Uncovering Parental Urban Mobility and Amenity Visits through Large-scale GPS Data

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Abstract

Recent social media data analysis suggests that children from low-income families are more likely to exceed their parents' income if exposed to interactions with high-income individuals. This highlights the potential of understanding parental behavior to break the cycle of poverty. Using detailed human mobility data, this study estimated the movements of parents with young children, extracted by focusing on drop-off activities in childcare facilities. The differences between parents and non-parents were analyzed with respect to time spent at home, visiting tendencies, and frequency of visits to various locations. It was shown that parents raising children spend significantly more time at home and explored new locations less frequently than non-parents. Budget-conscious dining patterns were also observed, with parents visiting establishments such as restaurants and bars less frequently while frequenting supermarkets and fast food outlets more. Additionally, parents operated within a smaller activity radius. These findings provide a foundation for understanding parental social interactions and offer insights for improving urban support policies for low-income families, contributing to data-driven approaches to social inclusion.

1. Introduction

Currently, over half of the world's population resides in urban areas, and this proportion is projected to reach two-thirds by 2050 (United Nations. Department of Economic and Social Affairs, 2018). As urban systems are increasingly required to support larger populations, poverty remains a significant and persistent challenge. Although cities tend to have higher overall income levels due to agglomeration effects, they also exhibit greater income inequality (United Nations. Department of Economic and Social Affairs, 2020). Consequently, a quarter of urban residents worldwide live in slums, facing conditions of poverty (Ritchie, Hannah and Samborska, Veronika and Roser, Max, 2024). Furthermore, residential segregation based on income levels, which is known to exacerbate both income and educational inequalities (Acs et al., 2017), has become increasingly prevalent.

A key factor hindering the alleviation of urban poverty is the persistence of poverty, or the difficulty for those in low-income brackets to escape their socioeconomic circumstances. In Japan, it is estimated that it takes four generations for a child born into the bottom 10% of households to reach the average income level (OECD, 2018). Creating urban environments that facilitate upward mobility for low-income individuals has numerous benefits. Firstly, it promotes urban economic growth. By providing educational and economic opportunities to low-income households, cities can cultivate a workforce capable of generating high added value (Bradbury and Triest, 2016). Furthermore, individual well-being and life satisfaction are enhanced by the perception of earning more than one's parents (Nikolaev and Burns, 2014, Lu and Chen, 2024).

Recent research highlights the significant impact of childhood residential environment on future income. An intervention study in the United States found that children who moved to areas of low poverty before the age of 13 experienced a 31% increase in their adult income compared to a control group (Chetty et al., 2016). Moreover, the younger the child at the time of the move, the greater the income gains, suggesting a critical period for the beneficial effects of growing up in more enriched environments. Factors contributing to this include access to quality education (Troost et al., 2023), the availability of urban amenities such as parks and cultural facilities (Prado-Galbarro et al., 2021), and the development of robust social networks. A study using Facebook data revealed that children living in cities with high levels of interaction across different income strata earn on average 20% more than their parents (Chetty et al., 2022). This diversity of interaction has been recognized for its importance for more than half a century, even in fields beyond economics such as urban planning, and is currently thought to underlie active social and economic activity in the city (Jacobs, Jane, 1961).

While the positive influence of enriched neighborhood environments on upward mobility for children from disadvantaged backgrounds is increasingly recognized, the specific mechanisms through which local communities contribute to child development and future income remain poorly understood. In particular, there is a lack of detailed understanding of children's experiences with urban amenities and their social interactions.

A more comprehensive understanding can lead to the development of alternative approaches beyond traditional measures such as direct financial assistance or investments in educational institutions and urban amenities (Cannon et al., 2018, Magnuson, 2016) . These alternative approaches could focus on facilitating mobility that connects families with enriching places and people. Obtaining a solid understanding of current urban amenity usage and contact with others requires detailed data that can track daily life and associated mobility on an individual level. Therefore, human mobility data, which has become increasingly available in recent years, is being used to analyze detailed behavioral dynamics in order to understand people's

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visit patterns and contacts in urban areas. Studies such as (Nilforoshan et al., 2023, Moro et al., 2021) define social contact as spatial proximity in daily life, and measure diversity of social contact by analyzing co-location. Research using GPS data from mobile phones has investigated the relationship between the possibility of social contact among people of different income levels and urban scale (Nilforoshan et al., 2023) and individual behavioral patterns (Moro et al., 2021).

However, these existing studies using human mobility data do not consider family structure or social attributes. Young children, in particular, whose values and cognitive functions are being formed, generally do not move around the urban environment alone but are accompanied by adults such as parents or guardians. Since young children often do not own mobile phones, it is difficult to understand their experiences within the urban environment, particularly those derived from visiting various amenities and facilities. Therefore, in this study, we attempt to indirectly understand children's urban experiences by using parental behavior data. This limitation also necessitates a staged research approach where we first establish methodologies for identifying parents and understanding their mobility patterns. Focusing on drop-off behavior in early childhood facilities, we estimate parents from GPS data and analyze their visitation patterns to urban facilities. Specifically, we verify whether there are statistically significant differences in the visiting tendencies between users estimated as parents and other users. This research is expected to contribute to building a foundation for understanding young children's urban amenity visit experiences and social contacts.

2. Materials and Method

2.1 Data

This study utilizes location data provided by Blogwatcher, Inc. (Blogwatcher, 2025), derived from a sample of Japanese smartphone users. This dataset comprises aggregated location pings collected from smartphone applications, obtained from users who consented to share their location data (Figure 1). To protect user privacy, Blogwatcher Inc. applied a location blurring of approximately 125 meters to location data points near each user's estimated residence and workplace. This obfuscation ensures that individuals cannot be readily identified. The study used data from 2,309,895 users with location pings within Tokyo during February 2022, and 666,174 users with location pings within Miyagi Prefecture throughout 2019, representing a regional area in the northern part of Japan. Each ping is associated with an anonymized user ID and a timestamp. Demographic information, including gender and age brackets in 10-year increments, is available for a subset of users: 807,074 in the Tokyo dataset and 300,265 in the Miyagi dataset. For the analysis, we focused on users with sufficient location data. Specifically, we included 826,415 Tokyo users who had at least one location ping recorded on each of the 28 days in February 2022. For Miyagi Prefecture, we considered 33,845 users who had at least one location ping recorded on at least 100 days throughout 2019 (Table 1).

To estimate the purpose of each user's visits, we utilized Point of Interest (POI) information. This study employed the "Telepoint" database, a geocoded telephone directory provided by Zenrin Co., Ltd., through a collaborative research project with the Center for Spatial Information Science at the University of Tokyo. This database contains approximately 6.4 million POI

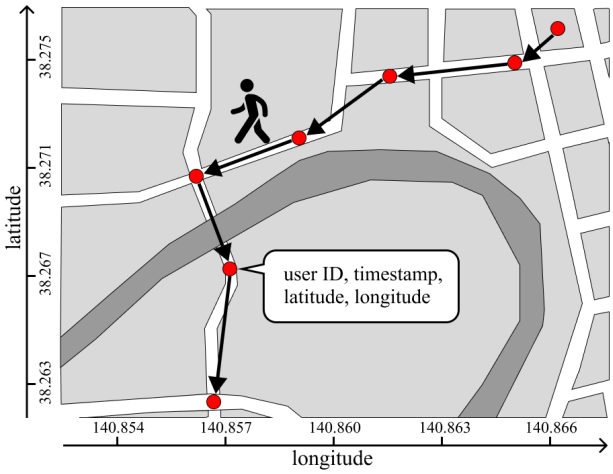

Figure 1. Example of a user's GPS trajectory data.

	Tokyo (February 2022)		Miyagi (2019)	
	Count of IDs	Percentage	Count of IDs	Percentage
Total Count of IDs	2,309,895	100.00%	1,184,446	100.00%
Gender	807,074	34.94%	479,271	40.46%
Male	412,848	17.87%	310,991	26.26%
Female	394,226	17.07%	168,280	14.21%
Age Group	807,074	34.94%	479,271	40.46%
20s	104,231	4.51%	57,346	4.84%
30s	148,716	6.44%	108,303	9.14%
40s	165,742	7.18%	137,194	11.58%
50s	293,871	12.72%	123,379	10.42%
60s	94,514	4.09%	53,049	4.48%
After Preprocessing	826,415	35.78%	108,789	9.18%

Table 1. User ID Counts in the GPS data and after preprocessing.

entries across Japan, including information such as business name as listed in the telephone directory, address, postal code, industry code, latitude, and longitude.

We also incorporated several publicly available geospatial datasets. We obtained all road boundary data for Tokyo and Miyagi Prefectures from the Fundamental Geospatial Data provided by the Geospatial Information Authority of Japan (GSI) (Geospatial Information Authority of Japan, 2025). This data was used to create representative polygons for early childhood education and care facilities. We also acquired administrative boundary data at the Chō/Aza (town/village) level based on the 2020 Population Census from the e-Stat Portal Site of Official Statistics in Japan (Statistics Bureau of Japan, 2025). This data was used to verify that the estimated home location of each non-custodial parent was within the analyzed prefecture, a condition for inclusion in the analysis.

2.2 Methods

We identified users who exhibited drop-off behaviors in early childhood education and care facilities as presumptive parents. We first extracted kindergartens, nursery, certified children's centers, and international preschools from POI data for Tokyo (3,656 facilities) and Miyagi Prefecture (750 facilities) in 2019. For each facility, we created a circular polygon with a 30-meter radius centered on its location. These early childhood facility polygons were then refined using road boundary data to remove any portions extending into roadways.

Next, we referenced the location pings recorded within these polygons. Users associated with these pings were considered potential parents, and we applied the following filtering steps to identify likely parents. First, we excluded early childhood

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facilities with more than 500 unique users. This was done to remove facilities co-located with commercial establishments or elementary schools, or adjacent to large apartment complexes. In these cases, GPS inaccuracies could lead to the inclusion of location pings from individuals not related to the early childhood facility. Second, to exclude individuals with occupational relationships such as delivery personnel for lunches, cleaning supplies, or toys to early childhood facilities, we removed users with location pings recorded in multiple early childhood facilities. We also excluded users with location pings inside early childhood facilities in the midnight between 11 PM and 5 AM, a period when most facilities are closed. Finally, we identified parents as those users who had at least 10 location pings recorded within an early childhood facility polygon on at least 5 days between 7 AM and 10 AM.

For the control group of non-parents, we selected users aged between 20 and 49 whose estimated home location was in Tokyo or Miyagi prefectures, and pins were not observed in the childhood education and care facilities. Consequently, the final sample for analysis comprised 2,684 parents and 68,319 non-parents in Tokyo, and 687 parents and 35,154 non-parents in Miyagi Prefecture.

To analyze visitation patterns, we estimated stay locations and home locations from GPS data. These estimations were performed using Python library scikit-mobility (Scikit-mobility. version:1.3.1, 2024). A "stay" was identified when location pings were continuously recorded within a 100-meter radius for a duration of 20 minutes or more. Figure 2 illustrates the differences in residential distribution between parents and non-parents across the administrative 23 wards located in the center of Tokyo. For each administrative ward, we calculated the total number of resident parents and non-parents. We then applied min-max normalization separately to the parent counts and non-parent counts across all wards. Finally, we visualized the difference between these normalized resident counts. Areas with a higher normalized count of parents relative to non-parents are depicted in red, whereas areas with a higher normalized count of non-parents relative to parents are shown in blue. Higher color intensity signifies a greater magnitude of difference. The results indicate that parents, compared to non-parents, tend to be distributed more prominently in wards outside the central metropolitan core, which generally have lower land prices and rental costs.

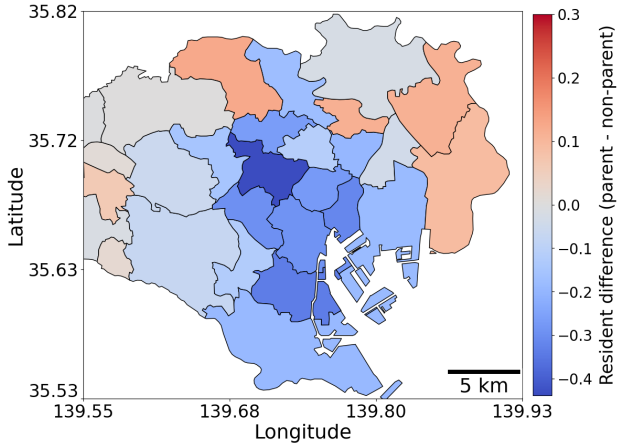

Figure 2. Difference in normalized residential distribution between parents and non-parents across Tokyo's 23 wards.

We defined specific features related to home stays and visits to enable comparison between parents and non-parents. For each individual, a 'stay' was classified as a 'home stay' if it occurred within a 50-meter radius of one's estimated home location. All other stays were classified as 'visits'. Regarding home stays, we examined the total number of occurrences, the cumulative duration across all stays, and the average duration per stay. For visits, the total number of visits and the average duration per visit were analyzed. We also examined 'exploratory visits', defined as unique locations visited only once during the observation period, measuring both their count and the average duration per exploratory visit. This definition aligns with a previous work (Moro et al., 2021), where the count of locations visited only once serves as an indicator of an individual's propensity to explore novel locations.

Revisit of a location was judged based on POI. The nearest POI to each visit location was identified using a k-d tree implemented in the Python library scikit-learn (Scikit-learn. version:1.6.1, 2025). If no POI was found within a 50-meter radius of the visit point, the specific location type for that visit was considered unidentifiable. The success rate for associating visit points with POIs was approximately 50%. Furthermore, we compared the total number of visits to specific POI categories between parents and non-parents. We employed the two-sample Kolmogorov-Smirnov (KS) test to statistically compare visitation patterns of parents and non-parents for each of these features. The KS test was implemented using the Python library SciPy (SciPy. version:1.15.1, 2025). All p values presented in the analysis results are derived from this KS test.

3. Results

3.1 Comparison of Home Stay and Visitation Patterns

Table 2 shows the differences between parents and non-parents within the indicated prefectures for each metric related to home stays and visits.

In Tokyo, compared to non-parents, parents exhibited a higher frequency of home stays and longer cumulative home stay durations. However, their duration per single home stay tended to cluster around moderate values relative to non-parents, indicating less variation at the extremes and non-parents made duration in the upper 60th percentile of the distribution, whereas parents made more duration in the lower 40th percentile (Figure 3). Regarding visitation patterns in Tokyo, similarly, the total number of visits outside the home for parents also clustered around moderate values compared to non-parents (Figure 4). The average duration per visit was longer for non-parents, both for visits overall and specifically for exploratory visits to novel locations. Furthermore, non-parents consistently engaged in more exploratory visits across the entire distribution compared to parents (Figure 5). These findings may reflect time constraints and restricted behavioral patterns associated with childcare responsibilities. Statistically significant differences between parents and non-parents were observed at the 1% significance level for average duration per visit, and at the 0.1% significance level for the other analyzed home stay and visit metrics.

In Miyagi Prefecture, the overall trend largely mirrored that of Tokyo. Parents had a higher frequency of home stays and longer cumulative duration of home stays compared to non-parents. Visitation patterns also showed similarities: the total number of visits for parents tended towards moderate values, and the average duration per visit (both overall and exploratory) was

longer for non-parents than parents. However, distinct results specific to Miyagi emerged for one metric each in home stays and visitation patterns. First, for home stays, the duration per single home stay was consistently longer for parents than non-parents across all ranks (Figure 6). The reason for the different relationships between parents and non-parents regarding duration per home stay in Tokyo versus Miyagi may lie in differences in urban scale and residential patterns (Figure 3, 6). In the larger metropolitan area of Tokyo, higher land prices and rents in the city center can lead parents to prefer suburban residences more strongly than in Miyagi. Consequently, parents in Tokyo typically face longer commutes than their counterparts in Miyagi. This longer commute time shortens the time spent at home for parents, particularly during the crucial overnight period between returning from work and leaving the next morning. This factor contributes to the observed difference in the overall pattern of duration per home stay between the two regions.

Exploratory visit patterns also differed notably between the two regions (Figure 5, 7). In Tokyo, parents consistently explored less frequently than non-parents, while in Miyagi, parents in the lowest stratum (bottom 20%) exceeded non-parents' frequency. This contrast likely reflects environmental constraints and parental roles. The relative scarcity of novel destinations in Miyagi likely discourages frequent exploration overall compared to Tokyo. Nonetheless, parents of young children, even those less inclined to explore, may be compelled to conduct a minimum number of exploratory visits to meet childcare needs, such as finding parks or play areas. This fundamental requirement, inherent to parenting, could push their exploration frequency beyond that of non-parents, especially within the subgroup characterized by the lowest intrinsic motivation to explore.

Metric	Tokyo (2022)	Miyagi (2019)
Home Stays		
Total number of stays	P > NP***	P > NP***
Total duration	P > NP***	P > NP***
Avg. duration per home stay	P dist. narrower***	P > NP***
Visits		
Total number of visits	P dist. narrower***	P dist. narrower*
Avg. duration per visit	P < NP**	P < NP*
Number of exploratory visits	P < NP***	P dist. narrower***
Avg. duration per exploratory visit	P < NP***	P < NP***

P: Parents, NP: Non-parents.
'P dist. narrower' indicates parents' distribution is more concentrated.
Significance levels (KS test): *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

Table 2. Comparison of home stay and visitation pattern metrics between parents and non-parents.

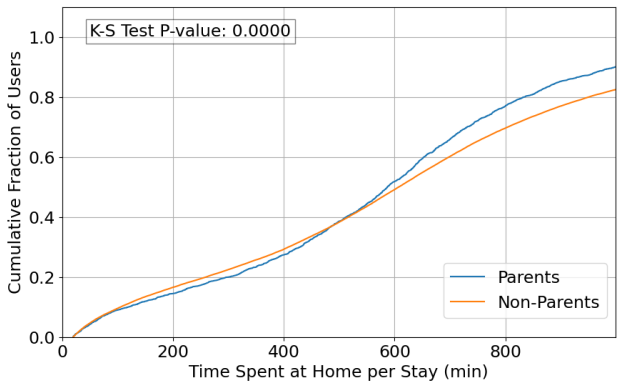

Figure 3. Cumulative distributions of time spent per home stay between parents and non-parents in Tokyo. The top 10% of users are excluded from the horizontal axis for clarity, as the study focuses on typical rather than outlier behaviors.

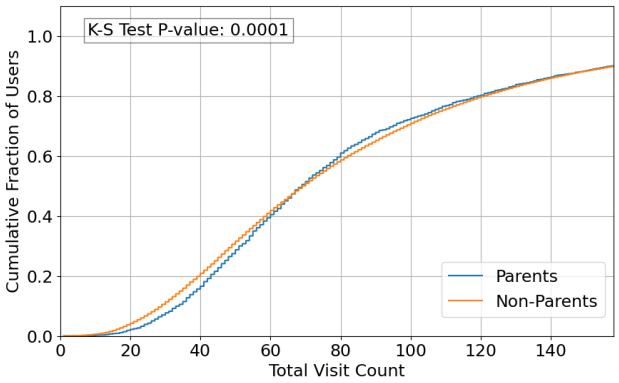

Figure 4. Comparison of the number of visits outside the home between parents and non-parents in Tokyo.

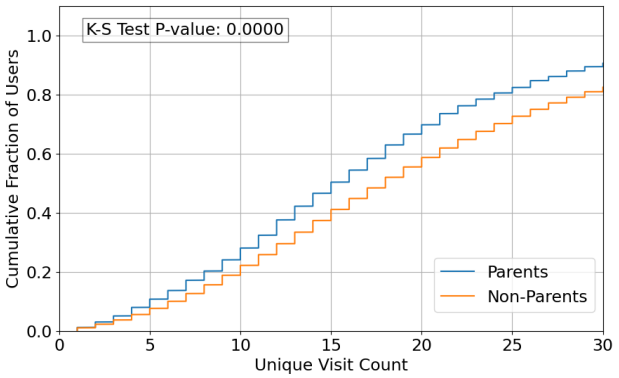

Figure 5. Comparison of the number of exploratory visits between parents and non-parents in Tokyo.

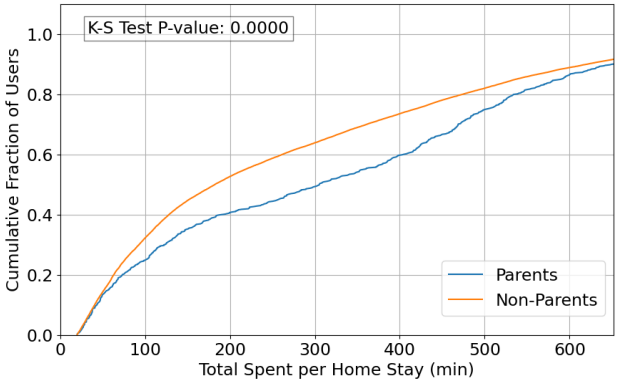

Figure 6. Cumulative distributions of time spent per home stay between parents and non-parents in Miyagi.

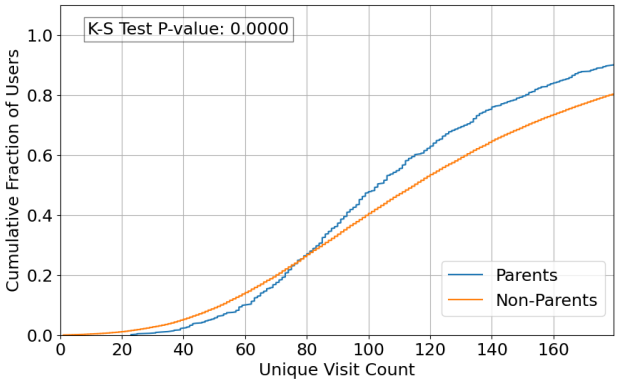

Figure 7. Comparison of the number of exploratory visits between parents and non-parents in Miyagi.

3.2 Comparison of Visit Frequencies to Specific POI Categories

Table 3 summarizes the comparison of visit frequency distributions for individual POI categories where significant differences between parents and non-parents were found in either Tokyo or Miyagi based on the KS test. Regarding visits to dining and shopping facilities, qualitatively similar patterns emerged in both Tokyo and Miyagi, indicating budget-conscious tendencies among parents. Visits to restaurants, cafes, izakayas (Japanese pubs), and convenience stores were more frequent among non-parents. Conversely, parents made more frequent visits to supermarkets, home improvement stores, discount stores, and department stores. It is suggested that parents, due to the time commitment of childcare, reduce their patronage of establishments such as Japanese pubs and restaurants outside the home, both in work-related and other social contexts. Furthermore, likely driven by the financial burden associated with raising children, parents seem to limit dining out at these venues, as well as cafes and convenience stores. Instead, they presumably opt for purchases at large retail stores such as supermarkets and discount stores, where unit prices for comparable items are typically lower. In Miyagi, where a full year of data was available, the results also indicated that parents visited fast-food restaurants more frequently than non-parents. Fast-food outlets are likely favored by many parents due to their lower cost compared to typical restaurants and the convenience of quick service.

Although no contradictory results were found between Tokyo and Miyagi, notable differences in visitation patterns for certain facility types were observed in only one of the two regions. One such category involves entertainment venues for adults including public gambling facilities, adult entertainment establishments, and nightclubs. Non-parents visited all these types of facilities more frequently. This may reflect a behavioral choice by parents to avoid visits to such entertainment venues in order to prioritize childcare responsibilities. The reason why this difference reached statistical significance only in Miyagi could be that Tokyo offers a much wider array of alternative leisure facilities and events beyond these nationally common entertainment types. This greater variety in Tokyo might dilute the difference in visitation frequency to these specific venues between parents and non-parents, compared to the case in Miyagi. Other POI types showing significant differences only in Miyagi include specialized medical facilities, namely pediatric clinics, and attractions such as zoos and botanical gardens. We note that the disparity in data collection periods between the two regions may affect the statistical power. The analysis utilized a full year of data for Miyagi, whereas only one month of data was available for Tokyo. This longer timeframe in Miyagi probably allowed for the detection of differences in visitation patterns between parents and non-parents even for facilities like zoos and botanical gardens, which many users visit only a few times a year.

3.3 Visit Frequencies and Travel Distances to Specific POI categories

Figure 8 visualizes the differences between parents and non-parents in Miyagi Prefecture regarding both the frequency of visits to each POI category and the travel distance from home undertaken for these visits. A positive value on the vertical axis indicates that parents visit the corresponding POI more frequently than non-parents, while a negative value indicates the opposite. Similarly, a positive value on the horizontal axis signifies that parents travel longer distances than non-parents to visit that POI, whereas a negative value signifies the opposite. Notably, supermarkets and restaurants exhibit large differences between the two groups in terms of visit frequency: parents visit supermarkets more frequently, while non-parents visit restaurants more frequently. Concerning the travel distance difference, the majority of POIs show negative values. This indicates that non-parents generally travel longer distances for their visits, suggesting that parents tend to operate within a smaller activity radius and utilize facilities closer to home.

POI Category	Tokyo (2022)	Miyagi (2019)
Adult entertainment		P < NP**
Community facilities	P > NP*	
Cafe	P < NP*	
Cafe/Manga Cafe	P < NP***	P < NP**
Bars (Izakaya, Snack Bars)	P < NP***	P < NP***
Restaurants (General)	P < NP***	P < NP***
Fast Food, Gyudon		P > NP***
Zoos, Botanical Gardens, Aquariums, Observatories		P > NP*
Temples, Shrines, Churches	P > NP**	
Hospitals, Clinics (excl. Pediatrics)		P dist. narrower**
Pediatric Clinics		P > NP***
Supermarkets, Discount Stores, Home Centers, Department Stores	P > NP***	P > NP***
Convenience Stores	P < NP**	P < NP***
Pharmacies, Drugstores		P > NP***
Dry Cleaners		P > NP***
Florists	P > NP*	
Baby Goods Stores		P > NP*
Schools, Educational Facilities	P > NP***	P > NP***

'P dist. narrower' indicates parents' distribution is more concentrated.
Significance levels (KS test): *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

Table 3. Comparison of visit frequencies to specific POI categories between parents (P) and non-parents (NP) (Tokyo 2022 and Miyagi 2019). Categories which showed significant differences between parents and non-parents were listed.

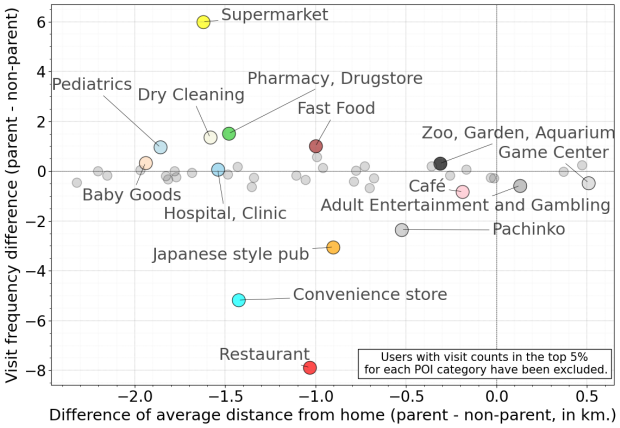

Figure 8. Differences in visitation patterns (visit frequency and travel distance) by POI category between parents and non-parents in Miyagi. Each dot in the figure represents a POI category. Dots are colored only for those POI categories where the visit frequency distributions for parents and non-parents were found to be significantly different according to a KS test.

4. Conclusion

This study utilized GPS data to estimate the status of individuals as parents engaged in childcare and subsequently analyzed their behavioral patterns. Focusing primarily on drop-off activities at early childhood facilities, we compared differences in home stay characteristics and visitation patterns between parents and non-parents. The analysis highlights visitation patterns potentially shaped by the temporal and financial demands of childcare. Moreover, the tendency for parents to travel shorter distances, even considering common residential patterns for

families, might imply limited access to the broader range of urban amenities enjoyed by non-parents. Specifically, the results revealed several distinct characteristics differentiating parents from non-parents. Parents exhibited longer cumulative durations of home stays and showed a tendency towards fewer exploratory visits (i.e., visits to novel locations). Furthermore, behavioral patterns demonstrated greater homogeneity among parents compared to non-parents. Parents also visited convenience stores and general restaurants less frequently, while visiting supermarkets and fast-food establishments more often than non-parents. Additionally, visits to entertainment facilities were less frequent among parents, whereas visits to child-oriented facilities such as zoos, Botanical Gardens, or Aquariums appeared more common. Crucially, parents generally operated within a smaller activity radius, traveling shorter distances for their visits than non-parents, thus tending to stay closer to home. These observed tendencies likely reflect the temporal and economic constraints associated with childcare responsibilities.

While this study does not directly address income-based segregation or social mobility due to data limitations, it provides essential groundwork for future research on these critical issues. By establishing methods to identify parents through childcare drop-off patterns and characterizing their urban facility usage, we create a methodological foundation that can be combined with socioeconomic data to understand how urban design and policy interventions might facilitate cross-income interactions and promote upward mobility for disadvantaged children. These initial findings contribute to a better understanding of the current state of urban mobility among parents, which is a necessary first step toward addressing broader questions of social contact and economic opportunity.

However, several limitations should be acknowledged when interpreting these results. First, the parent estimation methodology requires further refinement and validation. Although effective for identifying core drop-off activities, it may not capture parents using late-night/early-morning care or school buses, necessitating validation of potential sample biases. Second, the duration of the data used for analysis poses limitations. Particularly for Tokyo (one month), the short period restricted the ability to confirm visitation patterns for locations not visited daily but potentially relevant to parents, such as specialized medical facilities such as pediatricians or child-oriented event venues such as zoos or amusement parks. Longer data periods, as seen in Miyagi, are more likely to reveal significant differences for less frequently visited POIs. Second, limitations regarding the duration and timing of the data should be acknowledged. The analysis for Tokyo used one month of data from February 2022, whereas the Miyagi analysis used a full year of data from 2019. This discrepancy creates two potential issues. Firstly, the short one-month period for Tokyo restricted the ability to confirm visitation patterns for locations not visited daily, such as pediatricians or zoos. Secondly, the Tokyo data were collected during the COVID-19 pandemic, while the Miyagi data are from a pre-pandemic period, which may affect the direct comparability of behavioral patterns between the two regions. Third, potential misidentification of visited locations exists. The method of assigning visits based on proximity to the nearest POI can lead to inaccuracies, especially for densely clustered POI types like medical facilities, where unrealistically high visit counts were sometimes observed. This suggests that for certain analyses, careful division of POI categories or targeted extraction of relevant facilities might be necessary.

Future research should aim to address these limitations on the current findings. Expanding the data collection period is crucial to allow analysis across a wider range of POI categories and capture less frequent but significant parental activities. Refining and validating the parent estimation methodology is another key task to ensure sample representativeness. Methodological improvements in visit identification, potentially through refined POI categorization or purpose-driven facility selection, should also be explored. Furthermore, conducting more detailed investigations incorporating socioeconomic factors remains an important avenue. This includes further exploring the nature of social contact for urban parents, specifically examining their interactions with individuals from diverse backgrounds. For instance, analyzing exposure to economic diversity, potentially using metrics like average residential rent as a proxy for individual economic status, could reveal whether parents are connecting with people across different economic strata. Understanding the specific circumstances of parents and children potentially facing poverty, from both behavioral and social contact perspectives, is a key objective. Moreover, given the suggested time and financial constraints, analysis should extend beyond home stays and visits to other characteristic parental behaviors. Examining factors such as transportation modes and typical working hours could provide a more granular understanding of the situations faced by urban parents. Ultimately, gaining these deeper insights is essential for identifying ways to break the persistence of poverty. Leveraging these enhanced analyses to inform the design of urban policies and childcare support initiatives is expected to contribute more effectively to long-term poverty reduction and social inclusion efforts.

Acknowledgement

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