

Strategic Expansion of ALDI Stores in Indiana: A Data-Driven Analysis of Market Opportunities

Objective:

In this research, our team, acting as data analysts for a real estate investment firm, aims to identify the most promising counties and cities in Indiana for the expansion of ALDI stores. Using SafeGraph datasets, we analyse key metrics such as consumer behaviour, grocery store distribution, demand and supply efficiency, and household income levels. Our goal is to provide data-driven insights to help ALDI strategically select new store locations.

This study focuses on dividing Indiana counties into two groups: those with an existing ALDI store and those without. We delve into metrics like footfall, dwell time, and grocery store density to provide actionable recommendations. Additionally, we analyse cities within the selected counties to further pinpoint optimal locations for new store development, helping ALDI refine its commercial expansion strategy.

Research Questions and Insights:

1. What is the distribution of counties in Indiana based on the presence of ALDI stores?

We started by identifying which Indiana counties currently have ALDI stores and which do not. This gave us a solid foundation for assessing ALDI's market penetration and potential areas for growth.

Of Indiana's 92 counties, 83 have supermarket grocery stores. Among those, 43 counties have ALDI stores, while 40 do not. Notably, in Huntington and Jackson counties, ALDI is the only grocery store. For further analysis, we created separate datasets for counties with and without ALDI stores.

2. How do footfall, dwell time, and the number of grocery stores per 1,00,000 people vary between Indiana counties with and without ALDI stores?

Moving forward, we analysed footfall, dwell time, and grocery store density (per 100,000 people) in counties with and without ALDI stores. This helped us drill down into specific areas that may be ideal for ALDI's expansion based on consumer behaviour and market saturation.

We filtered the top 5 counties from each group (with and without ALDI stores) based on the following criteria:

For Counties with ALDI:

Counties with a higher population tend to have greater grocery store density (13-18) and average dwell times > 25 minutes, indicating that the number of stores relative to the population may be insufficient. Following is the business rules used to identify top 5 counties for potential expansion:

- **Priority Score:** $0.7 * (\text{median dwell time}) + 0.3 * (\text{grocery store density per 100,000 people})$
- **Filters:** (Median dwell time > 25 minutes) AND (monthly visits > 600)

For Counties without ALDI:

Counties in this group generally have lower populations and smaller grocery store densities (<4). Despite this, the average dwell time remains efficient (15-20 minutes). The high frequency of monthly visits suggests that these areas may support additional grocery stores, including new ALDI locations. We refined the business rules to identify the top 5 counties for potential expansion:

- **Priority Score:** $0.7 * (\text{raw visit count}) + 0.3 * (\text{grocery store density per 100,000 people})$
- **Filters:** (Dwell time between 10-120 minutes) AND (grocery store density > 1.2) AND (monthly visits > 600)

3. Which counties (both with and without existing ALDI stores) in Indiana have a high average weighted household income?

To better understand the economic standing and purchasing power of each county, we conducted an analysis of the weighted average income, selecting the top 3 counties from each category based on income and other key parameters from the top 5 counties.

While per capita income served as an important initial filter, we further refined our selection by assessing foot traffic, grocery store density, and dwell time. The average income ranges between \$60k - \$85k. Therefore, we prioritized counties in the upper income bracket (>\$70k) having higher grocery store density and longer dwell times. These counties have high purchasing power, suggesting they may benefit from additional ALDI stores.

Weighted average household per capita income:

$\Sigma(\text{Income Bracket population} \times \text{Median of income bracket}) / \Sigma(\text{Income Bracket Population})$

Top 3 Counties with existing ALDI stores:

County Name	Average Income	GS Density	Visit Count	Dwell Time
Porter County	\$84,612	13.6	1791	35 minutes
Tippecanoe County	\$67,314	13	2760	57 minutes
Elkhart County	\$70,611	16.7	971	40 minutes

Top 3 Counties without existing ALDI stores:

County Name	Average Income	GS Density	Visit Count	Dwell Time
Morgan County	\$79,843	3.5	1120	14 minutes
Montgomery County	\$69,306	2.3	1007	20 minutes
Noble County	\$68,549	1.9	759	19 minutes

4. Which county would be the most suitable for opening a new ALDI store from the top 3 in each category?

This analysis further narrowed down the list of 3 target counties to 1 from each category by evaluating their weekly foot traffic patterns, comparing that with the population distribution and income profiles.

While assessing the weekly foot traffic data, we had an interesting observation. Contradictory to what we initially expected, we observed that the footfall for every county was higher during weekdays, and lowest on weekends! This shift in shopping behaviour presents a great opportunity for targeted marketing and promotions during these high-traffic days, as it goes against the traditional expectation of peak weekend grocery runs.

For Counties with ALDI Stores:

Out of the three counties we looked at, Tippecanoe stands out with the highest foot traffic during weekdays and the longest dwell times. Given its high population density and substantial visit count, it shows strong demand for groceries, despite its lower average income. Since it's also home to a major college town, a big chunk of the population is students and young adults who represent a key demographic for grocery spending. This creates a unique opportunity for ALDI to strategically position a new store that caters to this younger crowd by aligning with the budget-conscious habits of students, ALDI can maximize its profits while building strong customer loyalty in this high-traffic area.

For Counties without ALDI Stores:

With a combination of high, consistent weekday foot traffic and a strong income level(\$80k), Morgan County demonstrates significant purchasing power. Shoppers in this area can afford to make purchases without depending heavily on discounts or promotions, making it an ideal location to maintain strong profit margins without extensive promotional efforts.

Additionally, Morgan County's proximity to Indianapolis drives substantial demand, reflected in its high grocery store density and the longest dwell time among the top 3 counties. These factors make Morgan County the most promising option for ALDI's expansion.

Popularity(# raw visits) by Day:

County	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Tippecanoe	47	46	49	51	54	45	36
Morgan	30	29	31	33	36	30	24

5. Which major cities in the identified counties present optimal conditions for establishing a new ALDI store based on demographic and economic factors?

This analysis focuses on identifying cities with the best conditions for a new ALDI store based on key factors such as population, per capita income, visit count, and dwell time.

We compared all cities within Tippecanoe and Morgan counties to determine the most favourable locations for a new store. Based on a combination of these metrics, we identified the following cities:

For Tippecanoe (County with ALDI Stores): West Lafayette

- Population: 39.8 million
- Per Capita Income: \$84.3k
- Visits Count: 428
- Dwell Time: 82 minutes

For Morgan (County without ALDI Stores): Monrovia

- Population: 11.7 million

- Per Capita Income: \$91.6k
- Visits Count: 235
- Dwell Time: 77 minutes

Conclusion:

In conclusion, ALDI, already a popular grocery chain in Indiana, is in an excellent position to expand its presence, and this analysis offers valuable insights to inform that strategy. The data used provides important takeaways regarding consumer behaviour and market dynamics across different counties.

For instance, **West Lafayette (Tippecanoe County)** has emerged as a key city with high foot traffic and demand for additional grocery stores, reinforcing the need for a strategic expansion in that location. Furthermore, by evaluating factors like population density, household income, and dwell times, we've identified **Monrovia (Morgan County)** that present significant opportunities for new store openings. Ultimately, this analysis helps ALDI pinpoint regions where expansion would not only be profitable but also meet the grocery needs of local communities, ensuring a mutually beneficial outcome for both the business and its customers.

**Grocery Store Density – The number of Grocery Stores available per 100,000 people in a given area [(population total /100000)/ # of grocery stores]*