

A DECADE OF EVOLUTION: DRIVING FORCES OF INDUSTRIAL REAL ESTATE
DEMAND IN THE DFW METROPLEX

by

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ABSTRACT

This study investigates the primary factors driving industrial real estate development intensity across submarkets in the Dallas–Fort Worth (DFW) Metroplex from 2010 to 2024. As one of the fastest-growing industrial markets in the United States, DFW presents a unique opportunity to analyze how market dynamics, spatial variables, and demographic trends influence where developers choose to build. Using a pooled panel regression model, this study evaluates the impact of six independent variables - population change, vacancy rate, absorption rates, rental rate growth, and proximity to both Dallas and Fort Worth - on a normalized dependent variable defined as development intensity (completions as a percentage of existing supply).

The findings reveal that vacancy rate, absorption, and proximity to Dallas are statistically significant predictors of development intensity. Notably, the positive relationship between vacancy and development suggests the presence of speculative or pipeline-driven building activity, especially in rapidly growing submarkets. While rental rate growth approached significance, population change and proximity to Fort Worth did not demonstrate a strong influence on new construction. These results highlight the complexity of industrial development behavior, particularly in large, logistics-driven markets, and suggest that short-term demand signals and spatial accessibility may be more influential than broader demographic trends. This thesis contributes to the growing body of research on industrial real estate by offering a replicable model and raising new questions around how geography, timing, and market expectations shape development decisions in high-growth regions.

INTRODUCTION

Define the Problem

The industrial real estate sector in the Dallas-Fort Worth (DFW) Metroplex has experienced substantial development over the past decade. However, the drivers behind this growth, ranging from demographic shifts to market dynamics, warrant closer quantitative investigation to understand what most strongly influences development intensity across DFW submarkets. However, this growth brings significant challenges that must be addressed to ensure the long-term stability and competitiveness of the sector. The rise of e-commerce has dramatically increased the demand for warehouses, fulfillment centers, and specialized cold storage facilities, yet this surge has simultaneously strained existing infrastructure. Many older industrial spaces lack the structural capabilities, such as increased electrical capacity and higher ceilings, necessary to support modern logistics operations powered by automation and robotics. This gap has created a critical need for updated, “future-proof” facilities capable of meeting the demands of advanced supply chain technologies.

At the same time, rising interest rates and speculative overbuilding in the DFW market pose new risks. While demand has been strong, an oversupply of industrial spaces and higher financing costs may lead to higher vacancies and financial instability if not carefully managed. Developers and investors must carefully navigate these uncertainties to maintain profitability and ensure alignment with tenant needs. Furthermore, the growing emphasis on sustainability initiatives - such as incorporating solar photovoltaic (PV) systems and other green technologies - adds another layer of complexity, requiring developers to balance environmental goals with operational efficiency and cost-effectiveness.

This study seeks to address these multifaceted challenges by analyzing the factors driving industrial real estate demand in the DFW Metroplex and evaluating how these drivers have evolved over the past decade. While the thesis acknowledges broader themes like sustainability and technological innovation, the data analysis takes a more technical approach. Due to the availability of consistent historical data, the study focuses on quantifiable market indicators to examine patterns of development across DFW submarkets. These insights aim to help stakeholders such as developers, investors, and policymakers make informed decisions in a rapidly changing market. Understanding these dynamics is essential not only for meeting current demands but also for positioning the DFW industrial real estate sector for future resilience and success.

Purpose of the Study

The purpose of this study is to explore the primary drivers of demand for industrial real estate in the Dallas-Fort Worth (DFW) Metroplex and analyze how these drivers have evolved over the past decade. By examining key factors such as e-commerce growth, technological advancements, and sustainability initiatives, this research aims to provide insights into the trends shaping one of the fastest-growing commercial real estate markets in the United States. The research addresses the question: **What are the primary drivers of demand for industrial real estate in the DFW Metroplex, and how have these evolved in the past decade?** This study is significant because

understanding these dynamics is essential for stakeholders - including developers, investors, and policymakers - to make informed decisions in a rapidly changing market. The findings can also contribute to a broader understanding of the industrial real estate sector's role in supporting supply chain resilience, economic growth, and sustainability.

Delimitations of the Study

It is important to note that this study is intentionally focused on the Dallas-Fort Worth (DFW) Metroplex as its geographic boundary, as this region represents a major hub for industrial real estate activity in the United States. By narrowing the scope to DFW, the research excludes trends and drivers in other markets, such as Chicago or New York, which may exhibit different dynamics. Additionally, the study examines the drivers of industrial real estate demand over the past decade and a half, limiting its analysis to trends from approximately 2010 to 2024. The study further delimits its scope by concentrating on specific variables, including the impacts of e-commerce growth, technological advancements, and sustainability initiatives. Other potential drivers, such as local government policies, zoning laws, or detailed tenant behaviors, are beyond the scope of this research. Furthermore, the analysis is confined to industrial real estate as an asset class, excluding other commercial real estate sectors such as retail, office, or multifamily properties. Finally, this study relies on secondary data sources, industry reports, and literature, and does not include primary research methods such as interviews or surveys. These delimitations allow the research to maintain a focused and manageable scope, ensuring that it provides meaningful insights into the DFW industrial real estate market.

Assumptions

This study operates under several key assumptions to guide its analysis of industrial real estate demand in the Dallas-Fort Worth (DFW) Metroplex. First, it assumes that the data and reports used from industry sources, such as JLL, CBRE, Census Bureaus, and government publications, are accurate and reflective of current market conditions. Second, the study assumes that macroeconomic trends, such as e-commerce growth and advancements in technology, will continue to influence industrial real estate demand in a manner consistent with recent patterns. Additionally, it is assumed that sustainability initiatives, including the adoption of solar photovoltaic (PV) systems and other green energy solutions, will remain a priority for tenants and developers. Finally, the study assumes that the DFW Metroplex will retain its strategic advantage as a logistics hub due to its infrastructure, central location, and ongoing population growth. These assumptions provide a foundation for analyzing the key drivers of demand and their evolution over the past decade.

Organization of Study

This thesis is structured to provide a logical and comprehensive analysis of the primary drivers of industrial real estate demand in the Dallas-Fort Worth (DFW) Metroplex. It begins by introducing the study, outlining the problem, research purpose, significance, scope, and guiding assumptions. Next, a review of the existing literature synthesizes research on e-commerce growth, technological advancements, sustainability initiatives, and market dynamics specific to

the DFW region. The methodology section follows, detailing the use of secondary data and analytical frameworks for examining key trends.

While this thesis discusses broader themes such as sustainability initiatives and technological advancements, the data analysis takes a more technical approach. The regression model specifically examines measurable independent variables including population change, vacancy rates, absorption rates, rental rate shifts, and proximity to major city centers, based on the historical data that was available. These quantifiable indicators were prioritized in the analysis due to the accessibility and consistency of submarket-level data across the 2010–2024 timeframe. Finally, the paper concludes with a summary of findings, implications for stakeholders in the industrial real estate sector, and recommendations for future research. This structure ensures a cohesive exploration of the research question and its broader significance.

LITERATURE REVIEW

Overview of Research Questions & Objectives

This literature review attempts to address the question: What are the primary drivers of demand for industrial real estate in the DFW Metroplex, and how these drivers have evolved in the past decade? The industrial real estate sector has become a dynamic and essential part of the commercial real estate industry, driven by rapid shifts in consumer behavior, technological advancements, and evolving market demands. Particularly in regions like the Dallas-Fort Worth (DFW) Metroplex, industrial real estate has emerged as a dominant asset class, with distribution centers, warehouses, and fulfillment spaces in high demand due to the growth of e-commerce and supply chain expansion. This sector now plays a critical role in supporting logistics and supply chain operations, making it an attractive and resilient investment for real estate stakeholders.

The literature review focuses on key themes crucial to understanding the industrial real estate landscape. It addresses the impact of the e-commerce boom on industrial space demand, especially post-COVID-19, and examines how technological advancements like artificial intelligence and robotics are reshaping industrial property requirements. Additionally, it considers DFW-specific advantages and the effects of rising interest rates on local versus national markets.

Growth of Industrial Real Estate and Shifts in Demand

E-commerce Boom and Supply Chain Expansion:

The COVID-19 pandemic dramatically accelerated the demand for e-commerce, reshaping the industrial real estate sector in the United States. As shelter-in-place policies were enacted, consumers increasingly turned to online shopping, prompting a surge in the need for warehouse and distribution spaces. According to Friedman, e-commerce in the U.S. is projected to reach \$1.5 trillion by 2025, which could result in an additional demand for up to one billion square feet of industrial space (Friedman 2). This rapid growth has positioned industrial real estate as a vital asset class, with firms like JLL noting that "e-commerce still has a long runway for growth," making this asset class a stable and attractive investment for investors (Friedman 2). All in all,

the unprecedented surge in e-commerce, fueled by pandemic-related shifts, has permanently altered consumer behavior and solidified the importance of industrial spaces in the supply chain. Alongside the overall rise in demand for warehouses, there has been a notable increase in the need for specialized cold storage facilities, primarily driven by shifts in consumer behavior such as the increase in online grocery shopping. During the pandemic, many consumers tried online grocery services for the first time, leading to immense growth in this class. JLL estimates that demand for cold storage space could expand by up to 100 million square feet to accommodate these changes in shopping habits (Friedman 2). This shift underscores the importance of adapting warehouse capabilities to meet the unique requirements of different types of goods. As Taylor highlights, industrial real estate developers have responded to these shifts by expanding facilities specifically designed for cold storage and fulfillment, which are essential for efficiently handling perishable goods and maintaining supply chain resilience (Taylor 4).

Technological Innovations in Industrial Real Estate:

The adoption of artificial intelligence (AI) and robotics is transforming warehouse operations, significantly influencing tenant demands and facility requirements in the industrial real estate sector. As companies increasingly implement AI-driven technologies to optimize logistics and automate tasks, traditional warehouse designs are quickly becoming outdated. According to Jones Lang LaSalle, only 11% of U.S. logistics properties – buildings specifically designed for storage and distribution - were built after 2014, and many older facilities lack the structural specifications - such as reinforced concrete and high ceilings - necessary for advanced robotics and automation (Jacobius 2). The Material Handling Institute reports that 75% of supply chain leaders plan to use AI within five years, reflecting a widespread industry shift toward automation (Jacobius 2). This shift represents a growing demand for modernized “logistics 2.0” properties equipped to handle the unique needs of AI and robotics, which have become critical for staying competitive in a technology-driven supply chain landscape.

The increased power demands associated with advanced automation technologies are also reshaping industrial spaces. It is important to note that “power demands” includes factors such as automation, climate control, electric vehicle charging, smart systems, and sustainability initiatives. Modern warehouses now require significantly more electrical capacity than older facilities can provide. According to Lang, the power requirements for warehouses have doubled over the past 10-15 years to support not only automated equipment but also new trends like electric truck fleets and charging stations for electric vehicles (Jacobius 2). Bob O’Neill, as quoted in Jacobius’ article, notes that “more power” is the number one feature that tenants seek, as many older properties cannot meet these demands (Jacobius 2). Additionally, new developments are incorporating sustainable power solutions, including solar panels and battery storage systems, to create closed-loop circuits that support both operational needs and environmental goals.

Geographic Trends and Market Dynamics in DFW Metroplex

Local vs. National Market Trends:

The Dallas-Fort Worth (DFW) industrial real estate market has shown distinct trends compared to other major U.S. markets like Chicago and New York, especially concerning vacancy rates and market saturation. While vacancy rates nationwide have remained relatively low, with

national averages in the 4% range, DFW stands out with a notably higher vacancy rate of 7.4%, the second highest among major U.S. markets (Taylor 2). In comparison, Chicago, with its extensive industrial market footprint, had a vacancy rate just under 4.9% as of mid-2024, slightly up from its record lows but still tight given its high demand for logistics hubs (Ecker 3). The DFW market, however, faces potential overbuilding issues due to speculative developments. This was due to a lot of activity in 2021 and early 2022, as low interest rates catalyzed numerous industrial deals, giving investors and developers investment opportunities. As observed in other major markets, especially Chicago, where speculative construction has led to increasing vacancies in newly developed spaces, DFW's development surge may pose similar risks if demand slows (Gallun 4). These posed risks can be daunting, but the good news is there has already been a slowdown in new development activity. Thus, with continued temperance over the next year or two, vacancies will peter out and the industrial sector should be back on track again.

Several DFW-specific factors continue to drive demand in its industrial real estate market, setting it apart from national trends. One major driver is its strategic location near key logistics hubs, making it an ideal spot for distribution and fulfillment centers that serve large regions of the United States within a one to two-day trucking radius. This prime location has contributed to high absorption rates, as companies prioritize proximity to logistics corridors and major highways to enhance supply chain efficiency (United States Real Estate Report 8). DFW's strong job growth and expanding infrastructure also contribute to its attractiveness for industrial tenants. Additionally, while other markets may face limitations due to higher costs or geographic constraints, DFW's relatively abundant land supply facilitates continued development, supporting absorption even amidst potential overbuilding concerns

Impact of High Interest Rates:

Rising interest rates have significantly impacted new developments and speculative projects in the Dallas-Fort Worth (DFW) area, as well as other major markets around the United States. High borrowing costs have increased financing challenges, slowing down the pace of construction in both regions. For example, in Chicago, developers have taken a more cautious approach with speculative developments due to the increased risk of vacancy and unleased space amidst economic uncertainty (Gallun 4). It is important to note that in industrial real estate, maintaining high occupancy is crucial because these properties typically rely on a smaller number of tenants compared to other commercial properties. With a more concentrated tenant pool, cash flow stability becomes highly dependent on each tenant, making vacancies particularly impactful on overall revenue and financial performance. In DFW, while construction has slowed, speculative projects have seen reduced activity as developers navigate financing constraints and the potential for overbuilding in certain submarkets (Ecker 3). Despite these challenges, some properties continue to attract investors willing to bear the high costs due to the strong fundamentals of the industrial sector, underscoring a degree of resilience within the market (United States Real Estate Report 8).

Despite the national concerns about rising interest rates, sustained demand in the DFW market has kept rents and property values relatively resilient. The region's strategic location, population growth, and status as a logistics hub continue to drive high absorption rates, maintaining robust demand for industrial space even as borrowing costs rise. DFW's vacancy rate remains below the

national average, and rental rates have shown steady growth, with Class A properties benefiting from this demand resilience (Dallas-Fort Worth Office MarketBeat 2). Furthermore, unlike other markets that are seeing softer demand, DFW's unique position within major transportation corridors bolsters its industrial market, allowing it to absorb new supply more effectively and keeping property values stable despite broader economic pressures (Ecker 3).

Evolving Infrastructure and Energy Use

The commercial real estate industry is experiencing a clear shift towards greater awareness of environmental and energy costs. This change is driven not only by growing global concerns about climate change but also by the recognition that sustainable practices can bring substantial financial advantages over time. Decarbonization is becoming increasingly key in climate change mitigation strategies. Central to this effort are solar photovoltaic (PV) systems, which are becoming more affordable than ever before. With the United States' nation-level commitment to achieve 100% net-zero electricity grid by 2035 – a target demanding profound transformations in energy production – solar has a pivotal role.

In recent years, the industrial real estate sector has increasingly capitalized on sustainability by using expansive, underutilized rooftops to generate solar power. This trend aligns well with a broader shift toward renewable energy sources, driven by financial and environmental incentives. As industrial buildings typically feature large, flat roof areas ideal for solar panel installation, the industry has seized this opportunity to generate solar energy, both to power operations and as a revenue stream. As of mid-2022, "...the United States had approximately 130 GW of total installed solar PV capacity, roughly 10% of which can be attributed to commercial and industrial (C&I) solar" (CBRE 1). Federal policies like the Inflation Reduction Act further amplify the financial appeal, offering tax credits and incentives that significantly offset the cost of solar installations (Xu 19). Likewise, government policies like the Investment Tax Credit support the declining costs for PV panels, further catalyzing this surge in C&I solar. According to Energy.gov, this act decreases PV solar price by almost 30%, giving developers even more of an incentive to incorporate this practice into their investments. This shift not only helps real estate companies meet their sustainability goals but also demonstrates a commitment to environmental responsibility by reducing reliance on fossil-fuel-based energy, which in turn enhances the sector's resilience and market appeal (CBRE 7).

The integration of green energy solutions is reshaping investment strategies and demand within the industrial real estate sector. As more companies establish carbon reduction targets, properties with sustainability measures, like solar PV rooftops, are increasingly attractive to investors and tenants. This demand is supported by both private sector initiatives and regulatory pressures. According to CBRE, "public policy will influence capital allocation across real estate" by encouraging sustainable building upgrades and tax incentives for clean energy installations (CBRE 9). These policies are creating a market where sustainable industrial properties can command higher rents, longer leases, and stronger tenant retention due to their reduced energy costs and lower environmental impact. This shift underscores the growing importance of environmental, social, and governance (ESG) factors, as investors actively seek assets that align with sustainability and resilience criteria, making solar-integrated industrial properties a preferred choice (Xu 10). Consequently, green energy adoption is not only environmentally

beneficial but also financially strategic, reinforcing the long-term value of properties committed to sustainable practices.

It is also important to note that we are examining the submarket of DFW Metroplex within this thesis. Taking the previously stated factors into consideration, CBRE's research identifies 15 submarkets with high potential for solar roof installations. This research was cemented on selecting properties with over 100,000 SF of roof space close to populated areas. These properties hold a total of 1.2 billion SF, representing 58% of the industrial building inventory since 2010. With an estimation of each 100,000 SF of roof potentially generating 1.2 GWh annually, "these markets could collectively produce 350 to 1,700 GW of energy, contributing up to 11.7 TW, or 0.3% of the US total energy consumption in 2021" (Xu 14). The Dallas-Fort Worth (DFW) area stands out as a rapidly growing industrial hub, with substantial new construction and a high number of properties well-suited for solar photovoltaic (PV) installations. The first dataset indicates that Dallas alone has 52.5 million square feet of industrial property under construction, the highest among major U.S. markets. Additionally, the second dataset reveals that Dallas has 314 properties with over 100,000 square feet of rooftop space, making it one of the top markets with the capacity for PV solar implementation. These figures highlight DFW's potential to significantly expand its sustainable footprint, as large-scale solar installations on industrial rooftops could reduce energy costs and align with broader environmental goals.

Forecasting Future Demand Drivers:

Labor Market & Automation:

Labor shortages and the rise of automation technology are becoming key drivers in shaping the future demand for industrial spaces. As the labor market continues to tighten, more companies are turning to automation to maintain operational efficiency and meet demand. According to a report by the Material Handling Institute, 75% of supply chain leaders anticipate using artificial intelligence (AI) solutions, and 80% plan to adopt robotics within the next five years, suggesting a rapid shift toward automation across the industry (Jacobius 2). This shift is pushing demand for "logistics 2.0" properties - warehouses specifically designed to accommodate automation technologies, with features like reinforced floors and higher ceilings for robotic equipment (Jacobius 2). As Tolj highlights, the increased use of automation also allows companies to operate more efficiently with fewer workers, alleviating some pressures from the labor shortage but necessitating facilities with advanced infrastructure to support these technologies (Tolj).

Reports on tenant preferences indicate a strong demand for facilities that offer advanced automation capabilities and proximity to urban centers, enabling better access to a shrinking labor pool. Properties close to urban centers help tenants attract and retain workers, a critical factor as labor shortages persist in the industrial sector (Taylor). Additionally, tenants increasingly prioritize warehouses with automation-friendly features, such as high electrical capacity and enhanced infrastructure for AI and robotic systems (Jacobius 2). As Donaldson notes, automated smart buildings are becoming more attractive to tenants because they streamline operations and reduce dependence on manual labor, aligning with evolving tenant requirements in the industrial market (Donaldson). This preference is influencing the design and

location of future industrial developments, as developers aim to meet the growing need for automated, strategically located facilities near urban labor markets.

Economic and Policy Influences:

Macroeconomic conditions and policy shifts are increasingly shaping the future of the industrial real estate market in the Dallas-Fort Worth (DFW) area. Concerns over a potential recession and ongoing financial volatility have made investors cautious, slowing down speculative developments in some regions while fueling demand for properties that can provide stable, long-term returns (Taylor 2). However, recent federal policies, such as the Inflation Reduction Act, which includes substantial tax incentives for clean energy projects (PV Solar mentioned above), have sparked renewed interest in solar-enabled industrial properties. Xu highlights that these incentives, which include a 30% Investment Tax Credit, significantly lower the upfront costs for solar installations, thus making industrial spaces with solar capabilities more attractive to both tenants and investors (Xu 5). This combination of economic pressures and policy incentives is likely to shift the DFW industrial real estate landscape, where developers and property owners may increasingly prioritize energy-efficient buildings that offer both economic and environmental benefits

Conclusion:

The key demand drivers for industrial real estate in the Dallas-Fort Worth (DFW) Metroplex include the e-commerce boom, technological advancements, and sustainability initiatives. Over the past decade, the rise of e-commerce, particularly during the COVID-19 pandemic, has heightened the need for warehouses and distribution centers. Technological innovations like AI and robotics now require modern facilities with advanced infrastructure, while federal tax incentives for renewable energy have spurred interest in solar-powered properties, enhancing their market appeal. These trends suggest that future demand in DFW will favor tech-integrated and sustainable properties, aligning with my research question and setting up the analysis on how these factors will impact ongoing demand in the region.

METHODOLOGY

Data Collection:

The study relies on secondary data from reputable companies within the commercial real estate industry and government sources, ensuring both credibility and good faith numbers. The data sources include:

- *JLL Industrial Real Estate Reports:* JLL (Jones Lang LaSalle) is a leading global commercial real estate services firm known for its in-depth market research and data-driven insights. Their research team is widely respected for producing high-quality reports on real estate trends, making them a trusted source for industry analysis and strategic decision-making. From JLL's market research team, historical data on industrial property demand, vacancy rates, and absorption rates through every submarket in the DFW Metroplex.

- **Texas Demographic Center:** Offering historical population numbers separated by counties. This allows for a correlation analysis of Texas' population increase with the industrial sector.
- **Longitude/Latitude Calculator:** Utilized to measure the straight-line distance from the geographic center of each industrial submarket to the central point of Dallas and Fort Worth. This allowed for quantifiable proximities from each submarket to the metroplex's two urban cores.
- **Other Industry Reports (as needed):** A portfolio of historical quarterly reports from CBRE, Cushman & Wakefield, and government agencies on economic trends and sustainability initiatives.

Data Organization

The following section introduces each of the six independent variables used in the analysis and explains the process I followed to clean, organize, and prepare each variable for a pooled panel regression. This step was essential to ensure consistency across data sources as well as accurately reflecting submarket-level trends over the last decade.

The original dataset provided by JLL contained extensive quarterly data spanning from 2010-2024 across 9 key industrial submarkets in the DFW Metroplex. The spreadsheet included a wide variety of metrics, which can be seen at the top of the image below. Each row represented a specific submarket-year combination, allowing for a detailed historical view of market conditions over time. This data set served as the foundation for extracting and organizing the variables most relevant to my analysis:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Market	Submarket	Year	Existing & Under Development	Pre-Existing	Completion	Under Development	Supply	Total Existing and Under Dev	Direct Vacant	Direct Vacant	Sublease Vacant	Sublease Vacant	Total Vacant	Occupancy	Occupancy	Direct Absorp.	Sublease Absorp.	Total
1	Dallas-Fort Worth DFW Airport	2010	296	37,472,052	1,852,031	1,032,597	88,564,645	4,024,780	0.0%	694,045	2,405%	4,508,835	32,983,217	66.90%	2,785,000	-18,922	548,247	0
2	Dallas-Fort Worth DFW Airport	2015	271	39,050,260	1,576,796	2,493,014	41,533,370	3,223,152	0.0%	345,798	0.90%	3,569,850	37,963,520	90.30%	2,369,514	548,247	0	0
3	Dallas-Fort Worth DFW Airport	2016	279	41,026,360	2,062,292	2,439,026	44,465,386	4,728,207	11.0%	237,226	0.60%	6,053,067	38,412,319	87.30%	2,022,377	0	0	0
4	Dallas-Fort Worth DFW Airport	2017	280	44,353,063	2,436,903	2,471,305	46,824,368	4,568,665	11.0%	545,310	0.0%	5,315,375	41,509,000	88.00%	2,195,521	-12,000	0	0
5	Dallas-Fort Worth DFW Airport	2018	290	47,195,437	2,832,476	2,101,871	49,326,259	5,891,453	12.0%	498,042	1.0%	6,383,495	42,942,764	88.50%	1,931,631	-146,732	0	0
6	Dallas-Fort Worth DFW Airport	2019	289	49,238,853	2,022,025	741,558	49,960,410	7,653,494	15.0%	325,687	0.70%	7,778,905	42,181,505	86.00%	416,822	46,844	0	0
7	Dallas-Fort Worth DFW Airport	2020	293	49,950,412	761,903	0	49,950,412	7,438,150	14.0%	555,621	1.1%	8,002,397	41,948,015	84.00%	753,013	-233,940	0	0
8	Dallas-Fort Worth DFW Airport	2021	300	49,950,412	0	0	49,950,412	5,002,318	10.0%	411,256	0.80%	5,423,674	44,526,738	89.10%	2,424,072	154,271	0	0
9	Dallas-Fort Worth DFW Airport	2022	305	50,035,212	85,500	0	50,120,712	3,506,805	7.0%	304,674	0.60%	4,211,769	45,913,943	91.00%	1,180,323	88,462	0	0
10	Dallas-Fort Worth DFW Airport	2023	311	52,428,443	1,993,511	0	54,421,954	2,073,913	4.0%	796,600	1.5%	4,238,933	48,183,021	89.70%	3,808,493	169,774	0	0
11	Dallas-Fort Worth DFW Airport	2024	340	54,706,780	2,671,317	0	57,378,097	3,595,307	6.0%	719,000	1.2%	3,854,307	53,523,790	93.30%	1,726,143	37,600	0	0
12	Dallas-Fort Worth DFW Airport	2010	330	57,021,091	2,376,321	1,524,572	58,545,853	4,462,802	7.50%	45,300	0.1%	4,520,232	54,025,621	92.10%	1,266,576	73,620	0	0
13	Dallas-Fort Worth DFW Airport	2015	300	69,305,500	1,546,917	0	67,758,583	2,892,122	4.0%	44,800	0.1%	2,946,922	64,811,661	95.0%	2,038,047	900	0	0
14	Dallas-Fort Worth DFW Airport	2016	374	61,700,295	3,333,287	0	65,033,582	2,642,823	4.0%	141,696	0.2%	2,706,521	62,327,061	95.50%	3,422,586	-98,890	0	0
15	Dallas-Fort Worth DFW Airport	2017	379	66,014,648	4,365,127	0	70,379,775	4,511,402	6.0%	429,048	0.60%	4,939,491	65,440,284	92.50%	2,523,984	-298,381	0	0
16	Dallas-Fort Worth DFW Airport	2018	388	68,946,511	3,752,538	0	72,699,049	4,298,306	5.90%	237,495	0.3%	4,535,805	68,163,244	93.10%	1,987,508	10,550	0	0
17	Dallas-Fort Worth DFW Airport	2019	400	72,095,491	4,564,656	0	76,660,147	5,037,004	7.0%	670,750	0.9%	6,516,595	70,143,552	91.20%	5,509,062	441,262	0	0
18	Dallas-Fort Worth DFW Airport	2020	449	76,007,804	2,936,446	0	78,944,250	2,478,491	3.0%	240,504	0.3%	2,718,995	76,225,255	96.40%	5,376,411	430,257	0	0
19	Dallas-Fort Worth DFW Airport	2021	436	78,323,682	2,236,298	0	80,560,000	2,174,436	2.0%	190,253	0.2%	3,004,609	77,555,391	96.10%	2,539,913	-440,741	0	0
20	Dallas-Fort Worth DFW Airport	2022	445	82,288,512	3,934,930	0	86,223,442	3,884,004	4.0%	898,865	1.0%	6,161,269	80,062,173	93.00%	244,942	-4,952	0	0
21	Dallas-Fort Worth DFW Airport	2023	455	85,069,469	2,000,730	0	87,070,200	3,695,448	4.0%	704,425	0.8%	4,400,000	82,670,200	95.00%	1,021,247	152,730	0	0
22	Dallas-Fort Worth East Dallas Ind	2010	227	26,247,754	204,620	0	26,452,374	1,571,423	5.0%	0	0.0%	1,571,423	24,880,951	94.20%	955,430	0	0	0
23	Dallas-Fort Worth East Dallas Ind	2015	224	26,933,254	555,200	0	27,488,454	1,700,320	6.0%	400,000	1.50%	2,160,320	25,328,134	91.30%	300,705	-400,000	0	0
24	Dallas-Fort Worth East Dallas Ind	2016	296	27,257,804	314,940	0	27,572,744	1,298,090	4.0%	400,000	1.50%	1,848,090	25,724,654	94.00%	999,697	0	0	0
25	Dallas-Fort Worth East Dallas Ind	2017	297	30,366,959	3,763,955	0	34,130,914	2,228,475	7.0%	0	0.0%	2,228,475	31,902,439	93.50%	1,594,611	400,000	0	0
26	Dallas-Fort Worth East Dallas Ind	2018	297	30,797,959	457,000	0	31,254,959	2,271,728	7.0%	100,000	0.3%	2,271,728	29,000,000	92.80%	488,277	100,000	0	0
27	Dallas-Fort Worth East Dallas Ind	2019	297	30,797,959	0	0	30,797,959	3,070,906	10.0%	500,000	1.6%	4,270,506	26,527,453	87.00%	-1,593,240	-400,000	0	0
28	Dallas-Fort Worth East Dallas Ind	2020	298	30,868,910	0	0	30,868,910	3,197,483	10.0%	0	0.0%	3,197,483	27,671,427	90.00%	162,414	500,000	0	0
29	Dallas-Fort Worth East Dallas Ind	2021	299	30,868,910	0	0	30,868,910	3,964,644	13.0%	0	0.0%	3,964,644	26,904,266	87.00%	930,678	0	0	
30	Dallas-Fort Worth East Dallas Ind	2022	249	30,939,940	83,070	0	31,023,010	2,800,367	9.0%	0	0.0%	2,800,367	28,222,643	90.00%	455,147	0	0	
31	Dallas-Fort Worth East Dallas Ind	2023	241	31,030,126	296,802	0	31,326,928	2,702,370	8.0%	0	0.0%	2,702,370	28,624,558	91.40%	505,959	0	0	
32	Dallas-Fort Worth East Dallas Ind	2024	241	31,428,102	30,000	0	31,458,102	2,179,264	6.0%	0	0.0%	2,179,264	29,278,838	93.0%	410,186	0	0	
33	Dallas-Fort Worth East Dallas Ind	2010	241	31,428,102	0	0	31,428,102	1,727,764	5.0%	0	0.0%	1,727,764	29,700,338	94.0%	491,430	0	0	
34	Dallas-Fort Worth East Dallas Ind	2015	242	31,428,102	0	0	31,428,102	2,381,267	7.0%	0	0.0%	2,381,267	29,047,035	92.0%	463,433	0	0	
35	Dallas-Fort Worth East Dallas Ind	2016	245	31,733,236	95,074	0	31,828,310	1,938,191	6.0%	0	0.0%	1,938,191	29,890,119	93.0%	582,300	0	0	
36	Dallas-Fort Worth East Dallas Ind	2017	250	32,300,642	620,666	0	32,921,308	2,222,324	6.0%	18,000	0.1%	2,222,504	30,698,804	93.0%	251,343	-19,000	0	0
37	Dallas-Fort Worth East Dallas Ind	2018	256	34,453,645	1,353,203	0	35,806,848	3,224,490	9.0%	22,401	0.1%	3,256,891	32,550,000	91.0%	1,039,217	-3,318	0	0
38	Dallas-Fort Worth East Dallas Ind	2019	260	36,803,811	2,146,180	0	38,950,000	3,621,439	9.0%	78,742	0.2%	3,699,981	35,250,019	90.50%	1,157,817	-47,741	0	0
39	Dallas-Fort Worth East Dallas Ind	2020	274	38,993,787	1,695,237	0	40,689,024	4,283,974	10.0%	78,342	0.2%	4,362,316	36,326,708	89.00%	2,475,501	-66,600	0	0
40	Dallas-Fort Worth East Dallas Ind	2021	293	42,333,795	4,476,267	0	46,810,062	5,023,827	11.0%	36,722	0.1%	4,339,739	42,470,323	90.00%	2,516,373	79,350	0	0
41	Dallas-Fort Worth East Dallas Ind	2022	317	42,629,260	5,743,473	0	48,372,733	6,244,066	13.0%	303,552	0.6%	6,547,618	41,825,115	87.00%	4,344,477	-246,700	0	0
42	Dallas-Fort Worth East Dallas Ind	2023	311	55,029,017	6,860,891	0	61,889,908	6,969,863	11.0%	37,925	0.1%	7,035,962	54,853,946	89.00%	2,125,951	18,423	0	0
43	Dallas-Fort Worth Gear Southwaste	2010	548	66,968,485	1,586,200	0	68,554,685	67,103,071	10.0%	392,432	0.6%	10,864,491	57,690,194	84.00%	-243,800	712,523	0	0
44	Dallas-Fort Worth Gear Southwaste	2015	553	67,050,071	83,588	0	67,133,659	7,675,267	11.0%	422,508	0.6%	7,747,775	59,385,884	88.00%	2,062,240	209,776	0	0
45	Dallas-Fort Worth Gear Southwaste	2016	558	67,303,712	695,709	0	68,000,000	8,760,240	9.0%	770,552	1.1%	9,030,792	58,969,208	87.00%	4,344,477	-246,700	0	0
46	Dallas-Fort Worth Gear Southwaste	2017	566	66,352,379	444,207	0	66,796,586	5,110,607	7.0%	133,774	0.2%	5,254,381	61,542,205	92.00%	1,029,840	38,250	0	0
47	Dallas-Fort Worth Gear Southwaste	2018	575	71,968,096	3,421,917	0	75,389,013	7,779,099	10.0%	222,984	0.3%	8,002,083	67,386,930	89.00%	750,819	-80,220	0	0
48	Dallas-Fort Worth Gear Southwaste	2019	575	74,759,126	2,964,666	0	77,723,792	8,579,424	11.0%	470,222	0.6%	9,041,647	68,682,145	89.00%	1,157,817	-47,741	0	0
49	Dallas-Fort Worth Gear Southwaste	2020	575	74,759,126	0	0	74,759,126	10,900,909	14.0%	0	0.0%	10,900,909	63,858,217	85.00%	410,595	470,222	0	0
50	Dallas-Fort Worth Gear Southwaste	2021	575	74,759,126	0	0	74,759,126	3,133,020	4.0%	80,302	0.1%	3,200,000	71,559,126	95.00%	1,707,671	-103,012	0	0
51	Dallas-Fort Worth Gear Southwaste	2022	576	74,759,126	0	0	74,759,126	6,686,254	9.0%	411,676	0.5%	6,757,929	68,001,197	91.00%	663,077	121,109	0	0
52	Dallas-Fort Worth Gear Southwaste	2023																

are listed vertically along the left-hand side while submarkets are arranged across the top. Each cell contains a single value (i.e., vacancy rate, absorption rate, or rental rate) for a specified submarket and year, resulting in a clear and readable matrix. This format not only simplified comparison across submarkets but also made it easier to import the data into the regression software.

		Independent Variable									
		DFW Airport	East Dallas Ind	Great Southwest/Arlington	North Fort Worth	Northeast Dallas	Northwest Dallas	South Dallas	South Fort Worth	South Stemmons	
Years	2010	X	X	X	X	X	X	X	X	X	X
	2011	X	X	X	X	X	X	X	X	X	X
	2012	X	X	X	X	X	X	X	X	X	X
	2013	X	X	X	X	X	X	X	X	X	X
	2014	X	X	X	X	X	X	X	X	X	X
	2015	X	X	X	X	X	X	X	X	X	X
	2016	X	X	X	X	X	X	X	X	X	X
	2017	X	X	X	X	X	X	X	X	X	X
	2018	X	X	X	X	X	X	X	X	X	X
	2019	X	X	X	X	X	X	X	X	X	X
	2020	X	X	X	X	X	X	X	X	X	X
	2021	X	X	X	X	X	X	X	X	X	X
	2022	X	X	X	X	X	X	X	X	X	X
	2023	X	X	X	X	X	X	X	X	X	X
	2024	X	X	X	X	X	X	X	X	X	X

Independent Variables:

1. Vacancy Rates

Vacancy rates were included as an independent variable in my regression to capture overall market conditions within each submarket. Vacancy helps signal whether there is oversupply or unmet demand in the market. A high vacancy rate may indicate that developers have already built more than the market can absorb, potentially discouraging further construction. On the other hand, low vacancies reflect a tight market, where tenants are quickly filling space, often encouraging developers to bring new products to market. By using vacancy as a percentage rather than raw square footage, the measure is normalized across submarkets of different sizes, allowing for a more accurate and comparable analysis of its influence on development intensity. Attached below is a visual of the collected data.

		Historical Submarket Vacancy Rates (s.f.)									
		DFW Airport	East Dallas Ind	Great Southwest/Arlington	North Fort Worth	Northeast Dallas	Northwest Dallas	South Dallas	South Fort Worth	South Stemmons	
Years	2010	8,002,077	3,787,463	10,900,909	6,811,516	6,253,394	9,122,221	5,787,365	2,404,943	6,879,921	
	2011	5,423,874	3,184,444	9,302,050	5,444,303	6,015,680	7,810,486	4,610,623	2,387,008	5,367,638	
	2012	4,211,769	2,809,367	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2013	2,230,513	2,702,370	4,586,788	3,370,812	6,558,134	4,791,640	3,216,543	1,910,437	5,113,258	
	2014	3,654,107	2,173,204	4,586,788	3,370,812	6,558,134	4,791,640	3,216,543	1,910,437	5,113,258	
	2015	4,528,232	1,727,784	3,370,812	3,370,812	6,558,134	4,791,640	3,216,543	1,910,437	5,113,258	
	2016	2,846,322	2,381,287	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2017	2,786,521	1,514,181	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2018	4,939,451	2,202,586	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2019	4,535,805	3,256,891	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2020	6,516,555	3,631,581	6,731,329	3,379,163	6,523,647	5,919,068	2,983,091	3,376,828	5,759,633	
	2021	2,716,995	2,943,716	3,272,402	10,180,044	5,420,727	5,223,395	8,671,360	4,235,001	4,278,024	
	2022	3,084,889	4,301,791	4,863,029	6,085,407	3,836,232	4,530,566	13,431,044	5,723,960	4,873,349	
	2023	6,761,209	6,026,617	5,772,799	14,868,285	6,151,132	9,724,658	20,462,194	8,168,784	7,253,453	
	2024	10,400,083	10,139,992	10,169,704	15,473,640	6,256,696	12,270,631	21,301,644	9,246,604	7,873,810	

		Historical Submarket Vacancy Rates (%)									
		DFW Airport	East Dallas Ind	Great Southwest/Arlington	North Fort Worth	Northeast Dallas	Northwest Dallas	South Dallas	South Fort Worth	South Stemmons	
Years	2010	16.00%	12.30%	14.60%	10.20%	9.20%	13.00%	11.10%	4.30%	9.50%	
	2011	10.90%	10.30%	12.40%	8.40%	8.80%	11.10%	8.70%	5.30%	7.40%	
	2012	8.40%	9.10%	9.00%	6.00%	8.60%	8.40%	5.50%	6.00%	7.30%	
	2013	4.30%	8.60%	6.10%	5.10%	9.50%	6.70%	5.70%	3.40%	7.10%	
	2014	6.70%	6.90%	6.50%	5.20%	9.60%	7.80%	9.10%	4.60%	5.30%	
	2015	7.90%	5.50%	6.30%	5.10%	9.60%	6.30%	9.10%	4.70%	2.80%	
	2016	4.90%	7.60%	5.30%	5.10%	9.60%	5.30%	8.50%	3.20%	2.70%	
	2017	4.50%	6.00%	5.30%	5.10%	9.60%	5.30%	10.80%	5.70%	3.20%	
	2018	7.50%	6.30%	6.30%	5.10%	9.60%	4.40%	13.30%	3.30%	4.80%	
	2019	6.60%	9.50%	6.30%	5.10%	9.60%	4.40%	10.90%	4.50%	5.90%	
	2020	8.80%	10.10%	6.10%	3.60%	7.00%	5.90%	9.10%	7.00%	5.20%	
	2021	3.60%	7.70%	3.20%	8.90%	6.40%	3.70%	5.40%	10.30%	3.60%	
	2022	3.90%	11.40%	4.50%	5.20%	4.60%	4.90%	11.30%	8.10%	5.80%	
	2023	8.20%	12.40%	5.50%	11.00%	7.00%	9.80%	15.00%	10.70%	8.40%	
	2024	12.20%	18.40%	9.40%	11.00%	7.00%	12.10%	14.70%	11.60%	9.10%	

2. Absorption Rates:

Absorption rates were included in the regression to capture the level of tenant demand in each submarket. Absorption reflects how much industrial space is being leased over a given period, offering insight into how quickly the market is consuming available space. High absorption signals strong market momentum, meaning tenants are actively leasing space, which can indicate growing demand and justify new development. This makes absorption a key demand-side indicator for developers assessing whether the market can support additional supply. By using net absorption relative to initial available space, this variable standardizes leasing activity across submarkets of different sizes, making it easier to compare demand patterns in a consistent and meaningful way. Although I had access to data on direct absorption, sublease absorption, and total absorption, I chose to use total absorption in my regression model. Total absorption captures the full picture of tenant demand, combining both new leases and sublease activity, which provides a more comprehensive measure of how much space is being taken off the market. This simplifies the model while still reflecting overall market momentum. Attached below is a visual of the captured data:

Historical Submarket Total Absorption Rates														
Years	DFW	Airpor	East Dallas Inc	Great Southwest	Arlington	North Fort Worth	North Fort Worth	North Fort Worth	North Fort Worth	Northwest Dalla	Northwest Dalla	South Dallas	South Fort Worth	South Stemmoms
2010	519,073		642,434		1,020,748	329,334	-70,579		900,965	1,631,728		645,830	-1,014,965	
2011	2,578,343		603,019		1,598,859	1,256,956	659,151		1,655,129	2,229,542		-548,555	1,512,223	
2012	1,297,405		458,147		2,570,121	1,652,740	-474,147		2,076,688	2,678,212		-350,270	-204,173	
2013	3,974,767		505,159		3,003,161	1,757,077	419,147		2,687,812	1,786,605		1,505,891	646,375	
2014	1,253,743		613,166						1,423,074	2,140,869		-494,399	1,530,821	
2015	1,440,196		451,420						3,763,017	6,388,488		-19,976	2,401,124	
2016	3,027,227		-653,483						2,815,041	6,262,001		1,154,736	616,689	
2017	3,393,698		818,960						3,982,474	4,741,341		-827,868	344,492	
2018	2,238,233		232,261						977,674	4,585,217		1,891,245	-1,254,697	
2019	3,259,119		1,104,898						2,542,474	5,271,477		396,013	1,304,476	
2020	3,067,800		1,709,416						718,372	4,223,080		157,649	4,416,926	
2021	5,814,668		2,432,901		3,770,501	7,056,117	4,179,737		2,597,668	8,605,940		2,673,952	2,780,730	
2022	1,890,164		2,596,923		896,822	10,425,254	3,496,640		2,849,676	10,634,163		5,526,088	-227,149	
2023	238,390		4,594,647		216,516	9,021,192	916,201		775,771	10,230,759		3,385,757	-1,063,507	
2024	-828,977		2,237,374		-2,015,186	4,438,994	1,740,093		-281,178	7,304,878		2,340,409	145,083	

Historical Submarket Direct Absorption Rates														
Years	DFW	Airpor	East Dallas Inc	Great Southwest	Arlington	North Fort Worth	North Fort Worth	North Fort Worth	North Fort Worth	Northwest Dalla	Northwest Dalla	South Dallas	South Fort Worth	South Stemmoms
2010	759,013		142,434		610,515	537,471	-160,228		776,402	1,406,728		645,830	-962,915	
2011	2,424,072		603,019		1,767,871	1,075,338	658,686		1,644,375	2,229,542		-548,555	1,330,473	
2012	1,190,923		458,147		2,448,784	1,610,054	-490,027		2,220,342	2,678,212		-416,178	15,472	
2013	3,826,493		505,159		3,073,456	1,757,077	419,147		2,587,271	1,987,605		1,380,221	369,124	
2014	1,216,143		613,166						1,518,816	2,381,573		-494,399	1,650,915	
2015	1,366,576		451,420						3,740,884	6,187,488		-2,300	2,254,086	
2016	3,026,647		-653,483						2,822,218	6,326,901		1,141,460	706,777	
2017	3,492,586		818,960						3,940,991	4,676,441		-832,268	333,449	
2018	2,523,584		251,343						1,067,792	4,344,513		1,916,245	-1,089,137	
2019	3,067,569		1,108,217						2,621,171	5,401,977		544,917	1,081,222	
2020	3,509,062		1,757,157						855,122	4,192,871		41,045	4,455,965	
2021	5,376,411		2,479,501		3,862,460	6,887,285	3,277,688		2,583,945	8,516,649		2,623,452	2,825,792	
2022	2,539,913		2,516,973		1,181,456	10,196,807	3,667,683		3,010,745	10,623,163		5,872,586	-21,369	
2023	244,942		4,941,407		732,758	10,299,616	1,385,410		1,007,841	11,069,309		4,001,433	-186,332	
2024	-1,021,347		2,126,951		-1,484,905	3,849,327	1,675,090		540,576	7,144,611		2,355,627	-532,482	

Historical Submarket Sublease Absorption Rates														
Years	DFW	Airpor	East Dallas Inc	Great Southwest	Arlington	North Fort Worth	North Fort Worth	North Fort Worth	North Fort Worth	Northwest Dalla	Northwest Dalla	South Dallas	South Fort Worth	South Stemmoms
2010	-239,940		500,000		410,233	-208,137	89,649		124,563	225,000		0	-52,050	
2011	154,271		0		-169,012	181,618	485		9,754	0		0	181,750	
2012	106,482		0		121,337	43,686	15,880		-143,674	0		65,908	-219,645	
2013	148,274		0		-173,995	0	-229,839		100,541	-201,000		125,670	277,251	
2014	37,600		0						-95,742	-240,704		0	-120,094	
2015	73,620		0						22,133	201,000		-17,676	147,038	
2016	580		0						-7,177	-64,900		13,276	-90,088	
2017	-98,898		0						41,528	64,900		4,400	11,043	
2018	-285,351		-19,082						-90,183	240,704		-25,000	-245,560	
2019	191,550		-3,219						-78,800	-130,500		-148,904	223,254	
2020	-441,262		-47,741						-136,150	30,209		116,604	-39,039	
2021	438,257		-46,600		-91,989	168,832	902,049		13,723	89,291		50,500	-45,062	
2022	-649,749		79,950		-284,634	238,447	-171,043		-161,069	11,000		-346,498	-205,780	
2023	-8,552		-346,760		-516,242	-1,278,424	-469,209		-232,070	-838,550		-615,676	-877,175	
2024	192,370		110,423		-530,281	590,667	65,003		-821,754	160,267		-15,218	677,565	

3. Rental Rates

Rental rates were included as an independent variable to capture market pricing trends and the potential profitability of new development. Submarkets experiencing rent growth are often seen as more attractive to investors and developers, as rising rents typically signal strong tenant demand and the ability to achieve higher returns on new projects. By focusing on the percentage change in rent rather than absolute rental levels, the variable reflects market momentum rather than static pricing, making it easier to compare across submarkets with different baseline rent levels. Rent growth serves as a forward-looking indicator that developers may use to assess where future opportunities lie. Attached below is a visual of this captured data:

Historical Submarket Rental Rates (per s.f.)										
	DFW Airport	East Dallas Ind	Great Southwest/Arlington	North Fort Worth	Northeast Dallas	Northwest Dallas	South Dallas	South Fort Worth	South Stemmons	
2010	\$3.89	\$3.62		\$3.41	\$3.76	\$4.86	\$3.89	\$2.97	\$3.30	\$3.27
2011	\$3.60	\$3.46		\$3.33	\$3.61	\$4.04	\$4.06	\$2.96	\$3.31	\$3.34
2012	\$4.29	\$3.26		\$3.63	\$3.56	\$4.13	\$4.31	\$3.12	\$3.65	\$3.46
2013	\$4.72	\$2.76		\$4.11	\$3.72	\$4.25	\$4.31	\$3.16	\$4.13	\$3.90
2014	\$5.04	\$3.03		\$4.11			\$4.06	\$3.14	\$4.14	\$4.44
2015	\$5.81	\$3.77		\$4.11			\$4.50	\$3.18	\$3.92	\$5.22
2016	\$4.50	\$4.18		\$4.11			\$4.55	\$3.39	\$4.72	\$4.60
2017	\$5.12	\$3.89		\$4.11			\$4.87	\$3.45	\$5.53	\$4.39
2018	\$4.77	\$4.03		\$4.11			\$4.89	\$3.58	\$4.60	\$4.37
2019	\$4.81	\$3.95		\$4.11			\$5.27	\$3.61	\$4.70	\$4.57
2020	\$5.81	\$5.03		\$4.81	\$4.53	\$6.27	\$5.51	\$3.68	\$4.43	\$5.61
2021	\$6.79	\$5.11		\$5.57	\$5.04	\$5.93	\$6.65	\$4.52	\$5.66	\$6.54
2022	\$7.21	\$5.47		\$7.30	\$5.65	\$6.24	\$7.28	\$5.34	\$6.98	\$7.50
2023	\$9.20	\$5.91		\$8.51	\$6.15	\$8.88	\$8.60	\$5.81	\$7.39	\$8.22
2024	\$9.48	\$6.74		\$8.48	\$6.99	\$8.60	\$9.55	\$5.88	\$7.50	\$8.26

RR per s.f.

Historical Submarket Rental Rates (% change)										
	DFW Airport	East Dallas Ind	Great Southwest/Arlington	North Fort Worth	Northeast Dallas	Northwest Dallas	South Dallas	South Fort Worth	South Stemmons	
2010	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2011	-7.46%	-4.42%		-2.35%	-3.99%	-16.87%	4.37%	-0.34%	0.30%	2.14%
2012	19.17%	-5.78%		9.01%	-1.39%	2.23%	6.16%	5.41%	10.27%	3.59%
2013	10.02%	-15.34%		13.22%	4.49%	2.91%	0.00%	1.28%	13.15%	12.72%
2014	6.78%	9.78%					0.80%	-0.63%	0.24%	13.85%
2015	15.28%	24.42%					0.84%	1.27%	-5.31%	17.57%
2016	-22.55%	10.88%					0.84%	6.60%	20.41%	-11.88%
2017	13.78%	-6.94%					0.03%	1.77%	17.16%	-4.57%
2018	-6.84%	3.60%					0.41%	3.77%	-16.82%	-0.46%
2019	0.84%	-1.99%					0.77%	0.84%	2.17%	4.58%
2020	20.79%	27.34%		1.69%	7.86%	-6.97%	4.55%	1.94%	-5.74%	22.76%
2021	16.87%	1.59%		15.80%	11.26%	-5.42%	20.69%	22.83%	27.77%	16.58%
2022	6.19%	7.05%		31.06%	12.10%	5.23%	9.47%	18.14%	23.32%	14.68%
2023	27.60%	8.04%		16.58%	8.85%	42.31%	18.13%	8.80%	5.87%	9.60%
2024	3.04%	14.04%		-0.35%	13.66%	-3.15%	11.05%	1.20%	1.49%	0.49%

RR % Change

4. Proximity to Dallas

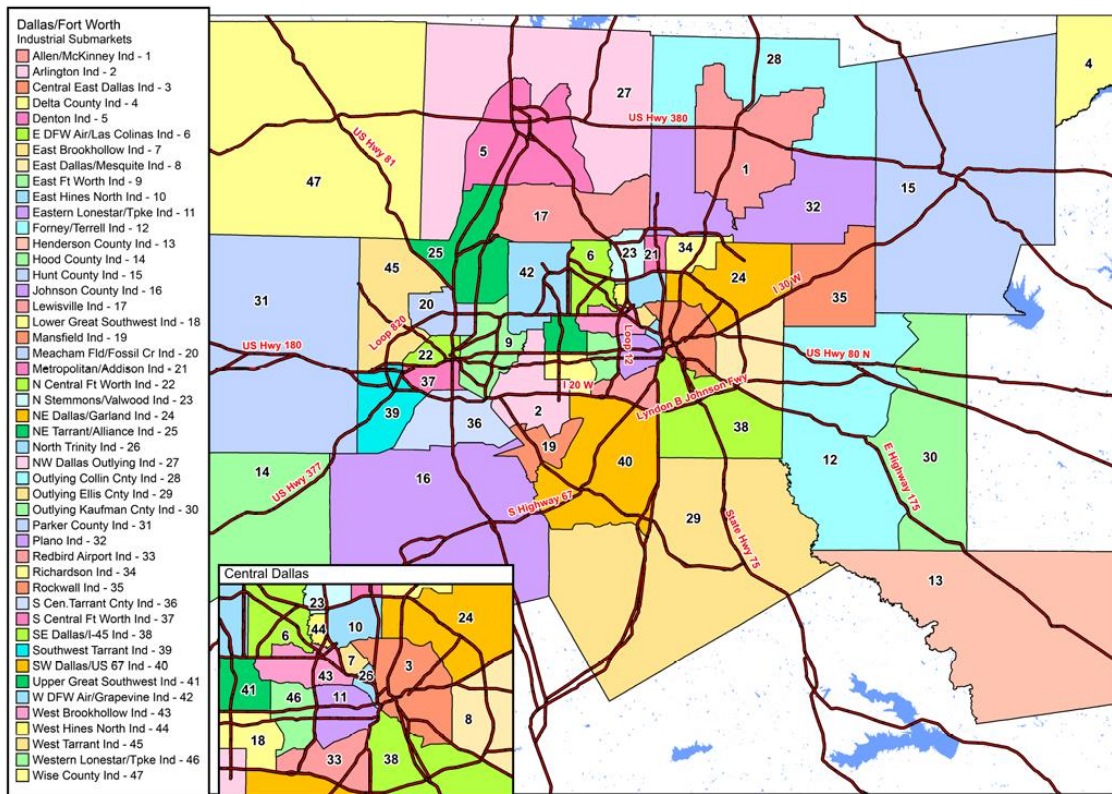
The proximity of the submarket to the center of Dallas was added as an independent variable to account for the strategic importance of location relative to a major urban and logistics hub. Submarkets closer to Dallas may benefit from better access to labor pools, infrastructure, and consumer markets, making them more attractive for industrial development. For developers, shorter distances to a central business district can reduce transportation costs and enhance connectivity, which adds value to newly developed space. By measuring distance in miles, this variable helps identify whether location advantages near Dallas are influencing development intensity.

5. Proximity to Fort Worth

Similarly, proximity to Fort Worth was utilized to evaluate whether location relative to this second major Metroplex anchor influences industrial development patterns. Fort Worth offers access to key transportation corridors, intermodal hubs, and a growing consumer base, making it a relevant factor for developers targeting regional distribution efficiency. Including this variable allowed me to test whether distance from Fort Worth had a comparable effect to Dallas, or if one urban center exerts more influence over development decisions in the surrounding submarkets.

To account for geographic proximity in my regression model, I began by downloading a copy of JLL’s DFW submarket map, which outlines 47 micro markets grouped into their respective industrial submarkets. A picture is attached below for reference. These boundaries are based on CoStar’s established geographic definitions. Using this map as a guide, I sketched out each submarket by grouping the relevant micro markets and determining the central point, or fulcrum (highlighted dot in center of each submarket in visual), of each submarket area. This fulcrum was identified as the point where the shape of the submarket is most evenly distributed, and I used an AI tool to assist with identifying these center points. Once each submarket’s center was established, I cross-referenced the locations using a digital map and recorded the exact longitude and latitude coordinates for each one. Finally, I used a coordinate distance calculator to measure the approximate distance in miles from each submarket center to both Downtown Dallas and Downtown Fort Worth, allowing me to incorporate physical location as a variable in the model.

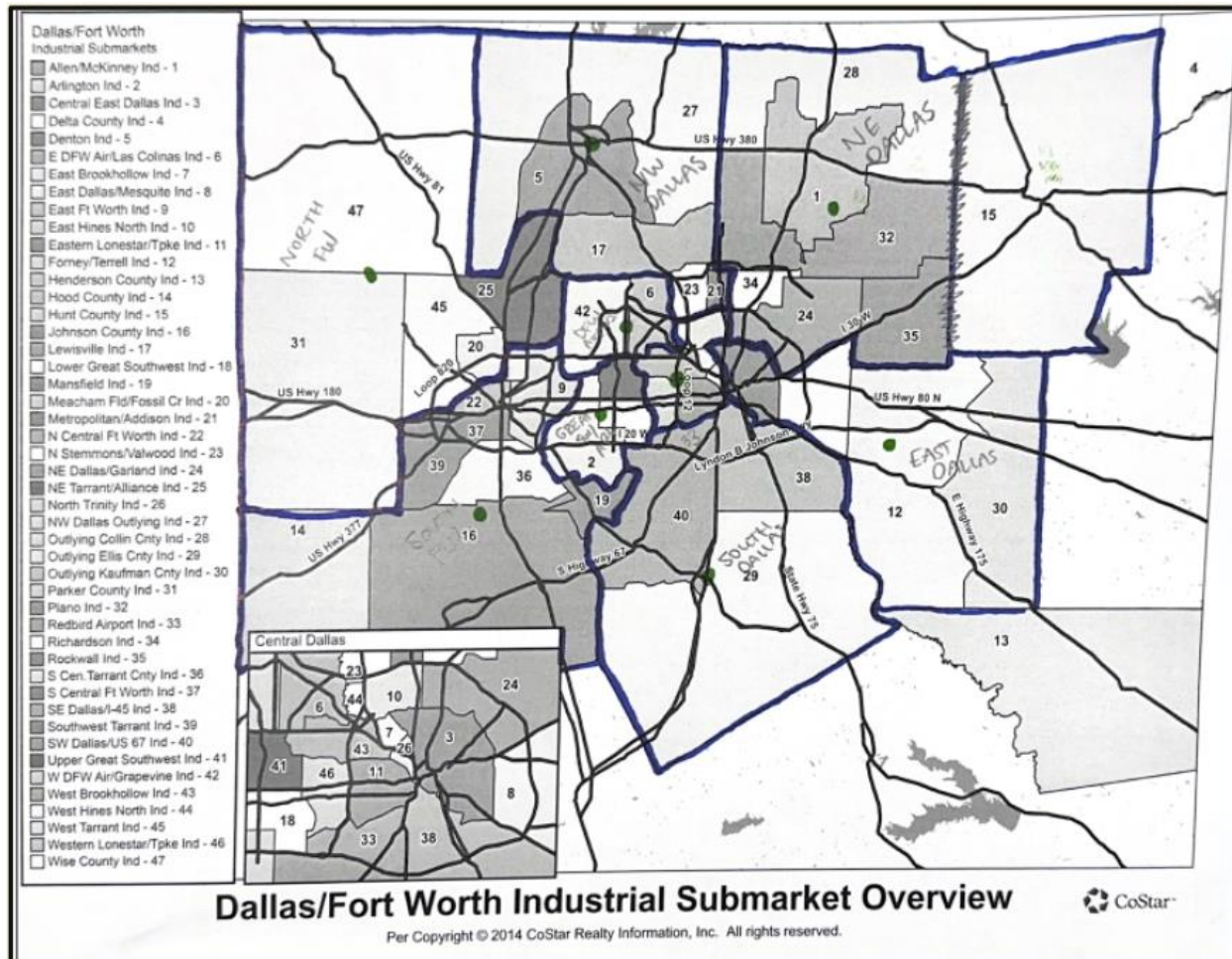
Original mapping of the 47 micro markets in DFW:



Dallas/Fort Worth Industrial Submarket Overview

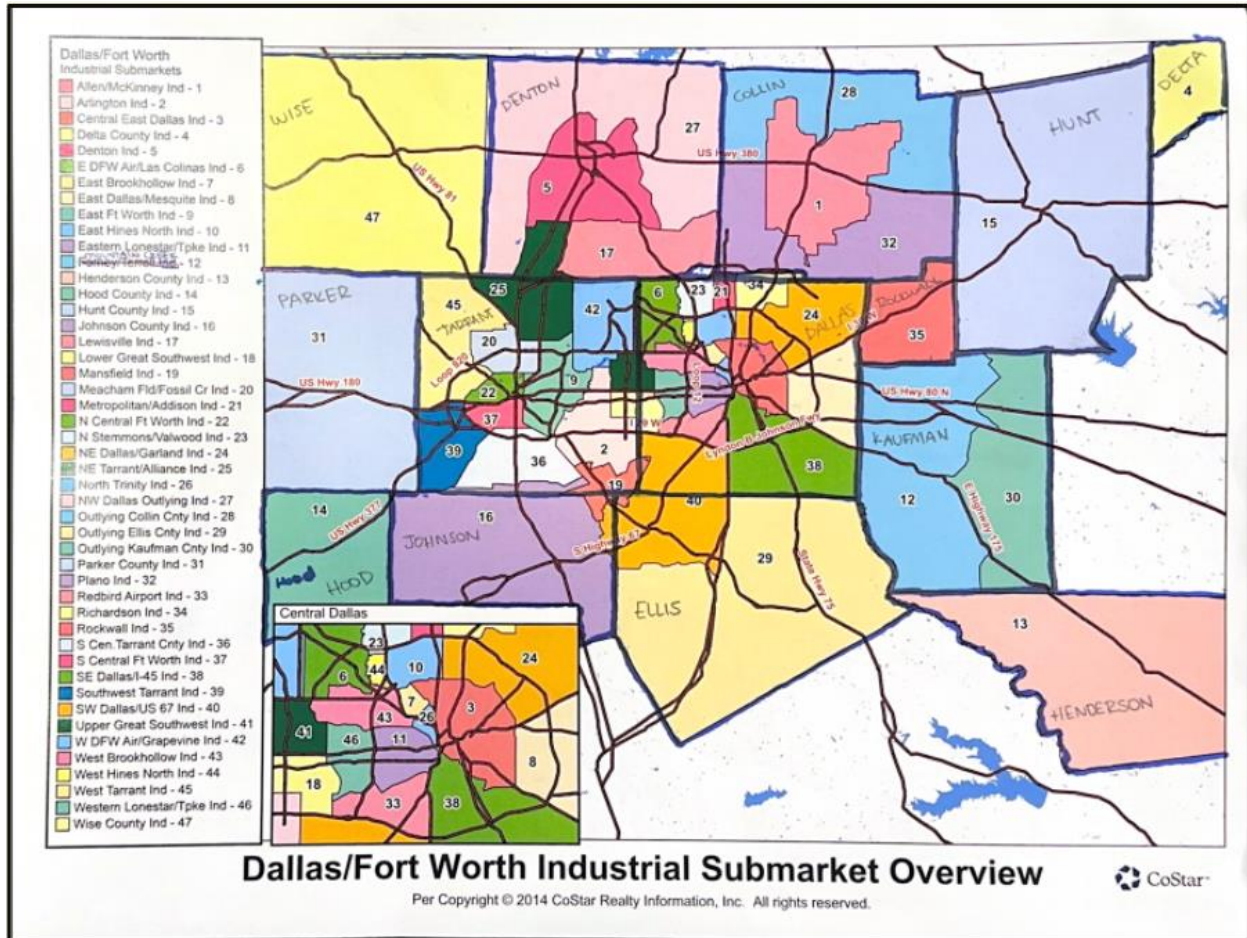


Mapping with micro market allocations and fulcrum:



6. Population

To gather consistent historical population data by submarket, I first obtained county-level population data from the Texas Demographic Center for the years 2010 to 2024. Since population data is not typically available at the submarket level, I created a visual overlay by referencing a detailed map of DFW county lines and aligning them with a micro market map of industrial submarkets. Using major roads and highways as reference points, I carefully sketched county boundaries onto the submarket map by hand, initially in pencil for accuracy, then finalized in sharpie once the lines were confirmed. This process allowed me to assign each submarket to its corresponding county, enabling a more reliable and geographically grounded connection between population trends and development activity. See the image below to see the county lines mapped over the micro market map.



With the county boundaries mapped onto the micro market map, the next step was to allocate each micro market to its respective county or counties based on physical geography. While many micro markets were contained within a single county and could be directly assigned, several micro markets spanned multiple counties. In those cases, I estimated the proportion of each micro market area within each county, rounded to the nearest 10% (e.g., a 40/60 split). This allowed me to assign a percentage-based share of each micro market to its overlapping counties. I then used AI tools to estimate how much each micro market contributed to the total land area within a county, so that the micro market percentages within each county added up to 100%. Below, I have attached a visual over both Dallas and Tarrant County calculations for reference. Using these proportions, I multiplied each county's historical population by the corresponding micro market percentages to estimate population for each micro market, year by year. This method allowed me to construct a consistent and scalable historical population data set at the micro market level, grounded in both spatial logic and demographic accuracy.

Final Table

Year	Submarket	COMPLETIONS/SUPPLY		(DIRECT VACANCY/SUPPLY)		Absorption Rates	Δ in Rental Rates	Proximity to Dallas (Miles)	Proximity to FW (Miles)
		Deve. Intensity	Δ in Pop.	Vacancy					
2010	DFW Airport	1.485291052	0.000%		16.00%	519,073	0.000%	15.777	20.26
2011	DFW Airport	0	1.536%		10.90%	2,578,343	-7.455%	15.777	20.26
2012	DFW Airport	0.170877269	1.829%		8.40%	1,297,405	19.167%	15.777	20.26
2013	DFW Airport	3.83150703	1.375%		4.30%	3,974,767	10.023%	15.777	20.26
2014	DFW Airport	4.893978368	1.546%		6.70%	1,253,743	6.780%	15.777	20.26
2015	DFW Airport	4.058711198	1.745%		7.90%	1,440,196	15.278%	15.777	20.26
2016	DFW Airport	2.305955499	1.634%		4.90%	3,027,227	-22.547%	15.777	20.26
2017	DFW Airport	5.402385094	1.351%		4.50%	3,393,688	13.778%	15.777	20.26
2018	DFW Airport	6.634938608	0.818%		7.50%	2,238,233	-6.836%	15.777	20.26
2019	DFW Airport	3.963216864	0.626%		6.60%	3,259,119	0.839%	15.777	20.26
2020	DFW Airport	6.709375941	0.511%		8.80%	3,067,800	20.790%	15.777	20.26
2021	DFW Airport	2.650117225	0.187%		3.60%	5,814,668	16.867%	15.777	20.26
2022	DFW Airport	2.855201025	0.959%		3.90%	1,890,164	6.186%	15.777	20.26
2023	DFW Airport	4.783586567	0.853%		8.20%	238,390	27.601%	15.777	20.26
2024	DFW Airport	3.30297469	1.151%		12.20%	-828,977	3.043%	15.777	20.26
2010	East Dallas Ind	0	0.000%		12.30%	642,434	0.000%	22.79	51.23
2011	East Dallas Ind	0	1.431%		10.30%	603,019	-4.420%	22.79	51.23
2012	East Dallas Ind	0.268487916	1.823%		9.10%	458,147	-5.780%	22.79	51.23
2013	East Dallas Ind	1.270536422	1.185%		8.60%	505,159	-15.337%	22.79	51.23
2014	East Dallas Ind	0.286367914	1.513%		6.90%	613,166	9.783%	22.79	51.23
2015	East Dallas Ind	0	1.682%		5.50%	451,420	24.422%	22.79	51.23
2016	East Dallas Ind	0	1.608%		7.60%	-653,483	10.875%	22.79	51.23
2017	East Dallas Ind	1.107219213	1.516%		6.00%	818,960	-6.938%	22.79	51.23
2018	East Dallas Ind	1.611937001	0.989%		6.80%	232,261	3.599%	22.79	51.23
2019	East Dallas Ind	6.265852328	1.137%		9.50%	1,104,898	-1.985%	22.79	51.23
2020	East Dallas Ind	5.857580784	0.670%		10.10%	1,709,416	27.342%	22.79	51.23
2021	East Dallas Ind	4.390066035	0.778%		7.70%	2,432,901	1.590%	22.79	51.23
2022	East Dallas Ind	10.28503019	2.150%		11.40%	2,596,923	7.045%	22.79	51.23
2023	East Dallas Ind	11.75437271	1.674%		12.40%	4,594,647	8.044%	22.79	51.23
2024	East Dallas Ind	11.54482029	1.397%		18.40%	2,237,374	14.044%	22.79	51.23
2010	Great Southwest/Arlington	0	0.000%		14.60%	1,020,748	0.000%	17.816	12.383
2011	Great Southwest/Arlington	0	1.548%		12.40%	1,598,859	-2.346%	17.816	12.383
2012	Great Southwest/Arlington	0	1.827%		9.00%	2,570,121	9.009%	17.816	12.383
2013	Great Southwest/Arlington	1.134663595	1.402%		6.10%	3,003,161	13.223%	17.816	12.383

To run the regression, I organized all of my data into a single, clean table that Excel's regression tool could interpret. The dependent variable, development intensity, is placed in the left-most column, as this is the primary metric being analyzed. To maintain compatibility with Excel's regression tool, all independent variables are arranged in contiguous columns, meaning they are placed side-by-side with no breaks or unrelated columns in between. I also included context columns for Year and Submarket at the far left of the table, which helped identify the time period and location for each observation but were excluded from the regression input. Additionally, the proximity to Dallas and Fort Worth variables were kept static for each submarket since the distance to these city centers does not change year-over-year and were applied uniformly to all rows within each submarket. This format allowed me to seamlessly combine all variables and submarket-year observations into a single dataset that was both clean and regression-ready.

RESULTS

To analyze how different factors influence industrial development across both space and time, I used a pooled panel regression. This statistical method is designed to work with panel data, which combines both cross-sectional and time-series dimensions. In this case, the cross-sectional component refers to data collected across multiple submarkets in a single year, such as the development intensity of 9 submarkets in 2010. The time-series component tracks changes within a single submarket over time, such as the development intensity of one submarket from

2010 to 2024. By pooling these two dimensions together, panel data enables a more complete and robust analysis, allowing me to examine how key market drivers behave both across submarkets and over time. Pooled panel regression assumes that the relationship between the independent variables and the dependent variable (development intensity) is consistent across all observations. This method is especially well-suited to my study, which includes multiple years of data for multiple DFW submarkets and provides a strong framework for identifying which factors most reliably explain patterns of industrial development.

With the pooled panel regression model in place, I was able to analyze how various independent variables - including absorption rates, vacancy, rental rate growth, proximity to Dallas and Fort Worth, and population change - impacted development intensity across submarkets over time. This approach allowed me to control year-to-year fluctuations and regional differences, providing a more comprehensive view of what drives industrial development in the DFW Metroplex. The regression output reveals which variables had statistically significant relationships with development intensity and offers insights into the strength and direction of those relationships. A screenshot of the regression results is included below to visually present the statistical findings. The following section interprets these results in detail, focusing on the variables that emerged as the most influential predictors of development activity.

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.758087078							
R Square	0.574696018							
Adjusted R Square	0.554759894							
Standard Error	2.15245159							
Observations	135							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	6	801.3375497	133.5562583	28.82686789	1.25013E-21			
Residual	128	593.0301247	4.633047849					
Total	134	1394.367674						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-1.704416264	0.72959952	-2.336098391	0.021040204	-3.148053566	-0.260778962	-3.148053566	-0.260778962
Δ in Pop.	30.58448847	28.03095171	1.091097041	0.277279789	-24.87953857	86.04851551	-24.87953857	86.04851551
Vacancy	34.19678987	6.505659676	5.256467687	5.96919E-07	21.32423071	47.06934903	21.32423071	47.06934903
Absorption Rates	8.27664E-07	8.18503E-08	10.11192028	5.01436E-18	6.65709E-07	9.89618E-07	6.65709E-07	9.89618E-07
Δ in Rental Rates	3.28646532	1.75764945	1.869807042	0.063795125	-0.191344411	6.76427505	-0.191344411	6.76427505
Proximity to Dallas (Miles)	-0.005791988	0.018577253	-0.311778494	0.755716135	-0.042550256	0.03096628	-0.042550256	0.03096628
Proximity to FW (Miles)	-0.003374673	0.014660001	-0.230195964	0.818306984	-0.032381989	0.025632643	-0.032381989	0.025632643

R-Square

A key indicator of model performance in regression analysis is the R-squared value (R^2), which measures the proportion of variance in the dependent variable that can be explained by the independent variables included in the model. In simple terms, R^2 tells us how well the model fits

the data. It ranges from 0 to 1, where a value closer to 1 indicates a stronger explanatory power. Mathematically, R^2 is calculated by dividing the regression sum of squares by the total sum of squares, representing the percentage of variation in development intensity that can be accounted for by the predictors in the model. In this analysis, the R-squared value is ~ 0.575 , meaning that approximately 57.5% of the variation in development intensity across all submarkets and years is explained by the six independent variables in the pooled panel regression. This suggests a relatively strong model fit, especially given the complexity of real estate markets and the wide range of factors that influence development decisions.

Statistical Significance

Before diving into individual variable interpretations, it's important to understand the concept of statistical significance, which helps determine whether a relationship identified in the regression is likely to be genuine or simply due to random chance. This is measured using a p-value, where a value below 0.05 (5%) is typically considered statistically significant. In this model, three variables met that threshold: vacancy rate, absorption rates, and proximity to Dallas. Each of these had a p-value below 0.05, indicating that their relationships with development intensity are statistically reliable and unlikely to have occurred by chance. On the other hand, rental rate change, population change, and proximity to Fort Worth did not reach significance at the 5% level, suggesting that their effects are not strong or consistent enough within this dataset to draw confident conclusions. The following sections provide a more detailed interpretation of each variable's behavior in the model.

INDEPENDENT VARIABLE CONCLUSIONS

Vacancy

One of the most statistically significant predictors in the model was vacancy rate, with a **p-value of 5.97×10^{-7}** , indicating an extremely strong and reliable relationship with development intensity. The **coefficient for vacancy is +34.20**, meaning that a 1 percentage point increase in vacancy rate is associated with a 34.2 percentage point increase in development intensity, holding all other variables constant. This is a substantial and somewhat surprising effect, as it runs counter to conventional real estate theory, which typically views high vacancy as a sign of oversupply that should deter new construction.

However, several market-based explanations can help make sense of this counter-intuitive result. In fast-growing markets like DFW, this trend may reflect speculative development, where developers build ahead of demand in strategic locations with confidence that tenants will eventually lease the space. Additionally, elevated vacancy may be a result of recent completions that have not yet been absorbed, temporarily inflating vacancy rates in submarkets that are still fundamentally healthy. In this case, both high vacancy and increased development are symptoms of a pipeline that's moving quickly, rather than signals of weak demand. Lastly, in a region as large and economically diverse as DFW, developers may tolerate higher vacancy rates knowing

the market can absorb space over a longer horizon, particularly in submarkets with strong growth potential.

The implication of this finding is that vacancy alone may not discourage development. In fact, in some contexts, it may coexist with or even signal future opportunity. For stakeholders in the DFW industrial market, this suggests that interpreting vacancy requires nuance, especially in high-growth, infrastructure-rich submarkets where speculative development is common.

Absorption Rates

Absorption rate was another highly significant predictor in the regression model, with a **p-value of 6.72×10^{-6}** , confirming a strong and consistent relationship with development intensity. The **coefficient is +0.00000828**, which means that for every 1 additional square foot of space absorbed, development intensity increases by 0.00000828 percentage points, holding all other variables constant. While the coefficient appears small, absorption figures in industrial real estate often reach into the hundreds of thousands or even millions of square feet, so even modest increases in absorption can meaningfully impact development decisions. For example, an increase of 1 million square feet in absorption corresponds to a 0.828 percentage point increase in development intensity, which is a substantial shift when analyzing annual growth rates in submarkets.

This result is consistent with real estate fundamentals: when tenants are leasing up space quickly, developers are more likely to respond by building more supply. High absorption rates signal strong tenant demand, reduced risk for developers, and higher confidence in the market's ability to support new inventory. In contrast to vacancy, which may reflect lagging demand or recent completions, absorption provides a more direct and timelier indicator of market momentum. In the context of DFW's industrial market, this finding reinforces the idea that active leasing activity is a core driver of new construction. Developers appear to be closely tracking absorption trends, using them as a key signal to move forward with projects. This also suggests that demand-side indicators like absorption may carry more weight than supply-side metrics alone when forecasting where development is likely to occur.

Proximity to Dallas

Proximity to Dallas was a statistically significant variable in the model, with a **p-value of 0.0309** < 0.05, indicating a meaningful relationship between distance to Dallas and development intensity. The **coefficient is -0.0058**, which means that for every one-mile increase in distance from downtown Dallas, development intensity decreases by 0.0058 percentage points, holding all other variables constant. While the coefficient may appear small on the surface, across submarkets that differ by 20–30 miles in distance, the cumulative effect becomes more substantial and reflective of broader spatial patterns in development.

This finding aligns with urban spatial theory, which suggests that proximity to the urban core often increases a location's attractiveness for development due to better access to infrastructure, labor pools, transportation hubs, and customers. In the case of DFW, Dallas is a primary center of economic activity and logistics connectivity. Industrial users benefit from reduced transportation costs and improved access to regional and last-mile distribution networks when located closer to the city center. For developers, these advantages translate into stronger leasing demand and a higher likelihood of project success, incentivizing development in closer-in submarkets.

The implication of this result is that location still matters significantly, even in a sprawling market like DFW. Developers appear to prioritize proximity to Dallas when making investment decisions, and this spatial preference likely contributes to the concentration of new supply in submarkets with superior accessibility and logistical value.

Proximity to Fort Worth

In contrast, proximity to Fort Worth was not statistically significant in the model, with a **p-value of 0.818**, indicating no meaningful relationship between distance to Fort Worth and development intensity. The **coefficient was -0.0033**, suggesting a slight negative relationship. This implies that development intensity declines the farther a submarket is from Fort Worth, but the result lacks the statistical confidence needed to draw conclusions from this pattern.

There are several possible explanations for this finding. While Fort Worth plays an important role in the broader Metroplex, it may not carry the same industrial weight or developer pull as Dallas, especially in terms of speculative development or regional distribution infrastructure. It's also possible that distance to the urban core doesn't capture the full picture, especially when industrial development often favors outlying areas with large, affordable parcels of land. After all, no developer would place a modern distribution warehouse in the heart of Fort Worth or Dallas. Therefore, the more relevant question becomes: how far is too far? Is there a development "sweet spot" where proximity to infrastructure and workforce is maximized without sacrificing space or cost efficiency?

This raises an interesting direction for future research: exploring optimal distances from urban centers for industrial development, and how those distances may be shifting as the Metroplex continues to grow. As transportation corridors expand and logistics needs evolve, developers may redefine what constitutes a "prime location," particularly in high-growth regions like DFW. In this context, proximity to Fort Worth may be less about urban adjacency and more about alignment with key freight routes, intermodals, and accessibility zones, all of which merit deeper geographic and logistical analysis.

Rental Rates

Change in rental rates emerged as a borderline-significant variable in the regression, with a **p-value of 0.0638**, just above the conventional 5% threshold for statistical significance. The **coefficient is +2.29**, which means that a 1% increase in rental rates is associated with a 2.29 percentage point increase in development intensity, holding all other variables constant. While this result is not statistically significant in a strict sense, the strength and direction of the relationship are still meaningful, especially in the context of real estate development. From a theoretical perspective, this result is highly intuitive. Rising rents are typically viewed as a signal of strong demand and limited supply, creating an environment where new development becomes financially attractive. Developers monitor rental rate growth closely because it directly impacts the potential return on investment for new projects. In technical terms, higher rents mean higher cash flow, improving feasibility and reducing perceived risk. In markets where rents are increasing rapidly, there is often a rush to deliver new supply to capitalize on favorable economics before the market stabilizes.

In the case of DFW, the fact that rent growth was nearly significant suggests that developers are likely responsive to pricing trends, but that rent growth alone may not be enough to trigger new construction without other supporting conditions like strong absorption, favorable location, or low vacancy. It's also possible that because rent levels and rent growth vary across submarkets and time periods, the effect becomes somewhat diluted in a pooled panel model. Nonetheless, even without strong statistical backing in this model, positive rental momentum remains a powerful indicator in real estate strategy, and future studies with more granular data could yield clearer relationships. As the DFW market ages and continues to experience upward rent pressure, rent growth may become an even more predictive driver of industrial development moving forward.

Population

The final variable in the model, population change, was not statistically significant, with a **p-value of 0.277**, indicating that it did not have a reliable or consistent relationship with development intensity in this analysis. The **coefficient is +30.58**, meaning that a 1% increase in population is associated with a 30.58 percentage point increase in industrial development intensity, holding all other factors constant. While this is a large and positive coefficient on paper, the high p-value suggests that this relationship lacks statistical support and may not be robust across submarkets or over time. Intuitively, it would be reasonable to expect that population growth should contribute to increased industrial development. More people often mean more consumption, more online orders, more deliveries, and ultimately, greater demand for warehouses and distribution space. However, the disconnect here may lie in the time lag between population growth and its effect on industrial space demand, or the fact that industrial development is often driven more directly by commercial activity, infrastructure, and logistics considerations rather than residential growth alone.

Additionally, because population data was assigned to submarkets using a multi-step estimation process based on county allocations, some level of noise or smoothing in the data may have weakened its explanatory power in the model. Another possibility is that population growth influences retail or residential development more directly, while industrial demand is influenced more by employment centers, highway access, and freight traffic patterns which are factors not fully captured by population alone.

This variable opens the door to further research. While population change did not emerge as a significant predictor here, it may become more impactful in the future as consumer expectations for faster delivery push industrial footprints closer to where people live. A future study that examines the relationship between population growth, e-commerce penetration, and last-mile logistics development may offer more targeted insight into how demographic shifts are influencing industrial real estate.

LIMITATIONS

While this thesis offers valuable insights into the factors influencing industrial development intensity in the DFW Metroplex, it is important to recognize several limitations that shape the interpretation of the results. First, the analysis relies on a pooled panel regression model, which treats all submarkets and time periods as part of one combined dataset, assuming that the relationship between independent variables and development intensity is uniform across space and time. In reality, different submarkets may respond differently to market forces depending on their maturity, infrastructure, or policy environments.

Second, the construction of certain variables - particularly population data by submarket - required a multi-step estimation process using county-level data, visual mapping, and area-based allocation. While this method allowed for consistent historical tracking, it introduces a degree of approximation error, especially for micro markets that spanned multiple counties. Additionally, the model assumes that development decisions occur in the same year as the influencing variables. But in practice, development often lags market signals like absorption or rent growth due to permitting, financing, and construction timelines. The absence of time-lagged variables may obscure causal relationships that unfold over longer horizons.

Another limitation lies in the scope of included variables. The model focuses on six independent variables but omits other potentially influential elements due to data availability like land prices, zoning regulations, infrastructure investments (like new interchanges or freight hubs), interest rates, or developer-specific strategies. These unmeasured variables could play a significant role in shaping when and where development occurs. Lastly, while DFW is a large and diverse industrial market, findings from this region may not fully generalize to other metros with different economic structures, land use patterns, or policy environments. Despite these limitations, the model provides a solid foundation for understanding broad patterns in industrial development and offers a platform for more granular or advanced analysis in future work.

CONCLUSION

This thesis set out to explore the key drivers of industrial development intensity across submarkets in the Dallas–Fort Worth (DFW) Metroplex from 2010 to 2024. With DFW emerging as one of the fastest-growing industrial real estate markets in the U.S., the research aimed to understand what market, spatial, and demographic factors most influence where and how aggressively developers choose to build. Using a pooled panel regression model, the analysis incorporated six independent variables: change in population, vacancy rate, absorption rates, change in rental rates, and proximity to both Dallas and Fort Worth. The dependent variable, development intensity, was calculated as completions divided by existing supply, providing a normalized measure of development across time and submarkets.

The regression results offered both expected and unexpected insights. As anticipated, absorption rates and proximity to Dallas emerged as significant drivers of development, aligning with real estate theory that emphasizes tenant demand and location accessibility. However, vacancy rates also showed a strong and positive relationship with development intensity, challenging intuition and suggesting that speculative development or pipeline-driven vacancy may be more prevalent in fast-growing submarkets. Conversely, the change in population, rental rate growth, and proximity to Fort Worth did not show statistically significant relationships with development intensity. These results point to a market where developers may be more responsive to short-term leasing activity and physical connectivity than to broader demographic shifts or traditional supply-side metrics.

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