

Effects of COVID-19 on Local Business Vendors in Shenzhen China

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Abstract. This paper analyzes the impact of COVID-19 on an important segment of the local Chinese economy, investigating the impact on the income and rental fees of middle to low-end business vendors on a local underground pedestrian street in Shenzhen China. Quantitative data is collected from over 200 business vendors over 6 years, regression analysis is conducted on factors of location, type of business, and gender of the owner. Results show income and rent had relatively similar trends in pre- and post-pandemic periods. Both income and rent decreased over the pandemic. Tenants located nearer to exits and the metro, and convenience stores or restaurants suffered a relatively stronger decrease in income and rent, while the sex of the owner performed similarly throughout. Implications can be made in assisting how the government could set policies to aid the business vendors and families in consideration of the income and rental figures of this paper.

Keywords: COVID-19; Business Vendors; Shenzhen; Income; Rent.

1. Introduction

The COVID-19 outbreak had a devastating impact on the global economy. Studies show the global gross domestic product (GDP) dropped 3.9% in the year 2020, the worst economic downturn since the Great Depression (Oum, et al., 2022). China likewise has suffered a significant delay in its fast-developing economy. The growth rate of China's real GDP is 2.24% in 2020, the first year of the pandemic, which in comparison with the 2019 growth rate of 5.95% has dropped significantly (C. Textor, 2022). The impact of the pandemic on the global economy is well-recognized, in countries with free economies; the effects have been studied and verified with countries with similar economic structures. The effects of the pandemic on countries with mixed economies have been less explored. In addition, China has approached the pandemic differently and such differences between China and other countries may present interesting results in the Chinese economy.

In this paper, we analyze the impact of the COVID-19 pandemic on the local Chinese economy, specifically, researching the different factors that may impact the income and rental fees of middle to low-end stores on a local underground pedestrian street in Shenzhen China. Therefore, answering the question:

“To what extent do local business vendors within the same underground pedestrian street react differently to the COVID-19 pandemic given different sex of shop owners, locations and types of services in Shenzhen China?”

The attention on the effects of COVID-19 often revolved around the economic and financial impacts on enterprises and corporations, towards low-end business vendors and individual tenants, the impact is often less regarded. This paper would provide contributions to analyzing and providing attention to the less discussed factor of the economic sector of low-end business vendors. Contributions would also be given to the comprehensive view on the perspective of income and rental fees. The rental fee pays an important factor in the middle to low-end business vendors in operational costs. This paper would contribute to and enrich the perspectives on the factor of the rental fee, by providing valuable references for the effects of COVID-19 on local business vendors in Shenzhen China.

2. Literature Review

Substantial research has analyzed the effects of COVID-19 on China. The Chinese economy has experienced ups and downs since the COVID-19 pandemic discovery in the end of 2019. Studies

show the Chinese economy would be expecting a decrease in consumption due to the growing concerns of the developing pandemic, leading to a decrease in demand for money (Zhao, 2020). This is reflected in the changes in China's GDP, "China's GDP grew 5.94% in 2019 to \$142.29.94 billion. China's economy shrank 6.8% in Q1 2020 due to nationwide lockdowns during the COVID-19 outbreak" (Habibi et al., 2022). In general, China's economy experienced a downturn after the pandemic was discovered.

However, the Chinese economy was also the first major economy to recover from the COVID-19 pandemic, according to governmental data, the Chinese economy grew by 4.9% in mid-2020 (Kuo, 2020). The governmental statistics show that the Chinese economy is recovering well from the effects of COVID-19. Yet that is only looking at the economy as a whole, individuals and businesses may have experienced different economic consequences. Studies suggest households with lower family income before the pandemic (below ¥20,000) experienced significant income losses due to the pandemic. Households with members that are suspected/confirmed COVID cases have more income losses than those who do not. People without a high school education are twice as likely to lose all their income than people with a university education. State-sector workers are the least likely to lose all income compared to self-employed workers (Qian et al., 2020).

When the sample is specified in a smaller scope result may differ from the overall trends of the economy. This paper focuses on small-scaled categories of service the business offers, sex, and physical location of the shopfront to find which types of service, sex, or physical location survives better under the external threat of the COVID-19 pandemic.

3. Formulating the Data

Data were gathered from a local underground pedestrian street in Shenzhen China, with a total of 284 tenants from 2017 to 2022. All tenant data were collected when the tenant ended their contracts with the leasing company. Thus, only the data of tenants that have their contracts ended are collected, data from tenants that are still operating are not collected. Each tenant's data incorporate their average monthly income of the year and the average rental fee of the year collected. Every tenant can be categorized by the service they offer, the sex of the owner, the location they are in the underground pedestrian street, and the year they ended their contract. The COVID variable indicates the tenant's data that are before and after the initiation of the COVID pandemic. The years 2017 to 2019 are not COVID, and the years 2020 to 2022 are COVID. Variables then are interacted with the COVID variable to determine the change after the COVID pandemic. There are a total of 157 tenants with data during the COVID pandemic, consisting of 55% of the whole sample. The remaining 45% are before the pandemic. This difference may indicate there is a greater loss of tenants exiting the market or going into deficit due to the COVID-19 pandemic. The summary statistics for all variables are presented in Table 1.

Each tenant has a code to differentiate them from the rest of the sample. Total income is calculated as the sum of all the income the tenant has earned in that particular year in which their contract ends. Similarly, the average income and rent are calculated for the particular year in which their contract ends. Thus, some tenants may have operated for only a few months that specific year.

The services are categorized into categories: refreshment stores, restaurants, salons, convenience stores, clothing stores, and boutiques. These categories are determined by the leasing company and are written on their rental contract. There is a significantly larger amount of refreshment stores and restaurants compared with the other types of stores: 27% of stores are refreshment stores and 25% are restaurants, but salons, convenience stores, clothing stores, and boutique are the remaining 48% of the tenants.

The sex of the owner is categorized as male, female, and under a company name. The data reflect how the tenant owners chose to register on their contract. Under company name is when it is registered by a company. 43% of the tenants are owned by men, 32% of the tenants are owned by women and 25% are registered under a company name.

Table 1. Descriptive statistics for all variables

Variable	Sample size	Mean	Median	Std.Dev.	Root.M.Sqr.	Std.Err.Mean	Minimum	Maximum
Dependent variables								
Average_Rental_Fee	284	18,125	14,691	12,988	22,285	770.687	661.000	89,302
Averaged_Income_Monthly	284	54,496	31,153	70,288	88,842	4,171	798.003	495,997
Locations								
Location_B1	284	0.204	0.000	0.404	0.452	0.024	0.000	1.000
Location_B2	284	0.356	0.000	0.480	0.596	0.028	0.000	1.000
Location_C1	284	0.148	0.000	0.356	0.385	0.021	0.000	1.000
Location_C2	284	0.264	0.000	0.442	0.514	0.026	0.000	1.000
Location_D	284	0.028	0.000	0.166	0.168	0.009835	0.000	1.000
Sex of owner								
Sex_Female	284	0.320	0.000	0.467	0.566	0.028	0.000	1.000
Sex_Male	284	0.426	0.000	0.495	0.653	0.029	0.000	1.000
Sex_Under_Company_Name	284	0.254	0.000	0.436	0.504	0.026	0.000	1.000
Type of business								
Type_Boutique	284	0.032	0.000	0.175	0.178	0.010	0.000	1.000
Type_Clothing_Store	284	0.275	0.000	0.447	0.524	0.027	0.000	1.000
Type_Convenience_Store	284	0.120	0.000	0.325	0.346	0.019	0.000	1.000
Type_Refreshment_Store	284	0.275	0.000	0.447	0.524	0.027	0.000	1.000
Type_Restaurant	284	0.246	0.000	0.432	0.496	0.026	0.000	1.000
Type_Salon	284	0.053	0.000	0.224	0.230	0.013	0.000	1.000

Location is where the tenant is located in the underground pedestrian street. It is categorized into 5 main sections, named A, B, C, D, and E. Locations A, B, and C are further separated into 1 and 2 to differentiate whether it is basement level one or basement level two. In this sample, there are no data collected from A and E due to the lack of tenants operating there. Locations A and C connect with a metro station. Two metro exits lead into section A2 and two into section C2. There are more tenants located in B2 and C2, where 36% are from B2, 26% are from C2 and the rest is 38%. See Appendix A for the official underground pedestrian street map.

The interactions of the three types of variables (type, sex, location) with the COVID variable allows comparisons to be made with regression analysis, permitting conclusions on the separate variables that have or have not been impacted by the pandemic. There are a total of 157 cases that happened after the COVID-19 pandemic (2020-2022). For the category of type of service, the tenants provide, 29% were refreshment stores, 24% were restaurants, 6% were salons, 11% were convenience stores, 27% were clothing stores and 3% were boutiques. For the category sex, 39.5% were male, 31.2% were female and 29.3% were registered under a company name. For the category location, 16.6% were from B1, 37.6% were from B2, 12.7% were from C1, 30.6% were from C2 and 2.5% were from D.

4. Results

4.1 Results with Average Monthly Income, Pre-pandemic

Regressions were conducted to analyze the relations among the variables. The dependent variables are the average monthly income and average monthly rental fee, with the independent variables being the type of service/store, sex, location, and the interaction of these three sets of variables with the COVID variable. The regression estimate permit conclusions to answer the overarching question, to what extent do local business vendors within the same underground pedestrian street react differently to the COVID-19 pandemic depending on different sex, location, and service in Shenzhen China?

The linear regression is conducted with the exclusion of the following variables: refreshment store, under a company name, B2, COVID x refreshment store, COVID x under a company name, and COVID x B2. The results of the included variables are relative to those of the excluded category, that is refreshment stores under company names located in B2.

Table 2. Linear regression with dependent variable average monthly income

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.353	0.295	59,007	70,288	284	7	1.969	95.0%

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Constant	114,560	16,521	6.934	0.000	82,027	147,092	0.000	0.000
COVID	-38,399	21,824	-1.759	0.080	-81,372	4,575	9.604	-0.272
Location								
COVID_x_B1	-39,248	22,071	-1.778	0.077	-82,709	4,213	3.305	-0.161
COVID_x_C1	17,305	23,327	0.742	0.459	-28,629	63,240	2.906	0.063
COVID_x_C2	-6,570	19,083	-0.344	0.731	-44,147	31,007	4.172	-0.035
COVID_x_D	-24,893	46,015	-0.541	0.589	-115,501	65,716	2.398	-0.042
Location_B1	5,079	15,865	0.320	0.749	-26,160	36,319	3.336	0.029
Location_C1	-13,040	16,107	-0.810	0.419	-44,756	18,676	2.667	-0.066
Location_C2	18,518	14,865	1.246	0.214	-10,753	47,790	3.503	0.116
Location_D	-24,058	32,207	-0.747	0.456	-87,478	39,362	2.316	-0.057
Type of business								
COVID_x_Boutique	-8,710	43,814	-0.199	0.843	-94,984	77,565	2.174	-0.015
COVID_x_Clothing_Store	-34,526	20,398	-1.693	0.092	-74,693	5,641	4.361	-0.176
COVID_x_Convenience_Store	-18,003	25,368	-0.710	0.479	-67,957	31,951	3.116	-0.063
COVID_x_Restaurant	11,724	20,602	0.569	0.570	-28,845	52,292	3.923	0.056
COVID_x_Salon	17,464	35,936	0.486	0.627	-53,299	88,227	3.232	0.044
Type_Boutique	1,569	29,543	0.053	0.958	-56,605	59,743	2.185	0.003917
Type_Clothing_Store	16,482	15,297	1.077	0.282	-13,639	46,603	3.802	0.105
Type_Convenience_Store	42,857	18,214	2.353	0.019	6,991	78,723	2.852	0.198
Type_Restaurant	36,986	15,463	2.392	0.017	6,536	67,435	3.622	0.227
Type_Salon	-13,380	26,585	-0.503	0.615	-65,728	38,969	2.884	-0.043
Sex								
COVID_x_Female	49,240	20,816	2.365	0.019	8,250	90,229	5.046	0.265
COVID_x_Male	52,142	18,979	2.747	0.006	14,770	89,514	5.014	0.307
Sex_Female	-98,308	15,509	-6.339	0.000	-128,848	-67,769	4.272	-0.654
Sex_Male	-94,839	14,680	-6.460	0.000	-123,747	-65,931	4.299	-0.668

Table 2 presents the regression statistics results for the dependent variable average monthly income against the included independent variables. The adjusted R-squared tells how much variance in the dependent variable is consistent with the whole estimated relation. The adjusted R-squared of this regression analysis in Table 2 is 0.295, showing a moderate correlation between the independent and the dependent variables. Thus, 29.5% of the variance in the dependent variable, average monthly income, is consistent with the whole estimated relation.

Table 3. Linear regression, average monthly income x location, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Location B1	5,079	15,865	0.320	0.749	-26,160	36,319	3.336	0.029
Location C1	-13,040	16,107	-0.810	0.419	-44,756	18,676	2.667	-0.066
Location C2	18,518	14,865	1.246	0.214	-10,753	47,790	3.503	0.116
Location D	-24,058	32,207	-0.747	0.456	-87,478	39,362	2.316	-0.057

Looking at the Table 3, by parallel comparison, we can compare the results of the same kind of variables during the same time. First, look at the variables without interactions with the COVID variable, that is, before the pandemic. Looking at locations, the excluded variable is B2. The coefficient can tell us the difference between each location’s dependent variable, in this case, average monthly income, which differs from the excluded variable B2. In alphabetic order, the coefficient estimate for B1 means that tenants located at B1 earn a monthly average of ¥5,079 more than the excluded variable B2 at the 0.749 significance level. The coefficient estimate for C1 means that tenants located at C1 earn a monthly average of ¥13,040 less than the excluded variable B2 at the 0.419 significance level. The coefficient estimate for C2 means that tenants located at C2 earn a monthly average of ¥18,518 more than the excluded variable B2 at the 0.214 significance level. The

coefficient estimate for D means that tenants located at D earn a monthly average of ¥24,058 less than the excluded variable B2 at the 0.456 significance level.

From the results, interpreting from the actual location of the underground pedestrian street in Appendix A, there can be rough conclusions drawn. From the result, ranking the locations by more to less on the average monthly income is the following, C2, C1, B1, B2, and D. C2 is the closest to the metro station where there are 2 metro exits connected to the underground pedestrian street at that location. This means there is a large volume of potential customers that pass by in location C2. It would be logical to think tenants located in C2 would tend to have a greater income margin. The customer volume would need to leave the underground pedestrian street as they exit the metro, thus would pass by the locations near C2 which is C1, B1, and B2. On the other hand, location D is relatively further away from the metro station, thus having a significantly lower income margin compared with the rest of the locations. However, it should be noted that the coefficient estimate for the linear location terms are very imprecise, with not values or P values that are considered significant at the standard 0.05 level.

Table 4. Linear regression, average monthly income x type of business, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Type_Boutique	1,569	29,543	0.053	0.958	-56,605	59,743	2.185	0.003917
Type_Clothing_Store	16,482	15,297	1.077	0.282	-13,639	46,603	3.802	0.105
Type_Convenience_Store	42,857	18,214	2.353	0.019	6,991	78,723	2.852	0.198
Type_Restaurant	36,986	15,463	2.392	0.017	6,536	67,435	3.622	0.227
Type_Salon	-13,380	26,585	-0.503	0.615	-65,728	38,969	2.884	-0.043

The categorical variable type of business indicates which type of business generally tends to earn more income. Looking at Table 4, the variables without interactions with the COVID variable, the variables are compared with the excluded variable refreshment store. The coefficient estimate for Boutique means that tenants classified as Boutique earn a monthly average of ¥1,569 more than the excluded variable Refreshment store at the 0.958 significance level. The coefficient estimate for Clothing stores means that tenants classified as clothing stores earn a monthly average of ¥16,482 more than the excluded variable Refreshment store at the 0.282 significance level. The coefficient estimate for Convenience store means that tenants classified as convenience store earn a monthly average of ¥42,857 more than the excluded variable Refreshment store at the 0.019 significance level. The coefficient estimate for Restaurant means that tenants classified as restaurant earn a monthly average of ¥36,986 more than the excluded variable Refreshment store at the 0.017 significance level. The coefficient estimate for Salon means that tenants classified as Salon earn a monthly average of ¥13,380 less than the excluded variable Refreshment store at the 0.615 significance level. For convenience stores and restaurants, but not for the others, the differences from refreshment stores are significant at the conventional 0.05 level.

From the results, the ranking of the most to least earned by business monthly is the following, convenience store, restaurant, clothing store, boutique, refreshment store, and salon. Interestingly, refreshment although the largest in numbers has one of the least incomes. This may be explained due to the method of collection of sample data. As aforementioned, the data are collected when the contract ended, therefore it may be due to there being a large number of tenants that went bankrupt which caused the larger number compared with other types of business/tenants. In addition, the positioning of the underground pedestrian street under the commercial street market is targeted at the psychographic segment of low- and middle-class customers. Thus, we may find businesses like the convenience store and restaurants to have larger sales figures and income compared to other types of businesses.

Looking at Table 5, the variable sex can apply parallel comparison to indicate which sex tends to earn more income. The excluded variable is under a company name. The coefficient estimate for Female means that tenants whose owner is a female earn a monthly average of ¥98,308 less than the excluded variable under company name at the significance level of less than 0.001. The coefficient

estimate for Male means that tenants whose owner is a male earn a monthly average of ¥94,839 less than the excluded variable under company name at the significance level of less than 0.001.

Table 5. Linear regression, average monthly income x sex, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Sex Female	-98,308	15,509	-6.339	0.000	-128,848	-67,769	4.272	-0.654
Sex Male	-94,839	14,680	-6.460	0.000	-123,747	-65,931	4.299	-0.668

From the results, the ranking of the most to least earned by different genders monthly is the following, under a company name, female, male. Females and males both are significantly lower than the under-company name but there aren't significant differences between female and male-owned tenants.

4.2 Results with Average Monthly Income, Post-pandemic

Moving to variables with interaction with the COVID variable. The COVID variable itself coefficient is -38399, generally, all tenants have lost ¥38,399 average monthly income after COVID at the significance level of 0.08.

Table 6. Linear regression, average monthly income x COVID location

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_B1	-39,248	22,071	-1.778	0.077	-82,709	4,213	3.305	-0.161
COVID_x_C1	17,305	23,327	0.742	0.459	-28,629	63,240	2.906	0.063
COVID_x_C2	-6,570	19,083	-0.344	0.731	-44,147	31,007	4.172	-0.035
COVID_x_D	-24,893	46,015	-0.541	0.589	-115,501	65,716	2.398	-0.042
Location_B1	5,079	15,865	0.320	0.749	-26,160	36,319	3.336	0.029
Location_C1	-13,040	16,107	-0.810	0.419	-44,756	18,676	2.667	-0.066
Location_C2	18,518	14,865	1.246	0.214	-10,753	47,790	3.503	0.116
Location_D	-24,058	32,207	-0.747	0.456	-87,478	39,362	2.316	-0.057

Looking at the Table 6, by parallel comparison, we can compare the results of the same kind of variables during the same time. Looking at the variables with interactions with the COVID variable indicates changes that occurred during the pandemic in comparison with the pre-pandemic period. Looking at locations, the excluded variable is COVID_x_B2. The coefficient estimate for COVID_x_B1 means that tenants located at B1 earn a monthly average of ¥39,248 less than the excluded variable COVID_x_B2 at the 0.077 significance level. The coefficient estimate for COVID_x_C1 means that tenants located at C1 earn a monthly average of ¥17,305 more than the excluded variable COVID_x_B2 at the 0.459 significance level. The coefficient estimate for COVID_x_C2 means that tenants located at C2 earn a monthly average of ¥6,570 less than the excluded variable COVID_x_B2 at the 0.731 significance level. The coefficient estimate for COVID_x_D means that tenants located at D earn a monthly average of ¥24,893 less than the excluded variable COVID_x_B2 at the 0.589 significance level.

From the result, ranking the locations by more to less on the average monthly income is the following, C1, B2, C2, D, and B1. Comparing the coefficients with the variables before the pandemic. B2 and C2 suffered significantly from the pandemic where their coefficients after the pandemic were significantly lower than before. C1 overall performed better where the coefficient after the pandemic was larger than before the pandemic. D stayed relatively similar having no drastic changes in monthly income. B2 and C2 originally had the largest customer base with the assistance of having metro exits and pedestrian street exits leading directly into the locations. The restrictions of stores during local lockdowns during the pandemic would see greater drops in customer flow, therefore, showing a greater decline in average monthly income. Location D has a small customer base before the pandemic, thus changes are not as drastic when compared to other locations.

Table 7. Linear regression, average monthly income x COVID type of business

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_Boutique	-8,710	43,814	-0.199	0.843	-94,984	77,565	2.174	-0.015
COVID_x_Clothing_Store	-34,526	20,398	-1.693	0.092	-74,693	5,641	4.361	-0.176
COVID_x_Convenience_Store	-18,003	25,368	-0.710	0.479	-67,957	31,951	3.116	-0.063
COVID_x_Restaurant	11,724	20,602	0.569	0.570	-28,845	52,292	3.923	0.056
COVID_x_Salon	17,464	35,936	0.486	0.627	-53,299	88,227	3.232	0.044
Type_Boutique	1,569	29,543	0.053	0.958	-56,605	59,743	2.185	0.003917
Type_Clothing_Store	16,482	15,297	1.077	0.282	-13,639	46,603	3.802	0.105
Type_Convenience_Store	42,857	18,214	2.353	0.019	6,991	78,723	2.852	0.198
Type_Restaurant	36,986	15,463	2.392	0.017	6,536	67,435	3.622	0.227
Type_Salon	-13,380	26,585	-0.503	0.615	-65,728	38,969	2.884	-0.043

Looking at Table 7, the categorical variable type of business can apply parallel comparison to indicate which type of business general tends to earn more income. Looking at the variables with interaction with the COVID variable, the variables are compared with the excluded variable COVID_x_refreshment store. The coefficient estimate for COVID_x_Boutique means that tenants classified as Boutique earn a monthly average of ¥8,710 less than the excluded variable COVID_x_refreshment store at the 0.843 significance level. The coefficient estimate for COVID_x_Clothing stores means that tenants classified as Clothing stores earn a monthly average of ¥34,526 less than the excluded variable COVID_x_refreshment store at the 0.092 significance level. The coefficient estimate for COVID_x_Convenience store means that tenants classified as convenience store earn a monthly average of ¥18,003 less than the excluded variable COVID_x_refreshment store at the 0.479 significance level. The coefficient estimate for COVID_x_Restaurant means that tenants classified as Restaurant earn a monthly average of ¥11,724 more than the excluded variable COVID_x_refreshment store at the 0.570 significance level. The coefficient estimate for COVID_x_Salon means that tenants classified as Salon earn a monthly average of ¥17,464 more than the excluded variable COVID_x_refreshment store at the 0.627 significance level.

From the results, the ranking of the most to least earned by businesses monthly income due to the pandemic is the following, salons, restaurants, refreshment stores, boutiques, convenience stores, and clothing stores. Clothing stores suffered the most while restaurants suffered the least from the pandemic. This could be explained by the type of goods these businesses offer. Restaurant and refreshment stores offered in this underground pedestrian street are generally classified as inferior goods, convenience stores offer normal goods, and clothing stores offer normal goods as well but tend to have a greater income elasticity of demand than convenience stores. The income elasticity of demand is a measure of how much the quantity demanded will change in response to a change in consumer income. The type of goods demonstrates why there are larger changes in some than others. Salons and boutiques are outliers, one reason could be due to their small sample size. Comparing the coefficient with the variables before the pandemic, boutiques, clothing stores, convenience stores, and restaurants suffered losses after the pandemic, where the coefficient before the pandemic is larger than after. Salon increased in average monthly income with the coefficient after the pandemic larger than before.

Table 8. Linear regression, average monthly income x COVID sex

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_Female	49,240	20,816	2.365	0.019	8,250	90,229	5.046	0.265
COVID_x_Male	52,142	18,979	2.747	0.006	14,770	89,514	5.014	0.307
Sex_Female	-98,308	15,509	-6.339	0.000	-128,848	-67,769	4.272	-0.654
Sex_Male	-94,839	14,680	-6.460	0.000	-123,747	-65,931	4.299	-0.668

Looking at Table 8, the variable sex can apply parallel comparison to indicate which sex tends to earn more income after the pandemic. The excluded variable is COVID_x_under company name. The coefficient estimate for COVID_x_Female means that tenants whose owner is a female earn a

monthly average of ¥49,240 more than the excluded variable COVID_x_under company name at the significance level of less than 0.019. The coefficient estimate for COVID_x_Male means that tenants whose owner is a male earn a monthly average of ¥52,142 more than the excluded variable COVID_x_under company name at the significance level of less than 0.006.

From the results, the ranking of the most to least earned by different genders monthly during the pandemic in comparison with the pre-pandemic period is the following, male, and female, under a company name. Tenants registered under the company name suffered the most. Male and females after the pandemic had greater coefficients than before the pandemic.

4.3 Results with Average Monthly Rent, Pre-pandemic

Table 9. Linear regression on dependent variable average monthly rent

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.370	0.314	10,758	12,988	284	7	1.969	95.0%
Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Constant	30,806	3,012	10.227	0.000	24,875	36,738	0.000	0.000
COVID	-11,012	3,979	-2.768	0.006	-18,847	-3,177	9.604	-0.422
Location								
COVID_x_B1	-4,092	4,024	-1.017	0.310	-12,015	3,832	3.305	-0.091
COVID_x_C1	-6,320	4,253	-1.486	0.139	-14,695	2,055	2.906	-0.125
COVID_x_C2	-5,838	3,479	-1.678	0.095	-12,689	1,013	4.172	-0.169
COVID_x_D	-2,345	8,390	-0.280	0.780	-18,865	14,175	2.398	-0.021
Location_B1	-1,257	2,893	-0.435	0.664	-6,953	4,439	3.336	-0.039
Location_C1	-2,319	2,937	-0.790	0.430	-8,102	3,463	2.667	-0.064
Location_C2	8,026	2,710	2.961	0.003	2,689	13,362	3.503	0.273
Location_D	-11,767	5,872	-2.004	0.046	-23,330	-203.732	2.316	-0.150
Type of business								
COVID_x_Boutique	-3,266	7,988	-0.409	0.683	-18,996	12,464	2.174	-0.030
COVID_x_Clothing_Store	-139.625	3,719	-0.038	0.970	-7,463	7,184	4.361	-0.003860
COVID_x_Convenience_Store	1,828	4,625	0.395	0.693	-7,280	10,935	3.116	0.034
COVID_x_Restaurant	-5,371	3,756	-1.430	0.154	-12,768	2,025	3.923	-0.139
COVID_x_Salon	9,106	6,552	1.390	0.166	-3,796	22,007	3.232	0.123
Type_Boutique	-5,017	5,386	-0.931	0.352	-15,624	5,589	2.185	-0.068
Type_Clothing_Store	-572.169	2,789	-0.205	0.838	-6,064	4,920	3.802	-0.020
Type_Convenience_Store	83.230	3,321	0.025	0.980	-6,456	6,622	2.852	0.002084
Type_Restaurant	9,978	2,819	3.539	0.000	4,426	15,530	3.622	0.332
Type_Salon	-5,169	4,847	-1.066	0.287	-14,714	4,375	2.884	-0.089
Sex								
COVID_x_Female	10,859	3,795	2.861	0.005	3,386	18,332	5.046	0.316
COVID_x_Male	10,863	3,460	3.139	0.002	4,049	17,677	5.014	0.346
Sex_Female	-16,994	2,828	-6.010	0.000	-22,562	-11,426	4.272	-0.612
Sex_Male	-14,693	2,677	-5.489	0.000	-19,963	-9,422	4.299	-0.560

Table 9 presents the regression statistics results with the dependent variable average monthly rent against the all-other independent variables. The aforementioned independent variables are excluded. The adjusted R-squared tells how much variance in the dependent variable is the whole estimated relation consistent. The adjusted Rsquared of this regression analysis in Table 3 is 0.314, showing a moderate correlation between the independent and the dependent variables. Thus, 31.4% of the variance in the dependent variable, average monthly rent, is consistent with the whole estimated relation.

Table 10. Linear regression, average monthly rent x location, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Location_B1	-1,257	2,893	-0.435	0.664	-6,953	4,439	3.336	-0.039
Location_C1	-2,319	2,937	-0.790	0.430	-8,102	3,463	2.667	-0.064
Location_C2	8,026	2,710	2.961	0.003	2,689	13,362	3.503	0.273
Location_D	-11,767	5,872	-2.004	0.046	-23,330	-203.732	2.316	-0.150

Looking at the results on table 10, by parallel comparison, we can compare the results of the same kind of variables during the same time. First look at the variables without interactions with the COVID variable. Looking at locations, the excluded variable is B2. The coefficient can tell us the difference between each location's dependent variable, in this case, average monthly rent, which differs from the excluded variable B2. In alphabetic order, the coefficient estimate for B1 means that tenants located at B1 pay a monthly average of ¥1,257 less than the excluded variable B2 at the 0.664 significance level. The coefficient estimate for C1 means that tenants located at C1 pay a monthly average of ¥2,319 less than the excluded variable B2 at the 0.430 significance level. The coefficient estimate for C2 means that tenants located at C2 pay a monthly average of ¥8,026 more than the excluded variable B2 at the 0.003 significance level. The coefficient estimate for D means that tenants located at D pay a monthly average of ¥11,767 less than the excluded variable B2 at the 0.046 significance level.

From the results, interpreting from the actual location of the underground pedestrian street in Appendix A, there can be rough conclusions drawn. Ranking the locations by more to less on the average monthly rent is the following, C2, B2, B1, C1, and D. C2 is the closest to the metro station where there are 2 metro exits connected to the underground pedestrian street at that location. This means there is a large volume of potential customers that pass by in location C2. It would be logical to think tenants located in C2 would tend to have a greater income margin, thus rent would also be higher. Potential customers need to leave the underground pedestrian street as they exit the metro, thus would pass by the locations near C2 which is C1, B1, and B2. On the other hand, location D is relatively further away from the metro station, thus having a significantly lower income margin compared with the rest of the locations, therefore lesser rent.

Table 11. Linear regression, average monthly rent x type of business, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Type_Boutique	-5,017	5,386	-0.931	0.352	-15,624	5,589	2.185	-0.068
Type_Clothing_Store	-572.169	2,789	-0.205	0.838	-6,064	4,920	3.802	-0.020
Type_Convenience_Store	83.230	3,321	0.025	0.980	-6,456	6,622	2.852	0.002084
Type_Restaurant	9,978	2,819	3.539	0.000	4,426	15,530	3.622	0.332
Type_Salon	-5,169	4,847	-1.066	0.287	-14,714	4,375	2.884	-0.089

Looking at Table 11, the categorical variable type of business can apply parallel comparison to indicate which type of business general tends to pay more rent. Looking at the variables without interaction with the COVID variable, the variables are compared with the excluded variable refreshment store. The coefficient estimate for Boutique means that tenants classified as Boutique pay a monthly average of ¥5,017 less than the excluded variable Refreshment store at the 0.352 significance level. The coefficient estimate for Clothing stores means that tenants classified as clothing store pay a monthly average of ¥572.169 less than the excluded variable Refreshment store at the 0.838 significance level. The coefficient estimate for Convenience store means that tenants classified as convenience store pay a monthly average of ¥83.230 less than the excluded variable Refreshment store at the 0.980 significance level. The coefficient estimate for Restaurant means that tenants classified as restaurant pay a monthly average of ¥9,978 more than the excluded variable Refreshment store at the 0.001 significance level. The coefficient estimate for Salon means that tenants classified as salon pay a monthly average of ¥5,169 less than the excluded variable Refreshment store at the 0.287 significance level.

From the results, the ranking of the most to least paid by business monthly is the following, restaurants, convenience stores, refreshment stores, clothing stores, boutiques, and salons. This somewhat corresponds with the types of businesses that earn more income during the pre-pandemic period. In addition, the ranking of business also shows how the rental firm position itself in the market, in the aforementioned discussions, this underground pedestrian street positions itself to target middle- and lower-class customers. The monthly rent corresponds as this is more under control by the rent

owners, positioning and in their view, how they see the trends and positioning of the commercial street.

Table 12. Linear regression, average monthly rent x sex, pre-pandemic

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
Sex Female	-16,994	2,828	-6.010	0.000	-22,562	-11,426	4.272	-0.612
Sex Male	-14,693	2,677	-5.489	0.000	-19,963	-9,422	4.299	-0.560

Looking at Table 12, the variable sex can apply parallel comparison to indicate which sex tends to pay more rent monthly. The excluded variable is under a company name. The coefficient estimate for Female means that tenants whose owner is a female pay a monthly average of ¥16,994 less than the excluded variable under company name at the significance level of less than 0.001. The coefficient estimate for Male means that tenants whose owner is a male pay a monthly average of ¥14,693 less than the excluded variable under company name at the significance level of less than 0.001.

From the results, the ranking of the most to least paid by different genders monthly is the following, under the company name, female, male. Females and males are significantly lower than the under-company name but there aren't significant differences between female and male-owned tenants.

4.4 Results with Average Monthly Rent, Post-pandemic

Moving to variables with interaction with the COVID variable. The COVID variable itself coefficient is -11,012, generally, all tenants have decreased their rent by ¥11,012 after COVID at the significance level of 0.006.

Table 13. Linear regression, average monthly rent x COVID location

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_B1	-4,092	4,024	-1.017	0.310	-12,015	3,832	3.305	-0.091
COVID_x_C1	-6,320	4,253	-1.486	0.139	-14,695	2,055	2.906	-0.125
COVID_x_C2	-5,838	3,479	-1.678	0.095	-12,689	1,013	4.172	-0.169
COVID_x_D	-2,345	8,390	-0.280	0.780	-18,865	14,175	2.398	-0.021
Location_B1	-1,257	2,893	-0.435	0.664	-6,953	4,439	3.336	-0.039
Location_C1	-2,319	2,937	-0.790	0.430	-8,102	3,463	2.667	-0.064
Location_C2	8,026	2,710	2.961	0.003	2,689	13,362	3.503	0.273
Location_D	-11,767	5,872	-2.004	0.046	-23,330	-203.732	2.316	-0.150

Looking at the results on Table 13, by parallel comparison, we can compare the results of the same kind of variables during the same time. Looking at the variables with interaction with the COVID variable. Looking at locations, the excluded variable is COVID_x_B2. The coefficient estimate for COVID_x_B1 means that tenants located at B1 pay a monthly average of ¥4,092 less than the excluded variable COVID_x_B2 at the 0.310 significance level. The coefficient estimate for COVID_x_C1 means that tenants located at C1 pay a monthly average of ¥6,320 less than the excluded variable COVID_x_B2 at the 0.139 significance level. The coefficient estimate for COVID_x_C2 means that tenants located at C2 pay a monthly average of ¥5,838 less than the excluded variable COVID_x_B2 at the 0.095 significance level. The coefficient estimate for COVID_x_D means that tenants located at D pay a monthly average of ¥2,345 less than the excluded variable COVID_x_B2 at the 0.780 significance level.

From the result, ranking the locations by more to less on the average monthly rent is the following, B2, D, B1, C2, and C1. Comparing the coefficients with the variables before the pandemic. B1, C1, and C2 have decreased in rent where C2 had the most decrease, where their coefficients after the pandemic were lower than before. D stayed had an increase in rent where the coefficient after the pandemic was higher than before the pandemic. The decrease in rent happened to all locations of the underground pedestrian street. This shows that the impact of the pandemic made similar impacts on all locations. C2 showed the most decreased is possibly due to the originally high rental fee as they had the largest income figures when compared to other locations. The coronavirus impacted all

locations equivalently, bringing the rent of tenants at different locations to around the same level. Towards the statistics of location D, notice that it has a relatively higher p-value than the other locations, which it may mean the value is not as representative of the population.

Table 14. Linear regression, average monthly rent x COVID type of business

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_Boutique	-3,266	7,988	-0.409	0.683	-18,996	12,464	2.174	-0.030
COVID_x_Clothing_Store	-139.625	3,719	-0.038	0.970	-7,463	7,184	4.361	-0.003860
COVID_x_Convenience_Store	1,828	4,625	0.395	0.693	-7,280	10,935	3.116	0.034
COVID_x_Restaurant	-5,371	3,756	-1.430	0.154	-12,768	2,025	3.923	-0.139
COVID_x_Salon	9,106	6,552	1.390	0.166	-3,796	22,007	3.232	0.123
Type_Boutique	-5,017	5,386	-0.931	0.352	-15,624	5,589	2.185	-0.068
Type_Clothing_Store	-572.169	2,789	-0.205	0.838	-6,064	4,920	3.802	-0.020
Type_Convenience_Store	83.230	3,321	0.025	0.980	-6,456	6,622	2.852	0.002084
Type_Restaurant	9,978	2,819	3.539	0.000	4,426	15,530	3.622	0.332
Type_Salon	-5,169	4,847	-1.066	0.287	-14,714	4,375	2.884	-0.089

Looking at table 14, the categorical variable type of business can apply parallel comparison to indicate which type of business general tends to pay more rent. Looking at the variables with interaction with the COVID variable, the variables are compared with the excluded variable COVID_x_refreshment store. The coefficient estimate for COVID_x_Boutique means that tenants classified as Boutique pay a monthly average of ¥3,266 less than the excluded variable COVID_x_refreshment store at the 0.683 significance level. The coefficient estimate for COVID_x_Clothing store means that tenants classified as clothing store pay a monthly average of ¥139.625 less than the excluded variable COVID_x_refreshment store at the 0.970 significance level. The coefficient estimate for COVID_x_Convenience Store means that tenants classified as convenience store pay a monthly average of ¥1,828 more than the excluded variable COVID_x_refreshment store at the 0.693 significance level. The coefficient estimate for COVID_x_Restaurant means that tenants classified as restaurant pay a monthly average of ¥5,371 less than the excluded variable COVID_x_refreshment store at the 0.154 significance level. The coefficient estimate for COVID_x_Salon means that tenants classified as salon pay a monthly average of ¥9,106 more than the excluded variable COVID_x_refreshment store at the 0.166 significance level.

From the results, the ranking of the most to least rent by business monthly after the pandemic is the following, salon, convenience store, refreshment store, clothing store, boutique, and restaurant. Comparing the coefficient with the variables before the pandemic, the restaurant had a decrease in rent whereas the coefficient before the pandemic is larger than after. Salons, convenience store, refreshment store, clothing store, and boutique has a raise in rent with the coefficient after the pandemic larger than before.

Table 15. Linear regression, average monthly rent x COVID sex

Variable	Coefficient	Std. Error	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coefficient
COVID_x_Female	10,859	3,795	2.861	0.005	3,386	18,332	5.046	0.316
COVID_x_Male	10,863	3,460	3.139	0.002	4,049	17,677	5.014	0.346
Sex_Female	-16,994	2,828	-6.010	0.000	-22,562	-11,426	4.272	-0.612
Sex_Male	-14,693	2,677	-5.489	0.000	-19,963	-9,422	4.299	-0.560

Looking at Table 15, the variable sex can apply parallel comparison to indicate which sex tends to pay more rent after the pandemic. The excluded variable is COVID_x_under company name. The coefficient estimate for COVID_x_Female means that tenants whose owner is a female pay a monthly average of ¥10,859 more than the excluded variable COVID_x_under company name at the significance level of less than 0.005. The coefficient estimate for COVID_x_Male means that tenants whose owner is a male pay a monthly average of ¥10,863 more than the excluded variable COVID_x_under company name at the significance level of less than 0.002.

From the results, the ranking of the most to least increased rent by different genders monthly after the pandemic is the following, male, and female, under the company name. Male and females after the pandemic had greater coefficients before the pandemic.

5. Conclusion

In conclusion, the COVID-19 pandemic has made an impact on businesses in general, seeing a significant decrease in monthly income and also seeing a decrease in monthly rent.

Before the pandemic, tenants located in C2, C1, B2, and B1 generally had higher income and higher rent with C2 with the highest both average monthly income and average monthly rent. Tenants located in D had significantly lower income and rent compared with the rest of the tenants. B2, C2, and D suffered significantly from the pandemic where their coefficients after the pandemic were significantly lower than before. C1 overall performed better where the coefficient after the pandemic was larger than before the pandemic. D stayed relatively similar having no drastic changes in monthly income. B1, C1, and C2 have decreased in rent where C2 had the most decrease, where their coefficients after the pandemic were lower than before. D had an increase in rent after the pandemic.

Before the pandemic, tenants of these types of businesses are ranked from earning more to less income monthly, convenience stores, restaurants, clothing stores, boutiques, refreshment stores, and salons. Rent is similarly somewhat corresponding with the income, ranked from high to low of the following, restaurant, convenience store, refreshment store, clothing store, boutique, and salon. After the pandemic, clothing stores suffered the most while restaurants suffered the least from the pandemic. Boutiques, clothing stores, convenience stores, and restaurants suffered a loss after the pandemic. Salon increased in average monthly income after the pandemic. Rent-wise, the restaurant had a decrease in rent. Salon, convenience store, refreshment store, clothing store, and boutique has raised their rent after the pandemic.

Male and female traits did not show significant differences between each other. Before the pandemic, male and female tenants were lower than tenants registered under the company name for both income and rent. After the pandemic, male and female tenants performed better than under the company name, with higher income and higher rent.

The paper offered a basic statistical analysis of the effects of COVID-19 on local business vendors in Shenzhen China. More research should be conducted to better understand the effects of COVID-19 on middle- and low-end businesses, recognizing all economic sectors of the economy. COVID-19's socioeconomic impacts on citizens and business owners can be further discussed through the analysis of this paper. Considering the high living costs and startup costs in Shenzhen, further analysis could be made on how the government could make policies and subsidies the middle- and low-end businesses in recognition of the changes in income and rent to assist the development of these businesses and families.

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Appendix A

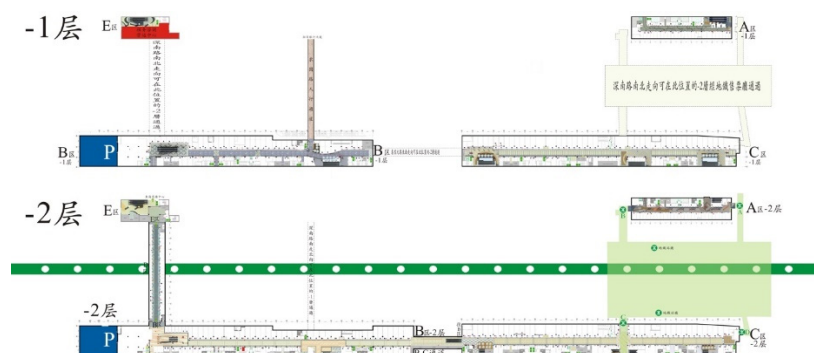


Figure 1. Official underground pedestrian street map

Appendix B

Table 16. Full table of sample data

Average Income Monthly	Average Rental Fee	Type of Service	Registered Sex/Name in Rental Contract	Location	Before/After COVID
232080	47187	Restaurant	Under Company Name	B1	Before
63614.99417	29278.08	Refreshment Store	Male	B1	Before
93490	36329.26667	Restaurant	Female	B1	Before
51422	20964.85889	Restaurant	Female	B1	Before
7401	5192	Convenience Store	Male	B1	Before
37551	23317.15556	Restaurant	Under Company Name	B1	Before
107237	31846.48089	Restaurant	Under Company Name	B1	Before
55564	27010.6375	Restaurant	Female	B1	Before
31896	38987.525	Restaurant	Male	B1	Before
17558	15895.4312	Restaurant	Female	B1	Before
25018	16218.47707	Restaurant	Male	B1	Before
20813	9350	Salon	Female	B1	Before
3209	7920	Convenience Store	Male	B1	Before
41755	16472	Clothing Store	Female	B2	Before
101927	38243.44062	Refreshment Store	Under Company Name	B2	Before
101874	29559.73333	Restaurant	Under Company Name	B2	Before
22559	11277.77778	Clothing Store	Under Company Name	B2	Before

12554	11277.77778	Clothing Store	Under Company Name	B2	Before
4202	4029.004444	Boutique	Female	B2	Before
35487	17724	Clothing Store	Female	B2	Before
5415	4769.444444	Convenience Store	Female	B2	Before
21289	16632	Clothing Store	Male	B2	Before
18843	15843.75	Restaurant	Male	B2	Before
23007.06833	5121.4	Refreshment Store	Female	B2	Before
16947	9979.2	Refreshment Store	Male	B2	Before
52724	13786.2	Clothing Store	Female	C1	Before
9633	16560	Clothing Store	Male	C1	Before
27109	19872	Salon	Female	C1	Before
13779	17595	Convenience Store	Male	C1	Before
46704.91167	22770	Refreshment Store	Under Company Name	C1	Before
31665	15505	Restaurant	Male	C1	Before
11221	17907.54722	Refreshment Store	Male	C2	Before
29482.2225	20470	Clothing Store	Male	C2	Before
22074.41417	24840	Restaurant	Under Company Name	C2	Before
162765	45160.5	Convenience Store	Under Company Name	C2	Before
143589	23130	Refreshment Store	Male	C2	Before
41796	31646.16389	Refreshment Store	Male	C2	Before
27313	2271.2	Convenience Store	Male	D	Before
38882.204	29702	Refreshment Store	Under Company Name	B1	Before
2642	5318.548333	Refreshment Store	Male	B1	Before
26044	13820.175	Restaurant	Male	B1	Before
20467	26394	Refreshment Store	Female	B1	Before
21746	27345.5	Restaurant	Male	B1	Before
385170.0958	53210.745	Restaurant	Under Company Name	B1	Before
37753	10834.56	Refreshment Store	Female	B1	Before
495997	25664.04	Convenience Store	Under Company Name	B2	Before
38146	20058.5	Refreshment Store	Under Company Name	B2	Before
102379	13732.12333	Clothing Store	Male	B2	Before
40361	16858.48917	Clothing Store	Female	B2	Before
31198.23083	9381.125	Clothing Store	Female	B2	Before
6259	5000	Salon	Male	B2	Before
58835	5000	Convenience Store	Female	B2	Before
74518	50745.01667	Restaurant	Under Company Name	B2	Before
14018	14730.66667	Convenience Store	Male	B2	Before
254987.1558	73834.5	Restaurant	Under Company Name	B2	Before

6524	5483.785	Refreshment Store	Female	B2	Before
11416	9980	Refreshment Store	Male	B2	Before
249453	62100	Restaurant	Male	C1	Before
82174	42334.28333	Restaurant	Under Company Name	C1	Before
60256	26585.83333	Convenience Store	Under Company Name	C1	Before
10365	2383.333333	Clothing Store	Female	C1	Before
53012	2208	Clothing Store	Female	C1	Before
30642	15331.58833	Restaurant	Male	C1	Before
39616	13662	Restaurant	Male	C1	Before
3380	12628	Refreshment Store	Under Company Name	C1	Before
53793	18461.66667	Clothing Store	Female	C2	Before
28672	12294.33333	Boutique	Male	C2	Before
57297.18667	18823.2	Convenience Store	Female	C2	Before
40888	20581.96667	Clothing Store	Male	C2	Before
19157	24840	Convenience Store	Female	C2	Before
41404	6977.55	Clothing Store	Female	C2	Before
19801.63583	10207.4	Clothing Store	Female	C2	Before
40340	25544.33333	Refreshment Store	Male	C2	Before
11744	9671.933333	Convenience Store	Female	C2	Before
51670	33120	Refreshment Store	Male	C2	Before
65062	37206.88167	Refreshment Store	Male	B1	Before
36328	4812.5	Refreshment Store	Male	B1	Before
3723	5506.093333	Convenience Store	Male	B1	Before
34049	24206.98917	Restaurant	Female	B1	Before
102061	22132.61917	Restaurant	Male	B1	Before
73261.53417	28595.91667	Restaurant	Male	B1	Before
155849.825	43725.5975	Restaurant	Under Company Name	B1	Before
231183.1667	55871.41667	Restaurant	Under Company Name	B1	Before
30940.19167	11032.8225	Refreshment Store	Female	B1	Before
24669	10690.57417	Refreshment Store	Male	B1	Before
7106	12556	Refreshment Store	Male	B1	Before
258234	14472.75083	Restaurant	Under Company Name	B1	Before
19983	22244.98417	Clothing Store	Male	B2	Before
415633	89301.78083	Convenience Store	Under Company Name	B2	Before
41641	18442.78	Boutique	Female	B2	Before
35150	16916.66667	Salon	Under Company Name	B2	Before
55924	28400.29917	Clothing Store	Male	B2	Before
19894.975	18326.38917	Clothing Store	Female	B2	Before

16571	8500	Boutique	Male	B2	Before
12137	37123.68667	Restaurant	Male	B2	Before
18631	7974.731667	Refreshment Store	Male	B2	Before
29212	18328.41	Clothing Store	Female	B2	Before
2876	7225.806667	Refreshment Store	Female	B2	Before
75655	17962.4575	Clothing Store	Female	B2	Before
38654	22777.84667	Clothing Store	Under Company Name	B2	Before
33628	7623.425833	Clothing Store	Female	B2	Before
59685.63636	24465.43333	Clothing Store	Female	B2	Before
23752	17508.16917	Clothing Store	Male	B2	Before
34490	16926.3275	Restaurant	Female	B2	Before
32843	13000	Refreshment Store	Male	B2	Before
22523	23680.863	Restaurant	Male	C1	Before
20973.225	13312	Restaurant	Male	C1	Before
26504.75	11447.1	Salon	Female	C1	Before
65751	14651.9325	Clothing Store	Male	C1	Before
32847	12991.55	Convenience Store	Male	C1	Before
18839	12006	Refreshment Store	Female	C1	Before
27271.28571	21304.13917	Refreshment Store	Female	C1	Before
36430	9749.419167	Clothing Store	Male	C1	Before
101941	42811	Clothing Store	Male	C2	Before
86892	22488.25	Restaurant	Female	C2	Before
60560	19948.66667	Clothing Store	Male	C2	Before
40736	24558.88917	Refreshment Store	Male	C2	Before
258363	55585	Refreshment Store	Under Company Name	C2	Before
127401.2408	27306.72	Clothing Store	Male	C2	Before
75255	26618.25	Clothing Store	Male	C2	Before
77921	33205.69417	Clothing Store	Male	C2	Before
4159.583333	13000	Salon	Male	C2	Before
68137	34029.79833	Clothing Store	Female	C2	Before
23570	35710.22333	Refreshment Store	Female	C2	Before
9031	2864	Clothing Store	Male	D	Before
4333	2873.285	Refreshment Store	Male	D	Before
2883	3874.193333	Boutique	Male	D	Before
25994.75	37863.33333	Refreshment Store	Male	B1	After
41159	33674.66828	Restaurant	Under Company Name	B1	After
6448	6050	Refreshment Store	Male	B1	After
37781.32625	30881.61129	Restaurant	Under Company Name	B1	After
59945	44285	Restaurant	Under Company Name	B1	After

27440	11661.29032	Restaurant	Male	B1	After
3298	15869.00645	Refreshment Store	Under Company Name	B1	After
9187	12837.14286	Refreshment Store	Female	B1	After
66344	47709.04792	Clothing Store	Under Company Name	B2	After
32612	27300	Clothing Store	Female	B2	After
4713	22000	Clothing Store	Female	B2	After
9050	21750	Convenience Store	Under Company Name	B2	After
8985	15373.50538	Clothing Store	Male	B2	After
61900	7838.012903	Boutique	Male	B2	After
30190.125	18575.80645	Salon	Female	B2	After
159899	52783.4	Restaurant	Male	B2	After
37213.5	45562.125	Convenience Store	Male	B2	After
4105	8077	Boutique	Female	B2	After
24182	17963	Clothing Store	Male	B2	After
19343	16756.72043	Restaurant	Male	B2	After
5185	16632	Clothing Store	Under Company Name	B2	After
14434.33125	9000	Restaurant	Male	B2	After
3456	12989	Refreshment Store	Male	B2	After
1498	6008	Refreshment Store	Male	B2	After
19602	13964.47419	Refreshment Store	Male	B2	After
33211	21776.84516	Restaurant	Under Company Name	C1	After
18823	13214.51613	Clothing Store	Female	C1	After
19024	16560	Salon	Female	C1	After
9478	10000	Refreshment Store	Under Company Name	C1	After
6825	5171.247312	Clothing Store	Female	C1	After
17080	12000	Salon	Male	C1	After
91532.1175	10530.98452	Refreshment Store	Under Company Name	C1	After
41326	19112.04516	Restaurant	Under Company Name	C2	After
36682	23244.375	Refreshment Store	Female	C2	After
40550.95167	23003.70968	Refreshment Store	Female	C2	After
36400	5119.354839	Convenience Store	Female	C2	After
18165	24012	Clothing Store	Male	C2	After
37544	53766	Refreshment Store	Male	C2	After
134121	26703	Convenience Store	Male	C2	After
124753	30605.56452	Convenience Store	Under Company Name	C2	After
40811	22844.44444	Refreshment Store	Female	C2	After
22836	35885.48387	Clothing Store	Female	C2	After
47747	33534	Clothing Store	Female	C2	After

798.0033333	4089.784946	Clothing Store	Female	D	After
8949	3000	Convenience Store	Under Company Name	D	After
43903.12875	8701.142	Refreshment Store	Female	B1	After
28003.66667	20660.91333	Restaurant	Male	B1	After
46184	9936.75	Restaurant	Male	B1	After
5735.25	6048	Convenience Store	Male	B1	After
28560	9257.225556	Clothing Store	Male	B2	After
4307	7033.41	Convenience Store	Under Company Name	B2	After
22196	12020.0325	Salon	Female	B2	After
147025	37227.29167	Restaurant	Under Company Name	B2	After
239198.8238	36459.58125	Convenience Store	Under Company Name	B2	After
31107	10931.60917	Clothing Store	Female	B2	After
76338	20677.23667	Restaurant	Female	B2	After
13730	10870.4	Refreshment Store	Male	B2	After
28018.46364	8412.218182	Convenience Store	Male	B2	After
22940.01	7194	Restaurant	Female	B2	After
9070.28	6227.11	Refreshment Store	Male	B2	After
294597	28482.145	Restaurant	Under Company Name	C1	After
34857.25	6520.5	Salon	Female	C1	After
6896.819091	10317	Refreshment Store	Under Company Name	C1	After
9547	5168.145	Refreshment Store	Under Company Name	C1	After
18846.5	12940.58333	Convenience Store	Male	C2	After
33328.33333	14745	Clothing Store	Male	C2	After
36832	21275.33333	Clothing Store	Male	C2	After
19795	12228.02417	Clothing Store	Female	C2	After
32686	28239.91917	Clothing Store	Male	C2	After
78598.83333	28650.02417	Refreshment Store	Male	C2	After
80781.65	27522.5	Refreshment Store	Male	C2	After
74198.26167	23614.965	Refreshment Store	Under Company Name	C2	After
161538.3433	18548	Refreshment Store	Under Company Name	B1	After
13585.8	14586	Refreshment Store	Under Company Name	B1	After
26555.33333	9112	Restaurant	Under Company Name	B1	After
40298	10020	Refreshment Store	Male	B1	After
58020.85	10846	Restaurant	Male	B1	After
148463.7	18552	Restaurant	Under Company Name	B1	After
40679	18990	Restaurant	Male	B1	After
96225.36667	9495	Restaurant	Male	B1	After
126276.6467	8988	Restaurant	Under Company Name	B1	After

41524	5249.25	Refreshment Store	Male	B1	After
14207	6999	Restaurant	Male	B1	After
45946	11052.25	Restaurant	Under Company Name	B1	After
18007	661	Refreshment Store	Female	B1	After
21322	668.3333333	Restaurant	Under Company Name	B1	After
50734.66667	19323	Refreshment Store	Male	B2	After
9099	11769	Clothing Store	Male	B2	After
9993	9450	Clothing Store	Male	B2	After
163100	30714	Convenience Store	Under Company Name	B2	After
19286	10633.33333	Clothing Store	Male	B2	After
19162.33333	10633.33333	Clothing Store	Female	B2	After
7978.333333	3184.5	Boutique	Female	B2	After
52484.66667	19450.66667	Refreshment Store	Under Company Name	B2	After
274219	47715	Restaurant	Under Company Name	B2	After
139297.6667	26765.75	Restaurant	Male	B2	After
77933.33333	15366	Restaurant	Under Company Name	B2	After
52892.66667	17400	Salon	Male	B2	After
16031	8700	Clothing Store	Female	B2	After
21582.5	7560	Clothing Store	Female	B2	After
21356.33333	13959	Clothing Store	Female	B2	After
18469.66667	11355	Clothing Store	Male	B2	After
6154.333333	12660	Clothing Store	Female	B2	After
11494.66667	10972	Clothing Store	Female	B2	After
13702.66667	12660	Clothing Store	Male	B2	After
13278.33333	9264.85	Clothing Store	Female	B2	After
312868	33472	Restaurant	Under Company Name	B2	After
15071.33333	14348	Clothing Store	Male	B2	After
23438.33333	11572.05	Clothing Store	Female	B2	After
17502	8152.266667	Clothing Store	Under Company Name	B2	After
16174.33333	9072	Refreshment Store	Male	B2	After
5925.666667	7421	Refreshment Store	Female	B2	After
6045.333333	4938	Restaurant	Under Company Name	B2	After
11101.5	6405.5	Refreshment Store	Male	B2	After
148449.6667	34890.75	Restaurant	Male	B2	After
12101	3532	Refreshment Store	Female	B2	After
12195	4711.666667	Boutique	Female	B2	After
124983.3333	14904	Salon	Male	C1	After
123403.5	6210	Restaurant	Male	C1	After
15459	7590	Salon	Female	C1	After
5021.666667	3937	Clothing Store	Female	C1	After

8620	7874	Salon	Female	C1	After
18310	4140	Clothing Store	Female	C1	After
142751	4851.916667	Refreshment Store	Under Company Name	C1	After
25842	6202	Refreshment Store	Male	C1	After
186101.4233	2454	Restaurant	Under Company Name	C1	After
32500.33333	9726	Restaurant	Female	C2	After
101035.6667	16749	Refreshment Store	Under Company Name	C2	After
44962.33333	11760	Convenience Store	Female	C2	After
41032.33333	9216	Clothing Store	Female	C2	After
23316.33333	9315	Clothing Store	Under Company Name	C2	After
36952.33333	11764.5	Clothing Store	Male	C2	After
6109.5	12420	Refreshment Store	Male	C2	After
26406.66667	10971	Clothing Store	Under Company Name	C2	After
12411.66667	10971	Clothing Store	Female	C2	After
128618	17607	Refreshment Store	Under Company Name	C2	After
21982	11385	Restaurant	Male	C2	After
27311.33333	11385	Clothing Store	Male	C2	After
44860.12667	12736	Refreshment Store	Under Company Name	C2	After
169320.12	22705.58333	Convenience Store	Under Company Name	C2	After
201793.6667	29488	Refreshment Store	Under Company Name	C2	After
8260	5433.75	Clothing Store	Female	C2	After
232123.6667	33120	Convenience Store	Under Company Name	C2	After
43773	13492.5	Refreshment Store	Male	C2	After
106911	20700	Refreshment Store	Female	C2	After
35662.33333	13860	Refreshment Store	Male	C2	After
18020	14091.875	Refreshment Store	Female	C2	After
132887.6667	31488	Restaurant	Male	C2	After
15876.33333	8800	Convenience Store	Male	C2	After
9534.5	8066.666667	Clothing Store	Male	C2	After
62618	20700	Restaurant	Male	C2	After
45820.66667	20700	Refreshment Store	Male	C2	After
21042.5	18543.75	Refreshment Store	Under Company Name	C2	After
220436.3333	17571	Restaurant	Under Company Name	C2	After
32115	16949.18333	Refreshment Store	Female	C2	After
4144.333333	927	Convenience Store	Female	D	After
4263.333333	1329	Convenience Store	Female	D	After