Revitalizing Street Economy: An Economic Analysis

Abstract: The study aims to provide an economic analysis of street economy in twin cities of Pakistan. The survey based analysis of 1863 fixed street vendors working in twin cities shows that lack of formal education and unemployment inclined individuals to choose street vending business as a profession. The analysis shows strong formal-informal economic linkages, beneficial for both formal shop owners and street vendors. The formal business (shops) benefits from the pedestrian traffic that street vendors attract by selling low-cost products. Whereas street vendors use the formal sector to buy product and use storage spaces. The average monthly revenue of street vendors is Rs. 114,708 (US$ 740) and on average, earn a significant profit amounted US$ 212 per month (29% of total monthly revenue). The street vendor made on average, US$ 571 investment to run vending business and around 60% of SVs use their own money to start street vending business. A street vendor pays around US$ 107 monthly as an operational cost and more than 51% of the total operational cost incurred by the street vendors fall under the category of rent paid to owner of the shop. Tha lack of legal protection is one of the major challenges face by street vendors. We find that 98% of SVs are operating without any legal protection in the market. The reported economic loss due to informality constitute around 62% of monthly revenue in full sample, which is 215% of net monthly profits. The multidimensional vulnerability index (MVI) shows that around 21% of street vendors are acute vulnerable while more than 25% of SVs are vulnerable. The multivariate analysis show that socioeconomic vulnerability has a negative and significant impact on monthly profits. We find that around 57% of SVs fall below the poverty line, hence treated as poor. The economic analysis of street vending provides numerous insights for policymakers and other stakeholders including businessmen, market associations, regulatory authorities, administrative bodies and social protection agencies

1. Introduction

Pakistan has a large street economy (SE) operated by individuals and micro-enterprises, namely street vendors (SVs), across the country, mostly in urban areas.[1] SVs are parts of the informal economy that provide employment and livelihood to the poor with low skill and literacy and produce numerous social and economic benefits (Martínez, Short, & Estrada, 2018). The SE has a strong linkage with a supply chain comprising both formal and informal players. SVs are just the end of the retail outlet of a rather complex supply chain. Despite the massive penetration of SVs in the urban markets, the economic contributions and supply chain of SE are unknown in Pakistan. It is vital to gauge the contribution of SE in the overall economic landscape of the country due to the overwhelming involvement of individuals and micro-enterprises. There are no precise estimates on the quantum of SE due to the informal nature in Pakistan. Global estimates have shown that the SE has grown exponentially, affecting the daily life of 5 billion people, with a volume of US$ 30 trillion (Sirkeci, 2020, p. 11).

Despite significant contribution of SE, street vendors continue to struggle at the margins of the economy. The street entrepreneurs are subject to abuse and violation of dignity due to a lack of legal status. The failure to recognize them as entrepreneurs resulted in the loss of national revenue from street vending registration fees, hawking licenses, and taxes (Mazhambe, 2017). Therefore, it is vital to understand the characteristics of micro-enterprises operating in SE to design a policy framework to formalize SVs.

This study aims to explore the characteristics of the micro-entrepreneurs operating in SE through a comprehensive survey of street vendors in twin cities (Islamabad and Rawalpindi) in Pakistan.[2] We also examine the differences in business operation, supply chain, and economic contribution of street vendors across two different types of markets. Twin cities host around 3 million population.[3] On average, 1.5% to 2.5% of cities population is engaged in SE.[4] Both cities operate under different administrative structures. Markets are relatively well organized in Islamabad compared to Rawalpindi. Furthermore, Islamabad host relatively high- and middle-income families while low- and middle-income families reside in Rawalpindi.

The rest of paper is structured as follow: Section 2 provides an overview of existing literature on street economy. Section 3 provides detailed elaboration on data and methodology. Section 4 presents economic analysis of street vending in twin cities. Section 5 gives poverty implications of street vending and section 6 provides COVID-19 implications of street vending. The last section presents policy implications.

[1] The SE is defined as retailing of skills and materials, manufactured, and supplied through different processes (both formal and informal) to retailing enterprises working informally from state- or privately-owned public spaces. The SE can also be defined as exchanging all types of goods and services in public areas, streets, sidewalks, and squares (Sirkeci, 2020, p. 14). A public space refers to an area or place that is open and accessible to all peoples, regardless of gender, race, ethnicity, age, or socio-economic level. The SE is a subset of a broader informal economy.

[2] Rawalpindi is adjacent to Islamabad – the capital of Pakistan and the two are jointly known as the "twin cities" due to strong social and economic links between the cities.

[3] According to Census 2017, the urban population of Rawalpindi tehsil is 2 million while around one million people live in urban areas of Islamabad tehsil. Total population of Rawalpindi district is 5.4 million and Islamabad district is 2 million.

[4] This implies that around 60,000 SVs are operating in twin cities.

2. Literature review

Street vending is an important part of the informal urban economy. Despite many attempts by the government to eliminate street sales it continues to thrive in many cities as demand from a massive, low-income population benefits from the purchase of cheap goods. Street vending is a major source of jobs and revenue, particularly in developing countries, for urban inhabitants around the world. Street vendors operating on the streets may operate or mobile from permanent places carrying their goods at high pedestrian locations for customers.

Besides emulating these informal characteristics, a peculiarity of the street economy is embracing of that economic activity, which depends for its existence on access to the street or publicly accessible spaces (Brown, Lyon, & Dankoco, 2010). This specific feature of the street economy brings it into the direct realm of public space (Low, S., & Smith, 2013). It induces little empathy for street vendors from other users of the public space. Street vendors can be broadly segregated into stationary and mobile types. It has been observed worldwide that migrants make up most of this low capital, low skill, and easy to entry segment of street vending. This rootlessness of the high number of street vendors defines their reduced nuance value for local political players. Owing to their agglomeration advantage, urban centers remain the supreme abode of street vendors worldwide. As previously discussed, street vendors concentrate in areas with high population density, high walkability, transportation nodes, etc., and provide goods and services in these public spaces (Rogerson, 2017, 2019). Street vendors are Spatio-temporal flexible; thus, they can be irregular in their public space choice (Huang, Xue, & Wang, 2019; Sun, Bell, Scott, & Qian, 2020; Swai, 2019).

The literature describes three fundamental roles of street vending in cities' economic systems; first being it provides essential survival for the substantial urban and migrant population (Fletcher & Ahmed, 2011). It also creates a cascading effect across the local economy by selling goods or services to the passers-by. With more profit accumulated, they demand more raw materials from the local economy, thus generating more jobs (Liu, Burns, & Flaming, 2015). The last characteristic is that street vending provides a low-cost and highly efficient system of products required daily (Ray & Mishra, 2011).

Most of the local economy's street vending operations are regarding eatables. The Food and Agriculture Organization (FAO) also acknowledges street vendors' role in promoting food access at low prices. Some of the street vendors' downsides are valid, like street vendors maintain low-hygienic standards compared to formal counterparts in the local economy. Another argument is that street vendors create congestion among the most important routes in the city for pedestrians or traffic. As new vendors keep coming, the resolution of these two critical issues becomes difficult as well. Another issue is public space for personal gain for street vendors, resulting in public spaces. Municipality or city authorities can enhance the street vendors' capacity, and there are various successful precedents available throughout the world.

A strand of literature looks into the efficient nature of these small businesses which provides them a chance to provide cost-efficient services to the urban poor (Yasmin, 1996; Tinker, 1997; Suriansyah, 2005). These street vending operations are very efficient in producing the results and converting raw materials by adding of value to it by means of labour under very small scale capitals with zero bureaucracy at all as the business is run on very low human labour other than the busines owner. This agile nature of the business provides the businesses opportunity to react to the market fluctuations without any need of any infrastructure change, any consultancy, requirement of new staff etc. (Sirkeci, 2020). Role of Street vendors for urban poor is very integral in big metropolitan cities of the world, needs of middle and upper-income groups are met by mega shopping malls and around 30% of the world’s

population is engaged in bagel salesman, peddling, or engaged in newspaper salesman at some point in in their lives atleast once (Kühn et. al., 2018).

Being cheap labor in city centers, low-income citizens pass considerable part of their daily time at bus stands, subways, bus stops, big business places, parks and in front of schools which is also a parking point for street vendors as well. Being the product and customer at proximity in reasonable price, daily needs from clothes to food of urban poor are met by street vendors (Fırat, 2010, p. 164). As Sirkeci (2020) describes that the phenomenon of street economy which employs millions of low-income people and easily add value in billions of dollars is not wanted to be understood by policy makers, established businesses, urban managers etc.

A set of literature looks in to the economic contribution and the economy of street vending at large and looks into how street vending is an important source for many urban poor households (McGee, 1977; Iyenda, 2005). Increasing research has shown that small, local companies represent valuable community assets, creating stable and entrepreneurial communities which are linked and generally more advantageous. Local businesses in general recirculate more of each euro in the local economy by building supply chains owned locally and investing in their workers. The amount of social capital, civic involvement and general well-being of the communities is positively linked to their local businesses' share of the economy.

Liu et al., (2015) conducted a city-wide study in Los Angeles, which shows that street vendors generated $517 million in economic stimulus from $504 million spent within a year, which means every $1 earned by the street vendor, the economic output of $1.02 is stimulated (Liu et al., 2015). Kusakabe (2010) found out similar results for Cambodia that, on average, US$25.70 per day is made by a street vendor from which the US$24.20 is spent, leaving a profit of US$1.48. Kusakabe (2010) also reported that in Thailand, 70% of the street vendors earn 200 Baht or more. Street vendors provide a considerable amount of employment in the informal sector for the urban and migrant population. Gcumeni and Reeler (2015) reported that 75% of the population is employed in street vending operations in Zimbabwe's major cities. Chen et al. (2002), while discussing the supply chain of street vending operations, states that it also sustains the jobs of millions working in the industries that produce the wares sold by the street vendors.

The street vendors do not make a buck for themselves, but the farmer, small-scale manufacturer, and home-based industries depend on these street vendors to market their products. Surakarta, Indonesia, is also a tourist spot, thus being an essential contributor to the GDP (Natawidjaja, Rahayu, & Sutrisno, 2015). Successful micro level street businesses help to accommodate unemployed people as they tend to grow, also provide opportunities for inward migration and generate new latitude for entrepreneurs. A diversity of businesses becomes the soil from which the next step is to grow a critical mass in a certain area, based on identified strengths and resources.

3. Data Description

The analysis uses primary data collected through the “PIDE Street Economy Survey (PSES)” in twin cities, namely Islamabad and Rawalpindi. The survey covers 1683 street vendors (SVs) operating in twin cities. Keeping in view the objectives of the study, we only interviewed fixed street vendors located in main markets of the twin cities. In Islamabad, we

interviewed entire population of SVs operating in *Markaz* of 15 sectors.[5] Furthermore, we interviewed SVs in peri-urban market, namely *Bhara Kahu,* in Islamabad to capture the regional heterogenies. In Rawalpindi, two trading hubs were selected for the survey based on importance of the markets. First, we interviewed SVs in *Raja Bazar* which is a wholesale market and customers from adjacent districts use this market for buying products at wholesale prices. Secondly, we cover *Commercial Market*, which is one of the biggest retail markets of Rawalpindi in terms of offering. Both spaces have high presence of street vendors.

We used computer-assisted personal interviewing (CAPI) method to collect data using android tablets and mobiles. The CAPI provides real-time access to data for verification and cross-checks to ensure data quality and transparency. The questionnaire was digitized using the Microsoft Forms for data collection. We revised the questionnaire after conducting a pre-test survey in *Bhara Kahu* and G9 sector Islamabad. We hired sixteen enumerators (eight males and eight females) and two supervisors to conduct a survey using the face-to-face interview method in twin cities. We organized three days training session at PIDE to train the enumerators. The field survey was conducted in June-July 2021. The final dataset covers 1683 SVs in twin cities. We interviewed 1238 SVs in sector markets and 445 in non-sector markets (Table 1).[6]

We used a structured questionnaire to collect information on socioeconomic profile of SVs, their business operations, supply chain, financial inclusion, economic contribution, and administrative challenges. The survey results show that average age of respondents (street vendors) is 32.9 years and among them 75% SVs are married. Lack of education is one of the key determinants toward adoption of informal business such as street vending (Smith & Metzger, 1998). Among respondents, 24% has no formal education, 21% has below primary education, 44% has up to 10 years education while 11% has intermediate and above education. These statistics suggest that most of the SVs had low education, hence had less chance to get job in formal sectors of the economy. The average household size is 8.1, relatively larger household size compared to national figure. Table 1 shows that around 60% of SVs are migrant workers, migrated from other districts across Pakistan. Around 58% of SVs live with family members while around 35% live alone in rented houses. The data shows that around 90% of SVs live in rented houses. Notably, more than 902% of SVs live in rented places in Islamabad compared to 84% in Rawalpindi and other peri-urban areas.

4. Results and discussion

4.1.Street vending characteristics

We use descriptive statistics to present our analysis. Table 2 shows that one average, vendor had 10.5 years experience of street vending business. The fixed vendors use different structure for vending their products. The survey data shows that around 61% of SVs use tables and 32% uses cart for vending. The use of tables for vending reflects a bit of permanence as most of the table are placed in front of shops. The descriptive statistics show that 84% of SVs owned vending cart/table and around 86% of SVs also owned the vending business. Martínez et al. (2018) find simialr ownership patterns in Colombia. These statistics reflect that street vendors are self-entrepreneurs with more than 10 years of working experience. We find that around 86% of street vendors, on average, are found to be working more than 10 hours per day.

[5] Sectors are administrative divisions of Islamabad. Each sector covers an area of approximately 2KM×2KM and divided in four sub-sectors (residential) and a centralized commercial market, called "Markaz". Map 1 shows the spread of sectors selected for data collection in Islamabad.

[6] Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raza Bazar and Commercial Market) located in Rawalpindi.

We find that working hours are relatively higher in non-sectors markets than sector markets. Around 92% of SVs are found to be working more than 10 hours a day in non-sector markets compared to 83% of street vendors in sector markets. Similarly, majority of street vendors (more than 91% of SVs) are working seven day a week, showing long working hours without any break.

Figure 1 shows that around 26% of SVs offer food related items for sales which include packed food/snack, food prepared with fire and food without fire. Around 22% of SVs offer garments for sales – second largest category of sales item offers by SVs after food items. Around 15% of SVs offer fruits and vegetables for sale followed by shoes, sunglass and watches category (13%), plastic items (8%), electronic and mobile accessories (8%) and ladies bags and jewellery (5%). The descriptive statistics show that food, garments, fruits/vegetables, ladies handbags, electronic and plastic items are main selling products in street vending economy.

The survey respondents (SVs) presented various reasons to start vending business. The descriptive statistics show that around 43% of SVs reported that they started street vending business due to unemployment. Dzaramba & Marumure (2021) find that unemployment is the highest contributor towards street vending in Zimbabwe. Around 40% of SVs documented that they joined vending business due to unemployment in Zimbabwe (Dzaramba & Marumure, 2021). Furthermore, around 26% of SVs mentioned that they started street vending busines willfully due to significant returns. Around 23% of street vendors stated that they opted street vending business due to lack of formal education and experience to be engaged in formal employment or any other business. A small portion of SVs (around 8%) reported that street vending is their family business (Figure 2).

4.2.The economics of street vending

This section present information on business operations, economic linkages, income, sales, and profit of the street vending business. We use descriptive statistics to conduct economic analysis of street vending business. As mentioned above, we collect data from two different markets, namely sector market and non-sector markets. We use the standard t-test with a confidence interval of 95 to explain the significance of differences across two markets.

4.2.1. Formal-informal economy linkages

We explore the economic linkages of the street vendors to establish the economic contribution of street economy in overall economic landscape of the country. We find that street vendors, in both markets, locate their stalls (tables/carts) outside formal store using the public spaces and sidewalks available. Around 47% of SVs locate in from of shops and over 49% of SVs are using sidewalks for their business (Table 2). The street vendor respondents informed that owners of the formal shops charged for the use of public space in front of their business. In some cases, owners of the formal shops hired a worker (around 15% of SVs) to operate a stall in front of shops.

These findings reflect that formal-informal linkages are beneficial for both formal shop owners and street vendors. Martínez et al. (2018) argue that formal-informal nexus is beneficial for both owners of formal shops and street vendors due to strong linkages. Formal business (shops) benefits from the pedestrian traffic that street vendors attract by selling low-cost products. Whereas street vendors use the formal sector to buy product and use storage spaces. We find that wholesalers/distributors (mainly working in formal sector – formal business) are the major input providers for street vendors in both markets. Around 70% of SVs purchase raw material and other inputs from wholesalers/distributors. Around 26% of SVs use marketplace ("Mandi") to buy raw material and other inputs. Very few (around 4% of VS) use middlemen

as source to purchase raw material and other inputs for street vending (Table 3). Martínez et al. (2018) also find that wholesalers are the major input providers for street vendors in Colombia.

We find that around 73% of SVs use stall space to store sales items while around 18% of SVs use warehouses to storage sales material (Table 3). The street vendors reported that formal shop owners provide storage space to store sales item by providing rent to shop owners. This also reflect bi-directional dependence between formal shop owners and street vendors to generate business returns.

4.2.2. Business operations: Revenues, investment, profits, and operational costs

The descriptive analysis show that average monthly revenue of street vendors is Rs. 114,708 (US$ 740) in full sample. Street vendors operating in sector markets generate relatively higher revenues (US$ 746) compared to non-sector markets (USS$ 725). However standard t-test shows differences in revenues are not significant. The economic transactions (sales of items and services) of street vendors contribute directly to socio-economic development of the city since street vendors provide low-cost food items and other daily uses items to low- and middle-class society in the city. Martínez et al. (2018) argue that low price products and food supply by street vendors has a direct impact on economic and social development of the city's poor segments.

The analysis reveals that street vendors, on average, earn a significant profit amounted US$ 212 per month (29% of total monthly revenue). Street vendors operating in sector markets earn relatively higher profit (US$ 217) compared to vendors running business in non-sector market (US$ 199). The standard t-test shows that sector market profit is significantly higher than non-sector market (Table 4). This implies that businesses are more profitable in sector markets than non-sector markets. The obvious reason for relatively high profits in sector markets is economic status of the customers. The customers in sector markets mainly belong to middle income group while in non-sector market, customers belong low-income quintile. Generally, profit margins are higher in rich urban markets such as sector markets (Markaz) in Islamabad. Martínez et al. (2018) found that average profit varies from 21% to 40% in street vending business, depending upon market structure.

The descriptive analysis show that street vendor made on average, US$ 571 investment to run vending business. There is a significant difference in investment requirement across two markets. We find that average investment in sector market is US$ 626 while it is US$ 419 in non-sector market. This shows that starting a vending business in non-sector market is relatively cheaper compared to sector market due cheap inputs and low operational cost. Around 60% of SVs invest their own money to start street vending business, followed by 32% of SVs who took money from their family and friends to invest in business. Very few street vendors (only 8%) took loan from formal and informal sources to make an investment in street vending business (Table 4).

The analysis shows that street vendors hold, on average, an inventory of US 498 to earn a profit from street vending business. There is a significant difference in average inventory across markets. We find that average inventory in sector market is higher (US$ 544) than non-sector market (US$ 371). Interestingly, if we compare the profit ratio with investment and inventory requirements, we find that profit share is relatively higher in non-sector market compared to sector market due to small investment requirements.

Apart from input costs (for raw material and other services), we explore the operational cost incurred by street vendors to run their business. We find that a street vendor pays around US4 107 monthly as an operational cost. The analysis shows a significant difference in operational cost across both markets. The descriptive analysis reveals that street vendors, on

average, incurred approximately US$ 115 in sector market and only US$ 85 in non-sector market (Table 5). These findings exhibit that it is costly to run business in sector market due to high operational costs. We bifurcate total operational cost in various components. Interestingly, we find that more than 51% of the total operational cost incurred by the street vendors fall under the category of rent paid to owner of the shop.

These findings reinforce the argument of strong formal-informal economic linkages. On the one hand, street vendor earns significant profit from street vending business and on the other hand, formal shopkeeper earn profit in two ways. First, owner of shop receives direct rent from street vendor to run business in front of his shop and second, sales of formal shop owner increase due to flow of pedestrians, mainly visiting vendors. Apart from shopkeeper rents, street vendors pay a small amount to local administration and market committee as fee. Furthermore, street vendors pay around 8% of operational cost to avail basic utilities such electricity, water, and other services. Around 13% of operational cost fall under the category of transportation and 25% are other costs.

4.2.3. Business operations: Financial inclusion

The importance of financial inclusion to promote micro, small and medium enterprises (MSMEs) is well-documented in the literature (Demirgüç-Kunt & Singer, 2017; Ibor, Offiong, & Mendie, 2017; Irankunda & Van Bergeijk, 2020; Khawaja & Iqbal, 2019). Financial inclusion, such as saving accounts, loans, and business transactions, positively and significantly impacts the operations and growth of MSMEs, hence leads to inclusive growth and economic development (Demirgüç-Kunt & Singer, 2017; Ibor et al., 2017; Nandru, Chendragiri, & Velayutham, 2021). Despite significant contribution of financial inclusion, the global evidence shows that the use of financial services among street vendors is very low (Irankunda & Van Bergeijk, 2020; Martinez & Rivera-Acevedo, 2018).

The descriptive analysis shows that only 11% of SVs has a formal bank account. The ratio of formal bank account is very low among street vendors operating in non-sector markets (only 6% of SVs has bank account) as compared to vendors doing business in sector market (13% of SVs has bank account). With respect to use of bank account, we find that only 24% of SVs use bank account for trading purposes, while around 50% of SVs use bank account for saving purpose and around 25% of SVs use bank account for sending money to home (Table 6). This implies that apart from very low financial inclusion, the use of bank accounts is also limited to non-productive means.

Over the last few years, mobile banking has been expanding exponentially in developing countries, including Pakistan. We find that around 49% of SVs has mobile banking account. Interestingly, use of mobile banking is significantly high in non-sector market than sector market. In non-sector market, around 56% of VS has mobile banking account while only 47% of SV has mobile banking account in sector market. The obvious reason is that in sector market SVs prefer formal bank account (as ratio is high) and in non-sector market, SVs use mobile banking accounts due to easy access and quick payment. With respect to use of mobile banking account, we find that around 50% of SVs use mobile banking account for sending money to home i.e., remittances. Furthermore, around 37% of SVs use mobile banking account to make business transactions. This implies that easy access to financial services would induce street vendors to use financial system to expand their businesses. Martinez & Rivera-Acevedo (2018) argue that street vendors are generally excluded from the formal finaical sector, hence rely on informal sector for lending.

The analysis shows that around 34% of SVs took loan from various sources. Around 54% of SVs took loan from friends and family members – as a source of starting business,

while 41% of SVs took loan from informal lender operating. Only 5% of SVs use formal sector such as banks and microfinance institutions to take loan. This again reflect that SVs are weakly included in the formal financial sector for business purposes. The analysis shows that SVs took, on average, US$ 864 loan from these sources (Table 7). Martinez & Rivera-Acevedo (2018) shows that informal lendor chage very high interest rates on daily which maintain a vicious cycle of indebtedness. Various studies shows that informal money lenders charge very high intrest rates, ranging from 10% to 12.% per month (Qadir, 2005).

4.2.4. Vending licenses and cost of eviction

Tha lack of legal protection is one of the major challenges face by street vendors. In absence of vending license, SVs remain on the tentorhook all the time. With little bargaining power, even high earning vendors at shop fronts are exploited by shopkeepers with arbitrary increase in rents. The local administration also exploited the illegal status of vendors and earn rents from street vendors. The lack legal protection leads to harassment, confiscations, and arbitrary evictions (Roever, 2016).

The descriptive analysis shows that only 2% of SVs has license to operate in the market. This implies that 98% of SVs are operating without any legal protection in the market. It is also important to note that around 12% of SVs have apply for license to local administration (Figure 3). The illegal status of SVs induces local administration to confiscate the material and evict the street vendors. The analysis shows that 65% of SVs face eviction, which is significantly high in sector markets (76%) then non-sector markets (59%). Around 25% of evicted street vendors get a receipt of confiscated material. This shows that majority of street vendors do not get any legal document as evidence to claim confiscated material. Around 65% of street vendors reported that they do not get back their confiscated material. This again show massive exploitation by the local administration to extract rents from street vendors.

The analysis shows that majority of SVs reported that their carts/tables are removed from existing location. Only 39% of SVs claim that their carts/tables remain intact after confiscation. SVs reported, among those who mention confiscation, that it took, on average, more than seven days to get back their confiscated material. The local administration imposed penalty of round US$ 9. Around 39% of SVs mentioned that confiscation cause more than 50% loss to their inventory while 37% claimed it causes loss to inventory between 25% to 50% (Table 8).

We use reported data on daily income to monetize the economic loss occur due to confiscation. Table 9 shows that net loss to inventory on average, is US$ 267, which is very high in sector market (US$ 296) than non-sector market (US$ 176). The average revenue loss due to business closure ranges between US$ 150 in non-sector market to US$ 191 in sector market. Total economic loss due to confiscation ranges from US$ 497 in sector market to US$ 334 in non-sector market. The reported economic loss due to informality constitute around 62% of monthly revenue in full sample, which is 215% of net monthly profits (Table 9). This implies that one time eviction would leads to almost two months net profit of the SVs.

4.2.5. Political economy of vending location

The vending location is the key to determine the nature and profitability of street vending business. We find that vending location is mainly decided by the vendors himself/herself (48%) followed by the shopkeeper (46%). Around 15% of SVs reported that they have to negotiate with existing vendors to place vending cart/tables for vending in specific location. There is a significant difference in role of old vendors in location choice among sector and non-sector markets. Further, we find that only 8% of SVs reported that market association play a supportive role in selecting vending location. This implies that market association

primarily discourages the entry of new vendor in the market. We find that existing vendors are not willing to relocate themselves to weekly market or any other market developed for street vendors. Only 29% of SVs are willing to relocate themselves in new market for vending business. The obvious reason reported by the street vending to stay at the existing place for vending the footfall. Around 43% of SVs reported that they select place for vending based on daily footfall. Around 26% of SVs reported that they select existing space for vending due to space availability.

4.3.Socioeconomics vulnerability of street vendors and profitability

The literature shows that illegal and informal status of street vendors makes their livelihood more vulnerable in cities (Brata, 2010; Esayas & Mulugeta, 2020). These studies documented various levels of socioeconomic vulnerability faced by street vendors in cities of developing countries. To empirically examine the socioeconomic vulnerability of street vendors in twin cities, we use framework developed by Esayas & Mulugeta (2020) with some modificaitons. We use three broad dimensions to capture socioeconomic vulnerability of street vendors, namely V1) social vulnerability, V2) vending vulnerability and V3) economic vulnerability. In social vulnerability, we use five different indicators including education, residence, living status, age and marital status. In vending vulnerability, we use four indicators, namely vending timing, ownership status, eviction, and legal status. In economic vulnerability, we use four indicators, namely income, experience, loan, and bank account. We use Alkire-Foster methodology to construct multidimensional vulnerability index (MVI) of street vendors (Alkire, Roche, & Vaz, 2017). Appendix Table 1 provides description of each indicator used in the construction of MVI. We assign equal weight to each dimension and withing each dimension, we assign equal weight to each indicator.[7] We calculate the vulnerability score of each street vendor using following formula: $MVI_{i\in[0,1]:} = \sum_1^{13} w_i I_i$. Where $I_i \in \{0,1\}$: 1 if street vendor is vulnerable in indictor i and 0 otherwise. $w_i$is the weight assigned to each indicator i. The descriptive analysis shows that mean vulnerability is 0.562 with standard deviation of 0.115. Using mean and standard deviation of MVI_i, we define four vulnerability levels including "No vulnerable $(MVI_i \leq 0.447)$", "Mild vulnerable $(MVI_i > 0.447 \,\&MVI_i \leq 0.562)$", "Vulnerable $(MVI_i > 0.562 \,\&MVI_i \leq 0.677)$" and "Acute vulnerable$(MVI_i > 0.677)$". Earlier Esayas & Mulugeta (2020) use similar approach to define various levels of vulnerability among street vendors.

The analysis shows that around 21% of street vendors are acute vulnerable while more than 25% of SVs are vulnerable. These statistics reveal that around 50% of SVs are either vulnerable or acute vulnerable. Both markets have almost similar vulnerability patterns (Figure 4). Only 13% of street vendors are not vulnerable as per multidimensional vulnerability index based on thirteen different indicators. The multidimensional vulnerability index provides useful policy insights to streamline the informality faced by SVs in twin cities of Pakistan.

We explore the impact of different levels of vulnerability on monthly profit of the SVs. We find that SVs with no vulnerability earn 4.2% higher profit than the sample mean profit. While SVs with vulnerable status face 3.1% decline in average profit and acute vulnerability generate 12.2% less profit than sample mean profit (Figure 5). The vulnerability-profit analysis indicates that socioeconomic vulnerability adversely impacted the profit margins of the street vendors. Higher the levels of vulnerability, higher the chances to loss profit.

4.4.Factors affecting profits of street vendors: Multivariate analysis

[7] Various studies have used similar approach to assign weight to different dimensions and indicators (Alkire & Foster, 2011; Awaworyi Churchill, Iqbal, Nawaz, & Yew, 2021; Iqbal & Nawaz, 2017; Maduekwe, de Vries, & Buchenrieder, 2020; Nawaz & Iqbal, 2016, 2021).

Given the important role of street vendors in economic activity, it is necessary to determine the factors affecting the street vendor's profit. To examine the impact of various socioeconomic factors (vulnerability) and business-related factors on profit of the street vendors, we define a simple regression model as given below:

$$\ln(\pi_i) = \alpha + \varphi S_i + \lambda M_i + \delta_i Z_i + \nu_i$$

Where $\ln(\pi_i)$ is average monthly profit after taking log, S represent sale item, M capture different markets and Z is vector of socioeconomic variables and v_i is error term. In this case, Z capture various levels of socioeconomic vulnerabilities calculated in previous section. Where φ, λ and δ_i capture estimated coefficients.

The estimated results are presented in table 11. We estimate various models to ensure the robustness of results. In model 1, we estimate the impact of various levels of socioeconomic vulnerability on monthly profit. We use "not vulnerable" as base category to find the relative contribution of various levels of vulnerability. In model 2, we estimate the impact of various type of item sold by street vendor on montly profit. In this model, we use others/electronic items as a base category. In model 3, we examine the relative contribution of different market structure in monthly profit by using non-sector market as base category. In last model (model 4), we combine all the factor in a single regression equation.

The results reported in table 11 show that socioeconomic vulnerability has a negative and significant impact on monthly profits. We find that monthly profit will be 12% lower for the "vulnerable" street vendors than for the "not vulnerable" street vendors. Further, we find that monthly profit will be 20% lower for the "Acute vulnerable" street vendors than for the "not vulnerable" street vendors (Table 11 – model 4). These statistics reveal that increase in socioeconomic vulnerability adversely effected the monthly profits of the street vendors.

The empirical analysis shows that monthly profit will 12% higher for the "food" sales item as compared to "others" item. Similarly, monthly profit will 24% higher for the "fruits/vegetables" sale product than the "others" item. The analysis also shows that the street vendors will earn 15% higher in "garments" sales item than "others" item. These findings uncover that food, fruits, vegetables and garments are the major profitable items sold by street vendors. Earlier, we documented that these three sales items (food, fruits/vegetables, garments) capture 62.5% of market share in street vending business (see Figure 1). This implies, the choice of vending item influenced by profit margins in the market.

The empirical analysis shows that monthly profit will be 13% higher in the "sector" market as compared to "non-sector" market. This outcome reflects that profit margin are linked with income status of residents of the vending area. It is well documented that people living in sectors fall in higher income brackets compared to people living in non-sector areas in twin cities.

We also examine the impacts of reasons to start street vending business monthly vending profit. We find that monthly profit will 51% higher for the "good business opportunity" category compared to "others" category. This outcome implies that those vendors who join vending business with this mind that it is good business opportunity earn relatively higher profits compared to other categories. This also reflects that these street vendors might have better business planning such vending location choice and decision about selling items. We also find that monthly profit will 51% higher for "family business" category compared to "others" category. This implies outcome that street vendors with family business background of street vending might have better experience and best vending location to earn higher profit.

To establish the robustness of results, we estimate the impacts of above discussed factor by splitting data across markets. The results are presented in table 12. We find that socioeconomic vulnerability, especially "acuate vulnerability" has a significant negative impact on monthly profits in both markets. The analysis depicts that food, fruits/vegetables and garments categories have positive and significant impacts on monthly profits in sector market and fruits/vegetables has a positive and significant impact on profits in non-sector market. This implies that profitability of different sales items varies across markets. Lastly, we examine the impact of all factors, discussed earlier, monthly profits using the Fixed Effect approach. We use location (sector or market) as fixed effect factor to capture the regional differences across sectors within sector market. The results, based on fixed effects, are presented in table 13. We find similar results as reported in table 11 and in table 12.

5. Poverty implications of street vending

It is generally argued that street vending business mainly chosen by the poor segments of the society to fulfil basic needs. Street vending business provides an opportunity to low and semi-skilled individual to start micro business in informal market with low investment requirement. We use household size adjusted monthly profits to analyze the poverty implications of street vending. Generally, consumption based measure is used to define poverty in Pakistan (Iqbal, 2020). However, due to lack of data on monthly household consumption, we use profit (net income) as a proxy to define poverty among street vendors. We use inflation adjusted poverty line to define poverty. Following Iqbal (2020), the inflation adjusted poverty line for 2020-21 is Rs. 4560. [8] We find that around 57% of SVs fall below the poverty line, hence treated as poor. The poverty rate is relatively high in non-sector market (62%) than the sector market (56%). This outcome suggests that street vendors mainly belong to poor segments of society and are vulnerable to any economic and legal shock.

We examine the prevalence of poverty across various levels of socio-economic vulnerability. We find that socio-economic vulnerability is highly correlated with poverty rates among sampled street vendors. We find that poverty increase as the vulnerability levels moves to upper ladder. The poverty increases from 44% among "no vulnerable" group to 73% among "acute vulnerable" group in overall sample. Similar trend has been observed across both markets (Table 14).

The poverty profile in terms of poverty bands is useful for policy formulation as it groups the population into different bands which need different policy initiatives (Iqbal, 2020). We find that around 38% of SVs are ultra-poor while around 13% of SVs are vulnerable poor. This reflects that more than one third of the SVs facing massive poverty while one sixth of SVs are vulnerable to economic shocks (Figure 6). Any adverse shock can push them to below the poverty line.

6. Impact of COVID-19 pandemic on street vendors

As mentioned above street vendors belong to poor segments of the society and also highly vulnerable to economic and social shocks. The COVID-19 pandemic causes a significant decline in income across all groups of the society with significant decline among poor and daily wage workers. The survey data shows that around 87% of SVs are adversely affected by COVID-19 restrictions. Furthermore, around 12% of SVs are moderately affected by COVID-19 restrictions. These outcomes suggest that around 99% of SVs are affected by business restrictions imposed by government due to reduce the spread of pandemic. Around 46% of SVs reported a 100% loss in income due to business closure during lockdown. Around

[8] The data on inflation are taken from "The State of Pakistan's Economy - Third Quarterly Report 2020-21" published by the State Bank of Pakistan (SBP) https://www.sbp.org.pk/reports/quarterly/fy21/Third/Chap-1.pdf

41% of SVs reported income loss between 50% to less than 100% due to lockdown. This implies over 87% of SVs faces more than 50% loss in income. This reflects a significant decrease in street vendor income during lockdown. We also find that only 13% of SVs were vaccinated during survey period.

7. Conclusion and Policy Recommendations

The economic analysis of street vending in twin cities of Pakistan provides numerous insights for policymakers and other stakeholders including businessmen, market associations, regulatory authorities, administrative bodies and social protection agencies. The survey based analysis of 1863 fixed street vendors working in twin cities shows that lack of formal education and unemployment inclined individuals to choose street vending business as a profession. It is noted that these street vendors, so-called micro-entrepreneurs migrated from low income and rural areas to find business opportunities in big cities such as Islamabad and Rawalpindi. These micro-entrepreneurs use carts or tables located in front of shops and sidewalk to sell various products including food, fruits/vegetables, garments, cosmetics, ladies bags and electronic products. Majority of street vendors are found to be working more than 10 hours every day, showing long working hours without any break.

The analysis shows strong formal-informal economic linkages, beneficial for both formal shop owners and street vendors. The formal business (shops) benefits from the pedestrian traffic that street vendors attract by selling low-cost products. Whereas street vendors use the formal sector to buy product and use storage spaces. The average monthly revenue of street vendors is Rs. 114,708 (US$ 740) and on average, earn a significant profit amounted US$ 212 per month (29% of total monthly revenue). The street vendor made on average, US$ 571 investment to run vending business and around 60% of SVs use their own money to start street vending business. A street vendor pays around US$ 107 monthly as an operational cost and more than 51% of the total operational cost incurred by the street vendors fall under the category of rent paid to owner of the shop. These findings reinforce the argument of strong formal-informal economic linkages. On the one hand, street vendor earns significant profit from street vending business and on the other hand, formal shopkeeper earn profit in two ways. We find that street vendors are not integrated with financial market to use financial services as only 11% of SVs has a formal bank account. Around 49% of SVs has mobile banking account, mainly for sending money to home i.e., remittances.

Tha lack of legal protection is one of the major challenges face by street vendors. We find that 98% of SVs are operating without any legal protection in the market. Due to informality and without legal production, it is noted that 65% of SVs face eviction, which is significantly high in sector markets (76%) then non-sector markets (59%). We find that total economic loss due to confiscation ranges from US$ 497 in sector market to US$ 334 in non-sector market. The reported economic loss due to informality constitute around 62% of monthly revenue in full sample, which is 215% of net monthly profits. This implies that one time eviction would leads to almost two months net profit of the SVs. The vending location is the key to determine the nature and profitability of street vending business. Only 29% of SVs are willing to relocate themselves in new market for vending business. The obvious reason reported by the street vending to stay at the existing place for vending the footfall. Around 43% of SVs reported that they select place for vending based on daily footfall.

We find that illegal and informal status of street vendors makes their livelihood more vulnerable in cities. The multidimensional vulnerability index (MVI) shows that around 21% of street vendors are acute vulnerable while more than 25% of SVs are vulnerable. We find that SVs with vulnerable status face 3.1% decline in average profit and acute vulnerability

generate 12.2% less profit than sample mean profit. The vulnerability-profit analysis indicates that socioeconomic vulnerability adversely impacted the profit margins of the street vendors.

The multivariate analysis show that socioeconomic vulnerability has a negative and significant impact on monthly profits. The monthly profit will be 12% lower for the "vulnerable" street vendors and will be 20% lower for the "acute vulnerable" street vendors than for the "not vulnerable" street vendors. The empirical analysis show that food, fruits, vegetables and garments are the major profitable items sold by street vendors that constitute 62.5% of market share in street vending business. The empirical analysis shows that monthly profit will be 13% higher in the "sector" market as compared to "non-sector" market. This outcome reflects that profit margin are linked with income status of residents of the vending area.

We find that around 57% of SVs fall below the poverty line, hence treated as poor. The poverty rate is relatively high in non-sector market (62%) than the sector market (56%). We find that socio-economic vulnerability is highly correlated with poverty rates among sampled street vendors. The poverty profile in terms of poverty bands is useful for policy formulation as it groups the population into different bands which need different policy initiatives. We find that around 38% of SVs are ultra-poor while around 13% of SVs are vulnerable poor. This reflects that more than one third of the SVs facing massive poverty while one sixth of SVs are vulnerable to economic shocks.

Based on analysis, following implications are noted

i. Promoting financial inclusion: The analysis shows that street vendors are poorly integrated with financial sector to use financial services for business expansion. Financial exclusion undermines business transaction in two ways. First, it restricts business expansion due to low investment and in cash transactions. Second, it hampers business prospects due to high lending cost from informal sector – money lenders operating in informal market. Financial exclusion occurs due to lack of documentations due migrant status, collateral to obtain financial services and stringent legal requirements. Financial inclusion can be improved in following ways:
    a. Reduce the documentation requirements (so called sludge) to facilitate street vendors, especially for migrant workers to obtain financial services. The mobile banking is an alternative to increase financial inclusion.
    b. The government may allow mobile account as a collateral to lend loan to street vendors for business purpose. The Micro Finance Institutions (MFIs) should use mobile account as a security/collateral to expand micro finance.
    c. To address demand side issue of financial inclusion, it is proposed that MFIs may devise lending schemes as per informal committee (informal lending without interest on rolling basis) to attract street vendors to use formal financial sector.
ii. Provide legal protection to street vendors: More than 98% of street vendors do not have legal protection to run their businesses. Illegality causes a significant economic loss to street vendors. It is proposed that local administration may introduced work permit to qualified street vendors on annual basis to provide legal protection. The work permit may be renewed on annual basis after ensuring quality protocols. These permits not only generate revenues for government, but also help to standardized street vending product to ensure quality.
iii. Mechanism to formalize the income: Most of the business transactions (both sales and purchases) occurred on cash that allow tax evasion. The government may restrict the renewal of work permit annual income statement based on formal

transactions. Street vendors with no formal transaction may not be allowed to renew their work permit. This helps to formalize the income transactions and ultimately enhance tax collection

iv. Reducing the cost of informality: As noted, more than 50% of operational cost goes to shopkeeper as a rent of using public space. The local administration should take appropriate measures to tag public spaces for street vending. Legal protection (mentioned in ii) may also help to reduce cost of informality.

v. Address huge inaccessibility of women to urban markets: We observed that a few women are involved in street vending business in twin cities due to lack of proper spaces for women. It is proposed that special spaces or zones may allocated for women to do street vending business.

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Tables and Figures

Table 1: Socioeconomic profile of street vendors

Variables	Sector-Market	Non-Sector-Market	All
SVs interviewed	1238	445	1683
Age of SV (years)	32.7	33.3	32.9
Household Size of SV (number)	8.2	8.1	8.1
Ever married (%)	75.3	75.5	75.3
Educational attainment of SV (%)			
No Education	23.2	26.5	24.1
Primary (class 1 to 5)	19.1	27.2	21.2
Middle (class 6 to 8)	21.2	17.5	20.3
Matric (class 9 to 10)	24.6	21.1	23.7
Intermediate & above	12.0	7.6	10.8
Residence status of SV (%)			
Migrant	62.5	52.1	59.8
Permanent	37.5	47.9	40.2
Living arrangements of SV (%)			
Live alone	34.9	36.6	35.4
Live with relatives	6.9	5.6	6.5
Live with family	58.2	57.8	58.1
Housing ownership of SV (%)			
Rented	92.33	83.6	90.02
Owned	7.67	16.4	9.98

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Table 2: Street vending characteristics

Variables	Sector-Market	Non-Sector-Market	All
Vending Experience (years)	10.5	10.5	10.5
Vending category (%)			
Cart	33.6	27.0	31.9
Table	60.6	62.9	61.2
Sheet/others	5.8	10.1	7.0
Ownership of cart/table (owned %)	83.9	85.2	84.3
Ownership of vending business (owned %)	83.8	93.7	86.4
Vending location or placement (%)			
In front of shop	47.5	46.7	47.3
Sidewalk	48.2	51.9	49.2
In front of plaza/other	4.3	1.4	3.5
Vending working hours (%)			
4-10 hours	16.56	8.09	14.32
More than 10 hours	83.44	91.91	85.68
Vending working days (%)			
Seven days	90.5	93.3	91.2
Less than seven days	9.5	6.7	8.8
Average employees including owner (No)	1.19	1.07	1.16

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Table 3: Business operations: Formal-informal economic linkages

Variables	Sector-Market	Non-Sector-Market	All
Source of purchase of raw material/inputs (%)			
Wholesale/Distributor	70.8	67.9	70.0
Marketplace	23.9	30.8	25.7
Middleman/others	5.3	1.4	4.3
Product (sales items) storage place (%)			
On-spot	74.1	69.0	72.7
Warehouse	16.3	20.7	17.5
At home/others	9.6	10.3	9.8

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Table 4: Business operations: Revenue, profit, and investment

Variables		Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Monthly revenue (average)					
	PKR	115553	112358	114708	0.72 [0.24]
	US$	746	725	740	
Monthly profit (average)					
	PKR	33671	30860	32927	2.30 [0.01]
	US$	217	199	212	
Profit as % of total income (%)		29.1	27.5	28.7	
Investment (average)					
	PKR	97034	64991	88562	4.21 [0.00]
	US$	626	419	571	
Sources of investment (%)					
Own money		59.0	62.7	60.0	
Family and friends		33.6	29.2	32.4	
Loan/committee/credit		7.4	8.1	7.6	
Inventory (average)					
	PKR	84271	57489	77189	2.19 [0.01]
	US$	544	371	498	

Source: Author's calculation based on PSES.
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.
For currency conversion we assume 1 US$ = PKR 155. Probability values are reported in brackets.

Table 5: Business operations: Operational cost other than inputs

Variables		Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Monthly operational costs (average)					
	PKR	17894	13193	16651	5.42 [0.00]
	US$	115	85	107	
Head wise operational costs (%)					
Shopkeeper		51.9	48.2	51.1	
CDA/RDA charges		1.9	3.6	2.3	
Cleaning		0.4	0.4	0.4	
Utilities		8.5	3.4	7.5	
Market Committee		0.1	0.5	0.2	
Transportation		14.3	10.8	13.5	
Others		22.9	33.1	25.0	

Source: Author's calculation based on PSES.
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.
For currency conversion we assume 1 US$ = PKR 155. Probability values are reported in brackets.

Table 6: Financial Inclusion and business operation

Variables	Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Bank account (%)	13.1	6.3	11.3	3.90 [0.00]
Bank account purpose (%)				
Payment to traders	25.3	17.9	24.2	
Savings	50.6	50.0	50.5	
Sending money home	24.1	32.1	25.3	
Mobile account (%)	47.0	56.2	49.4	-3.32 [0.00]*
Mobile account purpose (%)				
Payment to traders	36.1	37.6	36.5	
Savings	13.8	12.0	13.2	
Sending money home	50.2	50.4	50.2	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Probability values are reported in brackets.

*[Pr(T < t)]

Table 7: Business operations: Loan

Variables		Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Loan taken by SV (%)		34.3	33.9	34.2	
Loan amount (average)					
	PKR	138929	119623	133868	1.20 [0.11]
	US$	896	772	864	
Sources of loan (%)					
Family and Friends		58.6	40.4	53.8	
Informal lending		36.5	53.0	40.8	
Bank/microfinance		4.9	6.6	5.4	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

For currency conversion we assume 1 US$ = PKR 155. Probability values are reported in brackets.

Table 8: Confiscation and eviction

Variables	Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Ever evicted (%)	67.3	59.3	65.2	3.02 [0.00]
Received receipt of confiscated material (%)	23.2	32.6	25.4	-3.06 [0.00]*
Confiscated material returned (%)				
No	16.2	12.1	15.2	
Seldom return	52.7	40.2	49.7	
Yes	31.1	47.7	35.1	
Cart/table remains intact (%)	38.3	40.5	38.8	-0.64 [0.74]*
Days to return material (average days)	7.7	6.2	7.3	1.86 [0.03]
Average penalty (average)				
PKR	1525	1115	1417	2.90 [0.00]
US$	10	7	9	
Loss in inventory due to eviction (%)				
Less than 25%	19.81	32.20	22.79	
Between 25% to 50%	40.94	27.65	37.74	
50% and above	39.26	40.15	39.47	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

For currency conversion we assume 1 US$ = PKR 155. Probability values are reported in brackets.

*[Pr(T < t)]

Table 9: Economic loss of eviction face by street vendors due to informality

Variables		Sector - Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Net loss in inventory (average)					
	PKR	45863	27339	41405	1.38 [0.08]
	US$	296	176	267	
Average penalty (average)					
	PKR	1525	1115	1417	2.90 [0.00]
	US$	10	7	9	
Revenue loss (average)					
	PKR	29603	23294	28038	0.72 [0.24]
	US$	191	150	181	
Economic loss of informality (average)					
	PKR	76991	51749	70860	
	US$	497	334	457	
Cost of informality as a % monthly revenue		66.6	46.1	61.8	
Cost of informality as a % of monthly profit		229	168	215	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

For currency conversion we assume 1 US$ = PKR 155. Probability values are reported in brackets.

Economic loss of informality is the sum of loss incurred due to inventory loss, penalty imposed by local administration and revenue loss due to business closure. We use information reported in Table 8 on loss in inventory and average time (days) to return material and information reported in Table 4 on monthly revenue and average inventory.

Table 10: Political economy of vending location

Variables	Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Who decided about vending location (%)				
Shopkeeper	47.7	42.0	46.2	
Own Decision	45.4	53.3	47.5	
CDA/Market Committee/Previous Vendor	7.0	4.7	6.4	
Negotiations required with old vendors for location (%)	17.8	7.0	14.9	5.53 [0.00]
Supportive role of market association in locating decision (%)	10.5	3.0	8.4	5.12 [0.00]
Willing to relocate if offered (%)	30.0	27.6	29.4	0.59 [0.17]
Reasons for selecting vending location (%)				
Higher footfall	39.82	52.81	43.26	
Space availability	26.82	25.17	26.38	
Networking with stakeholders and other vendors	33.36	22.02	30.36	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Table 11: Factor affecting street vendor's profit: Multivariate analysis

	(1)	(2)	(3)	(4)	(5)
Socio-economic vulnerabilities (Not vulnerable as base category)					
Mild vulnerability	-0.048				-0.034
	(0.042)				(0.042)
Vulnerability	-0.131				-0.126
	(0.045)***				(0.045)***
Acute vulnerability	-0.238				-0.225
	(0.047)***				(0.047)***
Sales product (Electronics/Mobile accessories/Others as base category)					
Food		0.111			0.109
		(0.054)**			(0.053)**
Fruits/Vegetables		0.177			0.216
		(0.059)***			(0.058)***
Beverages/juices		0.044			0.067
		(0.080)			(0.079)
Garments		0.137			0.143
		(0.055)**			(0.055)***
Ladies' bags/jewelry		0.030			0.036
		(0.077)			(0.075)
Plastic items/cosmetics/leathers		-0.061			-0.037
		(0.066)			(0.066)
Shoes/Sunglasses/Watches		-0.042			-0.029
		(0.060)			(0.059)
Market for business operation (Non-sector market as base category)					
Sector Market			0.103		0.119
			(0.030)***		(0.030)***
Reasons to start street vending business (Others is base category)					
Unemployment				0.221	0.211
				(0.110)**	(0.107)**
Job Termination				0.364	0.353
				(0.141)***	(0.138)**
Own will				0.217	0.209
				(0.111)*	(0.109)*
Good Business opportunity				0.413	0.412
				(0.144)***	(0.141)***
Family Business				0.410	0.410
				(0.126)***	(0.123)***
No Formal Education				0.224	0.243
				(0.111)**	(0.109)**
Constant	10.360	10.180	10.181	10.025	9.944
	(0.037)***	(0.048)***	(0.026)***	(0.108)***	(0.122)***
Observations	1,674	1,674	1,674	1,674	1,674
R-squared	0.023	0.022	0.007	0.011	0.064

Source: Author's calculation based on PSES.

Note: OLS based estimates are presented. We present standard errors in parenthesis [*** p<0.01, ** p<0.05, * p<0.1]. Dependent variable is monthly profit earned by street vendors (reported profit) in log form.

Table 12: Factors affecting profits of street vendors: Market wise analysis

VARIABLES	(1) Sector Market	(2) Non-sector Market
Socio-economic vulnerabilities (Not vulnerable as base category)		
Mild vulnerability	-0.035	-0.025
	(0.047)	(0.093)
Vulnerability	-0.119	-0.128
	(0.050)**	(0.099)
Acute vulnerability	-0.207	-0.262
	(0.052)***	(0.102)**
Sales product (Electronics/Mobile accessories/Others as base category)		
Food	0.108	0.124
	(0.058)*	(0.135)
Fruits/Vegetables	0.177	0.241
	(0.069)**	(0.124)*
Beverages/juices	0.068	0.062
	(0.089)	(0.171)
Garments	0.165	0.088
	(0.061)***	(0.126)
Ladies' bags/jewelry	0.028	0.077
	(0.083)	(0.176)
Plastic items/cosmetics/leathers	-0.078	0.035
	(0.076)	(0.138)
Shoes/Sunglasses/Watches	0.015	-0.156
	(0.066)	(0.134)
Reasons to start street vending business (Others is base category)		
Unemployment	0.210	0.222
	(0.118)*	(0.254)
Job Termination	0.446	0.130
	(0.155)***	(0.307)
Own will	0.214	0.190
	(0.119)*	(0.257)
Good Business opportunity	0.400	0.546
	(0.149)***	(0.471)
Family Business	0.395	0.445
	(0.138)***	(0.282)
No Formal Education	0.228	0.285
	(0.120)*	(0.257)
Constant	10.057	9.952
	(0.130)***	(0.293)***
Observations	1,231	443
R-squared	0.054	0.089

Source: Author's calculation based on PSES.

Note: OLS based estimates are presented. We present standard errors in parenthesis [*** p<0.01, ** p<0.05, * p<0.1]. Dependent variable is monthly profit earned by street vendors (reported profit) in log form.

Table 13: Factors affecting profits levels of street vendors

VARIABLES	(1) Full sample	(2) Sector Market	(3) Non-sector Market
Socio-economic vulnerabilities (Not vulnerable as base category)			
Mild vulnerability	-0.032	-0.033	-0.020
	(0.042)	(0.047)	(0.094)
Vulnerability	-0.121	-0.111	-0.132
	(0.045)***	(0.050)**	(0.099)
Acute vulnerability	-0.217	-0.199	-0.246
	(0.047)***	(0.052)***	(0.103)**
Sales product (Electronics/Mobile accessories/Others as base category)			
Food	0.126	0.123	0.140
	(0.055)**	(0.059)**	(0.140)
Fruits/Vegetables	0.234	0.180	0.306
	(0.060)***	(0.069)***	(0.130)**
Beverages/juices	0.070	0.070	0.086
	(0.079)	(0.090)	(0.172)
Garments	0.124	0.143	0.077
	(0.055)**	(0.061)**	(0.130)
Ladies' bags/jewelry	0.006	-0.007	0.059
	(0.076)	(0.083)	(0.181)
Plastic items/cosmetics/leathers	-0.048	-0.089	0.031
	(0.066)	(0.076)	(0.142)
Shoes/Sunglasses/Watches	-0.052	-0.012	-0.163
	(0.060)	(0.067)	(0.137)
Reasons to start street vending business (Others is base category)			
Unemployment	0.228	0.235	0.163
	(0.107)**	(0.117)**	(0.256)
Job Termination	0.375	0.482	0.069
	(0.138)***	(0.155)***	(0.308)
Own will	0.231	0.246	0.133
	(0.109)**	(0.119)**	(0.258)
Good Business opportunity	0.433	0.425	0.557
	(0.140)***	(0.149)***	(0.471)
Family Business	0.425	0.415	0.390
	(0.124)***	(0.138)***	(0.284)
No Formal Education	0.262	0.255	0.226
	(0.109)**	(0.120)**	(0.259)
Constant	9.993	9.978	9.869
	(0.124)***	(0.134)***	(0.297)***
Observations	1,674	1,231	443
R-squared	0.086	0.083	0.098
Fixed Effect	Yes	Yes	Yes

Source: Author's calculation based on PSES.

Note: The Fixed Effect based estimates are presented. We present standard errors in parenthesis [*** p<0.01, ** p<0.05, * p<0.1]. Dependent variable is monthly profit earned by street vendors (reported profit) in log form. We use street vendors location as fixed effect factors.

Table 14: Poverty implications of street vending

Variables	Sector-Market	Non-Sector-Market	All	T-test [Pr(T <t)]
Street vendor below poverty line (%)	55.6	62.2	57.3	-2.44 [0.00]
Socio-economic vulnerabilities and poverty (%)				
No vulnerability	41.8	50.0	43.6	
Mild vulnerability	52.5	54.1	53.0	
Vulnerability	56.4	64.9	58.6	
Acute vulnerability	69.3	81.9	72.7	

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Table 15: Impact of COVID-19 pandemic on street vending business

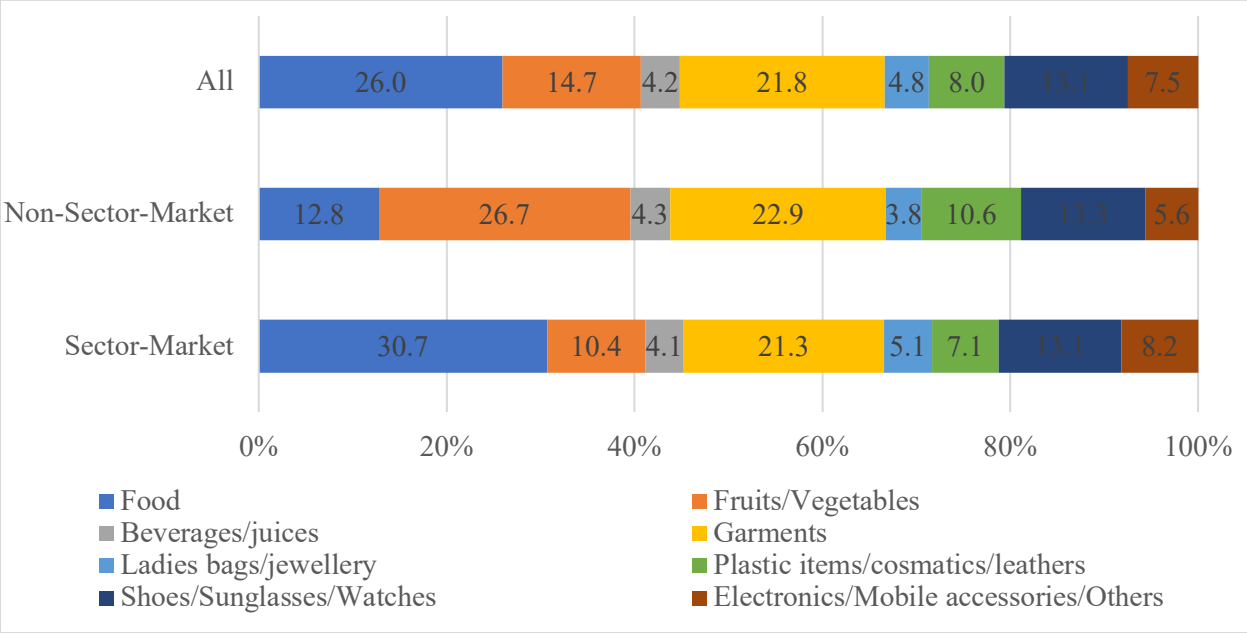
Variables	Sector-Market	Non-Sector-Market	All	T-test [Pr(T > t)]
Impact level on business (%)				
Adverse impact	86.6	88.3	87.1	
Moderate impact	12.6	10.1	11.9	
No impact	0.8	1.6	1.0	
Income loss due to COVID-19 lockdown (%)				
Less than or equal to 50% loss	14.5	8.3	12.9	
Between 50% and 100% loss	41.1	39.6	40.7	
100% loss	44.4	52.1	46.4	
Vaccinated –Yes (%)	13.8	13.0	13.4	0.45 [0.32]

Source: Author's calculation based on PSES.

Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Probability values are reported in brackets.

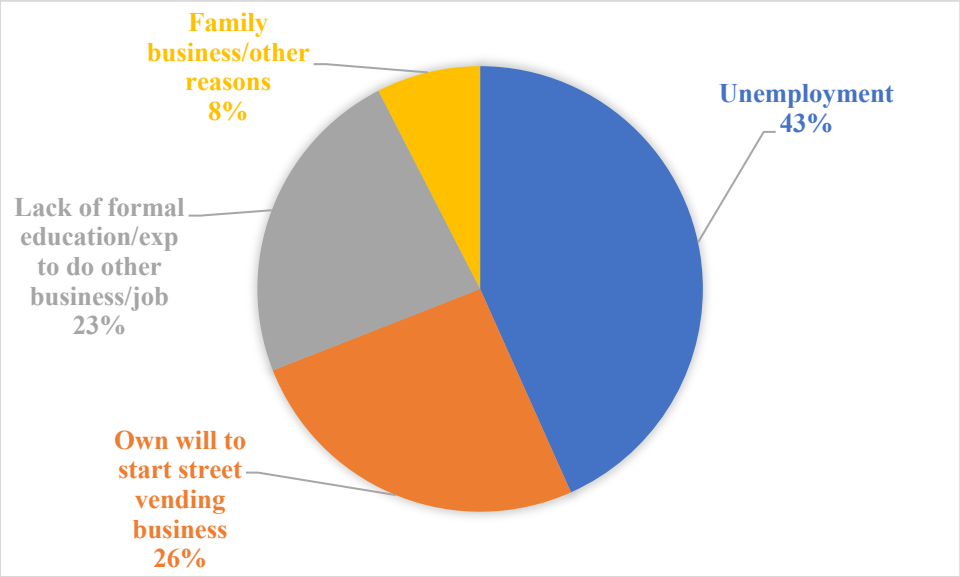
Figure 1: Sale items offered by street vendors



Source: Author's formulation based on PSES.

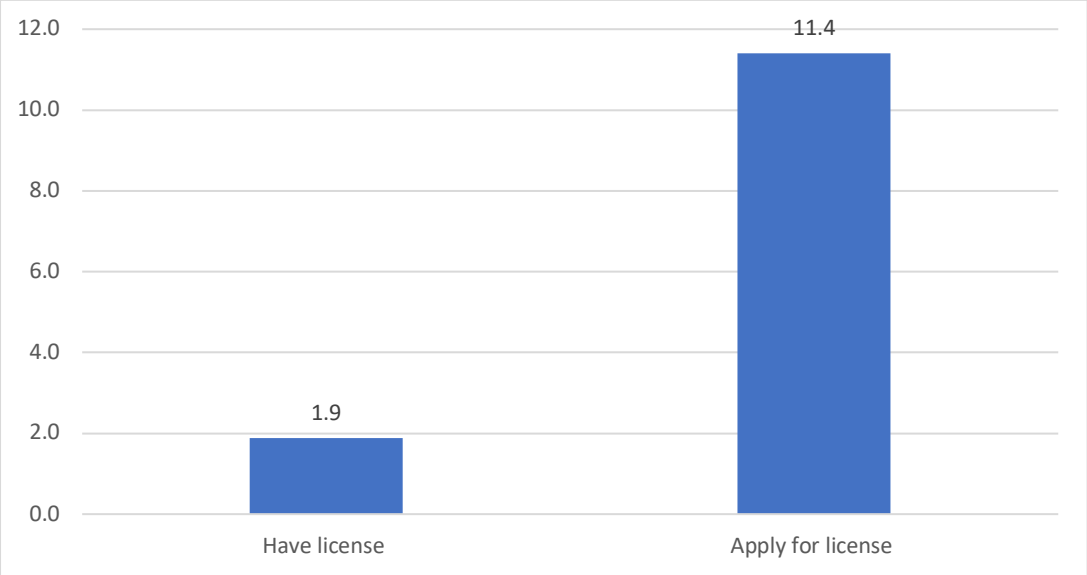
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Figure 2: Reasons for starting street vending business



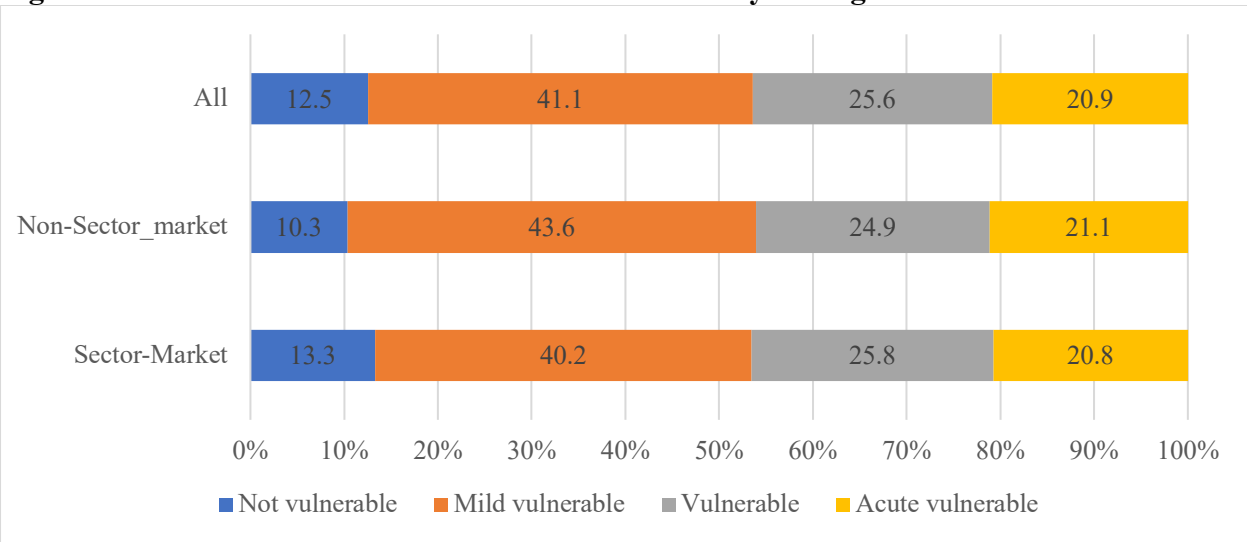
Source: Author's formulation based on PSES.

Figure 3: Share of street vendors having vending license or applied for license (%share)



Source: Author's formulation based on PSES.

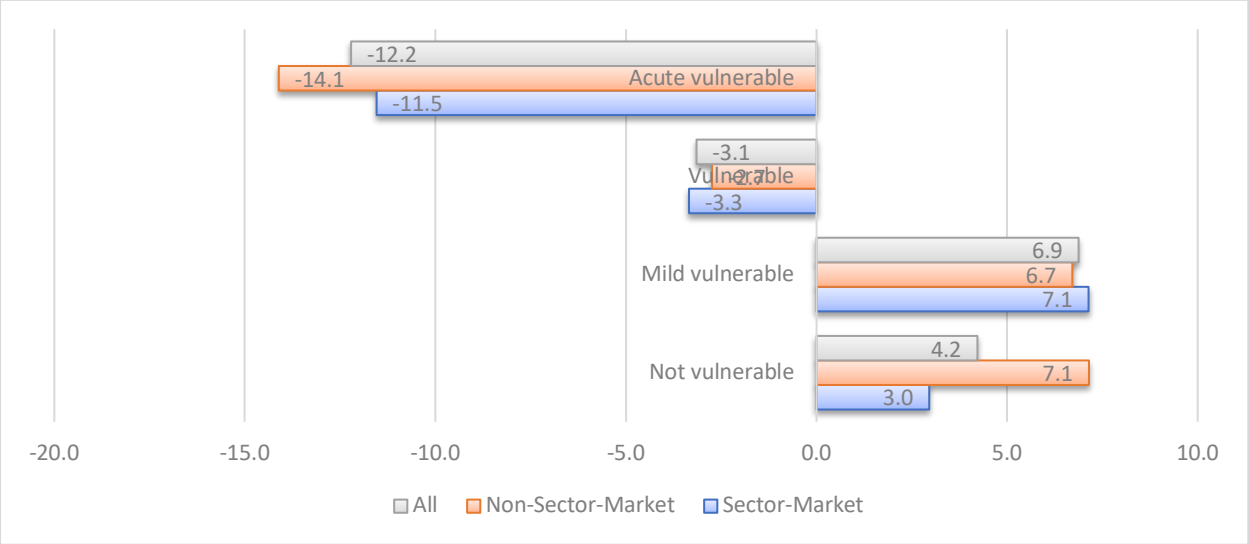
Figure 4: Distribution of multidimensional vulnerability among street vendors



Source: Author's formulation based on PSES.

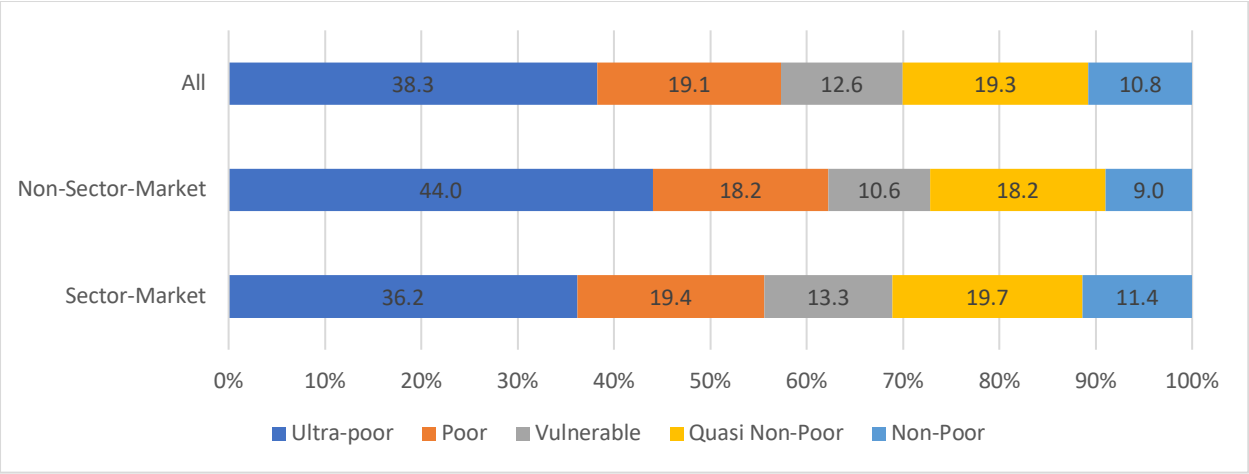
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.

Figure 5: Percentage changes in profit from mean across different levels of vulnerability



Source: Author's formulation based on PSES.
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.
Percentage changes in profit are defined as the %age difference between sample mean value of profit and mean value of profit in specific vulnerability level. $\Delta\pi = \left(\frac{\pi_{mean\_level}}{\pi_{samplemean}}\right) * 100$. Where $\Delta\pi$ represents percentage change in profit, $\pi_{samplemean}$ denotes sample mean (profit) and π_{mean_level} presents mean profit in specific level.

Figure 6: Poverty band and street vending



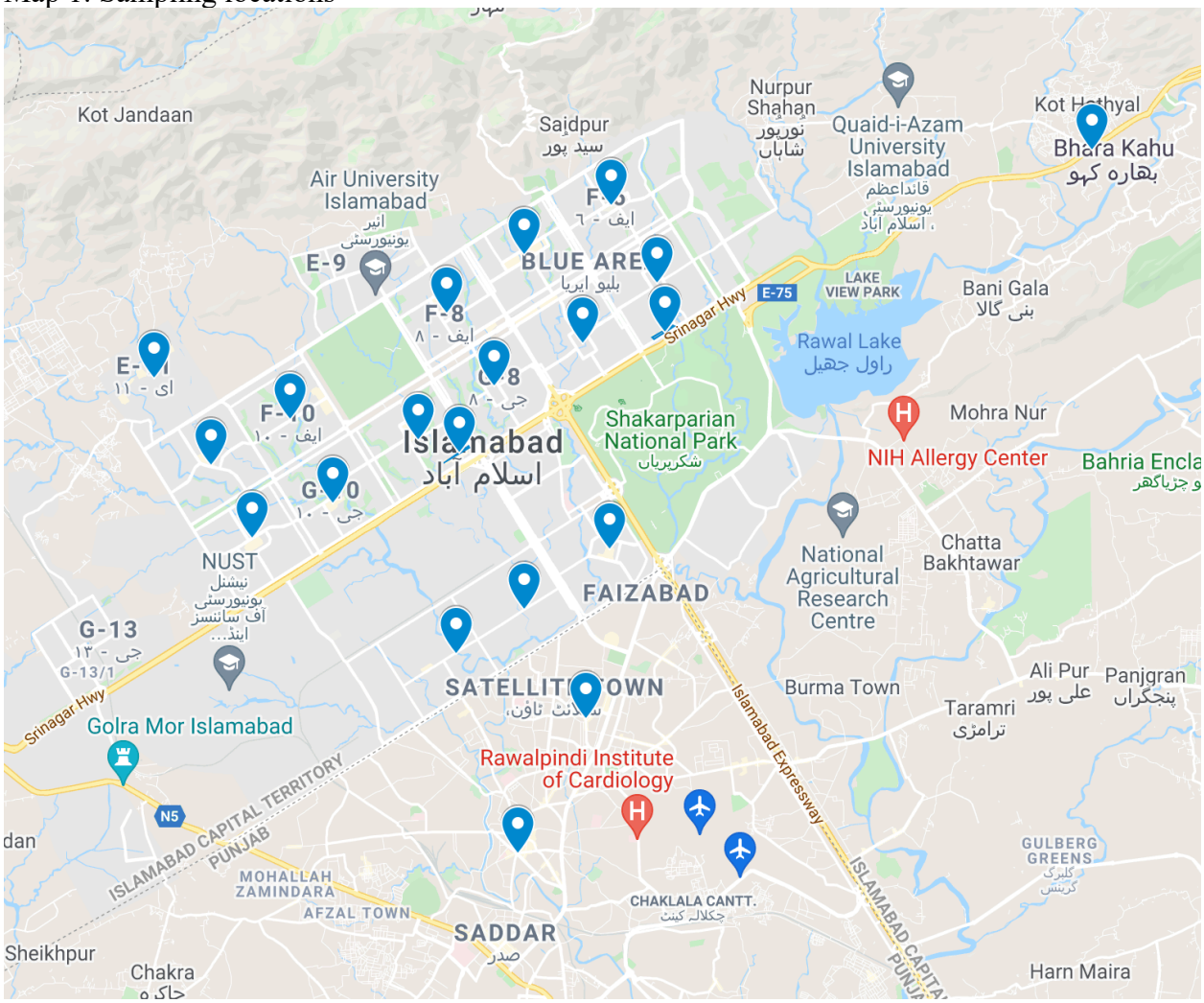
Source: Author's formulation based on PSES.
Note: Sector markets include all commercial markets located in commercial areas (Markaz) of sectors in Islamabad. Non-sector markets include peri-urban market located in Islamabad and commercial hubs (Raja Bazar and Commercial Market) located in Rawalpindi.
Poverty band are defined using per capita household income as defined by Planning Commission in National Poverty Report 2015-16 (GoP, 2018; Iqbal, 2020). Ultra-poor (<75% of Poverty Line) Poor (> 75% and < 100% of Poverty Line); Vulnerable (> 100% and < 125% of Poverty Line); Quasi Non-Poor (> 125% and < 200% of Poverty Line) and Non-Poor (> 200% of Poverty Line).

Appendix Table 1: Dimensions and indicators of multidimensional vulnerability index (MVI)

Dimension	Indicator	Vulnerable if	Weight
V1: Social	VE1: Education	SV has no matric or beyond education	1/15
	VE2: Residence	SV is migrant worker	1/15
	VE3: Living	SV live in rented house	1/15
	VE4: Age	SV is young (age less than 20) or getting older (age>45)	1/15
	VE5: Martial status	SV is currently not married	1/15
V2: Vending	VE6: Vending time	Working hours are higher than 10 hours a day	1/12
	VE7: Ownership status	SV is not owner of the vending business	1/12
	VE8: Eviction	SV faced harassment, eviction, or confiscation, etc.	1/12
	VE9: Legal status	SV has no vending license	1/12
V3: Economic	VE10: Income	SV self-reported monthly income is lower than sample average	1/12
	VE11: Experience	Duration of stay in vending business is less than five years	1/12
	VE12: Loan	SV took loan	1/12
	VE13: Bank account	SV has no bank account	1/12

Source: Author's formulation.
Note: We follow framework develop by Esayas and Mulugeta (2020) with some modifications to select indictors.

Map 1: Sampling locations



Source: Google map