Data Sources, Sector Mapping, *and* Methodology

Where are Women?
A Snapshot View of Jobs in the Five Strategic Sectors

Technical Note

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Introduction

This technical note provides the methodological background and data documentation for the report *"Where Are Women? A Snapshot View of Jobs in the Five Strategic Sectors."* It explains how the analysis was constructed and the data sources and classification approaches used throughout the study. The report examines women's participation across the five strategic sectors by quantifying the share of female workers and assessing their overall presence in each sector. It further analyzes patterns of **occupational segregation**, highlighting the types of jobs women tend to hold within industries, and explores how **firm size relates to female employment**, examining whether women are more concentrated in small, medium, or large establishments. The analysis also evaluates **informality by gender**, identifying differences in employment quality between men and women, and compares **working hours** to shed light on disparities in workload and time intensity. Within manufacturing, the study distinguishes between **light and more complex value-added production** to better understand where women are positioned along the manufacturing value chain. Finally, the report incorporates **labor market demand data, including online job vacancies**, to provide a real-time perspective on emerging employment opportunities and assess how women's current employment patterns align with evolving labor market trends

This technical note documents the data sources, classification methodology, and analytical choices used in the report. Its primary objective is to provide transparency on how the underlying datasets were constructed, how industries were mapped to the strategic sectors used in the analysis, and how potential data limitations were addressed. The note builds on a broader analytical framework outlined in a development committee white paper, which identifies **five strategic sectors with strong potential for large-scale job creation in local labor markets**. These sectors—**agribusiness, health care, infrastructure and energy, tourism, and value-added manufacturing**—were selected based on their potential to generate employment across a wide range of skill levels, their linkages to domestic value chains, and their capacity to support inclusive economic growth. While the white paper establishes the strategic importance of these sectors, the present analysis requires translating this conceptual framework into an empirical classification that can be applied to internationally comparable labor market data.

A key step in this process is determining the **operational scope of the five sectors**. Because internationally available employment statistics are reported using standardized industry classifications, the analysis relies on the **International Standard Industrial Classification (ISIC)**. This technical note explains how industries defined at the **2-digit ISIC level** are mapped to the five strategic sectors using a structured classification approach. The mapping is primarily based on **ISIC Revision 4**, which provides the most detailed and widely used industrial classification in current international datasets. The note describes the methodology used to align industries with the sector definitions, including the reasoning used in cases where industries partially overlap with multiple sectors or where classification requires analytical judgment.

The analysis integrates several international datasets to capture different dimensions of labor market outcomes and sector characteristics. The core employment statistics are drawn from **ILOSTAT**, the International Labour Organization's (ILO) global database of labor market indicators, which provides country-level data on employment by industry, gender, occupation, and formality status. Additional datasets are used to complement the labor market analysis. These include the **Product Complexity Index (PCI)** from the Harvard Growth Lab, which provides information on the technological sophistication of products and industries, and labor market demand data from **Lightcast**, compiled in collaboration with the United Nations Educational, Scientific and Cultural Organization (**UNESCO**), which offers insights into job postings, skills demand, and emerging labor market trends. Together, these sources provide a multidimensional view of sector performance and employment potential.

This technical note also explains how **industry-to-sector mapping** was constructed. The mapping process combines a structured review of ISIC industry definitions with a probabilistic semantic scoring approach to evaluate the alignment between industry activities and the functional scope of the five sectors. The final classification reflects both the quantitative scoring results and a manual validation process to ensure that the assigned sectors accurately reflect the economic role of each industry within the broader value chain. The completed mapping is documented in a dedicated appendix that provides the full crosswalk between **2-digit ISIC industries and the five strategic sectors**.

In addition to documenting the classification framework, the note describes how several **data challenges** were addressed during dataset construction. These include differences in industrial classification systems across countries, missing observations due to statistical disclosure rules, and inconsistencies in occupational classifications. The procedures used to harmonize data, address missing values, and ensure internal consistency across datasets are described in detail. The note also outlines the key definitions used in the report, including the definition of informal employment, occupational classifications, and indicators used to measure sector characteristics.

Finally, the note highlights the **limitations and caveats** associated with the analysis. These include constraints related to the level of industry aggregation, differences in reporting standards across countries, and the implications of assigning broad industry categories to sector-based classifications. By documenting these methodological considerations, the technical note aims to ensure that the analytical framework underlying the report is transparent, replicable, and clearly understood by readers.

Data Sources

The report draws on several complementary data sources to provide a comprehensive view of employment patterns and sector dynamics. These include **ILOSTAT**, **Lightcast-UNESCO labor market demand data**, United Nations (**UN) Comtrade**, the **Harvard Growth Lab's Atlas of Economic Complexity**, and the **World Integrated Trade Solution (WITS)** database. The primary source for employment statistics is **ILOSTAT**, which compiles internationally comparable data derived from national labor force and household surveys. Because the analysis is designed to provide a **snapshot of women's participation across sectors**, the study uses the **most recent year of available data for each country**. The specific datasets used in the analysis are listed as follows:

ILOSTAT

Employment by sex and economic activity – ISIC level 2 (thousands) – Annual

Employment by sex, occupation, and economic activity – ISIC level 2 (thousands) – Annual

Employment by sex, nature of job (informal or formal), and economic activity – ISIC level 2 (thousands) – Annual

Employment by sex, establishment size, and economic activity – ISIC level 2 (thousands) – Annual

Employment by sex, education, and economic activity – ISIC level 2 (thousands)

Mean weekly hours actually worked per employed person by sex and economic activity – ISIC level 2

Hourly earnings data by gender – ISIC letter level

Lightcast-UNESCO Collaboration

Online job advertisements for ~10 countries

UN Comtrade/BACI

Product-level trade data (2007–2023)

Harvard Growth Lab – Atlas of Economic Complexity

Product Complexity Index (PCI) at the HS-4 level

World Integrated Trade Solution (WITS)

Concordance tables

Section I: Mapping of 2-Digit ISIC Codes to the Five Strategic Sectors

Purpose and Scope

This appendix documents the mapping developed for this study that links **2-digit industries in the ISIC Revision 4** to the five strategic sectors used in the analysis—**agribusiness, health care, infrastructure and energy, value-added manufacturing, and tourism**—along with a residual **"unclassified"** category for industries that do not clearly align with these sectors. The purpose of this mapping is to translate the conceptual sector framework outlined in the report into a structure that can be applied to internationally comparable industry-level data. It enables employment and other sectoral indicators reported under the ISIC classification system to be aggregated and analyzed within the five strategic sectors. It is important to note that this mapping is a tool **developed specifically for this study**, rather than an official grouping within the ISIC classification. As such, it should be interpreted as a practical tool designed to facilitate consistent aggregation, analysis, and reporting across datasets that rely on the ISIC industry framework. Teams can use it as is or amend it as necessary to suit their needs.

Sector Definitions (Functional IFC Lens)

One of the central challenges in constructing the mapping is to clearly define the **operational scope of the five strategic sectors** identified in the analysis. The development committee paper serves as the foundation for this framework, identifying five sectors with strong potential to generate employment at scale (box 1.1). According to the paper, these sectors are powerful engines for job creation. They are characterized by their resilience to global economic shocks, their role in building the foundational infrastructure that supports employment, and their capacity to generate jobs that are less susceptible to displacement by digital technologies. Moreover, these sectors tend to create **locally rooted employment opportunities**, strengthening domestic labor markets rather than shifting jobs away from advanced economies.

Box 1.1: Five Strategic Sectors for Job Creation at Scale

- **Infrastructure and energy** provide the backbone of economic activity while creating construction, engineering, and maintenance jobs, and stimulating indirect job creation in sectors that supply building materials and enabling services for construction projects.
- **Agribusiness** can drive food security and create millions of better-paid jobs in farming, processing, and food distribution for the 40 percent of the global workforce it currently employs. To do so, it needs resilient and fertile land, clean water, and connectivity to markets.
- **Health care** is central to building the human infrastructure for jobs. It also relies on education and skills to meet the demand for millions of new doctors, nurses, technicians, and support staff expected in the coming years.
- **Tourism** has a strong multiplier effect. It generates employment in hospitality, travel, and cultural services, but also in transport, food, and commerce. Roads, ports, and airports enable tourists to reach new destinations and enjoy their natural assets.
- **Value-added manufacturing** needs reliable electricity, transport, and a skilled workforce to create local jobs that pay well and transform minerals into critical components of modern transport and energy infrastructure.

Although the description offers an initial framework, sectors are interconnected, and economic and labor market data are classified through standardized statistical mechanisms that are difficult to align directly with the five main sectors. Thus, the first step involved reviewing literature, consulting industry experts, and establishing operational definitions to identify these industries within the IFC context. Accordingly, we outlined the scope as follows.

Agribusiness: IFC defines "agribusiness" broadly to encompass the entire agriculture and food value chain from "farm to fork"—in other words, all businesses deriving from products of plant or animal origin and involved in supplying inputs, producing, processing, or distributing agricultural and forestry goods. This means IFC's agribusiness sector covers much more than farming itself: it includes agricultural input providers (for example, seeds, fertilizers, farm machinery, and finance for farmers), primary agricultural producers (for example, crop farming, livestock, fisheries, and forestry), commodity traders and processors (for example, grain milling, dairy and meat processing, and cotton ginning), and food and beverage manufacturers. Because three-quarters of the world's poor live in rural areas, IFC considers agribusiness a key sector for food security, rural job creation, and poverty reduction, and it works with private companies at all stages of the value chain to boost sustainable production and improve market access for farmers.

Healthcare: IFC's "health care" sector comprises the full range of health-related businesses—both health service providers and health product industries. On the services side, this includes private health care delivery organizations such as hospitals, clinics, diagnostic and imaging centers, and other medical service providers. In parallel, it also covers the "life sciences" industries—that is, pharmaceutical and vaccine manufacturers, medical device producers, and the supply chains that deliver medicines and equipment. IFC often refers to this combined portfolio as the health care and life sciences sector, reflecting the view that ensuring quality health outcomes requires not only doctors and clinics but also the production and distribution of essential medicines, vaccines, and technologies.

Energy and infrastructure (including Mining): For IFC, "infrastructure and energy" is an umbrella term covering all major physical infrastructure systems and essential services required for economic development. This spans several domains: power and energy (electricity generation—especially renewable energy—along with transmission and distribution networks); transportation (roads and highways, railways, ports, airports, and logistics infrastructure); telecommunications and digital connectivity (for example, mobile and broadband networks and data centers); municipal utilities such as water supply, sanitation, and solid waste management; and often natural resources projects like metals and mining, which IFC places within its infrastructure and natural resources portfolio. In conventional industry classification, these areas are spread across multiple sectors (utilities, transport, telecom, construction, mining, and so on), but IFC integrates them into one strategic sector to catalyze private investment in the full spectrum of infrastructure needs. The rationale is that modern, reliable infrastructure—from affordable power and transport to clean water and reliable digital networks—is fundamental for businesses to grow and for economies to create jobs and thrive. IFC advances innovative financing and public-private solutions in cities, energy, digital connectivity, water, waste management, metals and mining, and transportation, reflecting how "infrastructure and energy" encompasses a wide array of interconnected subsectors.

Tourism: IFC uses the term "tourism" to describe the broad set of private enterprises that cater to travelers and the visitor economy, with a strong focus on the hospitality industry. In particular, IFC's investments in this sector largely target hotels, resorts, and other tourist accommodations, given their central role in the tourism value chain and their potential for significant employment and local supply-chain impacts. However, IFC recognizes that tourism as a sector extends well beyond hotels. It includes interrelated subsectors like travel and tour operators, passenger transport services (for example, airlines, airports, cruise lines, and car rentals), food and beverage businesses (for example, restaurants and catering), and a wide range of recreational, cultural, and entertainment services that attract or serve tourists. A World Bank Group guidance note on tourism underscores that a complete tourism ecosystem consists of "accommodation, food and beverage, transport, travel services, and recreation or attractions"—a definition that spans multiple standard industry codes. [R11] While a thriving tourism sector relies on all parts of the value chain working together, in practice, most of IFC's direct investments in tourism have been in the hospitality segment for their strong development impact. At the same time, IFC promotes sustainable and inclusive tourism—for instance by promoting environmental standards, resource efficiency, and stronger linkages with local suppliers and communities.

Value-added manufacturing: IFC does not typically use the phrase "value-added manufacturing" although **it does work** across the full spectrum of manufacturing industries that transform raw materials or components into higher-value products. It encompasses both light manufacturing industries (for example, textiles and apparel) and heavier or high-tech industries (for example, automotive, machinery, chemicals, and steel). In standard industrial terms, this aligns with ISIC Section C (Manufacturing). Manufacturing activity tends to generate strong multiplier effects on the wider economy and typically offers a path for countries to diversify exports and employ large numbers of workers in formal jobs. By investing in and advising companies across a range of manufacturing subsectors, IFC aims to boost competitiveness and productivity, encourage the adoption of sustainable industrial practices, and integrate local firms into global supply chains. Such support helps client countries move up the value chain, shifting from exporting unprocessed commodities to producing higher-value goods, thereby capturing a greater share of value locally while creating more and better jobs.

Unclassified: All activities that don't fall within the five definitions previously discussed.

Mapping Approach

- Use ISIC Rev. 4 explanatory notes to interpret each division's scope. [R1]
- Apply the five sector definitions as the target taxonomy (functional value-chain lens). [R2–R9]
- Assign a division to a sector where its primary economic function is a core node in that sector's value chain; otherwise, assign Unclassified. Each ISIC 2-digit would be assigned probability ranging from 0 to 100 in each of the five sectors, and the sector with the highest probability is taken.
- Document rationale and limitations, including plausible alternative sector assignments where defensible.

Assigning Probabilities

The probabilistic estimates were generated by comparing the **functional description of each 2-digit ISIC industry with the IFC's operational definitions of the five strategic sectors** (agribusiness, health care, infrastructure and energy, tourism, and value-added manufacturing) plus the unclassified sectors. For each industry, the model evaluates how strongly the activities described in the official ISIC definition align with the **core production processes, value chains, and economic functions** characteristic of each sector. Based on this alignment, the model assigns a **relative likelihood (probability) to each sector**, reflecting the degree to which the industry's activities contribute to that sector's core economic role. The probabilities across sectors sum to one, and the **sector with the highest probability is selected as the candidate classification**, which is then reviewed to ensure that the assignment is consistent with the functional role of the industry within the broader economic value chain.

Industries are classified as **Unclassified (Other)** when the probabilistic assessment shows no strong functional alignment with any of the five strategic sectors but with the unclassified class or when the industry primarily provides horizontal services that cut across all sectors rather than belonging to a specific sectoral value chain.

Handling Partial Sector Alignment at the ISIC 2-Digit Level

Some 2-digit ISIC industries contain activities that only partially align with the characteristics of the five strategic sectors. In many cases, certain subindustries within a 2-digit category clearly fit one of the sectors, while other activities within the same category may relate to a different sector or fall outside the five sectors altogether. Ideally, the classification would isolate only those subindustries that fully correspond to the sector definitions. However, because the available data are reported at the **2-digit ISIC level**, it is not possible to systematically separate the relevant subcomponents that align precisely with the strategic sectors.

A **comprehensive inclusion approach** was adopted to address this limitation. Under this approach, if a 2-digit industry contains a **meaningful share of activities that are closely aligned with one of the five sectors**, the entire industry is mapped to that sector. This decision prioritizes capturing the broader economic footprint of sector-related activities, even though some components of the industry may not perfectly correspond to the sector's definition. As a result, the mapping may **slightly overestimate the number of workers associated with certain sectors**, since some employment within the classified industries may belong to activities that are only indirectly related or not fully aligned with the sector.

Technical Implementation

ChatGPT Pro API with Model O4 (pro mode) was used to read the description of each 2-digit ISIC code and match it with the definition of the five sectors and the unclassified sector. The signal extraction and probability estimation were conducted using a **prompted semantic scoring workflow**. For each 2-digit ISIC industry, the model was provided with the **official ISIC definition of the industry** and the **functional definitions of the five strategic sectors**. The model was then prompted to identify the **primary economic activities, outputs, and value-chain roles described in the ISIC definition** (for example,, extraction, manufacturing, service provision, and infrastructure operation). These extracted activity signals were compared with the operational scope of each strategic sector, and the model assigned a **semantic relevance score** indicating how closely the industry's activities aligned with each sector's value chain. The scores across the five sectors plus the unclassified sector were then **normalized into a probability distribution that sums to one**, reflecting the relative strength of alignment with each sector. The sector with the highest probability was selected as the candidate classification and subsequently reviewed to ensure consistency with the sector's functional boundaries.

Manual Validation of AI Results

All probability estimates have been manually reviewed, with consultations held with relevant IFC experts and colleagues from the International Bank for Reconstruction and Development. Only one inconsistency was identified and subsequently corrected.

Summary Statistics

- Unclassified: 34 divisions
- Value-added manufacturing: 20 divisions.
- Infrastructure and energy: 17 divisions
- Agribusiness: 7 divisions
- Tourism: 6 divisions
- Health care: 4 divisions

Division-Level Rationales and Limitations

For each mapped division, most content emphasizes why the chosen assignment is defensible while limitations highlight boundary cases and alternative mappings.

Section II: Merits and Limitations of Sector Classifications

Agribusiness

ISIC 01 – Crop and Animal Production, Hunting and Related Service Activities

Merit

- ISIC 01 covers crop and animal production, hunting, and related farm support services, which sit at the very start of the farm-to-fork value chain. [R1]
- IFC's agribusiness lens explicitly includes primary production and the services that enable it (inputs and on-farm operations). [R2]
- Most output of this division (for example, food crops, feed crops, and livestock products) is a direct upstream input into food processing and distribution activities that IFC also treats as agribusiness. [R1], [R2]
- Including 01 in agribusiness keeps the sector conceptually integrated: production → processing (ISIC 10–12) → distribution and consumption, matching IFC's ecosystem framing. [R2]

Limitations and alternatives

- Division 01 also includes some activities with weak "food system" links (for example,, ornamental plants and certain hunting and trapping services), so mapping the whole division to agribusiness can overstate "farm-to-fork" exposure in economies where these niches are material. Moreover, farmers who produce no marketable output are also challenging to classify here. [R1]

ISIC 02 – Forestry and Logging

Merit

- ISIC 02 captures forestry and logging—production of timber and other forest products—which is explicitly within IFC's "agribusiness and forestry" value-chain scope. [R1], [R2]
- Forestry products are biological and land-based outputs (plant origin) and are frequently integrated with downstream wood processing (ISIC 16) and pulp and paper (ISIC 17), so keeping 02 inside agribusiness reflects the upstream node of a broader forest-based value chain. [R1], [R2]
- IFC's farm-to-fork framing is often interpreted more broadly as "bio-based value chains." Forestry fits this interpretation and is commonly treated as part of the wider agriforestry economy. [R2]
- Operationally, forestry enterprises share similar constraints and enablers with agriculture (for example, land tenure, sustainability standards, rural employment, and logistics from remote areas), supporting a unified agribusiness bucket. [R2]

Limitations and alternatives

- Forestry outputs are often construction inputs (timber) or industrial feedstocks rather than "food," so another reasonable mapping is "value-added manufacturing" (as an upstream industrial input) or even "infrastructure" (given construction use); the choice here keeps biological production chains together. [R1]

ISIC 03 – Fishing and Aquaculture

Merit

- ISIC 03 is primary production of animal-origin products and therefore naturally sits in the farm-to-fork agrifood value chain. [R1], [R2]
- IFC's agribusiness definition includes livestock and fisheries-type production and the associated supply chains that move food products to markets. [R2]
- Aquaculture often has strong links to feed inputs, cold-chain logistics, and food processing (for example, canning and freezing), making it analytically useful to keep 03 alongside food manufacturing divisions. [R1], [R2]
- Mapping 03 to agribusiness aligns with common policy and investment practice where fisheries and aquaculture are treated as part of food systems and rural and coastal livelihoods strategies. [R2]

Limitations and alternatives

- Division 03 can include marine capture activities that resemble extractive "natural resources" business models, so an alternative mapping could be "infrastructure and energy (including mining)" on a natural-resources analogy. This mapping instead prioritizes the end-use as food. [R1]

ISIC 10 – Manufacture of Food Products

Merit

- ISIC 10 is the core of agro-processing (meat, dairy, grain milling, oils, sugar, and so on), converting farm outputs into food products—an archetypal "farm-to-fork" step. [R1]
- IFC explicitly treats food processing and manufacturing as part of agribusiness, not merely agriculture. [R2]
- Classifying ISIC 10 under agribusiness captures key value-chain linkages to farmers (procurement), logistics and cold chain, and food distribution—areas IFC emphasizes when developing agrifood ecosystems. [R2]

- ISIC 10 is also a major channel for job creation and small and medium enterprise (SME) links in rural-urban value chains, consistent with IFC's development rationale for agribusiness focus. [R2]

Limitations and alternatives

- Food manufacturing is simultaneously a manufacturing activity. A credible alternative is to map ISIC 10 to "value-added manufacturing" (since it is in ISIC Section C). The chosen mapping follows IFC's integrated agribusiness lens where processing is part of the agrifood chain. [R1], [R2]

ISIC 11 – Manufacture of Beverages

Merit

- ISIC 11 covers beverage manufacturing (soft drinks, beer, wine, spirits, bottled water, and so on), which is downstream transformation of agricultural inputs such as grains, sugar, fruits, and botanicals. [R1]
- Under IFC's agribusiness framing, food and beverage manufacturing are part of the broader agrifood value chain from farm inputs to consumer products. [R2]
- Grouping beverages with agribusiness helps preserve agricultural linkages (for example, barley and hops, grapes, sugarcane, and packaging supply chains) that are central to many emerging-market value-chain interventions. [R2]

Limitations and alternatives

- Beverage production can also be framed as "value-added manufacturing," especially for capital-intensive breweries and distilleries with significant industrial operations. The agribusiness mapping is a choice to keep the agrifood system integrated. [R1], [R2]

ISIC 12 – Manufacture of Tobacco Products

Merit

- ISIC 12 is based on plant-origin agricultural raw materials (tobacco leaf) and typically sits in a commodity chain involving farming, curing, processing, and distribution. [R1]
- IFC's agribusiness definition is framed as "products of plant or animal origin" and activities involved in producing, processing, or distributing tobacco fits the plant-origin processing logic. [R2]
- Keeping ISIC 12 with agribusiness maintains a consistent rule: where the core feedstock is a primary agricultural commodity, downstream processing stays within the agribusiness value chain bucket. [R2]

Limitations and alternatives

- A strong alternative mapping is "value-added manufacturing" because tobacco product manufacture is an industrial process in ISIC Section C. The choice to place it in agribusiness is a value-chain (feedstock-origin) decision. [R1]
- Tobacco is not part of food security objectives and has negative health externalities. Analysts may wish to treat it separately (or exclude it) in "agribusiness for development" narratives even if the supply chain is agricultural. [R1]

ISIC 75 – Veterinary Activities

Merit

- ISIC 75 is a key enabling service for livestock and animal production systems—animal health, disease control, and productivity services that directly support agriculture. [R1]
- Within farm-to-fork framing, veterinary services function as an input or service provider's node to primary producers, analogous to seeds, fertilizers, and extension services in crop systems. [R2]
- Placing veterinary activities in agribusiness is especially defensible in contexts where livestock contributes materially to food supply chains (for example, meat, dairy, and eggs) and where animal health shocks affect food security. [R2]

Limitations and alternatives

- Division 75 also covers companion-animal (pet) clinics whose economic logic resembles consumer health care services. An alternative mapping could be "health care" if the focus is on health-service delivery. Agribusiness mapping assumes the dominant policy relevance is livestock and production systems. [R1]

- Veterinary pharmaceuticals and diagnostics are not produced here (they are manufactured elsewhere), so this division captures services rather than the life-sciences manufacturing value chain—important when interpreting "agribusiness" totals as production-centric. [R1]

Infrastructure and Energy (Including Mining)

ISIC 05 – Mining of coal and Lignite

Merit

- ISIC 05 is part of the extractive and natural resources economy that underpins energy supply chains and heavy industry. [R1]
- IFC's infrastructure and energy umbrella commonly includes metals and mining and natural resources alongside energy systems, reflecting how these activities finance and enable infrastructure development. [R5]
- Coal mining links directly to power generation and industrial heat use Categorizing it under infrastructure and energy keeps upstream fuel extraction with downstream energy supply. [R1], [R5]

Limitations and alternatives

- Coal extraction is also an input into manufacturing and basic materials. An alternative mapping could be "value-added manufacturing" (as upstream industrial supply). The choice here follows IFC's portfolio practice of bundling mining and natural resources into the infrastructure-energy complex. [R5]
- Because ISIC 05 includes both mining and some onsite preparation, it can mix pure extraction with processing steps. A 2-digit mapping cannot isolate the "energy" component from broader resource activities. [R1]

ISIC 06 – Extraction of Crude Petroleum and Natural Gas

Merit

- ISIC 06 is the upstream of the energy system and a foundational input to power, transport fuels, and petrochemical value chains. [R1]
- IFC's infrastructure and energy sector explicitly spans power and energy systems. Upstream oil and gas extraction is integral to that system and is commonly treated as part of energy and natural resources portfolios. [R5]
- Mapping 06 to infrastructure and energy aligns with the economic function: supplying primary energy resources and enabling downstream energy services to firms and households. [R5]

Limitations and alternatives

- Some analysts may map 06 to a separate "extractives" sector. Because our taxonomy folds mining into infrastructure and energy, this mapping is consistent but may reduce comparability with studies using a standalone extractives bucket. [R5]
- At the 2-digit level, the division does not distinguish between oil, gas, and related field operations with different downstream linkages (power vs. petrochemicals), so any single-sector assignment masks heterogeneity. [R1]

ISIC 07 – Mining of Metal Ores

Merit

- ISIC 07 provides the core inputs for infrastructure build-out (steel, copper, aluminum, and so on) and for industrial manufacturing supply chains. [R1]
- IFC's infrastructure framing includes "metals and mining," reflecting a strategic view that reliable supply of basic materials is interdependent with infrastructure development. [R5]
- Placing 07 under infrastructure and energy is therefore consistent with an "enabling inputs for infrastructure systems" interpretation (for example, grid metals, construction metals, and transport metals). [R5]

Limitations and alternatives

- A plausible alternative is "value-added manufacturing" because metal ores are upstream inputs to basic metals (ISIC 24) and fabricated products (ISIC 25). The current mapping follows IFC's practice of keeping mining within the infrastructure and natural resources umbrella. [R5]
- Some ore mining includes significant onsite beneficiation. Without 4-digit granularity, the mapping cannot separate pure extraction from early-stage processing. [R1]

ISIC 08 – Other Mining and Quarrying

Merit

- ISIC 08 includes extraction of stone, sand, clay, industrial minerals, and similar materials that are essential to construction and infrastructure projects. [R1]
- These outputs are direct physical inputs into roads, buildings, water systems, and energy facilities, so mapping them to infrastructure and energy reflects their primary economic role as "infrastructure inputs." [R1], [R5]
- IFC's integrated infrastructure portfolio rationale (for example, cities, transport, energy, and water) is tightly linked to availability of construction materials, supporting inclusion of quarrying within this umbrella. [R5]

Limitations and alternatives

- Many quarry outputs feed manufacturing of cement and glass (ISIC 23), so one could alternatively map ISIC 08 to "value-added manufacturing" as an upstream materials supply. The chosen mapping keeps the "built environment" input chain within infrastructure. [R1]
- The division can include diverse minerals with very different downstream uses (construction vs. chemicals vs. agriculture amendments), so a single-sector mapping may misrepresent economies specializing in niche industrial minerals. [R1]

ISIC 09 – Mining Support Service Activities

Merit

- ISIC 09 covers drilling, exploration services, and other technical support that enables mining and oil and gas extraction. [R1]
- Because the economic function of these services is inseparable from the extractive and energy system, mapping them to infrastructure and energy keeps the upstream energy–resource complex intact. [R1] [R5]
- This mapping is consistent with an IFC-style portfolio approach where services that directly enable energy and natural resource projects are treated alongside core extraction and infrastructure operations. [R5]

Limitations and alternatives

- Support services are often provided by diversified engineering and service firms that also work across construction and infrastructure projects. An alternative would be "unclassified" as a cross-cutting technical service. The current mapping prioritizes functional linkage to mining and energy projects. [R1]
- This division's content can vary by country (for example, specialized seismic firms vs. general contractors), so cross-country comparability at the 2-digit level can be weaker than for "core extraction" divisions. [R1]

ISIC 35 – Electricity, Gas, Steam and Air Conditioning Supply

Merit

- ISIC 35 covers electricity, gas, steam, and air-conditioning supply—core utility services that are explicitly central to IFC's infrastructure and energy definition. [R1], [R5]
- This division captures both generation and network services (transmission and distribution), aligning directly with the "system" view of energy infrastructure. [R1], [R5]

- Reliable and affordable energy is foundational for productivity across all other sectors, matching the rationale for treating energy as a strategic umbrella sector. [R5]

Limitations and alternatives

- Some activities in ISIC 35 (for example, district heating and cooling) may behave more like municipal infrastructure than "energy" per se; however, they are still network utilities and remain within the umbrella. [R1], [R5]

ISIC 36 – Water Collection, Treatment and Supply

Merit

- ISIC 36 is a municipal utility service that IFC explicitly includes within infrastructure. [R1], [R5]
- Water networks (for example, abstraction, treatment, and distribution) are classic long-lived infrastructure assets requiring large capital investment and regulatory oversight—matching the infrastructure investment framing. [R5]
- Mapping ISIC 36 to infrastructure supports consistent treatment of essential services (water, sanitation, and waste) alongside energy and transport systems. [R5]

Limitations and alternatives

- Water supply is a key input to agribusiness processing and manufacturing. An alternative mapping could be "agribusiness" in irrigation-heavy economies or "manufacturing" where industrial water dominates. The infrastructure mapping treats water as an economy-wide enabling utility. [R1], [R5]

ISIC 37 – Sewerage

Merit

- ISIC 37 includes wastewater collection and treatment—core environmental infrastructure under IFC's infrastructure umbrella. [R1], [R5]
- Sanitation infrastructure is a public-service network similar in structure to water and energy systems (pipes, plants, long-lived assets, and so on), supporting its inclusion in infrastructure. [R5]
- This mapping is consistent with city-scale infrastructure priorities (public health, environmental compliance, resilience, and so on). [R5]

Limitations and alternatives

- Wastewater services are also closely linked to public health outcomes. A little far out but not unreasonable alternative mapping could be "health care" if the sector lens is outcome-based rather than asset-based. The current approach follows IFC's infrastructure portfolio definition. [R5]
- Industrial effluent treatment can be embedded within factories (classified to manufacturing units), so sector totals based on ISIC may understate "sanitation effort" that occurs inside other industries rather than specialized sewerage providers. [R1]

ISIC 38 – Waste Collection, Treatment and Disposal Activities; Materials Recovery

Merit

- ISIC 38 is part of municipal and industrial waste systems that IFC groups under infrastructure and circularity or waste management. [R1], [R5]
- These services are essential urban infrastructure, often delivered via concession models and long-term contracts—consistent with infrastructure financing and public-private partnership (PPP) approaches. [R5]
- Including materials recovery captures the infrastructure role of recycling systems, which are increasingly treated as strategic urban services. [R1], [R5]

Limitations and alternatives

- Materials recovery has a manufacturing-like aspect (producing secondary raw materials), so an alternative mapping could be "value-added manufacturing" in circular economy analyses. Here, it remains infrastructure because it is

organized as a public-service system. [R1], [R5]
- Waste systems differ widely (informal vs. formal), and some "recycling" activity occurs in small workshops classified elsewhere. A 2-digit mapping may miss informal segments important in emerging markets. [R1]

ISIC 39 – Remediation Activities and Other Waste Management Services

Merit

- ISIC 39 covers specialized environmental services such as site cleanup, which IFC often associates with sustainable infrastructure and environmental management. [R1], [R5]
- Remediation is typically undertaken to enable land reuse, infrastructure projects, or industrial redevelopment—functionally linking it to infrastructure investment cycles. [R5]

Limitations and alternatives

- Remediation frequently occurs as part of mining closure or industrial decontamination programs, so it could alternatively be allocated to "infrastructure and energy" (as here), or to the originating sector (mining and manufacturing) if one had project-level attribution. [R1]
- This division is episodic and project-based. Activity can spike around major cleanups and then fall, so interpreting it as a stable "infrastructure" sector's contribution requires caution. [R1]

ISIC 41 – Construction of Buildings

Merit

- Construction of buildings forms a core component of the built environment that supports economic activity, including residential, commercial, and public facilities. [R1]
- The sector contributes to the development of essential infrastructure assets such as hospitals, schools, industrial facilities, and service buildings that enable the functioning of other sectors. [R1], [R6]
- In many development and investment frameworks, building construction is treated as part of the broader infrastructure ecosystem because it expands the stock of physical capital required for economic growth and service delivery. [R6]

Limitations and alternatives

- Division 41 includes a large share of residential and commercial real estate construction, which may relate more closely to property development rather than infrastructure networks. [R3], [R4]
- Some classifications separate general building construction from infrastructure construction (for example, roads, energy, and utilities), which could justify placing division 41 outside the infrastructure and energy sector in a stricter interpretation.

ISIC 42 – Civil Engineering

Merit

- ISIC 42 covers the construction of major infrastructure assets such as roads, bridges, railways, pipelines, ports, power plants, and utility networks. [R1]
- These activities directly build and expand the core physical infrastructure systems—transport, energy, and water—that enable economic activity and service delivery across the economy. [R1], [R6]
- Civil engineering projects are central to the development and maintenance of infrastructure networks and therefore align closely with the scope of the infrastructure and energy sector. [R6]

Limitations and alternatives

- Some projects within division 42 may involve mixed infrastructure and general construction activities, which could overlap with broader construction sectors. [R3], [R4]
- At the 2-digit level, the classification cannot distinguish between different types of infrastructure projects (transport, energy, and water), though all remain broadly within the infrastructure domain.

ISIC 43 – Specialized Construction Activities

Merit

- ISIC 43 includes trades such as electrical installation; plumbing; heating, ventilation, and air conditioning; insulation; and other technical works that directly deliver functioning infrastructure systems inside buildings and networks. [R1]
- These activities are closely tied to energy efficiency, utility connections, and maintenance of critical systems (power, water, and telecom), aligning with IFC's broad infrastructure and energy framing. [R5]
- Compared with general building construction, specialized trades often map more directly to the installation and operation of infrastructure services (wiring, pipes, network-ready buildings, and so on), making an infrastructure assignment defensible. [R1], [R5]

Limitations and alternatives

- A credible alternative is to place ISIC 43 with "construction" (and thus unclassified) because many specialized works occur in residential and commercial buildings rather than infrastructure networks. The mapping assumes the strategic link is to utility systems and service readiness. [R1]
- Some division 43 activities are short-cycle contracting for renovations rather than new infrastructure creation. Aggregating them into infrastructure may overstate "capital formation" if the analysis aims to track new infrastructure build-out. [R1]

ISIC 49 – Land Transport and Transport via Pipelines

Merit

- ISIC 49 covers land transport and transport via pipelines (for example, rail, road, transit, freight, and pipeline transport), which are core transportation infrastructure services. [R1]
- IFC's infrastructure definition includes transportation networks and logistics connectivity. ISIC 49 captures the operation of these systems and the services delivered over them. [R5]
- Pipelines are directly linked to energy systems (for example, oil, gas, and refined products), reinforcing the "energy and infrastructure" classification. [R1], [R5]

Limitations and alternatives

- Parts of division 49 (for example, urban public transport and intercity passenger transport) are tourism-enabling services and could be partially allocated to "tourism" in a visitor-economy accounting approach. This mapping keeps all mobility infrastructure together. [R1]
- Division 49 bundles very different business models (for example, rail concessions, trucking SMEs, and pipeline operators). A single sector tag cannot distinguish regulated infrastructure utilities from competitive transport services. [R1]

ISIC 50 – Water Transport

Merit

- ISIC 50 is the operation of maritime and inland water transport systems, including shipping services that are essential for trade and connectivity. [R1]
- IFC's transportation infrastructure scope includes ports and shipping and transport services. Placing water transport in infrastructure aligns with that system view. [R5]
- For many economies, maritime services are key to logistics performance and export competitiveness, matching the "enabling infrastructure" rationale. [R5]

Limitations and alternatives

- Water passenger transport (for example, cruises and ferries) overlaps strongly with tourism. An alternative mapping is to allocate passenger-oriented segments to "tourism" and freight to "infrastructure." We cannot split these components at the 2-digit level. [R1]
- Some water transport firms are integrated with port services (often classified elsewhere), and sector boundaries may blur in practice.

ISIC activity coding may not capture integrated logistics chains cleanly. [R1]

ISIC 51 – Air Transport

Merit

- ISIC 51 covers passenger and freight air transport services, which are central to national and international connectivity. [R1]
- IFC's umbrella infrastructure includes airports and aviation-related transport systems. Placing air transport in infrastructure aligns with that network-and-connectivity framing. [R5]
- Air cargo can be a critical enabling service for high-value manufacturing and perishables logistics, reinforcing its infrastructure role. [R1], [R5]

Limitations and alternatives

- Passenger aviation is a major tourism enabler. An alternative mapping is to treat passenger services as "tourism" and freight as "infrastructure." The mapping keeps the transport system unified to avoid demand-based reclassification. [R1]
- Airlines' economic contribution can be volatile and driven by fuel prices and shocks. Interpreting ISIC 51 as a stable "infrastructure" sector can obscure cyclical dynamics. [R1]

ISIC 52 – Warehousing and Support Activities for Transportation

Merit

- ISIC 52 includes storage, cargo handling, freight forwarding, and other logistics support services—key nodes in transport and trade infrastructure. [R1]
- IFC's infrastructure framing explicitly covers logistics infrastructure and transport systems. Warehousing and support services operationalize those systems and improve supply-chain efficiency. [R5]
- Classifying ISIC 52 under infrastructure is especially relevant for economies prioritizing corridor development, port connectivity, and cold chain and logistics upgrading. [R5]

Limitations and alternatives

- Warehousing may be specialized by sector (for example,, cold chain for agrifood and pharma distribution for health care). An alternative approach would allocate parts of division 52 to agribusiness and health care based on commodity specialization, but the ISIC 2-digit level does not allow that split. [R1]
- Some "support" activities resemble business services (for example,, forwarding and agency functions) rather than infrastructure assets. A different taxonomy could mark these as unclassified services. The current mapping emphasizes functional role in logistics systems. It could also be allocated as "unclassified" due to the service nature of the work [R1], [R5]

ISIC 53 – Postal and Courier Activities

Merit

- ISIC 53represents last-mile logistics networks and parcel delivery systems that are increasingly essential economic infrastructure, especially for e-commerce. [R1]
- IFC's infrastructure concept includes logistics and connectivity. Postal and courier services are part of the connective tissue enabling commerce and service delivery across geographies. [R5]
- Placing ISIC 53 in infrastructure aligns with a "network utility" interpretation: routing hubs, delivery fleets, and nationwide service coverage. [R1], [R5]

Limitations and alternatives

- Courier services serve all sectors (manufacturing, agribusiness, health care supply chains, and so on) and may behave like competitive business services rather than regulated infrastructure. An alternative is to categorize division 53 as "unclassified" cross-cutting services. [R1]
- Postal operators may also provide financial

services (payments) or retail counters. Without enterprise-level splits, ISIC activity coding can understate multiservice business models when aggregating by sector. [R1]

ISIC 61 – Telecommunications

Merit

- ISIC 61is a core component of digital connectivity infrastructure, explicitly included in IFC's infrastructure framing. [R1], [R5]
- Telecom networks (mobile and broadband backbone, access networks, and so on) are long-lived infrastructure assets with strong network effects and economy-wide productivity impacts—matching the infrastructure investment rationale. [R5]
- Classifying ISIC 61 within infrastructure supports an integrated view that modern infrastructure includes both physical and digital networks. [R5]

Limitations and alternatives

- Telecom firms may also produce or distribute digital content and information technology (IT) services (classified elsewhere). A strict ISIC-based mapping may capture networks (61) but miss adjacent "digital economy" activity in other divisions (62–63), leaving parts of digital infrastructure unclassified. [R1]
- Some analysts may treat information and communication technology (ICT) as its own strategic sector. Folding it into "infrastructure and energy" improves alignment with IFC portfolio language but reduces comparability to taxonomies where ICT is separate. [R5]

Value-Added Manufacturing

ISIC 13 – Manufacture of Textiles

Merit

- ISIC 13 transforms fibers and yarns into higher-value textile products—an archetypal value-added manufacturing activity. [R1]
- IFC's value-added manufacturing concept emphasizes industries that convert inputs into higher-value outputs and create jobs across supply chains. Textiles are a classic labor-intensive manufacturing sector. [R6]
- Textiles often anchor export-oriented industrialization strategies (for example, spinning, weaving, and finishing), aligning with the "move up the value chain" narrative behind the manufacturing bucket. [R6]

Limitations and alternatives

- Natural-fiber textiles (for example, cotton and wool) have strong upstream links to agribusiness. An alternative mapping could classify parts of ISIC 13 under agribusiness in a "bio-based value chain" approach. The current mapping treats all textiles as manufacturing because the core activity is industrial transformation. [R1], [R6]
- ISIC 13 includes both basic intermediates (yarn) and specialized technical textiles. A single tag does not differentiate low-value commodity production from high-tech manufacturing segments. [R1]

ISIC 14 – Manufacture of Wearing Apparel

Merit

- ISIC 14 is downstream manufacturing that converts textiles and inputs into finished garments, adding brand, design, and assembly value. [R1]
- Apparel is typically labor-intensive and employment-generating, matching IFC's rationale for prioritizing manufacturing for jobs and economic transformation. [R6]
- Classifying apparel under value-added manufacturing keeps industrial processing stages (textiles → garments) within the manufacturing bucket. [R1], [R6]

Limitations and alternatives

- Apparel products are also significant in the visitor economy (for example, souvenirs and duty-free

fashion), so one could argue a tourism linkage; however, demand-side channels vary by country and are not identifiable at the ISIC 2-digit level, so the activity remains under manufacturing. [R1]
- The division includes both simple cut-make-trim assembly and high-value branded production. Aggregation can mask whether "value added" is captured domestically or offshore (for example, design and branding abroad). [R1]

ISIC 15 – Manufacture of Leather and Related Products

Merit

- ISIC 15 covers manufacturing, tanning, and finishing of footwear, bags, and similar goods—value-adding transformation of animal hides into manufactured products. [R1]
- These activities fit squarely within IFC's value-added manufacturing framing because they convert raw materials into differentiated products, often with export potential. [R6]

Limitations and alternatives

- Leather processing is closely linked to livestock value chains (a byproduct of meat production), so an alternative is agribusiness. The chosen mapping places it in manufacturing because the dominant activity is industrial processing and fabrication. [R1], [R6]

ISIC 16 – Manufacture of Wood and of Products of Wood and Cork, except Furniture; Manufacture of Articles of Straw and Plaiting Materials

Merit

- ISIC 16 covers wood and cork products (sawmilling, wood products, and so on), transforming timber into higher-value intermediate and finished goods—core manufacturing. [R1]
- It aligns with the value-added manufacturing definition by converting raw or primary outputs (logs) into processed materials used in construction, furniture making, and packaging. [R6]
- Wood processing often creates local value in forest economies and supports industrial diversification beyond raw log exports. [R6]

Limitations and alternatives

- Because the feedstock comes from forestry (agribusiness and forestry), an alternative mapping could keep ISIC 16 within agribusiness to represent a forest value chain. The present mapping separates primary production (02) from downstream industrial processing (16). [R1], [R2], [R6]
- Wood products are heavily tied to the construction and infrastructure cycle. One could also argue an "infrastructure input" classification, but here, the activity is clearly manufacturing rather than infrastructure service delivery. [R1]

ISIC 17 – Manufacture of Paper and Paper Products

Merit

- ISIC 17transforms pulp and other inputs into paper, packaging, and related products—manufacturing that adds processing, quality control, and product differentiation. [R1]
- It fits IFC's value-added manufacturing concept by creating industrial employment and producing tradable goods with strong downstream linkages (packaging for agrifood and manufacturing exports). [R6]

Limitations and alternatives

- Paper production relies on forestry feedstocks (link to agribusiness and forestry) and is also a key enabling input for logistics and packaging. Alternative mapping to agribusiness could be justified in forest-economy analyses. This mapping treats it as manufacturing because the core activity is industrial conversion. [R1], [R2], [R6]

ISIC 18 – Printing and Reproduction of Recorded Media

Merit

- ISIC 18 (printing and reproduction of recorded media) is an industrial service or manufacturing activity that converts content into physical outputs (print products and replicated media). [R1]
- It fits value-added manufacturing as it uses equipment, materials, and specialized processes to produce reproducible goods and packaging and labels, supporting other industries. [R6]
- Printing is often integral to export manufacturing ecosystems (for example, labels, packaging, and manuals), reinforcing its manufacturing adjacency. [R6]

Limitations and alternatives

- Printing is tightly linked to the publishing and media sectors (ISIC 58–60), so one could map it as "unclassified information services" rather than manufacturing; however, the present mapping follows ISIC Section C placement and the physical production character. [R1]
- The division includes both high-volume industrial printing and small commercial print shops. The 2-digit mapping cannot distinguish modern industrial plants from microenterprises with different productivity and value-added profiles. [R1]

ISIC 19 – Manufacture of Coke and Refined Petroleum Products

Merit

- ISIC 19 involves complex industrial processing that converts crude inputs into higher-value fuels and feedstocks—classic value addition via manufacturing processes. [R1]
- Although linked to energy systems, the activity is fundamentally an industrial transformation (refining) and is treated as manufacturing in ISIC, aligning with the "value-added manufacturing" label. [R1] [R6]
- Refining has significant downstream linkages (for example, transport fuels and petrochemical feedstocks), making it an enabling industrial base for broader economic activity. [R6]

Limitations and alternatives

- A strong alternative mapping is infrastructure and energy because refined fuels are part of energy supply chains and national energy security considerations. This mapping keeps extraction (06) in energy while treating refining as manufacturing. [R1] [R5]
- Integrated oil companies may colocate extraction, refining, and distribution. A division-level mapping cannot reflect vertically integrated value chains without firm-level segmentation. [R1]

ISIC 20 – Manufacture of Chemicals and Chemical Products

Merit

- ISIC 20 is a foundational manufacturing division producing industrial chemicals, fertilizers, plastics feedstocks, and other intermediates that add significant value through transformation and formulation. [R1]
- It aligns with IFC's manufacturing framing as a sector that raises economic complexity and supports downstream manufacturing competitiveness through input supply. [R6]
- Chemical production often underpins export diversification and industrial upgrading, consistent with the "move up the value chain" narrative. [R6]

Limitations and alternatives

- Parts of ISIC 20 are direct agribusiness inputs (for example, fertilizers and pesticides) while others are health care–related (basic chemical inputs for pharma). An alternative approach would allocate subsegments to agribusiness or health care, but the 2-digit ISIC level is too aggregated. [R1], [R2], [R4]

- The division includes both commodity chemicals and specialty chemicals. A single sector label may hide major differences in value added, skills, and environmental risk profiles. [R1]

ISIC 22 – Manufacture of Rubber and Plastics Products

Merit

- ISIC 22produces intermediate and finished goods used across construction, consumer goods, automotive and packaging—value-added manufacturing via molding, compounding, and fabrication. [R1]
- It supports broad industrial ecosystems and employment, fitting IFC's manufacturing emphasis on value addition and economy-wide linkages. [R6]

Limitations and alternatives

- A portion of output is packaging for food and beverages (agribusiness) and devices or components for health care and infrastructure. Alternative mappings based on end-use would be possible but require product-level or input-output-table allocations beyond the ISIC 2-digit level. [R1]
- This division mixes basic products (plastic pipes) with advanced engineered components. Aggregate classification cannot capture differences in technological intensity relevant to "value-added" narratives. [R1]

ISIC 23 – Manufacture of Other Non-Metallic Mineral Products

Merit

- ISIC 23 includes cement, glass, ceramics, and similar materials—manufacturing that transforms mineral inputs into higher-value industrial goods. [R1]
- These products are key intermediate inputs for construction and infrastructure investment cycles, so the division plays an enabling manufacturing role. [R6]
- Cement and glass production are often large industrial employers and major contributors to domestic value addition in emerging markets. [R6]

Limitations and alternatives

- Given the strong link to infrastructure build-out, an alternative mapping is "infrastructure and energy" (as core construction inputs). The current approach keeps construction materials production in manufacturing, while construction and network services are treated separately. [R1], [R5]
- Energy intensity is high. In some contexts, the binding constraint is energy supply (infrastructure) rather than manufacturing capability, which sector aggregates may not convey. [R1]

ISIC 24 – Manufacture of Basic Metals

Merit

- ISIC 24 transforms ores and scrap into standardized metal products (steel, aluminum, and so on), representing high-value industrial processing. [R1]
- Basic metals are foundational for downstream fabrication and for infrastructure assets (for example, bridges, grids, and transport), making this division central to an economy's manufacturing base. [R6]
- Including ISIC 24 in value-added manufacturing aligns with IFC's framing of manufacturing as a driver of economic transformation and industrial supply-chain depth. [R6]

Limitations and alternatives

- Because metals are critical infrastructure inputs, one could classify basic metals under "infrastructure and energy" in a materials-for-infrastructure lens. This mapping keeps mining in infrastructure and metal-making in manufacturing to reflect processing vs. extraction. [R1], [R5]
- The division spans very different technologies (integrated steel mills vs. mini-mills and recycling), and value-added and environmental profiles vary materially. These differences would be masked by 2-digit mapping. [R1]

ISIC 25 – Manufacture of Fabricated Metal Products, Except Machinery and Equipment

Merit

- ISIC 25 covers manufacturing of metal structures, tanks, tools, and other fabricated items—classic value addition beyond basic metal making. [R1]
- This division tends to have strong SME linkages and supports domestic supply chains for construction, machinery and maintenance, aligning with IFC's manufacturing development logic. [R6]

Limitations and alternatives

- Some fabricated metal products are produced as part of construction projects (for example, installation with fabrication), creating overlap with specialized construction (43). An alternative would classify certain segments as infrastructure-related contracting, but ISIC separates by primary activity. [R1]

ISIC 26 – Manufacture of Computer, Electronic and Optical Products

Merit

- ISIC 26 is high-value manufacturing involving precision assembly, electronics fabrication, and optical instrumentation. [R1]
- It fits value-added manufacturing strongly because it typically embodies higher technological complexity and supports industrial upgrading. [R6]
- Electronics manufacturing has broad multiplier effects via supplier networks, skills development, and export diversification—consistent with IFC's manufacturing rationale. [R6]

Limitations and alternatives

- Some products (for example, medical imaging devices and diagnostic equipment) align closely with health care and life sciences. An alternative mapping could allocate certain subsegments to health care, but ISIC 2-digit aggregates many product families. [R1] [R3]
- Outputs are also essential for digital infrastructure (telecom equipment) and energy systems (smart meters). End-use-based mapping would differ from activity-based mapping. [R1]

ISIC 27 – Manufacture of Electrical Equipment

Merit

- ISIC 27includes motors, generators, transformers, switchgear, batteries, and wiring—manufacturing of critical equipment that adds value through engineering and fabrication. [R1]
- This division supports industrial upgrading and infrastructure deployment, and fits the IFC manufacturing bucket as a tradable, value-adding sector. [R6]

Limitations and alternatives

- Because much electrical equipment is deployed in power systems and grids, an alternative mapping is "infrastructure and energy." The chosen mapping keeps equipment production in manufacturing and system operation (ISIC 35) in infrastructure and energy. [R1], [R5]
- The division spans both consumer electronics components and heavy electrical equipment. Aggregate classification masks the different market structures and technology intensity within the division. [R1]

ISIC 28 – Manufacture of Machinery and Equipment n.e.c.[1]

Merit

- ISIC 28 covers industrial machinery that embodies engineering value addition and enables productivity across sectors. [R1]
- Machinery manufacturing is central to capital formation and industrial capability building, aligning with IFC's view of manufacturing as a driver of transformation and competitiveness. [R6]

1 N.e.c means "not elsewhere classified" and refers to items not covered by other specific classifications.

Limitations and alternatives

- Machinery may be specialized to agribusiness (for example, farm machinery), mining, or health care (for example, lab equipment). End-use-based mapping might allocate subsegments to those sectors, but ISIC 2-digit classification does not separate them cleanly. [R1]
- Some firms bundle manufacturing with installation and maintenance services (classified elsewhere, for example, 33 and 43), so a division-level mapping may split tightly linked value chains across sectors. [R1]

ISIC 29 – Manufacture of Motor Vehicles, Trailers and Semi-Trailers

Merit

- ISIC 29 is the manufacturing of complex durable goods with significant value addition and supplier depth. [R1]
- Automotive production is often a cornerstone of industrial policy and job creation, fitting IFC's manufacturing framing and value-chain upgrading objectives. [R6]

Limitations and alternatives

- Vehicles are integral to transport systems (infrastructure) and tourism mobility. An alternative mapping could classify parts of this division as infrastructure-enabling. This mapping keeps the activity-based principle: producing vehicles is manufacturing, operating transport is infrastructure. [R1], [R5]
- Automotive value added is often globally fragmented. Local plants may do assembly with limited local content, so mapping to "value-added manufacturing" can overstate domestic value capture without complementary input-output (IO) analysis. [R1]

ISIC 30 – Manufacture of Other Transport Equipment

Merit

- ISIC 30 includes building of ships, aircraft, rail rolling stock, and similar equipment—high-value manufacturing with engineering intensity. [R1]
- These industries embody significant value addition and can support export capability, aligning with IFC's manufacturing bucket. [R6]

Limitations and alternatives

- Because the outputs are core infrastructure assets (trains, ships, aircraft, and so on), one could map this division to "infrastructure and energy"; however, the current approach separates equipment production (manufacturing) from transport service provision (ISIC 49–51). [R1], [R5]
- The division mixes very different subsectors (shipbuilding vs. aerospace), each with distinct supply chains and policy relevance. Aggregate classification may hide which segment drives activity in a given country. [R1]

ISIC 31 – Manufacture of Furniture

Merit

- ISIC 31 is manufacturing that converts wood, metal, plastics, and textiles into finished consumer and business products, adding design and fabrication value. [R1]
- Furniture manufacturing commonly supports SME clusters and local value addition, aligning with IFC's manufacturing lens. [R6]

Limitations and alternatives

- Furniture demand is strongly linked to construction, real estate, and hospitality (hotels), so an alternative mapping could allocate some activity to infrastructure or tourism in demand-driven accounts; however, this mapping remains activity-based manufacturing. [R1]
- The division spans mass production and artisanal workshops, and 2-digit mapping cannot distinguish modern factories from craft-based production with different productivity and value-added levels. [R1]

ISIC 32 – Other Manufacturing

Merit

- ISIC 32 is a residual manufacturing division (for example, jewelry, musical instruments, sports goods, games, and medical and dental instruments and supplies) that still represent value-adding industrial production. [R1]
- Placing 32 in value-added manufacturing follows ISIC's structure (Section C) and keeps all manufacturing activity within the manufacturing bucket for comparability. [R1], [R6]

Limitations and alternatives

- Division 32 contains subsegments that align closely with other sectors (for example, medical and dental instruments relate to health care, and sports goods can relate to tourism and leisure). An alternative mapping would split 32 by product group, but 2-digit ISIC is too aggregated. [R1], [R3]
- Because 32 is heterogeneous, cross-country comparisons can be misleading. The division may represent high-value medical devices in one economy and low-value costume jewelry in another. [R1]

Tourism

ISIC 55 – Accommodation

Merit

- ISIC 55 is the core supply-side industry in the visitor economy: hotels, resorts, short stay lodging, and similar services. [R1]
- IFC's tourism sector practice is heavily centered on hospitality, particularly hotels, reflecting accommodation's central role in tourism value chains. [R7]
- The World Bank tourism diagnostic framing treats accommodation as a primary tourism subsystem. Mapping 55 to tourism is therefore directly aligned with standard tourism ecosystem definitions. [R8]
- Accommodation businesses also generate strong local linkages (staffing, food supply, services, and so on), which is part of the development-impact rationale for treating tourism as a strategic sector. [R7]

Limitations and alternatives

- ISIC 55 can include forms of lodging that are not primarily tourism-driven (for example, worker hostels, student residences, and long-stay serviced apartments). An alternative mapping could allocate some subclasses to real estate or unclassified services, but 2-digit ISIC cannot separate them. [R1]
- In some economies, accommodation revenue is dominated by domestic business travel rather than leisure tourism. A demand-based tourism satellite account would treat this differently, but the mapping remains activity-based. [R8]

ISIC 56 – Food and Beverage Service Activities

Merit

- ISIC 56 is explicitly included in standard tourism ecosystem definitions as a tourism-characteristic industry because visitors consume dining services as part of the travel experience. [R8], [R9]
- IFC's tourism framing recognizes that tourism extends beyond hotels and includes food and beverage businesses and the wider hospitality supply chain. [R7]
- Mapping 56 to tourism supports analyses where the "visitor economy" includes restaurants, bars, and catering that scale with tourist arrivals and hospitality clusters. [R8]

Limitations and alternatives

- A major alternative is to treat ISIC 56 as unclassified because many establishments primarily serve local residents and daily commuters. Without visitor-share data, assigning all of division 56 to tourism can overstate its intensity in large domestic urban markets. [R9]
- Division 56 also includes institutional catering (for example, contract catering for schools, factories, and hospitals), which would align more closely

with education, industry, or health care services than tourism. A better approach would split it by client segment, but that requires microdata beyond 2-digit ISIC. [R1]

ISIC 79 – Travel Agency, Tour Operator, Reservation Service and Related Activities

Merit

- ISIC 79 is directly tourism-facing and is a core "travel services" component in tourism value-chain frameworks. [R1], [R8]
- These firms intermediate and package travel demand (itineraries, bookings, tours, and so on), which is fundamental to how tourism markets function, especially for international visitors. [R8]
- Mapping ISIC 79 to tourism is therefore highly aligned with both functional intent and standard tourism diagnostics. [R8]

Limitations and alternatives

- Some travel agencies mainly manage corporate travel and business logistics, which could be interpreted as a business service rather than leisure tourism. This mapping keeps the industry in tourism because the service is travel-specific regardless of travel purpose. [R1]
- Online booking platforms blur boundaries between travel agencies, ICT services, and advertising. At the 2-digit level, ISIC cannot capture platform-based hybrid models cleanly. [R1]

ISIC 90 – Creative, Arts, and Entertainment Activities

Merit

- ISIC 90 includes live performances and entertainment services that function as attractions and experiences within tourism ecosystems. [R1], [R8]
- Tourism diagnostics typically include recreation and attractions as a core pillar alongside accommodation and transport. Creative and entertainment offerings contribute directly to destination appeal. [R8]
- Classifying ISIC 90 under tourism supports a "visitor economy" perspective where cultural experiences are part of tourism value creation. [R8]

Limitations and alternatives

- A credible alternative mapping is "unclassified cultural services" because many arts and entertainment activities are primarily local cultural markets or publicly supported events rather than visitor-driven demand. Without attendance microdata, tourism attribution is uncertain. [R1]
- The division spans both venue-based entertainment and independent artists. The economic structure and tourism linkage can differ widely, and a single mapping may not reflect these differences. [R1]

ISIC 91 – Libraries, Archives, Museums and Other Cultural Activities

Merit

- ISIC 91 covers cultural institutions that frequently serve as visitor attractions and anchors for heritage tourism. [R1], [R8]
- Tourism ecosystem definitions explicitly include attractions and cultural sites. Museums and heritage institutions are often central to destination offerings. [R8]
- Mapping ISIC 91 to tourism is consistent with treating cultural assets as part of the visitor economy, especially in cities and heritage destinations. [R8]

Limitations and alternatives

- Libraries and archives are often oriented to resident education and research and may be publicly funded. An alternative mapping is "unclassified public or cultural services." The tourism mapping emphasizes the attractions component but may overattribute local-service institutions to tourism. [R1]
- Many museums operate within public administration structures. Using ISIC division data may undercount or misclassify tourism-related cultural activity if public institutions are classified differently across countries. [R1]

ISIC 93 – Sports Activities and Amusement and Recreation Activities

Merit

- ISIC 93 (sports activities and amusement/recreation) includes theme parks, amusement facilities, sports clubs, and recreational services—activities commonly treated as tourism-related attractions. [R1], [R8]
- In tourism value chains, recreation and leisure offerings complement accommodation and transport, and can be primary trip motivators (for example, events, parks, and outdoor recreation). [R8]
- Mapping ISIC 93 to tourism supports analysis of the broader visitor economy beyond lodging, capturing leisure infrastructure and services that benefit from visitor spending. [R8]

Limitations and Alternatives

- A strong alternative is "unclassified" because much of ISIC 93 is local participation (for example, gyms and community sports clubs) with limited visitor linkage. Destination-level tourism accounts would allocate only the visitor-consumed share. [R9]
- The division includes both spectator sports and events and participatory recreation with different economic drivers. A single mapping cannot distinguish event-driven tourism from routine local leisure services. [R1]

Health Care

ISIC 86 – Human Health Activities

Merit

- ISIC 86 includes hospital, medical, and dental practice activities and other human health services—directly aligned to health care service delivery. [R1]
- IFC's health care sector explicitly includes private health care providers such as hospitals, clinics, and diagnostic services, matching the content of ISIC 86. [R3]
- Mapping ISIC 86 to health care captures the core service-provision segment of the health system and aligns with the "quality and access to care" development rationale in IFC's health work. [R3]

Limitations and Alternatives

- ISIC 86 includes a wide range of providers (large hospitals to individual practitioners). A single-sector mapping is correct at the high level but hides differences in scale, specialization, and financing models that matter for investment strategy. [R1]

ISIC 21 – Manufacture of Pharmaceuticals, Medicinal Chemical and Botanical Products

Merit

- ISIC 21 produces medicines, vaccines, and therapeutic compounds that are essential inputs to the delivery of health care services. [R1]
- The primary economic function of these products is disease treatment, prevention, and health management, placing them directly within the health care value chain. [R1], [R6]
- In many policy and industry frameworks, pharmaceuticals are considered part of the broader health care or life sciences ecosystem because they enable hospitals, clinics, and other medical providers to deliver care. [R6]

Limitations and Alternatives

- Division 21 involves standardized industrial production processes, which could justify classifying it under "value-added manufacturing" if the focus is strictly on the mode of production. [R3], [R4]
- Some activities within division 21 include botanical medicinal products that may have upstream links with agricultural supply chains, which would require finer disaggregation to separate from the core pharmaceutical activities.

ISIC 87 – Residential Care Activities

Merit

- ISIC 87 includes nursing care facilities and other residential care services that provide health and personal care support. [R1]

- This division sits within the continuum of care and is commonly treated as part of the health care sector, especially for aging and chronic care systems. [R1], [R3]
- Including division 87 in health care aligns with IFC's broad view of strengthening health systems across service-delivery models, not only acute care. [R3]

Limitations and Alternatives

- Residential care often blends medical care with social support and housing services. An alternative mapping could place parts of 87 under "unclassified social services" or "real estate" depending on the dominant function. The health care mapping emphasizes the care-delivery component. [R1]
- Country definitions of residential care can vary (for example, medicalized nursing homes vs. social eldercare), so cross-country comparability may be weaker than for hospital-based services. [R1]

ISIC 88 – Social Work Activities without Accommodation

Merit

- ISIC 88 includes social services such as counseling, welfare services, and related community support activities. [R1]
- IFC's health care framing includes strengthening access and delivery of care. Community-based social work is often integral to health outcomes, particularly for vulnerable populations and mental health and social support. [R3]
- Mapping ISIC 88 to health care reflects a health-systems lens where social support services are part of holistic care pathways. [R3]

Limitations and Alternatives

- A plausible alternative is "unclassified" because ISIC 88 covers broader social services (for example, child welfare and community support) not always medically oriented. The health care mapping intentionally adopts a broader "health and wellbeing" perspective. [R1]
- Because activities are diverse and frequently delivered by nongovernmental organizations (NGOs) or public entities, sector totals may mix market-based health care with publicly funded social programs, complicating interpretation for private-sector investment analysis. [R1]How Future Researchers Could Improve the Mapping
- Move beyond exclusive assignment: apply split factors for structurally mixed divisions (for example, retail and wholesale margins, food services, and passenger transport) using supply-use tables, IO tables, or business microdata.
- Use Tourism Satellite Account (TSA) visitor-share ratios for tourism-adjacent divisions (for example, restaurants, recreation, and passenger transport) so only the visitor-consumed share is attributed to tourism
- Use 3- or 4-digit ISIC to separate subactivities with different sector alignment (for example, institutional catering vs. restaurants and medical devices within "other manufacturing").
- For health care, decide explicitly whether life-sciences manufacturing (for example, pharmaceuticals) is reported under health care or manufacturing and document that rule. Publish both as a sensitivity scenario when needed.
- For infrastructure, decide whether to include infrastructure construction (for example, civil engineering) and—if included—allocate by project type using procurement or building permit data rather than assigning the whole division.
- Introduce inter-rater coding and an adjudication log to reduce subjectivity. Publish a short "decision rules" appendix and a list of boundary cases.
- Perform sensitivity analysis for a small set of boundary divisions (for example, 19, 21, 56, 59, 42, and 53) and show how aggregates change under alternative plausible assignments.

Unclassified Divisions (Short Rationale)

Table 2.1 provides an overview of the divisions that are treated as unclassified because they are horizontal enablers, residual or heterogeneous, or their relevance to the five sectors is primarily demand- or client-driven and cannot be inferred reliably from ISIC division codes.

Table 2.1: Unclassified Divisions and Rationales

ISIC	Division	Why unclassified (summary)	Plausible alternative mapping (why not chosen)
33	Repair and installation of machinery and equipment	ISIC 33 covers the repair and installation of machinery and equipment, a cross-cutting after-sales and maintenance activity serving manufacturing, infrastructure, agribusiness, and many other sectors. [R1] Because the activity follows the installed base of equipment across the whole economy, it is difficult to assign it uniquely to one of the five strategic sectors without additional information on client industries. [R1]	A reasonable alternative is to map ISIC 33 to value-added manufacturing as part of industrial services. However, doing so would attribute repairs for utilities, transport, and mining equipment to manufacturing even when the economic linkage is infrastructure. [R1]
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	ISIC 45combines wholesale and retail trade functions with service and repair, serving household and business mobility needs across the economy. [R1] The activity is not inherently part of any one strategic sector value chain. It intermediates durable goods and maintenance services for many users. [R1]	An alternative is to map parts of ISIC 45 to infrastructure (mobility services) or manufacturing (automotive value chain), but without separating trade vs. repair and customer segments, any single-sector assignment would be arbitrary. [R1]
46	Wholesale trade, except of motor vehicles and motorcycles	ISIC 46 is a general intermediation activity covering a wide range of goods—including food, medicines, industrial inputs, and consumer products. [R1] Because it spans virtually all product categories, it cannot be reliably assigned to one of the five sectors without commodity-level detail. [R1]	A plausible alternative is to allocate wholesale margins across sectors using supply-use tables (for example, food wholesale to agribusiness and drug wholesale to health care), but that requires national accounts detail beyond ISIC 2-digit mapping. [R1]
47	Retail trade, except of motor vehicles and motorcycles	ISIC 47 is similarly cross-cutting, covering household sales of food, apparel, electronics, medicines, and services through many formats. [R1] Retail activity is driven by consumer demand patterns and is not uniquely tied to any one sector value chain in the IFC taxonomy. [R1]	An alternative mapping could allocate segments of retail to tourism in destinations with high visitor shopping, but this would require visitor-spend shares or tourism satellite accounts rather than ISIC alone. [R9]
58	Publishing activities	ISIC 58 covers book, periodical, and software publishing as well as other content publishing activities, which are part of the information economy rather than the five target sectors. [R1] Publishing supports tourism (guides), education, and business services, but the industry's output mix is too diverse to map reliably to a single strategic sector. [R1]	Some subsegments (for example, travel guides and cultural publishing) could align with tourism, and educational publishing with education. At the 2-digit level, the mapping stays unclassified to avoid subjective allocation across end uses. [R1]

59	Motion picture, video and television programme production, sound recording and music publishing activities	ISIC 59 primarily covers the creation and production of audiovisual and audio content, including films, television programs, music recordings, and related intellectual property. [R1].These activities largely represent **creative and information services**, where value is generated through artistic production, media development, and rights management rather than through sector-specific production chains linked to the five strategic sectors. [R6]	Some activities within division 59 could plausibly be linked to **tourism**, particularly where film, entertainment, and media production contribute to cultural attractions or the broader leisure ecosystem.
60	Programming and broadcasting activities	ISIC 60is a media and service activity delivering content via broadcast networks, not a direct match to the five strategic sectors. [R1] While it relies on telecom infrastructure, the economic activity is content programming rather than network provision (telecom is ISIC 61). [R1]	A reasonable alternative is to map ISIC 60 to tourism (cultural and entertainment ecosystem) or to infrastructure (as part of the digital and media system). The chosen unclassified treatment reflects that broadcasting is a cross-cutting information service with varied audiences. [R1]
62	Computer programming, consultancy and related activities	ISIC 62 is a horizontal digital service that supports all sectors (including healthtech, agritech, and logistics). [R1] Because applications and clients differ widely, a single-sector mapping would be highly sensitive to country context and firm specialization. [R1]	An alternative is to map ISIC 62 to infrastructure and energy as "digital infrastructure services." However, that would absorb sector-specific software services (for example, hospital IT or farm management systems) into infrastructure even when they primarily serve other sectors. [R1], [R5]
63	Information service activities	ISIC 63 includes data processing, hosting, web portals, and information services—another cross-cutting digital service layer. [R1] These activities are used by firms and households across all sectors and are not uniquely attributable to any one of the five sectors without client or end-use information. [R1]	Some subsegments (for example, data centers and hosting) could be treated as digital infrastructure, suggesting an alternative mapping to infrastructure and energy. The 2-digit division is too broad to isolate infrastructure-like segments from content and service segments. [R1], [R5]
64	Financial service activities, except insurance and pension funding	ISIC 64 provides economy-wide intermediation (banking, credit, payments, and so on) that finances and serves all sectors. [R1] Because finance is a cross-cutting enabler rather than a sector-specific value chain, assigning it to one strategic sector would distort sector totals. [R1]	An alternative would allocate portions of finance to sectors based on loan books (for example, agribusiness lending and infrastructure project finance), but that requires financial supervisory or bank portfolio data not captured in ISIC. [R1]
65	Insurance, reinsurance and pension funding, except compulsory social security	ISIC 65 is similarly economy-wide risk pooling and long-term savings activity, not uniquely tied to one strategic sector. [R1] Insurance supports infrastructure, health, agribusiness, and tourism through coverage products, but the link is indirect and varies by product line. [R1]	A plausible alternative is to map health insurance elements to health care. However, ISIC 65 aggregates many lines (life, property, reinsurance, pensions, and so on), so sector splitting is not feasible at the 2-digit level. [R1]

66	Activities auxiliary to financial service and insurance activities	ISIC 66 includes brokerage, fund management, and other auxiliaries that support finance and insurance across the economy. [R1] These services are not part of the core value chains defined for the five sectors and are difficult to allocate meaningfully without knowing the underlying assets and clients. [R1]	If the objective were to measure "financing ecosystem" size for infrastructure or agribusiness, one could allocate ISIC 66 based on sector exposure of portfolios. That requires detailed financial data not available in ISIC activity codes. [R1]
68	Real estate activities	ISIC 68 includes renting, leasing, and brokerage of property—activities with broad relevance across housing, commercial property, and industrial facilities. [R1] Real estate can support tourism (hotels), health care (clinics), and infrastructure (industrial parks), but its primary activity is property services rather than sector-specific production. [R1]	An alternative is to map certain segments (for example, resort property development) to tourism. Doing so would require segmentation by property type and tenant use, which is not available at the ISIC 2-digit level. [R1]
69	Legal and accounting activities	ISIC 69 is a professional service supporting firms in all sectors (contracts, compliance, auditing, tax, and so on). [R1] The services are enabling and horizontal rather than a distinct value chain within the five sectors. [R1]	Legal services can be significant in project-heavy sectors (for example, infrastructure PPPs and mining). An alternative would be allocated by client sector using firm revenue breakdowns, but that goes beyond ISIC division coding. [R1]
70	Activities of head offices; management consultancy activities	ISIC 70 is a cross-cutting corporate and advisory activity that can apply to any sector. [R1] Head-office functions often reflect organizational structure rather than a distinct economic sector, making sector assignment inherently ambiguous. [R1]	A plausible alternative is to reallocate head-office or consultancy value added back to operating sectors using firm-level consolidation data. This is not possible at the ISIC 2-digit level, so unclassified is a practical choice. [R1]
71	Architectural and engineering activities; technical testing and analysis	ISIC 71 provides design, engineering, and testing services to construction, manufacturing, mining, utilities, and other sectors. [R1] Because the client mix is diverse and project-driven, this division is best treated as a horizontal professional service rather than assigned to one strategic sector. [R1]	Engineering services are central to infrastructure projects. An alternative mapping could place ISIC 71 under infrastructure and energy. The unclassified choice reflects that the same firms often also serve factories, real estate, and other noninfrastructure clients. [R1], [R5]
72	Scientific research and development (R&D)	ISIC 72 is a cross-cutting activity that can target pharmaceuticals, agriculture, engineering, ICT, or basic science. [R1] Without knowing the field of R&D, assigning the entire division to one sector would be speculative. [R1]	If the analysis focused specifically on life sciences, one could allocate biomedical R&D to health care. However, that requires detailed R&D field classifications (for example, Frascati) rather than the ISIC 2-digit classification. [R1]
73	Advertising and market research	ISIC 73 supports demand generation and consumer insight for all sectors, from food brands to tourism marketing. [R1] The activity is inherently cross-sector and linked to marketing services rather than sector production. [R1]	Tourism economies may have a large tourism-marketing segment. A demand-driven alternative would allocate some of ISIC 73 to tourism, but that requires client-sector revenue breakdowns for agencies. [R1]

74	Other professional, scientific and technical activities	ISIC 74 is a residual category containing diverse specialist services (design, translation, photography, and so on). [R1] The heterogeneity and cross-sector client base make it unsuitable for assignment to a single strategic sector. [R1]	Some subsegments (for example, industrial design) could align with manufacturing and photography with tourism. However, without finer detail, any reassignment risks arbitrary bias. [R1]
77	Rental and leasing activities	ISIC 77 provides access to vehicles, machinery, and equipment used across all sectors (for example, construction equipment, car rentals, and office machinery). [R1] Because leasing demand is driven by the capital needs of many industries, mapping it to one sector would be context-specific and potentially misleading. [R1]	Some subsectors (for example, vehicle rental) are closely tied to tourism mobility. An alternative mapping could allocate those to tourism, but ISIC 77 also includes leasing of heavy machinery and other assets serving infrastructure and manufacturing. [R1]
78	Employment activities	ISIC 78 includes staffing and recruitment services that supply labor to all sectors. [R1] Economic activity is intermediation of labor rather than production in a sector value chain, and client industries vary widely. [R1]	In some contexts, staffing firms specialize (for example, health care staffing). A refined mapping could allocate specialized agencies if microdata on placement sectors existed. [R1]
80	Security and investigation activities	ISIC 80 provides protective services to buildings, infrastructure assets, firms, and households across all sectors. [R1] Security services are enabling and cross-cutting, not a distinct value chain within the five sectors. [R1]	Some security services are concentrated in airports, ports, and critical infrastructure. An alternative mapping could place them under infrastructure, but the same firms also serve retail, offices, and residences. [R1]
81	Services to buildings and landscape activities	ISIC 81 includes cleaning, facilities management, and landscaping—support services demanded by households and firms across all sectors. [R1] The activity is not specific to the five sectors and typically follows the stock of buildings and public spaces. [R1]	In tourism clusters (for example, hotels and resorts), these services are material. One could allocate a portion to tourism using establishment-level client shares, but ISIC alone does not provide that breakdown. [R1]
82	Office administrative, office support and other business support activities	ISIC 82 includes call centers, back-office processing, and other support services that can be outsourced by any sector. [R1] The client base is diverse and often international (for example, BPO), making sector assignment based on ISIC activity alone unreliable. [R1]	Some BPO segments serve health care (for example, medical billing) or tourism (for example, reservation call centers). A more granular mapping would require service-line detail beyond ISIC 2-digit classification. [R1]
84	Public administration and defence; compulsory social security	ISIC 84 is a government function, not a private-sector value chain in the five IFC strategic sectors. [R1] Its activities cut across regulation, administration, and public services for the whole economy, making sector assignment inappropriate for this taxonomy. [R1]	Public agencies operate infrastructure, health, and tourism promotion. A functional alternative would allocate public spending by COFOG or program area rather than ISIC, which is outside this mapping's design. [R1]
85	Education	ISIC 85 is a major social sector but is outside the five target sectors in this taxonomy. [R1] Education supports all sectors through human capital formation, but it is not part of the agribusiness, health care, infrastructure and energy, manufacturing, or tourism value chains as defined here. [R1]	Specialized health training institutions could be linked to health care, but ISIC 85 is too broad for such allocation. [R1]

92	Gambling and betting activities	ISIC 92 includes casinos, lotteries, and betting services, which may relate to tourism but are also heavily consumed locally and regulated as a distinct activity. [R1] Because gambling's linkage to tourism varies greatly by country (for example, destination casinos vs. local lotteries), assigning it to tourism universally would be misleading. [R1]	In tourism destinations where casinos are a primary attraction, an alternative mapping to tourism is defensible. However, implementing that would require destination-level evidence on visitor shares, not just ISIC. [R9]
94	Activities of membership organizations	ISIC 94 includes associations, unions, NGOs, and similar bodies with very diverse purposes and constituencies. [R1] Activities span advocacy, professional support, social causes, and community functions, not a single economic value chain. [R1]	Some membership bodies are sector-specific (for example, tourism associations and medical associations). A refined mapping could reallocate them by domain, but that requires detailed organization-type data. [R1]
95	Repair of computers and personal and household goods	ISIC 95 is a household-facing service that supports many product categories rather than producing sector outputs. [R1] It is not uniquely tied to the five sectors, and demand depends on consumer durables ownership and informal repair markets. [R1]	Some repair activity supports digital inclusion and the ICT ecosystem. An alternative mapping to infrastructure and digital could be argued, but ISIC 95 also covers many nondigital repairs, so it remains unclassified. [R1]
96	Other personal service activities	ISIC 96 is a residual personal services division (for example, hairdressing, funeral services, and other personal services). [R1] The activities are consumer services with varied purposes and do not align systematically with the five strategic sectors. [R1]	Certain services (for example, spas and wellness centers) could relate to tourism or health care, but ISIC 96 is too broad to isolate those segments reliably at the 2-digit level. [R1]
97	Activities of households as employers of domestic personnel	ISIC 97 is not an industry value chain in the conventional sense, but a household employment arrangement. [R1] It does not map to any of the five sectors and is best kept separate from productive-sector aggregates. [R1]	Domestic work can enable labor force participation and indirectly support all sectors, but such indirect effects are outside the purpose of this activity-based sector mapping. [R1]
98	Undifferentiated goods- and services-producing activities of private households for own use	ISIC 98 is a nonmarket household production category. [R1] It is not directly comparable to market-sector categories and does not fit the five strategic sectors. [R1]	In some low-income contexts, own-use production includes substantial subsistence agriculture, which would be agribusiness in a livelihood lens. However, ISIC 98 is designed to capture undifferentiated household activity and remains unclassified by design. [R1]
99	Activities of extraterritorial organizations and bodies	ISIC 99 covers activities of international organizations and similar entities, which are not part of domestic sector value chains. [R1] The activities are administrative or diplomatic in nature and do not align to the five IFC strategic sectors. [R1]	Some extraterritorial bodies fund or implement health and infrastructure projects. However, their activity classification reflects institutional status rather than sectoral project content, so sector allocation would require project-level data. [R1]

Source: Original for this publication.
Note: BPO = business process outsourcing; COFOG = Classification of the Functions of Government; ICT = information and communication technology; IFC = International Finance Corporation; ISIC = International Standard Industrial Classification of All Economic Activities; IT = information technology; PPP = public-private partnership.

How Future Researchers Could Improve the Mapping

- Move beyond exclusive assignment: apply split factors for structurally mixed divisions (for example, retail and wholesale margins, food services, and passenger transport) using supply-use tables, IO tables, or business microdata.
- Use Tourism Satellite Account (TSA) visitor-share ratios for tourism-adjacent divisions (for example, restaurants, recreation, and passenger transport) so only the visitor-consumed share is attributed to tourism
- Use 3- or 4-digit ISIC to separate subactivities with different sector alignment (for example, institutional catering vs. restaurants and medical devices within "other manufacturing").
- For health care, decide explicitly whether life-sciences manufacturing (for example, pharmaceuticals) is reported under health care or manufacturing and document that rule. Publish both as a sensitivity scenario when needed.
- For infrastructure, decide whether to include infrastructure construction (for example, civil engineering) and—if included—allocate by project type using procurement or building permit data rather than assigning the whole division.
- Introduce inter-rater coding and an adjudication log to reduce subjectivity. Publish a short "decision rules" appendix and a list of boundary cases.
- Perform sensitivity analysis for a small set of boundary divisions (for example, 19, 21, 56, 59, 42, and 53) and show how aggregates change under alternative plausible assignments.

Appendix A

Mapping of ISIC 2-Digit Industries to Strategic Sectors

This appendix presents the final mapping of 2-digit ISIC Revision 4 industries to the five strategic sectors used in the analysis—agribusiness, health care, infrastructure and energy, tourism, and value-added manufacturing—along with a residual unclassified category. Table A.1 provides the complete crosswalk between ISIC industries and the assigned sectors, based on the classification methodology described in this technical note. This mapping serves as the operational framework used to aggregate industry-level employment and other indicators into the strategic sectors analyzed in the report.

Table A.1: Complete Mapping of ISIC Industries to the Assigned Strategic Sectors

ISIC Rev	ISIC 2-digit	Division name	Strategic sector
isic4	1	Crop and animal production, hunting and related service activities	Agribusiness
isic4	2	Forestry and logging	Agribusiness
isic4	3	Fishing and aquaculture	Agribusiness
isic4	10	Manufacture of food products	Agribusiness
isic4	11	Manufacture of beverages	Agribusiness
isic4	12	Manufacture of tobacco products	Agribusiness
isic4	75	Veterinary activities	Agribusiness
isic4	21	Manufacture of pharmaceuticals, medicinal chemical, and botanical products	Health care
isic4	86	Human health activities	Health care
isic4	87	Residential care activities	Health care
isic4	88	Social work activities without accommodation	Health care
isic4	5	Mining of coal and lignite	Infrastructure and energy
isic4	6	Extraction of crude petroleum and natural gas	Infrastructure and energy
isic4	7	Mining of metal ores	Infrastructure and energy
isic4	8	Other mining and quarrying	Infrastructure and energy
isic4	9	Mining support service activities	Infrastructure and energy
isic4	19	Manufacture of coke and refined petroleum products	Infrastructure and energy
isic4	35	Electricity, gas, steam and air conditioning supply	Infrastructure and energy
isic4	36	Water collection, treatment and supply	Infrastructure and energy
isic4	37	Sewerage	Infrastructure and energy
isic4	38	Waste collection, treatment and disposal activities; materials recovery	Infrastructure and energy
isic4	39	Remediation activities and other waste management services	Infrastructure and energy
isic4	42	Civil engineering	Infrastructure and energy
isic4	43	Specialized construction activities	Infrastructure and energy
isic4	49	Land transport and transport via pipelines	Infrastructure and energy

isic4	50	Water transport	Infrastructure and energy
isic4	51	Air transport	Infrastructure and energy
isic4	52	Warehousing and support activities for transportation	Infrastructure and energy
isic4	53	Postal and courier activities	Infrastructure and energy
isic4	61	Telecommunications	Infrastructure and energy
isic4	41	Construction of buildings	Infrastructure and energy
isic4	55	Accommodation	Tourism
isic4	56	Food and beverage service activities	Tourism
isic4	79	Travel agency, tour operator, reservation service and related activities	Tourism
isic4	90	Creative, arts and entertainment activities	Tourism
isic4	91	Libraries, archives, museums and other cultural activities	Tourism
isic4	93	Sports activities and amusement and recreation activities	Tourism
isic4	33	Repair and installation of machinery and equipment	Unclassified
isic4	45	Wholesale and retail trade and repair of motor vehicles and motorcycles	Unclassified
isic4	46	Wholesale trade, except for motor vehicles and motorcycles	Unclassified
isic4	47	Retail trade, except of motor vehicles and motorcycles	Unclassified
isic4	58	Publishing activities	Unclassified
isic4	59	Motion picture, video and television programme production, sound recording and music publishing activities	Unclassified
isic4	60	Programming and broadcasting activities	Unclassified
isic4	62	Computer programming, consultancy and related activities	Unclassified
isic4	63	Information service activities	Unclassified
isic4	64	Financial service activities, except insurance and pension funding	Unclassified
isic4	65	Insurance, reinsurance and pension funding, except compulsory social security	Unclassified
isic4	66	Activities auxiliary to financial service and insurance activities	Unclassified
isic4	68	Real estate activities	Unclassified
isic4	69	Legal and accounting activities	Unclassified
isic4	70	Activities of head offices; management consultancy activities	Unclassified
isic4	71	Architectural and engineering activities; technical testing and analysis	Unclassified
isic4	72	Scientific research and development	Unclassified
isic4	73	Advertising and market research	Unclassified

isic4	74	Other professional, scientific and technical activities	Unclassified
isic4	77	Rental and leasing activities	Unclassified
isic4	78	Employment activities	Unclassified
isic4	80	Security and investigation activities	Unclassified
isic4	81	Services to buildings and landscape activities	Unclassified
isic4	82	Office administrative, office support and other business support activities	Unclassified
isic4	84	Public administration and defence; compulsory social security	Unclassified
isic4	85	Education	Unclassified
isic4	92	Gambling and betting activities	Unclassified
isic4	94	Activities of membership organizations	Unclassified
isic4	95	Repair of computers and personal and household goods	Unclassified
isic4	96	Other personal service activities	Unclassified
isic4	97	Activities of households as employers of domestic personnel	Unclassified
isic4	98	Undifferentiated goods- and services-producing activities of private households for own use	Unclassified
isic4	99	Activities of extraterritorial organizations and bodies	Unclassified
isic4	13	Manufacture of textiles	Value-added manufacturing
isic4	14	Manufacture of wearing apparel	Value-added manufacturing
isic4	15	Manufacture of leather and related products	Value-added manufacturing
isic4	16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Value-added manufacturing
isic4	17	Manufacture of paper and paper products	Value-added manufacturing
isic4	18	Printing and reproduction of recorded media	Value-added manufacturing
isic4	20	Manufacture of chemicals and chemical products	Value-added manufacturing
isic4	22	Manufacture of rubber and plastics products	Value-added manufacturing
isic4	23	Manufacture of other non-metallic mineral products	Value-added manufacturing
isic4	24	Manufacture of basic metals	Value-added manufacturing
isic4	25	Manufacture of fabricated metal products, except machinery and equipment	Value-added manufacturing
isic4	26	Manufacture of computer, electronic and optical products	Value-added manufacturing
isic4	27	Manufacture of electrical equipment	Value-added manufacturing
isic4	28	Manufacture of machinery and equipment n.e.c.	Value-added manufacturing
isic4	29	Manufacture of motor vehicles, trailers and semi-trailers	Value-added manufacturing
isic4	30	Manufacture of other transport equipment	Value-added manufacturing
isic4	31	Manufacture of furniture	Value-added manufacturing
isic4	32	Other manufacturing	Value-added manufacturing

Source: Original for this publication.

Lightcast Job Vacancy Data – Ad Hoc Mapping

The Lightcast data used to visualize online job advertisements are drawn from the **Global Skills Tracker**, a platform powered by Lightcast and hosted by UNESCO. The dataset was extracted and subsequently parsed for further processing and analysis. It provides insights into labor market demand by allowing job advertisements to be analyzed over time and disaggregated by characteristics such as occupation, industry, and other job attributes.

However, the sectoral classification in the Lightcast dataset is reported at the **ISIC Revision 4-letter level**, which is less granular than the **2-digit ISIC classification** used in the main analysis. As a result, the industry-to-sector mapping developed earlier in this study could not be applied directly. Instead, an **ad hoc mapping approach** was used to approximate the alignment between the available industry categories and the five strategic sectors.

Under this approach, **agribusiness** is mapped to *"A – Agriculture, forestry and fishing,"* which represents only a subset of the broader agribusiness value chain. **Value-added manufacturing** is mapped to *"C – Manufacturing,"* a broader category than the more targeted manufacturing segments used in the primary sector mapping. **Health care** is mapped to *"Q – Human health and social work activities,"* which closely captures health service activities but excludes pharmaceutical manufacturing. **Infrastructure and energy** is approximated using a combination of sectors including *"D – Electricity, gas, steam and air conditioning supply," "E – Water supply, sewerage, waste management and remediation activities," "F – Construction,"* and *"H – Transportation and storage."* The **tourism sector** is mapped to *"I – Accommodation and food service activities"* and *"R – Arts, entertainment and recreation."*

Given the relatively coarse nature of this sectoral mapping and the fact that **online job advertisements are not fully representative of the overall labor market**, the results derived from the Lightcast data should be interpreted with caution. These indicators reflect patterns observed in **online vacancy postings**, which represent only a subset of total labor demand and may overrepresent certain sectors, occupations, and skill levels relative to the broader labor market.

Appendix B

ISCO-08 1-Digit Occupation Codes

Table B.1 presents the **1-digit major occupational groups defined under the International Standard Classification of Occupations (ISCO-08)**. These major groups provide a standardized framework for organizing occupations based on the type of tasks performed and the level of skills typically required. For clarity, the table includes the **official group name, a brief description of the occupational category, and examples of common job titles** associated with each group. This classification is used in the report to analyze employment patterns across occupations in a consistent and internationally comparable manner.

Table B.1: ISCO-08 1-Digit Occupation Codes

Code	Occupation group	Description	Common job titles
1	Managers	Occupations responsible for planning, directing, and coordinating the activities of organizations or organizational units	Chief executive officer, general manager, operations manager, hotel manager, retail store manager, government administrator
2	Professionals	Occupations requiring advanced knowledge and specialized education, usually obtained through university-level training	Doctor, engineer, economist, lawyer, university professor, software developer, pharmacist
3	Technicians and associate professionals	Occupations performing technical and practical tasks that support professionals and require specialized knowledge	Laboratory technician, information technology support specialist, engineering technician, radiology technician, financial analyst
4	Clerical support workers	Occupations involving record-keeping, administrative support, and routine office tasks	Secretary, administrative assistant, receptionist, payroll clerk, data entry clerk
5	Service and sales workers	Occupations providing personal services, protective services, or selling goods and services	Shop salesperson, waiter or waitress, hairdresser, security guard, travel attendant, childcare worker
6	Skilled agricultural, forestry and fishery workers	Workers engaged in agriculture, forestry, livestock, fishing, and related activities requiring practical skills	Farmer, livestock breeder, fisherman, forestry worker, agricultural technician
7	Craft and related trades workers	Workers producing goods or constructing structures using specialized manual skills and tools	Carpenter, electrician, plumber, welder, mechanic, tailor
8	Plant and machine operators and assemblers	Workers operating machinery, equipment, and industrial production systems	Truck driver, machine operator, crane operator, factory assembler, forklift driver
9	Elementary occupations	Occupations performing simple and routine tasks requiring minimal formal training	Cleaner, laborer, street vendor, construction helper, farm laborer

Source: ILO and Authors' Illustration

Appendix B

Key Definitions

This section defines two key terms referenced throughoutthe technical report that may necessitate further clarification: the definition of informal employment, which appears across the sector, and the productive complexity index, featured in the manufacturing sector analysis.

Definition of Informal Employment

Informal employment refers to **jobs that lack basic social or legal protections or employment benefits**, regardless of whether the job is performed in the formal or informal sector. Informal employment includes workers who do not have access to social security, employment benefits, or legal protection typically associated with formal work arrangements. [R12] [R13]

According to the International Labour Organization (ILO), informal employment comprises the following:

1. Employees without social protection or formal employment contracts
2. Own-account workers and employers operating informal enterprises
3. Contributing family workers
4. Members of informal producer cooperatives
5. Workers producing goods primarily for their own household consumption.

Informal employment can therefore occur **both inside formal enterprises and within informal economic units**, as well as in households.

Product Complexity Index (PCI) – Definition

The **Product Complexity Index (PCI)** measures the amount of productive knowledge embedded in a product by analyzing the diversity and sophistication of the countries that export it. A product is considered more complex if it is exported by **countries that themselves export many other sophisticated products**, indicating that producing it requires advanced capabilities, specialized knowledge, and complex production systems. Conversely, products exported by many countries with limited export diversity are considered less complex.

The PCI is derived from international trade data using a network approach that links **countries and products through revealed comparative advantage (RCA)**. The methodology evaluates both the **diversity of countries** (how many products a country exports competitively) and the **ubiquity of products** (how many countries export a product), and iteratively combines these relationships to estimate product complexity.

Mathematical Representation

Let:

M_{cp} = 1 if country *c* has revealed comparative advantage in product *p*, and 0 otherwise.

$k_{c,0}$ = diversity of country *c* (number of products it exports with RCA).

$k_{p,0}$ = ubiquity of product *p* (number of countries exporting the product with RCA).

These are defined as:

$$k_{c,0} = \sum_p M_{cp}$$
$$k_{p,0} = \sum_c M_{cp}$$

Higher-order measures are then calculated iteratively:

$$k_{c,n} = \frac{1}{k_{c,0}} \sum_p M_{cp}\ k_{p,n-1}$$
$$k_{p,n} = \frac{1}{k_{p,0}} \sum_c M_{cp}\ k_{c,n-1}$$

The **PCI** is obtained from the **eigenvector associated with the second-largest eigenvalue** of the product similarity matrix derived from this system. This captures how strongly a product is connected to countries with complex productive structures.

Constructing the Product Complexity of Industries

The analysis uses **product-level trade data from the Centre for Prospective Studies and International Information BACI database**, which provides internationally comparable bilateral trade flows at the **6-digit Harmonized System (HS) product level**. To link trade data with the sectoral framework used in this study, HS product codes were first mapped to **2-digit ISIC industry classifications**. The crosswalk between HS products and ISIC industries was constructed using the methodology implemented in the **concordance R package** developed by Liao et al. (2020). Specifically, product-level HS codes were mapped to ISIC 2-digit categories using the concordance approach described in: *Steven Liao, In Song Kim, Sayumi Miyano, and Hao Zhang (2020), concordance: Product Concordance, R package version 2.0.0* (available at https://CRAN.R-project.org/package=concordance).

Once the HS-to-ISIC mapping was established, the trade data were merged with **PCI values** obtained from the **Atlas of Economic Complexity** developed by the Harvard Growth Lab. [R14], [R15] To derive an **industry-level productivity proxy**, product-level PCI values were aggregated to the ISIC industry level by weighting each product's PCI by its corresponding trade value. This approach allows industries to be characterized by the **average complexity of the products they export**, providing an indication of the technological sophistication and capability requirements associated with each industry.

One of the key methodological challenges stems from the fact that labor force surveys sourced from ILOSTAT are not all conducted in the same year. One approach considered was to use the most recent PCI and match it only with labor force data available for that same year. However, this would have substantially reduced the sample size. The team also considered matching PCI and labor data on a year-by-year basis, but this introduced its own complications, as PCI is not a static measure. In particular, it is sensitive to what might be called shifting ubiquity: because PCI is partly determined by the number of countries that can competitively produce a given product, an increase in producers of a previously specialized item (such as microchips) raises that product's ubiquity and consequently lowers its complexity score, making year-to-year comparisons less stable.

As a middle-ground approach, the team opted to compute five-year averages of PCI covering the period 2019 to 2024, and to apply the same logic to the labor force surveys, restricting the sample to surveys conducted within that range. Where a country has multiple surveys falling within this period, the relevant values are averaged, yielding a single, more stable observation per country.

Appendix D

Data Management and Processing

Industrial Classification and Sector Mapping

The analysis relies on employment statistics from **ILOSTAT**, which report labor market outcomes across countries, industries, and demographic groups. For the purposes of this study, industries are analyzed using the **International Standard Industrial Classification (ISIC)** at the **2-digit level**.

A key consideration in the construction of the dataset was the **compatibility of industrial classifications across countries**. The sector mapping developed for this study—linking industries to the five strategic sectors (agribusiness, health care, infrastructure and energy, tourism, and value-added manufacturing)—was constructed using **ISIC Revision 4**. Because this mapping is defined in ISIC Rev.4, the analysis focuses exclusively on countries reporting employment data using this classification system.

Countries reporting industry data using **ISIC Revision 3** were not included in the analysis. The ISIC Rev.3 classification is more aggregated and differs in the definition and structure of industries, which creates inconsistencies when attempting to map them across the two classification systems. Restricting the analysis to ISIC Rev.4 ensures that the sector mapping remains consistent and comparable across countries.

As a result of this restriction, five countries were excluded from the analysis due to reliance on ISIC Rev.3 industry classifications Jamaica, Nicaragua, South Africa, República Bolivariana de Venezuela, and the Republic of Yemen.

These countries were uniformly excluded throughout the analysis to maintain consistency in the industrial classification framework.

Occupational Classification

The analysis of occupational structure relies on the **ISCO**. The preferred classification is **ISCO-08**, which provides the most recent international standard for occupational reporting.

However, some countries report occupational data using the older **ISCO-88** classification system. While the names of the major occupational groups appear similar between ISCO-88 and ISCO-08, the detailed definitions and underlying occupational composition differ, making the classifications imperfectly comparable.

To ensure consistency in occupational analysis, countries reporting occupations using ISCO-88 were excluded from the occupational component of the analysis. These countries include Armenia, Namibia, and Ukraine.

These exclusions apply only to the occupational analysis and do not affect the industry-based components of the dataset.

One possible solution is to construct a crosswalk file from ISIC 3.1 to ISIC 4, as well as from ISCO-88 to ISCO-08. However, this approach may introduce several biases because the available data lack the necessary granularity for accurate mapping. Therefore, excluding these cases was considered the preferred method.

Country Coverage

After applying the classification restrictions, the dataset includes **country coverage across multiple International Finance Corporation (IFC) geographic regions**. The final sample includes **124 countries**, distributed across IFC regions as shown in table D.1.

Table D.1: Country Coverage across IFC Geographic Regions

Region	Number of countries	Countries and economies included
Africa	39	Angola; Benin; Botswana; Burkina Faso; Burundi; Cabo Verde; Chad; Comoros;, Congo, Dem. Rep.; Congo, Rep.; Côte d'Ivoire; Egypt, Arab Rep.; Eswatini; Ethiopia: Gambia, The; Ghana; Guinea-Bissau; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Mauritius; Mozambique; Namibia; Niger; Nigeria; Rwanda; Senegal; Seychelles; Sierra Leone; Somalia; Sudan; Tanzania; Togo; Tunisia; Uganda; Zambia; Zimbabwe
Central Asia and Türkiye	3	Kyrgyz Republic; Tajikistan; Türkiye
East Asia and the Pacific	27	Australia; Brunei Darussalam; Cambodia; Cook Islands; Fiji; Indonesia; Japan; Korea, Rep.; Kiribati; Lao PDR; Marshall Islands; Micronesia, Fed. Sts.: Mongolia; Myanmar; New Caledonia; Palau; Papua New Guinea; Philippines; Samoa; Singapore; Solomon Islands; Thailand; Timor-Leste; Tonga; Tuvalu; Vanuatu; Viet Nam
Europe	18	Albania; Armenia; Austria; Belarus, Bosnia and Herzegovina; Czechia, France, Georgia, Greece, Italy, North Macedonia, Portugal, Serbia, Slovakia, Spain, Switzerland, Ukraine, United Kingdom
Headquarters	1	United States of America
Latin America and the Caribbean	21	Argentina; Bahamas, The; Barbados; Bolivia; Brazil; Chile; Colombia; Costa Rica; Dominican Republic;, Ecuador; El Salvador; Grenada; Guatemala; Guyana; Honduras; Mexico; Panama; Peru; St. Lucia; Suriname; Uruguay
Middle East	9	Afghanistan; Iran, Islamic Rep.; Iraq; Israel; Jordan;, Lebanon; Pakistan; United Arab Emirates; West Bank and Gaza
South Asia	6	Bangladesh; Bhutan; India; Maldives; Nepal; Sri Lanka

Total countries and economies: 124

Source: Original for this publication.

However, the country composition varies from one metric to the other due to missing information and other challenges.

Handling of Missing Gender Values

In some cases, ILOSTAT suppresses gender-specific employment values due to **confidentiality and statistical disclosure rules**. This suppression occurs when reporting a gender breakdown could potentially reveal sensitive information about individuals or small groups of workers.

As a result, some observations contain values only for **total employment and male employment** or **total employment and female employment** but not both gender categories.

When this occurred, the missing gender value was calculated using the identity:

$$Female = Total - Male$$

or

$$Male = Total - Female$$

This imputation approach ensures that gender totals remain internally consistent while minimizing the loss of observations due to suppression rules.

Collaboration with ILO to Improve Data Completeness

To further reduce the number of missing observations, the research team worked directly with the **ILO statistics team**. The team shared the sector mapping and requested **custom data extracts** aligned with the industry classifications used in the study.

These customized datasets helped recover additional observations that were not available in the publicly downloadable datasets, significantly improving coverage and reducing missing values across countries and industries. This collaboration ensured better representation of employment patterns across sectors and regions.

Reference Year of Data

The dataset uses the **most recent available year of data for each country**. In practice, the majority of observations correspond to **recent years**, particularly **2022 onward**.

The distribution of the latest available observations by year shows a strong concentration in the most recent period as follows:

Year	Share of Observations
2022	10.8%
2023	15.0%
2024	39.6%
2025	4.6%

Together, observations from **2022–2025 account for more than two-thirds of the dataset**, indicating that the analysis primarily reflects **recent labor market conditions**. Some variation in the reference year may occur across datasets due to differences in reporting cycles between industry, occupation, and formality statistics.

Data Validation and Quality Checks

Several data validation procedures were implemented during the data processing stage to ensure the internal consistency and reliability of the dataset. These checks included the following:

- Verifying that **male and female employment values sum to total employment** where disaggregated data are available
- Confirming that **formal and informal employment totals match overall employment levels** within each country-industry observation
- Identifying and addressing **missing or inconsistent values** prior to computing sectoral shares
- Ensuring that industry codes match the **correct ISIC classification and sector mapping**.

Automated checks were implemented within the data processing scripts to flag inconsistencies, ensuring that the final dataset maintains coherent totals across all dimensions.

Disclaimer

Artificial intelligence tools were used in a limited capacity to assist with **editing, language refinement, and formatting of the text** in this technical note. Moreover, the initial mapping work was conducted using ChatGPT Pro, which is manually vetted extensively. Any remaining errors or omissions are solely the responsibility of the authors.

References

1. R1 – UNSD (United Nations Statistics Division). 2008. International Standard Industrial Classification of All Economic Activities Revision 4 (Series M No.4/Rev.4). New York: UNSD. https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf.
2. R2 – IFC (international Finance Corporation). n.d. "Agribusiness & Forestry." https://www.ifc.org/en/what-we-do/sector-expertise/agribusiness-forestry.
3. R3 – IFC(international Finance Corporation). n.d. "IFC's Work in Health." https://www.ifc.org/en/what-we-do/sector-expertise/health.
4. R4 – IFC (international Finance Corporation). n.d. "Boosting Local Production Capacity of Pharmaceuticals and Vaccines." https://www.ifc.org/en/what-we-do/sector-expertise/health/boosting-local-production-capacity.
5. R5 – IFC (international Finance Corporation). n.d. "Infrastructure Sectors Overview." https://www.ifc.org/en/insights-reports/2024/infrastructure-sectors-overview.
6. R6 – IFC (international Finance Corporation). n.d. "Manufacturing Sector Overview." https://www.ifc.org/en/what-we-do/sector-expertise/manufacturing.
7. R7 – IFC (international Finance Corporation). n.d. "Tourism, Retail, and Property." https://www.ifc.org/en/what-we-do/sector-expertise/tourism-retail-property.
8. R8 – World Bank Group. 2019. *Tourism for Development: Tourism Diagnostic Toolkit.* World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/240451562621614728/pdf/Tourism-Diagnostic-Toolkit.pdf.
9. R9 – UNWTO (United Nations World Tourism Organization. "Understanding Tourism: Basic Glossary." https://webunwto.s3-eu-west-1.amazonaws.com/2019-08/glossary_EN.pdf.
10. Development Committee. 2025. "Foundations for Growth and Jobs."2025. World Bank, Washington, DC.
11. World Bank. 2018. *Tourism Value Chain Development: A Guide for Development Practitioners*. World Bank, Washington, DC.
12. ILO (International Labour Organization). 2003. "Resolution Concerning Statistics of Employment in the Informal Sector and Informal Employment, Adopted by the 17th International Conference of Labour Statisticians." ILO, Geneva.
13. ILOSTAT. n.d. "Informal Employment." https://ilostat.ilo.org/resources/concepts-and-definitions/description-informal-employment/.
14. Hausmann, R., C. A. Hidalgo, S. Bustos, M. Coscia, S. Chung, J. Jimenez, A. Simoes, and M. A. Yildirim. 2014. *The Atlas of Economic Complexity: Mapping Paths to Prosperity.* Cambridge: MIT Press. https://growthlab.hks.harvard.edu/wp-content/uploads/2025/10/Atlas-of-Economic-Complexity-Part-1.pdf.
15. Harvard Growth Lab. n.d. "Atlas of Economic Complexity – Product Complexity Index (PCI)." https://atlas.cid.harvard.edu.

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