rapid Transit Company as they expanded their reach to the extremities of the city and even Milwaukee.

Fears of bankruptcy increased in the 1930s and 1940s with decreased ridership from the migration to the suburbs, a failure to modernize Street Cars and routes. In response, the Chicago and Illinois government consolidated all transit groups into the Chicago Transit Authority.¹² The prior transit company was officially "a *private* company under *public* regulation," so the CTA aimed to be a publicly chartered organization that could resolve these issues in a manner that continued to provide an essential service to its citizens. Despite this, a major issue arose in funding as the CTA was slow to adapt routes due to increased car usage. This was particularly painful for Chicago as the CTA's

⁸"Frequently Asked Questions," Chicago Transit Authority, <https://www.transitchicago.com/rle/faq/>.

⁹Transit Oriented Development Institute, "Transit Oriented Development," <http://www.tod.org/>.

¹⁰ John Hudson, "Railroads," Encyclopedia of Chicago, Chicago Historical Society, <http://www.encyclopedia.chicagohistory.org/pages/1039.html>.

¹¹Meredith Francis, "The History of the 'L,'" Window to the World, PBS, <https://www.wttw.com/chicago-by-l/sidetracks/history-l>.

¹²"The CTA Is Created: A New Era Begins (1947)," Chicago L, <https://www.chicago-l.org/history/CTA1.html>.

establishment in 1945 mandated that “at least 50% of its revenues come from the fare box [i.e. ridership].” To this day, the CTA relies far less on funding from the state (about 17% of total revenue) than the transit groups of other major U.S. cities like New York and Boston, which get 28% and 44% of their revenue from their respective governments.¹³ As such, this handicap is a major cause of the financial crises of the 2000s. The CTA’s first move to address its predecessors’ unprofitability was to shut down the low ridership stations and lines to place emphasis on more popular routes. By 1960, about a quarter “of the rapid transit system and the entire streetcar system had been abandoned,” which while aggressive, helped modernize and economize the train lines.

Even the new CTA projects of the era showed signs of these cost-cutting measures as they avoided buying private land from home and business owners by building the brand new Dan Ryan Branch to the South and the Congress Line to the west in the median of I-90 and I-290 respectively. The Dan Ryan Branch would eventually be merged with the North Side Main Line and State Street Subway in 1993 to create the red line as the extension project will depart the highway median as it moves southeast.¹⁴ With the success of these lines, the CTA would later build the O’Hare Line, which led to the development of “new office parks and retail outlets sprung up along the new rapid transit line in the Interstate 90 corridor” and was used by many workers and airline passengers.¹⁵

With the 50% fare box revenue requirement, the CTA had been disadvantaged from the start, so in 1974, the Regional Transit Authority was established by the state of Illinois to aid with budget shortfalls. Despite its creation, the RTA did little to address the rising operational costs of the CTA, which “increased from \$188.7 million in 1970 to \$446.1 million in 1979.”¹⁶ To address the crisis, the “RTA raised fares 11% in 1976 and imposed a gas tax of 5% in 1977,” but the state legislature would overturn this effort two years later, replacing the gas tax with a much smaller sales tax on Cook county and 5 neighboring counties.¹⁷ This resistance, alongside persistent costs and lost federal subsidies from the 1970s, led to a \$281 million deficit in 1980. Without state funding, the CTA reduced labor costs, closed stations, and increased fares by a resounding 50% price hike in 1981. This fare hike passed against other modern ideas that were proposed such as a rush hour price hike and traditional methods like zone-based fares,¹⁸ which are still used on the Metra today.

¹³“Illinois Should Learn from Past Transit Funding Crises and Achieve Sustainable Funding,” Regional Transportation Authority, October 1, 2024, <https://www.rtachicago.org/blog/2024/10/01/illinois-should-learn-from-past-transit-funding-crises-and-achieve-sustainable-funding>.

¹⁴“The CTA Takes Over: Resurrection by Modernization (1947-1970),” Chicago L, <https://www.chicago-l.org/history/CTA2.html>.

¹⁵“The CTA in the Auto Age: Subsidies and Lines Grow, Ridership Falls (1974-1990),” Chicago L, <https://www.chicago-l.org/history/CTA3.html>.

¹⁶“The CTA in the Auto Age: Subsidies and Lines Grow, Ridership Falls (1974-1990)”

¹⁷“The CTA in the Auto Age: Subsidies and Lines Grow, Ridership Falls (1974-1990)”

¹⁸Gloria Mundy, “Transit: A Fare to Remember,” Reader, January 1, 1987, <https://chicagoreader.com/news/transit-a-fare-to-remember/>.

Without stable funding, the CTA routinely resorts to cutting service to low-use bus and train routes, such as in the 1990s, where the Cottage Grove Green Line had its development terminated. Additionally, a consulting firm, Booz-Allen & Hamilton,¹⁹ was hired to recommend cost-saving measures that led to some late-night train services to be replaced by buses and the removal of 15 surface bus lines. This change was meant to remedy the continued budgetary threat of outdated service routes as in a decade, ridership decreased by 30% when service only decreased by 4%. A short period of hope emerged in the late 90s and early 2000s, under the presidency of Frank Krueski, who was able to achieve a budget surplus for the first time in the decade. This allowed him to push for efforts to modernize the train cars, tracks, and payment systems, with the support of the Illinois state government. Additional plans were made during this period, such as a north-south line connecting the Blue and Orange Lines on the west side; however, they have largely failed as the fiscal spending on transit did not match the plan's idealistic needs.²⁰

This failure arose during the 2008 Financial Crisis, where the CTA was experiencing a \$158 million budget shortfall in its annual budget.²¹ Following the precedent set by past financial struggles, 81 of the 154 CTA bus routes were planned to be eliminated with 700 fewer buses run daily from only 5 of its 8 garages. Apart from bus cuts, fares were to be raised to record highs of \$2.25 normally and \$3.25 during rush periods, and the price of long term passes were planned to increase by around 25%. Finally, thousands of employees would be laid off with administrative and support roles alongside the drivers and conductors on routes.²² Beyond the recession, the 50% fare revenue requirement was a major cause of the shortfall, which occurred despite the decreased budget as \$562 million came from fares compared to only \$472 million from public funding. Additionally, inflation was outpacing the revenue growth for the CTA's operating expenses, which placed the CTA in one of its worst crises in its more than half century of existence. This crisis would be partially resolved in early 2008, where the Illinois State Legislature passed a landmark funding bill: P.A. 95-0708. This landmark funding package provided the necessary financial stability to give benefits to its 10,500 employees including health care and pensions through the issuing of bonds, which the City of Chicago would cover through a real estate transfer agreement with the CTA.²³

¹⁹"The CTA Reinvents Itself: The 'L' Heads Into the 21st Century (1990-Present)," Chicago L, <https://www.chicago-l.org/history/CTA4.html>.

²⁰"Destination 2020," Chicago L, 1998, <https://www.chicago-l.org/plans/2020plan.html>.

²¹"Chicago Transit Board Approves 2008 Budget," Chicago Transit Authority, November 7, 2007, <https://www.transitchicago.com/chicago-transit-board-approves-2008-budget/>.

²²Chicago Transit Authority, *Smart Spending: Steering Through the Economic Slow Down* (2008), <https://www.transitchicago.com/assets/1/6/2009sum.pdf>.

²³Illinois General Assembly, *Public Act 95-0708* (2008), <https://www.auditor.illinois.gov/Audit-Reports/Performance-Special-Multi/Performance-Resolutions/PA-95-0708.pdf>

In 2025, another crisis arose due to operating costs, largely “driven by labor, fuel, and paratransit mandates [from the ADA]” outpacing the increase in revenue.²⁴ While 2008 covered pension costs for a while, the deficit re-emerged with continued lower ridership, especially with the COVID-19 pandemic funding running out.²⁵ With a similar threat of cutting lower-use routes, jobs, and raising fare prices, the Illinois State Legislature passed SB 2111 in October, 2025, which was signed into law by Governor Pritzker in December, 2025. This law increased revenue sources through a hike in the RTA sales tax in Cook County and its neighbors and through a sales tax on motor fuel, which funded systems across the state to account for the \$230 million deficit. This money helped free up funds to pay for the Red Line Extension; however, threats from the Trump Administration to freeze funding in response to the attack of Bethany MaGee on the Blue Line have led to complications in the planned development.²⁶ A lawsuit was filed in late March by the CTA, which led federal judges to order Trump to release the \$2 billion back to the Red Line Extension plan, which seems to have concluded this episode.²⁷

Reasons for the Red Line Extension

Supporters of the Red Line Extension argue that as the biggest infrastructure investment made to Chicago’s Far South Side in decades, the project has the potential to revitalize a historically disenfranchised area and improve residents’ quality of life by shortening transit times, increasing job opportunities, and strengthening connections to the rest of Chicago. Proponents claim that the RLE will save roughly 30 minutes of commute time for riders travelling from the future 130th Street station to the Loop and facilitate access to multiple CTA rail lines and bus routes. They also argue that the project will generate greater access to jobs, both during and after its construction, citing an estimate of 25,000 jobs created throughout Cook County as a result of the project. In addition to this revitalization of transit and employment opportunities, proponents believe that the project will generate greater overall investment in the Far South Side. One report estimates that the project will

²⁴ Chicago Metropolitan Agency for Planning, *Plan of Action for Regional Transit, Northeastern Illinois: From crisis to commitment: next steps for transit funding* (2025),

https://cmap.illinois.gov/wp-content/uploads/dlm_uploads/PART-analysis-oct2025.pdf.

²⁵ St. Clair County Transit District, “IL Governor Signs Significant Transit Funding Legislation into Law,” St. Clair County Transit District, accessed April 20, 2026,

<https://scctd.org/il-governor-signs-significant-transit-funding-legislation-into-law/>.

²⁶ Sara Machi, Darius Johnson, and Elyssa Kaufman, “Federal Transit Administration Threatens Funding If CTA Does Not Improve Security,” CBS Chicago, December 10, 2025,

<https://www.cbsnews.com/chicago/news/federal-transit-administration-cta-funding-threat/>.

²⁷ Todd Feurer, “Judge Orders Trump Administration to Temporarily Release \$2 Billion in CTA Red Line Funds,” CBS Chicago, March 24, 2026,

<https://www.cbsnews.com/chicago/news/judge-orders-trump-administration-to-temporarily-release-2-billion-in-cta-red-line-funds/>.

catalyze \$1.7 billion in real estate activity within the RLE footprint over the construction period through 2040.²⁸

Critics of the project, on the other hand, argue that while the project has noble intentions, its enormous cost vastly outweighs any potential benefits it could bring to the region. In total, the RLE is projected to cost roughly \$5.7 billion. At a rate of roughly \$1 billion per mile of track, the project will be the most expensive transportation project in North America, both in terms of dollars per mile and dollars per additional passenger. This price tag has skyrocketed drastically over the course of the project's planning phase, from \$1.0 billion when the CTA first pitched the project in 2009, to \$2.3 billion in 2016, to \$3.6 billion in 2023. And although the cost of the project increased, the amount of federal funding available to support it did not, putting an even greater burden on an agency that is already operating with significant budget deficits to cover project costs.²⁹

The proposed efficacy of the Red Line Expansion as a solution to economic disinvestment in the Far South Side also potentially ignores the presence of the Metra in regions that would be serviced by the RLE expansion. Of the four new accessible stations the project intends to develop, 3 (103rd St, 111th Street, and S Michigan Avenue) are within a mile and a half of an existing Metra station with access to downtown. This preexisting access brings into question whether the RLE's purpose of filling a transit gap on the Far South Side justifies the project's exorbitant cost.

Red Line Extension Transit-Supportive Development (TSD)

In addition to the construction of the Red Line itself, the RLE project aims to increase development in the community areas surrounding each transit station: Roseland, West Pullman, Riverdale, Washington Heights, Morgan Park, Beverly, Pullman, Hegewisch, South Deering, and Calumet Park. Transit-supportive development (TSD) is concentrated within a ½-mile radius surrounding each transit station and targets a mix of commercial, residential, office, entertainment, and recreational land use.³⁰ In support of these initiatives, the Cook County Land Bank and City-Owned Land Sale Programs have acquired nearly 1,000 vacant parcels within the four station areas.³¹

²⁸ Chicago Transit Authority, "Red Line Extension Project." Accessed May 1, 2026.
<https://www.transitchicago.com/rle/>.

²⁹ Nik Hunder, "The Red Line Extension's Hidden Costs." Substack. Accessed May 1, 2026.
<https://citythatworks.substack.com/p/the-red-line-extensions-hidden-costs>.

³⁰ Chicago Transit Authority and Department of Planning and Development, *Red Line Extension Transit-Supportive Development Plan* (Chicago Plan Commission, 2023),
https://www.transitchicago.com/assets/1/6/Red_Line_Extension_Transit_Supportive_Development_Plan- FINAL_WEB_VERSION_5-18-23-compressed.pdf, 52.

³¹ CTA and DPD, *Red Line Extension*, 42.

In addition to these parcels, the Chicago Transit Authority (CTA) and Chicago's Department of Planning and Development (DPD) categorized various sites in the RLE project area to best identify areas of improvement: underutilized sites, opportunity sites, and catalyst sites. Underutilized sites are all sites in the RLE project that are not currently developed to their full potential. This includes undeveloped parcels, vacant buildings, large parking lots, and low-scale, non-residential buildings. CTA and DPD aim to develop these parcels for pedestrian and transit development. Opportunity sites, on the other hand, are subsets of underdeveloped sites selected based on their physical characteristics, adjacency to transit, and proximity to existing amenities. Catalyst sites are the final subset, which present the best opportunities for development, based on their near-term development potential, transit proximity, and community value.³² With financial, political, and community support, the CTA's TSD project aims for the development of these lots to precede the opening of the RLE and potentially spark additional development in the half-mile areas surrounding each station.

To better develop areas surrounding the transit stations alongside the RLE project, the CTA and DPD created targeted proposals for development tailored to each station, as shown in the figures below. The proposals prioritize investing in the community area through the rehabilitation of existing buildings, developing catalyst sites, building new homes on vacant lots throughout the neighborhood in the 0.5 mi² station area, and creating multi-family, commercial, and mixed-use development in vacant parcels along major streets.³³ The proposal also emphasizes preserving the individual character of each neighborhood. The figures below illustrate two development proposals for the station areas around 103 Street and 111th Street. Each zoning plan includes mixed-use, commercial, and housing developments of different densities. In addition, the 111th Street zoning plans include the Roseland Community Medical District.

³²CTA and DPD, *Red Line Extension*, 54.

³³CTA and DPD, *Red Line Extension*, 56-57.

Current Zoning Restrictions in Southside Chicago

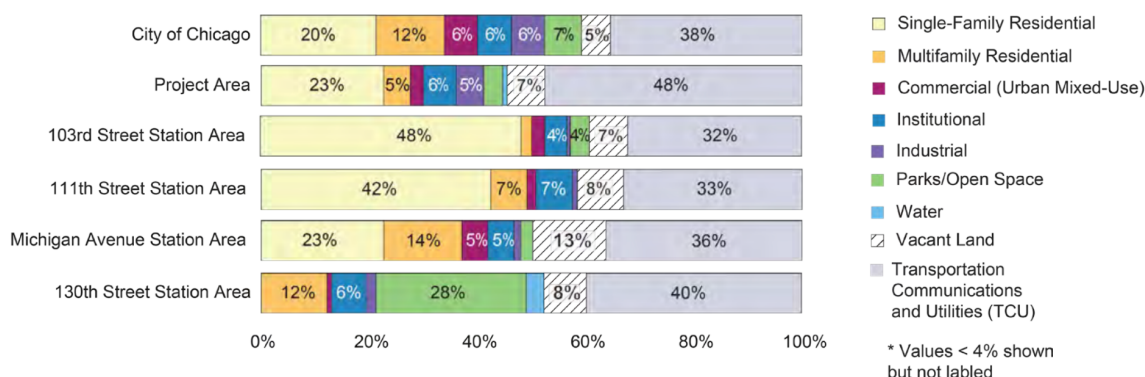


Figure 2-18: Distribution of Land Use

In contrast to other areas of Chicago, Far South Side development was enabled by the proliferation of the automobile. Access to neighborhoods like East Side, South Deering, and Hegeswich was made possible not through public transportation but rather through the construction of highways and the growth of car usage. The current infrastructure of the Far South Side reflects this development history. Only 22% of South Side residents live within ½ mile of an L station, as compared to 56% of North Siders. 66% of housing around the proposed Red Line station areas is single-family. While there is a large local labor force, only 11% work in the project area. The majority of employed residents commute to jobs elsewhere in Chicago and Cook County. Zoning in the project area reflects the low density, auto-oriented development, and, as a result, is often inconsistent with developmental plans around mass public transportation. To be successful, the RLE must address these inconsistencies.

Local zoning laws are just one of a myriad of factors that will impact the success of the RLE beyond railway infrastructure. The station area design and safety perceptions also have a major impact on ridership levels and the utility of a station in a given neighborhood.

Previous Studies on the Economic Impact of Transit Development

Previous studies on the impact of transit development on local economic factors are, on the whole, inconclusive. In general, however, there is strong evidence that transit development has an impact on local employment specifically.

With respect to local employment outcomes, key studies—including Cervero and Landis (1997), Bollinger and Ihlanfeldt (1997), Ong and Houston (2002), Cooper (2012), and Iseki and Eom

(2019)—conclude that transit development increases the density of public sector jobs.³⁴ Cooper (2012) hypothesizes that the manufacturing and construction sectors grow the most in this process, whereas Iseki and Eom (2019) claim that other sectors, like finance, insurance, administration, entertainment, real estate, and information, benefit the most from TOD and TSD. Moreover, Ong and Houston (2002) find that new transit stops increase local employment levels by up to 3-4% each, although their sample size was small and restricted.

On the other hand, Canales, Nilsson, and Delmelle (2019) and Sharifiasl, Kharel, Pan, and Li (2024) find that transit development led to no statistically significant increase in local employment.³⁵ Sharifiasl, Kharel, Pan, and Li (2024), as well as Sanchez (1998), have concluded that bus service has a greater impact on employment than train service.³⁶

Another key factor at play is the accessibility of jobs that are newly created and made accessible. In urban studies, the Spatial Mismatch Hypothesis, first associated with Kain's 1968 work on housing segregation and metropolitan decentralization, argues that there is a strong mismatch between the educational levels required for prominent jobs in urban areas and the educational attainment levels of residents in those areas. This creates a situation in which people from suburbs and outside cities come in to take the highest-paying jobs of a given urban area. According to studies like Thompson (1997) and Canales, Nilsson, and Delmelle (2019), new transit development is ultimately unable to address this issue.³⁷ Chatman and Noland (2011), Credit (2018), and Oh and Chen (2022) find, to the

³⁴Robert Cervero and John Landis, "Twenty Years of the Bay Area Rapid Transit System: Land Use and Development Impacts," *Transportation Research Part A: Policy and Practice* 31, no. 4 (1997): 309–33, [https://doi.org/10.1016/S0965-8564\(96\)00027-4](https://doi.org/10.1016/S0965-8564(96)00027-4); Christopher R. Bollinger and Keith R. Ihlanfeldt, "The Impact of Rapid Rail Transit on Economic Development: The Case of Atlanta's MARTA," *Journal of Urban Economics* 42, no. 2 (1997): 179–204, <https://doi.org/10.1006/juec.1996.2020>; Paul M. Ong and Douglas Houston, "Transit, Employment and Women on Welfare," *Urban Geography* 23, no. 4 (2002): 344–64, <https://doi.org/10.2747/0272-3638.23.4.344>; David Cooper, "Assessing the Economic Benefits of Increased Investment in Los Angeles's Public Transit Infrastructure," Economic Policy Institute, June 21, 2012, <https://www.epi.org/publication/ib334-assessing-economic-benefits-transit-rail/>; Hiroyuki Iseki and Hyunjoon Eom, "Impacts of Rail Transit Accessibility on Firm Spatial Distribution: Case Study in the Metropolitan Area of Washington, DC," *Transportation Research Record: Journal of the Transportation Research Board* 2673, no. 11 (2019): 220–32, <https://doi.org/10.1177/0361198119844464>.

³⁵Kristine Laura Canales et al., "Do Light Rail Transit Investments Increase Employment Opportunities? The Case of Charlotte, North Carolina," *Regional Science Policy & Practice* 11, no. 1 (2019): 189–203, <https://doi.org/10.1111/rsp3.12184>; Seyedsoheil Sharifiasl et al., "Assessing the Impact of Transit Accessibility on Employment Density: A Spatial Analysis of Gravity-Based Accessibility Incorporating Job Matching, Transit Service Types, and First/Last Mile Modes," *Journal of Transport Geography* 121 (December 2024): 104053, <https://doi.org/10.1016/j.jtrangeo.2024.104053>.

³⁶Thomas W. Sanchez, "The Connection Between Public Transit and Employment: The Cases of Portland and Atlanta," *Journal of the American Planning Association* 65, no. 3 (1999): 284–96, <https://doi.org/10.1080/01944369908976058>.

³⁷Gregory L. Thompson, "New Insights into the Value of Transit: Modeling Inferences from Dade County," *Transportation Research Record: Journal of the Transportation Research Board* 1753, no. 1 (2001): 52–58, <https://doi.org/10.3141/1753-07>; Kristine Laura Canales et al., "Do Light Rail Transit Investments Increase Employment Opportunities? The Case of Charlotte, North Carolina," *Regional Science Policy & Practice* 11, no. 1 (2019): 189–203, <https://doi.org/10.1111/rsp3.12184>.

contrary, that transit development can help bridge the gap.³⁸ The efficacy of transit to address this mismatch in any particular case will be largely dependent on whether transit plans are designed with educational attainment levels and job opportunities in mind, as well as on the kinds of jobs created by new development.

It is also evident that the Red Line Extension must consider local development alongside infrastructural extension. The 2007 “Time is Money” study, run by EBP Global, compared “Expand” options with “Expand and Plan” options for transit investment plans in Chicago. Their findings indicate that these options would end up costing the same amount, and yet “Expand and Plan” would produce a significantly higher return on investment of 61%, as compared to the predicted return of 34% for the “Expand” option.³⁹ Additionally, it is critical to note the advantages of the CTA’s specific development philosophy. The CTA has made it clear that the Red Line Extension project is a matter of transit-supportive development (TSD), rather than transit-oriented development (TOD)—meaning that rather than focus investment and development initiatives on a tightly-defined area, the CTA hopes to develop in areas along the entire new Red Line segment.⁴⁰ Notably, TSD is known to have a clear comparative benefit over TOD in areas without a dense urban core, such as the South Side.⁴¹ Whereas development in a central node of a city system stands to serve, to some extent, the whole community insofar as the infrastructure, business, and lifestyles of the population are already dependent on the urban core, in regions without this pre-existing arrangement, it makes sense to take a broader scope, as TSD does. Moreover, the CTA aims to ensure that the benefits of new developments are implemented with a keen eye on ensuring benefits for marginalized and/or disadvantaged social and economic groupings.⁴²

-However, research on TOD and TSD suggests that even well-intentioned planning frameworks, which are often justified in terms of sustainability, accessibility, and reduced car dependence, can systematically privilege employers over workers. Foundational work by Robert

³⁸Daniel G. Chatman and Robert B. Noland, “Do Public Transport Improvements Increase Agglomeration Economies? A Review of Literature and an Agenda for Research,” *Transport Reviews* 31, no. 6 (2011): 725–42, <https://doi.org/10.1080/01441647.2011.587908>; Kevin Credit, “Transit-Oriented Economic Development: The Impact of Light Rail on New Business Starts in the Phoenix, AZ Region, USA,” *Urban Studies* 55, no. 13 (2018): 2838–62, <https://doi.org/10.1177/0042098017724119>; Seunghoon Oh and Na Chen, “Do Public Transit and Agglomeration Economies Collectively Enhance Low-Skilled Job Accessibility in Portland, OR?,” *Transport Policy* 115 (January 2022): 209–19, <https://doi.org/10.1016/j.tranpol.2021.11.020>.

³⁹EBP Global, *Time Is Money: The Economics Benefits of Transit Investment* (Chicago Metropolis 2020, 2007), https://www.ebp.global/sites/default/files/us/files/project/uploads/timeismoney_1.pdf.

⁴⁰“Frequently Asked Questions,” Chicago Transit Authority, <https://www.transitchicago.com/rle/faq/>.

⁴¹“Benefits of Transit-Supportive Development,” Federal Transit Administration, December 14, 2015, <https://www.transit.dot.gov/funding/funding-finance-resources/transit-oriented-development/benefits-transit-supportive> ve; “Transit Oriented Development,” Transit Oriented Development Institute, <http://www.tod.org/>.

⁴²Chicago Transit Authority and Department of Planning and Development, *Red Line Extension Transit-Supportive Development Plan* (Chicago Plan Commission, 2023), https://www.transitchicago.com/assets/1/6/Red_Line_Extension_Transit_Supportive_Development_Plan- FINAL_WEB_VERSION_5-18-23-compressed.pdf.

Cervero and Kara Kockelman (1997) frames transit accessibility as a mechanism for improving labor market efficiency, arguing that “density, land-use diversity, and pedestrian-oriented designs generally reduce trip rates and encourage non-auto travel,” thereby facilitating more efficient matching between workers and jobs.⁴³ While this is frequently interpreted as mutually beneficial, the emphasis on efficiency implicitly centers firms’ ability to access labor, rather than workers’ ability to access goods, services, or improved working conditions. In this sense, TSD’s core logic treats accessibility as a labor market input, aligning transit investments with employer needs.

Subsequent research reinforces this employer-oriented dynamic. Daniel Chatman and Robert Noland (2011) find that “densification does not by itself cause agglomeration economies. Even if public transport leads to higher employment density near rail stations or allows entire cities to grow, this may or may not subsequently lead to a net productivity increase,” indicating that firms respond strategically to transit investments by clustering near accessible nodes.⁴⁴ This clustering reflects classic agglomeration benefits such as shared labor pools, reduced transaction costs, and knowledge spillovers that accrue primarily to firms. Thus, although planners often frame TSD as enhancing accessibility for all users, these outcomes suggest that firms are better positioned to capitalize on transit investments than workers, particularly when complementary policies targeting worker-serving amenities are absent.

This asymmetry is not only an unintended oversight but also reflects deeper structural dynamics in urban land use. John Logan and Harvey Molotch (1987) argue that “place is a commodity” and that urban development is shaped by actors seeking to maximize exchange value rather than use value.⁴⁵ Within this “growth machine,” local governments, developers, and business elites align around policies that increase land values and attract capital. TSD fits neatly into this framework: by increasing accessibility and encouraging density, it raises the exchange value of land near transit stations. As Logan and Molotch note, “the city is a growth machine,” meaning that even policies framed as public goods can function as mechanisms for capital accumulation.⁴⁶ Consequently, well-intentioned planning tools like TSD are often co-opted into strategies that prioritize development intensity and investment returns over the lived experiences of workers.

Empirical studies of TOD and TSD outcomes further illustrate how these structural incentives translate into built environments. Michael Duncan (2011) finds that proximity to transit is associated with higher probabilities of retail and multifamily development, indicating that transit access drives

⁴³ Robert Cervero and Kara Kockelman. “Travel Demand and the 3Ds: Density, Diversity, and Design.” *Transportation Research Part D Transport and Environment* 2, no. 3 (September 1, 1997): 199–219. [https://doi.org/10.1016/s1361-9209\(97\)00009-6](https://doi.org/10.1016/s1361-9209(97)00009-6).

⁴⁴ Chatman and Noland, “Do Public Transport Improvements Increase Agglomeration Economies?”

⁴⁵ Harvey Molotch, “The City as a Growth Machine: Toward a Political Economy of Place.” *American Journal of Sociology* 82, no. 2 (September 1, 1976): 309–32. <https://doi.org/10.1086/226311>.

⁴⁶ Molotch, “The City as a Growth Machine.”

intensification of land uses that are attractive to investors and firms.⁴⁷ However, this growth does not necessarily correspond with the provision of worker-serving amenities, suggesting a disconnect between increased accessibility and improved everyday experiences for workers. Similarly, Ashley Grube-Cavers and Zachary Patterson (2015) observe that station-area development frequently prioritizes accessibility and land-use intensification while overlooking the needs of existing populations.⁴⁸ These findings highlight how TSD's emphasis on density and connectivity can produce commercial environments oriented toward regional economic flows rather than localized service provision.

Pink Line and Red Line Extension Comparisons

Several key characteristics are important to note when making comparisons between the Pink Line and Red Line extensions.

The first is each region's existing access to public transportation. In the case of the Pink Line, many of the community areas within the vicinity of the railway already had some form of access to public transit. Pink Line stations weren't novel but rather a part of the Blue Line Cermak Branch that had previously served the area. As a possible consequence, although employment increased significantly, it didn't increase substantially in the aftermath of the Pink Line's creation.⁴⁹ The Far South Side also currently has access to some forms of transportation. Although the Red Line stops at 95th Street/Dan Ryan, much of the RLE corridor connects to the Metra, providing direct access to the loop. Although this preexisting access brings into question the value of the RLE as a way to revitalize the Far South Side, it does make the Pink Line and RLE more comparable; the areas served by both regions both had some form of inconsistent transportation prior to their respective transportation development projects.

Other major demographic differences between these two communities could impact the success of the RLE. Though both areas are economically disadvantaged, the West Side of Chicago is more racially diverse compared to the RLE project areas. With the exception of Beverly and Hegewisch, RLE community areas are overwhelmingly Black. This is in contrast with the West Side neighborhoods served by the Pink Line, where White Hispanic is the largest racial demographic (albeit

⁴⁷ Michael Duncan. The impact of transit-oriented development on housing prices in San Diego, CA. *Urban Stud.* 2011;48(1):101-27. doi: 10.1177/0042098009359958. PMID: 21174895.

⁴⁸ Annelise Grube-Cavers and Zachary Patterson. 2015. "Urban Rapid Rail Transit and Gentrification in Canadian Urban Centres: A Survival Analysis Approach." *Urban Studies* 52(1):178–94.

⁴⁹ Cameron Booth, "Behind the Scenes: Evolution of the Chicago CTA Rail Map from 1996-2006 and Beyond," Transit Maps, September 6, 2013, <https://transitmap.net/cta-1996-2006/>.

not a majority).⁵⁰ It is unclear how the racial demographic differences between the West Side and the Far South Side will create discrepancies between the effects of the Pink Line and the RLE.

In contrast to the racial demographic differences between the West Side and Far South Side, these regions share similar employment location data. In almost all community areas in both regions, a large plurality of residents were employed outside the Chicago area, with the loop usually being a distant second. Given this information, it is possible that the RLE could make working in the city more appealing and incentivize residents to pursue job opportunities in Chicago itself. On the other hand, the RLE offers few benefits in terms of transportation access and shortened commute times for those employed outside the city limits. This could indicate that the RLE project will have a limited impact.

Methodology & Data

Study Design

We employ a differences-in-differences procedure on the Pink Line, comparing employment and other quality-of-life measures between regions most impacted by the Pink Line's opening and control regions within neighborhoods still close to the Pink Line stations, and tracking these changes from before the Pink Line's opening in 2006 and after. We then use the coefficients determined by the Pink Line's model to apply them predictively to the Red Line Extension regions.

Treatment Assignment

The regions assigned to treatment and control are aggregated on the census tract level, which are 10-15 block sections. The census tracts assigned to be treatment regions were those within a 0.5-mile buffer from a CTA Pink Line station; this definition is assumed to be a reasonable walking distance. The census tracts assigned to be control regions were those outside the 0.5-mile buffer, but within a 1-mile buffer of the CTA Pink Line; this assumes that people within the control regions are not directly benefitting from the new stations, but still maintain similar demographic and economic characteristics to the treatment regions. The census tracts' assignment is shown below, with red regions being treatment regions and blue regions being control regions.

⁵⁰ Chicago Metropolitan Agency for Planning, "CMAP Datahub," 2026, <https://datahub.cmap.illinois.gov/>.

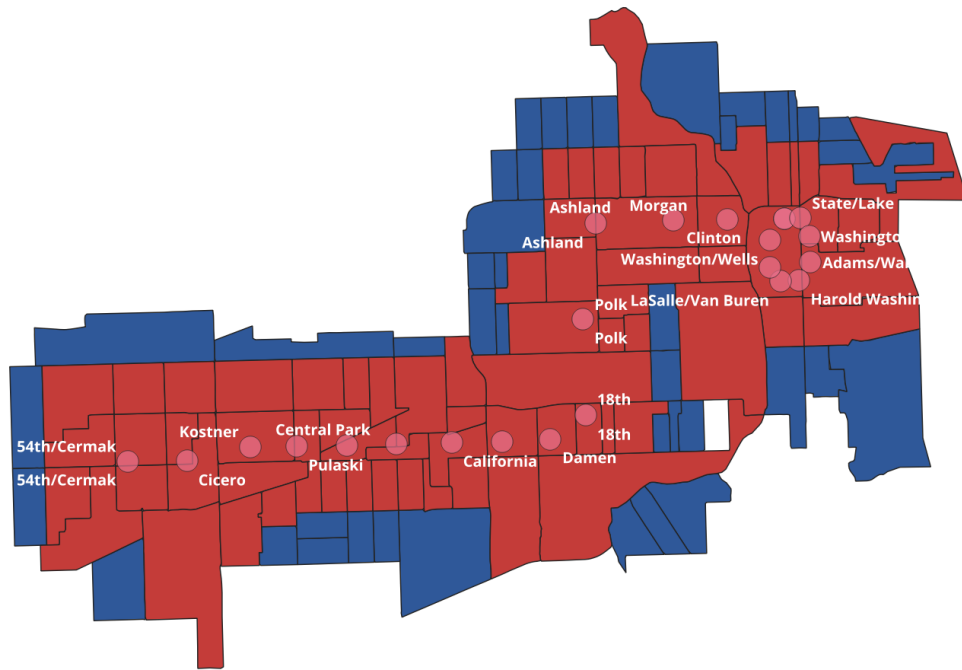


Figure 1. Treatment and control assignment of census tracts with a 0.5-mile and 1-mile buffer of CTA Pink Line stations, respectively.

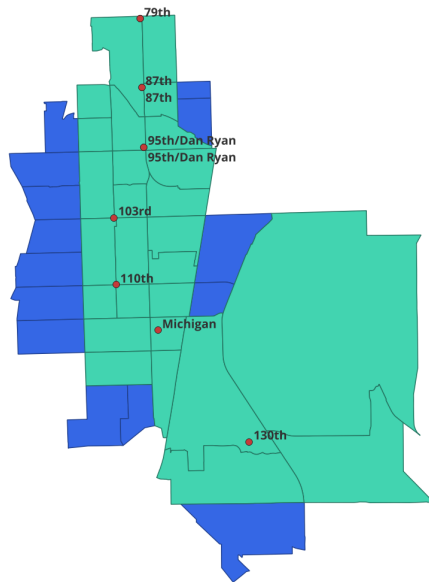


Figure 2. Treatment and control assignment of census tracts with a 0.5-mile and 1-mile buffer of CTA prospective Red Line Extension stations.

Data

Data for this study comes from the Longitudinal Employer-Household Dynamics survey (LEHD), the American Community Survey (ACS), and the Chicago Open Data Portal. The boundaries for census tracts from 2000, 2010, and 2020 come from the U.S. Census Bureau's Tiger/Line shapefiles.

Longitudinal Employer-Household Dynamics (LEHD)

The LEHD provided data on the number of workers employed in each census tract, dating from 2002 to 2023. This information included the total number of workers, the number of workers in the age groups of under 29 years old, between 30 and 54 years old, and over 55 years old; the number of workers in the monthly wage groups of under \$1,250 a month, between \$1,251 and \$3,333 a month, and over \$3,333 a month; and the number of workers in a variety of industries. This data provided our outcome variables.

The LEHD splits their data into two datasets: the Residence Area Characteristics (RAC) and Workplace Area Characteristics (WAC). The RAC measures jobs and employment for residents within a given census tract, while the WAC measures jobs and employment for employers and firms within a given census tract. Both datasets can provide valuable information about changes in job growth near and around the CTA Pink Line.

American Community Survey (ACS)

The ACS provides data on population, census tract square mileage, residents' commute times, the number of residents using public transportation, total housing units within a census tract, total owner and renter-occupied units, and median property values. As the vast majority of these variables are only available on a year-by-year basis after 2005, the decennial census was used for these variables to ensure consistent data. Thus, data for the years 2000-2009 come from the 2000 decennial census, and data for the years 2010-2019 come from the 2010 decennial census, and data for the years 2020-2023 come from the 2020 decennial census.

From the ACS data, we derived several additional variables, including population density, percentage of units rented, the percentage of residents using public transportation to get to work, and average commute time. Population density was calculated by dividing census tract population by land area; percentage of units rented was calculated by dividing total renter-occupied units by total units; percentage of residents using public transportation to get to work was calculated using the total

number of residents using public transit by the total number surveyed; average commute time was calculated by taking a weighted average of the reported ranges of fifteen-minute intervals.

Chicago Open Data Portal

The Chicago Open Data Portal provides data on business license issuing and renewal, and the shapefiles for the CTA L Train and CTA Pink Line station locations.

From the CTA Pink Line station shapefile, additional dummy variables were derived by creating 1-mile buffers around each Pink Line station, denoting which census tracts are within a 1-mile radius of a given station. For example, Census Tract 2832 is within a 1-mile radius of the 18th, Polk, Ashland, and Morgan Pink Line stations, so the dummy variables for these stations are marked as 1, while the dummy variables for the other stations are marked as 0. This will allow us to run our regression model for stations, allowing for more specificity than simply regressing on the Pink Line as a whole.

Regression Model

For the Pink Line, we will use a difference-in-differences model with unit and time fixed effects, comparing changes in employment and quality-of-life measures in the treatment and control regions before and after the Pink Line's opening. We will also use density, median household income, education, and race demographics as covariates. The regression model is described by:

$$Outcome = \alpha + \beta TREATMENT + \gamma PL_{open} + \delta TREATMENT:PL_{open} + \theta Covariates + \lambda Fixed\ Effects + \varepsilon$$

We also conducted an event-study difference-in-differences model with tract and year fixed effects to estimate the effects of the Pink Line's opening in treated areas relative to control areas year-over-year. Instead of using a single post-opening indicator, this model interacts the intervention (the opening of the Pink Line) with each year separately, dynamically visualising year-by-year changes and assessing both pre-trends and post-treatment changes. We also include density, median household income, education, and race demographics as covariates.

For the Red Line Extension model, we developed covariate coefficients by finding the interaction variable between the treatment dummy variable and each of the covariates, namely population density, race, and education. Then, we multiplied the current job statistics in each of the census tracts to determine predicted jobs, with the difference between predicted jobs and current jobs being predicted job growth. We then performed a linear regression to assess the correlation between treatment assignment and predicted job growth.

Limitations

Pink Line

Due to limited data prior to the introduction of the 5-year census in 2005, variables such as density, average commute time, and others are based on the decennial censuses of 2000, 2010, and 2020. The populations, square mileage, commute times, median house prices, and other variables are thus the same from 2002 to 2009, from 2010 to 2019, and from 2020 to 2023. While more frequently collected data became available after 2005, this uniform system ensures consistency. Additionally, deriving the control and treatment regions accounted for proximity to Pink Line stations; however, it did not account for other forms of transportation accessible to census tracts surrounding the Pink Line, such as buses, other CTA lines, or the RTA.

One significant limitation for the Pink Line study is the proximity of the control regions to the I-290 Eisenhower Expressway and the Blue Line train that runs through it. A portion of the control group tracts are within a mile of both, already providing service to the Loop and inner city. The bus lines that run from east to west, such as the Route 12 bus, provide a similar alternative that we also did not account for. Therefore, it is likely that the contrast that the project sought to find between the treatment and control zones would be an underestimate since there is already an accessible public and individual transportation outlet.

Red Line Extension

Another limitation is that the level of job creation between the construction of the Pink Line and the Red Line Extension is likely to be drastically different due to the circumstances surrounding their origin. The agreed-upon Red Line Extension would provide service to areas in the Southside that do not have another high-speed alternative for public transportation apart from the Metra which has a more suburban focus. The Pink Line, on the other hand, did not construct an entirely new line, but rather absorbed the past, lethargic Douglas Park Branch to improve service frequency and commute times.

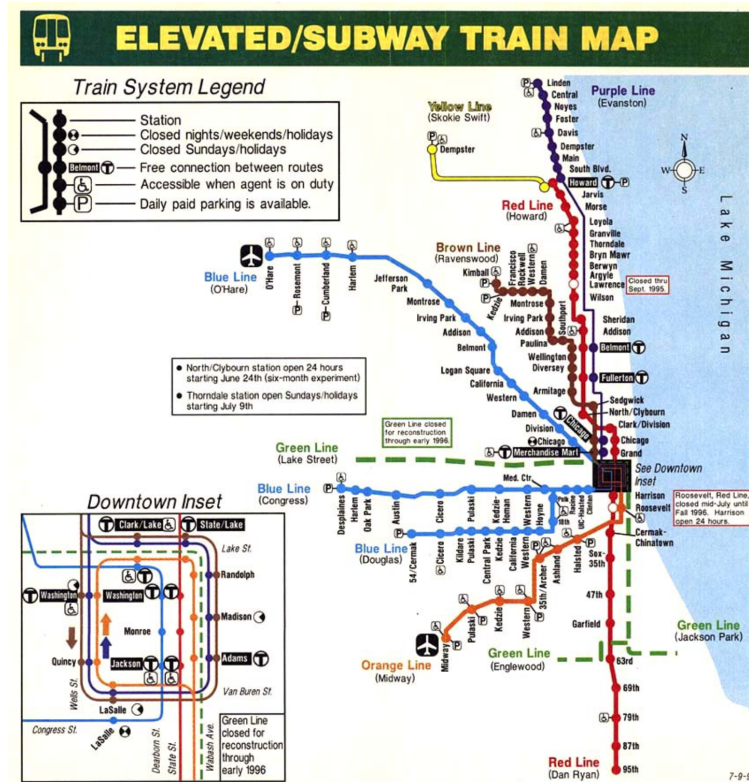


Figure 1. “L” System Map from 1995 displaying the Douglas branch of the Blue Line which preceded the Pink Line (<https://www.chicago-l.org/maps/route/maps/1995elevated.jpg>)

According to the Transportation Equity Network, the jobs created by producing new public train systems happen through the workers who construct the infrastructure and operate the trains, plus the suppliers who work with construction companies.⁵¹ After the construction is completed, the increased accessibility also brings more consumption/spending to the local economies. Because the Pink Line built upon the already-existing infrastructure of the Blue Line, there was less dependency on new construction, so less labor was required to build it. The Red Line Extension would require more labor because completely new tracks and stops would need to be built. For that reason, the job creation sprung from the Pink Line and Red Line Extension would be substantially different.

In terms of the Red Line Extension job growth model, applying the coefficients found in the Pink Line regression model to a different CTA line and region of Chicago is experimental, particularly since data for the Pink Line has been available and used for almost twenty years since its opening. We do not claim to be able to predict the effect of the Red Line Extension’s opening on job growth twenty years in the future, but using these quantitative results in conjunction with qualitative research on the CTA’s plans for commercial development does create a source for speculation.

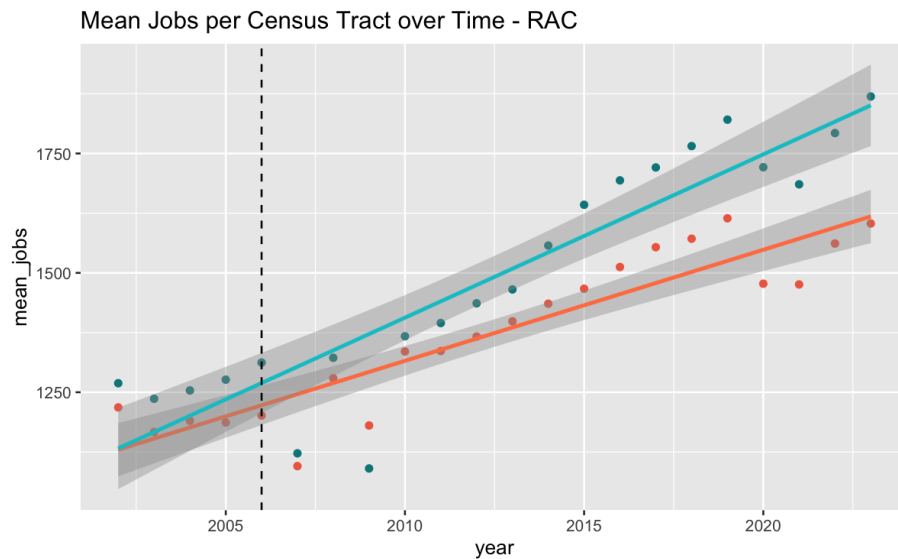
⁵¹Todd Swanstrom, et al., “The Impact of Increasing Funding for Public Transit.” *Mobility Lab*, Transportation Equity Network, <https://mobilitylab.org/wp-content/uploads/2023/10/more-jobs.pdf>.

Results

General Pink Line Results

The following graphs visualize the outcomes of difference-in-differences and event-study analyses used to estimate the effect of the Pink Line's opening on employment, commuting, and housing outcomes in treatment census tracts relative to control tracts. We first present descriptive trend graphs to evaluate pre-treatment parallel trends, followed by regression-based estimates of the treatment's effect. Taken together, these figures allow us to assess both the magnitude and timing of the line's economic impacts.

Mean Jobs



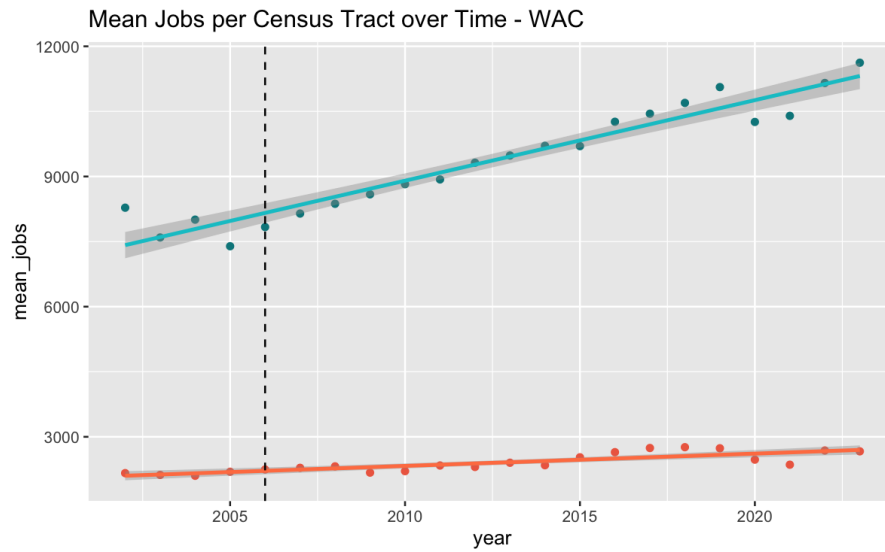
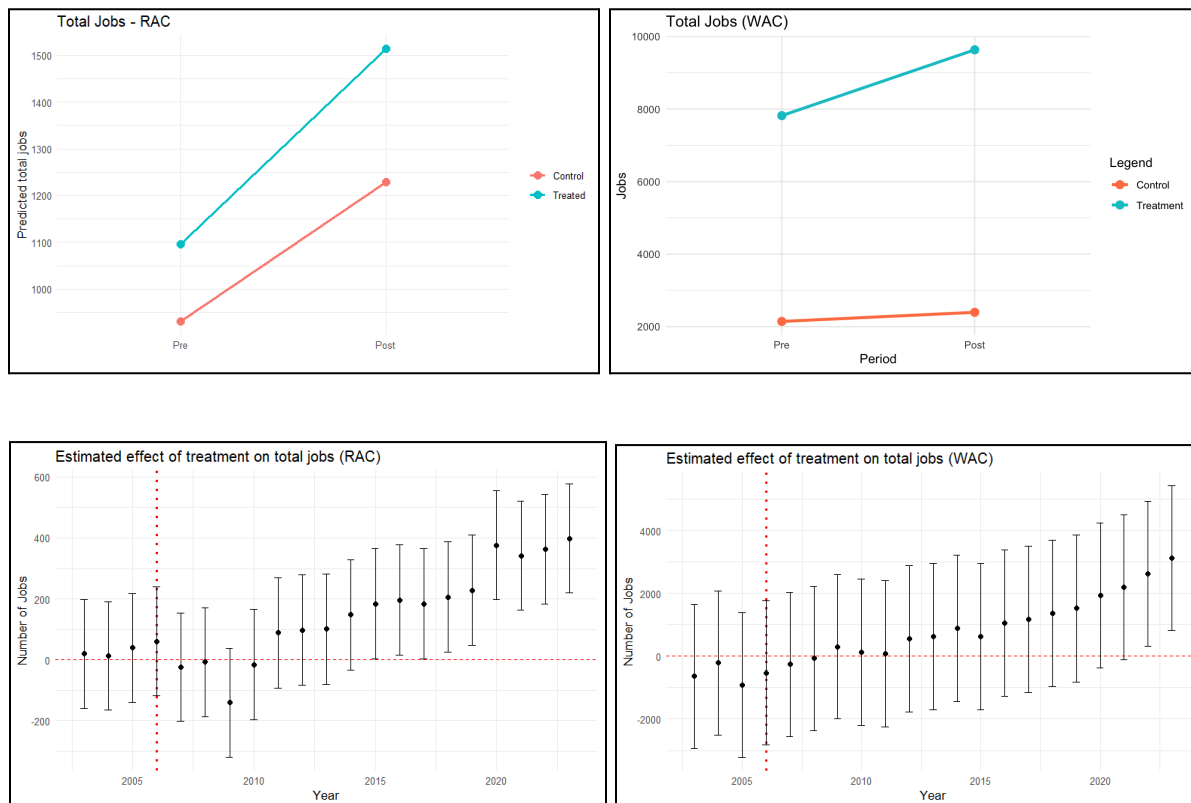
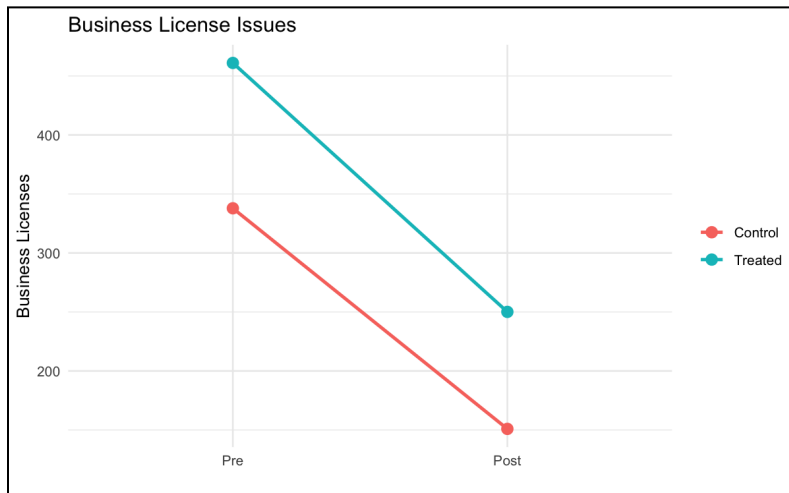


Figure 2. Mean jobs by census tract based on Resident Area Characteristics (RAC) and Workplace Area Characteristics (WAC). Turquoise represents the treated regions, while orange represents the control regions.

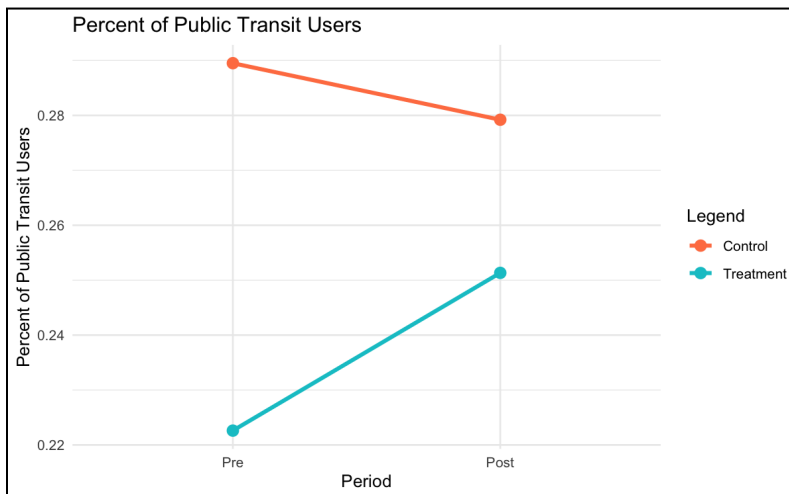
Total Jobs



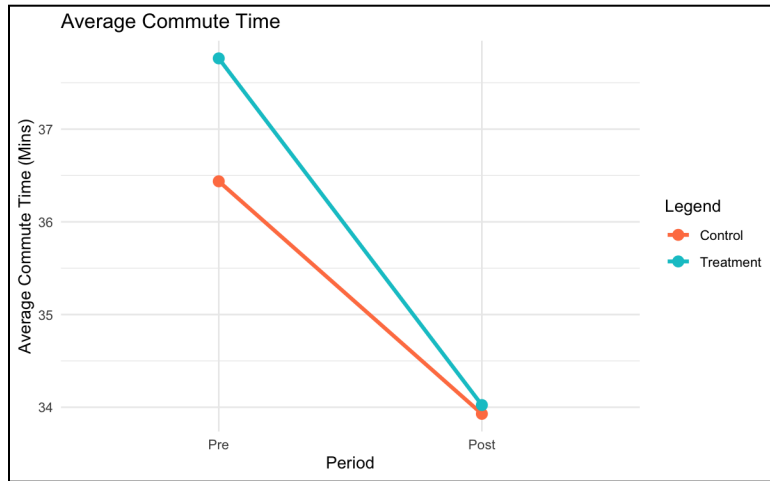
Business License Issues and Renewals



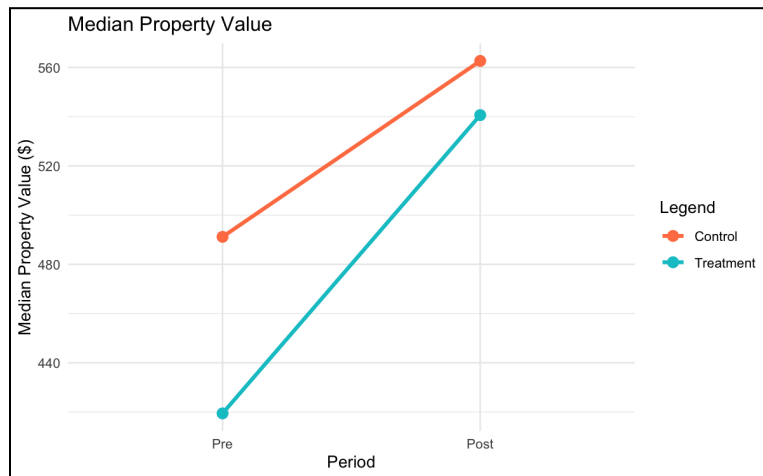
Percent of Commuters Using Public Transportation



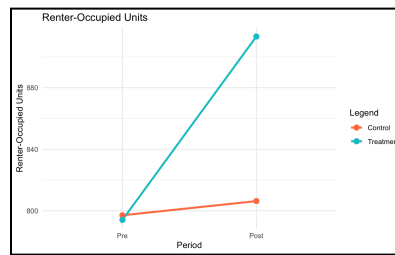
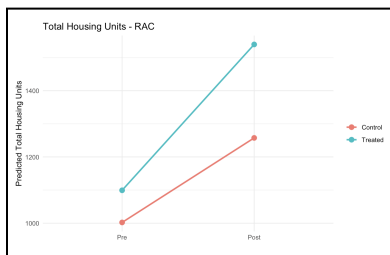
Average Commute Time to Work



Median Property Value



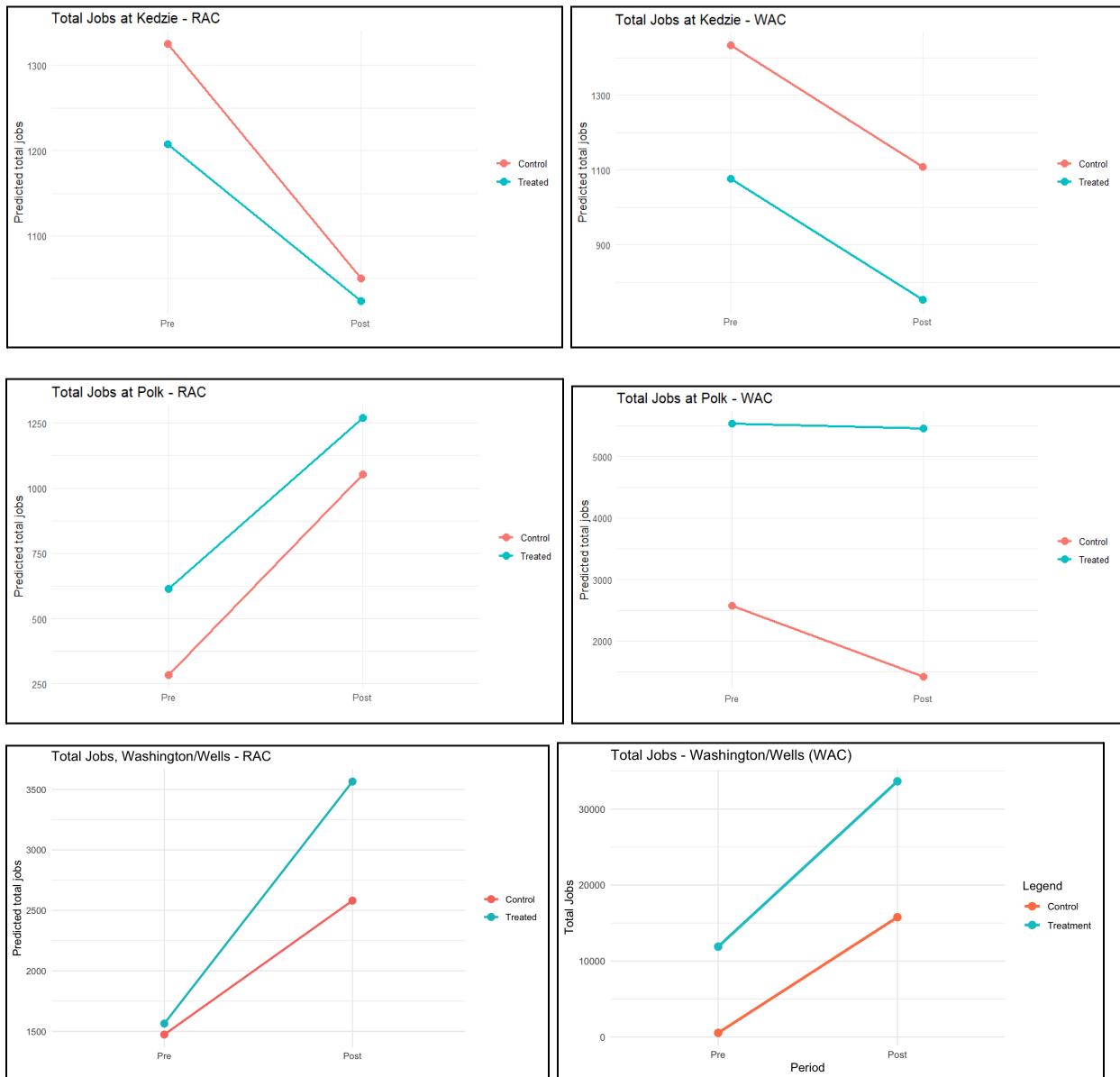
Number of Total, Renter, and Owner Occupied Units



Station-Specific Pink Line Results

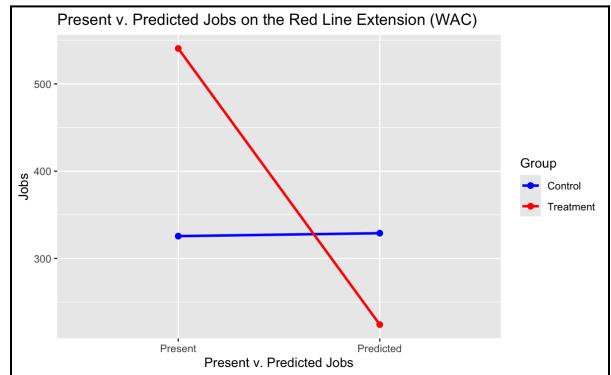
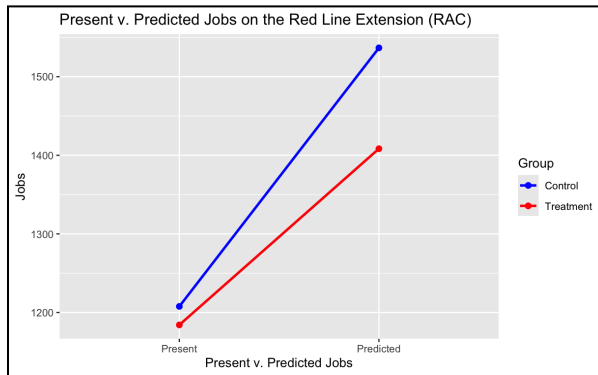
The station-specific Pink Line results were repeated for all eighteen Pink Line stations, but have been shortened to only include Cicero, Polk, and Washington/Wells. These three stations are intended to represent results from both the West Side and the Loop, with Polk acting as an intermediary station.

Total Jobs

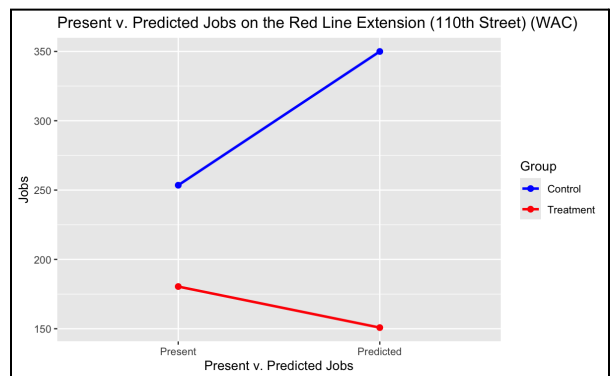
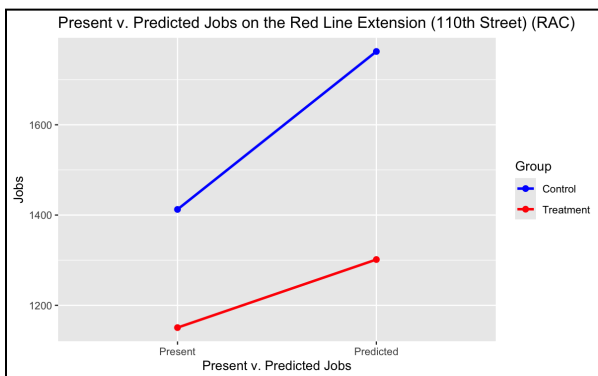
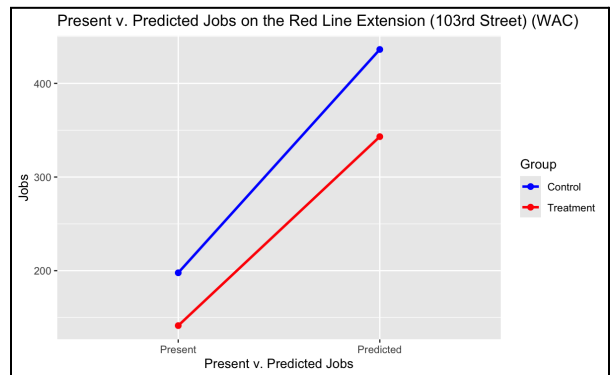


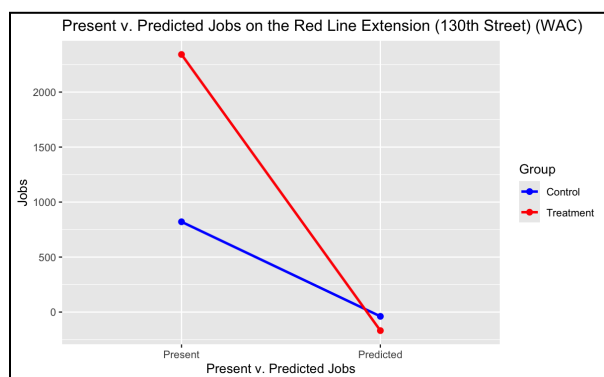
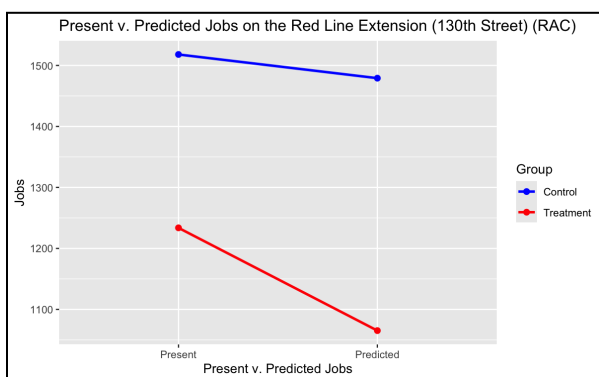
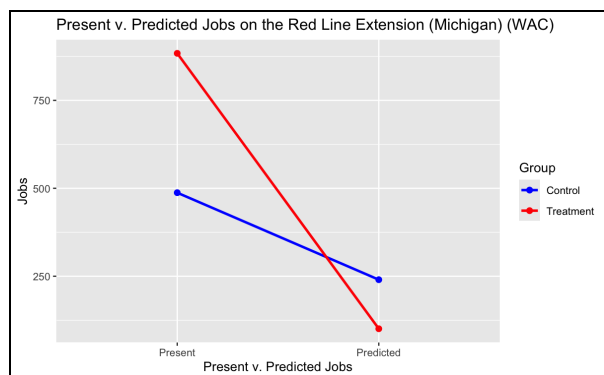
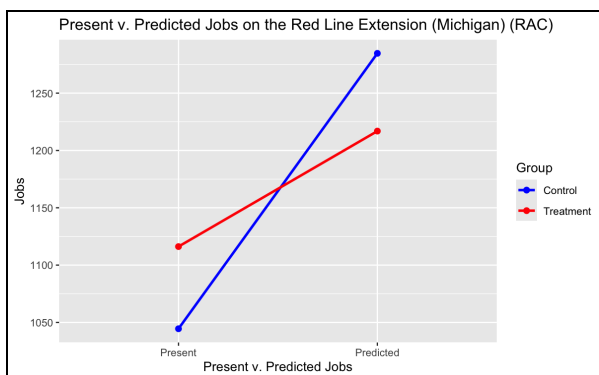
Red Line Extension

General RLE Predictions



Station-Specific Predictions





Discussion

Pink Line

Overall, census tracts within the treatment regions saw an increase of 131 jobs for workers compared to census tracts within the control regions ($p < 0.001$), and an increase of 1375 jobs for employers ($p < 0.01$). For workers, there was a slight increase of 30 jobs amongst workers under 29, and no significant change for any other age group or income group. For employers, there were significant increases for all age groups, particularly the 30-54 age group, which had an increase of 795 jobs ($p < 0.01$) and >55 age group, which had a 588-job increase ($p < 0.001$). The number of jobs in the Cicero station region decreased by 46.9 jobs ($p = 0.13$) for workers and increased by 474.12 jobs for employers ($p = 0.001$) in treatment regions compared to control regions. The number of jobs in the Polk station region decreased by 27.09 jobs for workers ($p = 0.74$) and increased by 516.4 jobs for employers ($p = 0.26$) in treatment regions, while the number of jobs in the Washington/Wells station region increased by 949.8 jobs for workers ($p < 10^{-9}$) and by 4749.68 jobs for employers ($p = 0.08$).

Comparison	Change in number of jobs	p-value
Treatment vs. Control census tracts for workers	+131	0.001
Treatment vs. Control census tracts for employers	+1375	0.01
Age =		

The WAC results, or results for employers and firms, indicate a significant redistribution of jobs toward higher-income workers. While there is no significant change for workers earning below \$1,250, the number of jobs held by middle-income workers (\$1,251-\$3,333) decreases by approximately 378 ($p < 0.05$) and the number of jobs held by high-income workers (over \$3,333) increases by 1,742 ($p < 0.01$). This suggests a shift in job composition toward higher-income workers. At the station level, these patterns vary. In the Kedzie station region, there is a marginal increase in jobs held by low-income workers and no significant change for middle-income workers, but a significant decrease in jobs held by high-income workers (-142 , $p < 0.01$). In the Polk station region, jobs held by middle-income workers decrease significantly (-320 , $p < 0.05$), although there is weak evidence of an increase in high-income jobs. In contrast, the Washington/Wells station region exhibits strong polarization, with a large decrease in middle-income jobs ($-2,534$, $p < 0.01$) and a substantial increase in high-income jobs ($+11,826$, $p < 0.001$).

The RAC results, or results for workers, reflect changes in the residential composition across income groups. Overall, there is no significant change in the number of low- or middle-income residents, but the number of high-income residents increases modestly ($+118$, $p < 0.001$). At the station level, the Polk region saw significant declines in both low- and middle-income residents, with a marginal increase in high-income residents, suggesting possible displacement. On the other hand, the Washington/Wells region sees significant increases across all income groups, particularly among high-income residents, indicating strong residential inflows.

The share of commuters using public transit increased by approximately 3.4 percentage points more in treatment areas relative to control areas after the line opened ($p = 0.028$). Public transit use increased by 11.04 % compared to baseline levels in treated areas. The percent of commuters using public transit decreased by less than 0.2% in the Cicero station region ($p = 0.27$), decreased just under 0.3% in the Polk station region ($p = 0.08$), and increased by 0.56% in the Washington/Wells station regions in the treatment census tracts compared to the control census tracts. The average commute time for commuters in treatment regions decreased by -0.63 minutes ($p = 0.03$).

Census tracts within treatment regions saw an average increase of 185.1 total housing units compared to census tracts within the control regions, but this was not statistically significant ($p = .01723$).

Median property value increased by \$2,320 in treatment regions compared to control regions ($p = 0.019$). The median property value increased by \$37,350 in the Cicero station region ($p < 0.001$), decreased by \$22,590 in the Polk station region ($p = 0.23$), and increased by \$138,400 in the Washington/Wells station region ($p = 0.002$) in treatment census tracts compared to control census tracts.

Red Line Extension

The predicted number of jobs was 184 jobs fewer for residents in treatment regions compared to control regions ($p < 0.5$), and 104 jobs greater for firms in treatment regions compared to control regions ($p = 0.26$). There is a sharp decline between the present and predicted job counts for workplaces, which may be attributed to outliers with the treatment region.

The station-specific graphs further illustrate the extent to which outliers, which seem to be concentrated at the southern end of the Red Line Extension region, lowered predicted job counts for workplaces. While the WAC trajectories of the present and predicted job counts for the 103rd Street station match that of the RAC graph, the slope of the treatment region becomes increasingly negative as the stations progress.

Variable being measured	Increase / Decrease	p-value	% Change
Pink Line — Overall Results			
Total jobs, RAC (workers) — Treatment	+420 jobs (pre ≈ 1,100 → post ≈ 1,520)	p < 0.001 (DiD = +131)	+38%
Total jobs, RAC (workers) — Control	+280 jobs (pre ≈ 950 → post ≈ 1,230)	—	+29%
Total jobs, WAC (employers) — Treatment	+1,900 jobs (pre ≈ 7,800 → post ≈ 9,700)	p < 0.01 (DiD = +1,375)	+24%
Total jobs, WAC (employers) — Control	+300 jobs (pre ≈ 2,100 → post ≈ 2,400)	—	+14%
Total jobs, workers age <29 (RAC) — Treatment	+120 jobs (pre ≈ 430 → post ≈ 550)	n.s., "slight" (DiD = +30)	+28%
Total jobs, workers age <29 (RAC) — Control	+90 jobs (pre ≈ 380 → post ≈ 470)	—	+24%
Total jobs, employers age 30–54 (WAC) — Treatment	+1,500 jobs (pre ≈ 4,600 → post ≈ 6,100)	p < 0.01 (DiD = +795)	+33%
Total jobs, employers age 30–54 (WAC) — Control	+700 jobs (pre ≈ 1,100 → post ≈ 1,800)	—	+64%
Total jobs, employers age >55 (WAC) — Treatment	+1,150 jobs (pre ≈ 1,000 → post ≈ 2,150)	p < 0.001 (DiD = +588)	+115%
Total jobs, employers age >55 (WAC) — Control	+530 jobs (pre ≈ 250 → post ≈ 780)	—	+212%
Middle-income jobs \$1,251–\$3,333 (WAC) — Treatment	Decrease (income WAC graph shown in residual scale; rough Δ ≈ –1,600)	p < 0.05 (DiD = –378)	≈ –15%*
Middle-income jobs \$1,251–\$3,333 (WAC) — Control	Decrease (rough Δ ≈ –1,300)	—	≈ –13%*
High-income jobs > \$3,333 (WAC) — Treatment	Increase (residual scale; rough Δ ≈ +4,000)	p < 0.01 (DiD = +1,742)	≈ +44%*
High-income jobs > \$3,333 (WAC) — Control	Increase (rough Δ ≈ +4,000)	—	≈ +30%*
High-income residents > \$3,333 (RAC) — Treatment	+330 residents (pre ≈ 900 → post ≈ 1,230)	p < 0.001 (DiD = +118)	+37%
High-income residents > \$3,333 (RAC) — Control	+500 residents (pre ≈ 1,700 → post ≈ 2,200)	—	+29%
% of commuters using public transit — Treatment	+2.9 pp (pre ≈ 22.2% → post ≈ 25.1%)	p = 0.028 (DiD = +3.4 pp)	+11% (matches paper's +11.04%)

% of commuters using public transit — Control	–1.1 pp (pre ≈ 29.0% → post ≈ 27.9%)	—	–3.8%
Average commute time to work — Treatment	–3.6 min (pre ≈ 37.7 → post ≈ 34.1)	p = 0.03 (DiD = –0.63 min)	–9.5%
Average commute time to work — Control	–2.6 min (pre ≈ 36.5 → post ≈ 33.9)	—	–7.1%
Total housing units — Treatment	+380 units (pre ≈ 1,100 → post ≈ 1,480)	p = 0.017 (DiD = +185.1)	+35%
Total housing units — Control	+230 units (pre ≈ 1,000 → post ≈ 1,230)	—	+23%
Median property value — Treatment	+~\$110K (pre ≈ \$430K → post ≈ \$540K, graph units)	p = 0.019 (DiD = +\$2,320)	+26%
Median property value — Control	+~\$65K (pre ≈ \$495K → post ≈ \$560K, graph units)	—	+13%
Red Line Extension — Predictive Model Results			
Predicted total jobs, RAC (residents) — Treatment	+200 jobs (present ≈ 1,200 → predicted ≈ 1,400)	p < 0.5 (DiD = –184)	+17%
Predicted total jobs, RAC (residents) — Control	+380 jobs (present ≈ 1,200 → predicted ≈ 1,580)	—	+32%
Predicted total jobs, WAC (firms) — Treatment	–250 jobs (present ≈ 500 → predicted ≈ 250)	p = 0.26 (DiD = +104, per paper)	–50%
Predicted total jobs, WAC (firms) — Control	~0 jobs (present ≈ 340 → predicted ≈ 340)	—	~0%

Conclusions

The job counts for workers living in the census tracts along the CTA Pink Line increased significantly, particularly for employers. While job increases were largely concentrated in the Loop, regions farther west, such as Cermak/54th, Cicero, and Kedzie, also saw significant increases in job growth. This would imply that the construction of the Pink Line largely connected workers from across the city to jobs in the West Side rather than bringing West Side residents to jobs through the Loop. Applying this to the Red Line Extension, we would expect to see a larger increase in workers commuting to the Far South Side rather than workers taking the Red Line from the deep south to the Loop, although the additional access to buses and train lines in the West Side may have amplified this effect that would not be seen in the transit-desert in the Far South Side.

Meanwhile, other factors impacting quality of life, such as average commute time, increased public transit usage, and housing density, did not change significantly. In particular, commuters on the West Side, living in areas such as near Cicero or Polk, had especially few shifts in quality-of-life measures, while commuters closer to the Loop, such as near Washington/Wells, saw massive increases in housing density and median property value. Considering that the Loop is already a massive hub for economic growth and job creation, this may suggest that the Pink Line's opening alone did not have a significant impact on improving the quality of life for Chicago residents on the West Side.

For the Red Line Extension, our predictive models found a predicted increase in jobs for residents, but a predicted decrease for firms. Additionally, the model did not find a statistically significant difference between the changes in jobs for the control versus the treatment regions. This may be attributed to the small sample size of census tracts in the Red Line Extension, as well as some outlier census tracts in the southernmost region of Chicago, particularly those near Lake Calumet. These models were experimental and cannot account for economic shifts or changes over the next few years, and there were large standard errors and few statistically significant results. Nonetheless, we cannot definitely say that the Red Line Extension will boost job or economic growth on its own. **By these estimates, the CTA's 25,000-job prediction seems rather unfounded.**

Our findings also suggest that TSD's employer bias is embedded in its underlying design principles rather than resulting solely from flawed implementation. By prioritizing efficiency, accessibility, and agglomeration, TSD frameworks make transit-adjacent land more valuable to firms and developers, thereby incentivizing commercial patterns that cater to employer needs. Without explicit interventions to center worker experience, such as zoning for small-scale retail, protections for existing businesses, or planning for non-standard work schedules, these spaces are likely to evolve in

ways that support labor market efficiency while neglecting the everyday consumption and service needs of workers. This dynamic is particularly evident in mixed-use or industrial corridors, such as Chicago's Pink Line, where transit infrastructure facilitates regional connectivity for employers but does not necessarily produce worker-oriented commercial ecosystems.

Still, the city of Chicago and the CTA's efforts to promote equitable transit-supportive development on the Far South Side near the new transit stations could produce increased commercial activity and job growth along the Red Line Extension in ways that their development efforts towards the Pink Line did not. Considering that the only current way to leave the community is by public bus to the 95th Street/Dan Ryan station, an additional public transit option will aid residents who do not have cars. Additionally, current businesses, such as a medical clinic, are in the process of moving towards the planned CTA station in order to capture more business coming from the train; new shops, such as a barber shop, are also planned to open near the stations. This, rather than the opening of the stations themselves, may be poised to make the greatest impact.

Appendix

Descriptive Statistics

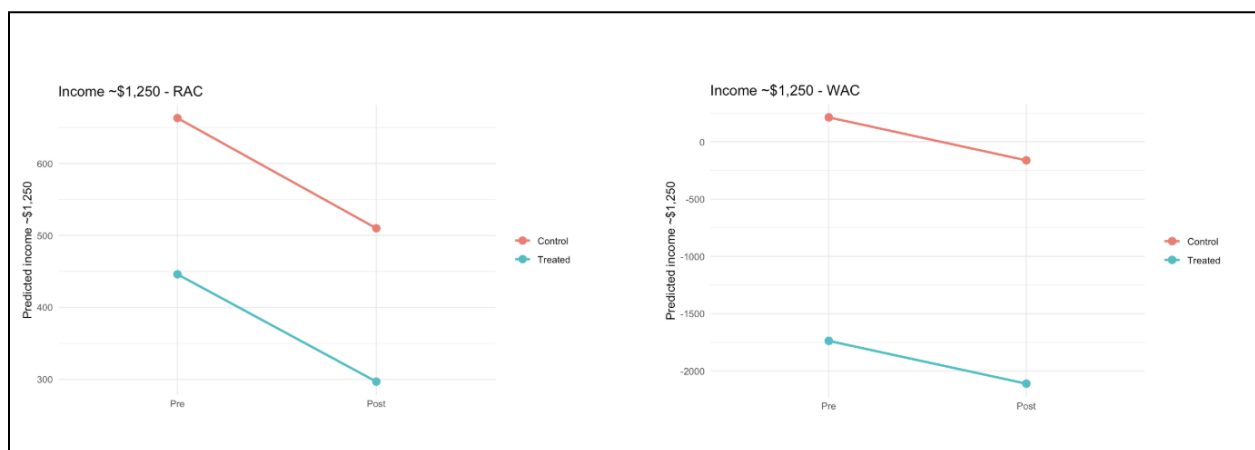
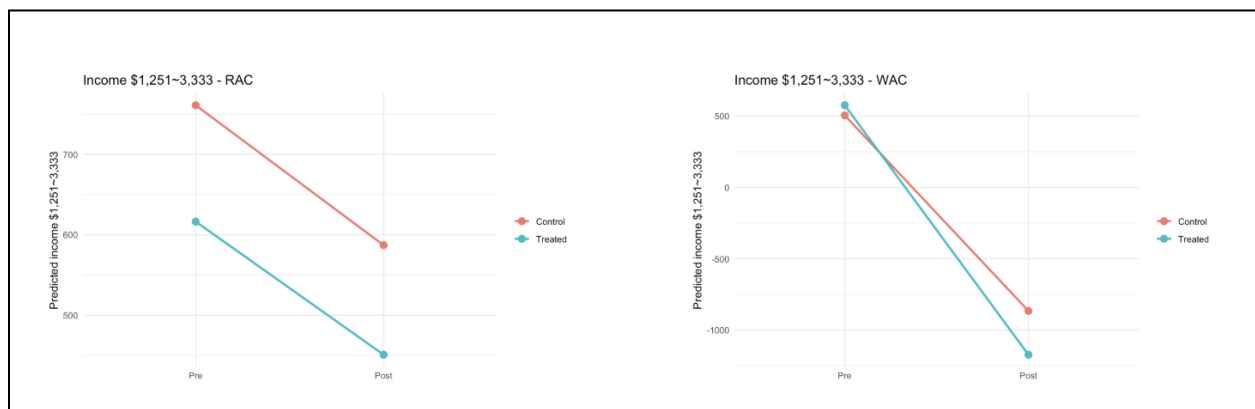
Pink Line

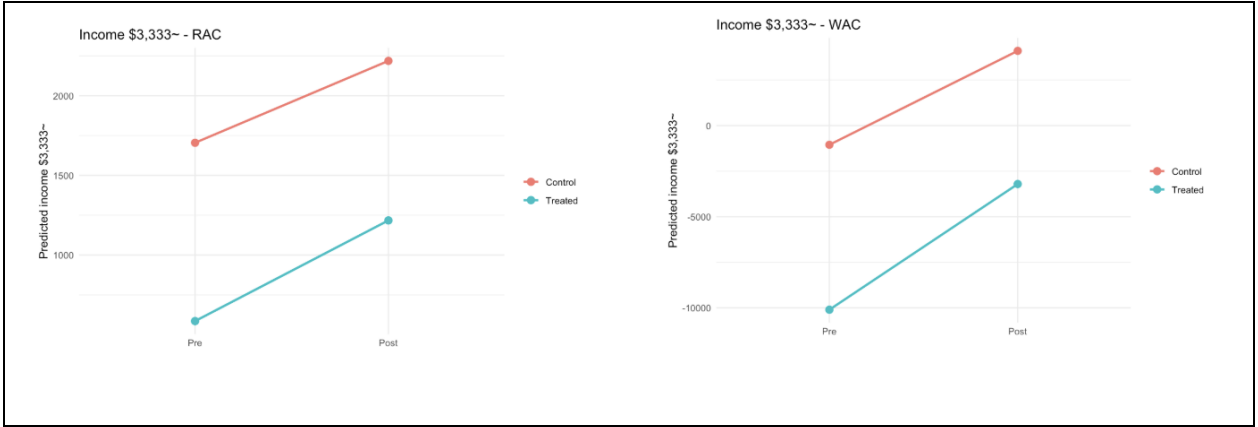
Station	Median Income (\$)	Median Property Value (\$)	% White	% Black	% Asian	% Other	% Multi- racial
54/Cermak	31218.24	90335.29	0.389	0.159	0.010	0.397	0.0353
Cicero	26474.21	76910.53	0.342	0.195	0.007	0.415	0.0330
Kostner	27212.76	104602.17	0.223	0.386	0.004	0.356	0.0244
Pulaski	26452.57	108209.26	0.190	0.436	0.0015	0.343	0.0240
Central Park	30619.81	123870.37	0.178	0.469	0.0013	0.325	0.0227
Kedzie	37428.70	135019.64	0.189	0.485	0.00185	0.296	0.0229
California	37539.17	131979.17	0.234	0.413	0.00853	0.316	0.0238
Western	41236.30	140660.00	0.289	0.310	0.0232	0.343	0.0276

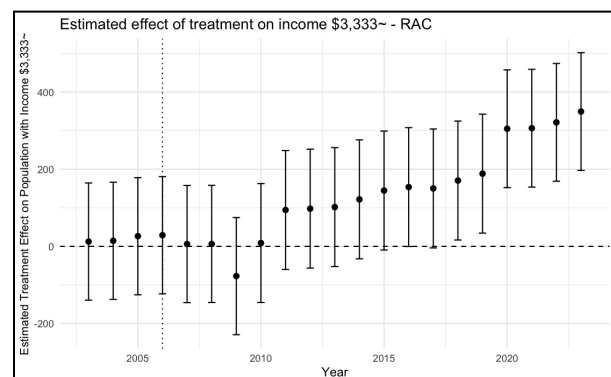
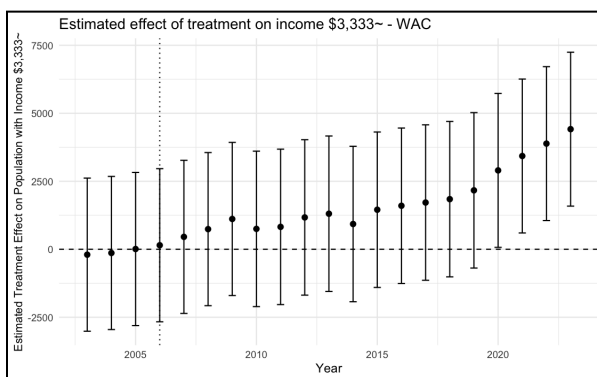
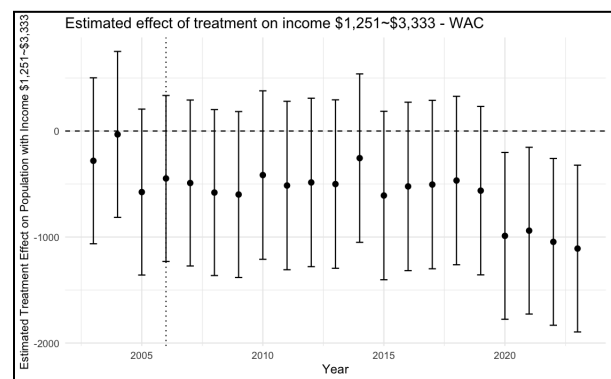
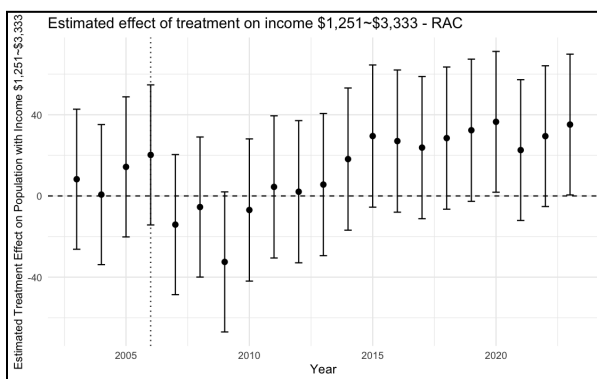
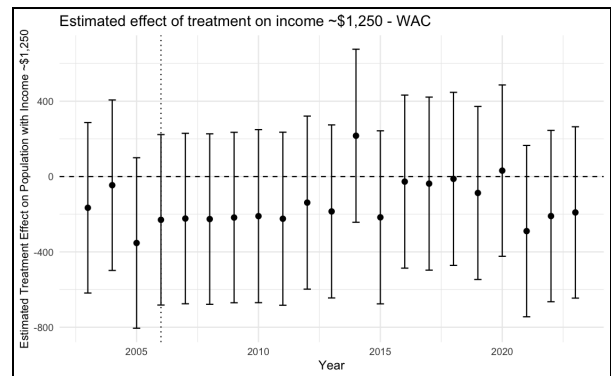
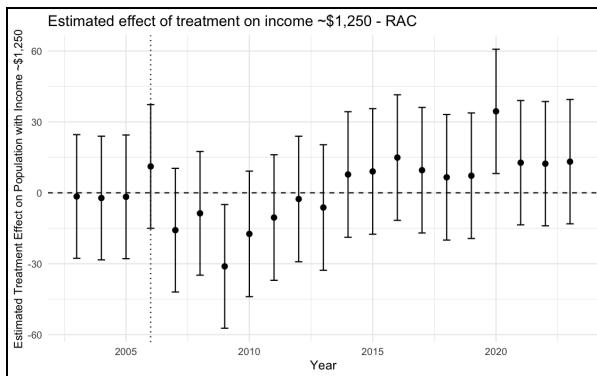
Damen	41915.58	144510.53	0.347	0.204	0.0598	0.350	0.0307
18th	47631.92	190424.00	0.366	0.211	0.0848	0.303	0.0284
Polk	54165.52	242813.00	0.275	0.471	0.0676	0.160	0.0213
Ashland	61477.33	354020.83	0.441	0.345	0.0652	0.116	0.0279
Morgan	73599.10	326114.29	0.502	0.323	0.0740	0.0723	0.0255
Clinton	72797.88	343097.16	0.597	0.262	0.0778	0.0382	0.0231
Clark/Lake	67592.15	336074.19	0.632	0.244	0.0789	0.0212	0.0213
State/Lake	63918.78	332778.39	0.647	0.224	0.0886	0.0174	0.0209
Washington/ Wabash	67325.10	329947.76	0.701	0.161	0.0960	0.0187	0.0214
Adams/Wabash	65529.35	240070.05	0.622	0.236	0.0961	0.0217	0.0217
Harold Washington Library-State/Van Buren	66275.07	214374.09	0.595	0.269	0.0924	0.0204	0.0212

LaSalle/Van Buren	74591.17	257171.68	0.595	0.272	0.0860	0.0227	0.0215
Quincy	74874.83	264744.46	0.595	0.262	0.0935	0.0241	0.0226
Washington/Wells	68149.87	320778.35	0.636	0.232	0.0856	0.0224	0.0215

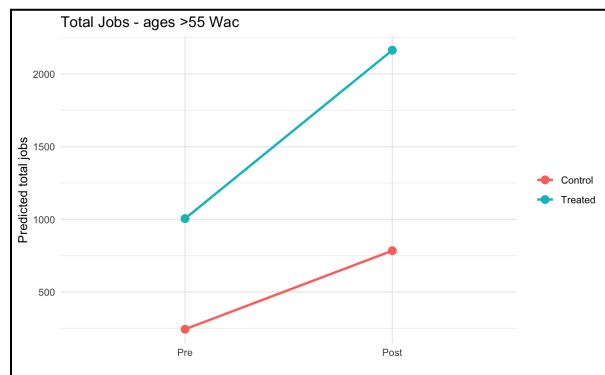
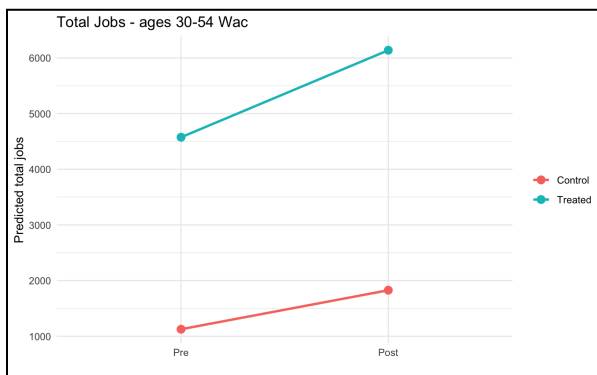
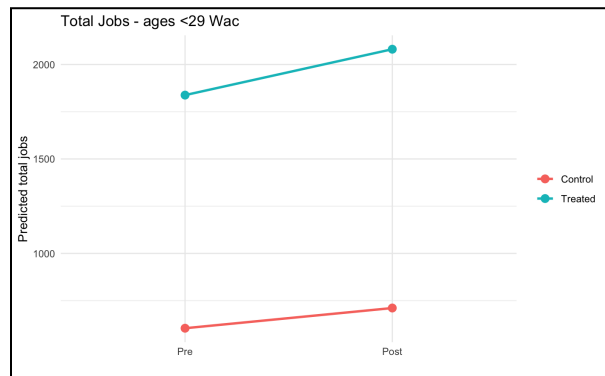
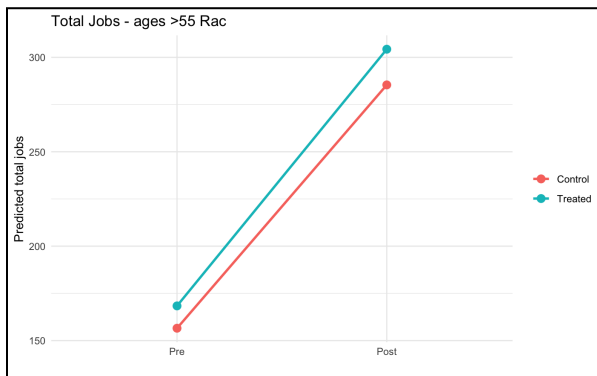
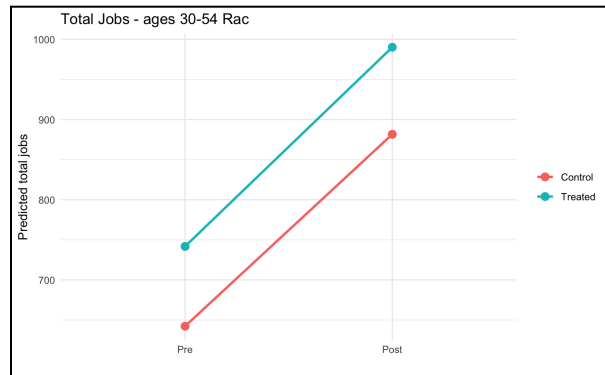
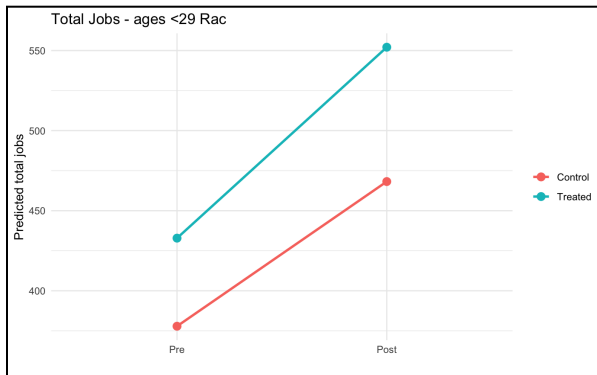
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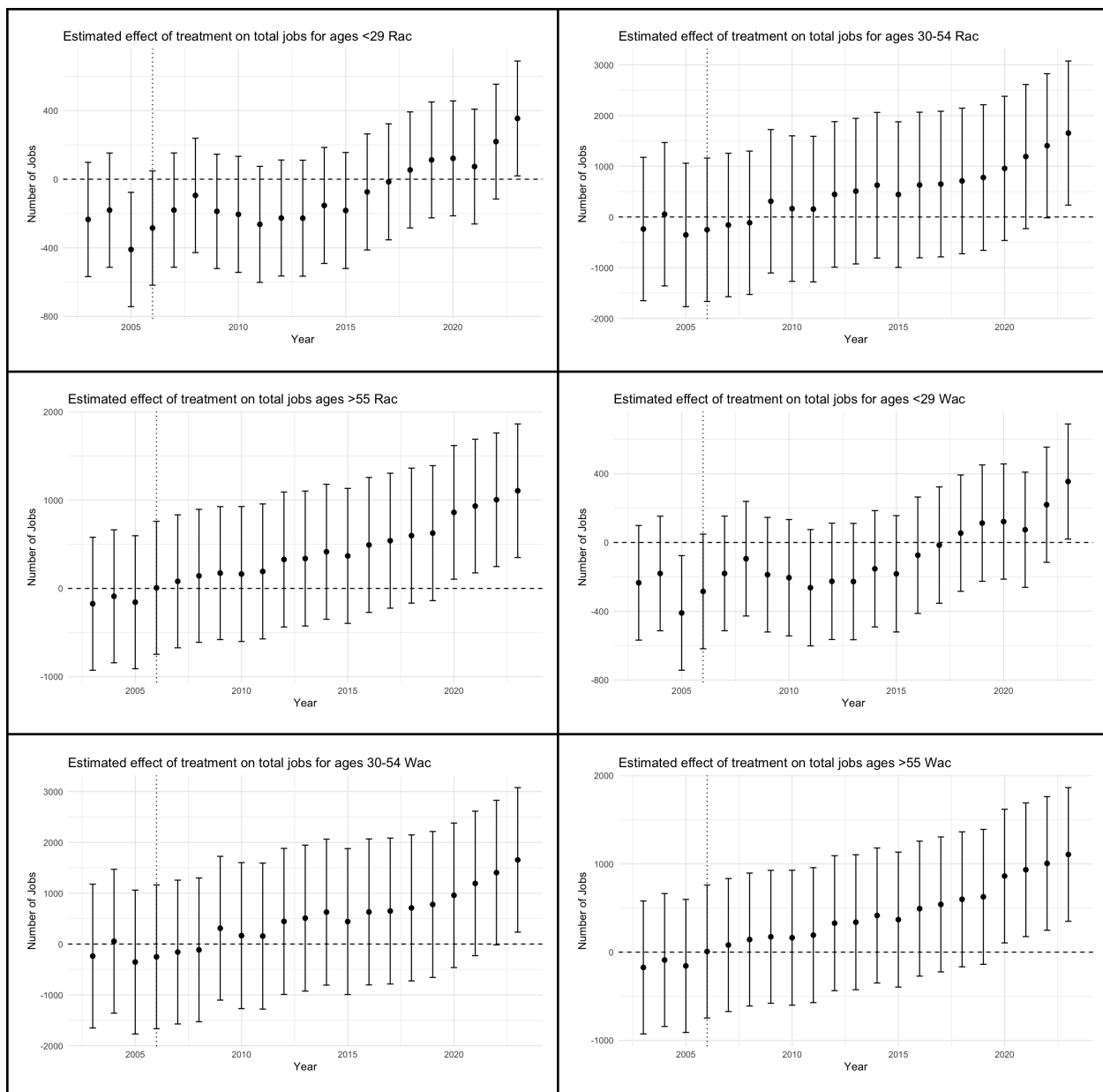






Total Jobs by Age Ranges





Pink Line Pre-Treatment Comparisons

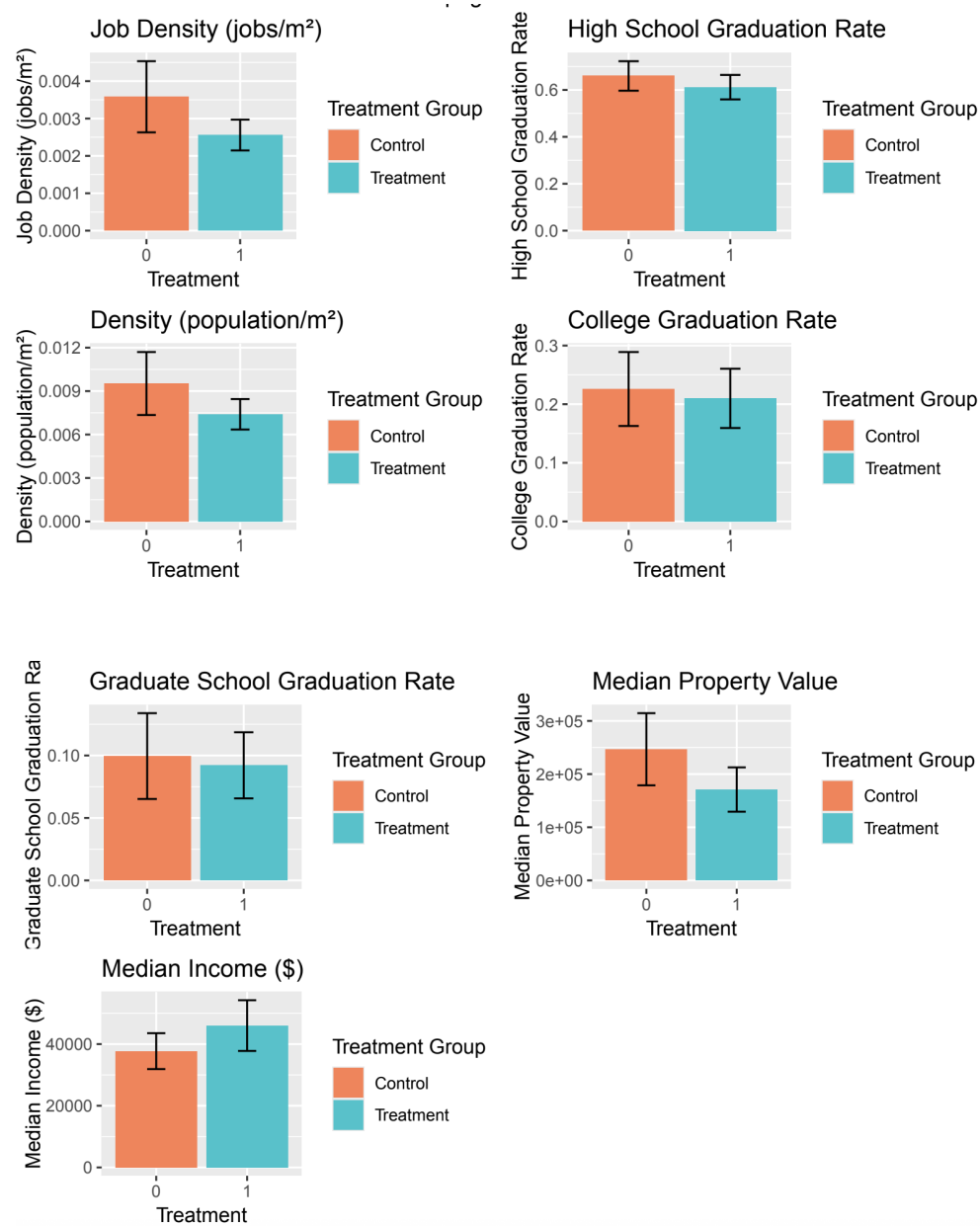


Figure 1. Comparisons of covariates between control and treatment regions on the Pink Line.

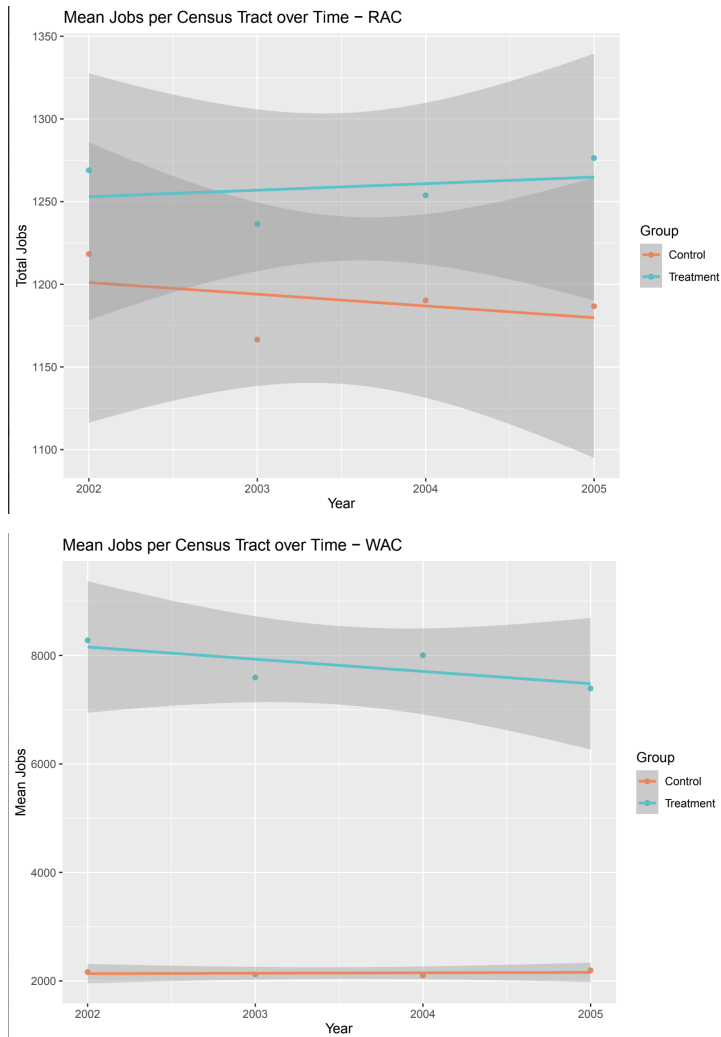


Figure 2. Comparison of mean jobs per census tract over time from 2002-2005 for Residence Area Characteristics (RAC) and Workplace Area Characteristics (WAC) datasets.

Red Line Extension

Station Name	Median Income (\$)	Median Property Value (\$)	% White	% Black	% Asian	% Other	% Multi
103rd	63616.77	163253.8	0.007	0.951	0.002	0.012	0.0268

110th	49705.77	143861.5	0.0134	0.912	0.00152	0.0370	0.0341
Michigan	45700.44	138162.5	0.0387	0.864	0.0013`	0.0509	0.0415
130th	36841.00	133120.0	0.113	0.683	0.00215	0.114	0.0800

Red Line Extension Pre-Treatment Comparisons

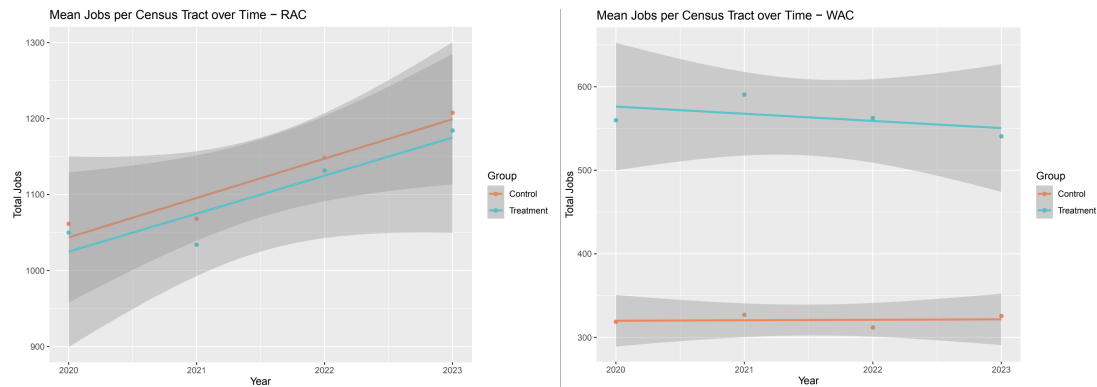
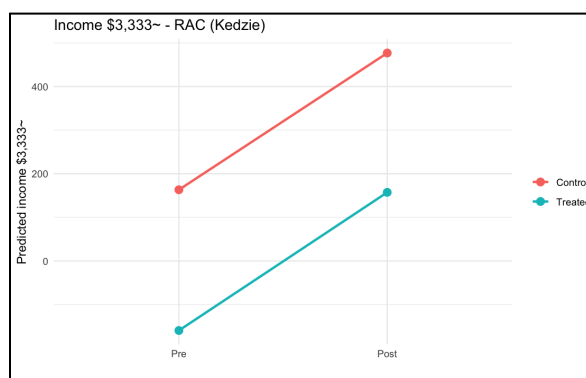
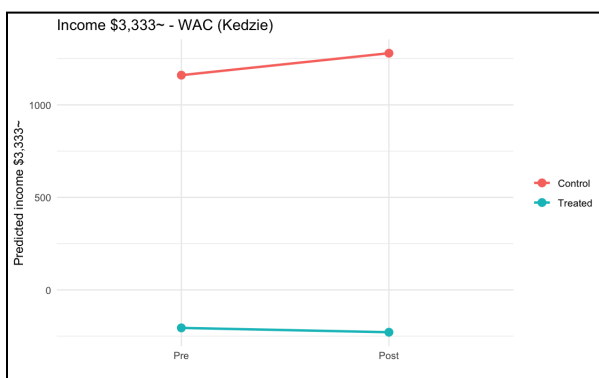
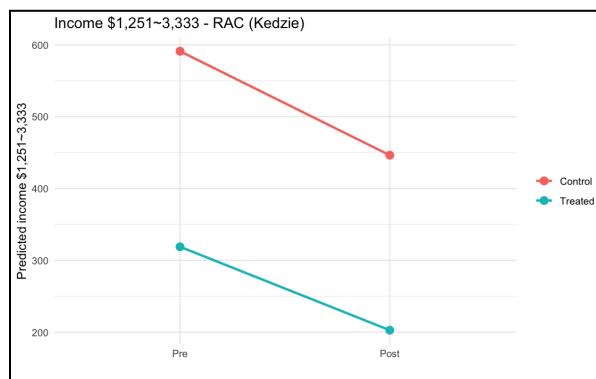
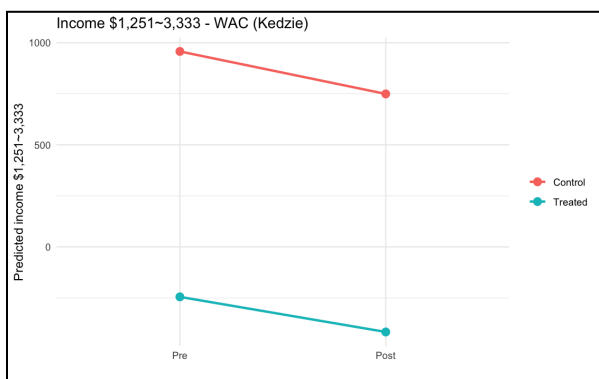
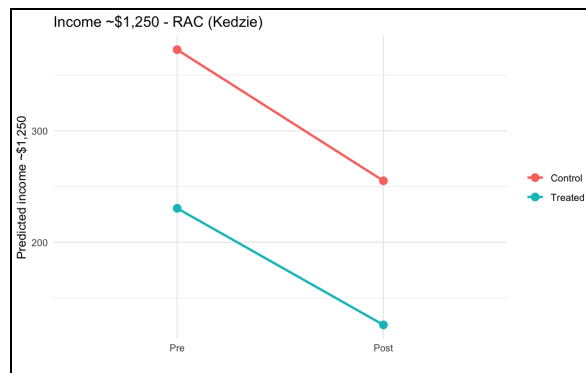
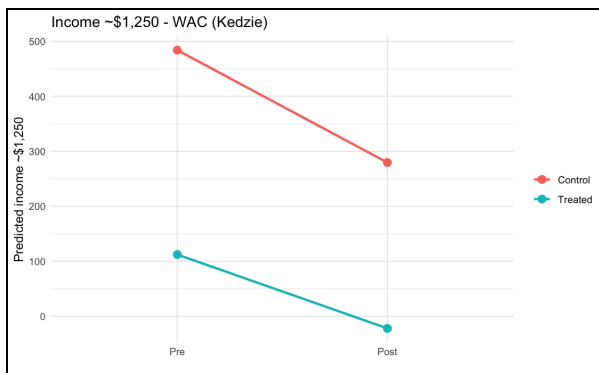
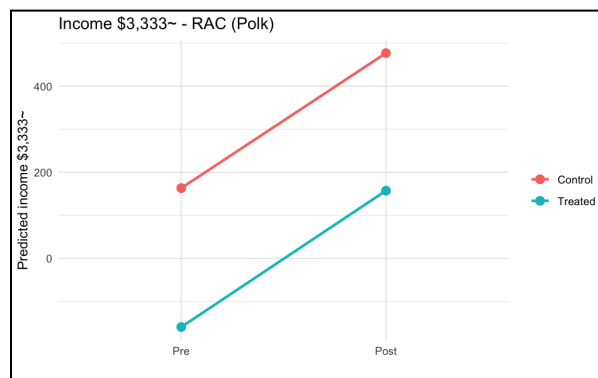
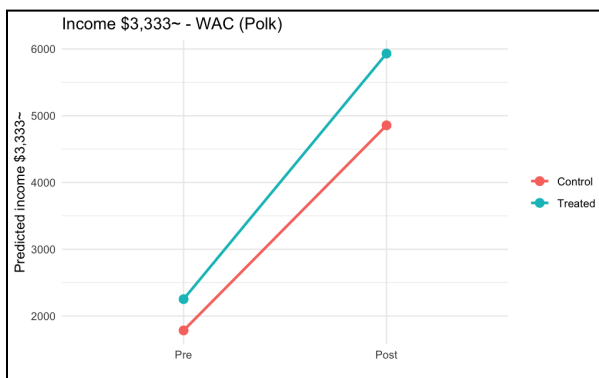
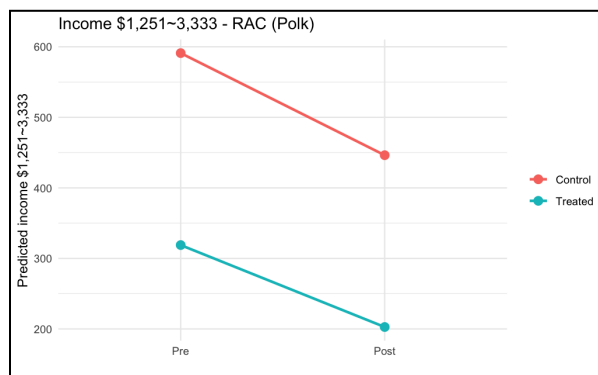
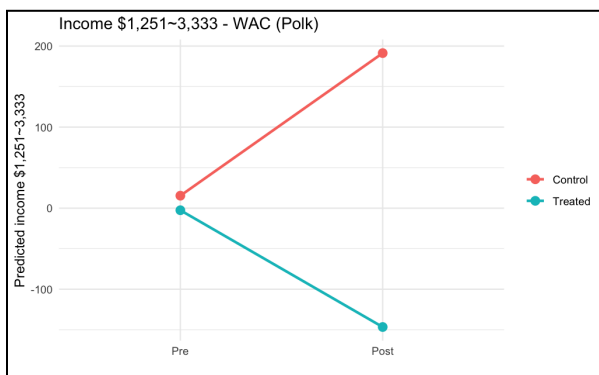
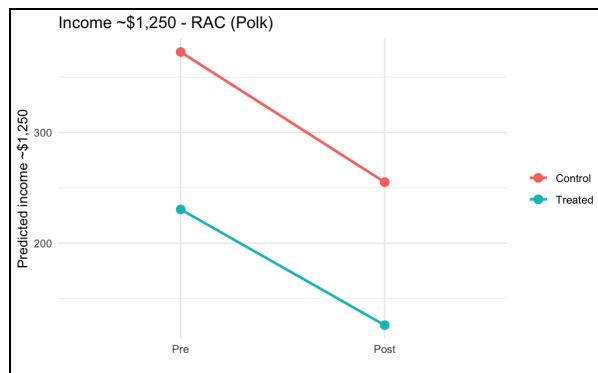
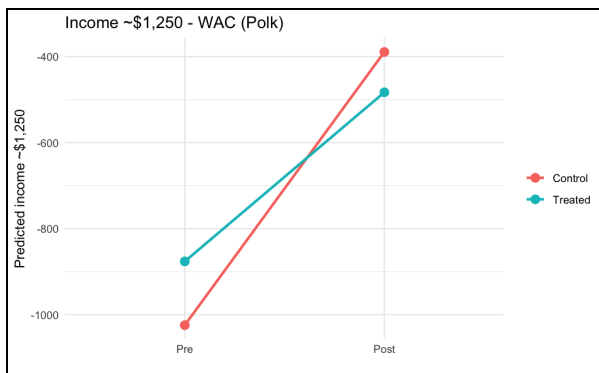


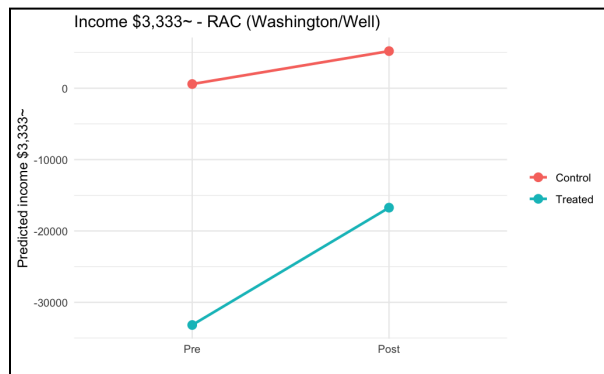
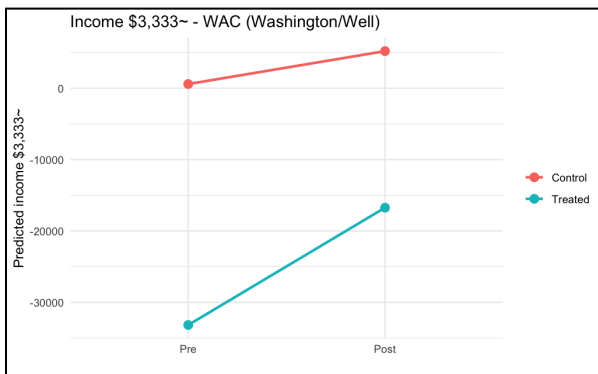
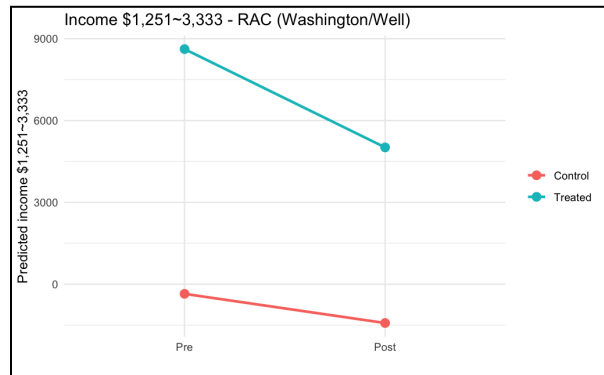
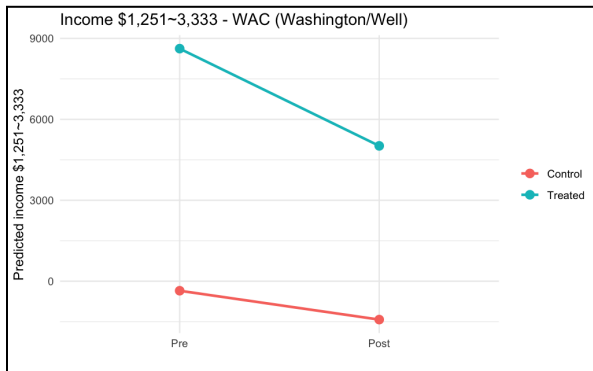
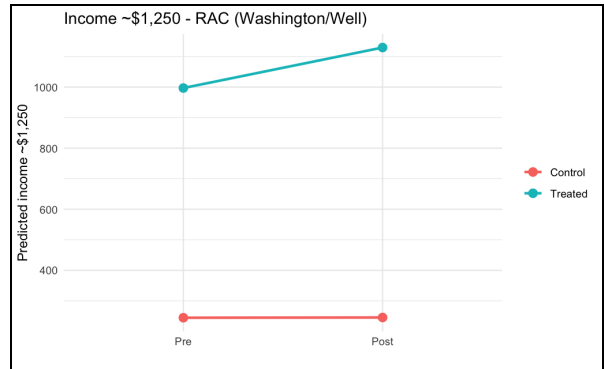
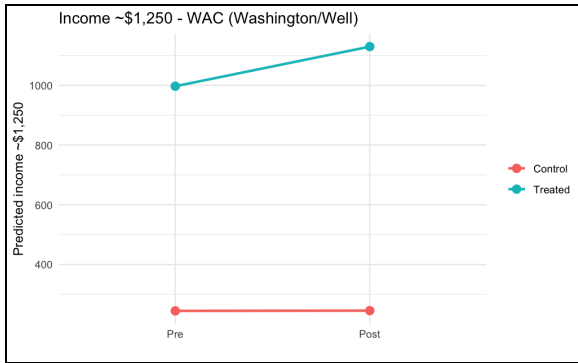
Figure 3. Comparison of mean jobs per census tract over time for the Red Line Extension (RLE) from 2020-2023 for Residence Area Characteristics (RAC) and Workplace Area Characteristics (WAC) datasets.

Pink Line Station-Specific Regressions

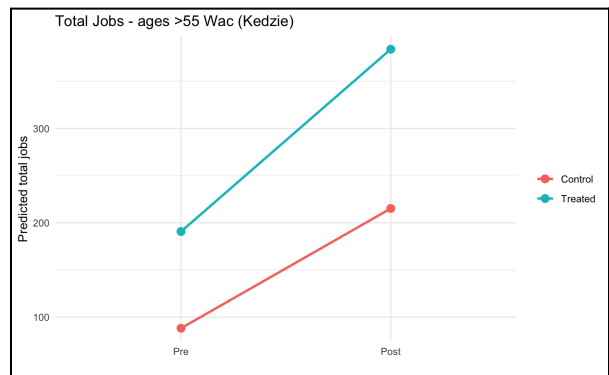
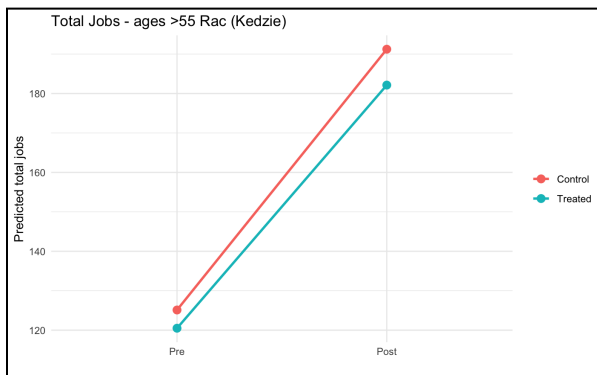
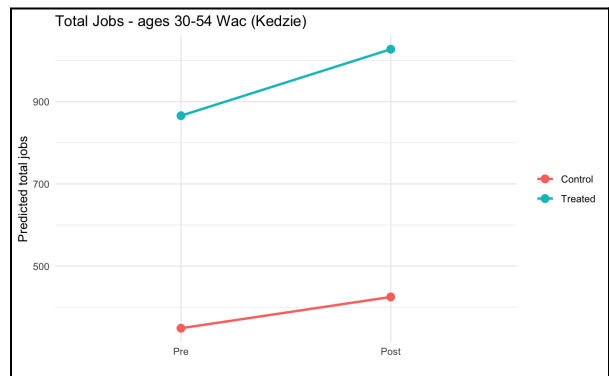
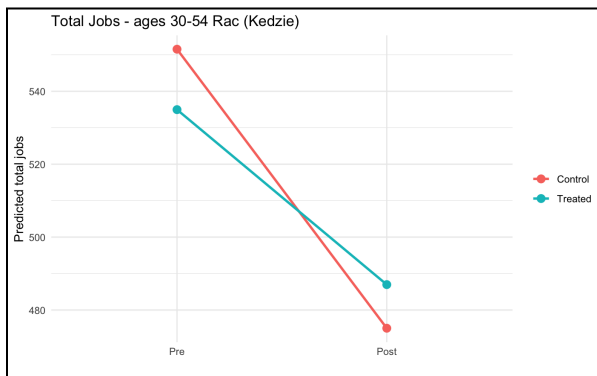
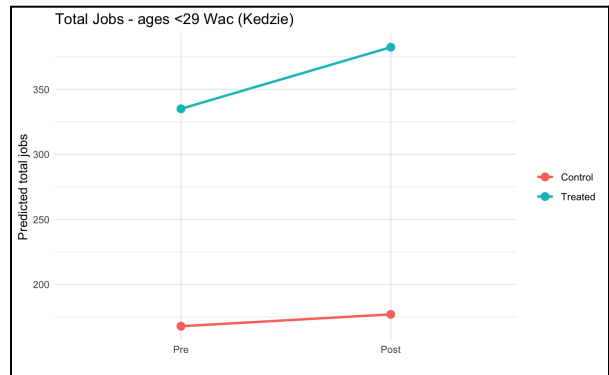
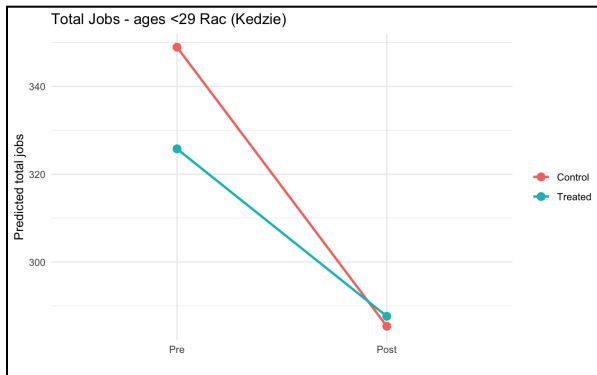
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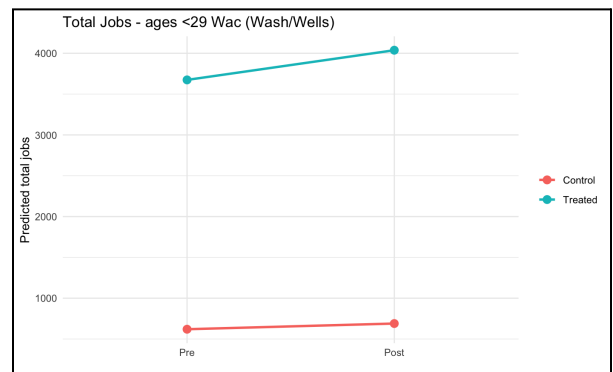
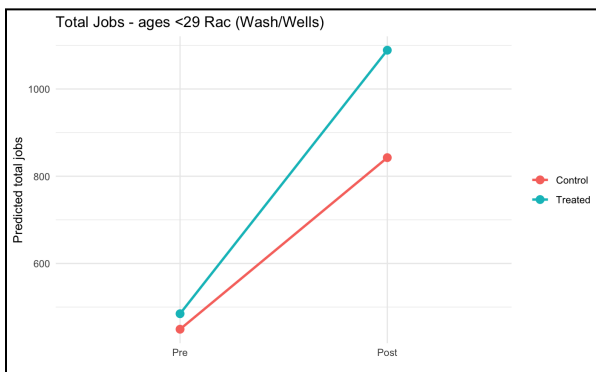
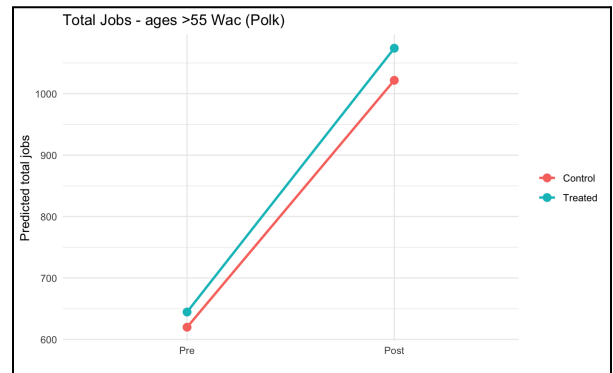
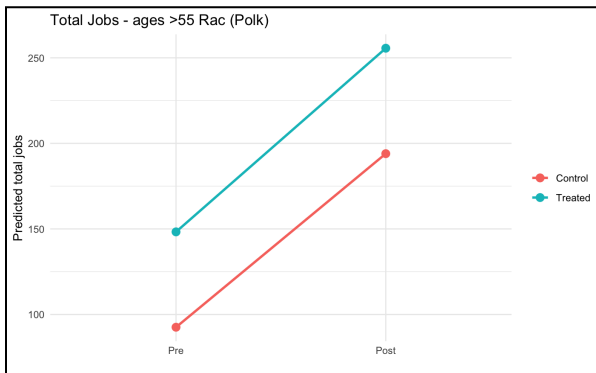
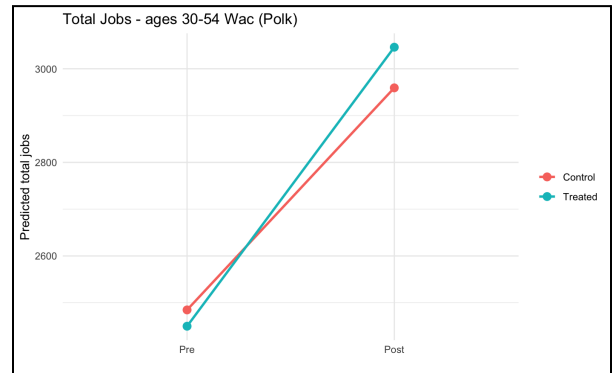
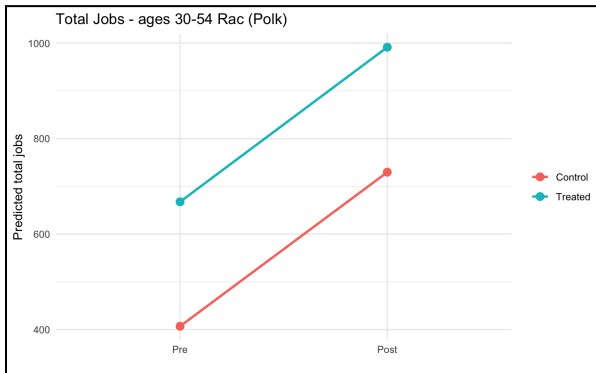
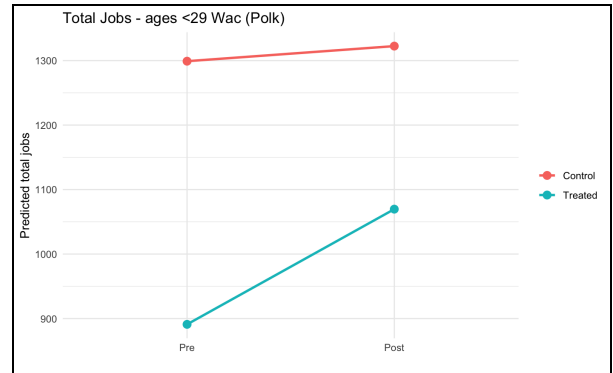
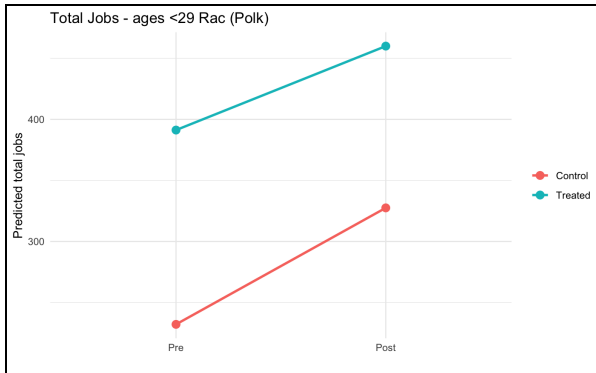


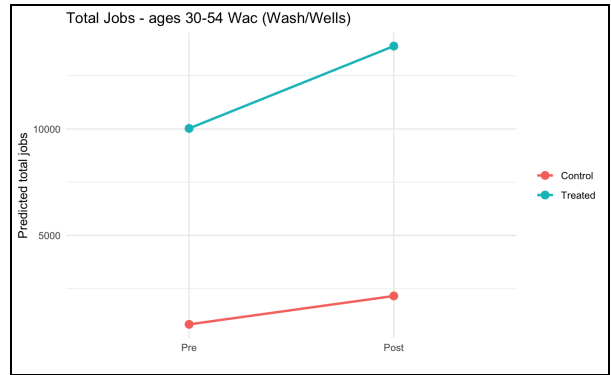
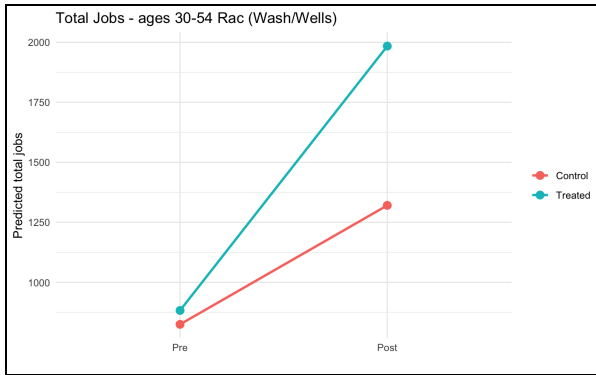




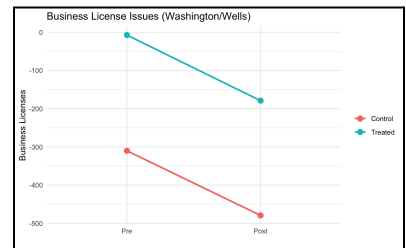
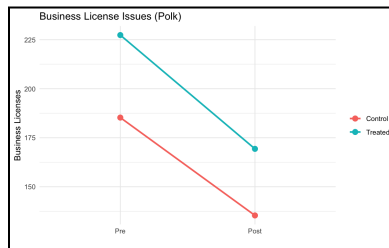
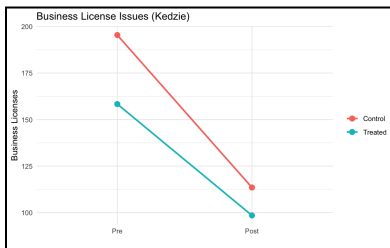
Total Jobs by Age Range



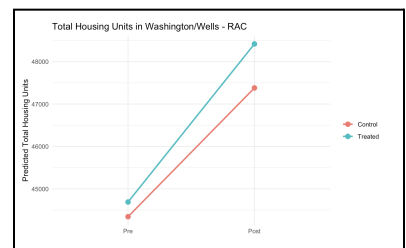
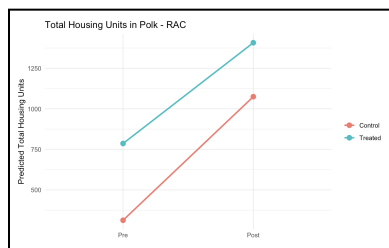
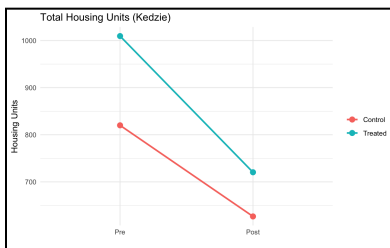




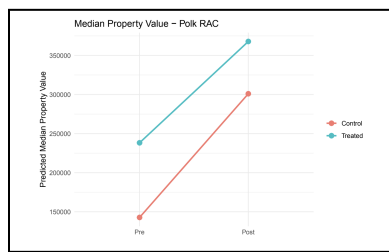
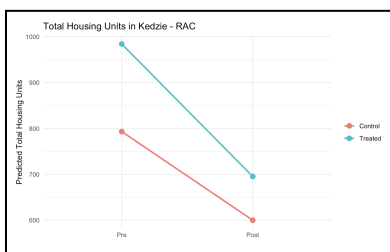
Business Licenses Issues and Renewals



Total Housing Units



Median Property Value



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