MAIN FINDINGS OF ECONOMIC CENSUS

7ᵗʰ Population and Housing Census 2023

(The First-ever Digital Census of Pakistan)

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Main Findings of Economic Census

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Forward

The Economic Census, conducted as an integral part of the **7th Population and Housing Census 2023**, stands as a landmark achievement in Pakistan's pursuit of **evidence-based economic planning** and the realization of the Government's *URAAN Pakistan* vision anchored in the **5Es framework**—Exports, Equity, Empowerment, Environment, and Energy.

For the first time in the nation's history, the **Pakistan Bureau of Statistics (PBS)** has seamlessly **integrated economic data collection into the broader population census framework**. This strategic innovation made optimal use of the **cutting-edge digital infrastructure, advanced technology solutions, and the highly trained workforce** deployed for the Digital Census. By aligning demographic and economic data at the source, PBS has laid the foundation for **more precise planning, better policy formulation, and targeted development interventions** that directly support the *5Es*, ensuring Pakistan's growth is inclusive, sustainable, and future-focused.

This milestone was made possible through the **unwavering dedication and professionalism** of PBS officers and staff, whose commitment to excellence was complemented by the **invaluable cooperation of provincial and district administrations**. The integration of economic data into the Population and Housing Census framework is **unprecedented in Pakistan's statistical history**, enabling the government to identify economic strengths, address disparities, prioritize investments, and accelerate initiatives that enhance productivity, create jobs, and improve living standards.

By producing a **comprehensive, timely, and reliable evidence base**, this initiative will serve as a catalyst for **expanding exports, ensuring equity, empowering communities, safeguarding the environment, and optimizing energy resources**. It is a transformative step toward a **data-driven governance model**—one that turns strategic vision into measurable results and paves the way for a **prosperous and competitive Pakistan**.

I extend my **deepest appreciation** to all stakeholders, partners, and field teams whose collective efforts and shared vision have made this pioneering achievement possible. Together, we have demonstrated that with the right blend of **innovation, collaboration, and commitment**, Pakistan can rise to new heights under the banner of *URAAN Pakistan.*

(Ahsan Iqbal)
Federal Minister for Planning, Development & Special Initiatives

Preface

The Economic Census is a vital national exercise that provides comprehensive insights into the economic activities taking place across the country. It captures valuable information about **businesses, including their size, type, sector, and the number of people they employ**. This data serves as a solid foundation for evidence-based policy-making and strategic planning aimed at fostering sustainable economic growth.

In the past, Pakistan made an effort to conduct an Economic Census between 2001 and 2005. However, the initiative faced various challenges and fell short of expectations. Learning from that experience, the Pakistan Bureau of Statistics (PBS) adopted a more **innovative and integrated approach**. In line with the decision of the Council of Common Interests (CCI), PBS incorporated economic data collection into the 7th Population and Housing Census 2023. This strategic integration not only saved time and resources but also significantly enhanced data accuracy through the use of **modern digital tools.**

For the first time in Pakistan's history, digital technology—combined with advanced data processing techniques such as machine learning and artificial intelligence—was deployed to clean, validate, and standardize the collected data. These technologies enabled the rapid detection of anomalies, ensured consistency across large datasets, and improved the overall reliability of results.

Through this historic effort, around 7 million economic establishments were recorded, with key details such as business name, type, employment size, and location captured. This rich dataset will form the backbone of Pakistan's upcoming Business Register—a critical tool for conducting establishment-based surveys, monitoring economic trends, and understanding the country's business environment in greater depth.

Executing a census of this scale using cutting-edge digital technology was a formidable challenge—one that the PBS team met with remarkable success under the guidance and support of the Hon'ble Minister for Planning, Development and Special Initiatives. Special appreciation is due to Mr. Muhammad Sarwar Gondal (Project Lead) and his entire team for their dedication, professionalism, and tireless hard work in making this milestone achievement possible.

(Dr. Naeem uz Zafar) (ستارہ امتیاز)
Chief Statistician

Acknowledgement

Pakistan Bureau of Statistics (PBS), under the leadership of **Prof. Ahsan Iqbal, Minister for Planning, Development & Special Initiatives (PD&SI),** successfully completed the 7th Population and Housing Census—**Pakistan's first-ever Digital Census and the largest digitization exercise in South Asia.** This landmark achievement marked a turning point in the country's statistical system. From planning to execution, digital solutions were deployed at every stage, including task assignment, inventory management, complaint resolution, and real-time monitoring through interactive dashboards. The census results were unanimously approved in the 50th meeting of the Council of Common Interests (CCI) held on 5th August 2023, while the detailed results were released on 18th July 2024 and made publicly available on the PBS website for researchers, policymakers, and the general public. The successful execution of this integrated Digital Census was made possible through the active support of provincial and district administrations, consulting agencies, **NADRA, NTC, SUPARCO, and the Armed Forces,** whose untiring efforts were indispensable.

Recognizing the importance of the **Economic Census**—which is a regular practice globally and across the region (India, for instance, has already conducted its Eight Economic Census while Pakistan had none)—PBS achieved a major milestone by integrating the Economic Census frame within the 7th Population and Housing Census. By adding a few targeted questions on **establishment type, employment size, and two-digit Pakistan Standard Industrial Classification (PSIC),** PBS collected information on nearly **7 million economic establishments** nationwide. This innovative approach not only saved the government an estimated **Rs. 7 billion**, but also laid the foundation for Pakistan's first comprehensive **Business Register**, a critical tool for business surveys, economic policymaking, and evidence-based planning. The Digital Census went beyond population counts by **geo-tagging** residential, commercial, and industrial structures, while simultaneously capturing socioeconomic information on over **250 million individuals** along with mapping all economic activities across the country.

For the first time, PBS applied advanced data codification and validation techniques **using machine learning, Large Language Models, and Natural Language Processing**. These tools enabled rapid processing of vast textual data, detection and correction of inconsistencies, and precise classification of business activities delivering a highly refined picture of Pakistan's economic profile. Special acknowledgment is due to **Mr. Muhammad Yasir Ishfaq, Director (IT)** for his expertise and invaluable contribution in deploying these cutting-edge technologies.

I extend my heartfelt thanks and congratulations to **Mr. Ayazuddin, Member (Census & Surveys)**; **Ms. Rabia Awan**, Deputy Director General (Census Planning and Coordination/CPMU), whose exceptional leadership and foresight were instrumental in initiating the pioneering idea of integrating Economic Census questions into the Population & Housing Census. **Mr. Attiq ur Rehman**, Deputy Director General, whose commitment and expertise were vital in shaping and implementing this initiative; and **Syed Abdul Qadir Shah**, Director General, for ensuring its successful completion. I also acknowledge the dedicated support of the PBS IT team, ably led and supervised by **Ms. Sobia Munawar**, **Director (IT)** & **Mr. Muhammad Ehtesham, Director (IT),** whose technical guidance was pivotal to the success of this integrated and digitally powered approach, which has set a new benchmark for the future of statistical work in Pakistan.

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INTRODUCTION

1.1   Background

Integration of Data collection for Economic Establishments with Listing Operation of 7th Population and Housing Census.

In compliance with the decision taken during the 45th meeting of the Council of Common Interests (CCI), held on 12th April 2021, the Government of Pakistan decided to initiate 7th Population and Housing Census (First Ever Digital Census) at the earliest. As part of this strategic direction, it was further decided that the **Pakistan Bureau of Statistics (PBS) would formulate a well-defined roadmap to integrate the Economic Census with the Population and Housing Census**. To implement this decision, the Pakistan Bureau of Statistics constituted a working group to explore the possibilities and devise a practical approach for conducting both censuses jointly. After detailed consultations and analysis, the Working Group submitted a report outlining feasible options and recommendations for integration and data collection with the population and housing census. Based on the findings of this report, the recommendations for the 7th Population and Housing Census were approved by the Federal Cabinet on 5th October 2021. Two key recommendations related to Economic Establishment Data were included:

   i.   Adding specific questions related to Economic Establishments, along with Pakistan Standard Industrial Classification (PSIC) codes, in the Listing Questionnaire of the 7th Population and Housing Census.

   ii. Registers may be identified (Such as Population Register (PR), Education Register, Employment and Unemployment, and Building and Dwelling Registers (BDR)) and updated, so that they may also be used for 8th Population Census.

Keeping in view the fact that Pakistan's first attempt to conduct an Economic Census in 2003 did not achieve its intended goals. This initiative of dovetailing Economic Establishment Data with 7th Population & Housing Census 2023 proved to be a game changer, as record of about 7 million Establishments was successfully collected. Despite initial challenges, Pakistan Bureau of Statistics (PBS) adopted a proactive and innovative approach to improve Economic data collection efforts. This integration saved Rs. 7 Billion to Government of Pakistan Exchequer. The comprehensive list of Economic Establishments can now serve as a reliable frame for future Surveys and will provide a

solid base for compiling a live Statistical Business Register (SBR) for Pakistan. Pakistan Bureau of Statistics now has repository of Data on Economic Activities at Two Digit PSIC Level.

Economic census is a primary source of basic benchmark statistics on **the number and distribution of economic units by various categories**.

It provides reliable and detailed data in **formal** and **informa**l sectors.

Statistics may be utilized for planning and implementation for:
economic and social development
administrative activity
scientific research
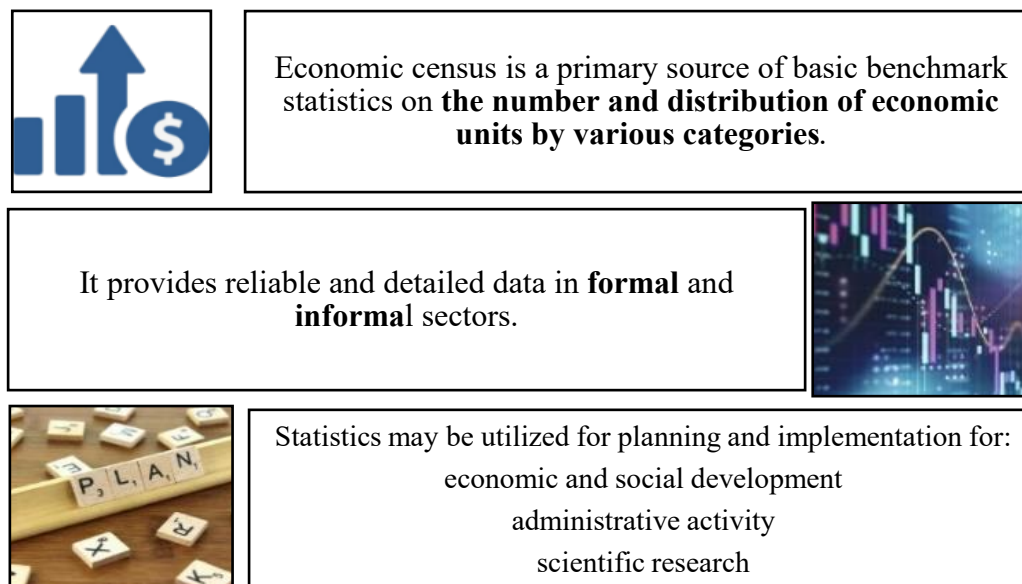
Figure 1.1: Definition of Economic Census

Pakistan Bureau of Statistics (PBS) has listed all the economic units whether performed at households or at establishment's level during the Listing Operation of **7th Population and Housing Census.** Following information about economic activities were collected from Economic units and Structures:

- Nature of Economic activity
- Name of Economic Activity/ Business
- Status (Public or Private)
- Phone Number of head of Economic Activity
- Manpower of Economic activity
- PSIC Code of Economic Activity
- Information of Household Economic Activity from Housing Units

Economic Census (UNSD)

According to the United Nation Statistics Division, an economic census is a statistical survey conducted on the full set of economic units belonging to a given population or universe at a point in time with respect to well defined characteristics. However, sampling techniques may be used for obtaining data on specified characteristics, provided that the sample design is consistent with the size of the areas for which the data are to be tabulated. The economic census represents one of the pillars for data collection on the number and characteristics of the economic units of a country. It is part of an integrated approach to compilation of economic statistics, which may include

censuses for specific activities/industries. for example, agriculture or manufacturing, surveys, registers and administrative data sources. It provides, at regular intervals, the benchmark for economic indicators at national and local levels. For small economic activities or sub-populations, such as informal sector units, it may represent the only source of information. For many countries the census also provides a solid framework to develop sampling frames.

Keeping in view definition of Economic Census and comprehensive information already collected by PBS during 7th Population and Housing Census, it is observed that Pakistan has effectively conduct complete enumeration to develop Economic Frame and other important characteristics like the number and distribution of economic units by various categories. In case of availability of an exhaustive Economic Frame, a strategic approach can now be adopted to get other information through Surveys, Administration Records, and Census record and block updation / Sample design updation. The results of Surveys may be enhanced through raising factors and Small Area Estimation (SAE).

1.2   Objectives

✓   The primary objective of the initiative is to generate an updated frame of establishments for conducting enterprise surveys effectively. This updated frame will serve as a reliable foundation for collecting and analyzing data on businesses across various sectors, facilitating targeted surveys that can provide valuable insights into the business environment.

✓   Additionally, one of the key goals is to provide basic entrepreneurial data that can be utilized by policymakers, researchers, and business development agencies to assess the state of entrepreneurship in the country. The updated frame will enable comprehensive understanding of the business landscape, including the size, structure, and performance of different types of enterprises. This data will be crucial for formulating policies aimed at fostering a conducive environment for businesses, supporting the growth of entrepreneurship, and addressing challenges faced by different business sectors.

✓   Conducting an economic census is essential for creating a business register. A Business Register is an essential tool that forms the basis for maintaining a comprehensive record of all enterprises operating within a country. This register serves as the framework from which survey samples are drawn, ensuring that businesses are properly represented in economic surveys and censuses. Currently, there is no updated business register in place.

1.3 Comparative Overview of different countries

Countries across the world undertake economic censuses as a part of their efforts to accurately generate economic statistics and monitor their economic activities and support evidence-based policymaking. A precise overview of the economic censuses of some countries has been provided here.

1.3.1 India's Economic Censuses

India conducted seven Economic Censuses since 1977, with the goal of generating a robust and detailed dataset for the country's economic planning and policy formulation. The Economic Census in India is primarily focused on collecting information about the distribution of economic activity across the country, including data on industries, businesses, and employment. First Economic Census (1977) conducted by the Ministry of Statistics and Program Implementation (MOSPI), this census focused on the collection of data related to the number of establishments and enterprises, along with the number of persons employed in each establishment across the country. The second economic census was conducted in 1980 along with the house listing operations of 1981 population census. This was done with a view to economizing the resources, manpower time and money. The third Economic Census was conducted in 1990 throughout country but this time separate from Population Census. Fourth Economic Census was conducted in 1998 by employ approximately 600,000 personnel. The purpose was better classification of establishments; improvements in coverage of service enterprises.

5th Economic Census (2005-06) relied primarily on traditional, manual data collection through door-to-door surveys, with enumerators filling out paper forms that were later manually processed. The use of technology was minimal, with no advanced tools for data collection or processing. In contrast, the 6th Economic Census (2013) marked a shift towards more structured surveys and began incorporating technology, such as the use of mobile tablets and mobile apps for data collection, reducing human error and improving efficiency. Geographic Information Systems (**GIS**) were also introduced to map the locations of economic activities more accurately.

The 7th Economic Census (2019-2020) built on this further by enhancing the digitalization of the entire process. Mobile-based applications were widely used for real-time data entry, and the data was stored on cloud servers, enabling faster processing. GIS technology was expanded for more detailed spatial mapping, and AI and machine learning were applied for data validation and error detection. By the time of the 7th Economic Census, the approach became even more digitized,

integrating Aadhar (the Indian biometric ID system) based data verification and extensive use of web and mobile platforms for data collection. Remote sensing and advanced GIS tools were utilized to track economic activities, particularly in rural areas. The 8th Economic Census, expected in 2025, is projected to embrace cutting-edge technologies like Internet of Things (IoT) devices, block chain for data security, augmented reality (AR) for field verification, and further advancements in **AI** and **Machine Learning** to enhance automation in data collection and processing, aiming for a more accurate, real-time, and comprehensive understanding of India's economy, including the digital and e-commerce sectors. Following questions were included in the questionnaire to get the information about economic establishments.

1. Identification information
2. Employment/ Employment cost
3. Income /Receipts (in range)
4. Source of Finance
5. GFCF (Investments in range)

1.3.2 Bangladesh's Economic Censuses

Bangladesh has completed four Economic Censuses since 1986. The main goal of these censuses is to systematically gather economic data that can help track the country's development, economic transition, and transformation. The economic census in Bangladesh has evolved over time to capture the growing complexity of its economy, which has seen substantial industrial and service sector growth. The first census was conducted in 1986, aimed to gather basic data on the number of enterprises and establishments, the nature of business activity, and employment. It primarily served as a baseline for future development. The second census was conducted in 2001 with more advanced methodologies, including improved data collection tools. It was more comprehensive, including urban and rural distinctions to reflect the country's demographic and economic divides. The third Economic Census (2013) significantly expanded its scope, including more detailed data collection on the informal economy, which is a significant part of Bangladesh's economic structure. Special attention was also given to the growing presence and role of micro, small, and medium-sized enterprises (MSMEs), recognizing their contribution to employment generation, income distribution, and local economic development. The 4th census was conducted in 2024 to further refine data on entrepreneurship, industrialization, and employment, especially in rural areas and non-agricultural sectors. The census was 100% digital with CAPI-based real-time

data collection via 140,000 tablets, GIS mapping and geo-coding for spatial accuracy. With the growing role of technology in businesses, this census was focused to include newer metrics such as digital businesses and e-commerce. Post-census activities are being continue through 2025–2026. Questions that were included in the census are given:

1. Identification information
2. Employment/ Employment cost
3. Intermediate consumption (Qualitative)
4. Fixed Assets
5. GFCF (Investments in absolute form)

1.3.3 Japan's Economic Census

Japan adopts a highly structured and systematic approach to conducting economic censuses, aimed at capturing in depth information on business activities across all sectors. The Economic Census for Business Frame (2009) established a comprehensive framework for economic data collection, while subsequent censuses in 2012, 2016, and 2021 focused on business performance, employment trends, and innovation. Japan's economic censuses are highly detailed and include various specialized metrics related to technological innovation and the evolving business environment. The resulting data is crucial for assessing Japan's economic resilience, competitiveness, and long term growth potential in the context of an evolving global marketplace.

Table 1.1: Comparative Analysis of Economic Census conducted by different regional countries

Name of Country		No of Censuses	Listing	Mode of Conduct	HR	Technology	FO Time
Pakistan		one (2001-05)	i) HH based ii) fixed Est. based	Face to face interview and complete enumeration	1400 personal (1100 recruited + 300 in house)	Paper based	32 months
India		Seven (latest-2019)	i) HH based ii) fixed Est. based	Face to face interview and complete enumeration	1.2 M, Youth, NGO workers, Govt. Servants	Digital Android based application.	3 months
Bangladesh		Four (latest - 2024)	i) HH ii)Temporary & Permanent Ests	Face to face interview and complete enumeration	95K Educated unemployed youth/student	CAPI-GIS Maps and Geo codes used 140k tables	10-25 Dec. 2024
Nepal		Conducted one (2018)	i) HH & ii) mobile (but fixed place) &Permanent Ests	Interview method and complete enumeration	-	Paper based Questionnaire Web base CAPI Online portal(e-census) Hierarchical geographical Coding System Digital Enumeration area maps	Two Phases 02 Months
Sri Lanka		One (2013-14)	All units households & fixed Ests	Face to face interview and Sample based enumeration	-	Paper based	Two Phases Listing and sample based selection
Egypt		Five round Latest (2017-18)	All units fixed establishments	Face to face sample based Enumeration	1200	software	36 Questionnaires developed for different sectors

7th Population and Housing Census. Around **7 million** establishments were reported across the country. A total of **99 PSIC** major categories were used to classify economic activities.

By integrating the Economic Census Questions with **the 7th Population and Housing Census Listing**, Pakistan was able to reduce the financial burden of approximately **Rs. 7 Billion** on the national exchequer. To operationalize the approved recommendations for integrating economic data collection into the 7th Population and Housing Census, specific information related to economic activities was gathered during the Listing Operation. This information was collected directly from economic units and structures identified during field enumeration. The following key information was obtained from economic units and structures:

i. **Address and Geo-Tagging of the Economic Unit/Structure**: Geographic coordinates were recorded using digital tools to enable precise location mapping and future referencing of economic entities.

ii. **Nature of Economic Activity**: A broad classification indicating the sector or type of work being carried out, such as manufacturing, retail, services, agriculture, etc.

iii. **Name of Economic Activity/Business**: The operational name or title under which the economic unit was functioning.

iv. **Ownership Status (Public or Private)**: Classification of the economic unit based on its ownership, indicating whether it is state-owned or privately held.

v. **Contact Information**: Phone number or mobile number of the head or manager of the economic unit to facilitate follow-up communication and verification.

vi. **Manpower Details**: Total number of individuals employed at the economic unit, allowing preliminary estimation of workforce distribution across sectors.

vii. **Pakistan Standard Industrial Classification (PSIC) Code**: The activity of each unit was categorized using standardized PSIC codes to ensure alignment with national statistical classification systems.

In addition, relevant information regarding household-based economic activities was also collected from housing units. This included small-scale, home-based enterprises and informal

sector activities operated within households, which constitute a significant segment of the informal economy. Listing Questionnaire of Population and Housing Census is given in Annex.

Listing Questionnaire to get Information of Economic Census

Figure 1.1: Changes in House Listing Questionnaire to get Information of Economic Census

➢ Question 3, 10 and 11 were added to acquire the information of economic census.

➢ Part 3,4 and 5 were altered in Population and housing listing questionnaire.

➢ Question no. 7 was also amended.

Figure 1.2: Final Questions for In-House Listing Questionnaire to get information of Economic Census

1.5 Data collection Strategies for Economic Activities

The enumeration of economic activities has been systematically organized into three distinct methodological strategies, each tailored to the specific characteristics, operational scales, and structural attributes of economic units. This categorization ensures that the diverse spectrum of economic entities ranging from large scale formal enterprises to small, informal businesses even at household level is comprehensively captured. The strategies are designed to address variations in business ownership, location and sectoral classification, thereby enabling. a more accurate, granular, and representative mapping of the country's economic landscape.
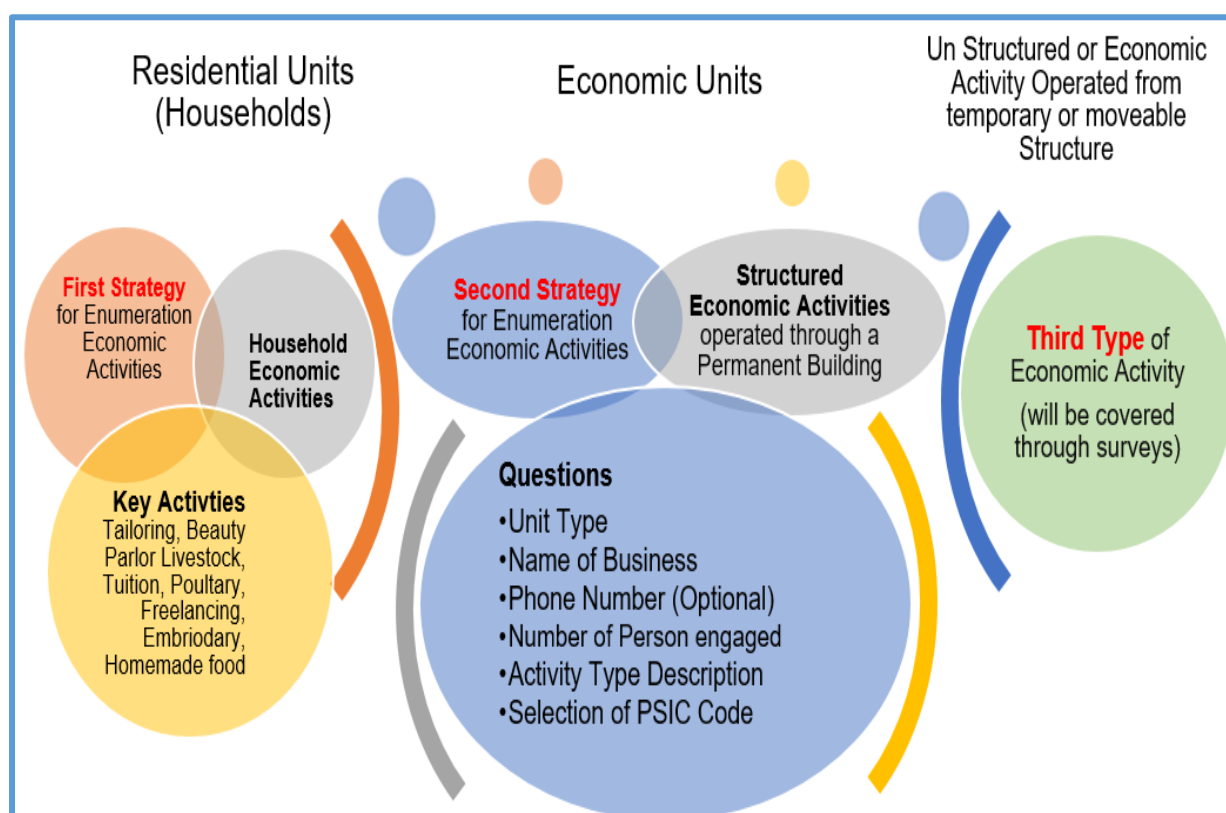
Figure 1.3: First Strategy: Household Economic Activities

The first strategy focuses on economic activities that take place within residential units or households, often referred to as household-based economic activities. These activities, while informal in nature, play a crucial role in supporting household incomes and contributing to the broader economy. Despite not always being part of formal economic structures, these activities can significantly impact the livelihoods of those engaged in them.

According to the data, approximately 28.5% of households engage in various economic activities, which range from personal services to small scale production and agriculture. Some of the key activities within households include:

- **Tailoring**: Many households engage in tailoring, which involves sewing clothes for individual clients or producing garments on a small scale for retail. This activity provides essential income, especially for women who may work from home.

- **Beauty Parlors**: Many residential units house small-scale beauty parlors where services such as haircuts, beauty treatments, and cosmetic services are offered. These parlors are often family-run and cater to local communities, providing income and employment opportunities.

- **Livestock Management**: Some households engage in the management and care of livestock, such as raising cattle, goats, or poultry. This activity supports both family nutrition and additional income through the sale of milk, eggs, or animals.

- **Tuition Services**: With an increasing demand for additional educational support, many households operate informal tuition services. This could include tutoring children in various subjects, helping students improve their academic performance, or teaching specialized skills like language proficiency.

- **Poultry Farming**: Poultry farming, which involves raising chickens or other birds for eggs or meat, is a common household activity. It provides a steady income stream and contributes to food security, as eggs and poultry products are in demand.

- **Freelancing**: With the rise of digital platforms, many individuals work as freelancers from home. Freelancing covers a wide range of services, such as content writing, graphic design, software development, and digital marketing. These activities offer flexible working hours and additional income, especially in urban areas.

- **Embroidery**: Embroidery is another household activity, particularly in rural areas, where families produce embroidered textiles or garments. This activity is often done by hand and can involve creating decorative clothing items, household linens, or accessories for sale in local markets.

- **Animal Farming**: Some households are involved in raising other types of animals, such as goats, sheep, or cattle. These animals are raised for dairy products, meat, wool, and other by-products, helping to improve family nutrition and providing additional income through sales.

- **Production of Eatable Items at Home**: Many households engage in the production of edible goods, such as homemade jams, pickles, snacks, baked goods, and other food products. These items are often sold at local markets or within the neighborhood, providing affordable food options and additional household income.

- **Packing of Eatable Items**: In some cases, households are involved in packaging food products for small businesses. This can include packing grains, spices, snacks, or even fresh produce for local distribution. It is a small-scale operation that provides essential services to the local food market.

- **Carpet Manufacturing**: In certain regions, households may be engaged in the manufacturing of carpets, rugs, or other textiles. These products are often handmade, requiring skilled labor, and can be sold either locally or exported to other markets.

- **Misc (others)**
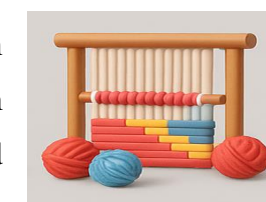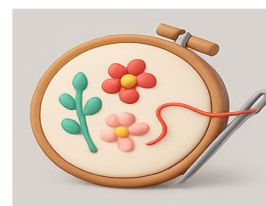
The first strategy emphasizes the need to recognize these household-based economic activities in national economic policies and development strategies. By acknowledging the value of informal sectors such as these, governments and policymakers can support their growth and ensure that these contributions are appropriately captured and enhanced in national economic planning.

Second Strategy: Structured Economic Units

This strategy is designed to focus on economic activities carried out within permanent, formally structured economic units. These units include various types of business establishments such as offices**,** factories**,** shops**,** and other commercial operations that operate with a physical presence. Unlike informal or household-based businesses, these units have a well-established structure and are

typically engaged in formal economic activities that contribute significantly to the economy at both local and national levels. The Economic Census Questionnaire specifically targets these permanent economic units by capturing essential data to provide an accurate and comprehensive overview of their activities. Below is a detailed explanation of the key data points captured in the census questionnaire for these units:

- Unit type
- Name of business
- Phone number (optional)
- Number of persons engaged
- Description of economic activity
- Selection of the relevant Pakistan Standard Industrial Classification (PSIC) Code

1.5.1 Third Type: Unstructured Economic Activities (Currently Missing)

The third category focuses on economic activities that are operated from temporary or movable structures**,** which are typically not captured during the census. These types of activities differ significantly from those carried out in permanent, formal establishments, as they tend to be more flexible, transient, and less formalized. These can include:

- **Street vendors** selling goods on roadsides or markets.
- **Mobile food carts or trucks** that sell food or beverages in different locations.
- **Pop-up shops** or temporary retail stalls set up for short periods during events, festivals, or holidays.
- **Construction sites** where workers may temporarily set up offices, canteens, or rest areas.
- **Temporary kiosks or tents** used for seasonal sales, such as fireworks during certain holidays, or vendor booths at fairs.
- **Mobile service providers**, such as barbershops or beauty parlors, which operate in vehicles or temporary setups.

Use of GIS Mapping and Geo-tagging

In addition to cost savings, this integration also facilitated comprehensive **geo-tagging** of nearly 40 million structures across the country. Geo-tagging involved attaching precise geographic coordinates to each structure, creating a detailed and accurate map of the nation's built environment. This included a wide range of properties and establishments such as:
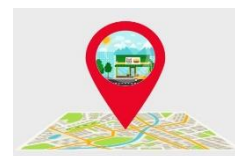
- **Residential Properties**: This category covered homes, hostels, and other residential buildings, allowing for a clear understanding of housing distribution across urban and rural areas.

- **Public Institutions**: The integration also captured data on various public institutions, such as government offices, schools, colleges, and universities, providing insights into the availability and distribution of public services throughout the country.

- **Economic Establishments**: Perhaps one of the most important aspects was the geo-tagging of economic establishments across multiple sectors, including retail, manufacturing, agriculture, and services. This data provided a detailed picture of the economic landscape, allowing policymakers to identify regions with high concentrations of economic activity and those that may require more investment or development support.

1.6   Important Definitions

1.6.1   Establishment

According to the System of National Accounts (SNA) 2008 (Para 5.2), an establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.

1.6.2   Enterprises

An enterprise is the view of an institutional unit as a producer of goods and services. The term enterprise may refer to a corporation, a quasi-corporation (an entity that exercises some of the functions of a corporation, but has not been granted separate legal personality by statute), a Non-Profit Institution (NPI). In other words, an enterprise is an independent and organizationally separate business entity with the legal rights: it is involved in the production and sale of goods, execution of work, and provision of services.

1.6.3   Structures

Before working on sustainable housing and infrastructure, it's important to know about different types of buildings, their structure, and where they are located. Whether it's a person building a house or a company developing a city, they need the right information to follow government rules. The Census counts all people and buildings in the country. To better understand the different types of buildings, PBS added a new question in Census 2023 about structure types. With help from

experts and other groups, PBS listed 23 types of places like houses, hospitals, and shops. This is the first time such detailed information was included. Following the categories that were included to determine.

	Normal Residential:	1-3 Story Residential Buildings
	Normal Economic:	1-3 Story Economic Activity Buildings
	Normal Economic + Residential:	1-3 Story Multi-Purpose Buildings
	Multistory Residential:	Residential Buildings greater than 3 Floors
	Multistory Economic:	Economic Activity Buildings greater than 3 floors
	Multistory Economic + Residential:	Multi-Purpose Buildings with More than 3 Floors
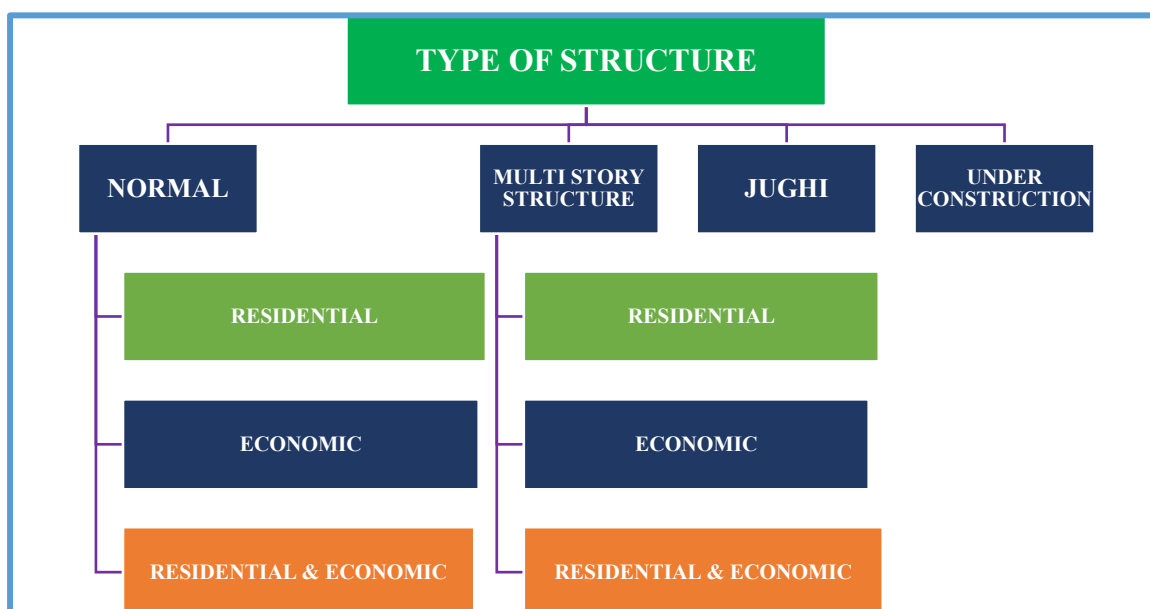
Figure 1.4: Types of Structures

1.6.4   Pakistan Standard Industrial Classification

The Pakistan Standard Industrial Classification (PSIC) is a national classification system developed by the Pakistan Bureau of Statistics (PBS) to categorize economic activities in a systematic manner. It is adapted from the International Standard Industrial Classification (ISIC) to reflect the specific economic structure and conditions of Pakistan. The PSIC serves as a key tool for organizing data in surveys, censuses, and administrative records, ensuring uniformity and comparability across various sectors of the economy. Question 11 of Census Listing Questionnaire is related to PSIC Code. The broader PSIC categories entered in 7th Population and Housing Census are annexed.

1.6.5   Unit Type

"Unit type" refers to the basic economic unit or establishment that engages in the production of goods or services and is selected as the unit of observation for statistical surveys and censuses. Unit types are categorized based on the nature, location, and mode of operation of the business. This classification helps in identifying and organizing businesses for accurate data recording and analysis. Question related to 'Unit Type' was included in the listing questionnaire (Question 3) of 7th Population and Housing Census (Questionnaire Annexed). 'Unit Type' provided information about the purpose of use of specific part of building. One building can be used for one or more than one purpose, for example only for residential purpose, only for economic purpose or for economic and residential both purposes. Here, only economic purpose has been discussed. Several options were provided, some important related to Economic Establishments are Old homes/Orphanage, Hostel, Hotel, Hospital, Madrassa, School, College, University, Masjid, Shop Retail, Shop Wholesale, Shop Service, Shop Production, Factory, Semi Government Office, Government Office, Post Office, Banks, Cattle Farming and Others. Social organizations like Madrassas, Jails, and Hostels etc. were considered as collective residences. Hotel is an establishment providing accommodation, meals, and other services for travelers and tourists. It is not Collective residence as the stay here is temporary and for short duration.

Hospital is an institution providing medical and surgical treatment and nursing care for sick or injured people, hre also stay is temporary if a patient is admitted. Madrassas are built to educate children in Islamic subjects, as well as develop good moral behavior; usually there is arrangement of permanent stay of students in Madrassas. In case of Masjid if Imam is living there with family then it will be Economic and Residential, otherwise only economic. In case of schools, colleges and universities, different buildings used for different departments / purposes for a particular institution or branch of institution are considered as one Establishment. Shops include

Retail shops, Wholesale Shops, Shop Production (bakery, Furniture production and bakery etc.) and Shop Services (Barber shop, Beauty parlor, Tailor shop etc.

1.6.6 Household Economic Activity

Question 9 in listing Questionnaire of 7th Population and Housing Census is related to Household Economic Activity. Household Economic Activity includes the activities that increase the income of Household. Here Economic activity within the boundary of Household is not related to a particular person, instead it is considered as Household Economic activity. The purpose of this information is to solve the problems related to Employment in a better way. Through this information Government will be able to make a comprehensive Policy for improvement in different sectors attach to a particular Household Economic activity. The options provided in questionnaire for Household Economic activities are Tailor, Carpet Manufacturing, Embroidery, Packing of Eatable Items, Tuition Centre, Poultry Farming, Animal Farming, Beauty Parlor, Production of Eatable Items at Home (Samosa, Murabba, Desi Ghee etc.), Online Services from Home and Other.

FRAME FINALIZATION ECONOMIC CENSUS 2023

PAKISTAN BUREAU OF STATISTICS

DEVISING DATA CLEANING STRATEGY FOR ECONOMIC CENSUS

The data of the **Business Units**, including the **Business Name**, its **Location**, and **Activity Description** along with **PSIC codes**, were collected during the fieldwork of the Population and Housing Census-2023. Pakistan Bureau of Statistics (PBS) sought an effective and precise strategy for assigning codes to these descriptions. This document outlines the methodology adopted to meet these challenges and ensure high precision in coding activity descriptions.

2.1 Challenges in Data Cleaning

Soon after embarking on data cleaning exercise, few realizations made PBS extract and chalk out a workable way forward. The detail of challenges is following:

➢ **High Frequency of the "Others" Category**

Biggest issue with the data was, a significant number of entries were classified under the **"Others"** category with the **52%** of the data, indicating a lack of specific or appropriate categorization options.

➢ **Incorrect Spellings:** The textual data used to describe entries categorized as "Others" contained numerous spelling errors.

➢ **Roman Urdu:** The use of Roman Urdu (Urdu written in the Latin alphabet) created inconsistencies and difficulties in standardization.

➢ **Linguistic Variations:** Variations in language further complicated the process of accurately interpreting and classifying the textual data.

➢ **Spelling Variations in Activity/Business Descriptions**

Inconsistent spelling of common business activities made it difficult to group and analyze data effectively. Examples include:

- Retail: retaial, retaier, retal and sale, retal shap, retaleer, retale
- Atta Chaki (Flour Mill): Ata chki, Atta Chaki, Attaa chkki, Flr chki

➢ **Incorrect Assignment of PSIC Codes:** PSIC (Pakistan Standard Industrial Classification) codes were often assigned incorrectly, meaning the codes did not accurately reflect the actual business activity or unit type. This introduced error in industry classification and analysis.

➢ **Missing or Incomplete Information:** A lack of complete information on **Business Names** and **Activity Types** further hindered the cleaning process. This included missing data fields and insufficient details to accurately categorize businesses.

After identifying the problems, the task of verifying and correcting PSIC codes was initially assigned to the BR/EC team, based on the Economic Activity Description. The process began with data shared by the DP center and focused on six districts: Haripur, Hyderabad, Islamabad, Quetta, Rawalpindi, and Sialkot. The total number of establishments involved in this task amounted to 602,846. The period for this task spanned from 29th December 2023 to February 2024. The process of code allocation was done based on the name of the economic activity and its detailed description, ensuring that each establishment was accurately categorized. As part of this process, the team successfully developed a comprehensive dictionary containing 6,000 unique cases, which accounted for different variations in spelling and even Roman Urdu, all mapped to 99 PSIC codes entered by enumerators. This dictionary became a crucial tool, capturing all the nuances in the data that could otherwise be overlooked. It was then decided to utilize this dictionary for the further assignment of codes to other establishments, followed by field verification to ensure accuracy.

A Working Group under supervision of Member (SS/RM), Mr. Muhammad Sarwar Gondal, was constituted on 20-3-24 for the implementation of step wise procedure for analysis / cleaning of Economic Establishment Data along with detail of activity.

The Committee focused on developing State of the art cleaning methodology instead of conventional mechanisms. As part of the initiative, the team also explored cutting-edge methods to develop a dynamic digital solution, allowing for faster, more efficient processing and record-keeping. After application of exact matches, the Description was split into different words, Business names were also used by removing the names of persons, cities etc. to update the dictionary. Six Economic Activities and three cities were selected for preparation, testing and finalization of Algorithm.

- Shop-Retail
- Shop-wholesale
- Shop-service
- Shop-Production
- Kharkhana /Factory
- Other Economic Activities)

2.2 Algorithm Design Based Dictionary

The team developed a custom algorithm leveraging a dictionary of 6,000 manually curated cases to automate the process of matching business descriptions with the appropriate

PSIC codes. This algorithm was specifically designed to efficiently assign the correct PSIC codes based on the descriptions entered by enumerators. The dictionary-based approach was implemented in both Lahore and Karachi, streamlining the process and reducing the manual effort required for accurate code assignment. By automating this task, the team significantly improved the accuracy and speed of categorizing business activities in these regions. At this point, different strategies were devised for further cleaning that are as follows:

2.3 Data Cleaning Strategy

At first phase, following steps were included to tackle the challenges in data cleaning.

Step 1: Identification of Unit Type (Business/Economic activity)

Step 2: Identification Development of Correlation of each identified variable.

Step 3: Designing of Algorithm on the basis of Dictionary. Code implementation on basis of Algorithm.

Step 4: Step wise Sampled Ground verification in Lahore and Karachi.

Step 5: Updation of algorithm based on lesson learnt

Step 6: Involvement of Artificial Intelligence and Machine learning in cleaning process.

Step 7: Implementation of ML algorithms on Karachi and Faisalabad.

Step 8: Manual checking of machine leaning results for Improvements.

Step 9: Sample Field Verification in Faisalabad with encouraging results.

2.4 Purposive Sampling Strategy

Three cities Lahore, Karachi, and Faisalabad were carefully selected using purposive sampling for the verification of various stages in the digital imputation process of the Pakistan Standard Industrial Classification (PSIC) code. The verification process involved assessing the accuracy and effectiveness of the digital imputation of PSIC codes assigned to various establishments within these cities. This was a critical step in ensuring that the imputed codes accurately reflected the businesses' economic activities, especially as they were being automatically assigned through algorithms.

2.5   Field Verification

2.5.1 Lahore Field Verification

- For the rectification process, several key variables were used, including the **Unit Type**, **Name of Establishment**, **Economic Activity Description**, and the old **PSIC Code**. These variables served as the foundation for correcting and updating data wherever discrepancies were identified.

- A significant portion of this work focused on updating around **75,000** cases from the Lahore district.

- In order to ensure accuracy and completeness, a verification form was prepared for the review of **2,454 economic activities** within the Lahore district through field work. Proforma is attached in Annex.

  This comprehensive approach aimed to standardize the data and to check the accuracy of Algorithm.

Table 2.1: Verification form according to unit type

Unit Type	No of Establishment Selected
Shop (Retail)	840
Shop (Whole Sale)	287
Shop (service)	493
Shop (Production)	163
Kharkana/Factory	360
Others Economic Activities	311
Grand Total	**2454**

Results after field verification in Lahore

After completing the fieldwork in Lahore, following results were obtained.

Table 2.2: Unit type Wise Verification Result

Unit Type	Establishment Samples	Establishment Visited		Establishment Verified		Manpower		Code Matched	
		No.	%	No.	%	No.	%	No.	%
Shop (Production)	163	163	100.00	150	92.02	94	57.67	23	14.11
Other Economic Activities	311	311	100.00	300	96.46	184	59.16	60	19.29
Shop (Service)	493	492	99.80	472	95.93	362	73.58	130	26.42
Shop (Wholesale)	287	286	99.65	238	83.22	172	60.14	71	24.83
Shop (Retail)	840	837	99.64	791	94.50	609	72.76	212	25.33
Factory	360	358	99.44	334	93.30	111	31.01	108	30.17
Total	2454	2447	99.71	2285	93.38	1532	62.61	604	24.68

Analysis of PSIC Code Matching for Lahore Establishments

- A total of **2447** establishments were visited (**99.71%** of the sample).
- **2285** establishments (**93.38%**) were verified and found exactly.
- **1532** establishments (**62.61%**) reported manpower matched with codes.
- **604** establishments (**24.68%**) had their establishment code matched.

Lesson learnt from field verification

- ➤ The updation of over **54,000** PSIC codes was carried out based on the lessons learned from the Lahore field verification.
- ➤ **26,975** Unit Type are wrong out of 54,499 reported during Census
- ➤ **4613** PSIC were rectified

2.5.2 Revised Algorithm Strategy Implemented by DP Team

Based on the Lahore field verification, different queries were created to identify discrepancies and areas that required improvement. In response to these queries, the DP Center team developed a strategy to modify the algorithm. This strategy was designed to address the issues highlighted during the verification process, ensuring more accurate and efficient updates to the PSIC codes. The modification aimed to refine the algorithm, making it more effective in managing the complexities of the data for further applications.

According to the revised algorithm strategy, Business Name, Activity Type, and Unit Type were used in three stages. A table is provided below in which the new PSIC codes have been updated based on the Business Name, Unit Type, and Activity Type.

Stage 1:

➢ If Matched: Business Name + Unit Type + Activity Type ======➔ apply new PSIC and Unit Type only where PSIC is NULL (PASS)

➢ If Matched: Unit Type + Activity Type ======➔ apply new PSIC and Unit Type only where PSIC is NULL (FAIL)

➢ If Matched: Business Name + Unit Type ======➔ apply new PSIC and Unit Type only where PSIC is NULL (FAIL)

Table 2.3: Table showing new PSIC codes updated based on the Business Name, Unit Type, and Activity Type.

BUSINESS_NAME	PSIC Actual	PSIC 1ststage	UNITTYPE	ACTIVITY_TYPE	PSIC Updated	Unit type updated
Repairing Shop	00Z	33A	12	steel repairing	25A	15
Welding	00Z	24A	12	Welding Iron	24C	15
Chicken Sale Center	00Z	47B	12	sale of meat	10A	15
Tailor	00Z	14A	12	clothing	14A	15
Atta Chaki	00Z	10H	12	atta chaki	10H	15

After completing the verification process in Lahore, the team moved on to implement the updated dictionary algorithm in Karachi. In this phase, the dictionary algorithm was applied with a focus on key factors such as Unit Type, Establishment Name, and Activity Description, ensuring that the data was accurate. The team was optimistic that this process would improve the overall economic census across Pakistan.

Stage 2:

A detailed summary comparing the "Before" and "After" status of the PSIC codes, along with their descriptions and activity types, was required for further analysis and verification. This summary included an examination of the old PSIC codes as they were initially recorded, highlighting any discrepancies, inconsistencies, or issues identified during the verification process. It also provided the updated PSIC codes, reflecting the corrections made based on the revised algorithm. Each updated code was accompanied by a description of the activity type, clarifying the nature of the business or establishment it corresponded to.

2.6   Stage 3: Karachi Field Verification

A Sample of four districts and 1957 establishments from Karachi was selected for detailed verification and analysis. This sample included cases where the updated algorithm was applied to ensure proper verification of the PSIC codes. The purpose of this selection was to test the accuracy and effectiveness of the new algorithm in real-world scenarios within these districts. By focusing on these specific districts, the team closely analyzed how the algorithm handled various types of data, identified any inconsistencies, and made necessary adjustments. Detail of selected sample is given below:

Table 2.4: Sample Districts

District	Karkana/ Factory	other	Shop production	Shop retail	Shop services	Shop whole sale	Grand Total
Karachi Central	41	50	16	71	79	41	298
Karachi East	1	44	2	33	13	3	96
Karachi South	1	161		31	41	1	235
Korangi	151	87	63	691	225	111	1328
Grand Total	**194**	**342**	**81**	**826**	**358**	**156**	**1957**

At the direction of the Chief Statistician, additional blocks were incorporated into the verification process to enhance the accuracy and comprehensiveness of the Economic Census. These newly added blocks were selected strategically to ensure a broader representation of various regions and sectors, allowing for a more thorough and accurate verification of the data. By expanding the scope of verification, the team aimed to ensure that the final dataset accurately reflects the economic activities across different geographic areas and business sectors.

Table 2.5: Karachi verification results

Sub Divisions Karachi	Establishment Sample	Establishment Visited		Establishment Verified		Manpower		Code matched	
		No.	%	No.	%	No.	%	No.	%
Saddar Sub-Division	11	11	100	11	100.00	6	54.55	7	63.64
Korangi Sub-Division	699	699	100	671	95.99	521	74.54	599	89.27
Landhi Sub-Division	371	371	100	371	100.00	283	76.28	340	91.64
Ferozabad Sub-Division	15	15	100	5	33.33	8	53.33	4	80.00
North Nazimabad Sub-Division	84	84	100	82	97.62	74	88.10	76	92.68
Gulzar-E-Hijri Sub-Division	81	81	100	71	87.65	42	51.85	62	87.32
Liaquatabad Sub-Division	51	51	100	51	100.00	38	74.51	44	86.27
Lyari Sub-Division	58	58	100	58	100.00	52	89.66	40	68.97
Model Colony Sub-Division	195	195	100	195	100.00	145	74.36	179	91.79
Gulberg Sub-Division	62	62	100	56	90.32	55	88.71	47	83.93
Civil Lines Sub-Division	55	55	100	55	100.00	29	52.73	42	76.36
New Karachi Sub-Division	72	72	100	68	94.44	59	81.94	51	75.00
Nazimabad Sub-Division	29	29	100	21	72.41	17	58.62	13	61.90
Garden Sub-Division	65	65	100	65	100.00	59	90.77	27	41.54
Aram Bagh Sub-Division	46	46	100	46	100.00	32	69.57	21	45.65
Shah Faisal Sub-Division	137	137	100	137	100.00	119	86.86	121	88.32
Total	**2,031**	**2,031**	**100**	**1,963**	**96.65**	**1,539**	**75.78**	**1,673**	**85.23**

- **1,963** establishments (**96.65%**) were successfully visited.

- **1,539** establishments (**75.78%**) had their data verified.

- The highest verification rate was observed in the Landhi Sub-Division (100%), followed by Liaquatabad and Saddar (both 100%).

- 1,673 establishments (**85.23%**) had their establishment codes matched correctly

The lessons learnt from the Karachi field verification process provided valuable insights. During the verification, several key observations were made.

Steps for PSIC directory

Initially, when the data was checked, there were problems in keyword identification due to the presence of textual data. This was because the same word was written in different spellings, languages, and Roman variants. For example, tailor activity was mentioned in different ways such as Taylor, tailor, Ali Tailor, silai, salai ka kam, Darzi etc. Similarly, Ata Chaki had different spellings like Chaki, Ata Chaki, Atta Chakki, Flr Mill, Ata vali chakki, Ata Machine, Afzal Ata chaki etc. Considering these problems, in manual codification codes were allocated on the basis of Name of Economic Activity and its Description.

Table 2.6: Examples of Roman Variant with allocated and corrected PSIC Codes

Business Name	Roman Variant	PSIC_CODE	Correct PSIC_Code
Chaki	Chaki	00Z	10H
	Ata Chaki	00Z	10H
	Afzal Atta Chaki	00Z	10H
	Ata Chaki	00Z	10H
	Chaki Atta	00Z	10H
	Chaki	00Z	10H
	Atta Chaki	00Z	10H
	Chaki Ata	00Z	10H
	Ata Vali Chaki	00Z	10H
Tailor	Talor	00Z	14A
	Tailor	00Z	14A
	Darzi	00Z	14A
	Silai ka kam	00Z	14A
	Silai	00Z	14A
Welding	Welding	00Z	24A
	Wailding	00Z	24A
	Walding	00Z	24A
	Welduing	00Z	24A

A dictionary of **8000** activity types approx. was developed to codify the data. Based on the results from Karachi, following steps were taken to update the PSIC directory.

➢ If the nature of activity is "silai ka Kam," the code 14A is assigned for tailor work.

➢ If the nature of activity is unclear, we check the establishment name, such as "ABC Tailor," and assign the corresponding PSIC code, 14A, for tailoring.

➢ A data Dictionary is created and updated with every new available spelling in the data with most appropriate PSIC Code. Each new spelling was carefully reviewed, and the most appropriate PSIC code was assigned based on the nature of the activity.

Table 2.7: PSIC updated through Dictionary

Activity Type	PSIC Actual	PSIC 1st stage	Unit Type	Activity Type	PSIC Updated	Unit type updated
Power Loom	00Z	13A	Karkana/ Factory	Thread Loom	14A	Same Unit Type
Garments Accessories	00Z	47B	Shop Services	Pico Shop	14A	Retail
Shahid Habib Cement	46D	46A	Wholesale	Deal In Cement Block	46D	Activity Type Same

Upon searching for the term "Auto," 568 cases were identified with different "activity type" such as auto shop, auto parts, Zain auto workshop, auto store, autos shop, butt autos etc.

Table 2.8: Examples of variation in Business name "Auto"

BUSINESS_NAME	Psic_Code	Unit type	Activity_Type
Autos Shop	00Z	14	zati khidmat
Auto Parts	00Z	24	auto
Zain Auto Work Shop	00Z	24	zain auto work shop
Auto Work Shop	77A	14	repairing vehicles
Butt Autos	00Z	16	car workshop
Car Ac Auto Electrician	45B	24	Car AC Auto Eslectrician

Then, some queries were created to solve this problem. Which are following:

- ➢ If BUSINESS_NAME and ACTIVITY_TYPE Have Auto with (Work shop or Repairing or Electrician) than insert Code 48B.
- ➢ Else If BUSINESS_NAME and ACTIVITY_TYPE Have Auto with Parts insert Code 48D.
- ➢ Else If BUSINESS_NAME and ACTIVITY_TYPE Have Auto with Tyre than insert Code 48C.
- ➢ Else If BUSINESS_NAME and ACTIVITY_TYPE Have Auto with Sale than insert Code 48A.
- ➢ Else If BUSINESS_NAME and ACTIVITY_TYPE Have Auto with Bike than insert Code 48E.

Upon searching for the term "Chaki," 159 cases were identified, including, chaki, ata chaki, Afzal atta chaki,chaki Atta, Ata vali chakki which are following as:

Table 2.9: Examples of variation in Business name "Chaki"

Business_Name	Psic_Code	Unit type	Activity_Type	New_Psic
Chaki	00Z	14	floor chaki	10H
Ata Chaki	00Z	15	ata chaki	10H
Afzal Atta Chaki	00Z	14	afzal atta chaki	10H
Chaki Ata	00Z	16	grinding	10H
Atta Chaki	47B	12	retail	10H
Ata Chaki	00Z	24	ata chaki	10H

Following queries have been created:

- ➢ The first step involves checking the BUSINESS_NAME and ACTIVITY_TYPE fields for specific keywords: "Chaki," "Ata Chaki," "Atta Chaki," or "Ata Vali Chaki." These terms are associated with flour mills, which are establishments that grind wheat into flour or are involved in similar activities.
- ➢ If any of these keywords were found in the BUSINESS_NAME or ACTIVITY_TYPE, the next step is to assign the PSIC code 10A**.**
- ➢ Additionally, the UNIT_TYPE must be determined based on the data provided by the enumerator. If the enumerator has not already entered UNIT_TYPE 16**,** the UNIT_TYPE will be set to 15**.** However, if the enumerator has already entered UNIT_TYPE 16**,** it will remain 16. All below mentioned are retail trade activities and code 47B is the right code whereas these were recorded with Code 00Z (Other activities).

Table 2.10: Examples of variation in Businesses' names

Business Name	Psic Code	Unit Type	Activity Type	New PSIC
Perchoon Store	00Z	12	perchoon store	47B
Shop Perchoon	00Z	12	shop steel	47B
Sabzi Wala	00Z	12	sabzi wala	47B
Fruits	00Z	24	fruits	47B
Dry Fruit	00Z	12	sale	47B

After conducting ground verification in Lahore and Karachi, the team updated the algorithm to incorporate the lessons learned from the verification process. This allowed for improvements in accuracy and the handling of variations. However, it was observed that algorithm based on activity type is not fully able to serve the purpose, so further improvements were needed. A 10-day brainstorming/training session was held for relevant staff to clean the **textual data** of the economic frame.

2.7   Workshop/Training

A training (from 12 to 22 November, 2024) was conducted by PBS, objective of training was to devise a strategy for **textual data cleaning** for finalization of Economic Census Frame. The training was attended by 16 participants.

Steps Formulated for Cleaning Economic Data

- **Updated Dictionary for Most Frequent Activity Codes**

  The dictionary was continually updated based on the most frequently coded activities. The more accurate the dictionary, the more effective the data update process was.

- **Applied Updated Dictionary Across All Data**

  The updated dictionary was applied to all data, and records were updated accordingly.

- **Created Word Combinations for Business and Activity Types**

  Combinations of words from business names and activity types were generated and matched with the updated dictionary to improve data accuracy.

- **Applied Levingston Distance Formula for Unmatched Records**

  For records that remained unmatched after the previous steps, the Levingston distance formula was applied when deemed necessary.

- **Applied Machine Learning Algorithm for Remaining Data**

  Machine learning algorithms were used on the remaining data, utilizing the updated dictionary. This approach demonstrated a success rate of 97% for matching.

- **Expected Outcome**

  The outlined steps were expected to yield a 75% to 80% success rate for PSIC code updates.

- **Manual Review for Remaining Data**

  Records that were still unmatched after applying the above methods were reviewed manually. These steps provided a structured approach to data cleaning and updating, ensuring that the economic data was both accurate and efficient to process.

2.8   Devised Strategy of Machine Learning and AI

The next phase of the process involved cleaning the remaining data frame, a detailed strategy was developed that utilized advanced technologies like **algorithms** and **machine learning**. These technologies were applied to the remaining data to automatically identify and correct inconsistencies, duplicates, and errors.

After Training, ML algorithms were implemented on the datasets from **Karachi** and **Faisalabad** to streamline and automate the cleaning process. Through the application of these algorithms, **85% of the PSIC codes** were successfully updated, ensuring greater accuracy and alignment with the actual business activities. For the remaining 15%, the team conducted **in-depth data consistency checks** manual verification to address any discrepancies and ensure that all data met the required standards of quality. This combination of ML-driven automation and sample based manual validation ensured a highly efficient and reliable process for cleaning and updating the PSIC codes.

2.9   Faisalabad Field Verification: (16th Dec. 2024 to 18th Dec. 2024)

After the implementation of the dictionary, Machine Learning Algorithms, and artificial intelligence on the data from Faisalabad, a significant achievement was made, with a 90 percent success rate in accurately assigning PSIC codes. However, to ensure complete confidence in the system's effectiveness and to validate its performance against real-world conditions, it was decided to further assess whether the machine learning algorithm was working as intended. To achieve this, a comprehensive verification exercise was initiated. This exercise involved comparing the algorithm's outputs with actual ground realities, ensuring that the automated system's predictions aligned with the true nature of businesses and industries on the ground.
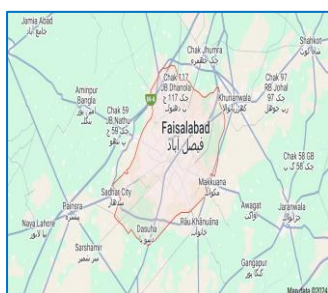
Total Blocks: 25   **No. of Establishments: 7,527**   **Total No. of Enumerators: 6**

Virtual Training of Field Staff:

A training session for field verification was designed to provide clear instructions and a deep understanding of the processes involved in assigning and verifying the PSIC codes, which are essential for categorizing economic activities according to the Pakistan Standard Industrial Classification.

Key Points discussed were:

1. Importance of PSIC Codes
2. Ask Details and Timeline
3. Verification Process Instructions
4. Support and Resources Available
5. **Question and Answer Session**

Table 2.11: Results of Field Verification

Verification Status	No of Establishments	Percentage (%)
Description Change	996	
Exact Match	**4283**	**86.50**
Khali / Closed	33	0.67
Within Group Change	383	7.57
Wrong Code Imputed	261	5.26
Grand Total	**5956**	
Valid Verification	**4960**	**100.00**
Establishment Available	**93.40**	
Establishment Not Available	**6.60**	

- ➢ A total of **4,960** establishments were verified out of **5,956**.
- ➢ The accuracy rate of verification is **93.40%**.
- ➢ **6.60%** of establishments were unavailable or not verified.

Lahore
- 2454 Establishments
- 92 % Verified
- 8% Close/ Change Activity
- 61% Dictionary Successful

Karachi
- 2774 Establishments
- 96 % Verified
- 4% Close/ Change Activity
- 85% Dictionary + Algorithm

Faisalabad
- 5956 Establishments
- 94 % Verified
- 6% Close/ Change Activity
- 87% Artificial Intelligence
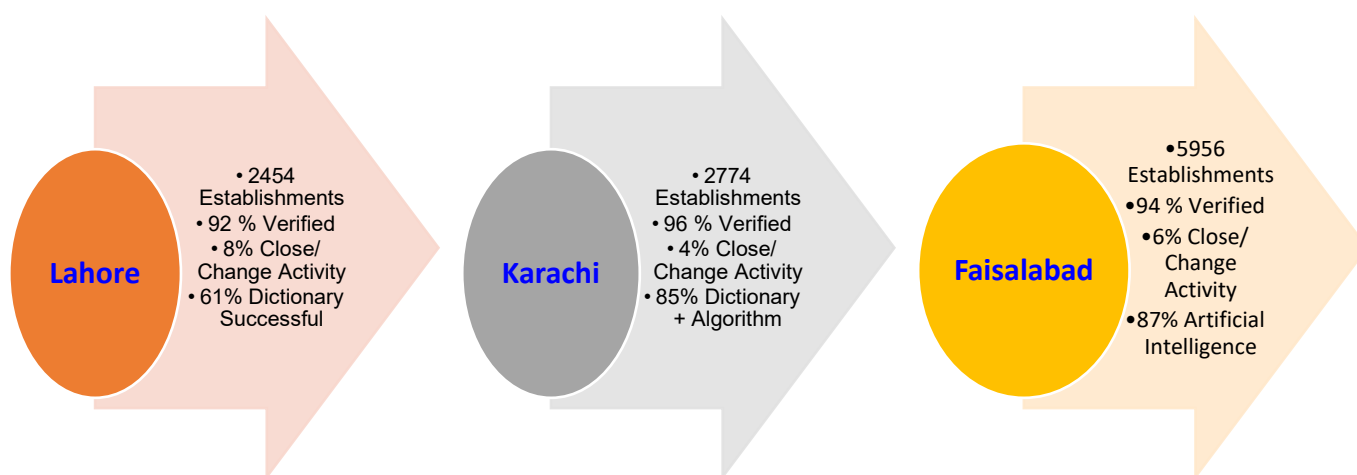
Figure 2.1: A diagrammatical overview of Field verifications of three cities

2.10 Desk Verification of Gujranwala after implementation of Codes

To ensure the robustness and effectiveness of the cleaning process, the implementation of PSIC codes in Gujranwala was carried out using a combination of innovative statistical techniques and machine learning methodologies. This approach was designed to enhance the accuracy and efficiency of the data cleaning process by leveraging advanced technologies that could process large datasets quickly and identify inconsistencies. As a result, 85% of the PSIC codes were successfully updated through the algorithm. For remaining data, a team of experts manually verified the entries to address any remaining discrepancies and ensure the highest level of accuracy. Following experts were involved in desk work for manual verification:

2.11 Final Application of Algorithm

➢ Leveraging lessons learned, PBS applied AI-based data cleaning techniques to the national-level dataset, significantly enhancing the accuracy and consistency of the data.

➢ In parallel, the PBS team explored **novel Large Language Models (LLM)** within **Natural Language Processing (NLP)** to further refine and improve the data cleaning process.

➢ Recognizing Pakistan's diverse geography, two districts, Peshawar and Quetta, were selected for model efficiency verification, ensuring the model's effectiveness across different regional dynamics.

➢ The model demonstrated an outstanding **70% or higher prediction confidence** for **over 80% of records,** underscoring its reliability and precision in real-world applications.

➢ The trained model was successfully implemented across the entire country in just 15 days, showcasing the team's efficiency in scaling solutions rapidly.

➢ The advance AI solution achieved 80% accuracy across the country, demonstrating its effectiveness in improving data quality.

➢ Throughout the process, PBS ensured that there were no modifications to critical business data, including the business name, activity type, and workforce numbers. This guarantees the integrity and accuracy of the original data.

➢ Special queries were created to carefully cross-check the **PSIC codes using Unit Types** and Descriptions, eliminating any discrepancies.

➢ A thorough review identified that 6% of cases (equating to 448,801 entries) were missing key employment information, which was promptly addressed to enhance data completeness.

➢ An impressive 1.8 million cases were filtered and reviewed, where discrepancies between Unit Types and PSIC codes were found, ensuring alignment across the dataset.

➢ Using the check-to-fail methodology, 118,000 cases were successfully corrected, driving significant improvements in data accuracy.

➢ With all corrections and verifications complete, the finalized data frame was promptly delivered to the Sample Design Section for the next phase of the project.
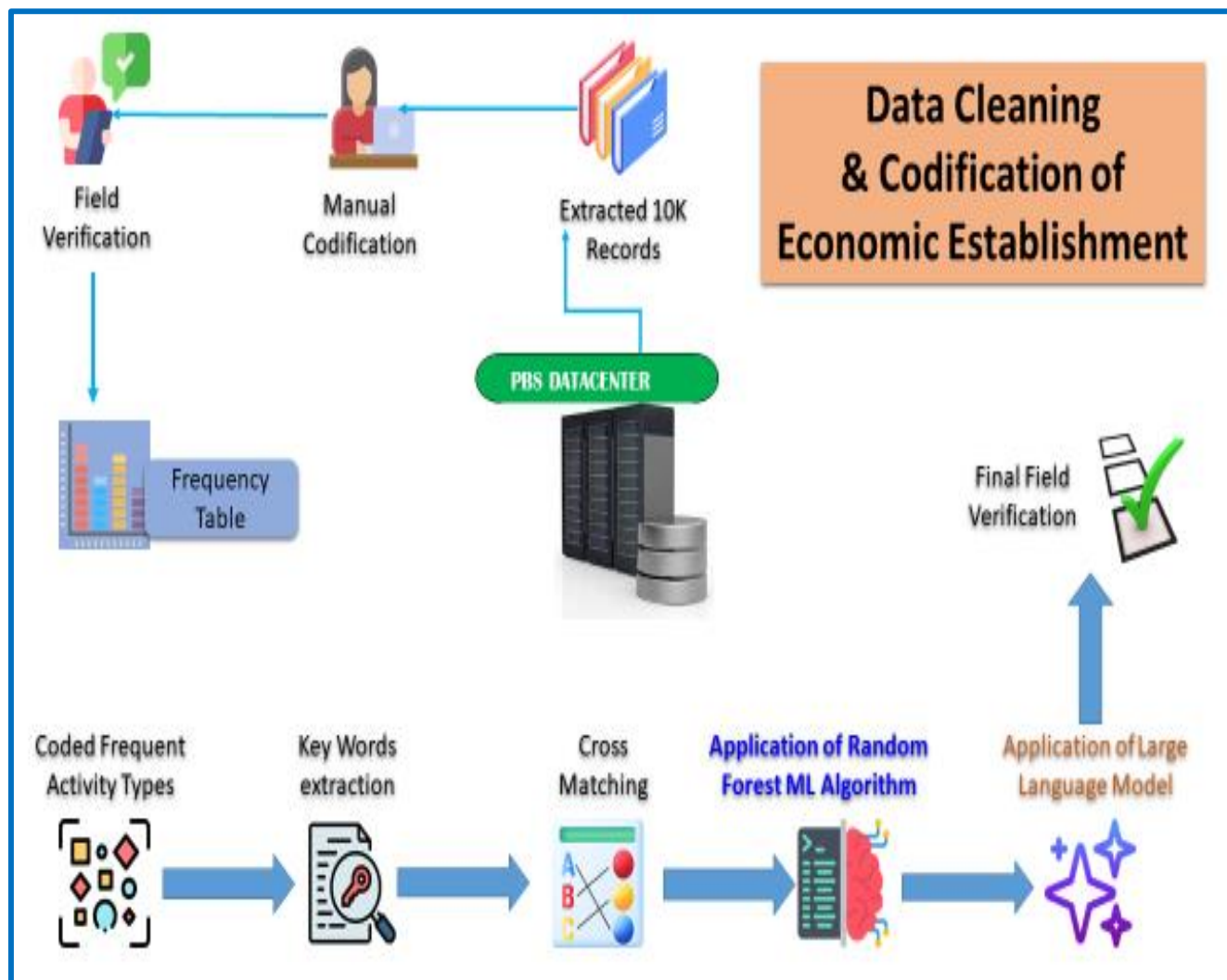
Figure 2.2: Diagrammatic representation of Final Data Cleaning and Codification of Economic Establishment

KEY FINDINGS
ECONOMIC CENSUS 2023

PAKISTAN BUREAU OF STATISTICS

KEY FINDINGS

Pakistan Economic Census 2023

(Structures, Economic Establishments and Household Economic Activities)

*****

During the House Listing Operation of 7ᵗʰ Population & Housing Census 2023, data on economic activities-based structures along with Economic Establishments as per Pakistan Standard Industrial Classification (PSIC), Unit Type Wise with Employment and Household Economic activities was also captured that resulted in documenting around 7 million establishments for the first time. Structured were categorized as normal, multi-story and others. The major findings related to Structures, Economic Establishments and Household Economic activities is as follows:

3.1 Structures:

Census 2023 provided comprehensive data on the distribution of structures across the provinces and regions of Pakistan. This distribution reflects the relative concentration of residential, economic, and other types of buildings in each province. The following chart presents the percentage share of total structures recorded in each province or region.
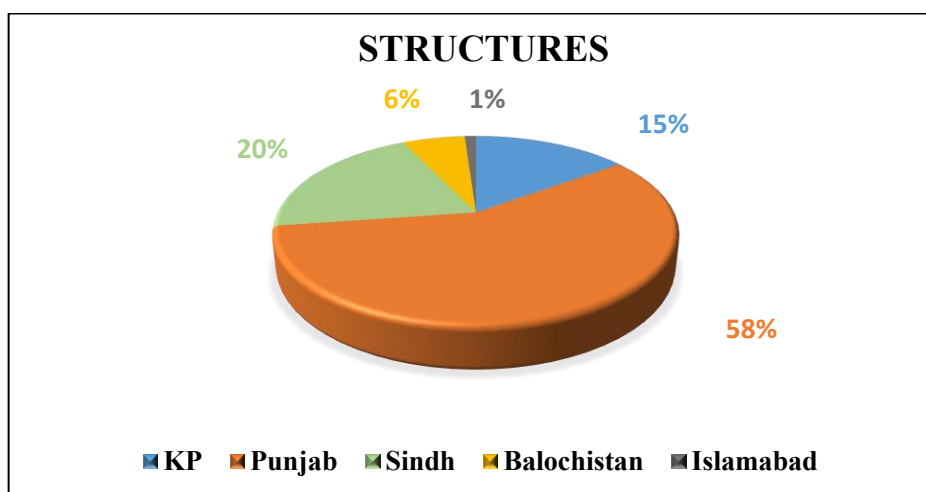
Figure 3.1 : Distribution of Structures in Provinces / Regions of Pakistan

Figure 3.1 shows that most of the structures in Pakistan are in Punjab, which has 58 percent of the total. Sindh has 20 percent, followed by Khyber Pakhtunkhwa with 15 percent. Balochistan accounts for 6 percent, while Islamabad has the smallest share with only 1 percent. This means that Punjab has the highest number of structures. In contrast, the relatively lower percentages for Balochistan and Islamabad reflect their lower density of physical structures compared to other regions.

Table 3.1: Region / Province Wise Distribution of Structures

Type of Structure		Region / Province	Pakistan	KP	Punjab	Sindh	Balochistan	Islamabad
Multistory Structures	**Residential Structure**		73,490 (0.19%)	3,391 (0.06%)	18,136 (0.08%)	48,389 (0.63%)	1,437 (0.06%)	2,137 (0.51%)
	Economic Structure		7,593 (0.02%)	1,191 (0.02%)	3,533 (0.02%)	1,815 (0.02%)	259 (0.01%)	795 (0.19%)
	Residential & Economic Structure		33,065 (0.09%)	1,317 (0.02%)	5,109 (0.02%)	24,678 (0.32%)	637 (0.03%)	1,324 (0.32%)
Normal Structures	**Residential Structure**		30,434,514 (79.43%)	4,689,072 (81.60%)	17,379,863 (78.57%)	6,163,126 (79.73%)	1,864,928 (80.91%)	337,525 (80.96%)
	Economic Structure		5,151,063 (13.44%)	756,175 (13.16%)	3,270,252 (14.78%)	825,884 (10.68%)	267,313 (11.60%)	31,439 (7.54%)
	Residential & Economic Structure		1,160,304 (3.03%)	96,991 (1.69%)	810,060 (3.66%)	215,689 (2.79%)	23,950 (1.04%)	13,614 (3.27%)
Others	**Jughi/ Jhompri/ Tent/ Cave**		530,918 (1.39%)	11,477 (0.20%)	104,267 (0.47%)	313,738 (4.06%)	98,723 (4.28%)	2,713 (0.65%)
	Under-Construction Structure		927,160 (2.42%)	186,798 (3.25%)	528,470 (2.39%)	136,920 (1.77%)	47,622 (2.07%)	27,350 (6.56%)
Total			38,318,107 (100)	5,746,412 (14.99%)	22,119,690 (57.72%)	7,730,239 (20.17%)	2,304,869 (6.01%)	416,897 (1.08%)

Table 3.1 presents the breakdown of different types of structures in Pakistan across provinces, including multi-story buildings, residential and economic structures, informal structures, and under-construction buildings. Residential structures make up the largest share at 79.43% of total buildings, indicating a strong focus on housing. Khyber Pakhtunkhwa has the highest proportion of residential structures (81.60%), followed by Sindh (79.73%) and Punjab (78.57%). Overall, Pakistan's infrastructure is predominantly residential, with less emphasis on mixed-use or purely economic buildings.

The total number of multi-story structures in Pakistan is 114,148, of which 64.38% are multi-story residential, 28.96% are residential & economic, and 6.65% are economic structures. Sindh accounts for the majority of multi-story residential structures (64.84%) due to its urban areas with flat-type housing blocks. Similarly, Sindh leads in multi-story residential & economic structures (74.63%), followed by Punjab (15.45%), Islamabad (4.00%), KP (3.98%), and Balochistan (1.93%).

Multi-story economic structures are rare, making up only 0.02% of total buildings nationally. Islamabad has the highest share (0.19%) as a corporate hub, while Punjab, Sindh, and KP each have 0.02%, and Balochistan has 0.01%, indicating limited high-rise business activity.

Economic structures overall account for 13.44% of buildings in Pakistan, much lower than the share of residential structures. Punjab has the highest proportion (14.78%), reflecting its role as an economic hub, whereas Islamabad has the lowest (7.54%), being primarily a government center.

Informal structures such as jhuggi, jhopri, tents, and caves make up 1.39% nationally. Balochistan has the highest share (4.28%), reflecting reliance on temporary shelters, while KP has the lowest (0.20%), suggesting more permanent rural housing.

Under-construction structures account for 2.42% of the national total, indicating ongoing urban growth. Islamabad leads with 6.56%, showing high infrastructure investment, whereas Punjab has the lowest share (2.39%), reflecting a more stable and established building stock.
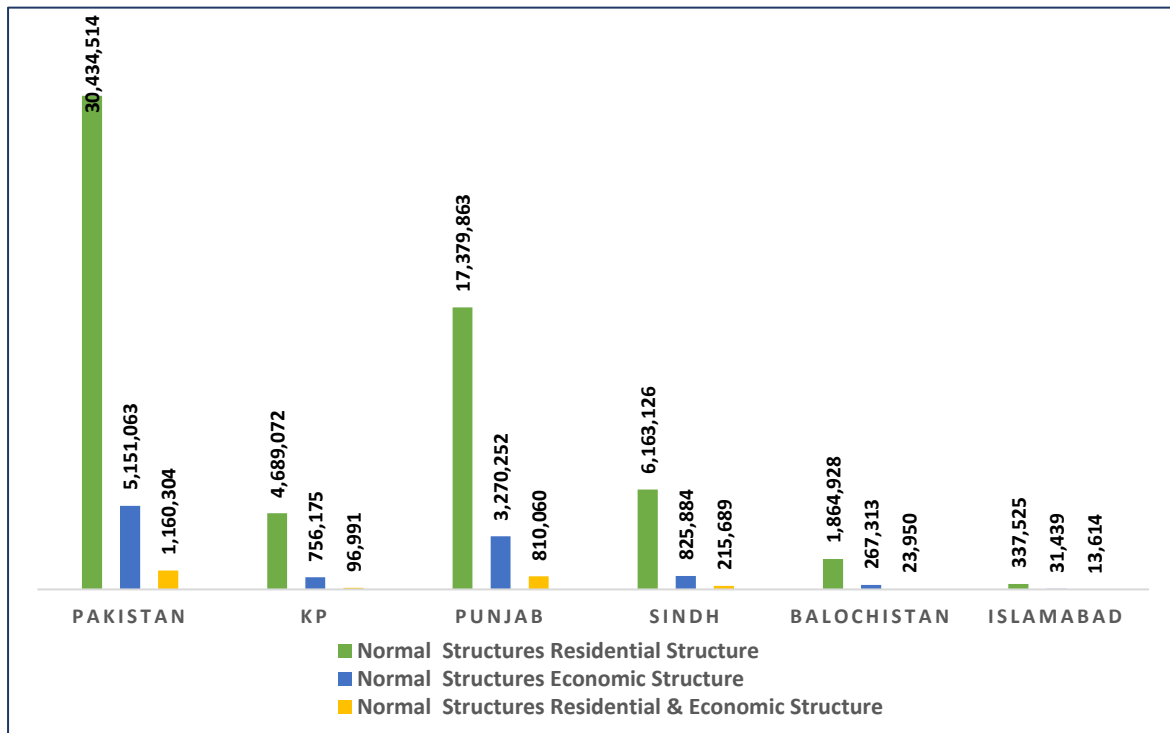
Figure 3.2: Distribution of Normal Structures in Provinces / Regions
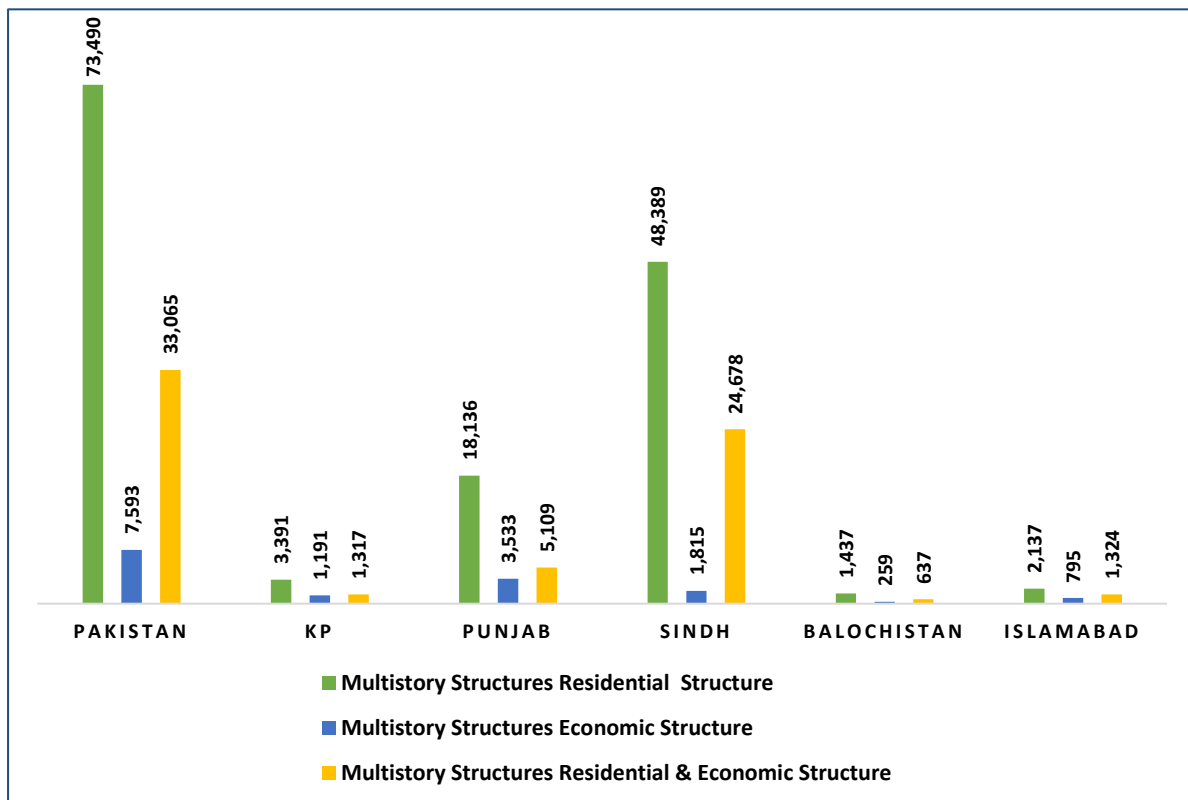
Figure 3.3: Distribution of Multistory Structures in Provinces / Regions

PAKISTAN

TOTAL STRUCTURES 38.31 MILLION

NORMAL STRUCTURES

RESIDENTIAL
30.43 MILLION

ECONOMIC
5.15 MILLION

RESIDENTIAL & ECONOMIC
1.16 MILLION
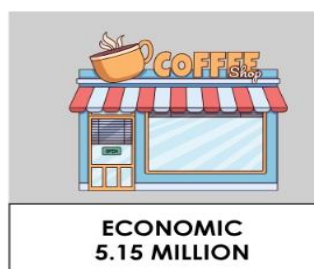
MULTISTOREY STRUCTURES

RESIDENTIAL
73.49K

ECONOMIC
7,593

RESIDENTIAL & ECONOMIC
33.06K

OTHERS

JUGHI/JHOMPRI/TENT/CAVE
530K

UNDER CONSTRUCTION
927K

3.2   Economic Establishments

This report presents a comprehensive information on economic establishments in Pakistan, categorized by Unit Type and Pakistan Standard Industrial Classification (PSIC).

Establishments on the basis of Unit Type:

Question related to 'Unit Type' was included in the listing questionnaire (Question 3) of 7th Population and Housing Census. 'Unit Type' provided information about the purpose of use of specific part of building. One building can be used for one or more than one purpose, for example only for residential purpose, only for economic purpose or for economic and residential both purposes.

Main findings reveal that out of approximately 7 million recorded establishments that have also been geo-tagged, major classification includes 2.7 million retail shops, 188k wholesale shops, 256k hotels, 119k hospitals, 242k schools, 11,568 colleges, 214 universities, 600k mosques, 19,645 banks, 23,119 factories, 29,836 public offices, 10,452 semi-government offices, and 643k shop production units and Banks comprises 19,645 establishments, respectively. Additionally, key indicators such as the number of employees have also been calculated.

Establishments on the basis of PSIC Categories:

Out of 7 million Establishments, approximately 3.2 million establishments lie in the category wholesale and retail trade; repair of motor vehicles and motorcycles (PSIC 45-47). The second largest sector is Agriculture, forestry and fishing (PSIC 1-3) having 1.1 million establishments across country. The Establishments for other services activities (PSIC 94-96) are 945k, 696k establishments belong to manufacturing (PSIC 10-33). Similarly, the number of establishments involved in education (PSIC 85) are 326k whereas 123k establishments belong to Human Health and social work activities (PSIC 86-88). A detailed breakdown of economic establishments by PSIC codes is provided in the attached table.

PAKISTAN

GLIMPSE OF ECONOMIC ESTABLISHMENTS ON THE BASIS OF UNIT TYPE IS AS UNDER:
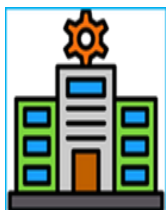
7 Million ESTABLISHMENTS	**2.7 MILLION** RETAIL SHOPS	**188 K** WHOLESALE SHOPS	**825 K** SERVICE SHOPS	**23 K** FACTORIES	**643K** PRODUCTION SHOPS
10,452 SEMI GOVERNMENT OFFICE	**600 K** MOSQUES	**19,645** BANKS	**256 K** HOTELS	**4,387** POLICE STATIONS	**119 K** HOSPITALS
29,836 PUBLIC ORGANIZATIONS	**16,565** HOSTELS	**36,331** MADRASSAS	**242 K** SCHOOLS	**11,568** COLLEGES	**214** UNIVERSITIES
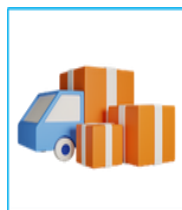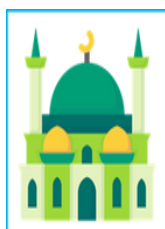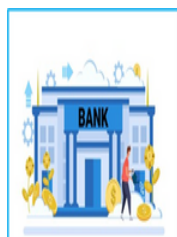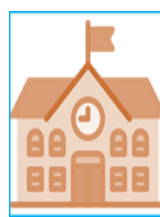
3.3 Sector wise Distribution of Unit Type:

Based on the information collected in the Population and Housing Census 2023, all unit types have been classified into three main sectors such as **Social**, **Production**, and **Services**. The **Social sector** includes Unit Type primarily engaged in **education, health, community, and welfare-related activities.** The **Production sector** covers **manufacturing, agriculture, and other activities related to the creation of goods**. The **Services sector** comprises **trade, financial activities, hospitality, and other service-oriented Unit Types**. The following chart presents the sector wise distribution, highlighting the relative share of each category in the overall structure of Pakistan's economy.

ESTABLISHMENTS

3%   14%

25%

58%

■ Social   ■ Production   ■ Services   ■ Others
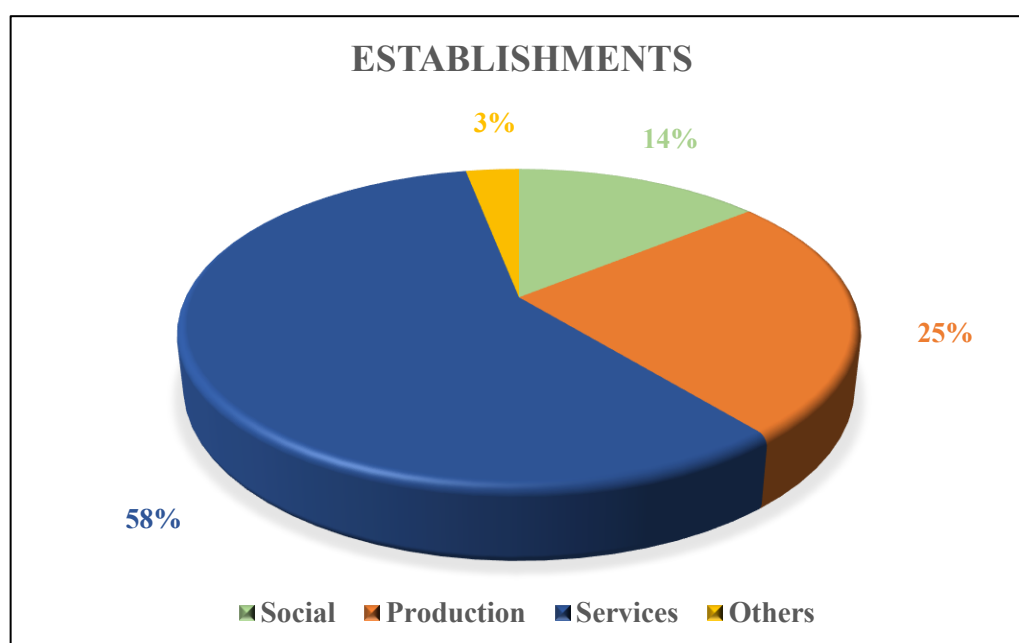
Figure 3.4: Sector Wise Distribution of Units

Figure 3.4 shows that the majority of establishments in Pakistan fall under the Services sector with 58 percent, followed by the Production sector at 25 percent and the Social sector at 14 percent. A small proportion of 3 percent is classified as others**,** indicating limited activity outside these main sectors.

Table 3.2: Establishments on the basis of Unit type

Sectors	Description	Pakistan	Punjab	KPK	Sindh	Balochistan	ICT
Social	Old homes/Orphanage	201	82	25	67	20	7
	Hospital	119,789	64,821	20,034	27,009	5,911	2,014
	Madrassa	36,331	16,117	11,182	5,630	3,138	264
	School	242,616	123,076	45,318	57,602	14,228	2,392
	College	11,568	6,635	2,356	1,765	486	326
	University	214	91	46	43	12	22
	Masjid	600,403	327,251	112,642	120,009	36,856	3,645
	Total	**1,011,122**	**538,073**	**191,603**	**212,125**	**60,651**	**8,670**
	Percentage	**14.15%**	**12.33%**	**19.08%**	**15.31%**	**20.01%**	**10.06%**
Production	Shop Production	643,501	415,676	81,762	120,878	16,959	8,226
	Factory	23,119	14,544	2,101	5,525	645	304
	*Cattle Farming	1,110,771	843,522	135,852	101,469	25,148	4,780
	Total	**1,777,391**	**1,273,742**	**219,715**	**227,872**	**42,752**	**13,310**
	Percentage	**24.8%**	**29.18%**	**21.87%**	**16.45%**	**14.10%**	**15.44%**
Services	Hostel	16,565	7,648	4,337	3,048	744	788
	Hotel	256,926	152,984	31,387	55,632	11,555	5,368
	Shop Retail	2,779,899	1,609,106	403,600	605,306	130,584	31,303
	Shop Wholesale	188,843	109,652	21,773	44,594	9,993	2,831
	Shop Service	825,254	526,913	85,195	166,141	28,472	18,533
	Semi Government Office	10,452	5,499	902	3,276	447	328
	Government Office	29,836	14,633	5,416	7,116	2,055	616
	Post Office	5,773	3,115	947	1,126	413	172
	Banks	19,645	10,960	2,438	4,696	812	739
	Total	**4,133,193**	**2,440,510**	**555,995**	**890,935**	**185,075**	**60,678**
	Percentage	**57.86%**	**55.91%**	**55.36%**	**64.31%**	**61.06%**	**70.42%**
Others	**Total**	**221,235**	**111,968**	**36,922**	**54,238**	**14,611**	**3,496**
	Percentage	**3.09%**	**2.56%**	**3.67%**	**3.91%**	**4.82%**	**4.05%**
	Total	**7,142,941**	**4,364,293**	**1,004,235**	**1,385,170**	**303,089**	**86,154**

* It also includes non-commercial Baras and Havelis

Table 3.2 shows that Pakistan has a total of 7,142,941 establishments, with the Services sector holding the largest share (57.86%), followed by Production (24.80%), Social (14.15%), and Others (3.09%). In the Social sector, Masjid has the highest number of Establishments (600,403), followed by Cattle Farming in the Production sector with 1,110,771 establishments, and Retail Shops in the Services sector with 2,779,899 establishments. Punjab has the largest number of establishments overall leading in all the sectors, while services have a large share in Sindh (64.31%) as compare to the other sectors. Khyber Pakhtunkhwa has the highest share of social sector establishments (19.08%) and Balochistan records the largest proportion of "Others" (4.82%). Islamabad, despite smaller totals, has the highest concentration in services (70.42%). Overall, the services sector dominates across all provinces, with retail trade emerging as the single largest unit type in the country.

PAKISTAN
EDUCATIONAL & HEALTH INSTITUTIONS

SCHOOLS

TOTAL	GOVERNMENT	PRIVATE
242.6K	143.6K	99K

COLLEGES

TOTAL	GOVERNMENT	PRIVATE
11.6K	4.6K	6.9K

UNIVERSITIES

TOTAL	GOVERNMENT	PRIVATE
214	123	91

MADRASSA   36.3K

HOSPITALS

OVERALL	GOVERNMENT	PRIVATE
119.8K	13.8K	105.9K

Table 3.3: Categorization of Social Sector

Unit Type		Pakistan	Punjab	KPK	Sindh	Balochistan	ICT
Schools	Govt.	143,599	59,309	32,155	40,302	11,471	362
	Pvt.	99,017	63,767	13,163	17,300	2,757	2,030
	Total	**242,616**	**123,076**	**45,318**	**57,602**	**14,228**	**2,392**
Colleges	Govt.	4,626	2,189	851	1,120	356	110
	Pvt.	6,942	4,446	1,505	645	130	216
	Total	**11,568**	**6,635**	**2,356**	**1,765**	**486**	**326**
Universities	Govt.	123	51	33	20	10	9
	Pvt.	91	40	13	23	2	13
	Total	**214**	**91**	**46**	**43**	**12**	**22**
Madrassas	**Total**	**36,331**	**16,117**	**11,182**	**5,630**	**3,138**	**264**
Hospitals	Govt.	13,833	5,557	2,776	3,485	1,916	99
	Pvt.	105,956	59,264	17,258	23,524	3,995	1,915
	Total	**119,789**	**64,821**	**20,034**	**27,009**	**5,911**	**2,014**

Table 3.3 shows the number of schools, colleges, universities, madrassas, and hospitals in Pakistan by province and region. Punjab has the highest number of institutions in all categories, while Balochistan and ICT have the lowest. There are a total of 242,616 schools, mostly government-run, and 11,568 colleges, with a slightly higher share in the private sector. The country has 214 universities, 36,331 madrassas, and 119,789 hospitals, where private facilities make up the majority. Overall, Punjab leads in both public and private institutions.

3.4   Workforce

Total employment of **7 million** establishments was recorded as **25.34 million**. An overview of Establishments and Workforce of overall Pakistan and provinces/regions is given below:

	NO OF ESTABLISHMENTS	WORKFORCE
PAKISTAN	7.14 MILLION	25.34 MILLION
PUNJAB	4.36 MILLION	13.64 MILLION
SINDH	1.38 MILLION	5.713 MILLION
KPK	1.0 MILLION	3.98 MILLION
BALOCHISTAN	303K	1.38 MILLION
ICT	86K	621K
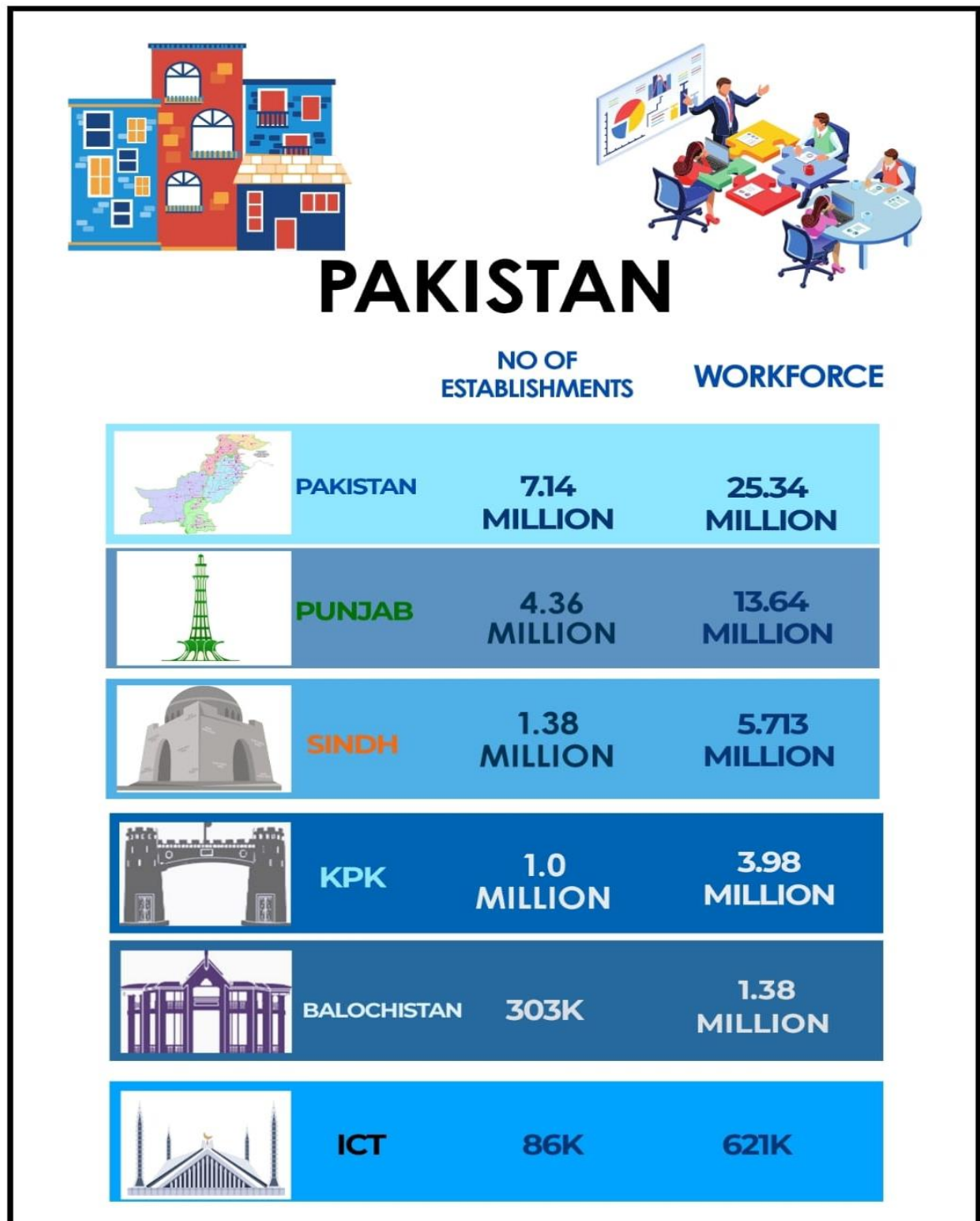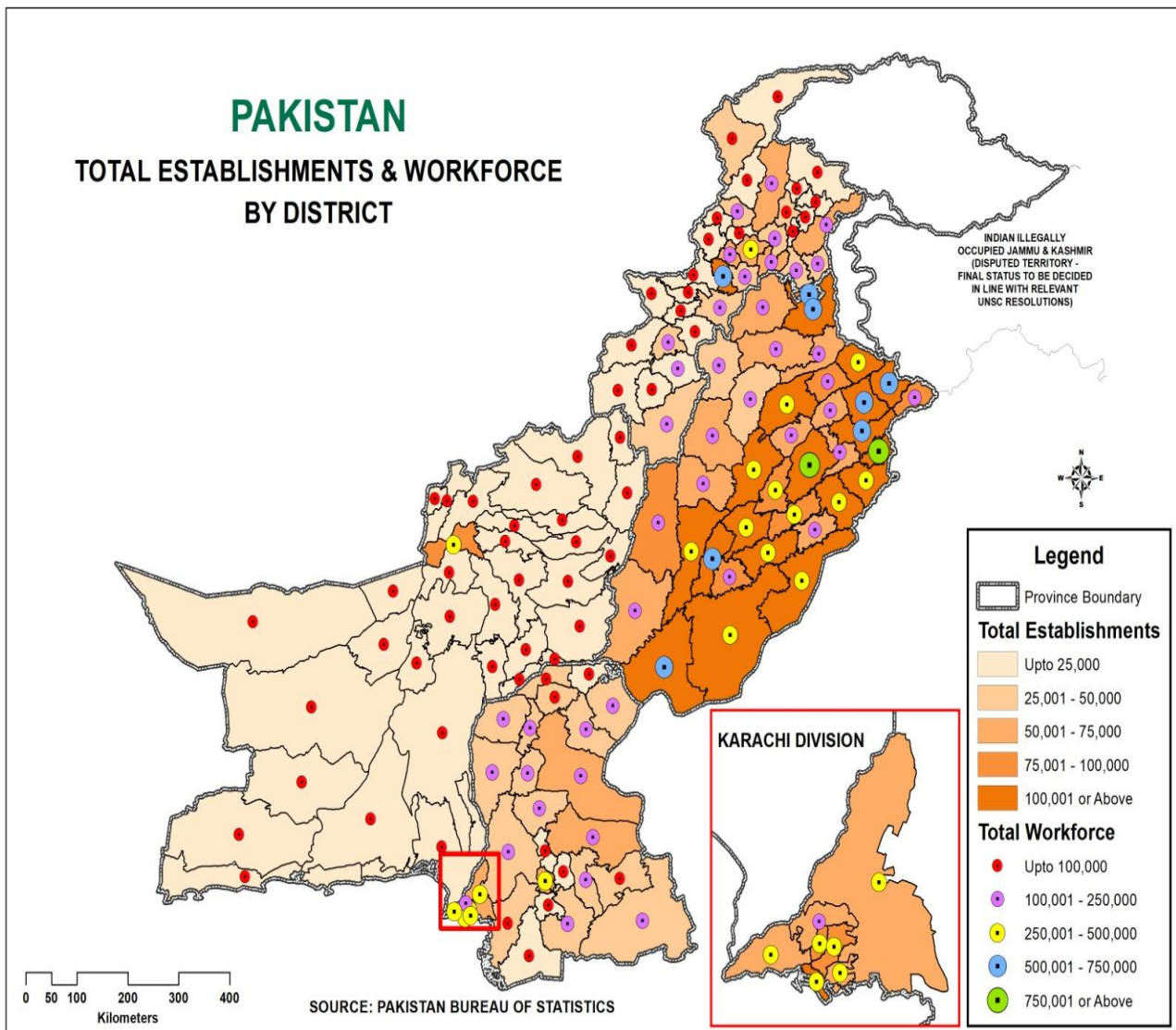
Figure 3.5: Map Showing Establishments and Workforce Distribution in Pakistan

Map illustrates the distribution of economic establishments and workforce size across Pakistan's districts. It reveals that Punjab and Karachi Division have the highest concentration of both establishments and workforce, with several districts marked in dark orange and red or blue dots, indicating intense economic activity. In contrast, most districts in Balochistan and Khyber Pakhtunkhwa (KP) have fewer establishments and smaller workforces, reflecting relatively lower levels of economic development. An inset map highlights Karachi due to its dense activity. Overall, the map provides a clear visualization of regional disparities in economic activity across the country.

WORKFORCE

5%

30%

21%

44%

◄ Social ◄ Production ◄ Services ◄ Others
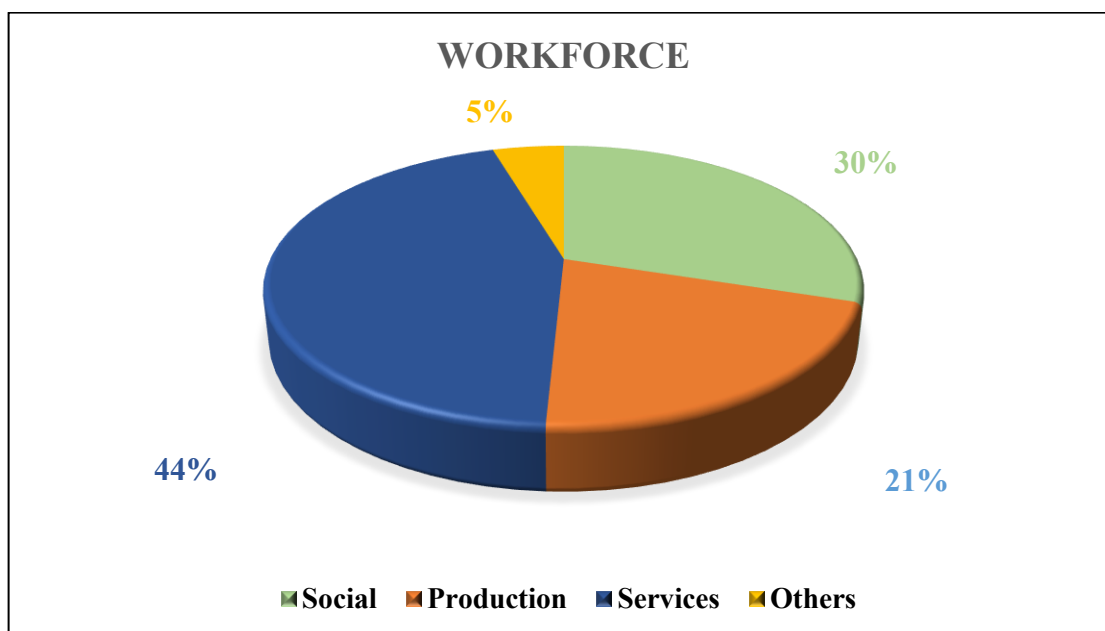
Figure 3.6: Sector Wise Distribution of Work force among Establishments

Figure 3.6 illustrates the distribution of the workforce across four main sectors: Social, Production, Services, and Others. Out of a total workforce of 25.34 million**,** the largest proportion is engaged in the Services sector, accounting for 44% (11.29 million). This is followed by the Social sector with 30% (7.58 million) and the Production sector with 22% (5.29 million). The "Others" category constitutes the smallest share, representing 5% (1.17 million) of the workforce**.**

Table 3.4 further shows how this workforce is spread across Establishments of different sectors in all the provinces/regions. Punjab has the largest workforce, with 13.64 million workers**,** leading in both production and services sectors**.** KPK (3.98 million) and Balochistan (1.38 million) have relatively higher proportions in the social sector, while Sindh (5.71 million) shows strong employment in commercial activities, particularly retail and wholesale trade. ICT, though having the smallest workforce (621,514), has a significant proportion engaged in government and administrative services. This pattern highlights clear regional differences in employment structure across the country

Table 3.4: Workforce on the basis of Unit Types

Sectors	Description	Pakistan	Punjab	KPK	Sindh	Balochistan	ICT
Social	Old homes/Orphanage	3,066	1,454	503	944	41	124
	Hospital	768,002	378,625	122,581	203,091	42,645	21,060
	Madrassa	477,174	133,769	179,352	67,865	92,018	4,170
	School	3,832,495	1,982,096	891,540	667,051	247,515	44,293
	College	387,535	197,506	89,879	55,514	30,463	14,173
	University	49,004	14,910	8,793	10,968	5,975	8,358
	Masjid	2,063,114	877,201	609,609	355,064	195,265	25,975
	Total	**7,580,390**	**3,585,561**	**1,902,257**	**1,360,497**	**613,922**	**118,153**
	Percentage	**29.91%**	**26.27%**	**47.78%**	**23.81%**	**44.40%**	**19.01%**
Production	Shop Production	1,554852	957,583	188,486	336,159	49,772	22,852
	Factory	1,494740	948,171	81,705	430,534	20,574	13,756
	Cattle Farming	2,245,220	1,519,751	278,050	314,201	95,069	38,149
	Total	**5,294,812**	**3,425,505**	**548,241**	**1,080,894**	**165,415**	**74,757**
	Percentage	**20.89%**	**25.10%**	**13.76%**	**18.91%**	**11.96%**	**12.02%**
Services	Hostel	195,601	95,909	52,323	29,158	9,702	8,509
	Hotel	991,371	510,343	110,929	275,363	54,461	40,275
	Shop Retail	6,33,8959	3,502,695	785,052	1,646,469	276,951	127,792
	Shop Wholesale	502,059	277,830	55,044	131,030	27,221	10,934
	Shop Service	1,954,113	1,130,259	201,196	434,706	84,607	103,345
	Semi Government Office	176,225	77,779	12,651	68,940	4,746	12,109
	Government Office	823,395	363,268	110,891	238,993	58,941	51,302
	Post Office	42,595	21,049	5,973	10147	3,089	2,337
	Banks	271,470	141,728	24,103	82,261	7,312	16,066
	Total	**11,295,788**	**6,120,860**	**1,358,162**	**2,917,067**	**527,030**	**372,669**
	Percentage	**44.56%**	**44.85%**	**34.11%**	**51.05%**	**38.12%**	**59.96%**
Others	**Total**	**1,173,131**	**513,351**	**172,806**	**354,861**	**76,178**	**55,935**
	Percentage	**4.62%**	**3.76%**	**4.34%**	**6.21%**	**5.50%**	**8.99%**
	Total	**25,344,121**	**13,645,277**	**3,981,466**	**5,713,319**	**1,382,545**	**621,514**

Employment Category:

Establishments are classified by employment size to better understand their scale and distribution. Two approaches have been used for this classification. The first divides establishments into those employing less than 10 persons and those employing 10 or more persons. The second provides a detailed breakdown into three categories: 1–50 employees, 51–250 employees, and above 250 employees. This categorization helps in analyzing the concentration of small, medium, and large establishments across different regions of Pakistan.

In Pakistan, most of the establishments lie in the category of less than 10 employees with Punjab having greater number of Establishments i.e., 4.2 million and Islamabad Capital Tertiary having least number of Establishments i.e. 77,284 in this category.

Table 3.4: Number of Establishment on the basis of Employment Categories

	Employment less than 10	10 and above	Total
Pakistan	6,820,932 (100)	322,009 (100)	**7,142,941** **(100)**
Punjab	4,194,963 (61.50%)	169,330 (52.58%)	4,364,293
KPK	951,443 (13.94%)	52,792 (16.39%)	1,004,235
Sindh	1,312,076 (19.23%)	73,094 (22.69%)	1,385,170
Balochistan	285,166 (4.18%)	17,923 (5.56%)	303,089
ICT	77,284 (1.13%)	8,870 (2.75%)	86,154

*Establishment for which workforce was not mentioned is included in category Employment less than & equal to 10

Figure 3.7 Establishments with their size Categories
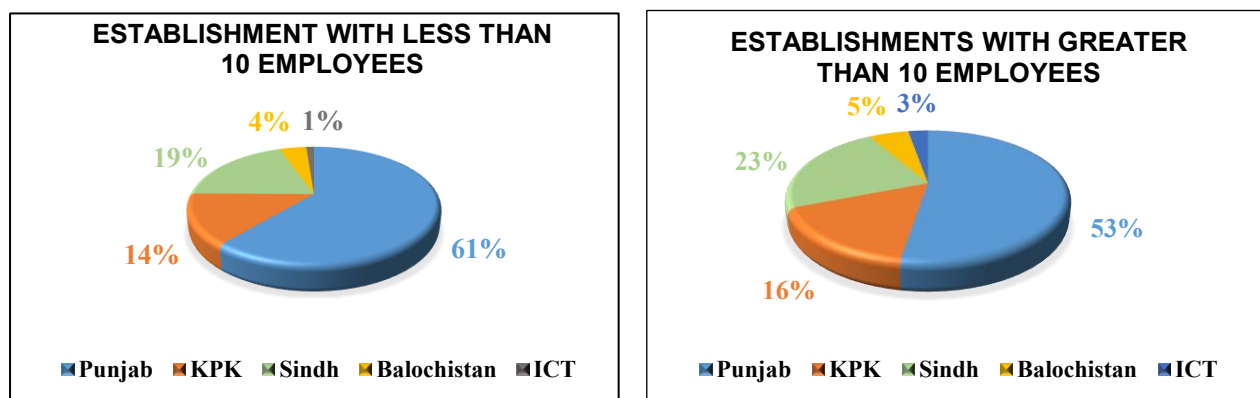
PAKISTAN

EMPLOYMENT LESS THAN 10
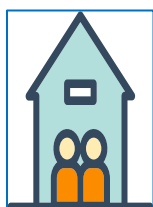
122 **OLD HOMES/** **ORPHANAGE**	**107,275** **HOSPITAL**	**29,652** **MADRASSA**	**164,947** **SCHOOL**	**4,346** **COLLEGE**	**28** **UNIVERSITY**
567,154 **MASJID**	**626,143** **SHOP PRODUCTION**	**5,576** **FACTORY**	**1,093,264** **CATTLE FARMING**	**13,053** **HOSTEL**	**241,789** **HOTEL**
2,728,243 **SHOP RETAIL**	**183,327** **SHOP WHOLESALE**	**811,197** **SHOP SERVICE**	**18,273** **GOVERNMENT OFFICE**	**7,821** **SEMI GOVERNMENT OFFICE**	**8,753** **BANKS**
4,963 **POST OFFICE**	**205,006** **Others**				
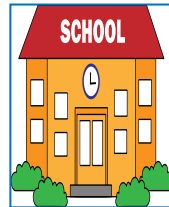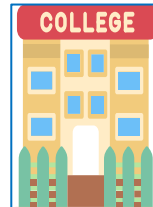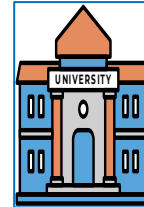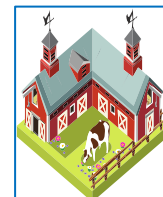
PAKISTAN

EMPLOYMENT 10 & ABOVE

79 OLD HOMES/ ORPHANAGE	**12,514** HOSPITAL	**6,679** MADRASSA	**77,669** SCHOOL	**7,222** COLLEGE	**186** UNIVERSITY
3,3249 MASJID	**17,358** SHOP PRODUCTION	**17,543** FACTORY	**17,507** CATTLE FARMING	**3,512** HOSTEL	**15,137** HOTEL
51,656 SHOP RETAIL	**5,516** SHOP WHOLESALE	**14,057** SHOP SERVICE	**11,563** GOVERNMENT OFFICE	**2,631** SEMI GOVERNMENT OFFICE	**10,892** BANKS
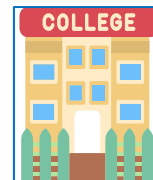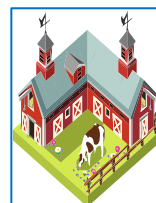
810 POST OFFICE

16,229 OTHERS

Table 3.5: Number of Establishment on the basis of Employment Categories

	Small (1-50)	Medium (51-250)	Large Above 250	Total
Pakistan	7,100,504	35,351	7,086	7,142,941
Punjab	4,344,337 (61.18%)	16,728 (47.31%)	3,228 (45.55%)	4,364,293
KPK	995,554 (14.02%)	7,275 (20.57%)	1,406 (19.84%)	1,004,235
Sindh	1,375,704 (19.37%)	7,773 (21.9%)	1,693 (23.89%)	1,385,170
Balochistan	300,149 (4.22%)	2,435 (6.88%)	505 (7.12%)	303,089
ICT	84,760 (1.19%)	1,140 (3.22%)	254 (3.58%)	86,154

Employment categories as per SMEDA definition &Establishment for which workforce was not mentioned is included in category Employment (1-50)

Table 3.6 shows that most of the establishments in Pakistan have between 1 to 50 employees, with a total of 7,100,504 Establishments. Medium establishments, with 51 to 250 employees, number 35,351, while large establishments with more than 250 employees are least common, at only 7,086 units. At the provincial level, Punjab holds the largest share in all employment size categories, with 4,344,337 small establishments, 16,728 medium establishments and 3,228 large establishments, reflecting its status as the country's main economic hub. Sindh ranks second, with 1,375,704 small, 7,773 medium, and 1,693 large establishments while Islamabad Capital Territory records the smallest numbers overall, with 84,760 small, 1,140 medium, and 254 large establishments.

Small Establishments (1-50)

4%   1%

19%

14%

61%

■Punjab ■KPK ■Sindh ■Balochistan ■ICT

Medium Establishments (51-250)

7%   3%

22%

47%

21%

■Punjab ■KPK ■Sindh ■Balochistan ■ICT

Large Establishments (Above 250)

7%   4%

24%

45%

20%

■Punjab ■KPK ■Sindh ■Balochistan ■ICT
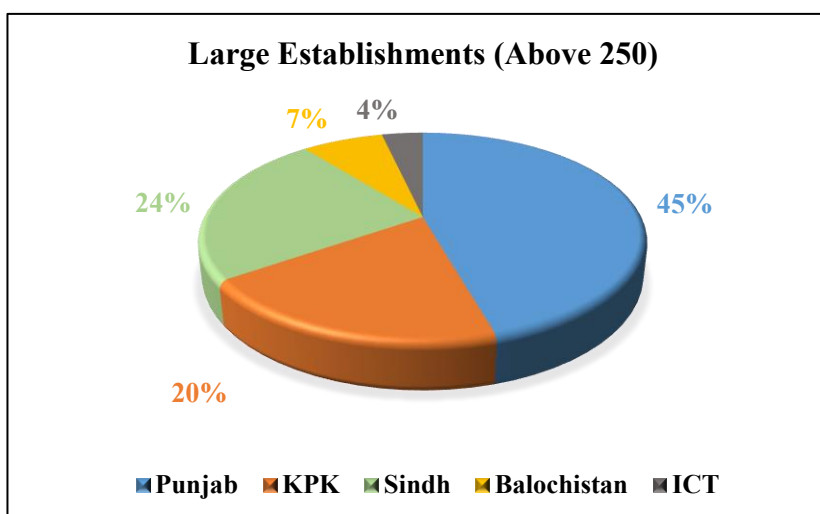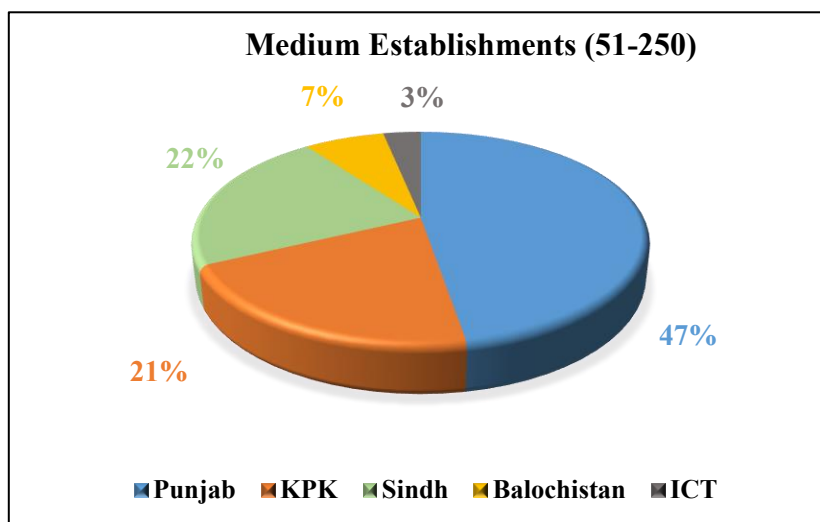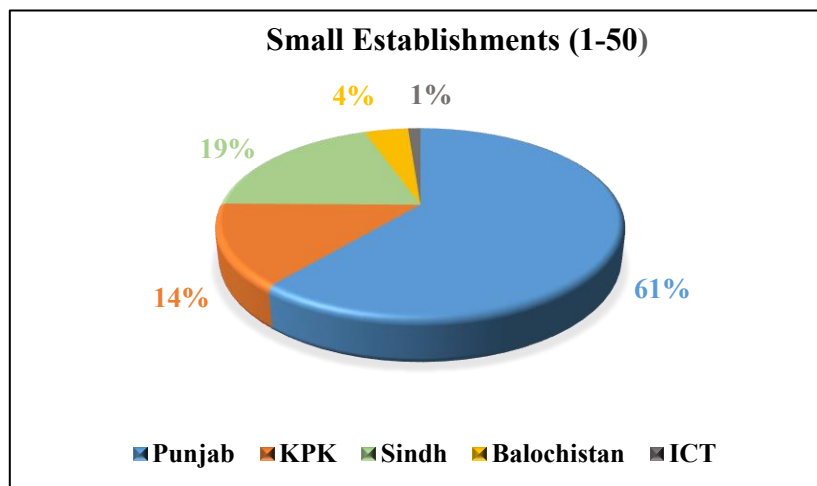
Figure 3.8 Establishments with their size Category as Per SMEDA Definition

3.5   Household Economic Activities

About 5.6 million household economic activities, over half (51.35%) are involved in animal farming, making it the most common activity. Around 41% of households are engaged in various other unspecified or miscellaneous activities. 3.85% of households are involved in Tailoring. Other notable activities include embroidery (1.36%), poultry farming (1.32%), and tuition centers (0.56%). Smaller percentages are engaged in packing or making food at home, beauty parlors, and online services, each contributing less than 1%.

Tailor **3.85%**	Carpet Manufacturing **0.07%**	Embroidery **1.36%**	Packing Of Eatable Items **0.21%**
Tuition Centre **0.56%**	Poultry Farming **1.32%**	Animal Farming **51.35%**	Beauty Parlor **0.42%**
Production Of Eatable Items At Home **0.27%**	Online Services From Home **0.08%**	Misc (Others) **40.49%**	
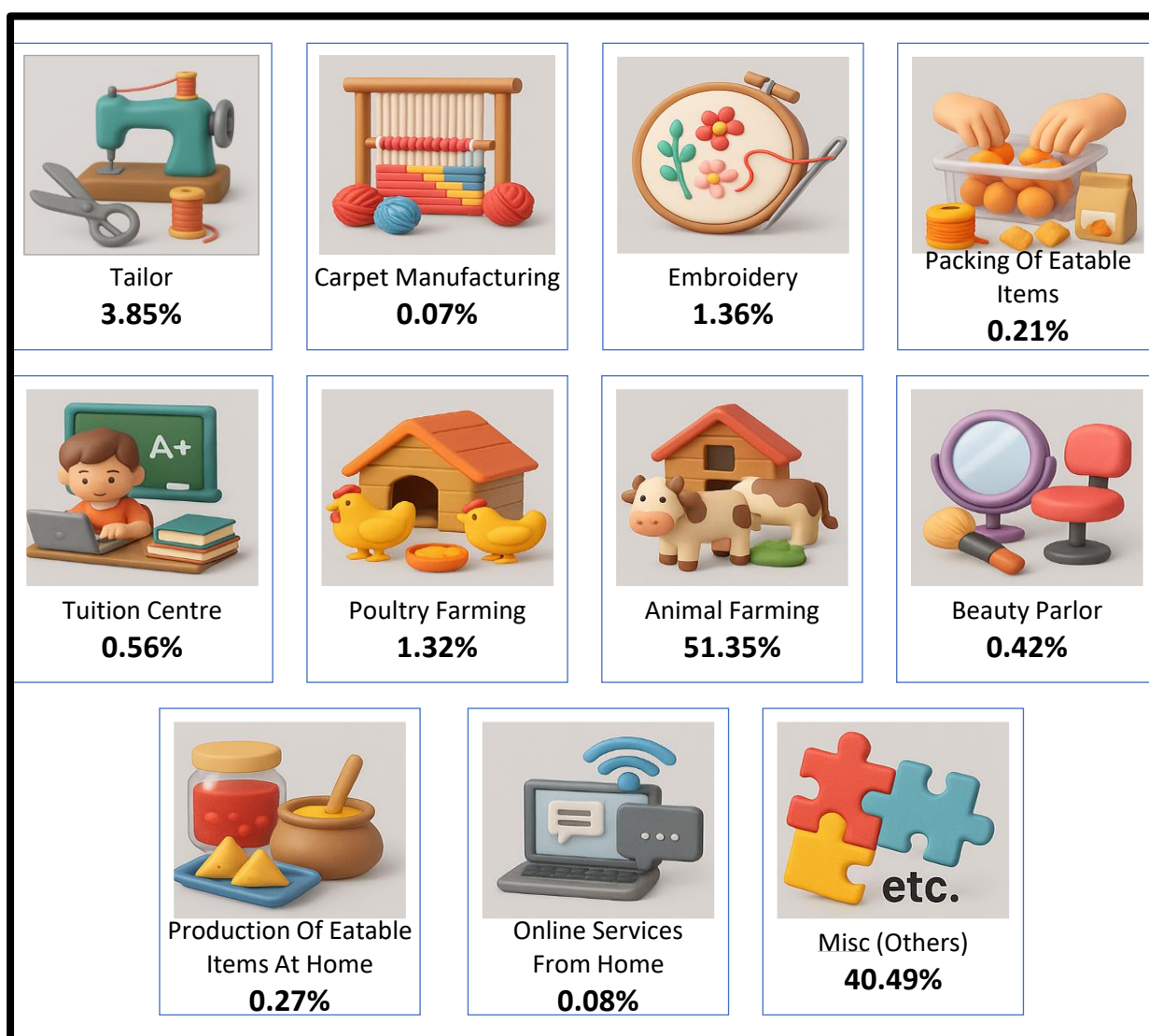
PAKISTAN

TYPES OF HOUSEHOLD ECONOMIC ACTIVITY

TOTAL NUMBER OF ESTABLISHMENTS
1,09,02,471

TAILORING
419.5K

CARPET MANUFACTURING
7.99K

EMBROIDERY
148.7K

PACKING OF EATABLE ITEMS
23.4K

TUITION CENTRE
61.3K

POULTRY FARMING
144.02K

ANIMAL FARMING
5.598 MILLION

BEAUTY PARLOR
46.1K

PRODUCTION OF EATABLE ITEMS AT HOME (SAMOSA, MURABBA, DESI GHEE ETC.)
29.5K

ONLINE SERVICES FROM HOME
9.26K

MISC (OTHERS)
4.4 MILLION

Table 3.6: Distribution of Household Economic Activities

Type Of Household Economic Activity	Number Of Establishment	Percentage
Tailoring	4,19,533	3.85
Carpet Manufacturing	7,990	0.07
Embroidery	1,48,666	1.36
Packing Of Eatable Items	23,383	0.21
Tuition Centre	61,263	0.56
Poultry Farming	1,44,029	1.32
Animal Farming	55,98,583	51.35
Beauty Parlor	46,115	0.42
Production Of Eatable Items At Home (Samosa, Murabba, Desi Ghee Etc.)	29,549	0.27
Online Services From Home	9,256	0.08
Misc (Others)	44,14,104	40.49
Total	**1,09,02,471**	**28.5**

3.6 Limitations

Certain activities were deliberately excluded from the scope of the First Economic Census **Frame** to ensure that the census focused on stable and structured economic units. The exclusions were based on the nature of the businesses or activities that did not fit into the standard framework for economic classification. These excluded activities included:

➢ **Respondent-Based Information:** The census included respondent-based data, which refers to information collected from individuals rather than from registered economic units. This type of administrative data, provided by provincial governments, was outside the purview of the census as it was not focused on registration of businesses.

➢ **Establishments of Shelter-less and Nomadic Populations:** The census excluded establishments associated with shelter-less and nomadic populations, such as those that frequently move from place to place and either do not have permanent shelter or use makeshift structures. These types of mobile or transient populations are not typically captured in formal economic records, given their temporary and fluid nature.

➢ **Illegal or Informal Activities:** Activities engaged in by establishments involved in illegal or informal sectors, such as **smuggling**, **gambling**, **beggary**, and **prostitution**, were deliberately excluded. These activities, by their very nature, do not fall under the formal or regulated economy and are often not registered or classified within standard business frameworks.

➢ **Domestic Servants and Informal Labor:** Individuals working as **domestic servants** (such as maids or nannies), **drivers**, or those undertaking **wage labor** in households were also excluded. These individuals, often engaged in informal work, do not typically represent formal economic units or establishments in the way that registered businesses do.

➢ **Non-Structured Economic Activities:** Economic activities that are not operated, managed, or monitored within a formal or permanent structure were excluded. This included industries that operate entirely online (e.g., digital businesses), as well as public transportation services like taxis or school vans, which may not always operate out of fixed structures. The goal was to focus on businesses and activities that have a clear physical presence.

➢ **Temporary and Informal Street-Based Activities:** Certain temporary or informal economic activities, such as those operated by vendors working from makeshift setups like **khokas** (small stalls), **phattas** (sidewalk carts), or individuals working under trees (such as **mochi** – cobblers), were also excluded. These types of economic activities often lack a permanent structure, which disqualifies them from inclusion in the census frame.

➢ **Moveable Economic Activities:** Similarly, **moveable economic activities** such as **street vendors** or **public transport operators** who operate in an informal, unregistered manner were excluded. These activities are often transient and lack the stability or formal structure necessary to be included in a comprehensive economic census.

➢ **Mines and Minerals Industry:** The mines and minerals industry**,** typically associated with extractive industries that might operate in temporary or semi-structured environments, was also excluded. This sector often involves complex regulatory frameworks and conditions that make it difficult to capture within the scope of a general economic census.

➢ **Agriculture and Fishery without Structure:** Agricultural and fisheries activities that do not involve a structured or registered business (i.e., informal farming or fishing) were excluded. If the economic activity is carried out within a structure or registered framework, it is captured, but informal or unstructured activities in these sectors were outside the census's purview.

However, one important exception was made: household-based economic activities**.** If a household conducts economic activities within its premises for family gain or income generation**,** it was captured separately in Question 9 of the census questionnaire. This allows for the recognition of informal economic activities within the home, which might not otherwise be captured in the broader framework of the census.

➢ **Manufacturing after COVID 19:** It is found that majority of manufacturing industries that were recorded in Census of manufacturing Industries (CMI 2015) have been found closed during Census 2023. Further, a notable change in Employment categories has also been found. The Industries that were in category greater than 250 employees are now in category employees less than 250.

➢ **Cattle Farming:** It has been observed that many cattle farm that have been closed have also been entered in the category 'Bara', as they still have the same name. Therefore, an increase in number of cattle farms has been noticed.

➢ **Change in Ground Realities:** The data had been collected in 2023. Therefore, on ground situation may be different due to birth and death of Economic activities during the time gap. Further, it has been already explained that margin of error after application of ML Algorithm is 20%.

3.7 Way Forward

The economic Statistics data is a vital asset of the Pakistan Bureau of Statistics (PBS) and serves as a cornerstone for economic policy development and planning in the country. To enhance its accuracy, authenticity, and reliability, it is essential to implement stringent quality checks both manually and through field verification to ensure that the data collected reflects the true economic landscape. Such measures will help maintain the integrity of the information, which is crucial for informed decision-making and effective resource allocation.

In addition to manual and field-based methods, adopting a technology-driven strategy can further strengthen the data ecosystem. PBS may make efforts through collaboration and cooperation across institutions for integrating administrative data. This integration will facilitate real-time data sharing and improve the overall efficiency of economic data management, contributing to the development of more robust and evidence-based economic policies.

In conclusion, the integration of household and structured economic activities into the census has been a major achievement *interalia*, addressing the gap of economic frame which is essential for a holistic understanding of Pakistan's economy. Based on this frame, future surveys would more accurately support stronger data-driven policy decisions.

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3.8 Main Tables

Table 3.7: Establishments of Pakistan with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	Pakistan	
			No of Establishments	Workforce
	Pakistan		**7,142,941**	**25,344,121**
1	Agriculture, forestry and fishing	1 - 3	1102497	2231990
2	Mining and quarrying	5 - 9	161	5630
3	Manufacturing	10-33	696558	3175433
4	Electricity, gas, steam and air conditioning supply	35	904	43140
5	Water supply; sewerage, waste management and remediation activities	36-39	68555	149655
6	Construction	41-43	4128	39284
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	3223227	7443985
8	Transportation and storage	49-53	97279	416304
9	Accommodation and food service activities	55-56	272147	1150525
10	Information and communication	58-63	43497	284175
11	Financial and insurance activities	64-66	22264	301543
12	Real estate activities	68	60571	192300
13	Professional, scientific and technical activities	69-75	31641	142659
14	Administrative and support service activities	77-82	28768	145301
15	Public administration and defence; compulsory social security	84	31790	832407
16	Education	85	326868	5138696
17	Human health and social work activities	86-88	123973	814096
18	Arts, entertainment and recreation	90-93	19343	70178
19	Other service activities	94-96	945013	2585085
20	Activities of extraterritorial organizations and bodies	99	2	56
21	Others		43755	181679

Table 3.8: Establishments of Punjab with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	Punjab	
			No of Establishments	Workforce
	Punjab		**4,364,293**	**13,645,277**
1	Agriculture, forestry and fishing	1 -3	837561	1510865
2	Mining and quarrying	5 - 9	18	342
3	Manufacturing	10-33	442640	1978072
4	Electricity, gas, steam and air conditioning supply	35	255	9091
5	Water supply; sewerage, waste management and remediation activities	36-39	40232	71096
6	Construction	41-43	2042	13726
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45 -47	1882159	4134073
8	Transportation and storage	49-53	40411	176082
9	Accommodation and food service activities	55-56	160076	592759
10	Information and communication	58-63	22957	127236
11	Financial and insurance activities	64-66	12572	152874
12	Real estate activities	68	36063	98436
13	Professional, scientific and technical activities	69-75	20420	88739
14	Administrative and support service activities	77-82	17193	73927
15	Public administration and defence; compulsory social security	84	14836	385745
16	Education	85	164477	2477741
17	Human health and social work activities	86-88	67013	397310
18	Arts, entertainment and recreation	90-93	12509	37559
19	Other service activities	94-96	563011	1228009
20	Activities of extraterritorial organizations and bodies	99	2	56
21	Others		27846	91539

Table 3.9: Establishments of KPK with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	KPK	
			No of Establishments	Workforce
	KPK		**1,004,235**	**3,981,466**
1	Agriculture, forestry and fishing	1 - 3	134387	275856
2	Mining and quarrying	5 - 9	14	1937
3	Manufacturing	10-33	90062	279452
4	Electricity, gas, steam and air conditioning supply	35	396	1465
5	Water supply; sewerage, waste management and remediation activities	36-39	11648	31651
6	Construction	41-43	535	9088
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	456231	916802
8	Transportation and storage	49-53	17063	45817
9	Accommodation and food service activities	55-56	35337	150485
10	Information and communication	58-63	6071	28424
11	Financial and insurance activities	64-66	2775	26103
12	Real estate activities	68	4712	21295
13	Professional, scientific and technical activities	69-75	3721	15709
14	Administrative and support service activities	77-82	4572	16159
15	Public administration and defence; compulsory social security	84	5777	128400
16	Education	85	65133	1250564
17	Human health and social work activities	86-88	20652	129543
18	Arts, entertainment and recreation	90-93	1036	5358
19	Other service activities	94-96	139333	634777
20	Activities of extraterritorial organizations and bodies	99	0	0
21	Others		4780	12581

Table 3.10: Establishments of Sindh with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	Sindh	
			No of Establishments	Workforce
	Sindh		**1,385,170**	**5,713,319**
1	Agriculture, forestry and fishing	1-3	100994	312626
2	Mining and quarrying	5-9	35	1219
3	Manufacturing	10-33	133185	799650
4	Electricity, gas, steam and air conditioning supply	35	190	30984
5	Water supply; sewerage, waste management and remediation activities	36-39	10383	29464
6	Construction	41-43	903	9992
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	695488	1905010
8	Transportation and storage	49-53	32902	162470
9	Accommodation and food service activities	55-56	58435	298072
10	Information and communication	58-63	11004	85954
11	Financial and insurance activities	64-66	5130	95542
12	Real estate activities	68	12807	39307
13	Professional, scientific and technical activities	69-75	5305	24710
14	Administrative and support service activities	77-82	4937	32618
15	Public administration and defence; compulsory social security	84	7533	234903
16	Education	85	72832	875154
17	Human health and social work activities	86-88	28071	216861
18	Arts, entertainment and recreation	90-93	4830	21261
19	Other service activities	94-96	190778	468595
20	Activities of extraterritorial organizations and bodies	99	0	0
21	Others		9428	68927

Table 3.11: Establishments of Balochistan with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	Balochistan	
			No of Establishments	Workforce
	Balochistan		**303,089**	**1,382,545**
1	Agriculture, forestry and fishing	1-3	24852	94636
2	Mining and quarrying	5-9	92	2124
3	Manufacturing	10-33	20884	77870
4	Electricity, gas, steam and air conditioning supply	35	46	1350
5	Water supply; sewerage, waste management and remediation activities	36-39	5821	15126
6	Construction	41-43	180	1914
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	151427	338232
8	Transportation and storage	49-53	5881	20067
9	Accommodation and food service activities	55-56	12200	61357
10	Information and communication	58-63	2023	14755
11	Financial and insurance activities	64-66	883	7917
12	Real estate activities	68	2604	8679
13	Professional, scientific and technical activities	69-75	946	5483
14	Administrative and support service activities	77-82	972	3770
15	Public administration and defence; compulsory social security	84	2934	53942
16	Education	85	20243	421082
17	Human health and social work activities	86-88	6087	45116
18	Arts, entertainment and recreation	90-93	578	2654
19	Other service activities	94-96	43048	201066
20	Activities of extraterritorial organizations and bodies	99	0	0
21	Others		1386	5405

Table 3.12: Establishments of ICT with respect to PSIC Codes (Major Categories) and Workforce

Sr. No.	Description	PSIC Codes	ICT	
			No of Establishments	Workforce
	ICT		**86,154**	**621,514**
1	Agriculture, forestry and fishing	1-3	4701	38007
2	Mining and quarrying	5-9	2	8
3	Manufacturing	10-33	9787	40389
4	Electricity, gas, steam and air conditioning supply	35	17	250
5	Water supply; sewerage, waste management and remediation activities	36-39	471	2318
6	Construction	41-43	468	4564
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	37922	149868
8	Transportation and storage	49-53	1022	11868
9	Accommodation and food service activities	55-56	6099	47852
10	Information and communication	58-63	1442	27806
11	Financial and insurance activities	64-66	904	19107
12	Real estate activities	68	4385	24583
13	Professional, scientific and technical activities	69-75	1249	8018
14	Administrative and support service activities	77-82	1094	18827
15	Public administration and defence; compulsory social security	84	710	29417
16	Education	85	4183	114155
17	Human health and social work activities	86-88	2150	25266
18	Arts, entertainment and recreation	90-93	390	3346
19	Other service activities	94-96	8843	52638
20	Activities of extraterritorial organizations and bodies	99	0	0
21	Others		315	3227

Table 3.13 Establishments with respect to Unit Type and Work Force

Description	Pakistan		Punjab		KPK		Sindh		Balochistan		ICT	
	No of Est.	Workforce	No of Est.	Work force	No of Est.	Work force	No of Est.	Work force	No of Est.	Work force	No of Est.	Work force
Old homes /Orphanage	201	3,066	82	1454	25	503	67	944	20	41	7	124
Hostel	16,565	195,601	7,648	95,909	4,337	52,323	3,048	29,158	744	9,702	788	8,509
Hotel	256,926	991,371	152,984	510,343	31,387	110,929	55,632	275,363	11,555	54,461	5,368	40,275
Jail	168	26,253	67	17,234	28	3,566	55	4,915	18	538	0	0
Hospital	119,789	768,002	64,821	378,625	20,034	122,581	27,009	203,091	5,911	42,645	2,014	21,060
Madrasa	36,331	477,174	16,117	133,769	11,182	179,352	5,630	67,865	3,138	92,018	264	4,170
School	242,616	3,832,495	123,076	1,982,096	45,318	891,540	57,602	667,051	14,228	247,515	2,392	44,293
College	11,568	387,535	6,635	197,506	2,356	89,879	1,765	55,514	486	30,463	326	14,173
University	214	49,004	91	14,910	46	8,793	43	10,968	12	5,975	22	8,358
Masjid	600,403	2,063,114	327,251	877,201	112,642	609,609	120,009	355,064	36,856	195,265	3,645	25,975
Shop Retail	2,779,899	6,338,959	1,609,106	3,502,695	403,600	785,052	605,306	1,646,469	130,584	276,951	31,303	127,792
Shop Wholesale	188,843	502,059	109,652	277,830	21,773	55,044	44,594	131,030	9,993	27,221	2,831	10,934
Shop Service	825,254	1,954,113	526,913	1,130,259	85,195	201,196	166,141	434,706	28,472	84,607	18,533	103,345
Shop Production	643,501	1,554,852	415,676	957,583	81,762	188,486	120,878	336,159	16,959	49,772	8,226	22,852
Factory	23,119	1,494,740	14,544	948,171	2,101	81,705	5,525	430,534	645	20,574	304	13,756
Semi Govt. Office	10,452	176,225	5,499	77,779	902	12,651	3,276	68,940	447	4,746	328	12,109
Govt. Office	29,836	823,395	14,633	363,268	5,416	110,891	7,116	238,993	2,055	58,941	616	51,302
Post Office	5,773	42,595	3,115	21,049	947	5,973	1,126	10,147	413	3,089	172	2,337
Bank	19,645	271,470	10,960	141,728	2,438	24,103	4,696	82,261	812	7,312	739	16,066
Police Station	4,387	106,474	1,399	37,220	1,073	25,960	1,187	28,446	687	12,767	41	2,081
Cattle Farming	1,110,771	2,245,220	843,522	1,519,751	135,852	278,050	101,469	314,201	25,148	95,069	4,780	38,149
Others	216,680	1,040,404	110,502	458,897	3,5821	143,280	52,996	321,500	13,906	62,873	3,455	53,854
	7,142,941	25,344,121	4,364,293	13,645,277	1,004,235	3,981,466	1,385,170	5,713,319	303,089	1,382,545	86,154	621,514

- ❖ The above unit type includes both government and private structure count.
- ❖ The term 'post office' encompasses all categories of economic entities engaged in courier and delivery services, both in the public and private sectors.
- ❖ Police station includes "police station /police chowki/post"

Table 3.14 Establishments with respect to Employment Category and PSIC Category

PSIC Category		Pakistan		Punjab		KPK		Sindh		Balochistan		Islamabad	
		Employment Categories											
		Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above
Agriculture, forestry and fishing	1 - 3	1,085,083	17,414	828,505	9,056	131,794	2,593	96,991	4,003	23,510	1,344	4,283	418
Mining and quarrying	5 - 9	35	126	11	7	1	13	10	25	11	81	2	0
Manufacturing	10 -33	660,648	35,910	418,631	24,009	87,042	3,020	125,712	7,473	19,968	916	9,295	492
Electricity, gas, steam and air conditioning supply	35	661	243	131	124	367	29	123	67	30	16	10	7
Water supply; sewerage, waste management and remediation activities	36-39	67,229	1,326	39,675	557	11,404	244	10,064	319	5,652	169	434	37
Construction	41-43	3,493	635	1,748	294	465	70	758	145	151	29	371	97
Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	3,162,859	60,368	1,849,020	33,139	448,478	7,753	680,232	15,256	148,990	2,437	36,139	1,783
Transportation and storage	49-53	90,859	6,420	37,660	2,751	16,469	594	30,412	2,490	5,496	385	822	200
Accommodation and food service activities	55-56	254,022	18,125	151,606	8,470	33,032	2,305	52,944	5,491	11,292	908	5,148	951
Information and communication	58-63	39,,040	4457	20,,947	2010	5,610	461	9,658	1,346	1,784	239	1,041	401
Financial and insurance activities	64-66	10,969	11,295	6,215	6,357	1,,678	1097	2,148	2,982	571	312	357	547
Real estate activities	68	58,349	2,222	34,896	1,167	4,537	175	12,399	408	2,522	82	3,995	390
Professional, scientific and technical activities	69-75	30,086	1,555	19,534	886	3,552	169	4,996	309	859	87	1,145	104
Administrative and support service activities	77-82	27,237	1,531	16,475	718	4,396	176	4,535	402	915	57	916	178
Public administration and defence; compulsory social security	84	19,637	12,153	9,175	5,661	3,590	2,187	4,560	2,973	1,868	1,066	444	266

PSIC Category		Pakistan		Punjab		KPK		Sindh		Balochistan		Islamabad	
		Employment Categories												
		Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above
Education	85	229,254	97,614	112,845	51,632	46,301	18,832	53,383	19,449	14,676	5,567	2,049	2,134
Human health and social work activities	86-88	110,439	13,,534	59738	7,275	18,588	2,064	24,965	3,106	5,390	697	1,758	392
Arts, entertainment and recreation	90-93	18,605	738	12,140	369	944	92	4,647	183	531	47	343	47
Other service activities	94-96	910,579	34,434	549,187	13,824	128,534	10,799	184,814	5,964	39,608	3,440	8,436	407
Activities of extraterritorial organizations and bodies	99	1	1	1	1	0	0	0	0	0	0	0	0
Other		41,847	1,908	26,823	1,023	4,661	119	8,725	703	1,342	44	296	19
Total		**6,820,932**	**322,009**	**4,194,963**	**169,330**	**951,443**	**52,792**	**1,312,076**	**73,094**	**285,166**	**17,923**	**77,284**	**8,870**

*Establishment for which workforce was not mentioned is included in category Employment less than 10

Table 3.15 Establishments with respect to Employment Category and Unit Type

	Pakistan		Punjab		KPK		Sindh		Balochistan		Islamabad	
	Employmet Categories											
	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above	Less than 10	10 and above
Old homes /Orphanage	122	79	39	43	14	11	46	21	20	0	3	4
Hostel	13,053	3,512	5,881	1,767	3,367	970	2,605	443	596	148	604	184
Hotel	241,789	15,137	146,073	6,911	29,883	1,504	50,496	5,136	10,749	806	4,588	780
Jail	62	106	17	50	5	23	33	22	7	11	0	0
Hospital	107,275	12,514	57,995	6,826	18,128	1,906	24,177	2,832	5,272	639	1,703	311
Madrassa	29,652	6,679	13,758	2,359	8,901	2,281	4,604	1,026	2,196	942	193	71
School	164,947	77,669	80,454	42,622	31,582	13,736	41,525	16,077	10,404	3,824	982	1,410
College	4,346	7,222	2,603	4,032	777	1,579	683	1,082	194	292	89	237
University	28	186	11	80	7	39	4	39	2	10	4	18
Masjid	567,154	33,249	314,311	12,940	101,753	10,889	114,398	5,611	33,340	3,516	3,352	293
Shop Retail	2,728,243	51,656	1,580,480	28,626	397108	6,492	592,224	13,082	128,653	1,931	29,778	1,525
Shop Wholesale	183,327	5,516	106,962	2690	21,129	644	42,843	1,751	9,701	292	2,692	139
Shop Service	811,197	14,057	519,461	7,452	83,621	1,574	162,927	3,214	27845	627	17343	1,190
Shop Production	626,143	17,358	404,212	11,464	80,073	1,689	117424	3,454	16471	488	7963	263
Factory	5,576	17,543	2,592	11,952	829	1,272	1,758	3,767	282	363	115	189
Semi Government Office	7,821	2,631	4,203	1,296	718	184	2,363	913	325	122	212	116
Government Office	18,273	11,563	9,167	5,466	3,482	1,934	4,332	2,784	1,099	956	193	423
Post Office	4,963	810	2,732	383	819	128	953	173	321	92	138	34
Banks	8,753	10,892	4,753	6,207	1,371	1,067	1,859	2,837	517	295	253	486
Police Station	1900	2487	429	970	462	611	625	562	372	315	12	29
Cattle Farming	1,093,264	17,507	834,420	9,102	133243	2,609	97,442	4,027	23,799	1,349	4,360	420
Others	203,044	13,636	104,410	6,092	34,171	1650	48,755	4,241	13,001	905	2,707	748
Total	**6,820,932**	**322,009**	**4,194,963**	**169,330**	**951,443**	**52,792**	**1,312,076**	**73,094**	**285,166**	**17,923**	**77,284**	**8,870**

*Establishment for which workforce was not mentioned is included in category Employment less than 10

- ❖ The above unit type includes both government and private structure count.
- ❖ The term 'post office' encompasses all categories of economic entities engaged in courier and delivery services, both in the public and private sectors.
- ❖ Police station includes "police station /police chowki/post".

4 Annexure

4.1 Population and Housing Listing Questionnaire

آبادی اور مکانات کی فہرست گری

فہرست خانہ جات (م-1)

# PSIC کالم-11	کالم-10	کالم-9	کالم-8	کالم-7	کالم-6	کالم-5	کالم-4	کالم-3	کالم-2	کالم-1

4.2 PSIC codes of Economic activities covered in digital Census

PSIC	Description
01	Crop and animal production, hunting and related service activities
02	Forestry and logging
03	Fishing and aquaculture
05	Mining of coal and lignite
06	Extraction of crude petroleum and natural gas
07	Mining of metal ores
08	Other mining and quarrying
09	Mining support service activities
10	Manufacture of food products
11	Manufacture of beverages
12	Manufacture of tobacco products
13	Manufacture of textiles
14	Manufacture of wearing apparel
15	Manufacture of leather and related products
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
17	Manufacture of paper and paper products
18	Printing and reproduction of recorded media
19	Manufacture of coke and refined petroleum products
20	Manufacture of chemicals and chemical products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
22	Manufacture of rubber and plastics products
23	Manufacture of other non-metallic mineral products
24	Manufacture of basic metals
25	Manufacture of fabricated metal products, except machinery and equipment
26	Manufacture of computer, electronic and optical products
27	Manufacture of electrical equipment
28	Manufacture of machinery and equipment n.e.c.
29	Manufacture of motor vehicles, trailers and semi-trailers
30	Manufacture of other transport equipment
31	Manufacture of furniture
32	Other manufacturing

PSIC	Description
33	Repair and installation of machinery and equipment
35	Electricity, gas, steam and air conditioning supply
36	Water collection, treatment and supply
37	Sewerage
38	Waste collection, treatment and disposal activities; materials recovery
39	Remediation activities and other waste management services
41	Construction of buildings
42	Civil engineering
43	Specialized construction activities
45	Wholesale and retail trade and repair of motor vehicles and motorcycles
46	Wholesale trade, except of motor vehicles and motorcycles
47	Retail trade, except of motor vehicles and motorcycles
49	Land transport and transport via pipelines
50	Water transport
51	Air transport
52	Warehousing and support activities for transportation
53	Postal and courier activities
55	Accommodation
56	Food and beverage service activities
58	Publishing activities
59	Motion picture, video and television programme production, sound recording and music publishing activities
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
64	Financial service activities, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsory social security
66	Activities auxiliary to financial service and insurance activities
68	Real estate activities
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis

PSIC	Description
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
77	Rental and leasing activities
78	Employment activities
79	Travel agency, tour operator, reservation service and related activities
80	Security and investigation activities
81	Services to buildings and landscape activities
82	Office administrative, office support and other business support activities
84	Public administration and defence; compulsory social security
85	Education
86	Human health activities
87	Residential care activities
88	Social work activities without accommodation
90	Creative, arts and entertainment activities
91	Libraries, archives, museums and other cultural activities
93	Gambling and betting activities
94	Sports activities and amusement and recreation activities
95	Activities of membership organizations
96	Repair of computers and personal and household goods
97	Other personal service activities
98	Activities of households as employers of domestic personnel
99	Undifferentiated goods- and services-producing activities of private house- holds for own use

4.3   Field Verification Form

TH	Tehsil code	ID Code	BLOCK_CODE	STRUCTURE_UID	AREA	STREET_NAME	CURRENT_GEO	BUSINESS_NAME	ACTIVITY_TYPE	UNITTYPE	PSIC_CODE	WORK FORCE	DiscriptionU	Establishment (Exists or Not)	If Changed Write Correct Unit Type	Explain Nature of Economic Activity	No of Person engaged	Respondant Name	Respondant Phone Number	Remark

Field Verifiction form for Economic Activities and Assignment of PSIC code During listing Of Census 2023

Name Enumerator _____   Date _____   Signature _____

4.4   Blocks Selected for Karachi verification

Sub division	No of Establishment
Aram Bagh Sub-Division	118
Civil Lines Sub-Division	93
Ferozabad Sub-Division	10
Gulberg Sub-Division	19
Gulshan-E-Iqbal Sub-Division	96
Korangi Sub-Division	44
Landhi Sub-Division	119
Model Colony Sub-Division	90
Saddar Sub-Division	219
Grand Total	**808**

4.5   Lahore (After Implementation)

S No	Description	Frequency
1	Agriculture, forestry and fishing	13,217
2	Mining and quarrying	11
3	**Manufacturing**	**45,866**
4	Electricity, gas, steam and air conditioning supply	8
5	Water supply; sewerage, waste management and remediation activities	1,301
6	Construction	318
7	**Wholesale and retail trade; repair of motor vehicles and motorcycles**	**242,141**
8	Transportation and storage	8,793
9	**Accommodation and food service activities**	**18,529**
10	Information and communication	3,266
11	Financial and insurance activities	1,924
12	**Real estate activities**	**8,156**
13	Professional, scientific and technical activities	2,276
14	Administrative and support service activities	2,176
15	Public administration and defence; compulsory social security	600
16	**Education**	**11,889**
17	Human health and social work activities	6,228
18	Arts, entertainment and recreation	1,986
19	**Other service activities**	**44,549**
20	Closed Shop/ Non Economic Activities	1190
21	Activities of extraterritorial organizations and bodies	2
22	Others	10

4.6 Karachi (After Implementation)

Sr No.	Description	Frequency
1	Agriculture, forestry and fishing	7,327
2	Mining and quarrying	9
3	**Manufacturing**	**57,903**
4	Electricity, gas, steam and air conditioning supply	30
5	Water supply; sewerage, waste management and remediation activities	3,000
6	Construction	535
7	**Wholesale and retail trade; repair of motor vehicles and motorcycles**	**310,415**
8	**Transportation and storage**	**17,353**
9	**Accommodation and food service activities**	**22,495**
10	Information and communication	5,096
11	Financial and insurance activities	2,633
12	**Real estate activities**	**8,075**
13	Professional, scientific and technical activities	1,707
14	Administrative and support service activities	2,581
15	Public administration and defence; compulsory social security	670
16	**Education**	**16,442**
17	Human health and social work activities	8,693
18	Arts, entertainment and recreation	2,640
19	**Other service activities**	**50,878**
20	Closed Shop/ Non Economic Activities	1,561
22	Others	279

4.7 Faisalabad (After Implementation)

S No.	Description	Frequency
1	**Agriculture, forestry and fishing**	**60,815**
2	Mining and quarrying	2
3	**Manufacturing**	**34,831**
4	Electricity, gas, steam and air conditioning supply	10
5	Water supply; sewerage, waste management and remediation activities	2,065
6	Construction	103
7	**Wholesale and retail trade; repair of motor vehicles and motorcycles**	**176,449**
8	Transportation and storage	3,308
9	**Accommodation and food service activities**	**11,397**
10	Information and communication	1,913
11	Financial and insurance activities	791
12	Real estate activities	3,512
13	Professional, scientific and technical activities	1,107
14	Administrative and support service activities	1,099
15	Public administration and defence; compulsory social security	439
16	**Education**	**9,487**
17	Human health and social work activities	4,606
18	Arts, entertainment and recreation	1,197
19	**Other service activities**	**41,320**
20	Closed Shop/ Non Economic Activities	1,504
22	Others	11

4.8   Comparison of three cities before and after cleaning

Descriptions	Initial Count	Intermediate	Final Data
Agriculture, forestry and fishing	70,435	81,812	81,359
Mining and quarrying	2,204	960	22
Manufacturing	80,103	137,387	138,600
Electricity, gas, steam and air conditioning supply	195	218	48
Water supply; sewerage, waste management and remediation activities	1,315	5,732	6,366
Construction	339	852	956
Wholesale and retail trade; repair of motor vehicles and motorcycles	253,176	517,666	729,005
Transportation and storage	2,871	25,323	29,454
Accommodation and food service activities	22,441	48,664	52,421
Information and communication	5,488	6,590	10,275
Financial and insurance activities	5,562	5,592	5,348
Real estate activities	9,952	17,696	19,743
Professional, scientific and technical activities	2,961	4,593	5,090
Administrative and support service activities	4,029	5,946	5,856
Public administration and defence; compulsory social security	2,843	2,780	1,709
Education	30,959	37,386	37,818
Human health and social work activities	11,905	20,981	19,527
Arts, entertainment and recreation	867	4364	5823
Other service activities	98,322	130,704	136,747

Descriptions	Initial Count	Intermediate	Final Data
Closed Shop/ Non Economic Activities	24	3378	4255
Activities of extraterritorial organizations and bodies	90	49	2
Others	**684,643**	**232,051**	**300**
Total	**1,290,724**	**1,290,724**	**1,290,724**

4.9   Instructions for field Verification

➤ To ensure an organized and efficient process, all enumerators were provided with a detailed **block-wise working plan** and a **proforma** to guide their visits to each block. The plan was structured to streamline the verification process, with each enumerator assigned to visit and verify one block per day. This allocation of time was designed considering that the information to be collected was brief but required careful attention to detail.

➤ During their visits, the enumerators were responsible for cross-checking and verifying the establishments listed within their assigned blocks. They were required to confirm the accuracy of the **PSIC codes** assigned to each establishment by comparing them with the **activity descriptions** provided. Enumerators were also instructed to record the correct **unit type** and to ensure that the **activity description** accurately reflected the business's operations. This process was crucial for ensuring that the PSIC codes assigned to each establishment were correct and aligned with the actual activities being carried out.

➤ To maintain continuous progress and ensure accountability, **day wise progress** was to be shared in a **WhatsApp group**. This allowed for real-time tracking and communication, ensuring that any issues or challenges encountered during the fieldwork could be quickly addressed and resolved. The group also facilitated coordination among enumerators, supervisors, and other team members, ensuring that the task was progressing smoothly and efficiently.

➤ The deadline for the completion of this task was set for **19th December, 2024**. Enumerators were made aware of this deadline, ensuring that they stayed on track and completed their work within the allotted period. By providing a structured plan, clear instructions, and efficient

communication tools, the initiative aimed to ensure the accurate and timely completion of the establishment verification process.

4.10   SOP for Checking Field Verification at PBS Head office

The fieldwork was distributed among teams at the head office to ensure the accuracy of the PSIC codes applied. After verification, the teams reported the following cases separately in a consolidated Excel file, providing a summary table for establishments:

- **Exact Match** - Cases where the assigned code matches the establishment's activity description accurately.

- **Reported Closed but Now Open** - Establishments previously reported as closed but found to be operational.

- **Reported Open but Now Closed** - Establishments previously listed as open but confirmed as closed.

- **Change in Activity Description** - Instances where there is a modification in the description of the business activity.

- **Slight Mismatch Within Group** - Cases where there are minor discrepancies in code assignments within the same group.

- **Wrong Code Imputed** - Instances where the assigned code does not align with the establishment's activity.

A **block-wise summary** was provided for further clarification, allowing for a more detailed review of the data. Additionally, an **analysis of wrong codes** was conducted to update and refine the dictionary, ensuring improved accuracy for future assignments.

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