

How Many Workers per Establishment? A Table of 526 Industrial Subcategories, and How the Smaller Trades Reach More Towns [X001]

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Abstract

For each of the 526 industrial subcategories I computed **workers per establishment** from the 2021 Economic Census, and set it beside the number of the 1,889 municipalities in which the subcategory is present.

Across all industries, 62,427,908 workers over 5,288,891 establishments gives 11.80. The median across subcategories is **14.77**, the minimum is **1.57** for authors and artists, and the maximum **746.22** for iron manufacturing — a **475-fold** spread.

170 subcategories (32.3%) average under 10 workers per establishment, and 408 (77.6%) under 30. Nearly four-fifths of Japan's industrial subcategories do not reach thirty.

The fewer workers per establishment, the more municipalities have the subcategory ($r = -0.417$ between the base-10 logarithm of workers per establishment and the count of municipalities). Split into quartiles, the smallest quarter is present in a median of **1,279 municipalities** and the largest quarter in only **339**.

In the Kushiro Subprefecture the figure runs from 6.62 (Teshikaga) to 10.62 (Shiranuka); the national median across 1,889 municipalities is 9.58.

A table of all 526 subcategories is attached as a CSV.

1. Introduction

R001 counted the industrial subcategories present in each municipality, R002 the population at which a subcategory appears, and R003 the subcategories of which a town has only one. All counted **establishments**.

I004 showed barbershops and beauty salons at 1.80 and 2.12 workers per shop; I008 showed cleaning premises that wash at 1.68. Each covered one trade.

Establishment counts and worker counts are published as two tables of the same shape. Dividing one by the other gives workers per establishment for all 526 subcategories.

How many people does a trade run on? And does that relate to where the trade is found?

2. Data

Establishments	2021 Economic Census for Business Activity, Table 9-1A : establishments by industrial subcategory (1 June 2021)
Workers	Same census, Table 9-1B : workers by industrial subcategory (same date)
Municipalities	MIC, Basic Resident Register population, 1 January 2026 (unit A of R001, 1,892 municipalities)

There are **526** industrial subcategories, and all their names were readable.

Nationally: **5,288,891 establishments and 62,427,908 workers**. Summing unit A's 1,892 municipalities gives 62,012,734 workers, 415,174 short of the national figure (areas of undetermined boundary and the like).

The worker table contains no suppressed values (X). The establishment table does. The count of municipalities where a subcategory is present therefore **excludes suppressed cells**.

Of unit A's 1,892 municipalities, **1,889** also appear in the industry table.

3. Results

3-1 11.80 across all industries; a subcategory median of 14.77

Workers nationally	62,427,908
Establishments nationally	5,288,891
Workers per establishment	11.80

Across the 526 subcategories:

	Workers
Median	14.77
Lower quartile	8.16
Upper quartile	27.47
Minimum	1.57
Maximum	746.22

The subcategory median (14.77) exceeds the all-industry figure (11.80), because subcategories with many establishments tend to be the smaller ones ($r = -0.445$ between workers per establishment and establishment count).

Workers per establishment	Subcategories	Share
Under 3	15	2.9%
Under 5	57	10.8%
Under 10	170	32.3%
Under 30	408	77.6%
Under 100	500	95.1%

Nearly four-fifths of the subcategories do not reach thirty workers per establishment.

3-2 A 475-fold spread

Largest	Workers per establishment	Establishments
221 Iron manufacturing	746.2	55
191 Tyre and tube manufacturing	313.1	83
491 Postal services (incl. correspondence delivery)	305.4	335
831 Hospitals	288.2	8,341
222 Steel manufacturing and rolling	264.3	99
105 Tobacco manufacturing	233.8	6
561 Department stores and general merchandise supermarkets	228.0	1,097
816 Higher education institutions	226.6	2,442
381 Public broadcasting (excl. cable)	215.3	56

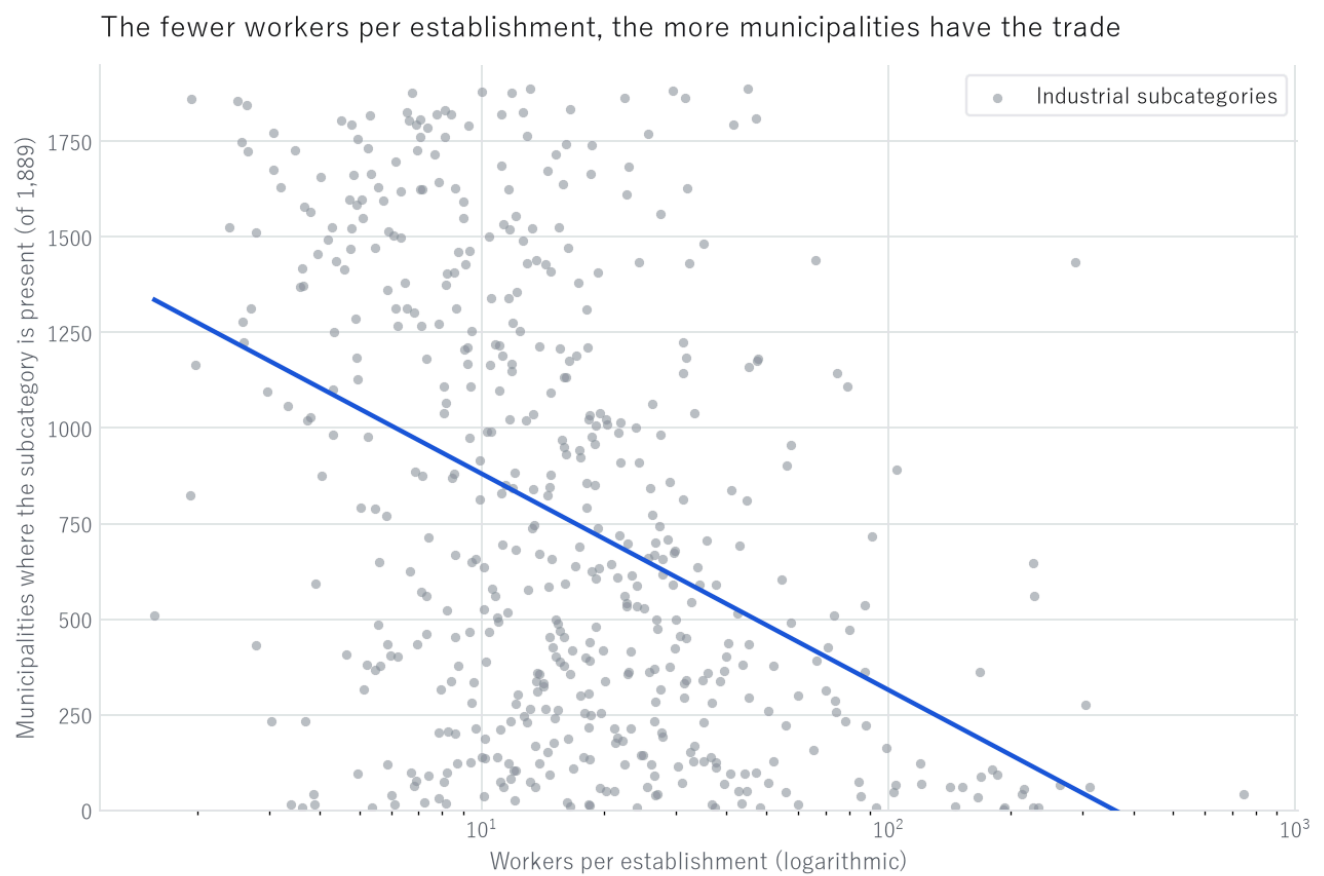
Smallest	Workers per establishment	Establishments
942 Buddhist religious organisations	2.65	61,064
693 Parking services	2.59	24,619
943 Christian religious organisations	2.59	7,696
835 Therapeutic services	2.57	78,918
783 Beauty salons	2.52	162,431
949 Other religious organisations	2.40	13,011
723 Administrative scrivener offices	1.98	7,350
782 Barbershops	1.94	87,048
903 Mounting and paperhanging	1.92	1,989
727 Authors and artists	1.57	983

The spread from top to bottom is **475-fold** ($746.22 \div 1.57$).

At the top sit subcategories with few establishments: iron manufacturing 55, tobacco manufacturing 6, public broadcasting 56. **At the bottom sit those with many:** beauty salons 162,431, barbershops 87,048, therapeutic services 78,918.

In I004, the Report on Public Health Administration gave 1.80 workers per barbershop premises and 2.12 per beauty salon. **The Economic Census gives 1.94 and 2.52.** The units differ (premises against establishments), so they do not match exactly, but they are of the same order.

3-3 The smaller the trade, the more municipalities have it



Sources: 2021 Economic Census, Tables 9-1A and 9-1B; Basic Resident Register, 1 Jan 2026. Municipalities with suppressed values are not counted as present.

Figure 1. Workers per establishment and the number of municipalities where the subcategory is present (526 subcategories, 1,889 municipalities).

Grey points are subcategories; the blue line is a least-squares fit against the base-10 logarithm.

Correlation (526 subcategories)	r
Workers per establishment (log) × municipalities present	− 0.417
Establishments (log) × municipalities present	+0.921
Workers per establishment (log) × establishments (log)	− 0.445

The fewer workers per establishment, the more municipalities have the subcategory.

By quartile the pattern separates clearly.

Quartile by workers per establishment	Range	Municipalities present (median)
Smallest quarter	1.6–8.1	1,279
Second	8.2–14.7	814
Third	14.8–27.4	594
Largest quarter	27.4–746.2	339

The smallest quarter reaches 3.8 times as many municipalities as the largest.

The strongest correlation, however, is with **the number of establishments ($r = +0.921$)**. That a subcategory with many establishments is present in many municipalities is obvious; workers per establishment sits behind it. **Being small per establishment and being numerous are two views of the same thing** ($r = -0.445$ between them).

3-4 The Kushiro Subprefecture

Municipality	Establishments	Workers	Per establishment
Kushiro City	7,989	74,401	9.31
Kushiro Town	1,009	9,856	9.77
Akkeshi	531	4,029	7.59
Hamanaka	304	2,378	7.82
Shibecha	435	3,192	7.34
Teshikaga	468	3,099	6.62
Tsurui	140	1,262	9.01
Shiranuka	399	4,236	10.62

The national median across 1,889 municipalities is **9.58**, the minimum 2.57 and the maximum 46.33.

Only Kushiro Town (9.77) and Shiranuka (10.62) exceed the median; the other six fall below it.

Teshikaga's 6.62 is the lowest. As I006 showed, Teshikaga has an exceptional concentration of lodging, and lodging establishments are small.

Kushiro City, at 9.31, falls just below the national median.

3-5 The table of 526 subcategories

kensan_199_1事業所あたり.csv carries the following columns for all 526 subcategories.

Column	Contents
Subcategory	three-digit code
Name	subcategory name
Establishments	national (2021)
Workers	national (2021)
Workers per establishment	workers ÷ establishments
Municipalities present	of 1,889 (suppressed cells excluded)
Municipalities suppressed	establishments reported as X

4. Discussion

4-1 Answering "how many people does my trade average?"

When speaking to small businesses about their trade, "your trade averages N workers per establishment" is a basic figure. Hunting for it trade by trade takes work.

Dividing two Economic Census tables gives it for all 526 subcategories at once. The CSV attached here is that list.

But **it is a mean.** Beauty salons at 2.52 does not mean most salons have two people; it is one-person shops and twenty-person shops averaged together. The distribution is not examined here.

4-2 Small trades spread thin and wide

Subcategories with fewer workers per establishment are present in more municipalities ($r = -0.417$), and by quartile the difference is 1,279 against 339, a factor of 3.8.

R002 found that barbershops and beauty salons had the lowest possible threshold population, 155. **Small trades appear in small towns too.** This paper confirms that across all 526 subcategories.

A plausible reason is that **a trade that runs on few people also needs few customers.** Iron manufacturing must gather 746 people in one place, and the demand for that must be drawn nationally. A barbershop runs on 1.94, and that demand fits inside a town.

This paper does not observe demand, so that is an explanation, not a test.

4-3 Establishment counts and establishment size

Of the three correlations, the strongest is between establishments and municipalities present ($r = +0.921$) — unsurprising, since more establishments means more towns.

Workers per establishment sits behind it ($r = -0.445$ with establishment count). **Whether trades are widespread because they are small, or appear small because they are numerous, is not separated here.**

What can be said is that **the three quantities — establishment count, workers per establishment, and municipalities present — move together.**

4-4 Connections to the other papers

- **Against I004 and I008.** Barbershops at 1.94 (Census) sit near 1.80 (Public Health Report, per premises), and beauty salons at 2.52 near 2.12. Different units, same order

- **Against R002 and R003.** That small trades reach small towns is confirmed across all 526 subcategories
 - **Citable from any trade's article.** One row of the CSV serves any trade page, so a single paper can be cited from all of them
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5. Limitations

- The Census is as of 1 June 2021 and population as of 1 January 2026: **the dates differ**
 - Workers include everyone working at the establishment (paid officers, regular employees, temporary employees and others); **full-time and part-time are not distinguished**
 - **The establishment table contains suppressed values (X).** "Municipalities present" excludes them and may therefore understate
 - Workers per establishment is a **mean**; the distribution of establishment sizes within a subcategory is not examined
 - Revenue and profit are not examined. **Headcount is only one aspect of the size of a business**
 - The national figure is computed from national totals, which differs from the mean across municipalities
 - Summing unit A's 1,892 municipalities gives 415,174 fewer workers than the national figure (areas of undetermined boundary and the like)
 - **No causal claim is made** that being small makes a trade widespread
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6. Reproduction

1. From e-Stat, obtain the 2021 Economic Census **Table 9-1A** (establishments by industrial subcategory) and **Table 9-1B** (workers by the same)
2. Both have the same shape; tabulate them by municipality code and three-digit subcategory code (`_ツール/gyoshu_shichoson.py` and `_ツール/jugyosha_shichoson.py`)

3. On the national row (00000), divide workers by establishments for each subcategory
4. Among unit A's 1,892 municipalities, use the 1,889 also present in the industry table and count, for each subcategory, those with at least one establishment (**excluding suppressed cells**)
5. Correlate the base-10 logarithm of workers per establishment with the count of municipalities

All values are the output of a single script (`kensan_199`). No intermediate value was transcribed by hand.

Scope of this paper

No new theory is claimed. This paper **divides Economic Census establishment counts by worker counts to tabulate workers per establishment for all 526 industrial subcategories, and sets that beside how many municipalities have each**. It views from the side of size what R002 and R003 viewed from the side of counts. No causation is shown. The table is attached as a CSV so that any trade's article can cite it.

References and data sources

1. Statistics Bureau of Japan and METI, 2021 Economic Census for Business Activity, Table 9-1A (establishments by industrial subcategory) and Table 9-1B (workers by the same).
2. MIC, Population Based on the Basic Resident Register, 1 January 2026.
3. Y. Yamagishi, "Population and the Number of Industrial Subcategories Present in Japanese Municipalities" (R001). Zenodo. <https://doi.org/10.5281/zenodo.22872218>
4. Y. Yamagishi, "At What Population Does a Trade Appear?" (R002). Zenodo. <https://doi.org/10.5281/zenodo.22872356>
5. Y. Yamagishi, "The Only One in Town" (R003). Zenodo. <https://doi.org/10.5281/zenodo.22872474>
6. Y. Yamagishi, "Barbershops and Beauty Salons: Two People per Shop" (I004). Zenodo. <https://doi.org/10.5281/zenodo.22875820>

7. Y. Yamagishi, "Seven in Ten Cleaning Premises Do Not Wash" (I008). Zenodo.
<https://doi.org/10.5281/zenodo.22876239>

Version history

Version	Date	Change
1	2026-09-21	First release

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