

Japan High-Speed Rail Passenger Traffic Statistics - to 2017

We present annual passenger traffic statistics for high-speed railway lines in Japan in the tables and figures below. This compilation extends from 1964, when Japan opened the world's first dedicated high speed rail line, to the most recent years for which data are available.

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Japan's dedicated high-speed rail lines are labeled 新幹線 *shinkansen*, an abbreviation of 新幹線鉄道 *shinkansen tetsudō* ("new trunk line railway"). This, strictly speaking, refers to the infrastructure but the word *shinkansen* is recognized widely as a virtual brand name. Tracks are built to international standard gauge (1,435mm / 4'8½") rather than the Japanese standard for classic railway lines, 1,067mm / 3'6".

The official service category is 特急 *tokkyū*, an abbreviation of 特別急行 *tokubetsu kyūkō* ("Special Express"). This is translated customarily as "Limited-Express" but often as "Super Express" when referring to *shinkansen* services. Japanese-language publications do not use the term 弾丸列車 *dangan ressha*, "Bullet Train," with reference to today's high-speed railways, rolling stock and services. This, in Japanese, refers to the project started in 1941 by the imperial-fascist regime and stopped in 1943 because of Japan's worsening military position.

Shinkansen lines currently in operation (in order of opening):

東海道新幹線 **Tōkaidō Shinkansen**

Tōkyō – Nagoya – Kyōto – Ōsaka (Shin-Ōsaka Station).

This is the eastern segment of the *shinkansen* line that now extends westward and southward to Kagoshima, in southern Kyūshū (see below). It is operated by the Central Japan Railway Company (JR-Central), and was opened on 1964 October 1.

山陽新幹線 **San-yō Shinkansen**

Ōsaka (Shin-Ōsaka Station) – **Okayama – Hiroshima – Kitakyūshū** (Kokura Station) – **Fukuoka** (Hakata Station).

This is the central segment of the Tōkyō – Kagoshima *shinkansen* line, and is operated by the West Japan Railway Company (JR-West). It was opened between Ōsaka and Okayama on 1972 March 15 and was completed to Fukuoka on 1975 March 10.

東北新幹線 **Tōhoku Shinkansen**

Tōkyō – Fukushima – Sendai – Morioka – Aomori (Shin-Aomori Station).

This line is part of the northward *shinkansen* line between Tōkyō and the northern island of Hokkaidō. It is operated by the East Japan Railway Company (JR-East), and was opened in five stages during 1982-2010:

Tōkyō (Tōkyō Station) - Tōkyō (Ueno Station)	1991 June 20
Tōkyō (Ueno Station) - Ōmiya	1985 March 14
Ōmiya - Morioka	1982 June 23
Morioka - Hachinohe	2002 December 1
Hachinohe - Aomori (Shin-Aomori Station)	2010 December 4

Two *mini-shinkansen* (ミニ新幹線) lines serve as "branches" of the Tōhoku Shinkansen. These are segments of classic line, converted to standard gauge, that are worked by small-profile high-speed trains capable of operating at full speed on dedicated *shinkansen* lines.

山形新幹線 **Yamagata Shinkansen**

Fukushima – Yamagata – Shinjō.

Service to Yamagata opened on 1992 July 1, and was extended to Shinjō on 1999 December 4.

山形新幹線 **Akita Shinkansen**

Morioka – Akita.

Service opened on 1997 March 22.

上越新幹線 **Jōetsu Shinkansen**

Ōmiya – Takasaki – Nagaoka – Niigata.

This line diverges from the Tōhoku Shinkansen at Ōmiya. It is operated by JR-East, and was opened on 1982 November 15.

北陸新幹線 **Hokuriku Shinkansen**

Takasaki – Nagano – Niigata – Toyama – Kanazawa – (Tsuruga – Kyōto).

This line diverges from the Jōetsu Shinkansen at Takasaki. The segment Takasaki – Nagano was opened on 1997 October 1. The newer segment, Nagano – Kanazawa, 228.0 km / 141.4 mi, was opened on 2015 March 14.

The segment Takasaki – Jōetsu-Myōkō (176.9 km / 109.9 mi) is operated by JR-East. The remainder, Jōetsu-Myōkō – Kanazawa (168.5 km / 104.7 mi), together with Jōetsu-Myōkō station, is operated by JR-West.

An extension from Kanazawa to Tsuruga, 120.7 km / 75.0 mi, is under construction, with opening planned for the 2022 fiscal year (i.e. by 2023 March).

A Hokuriku Shinkansen connection to the Kansai (Kyōto-Ōsaka-Kōbe) metropolitan area is in planning. Several alternative routes were evaluated prior to the end of 2016, when the governing coalition announced its selection. The new line will extend southwestward from Tsuruga to Obama (on the Sea of Japan coast), then southward to Kyōto, where it will connect with the Tōkaidō Shinkansen. The planned segment length has not been announced because final alignments had not been determined at the time of writing (2019 June). Construction is planned to start during the 2030 fiscal year, for completion within 15 years thereafter.

九州新幹線 **Kyūshū Shinkansen**, also known as:

九州新幹線鹿児島ルート **Kyūshū Shinkansen, Kagoshima Route**

Fukuoka – Kumamoto – Yatsushiro (Shin-Yatsushiro Station) – **Kagoshima**
(Kagoshima-Chūō Station).

This line, a southward extension of the Tōkyō – Fukuoka *shinkansen* line, is operated by the Kyūshū Railway Company (JR-Kyūshū). The initial segment, Yatsushiro (Shin-Yatsushiro Station) – Kagoshima (Kagoshima-Chūō Station), was opened on 2004 March 13. The remainder, Fukuoka – Tosu (Shin-Tosu station) – Kumamoto – Yatsushiro (Shin-Yatsushiro Station), 130.0 km / 80.6 mi, was opened on 2011 March 12. Trains operate through between Ōsaka and Kagoshima.

九州新幹線西九州ルート **Kyūshū Shinkansen, West Kyūshū Route**

The project for *shinkansen* service to Nagasaki has undergone several changes in scope (and nomenclature). Construction of a full-scale (standard-gauge) *shinkansen* line between Takeo-onsen and Nagasaki, 66.7 km / 41.4 mi, was started in 2008. Opening is planned by the end of the 2022 fiscal year. Construction of a full-scale *shinkansen* line between Tosu (Shin-Tosu station), Saga and Takeo-onsen was deferred because of high estimated cost. Therefore, parts of the existing Nagasaki Main and Sasebo lines (Shin-Tosu – Takeo-onsen, 51.3 km / 31.9 mi) were planned for upgrading. "Free Gauge Train" (FGT) rolling stock (also known as "Gauge Changeable Train" or "Gauge Convertible Train," GCT), equipped with variable-gauge axles, was planned for operation of through service between Fukuoka and Nagasaki. However, JR-Kyūshū announced at 2017 June that it would not use this technology, citing safety and cost concerns. The plan current at the time of writing outlines operation of "relay" services between Fukuoka and Takeo-onsen, where passengers would change to *shinkansen* trains working between there and Nagasaki. Introduction of GCT trains, permitting through operation between Fukuoka and Nagasaki, would follow additional research and development. This was forecast for 2025 at the time of writing. Of-

officials of Nagasaki Prefecture want trains to operate through to Ōsaka, but the JR-West management has expressed skepticism about GCT technology.

No plans for construction of the Shin-Tosu – Takeo-onsen *shinkansen* segment had been announced at the time of writing.

北海道新幹線 **Hokkaido Shinkansen**

Aomori (Shin-Aomori Station) – **Hakodate** (Shin-Hakodate - Hokuto Station) – **(Sapporo)**.

This segment, 148.8 km / 92.5 mi, is a northward extension of the Tōkyō – Aomori *shinkansen* line. It is operated by the Hokkaidō Railway Company (JR-Hokkaidō). Service was opened on 2016 March 26.

The line incorporates the Seikan Tunnel between Honshū and Hokkaidō, together with connecting lines in northern Honshū and southern Hokkaidō (opened 1988 March 13, total length 82.1 km / 51.0 mi, including the Seikan Tunnel, 53.9 km / 33.5 mi). These were designed for shared use by standard-gauge high-speed passenger trains and 1,067-mm / 3'6" gauge goods (freight) trains. The *shinkansen* project included addition of a third running rail, and increase of the traction voltage from 20 kV 50 Hz (used on classic lines in northern Honshū and southern Hokkaidō) to 25 kV 50 Hz (*shinkansen* standard in east Japan). The maximum permitted speed on the dual-gauge segment is 140 km/h / 87 mph because of the high volume of goods traffic (about 25 trains per direction per day).

An extension, Hakodate – Sapporo, 211.3 km / 131.3 mi, is under construction with completion planned for 2031 March.

博多南線 **Hakata-minami Line, and**
ガラ湯沢線 **Gala-Yuzawa Line**

Two *shinkansen* depot-access segments have been opened to public passenger service. Although worked by *shinkansen* rolling stock, these lines do not conform to the legal definition of *shinkansen* infrastructure (they are designated as separate lines, and the maximum permitted speed is less than that specified by law for *shinkansen* lines). These services are therefore, by law, not part of the *shinkansen* system. They are not included in *shinkansen* statistics.

The Hakata-minami Line extends 8.5 km / 5.3 mi between Fukuoka (Hakata Station) and Hakata-minami, on what was built as a depot-access line for San-yō Shinkansen trains. Passenger service was opened on 1990 April 1. From 2011 March 12, 8.2 km / 5.1 mi of this line has been shared with Kyūshū Shinkansen trains.

The Gala-Yuzawa Line extends 1.8 km / 1.1 mi between Echigo-Yuzawa and Gala-Yuzawa, on what was built as a depot-access line for Jōetsu Shinkansen trains. Passenger service was opened on 1990 December 20, and operates only during the winter ski season. The name "Gala-Yuzawa Line" is not official; this segment is designated formally as a branch of the classic Jōetsu Line.

The maximum permitted speed on the Hakata-minami Line and the Gala-Yuzawa Line, based on their status as classic (conventional) lines, is 120 km/h / 75 mph (but trains do not approach this speed between Echigo-Yuzawa and Gala-Yuzawa stations).

中央新幹線 **Chūō Shinkansen**

Tōkyō (Shinagawa Station) – **Nagoya** – **Ōsaka** (Shin-Ōsaka Station).

Construction of a second high-speed railway between the three largest conurbations in Japan has been planned from the

This is the one *shinkansen* project that, at the time of writing, had any prospect of construction during the foreseeable future, aside from the extensions described above (Tsuruga – Kyōto, Takeo-onsen – Nagasaki, and Hakodate – Sapporo).

Tables and Figures

In the tables below, the years correspond to Japanese fiscal years, which start on April 1 (e.g. "2010" pertains to the calendar interval 2010 April 1 - 2011 March 31). Line length statistics are as at the end of the (fiscal) year, with exceptions as noted.

Statistics presented below (line length, passenger traffic) are exclusive of infrastructure segments that, by law, are not part of the *shinkansen* system. These are the two segments of classic line in northern Honshu converted to standard gauge for *mini-shinkansen* service (Fukushima – Shinjō and Morioka – Akita), and the two depot-access segments also used for passenger service (see above).

"Average travel distance" statistics are derived as the quotient of "annual passenger-kilometers" and "annual passengers."

"Annual passenger traffic density" statistics are derived as the quotient of annual passenger-kilometers and route length. As we have explained previously ([here](#)), this statistic is expressed in "passenger-kilometers per kilometer of system length (or: line length)." We refer to this clumsy-sounding unit as a tennyson, in memory of Edson L. Tennyson, PE (1922-2014, former Transit Commissioner, City of Philadelphia and former Deputy Transportation Secretary, Commonwealth of Pennsylvania). Mr. Tennyson was one of the best-known public transit experts of his time, and his input and insights were crucial for our own understanding of passenger traffic density (among other concepts). We emphasize, however, that this label is strictly informal and confined to *publictransit.us*; it has no official recognition.

In some cases, passenger-kilometer data for the most recent year has been published but passenger traffic data are pending. In such cases, we have calculated annual passenger traffic density but have left the "annual passenger traffic" and "average travel distance" entries blank.

In "summary" tables, passengers who travel on more than one *shinkansen* line are counted only once. The "annual passenger traffic" statistic in "summary" tables for a given year does not coincide with the sum of "annual passenger traffic" statistics for individual *shinkansen* lines.

Passenger traffic at Hakata-minami station during the 2016 fiscal year is stated at 14,680 per day, which implies nearly 5.4 million passengers per year. Traffic at Gala-Yuzawa station during the same interval is stated at 1,205 per day, which implies more than 400,000 per year. These statistics are inclusive of all passengers, whether or not carried aboard connecting *shinkansen* services.

Comparisons among high-speed rail services located in different countries should be performed with care. An important parameter is the presence or absence of seat-reservation requirements. If train occupancy is limited to no more than 100 percent of seated capacity - in other words, if passengers are not permitted to travel as standees - then overall system capacity is limited, and to a significant degree.

Among the operators of major high-speed rail systems, only those in Germany, Japan and Taiwan permit passengers to travel without seat reservations. In South Korea, passengers wishing to travel aboard high-speed trains without available seats are required to purchase "standee" tickets. Elsewhere, the near-universal practice is to require seat reservations for travel aboard high-speed trains - with the single significant exception of Germany. Some European countries (e.g. Belgium, Netherlands and the United Kingdom) permit unreserved travel aboard domestic trains using high-speed rail lines, but not aboard international trains. In Germany, seat reservations are required for travel aboard high-speed trains to certain destinations abroad, e.g. Paris. The degree to which seat-reservation re-

quirements constrain high-speed rail traffic outside of Germany, Japan, South Korea and Taiwan is not clear.

Table 1: Shinkansen Passenger Traffic Statistics - Summary

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1964	515.4 / 320.3	11	355.1 / 220.6	18.2
1965	"	31	343.9 / 213.7	20.7
1966	"	43.8	330.9 / 205.6	28.1
1967	"	55.3	324.2 / 201.4	34.8
1968	"	65.9	319.1 / 198.3	40.8
1969	"	71.6	318.8 / 198.1	44.3
1970	"	84.6	329.6 / 204.8	54.1
1971	"	85.4	313.9 / 195.1	52
1972	676.3 / 420.2	109.9	308.0 / 191.4	50
1973	"	128.1	304.4 / 189.2	57.7
1974	"	133.2	305.3 / 189.7	60.1
1975	1,069.1 / 664.3	152.7	349.1 / 216.9	49.9
1976	"	143.5	335.6 / 208.5	45
1977	"	126.8	332.7 / 206.7	39.5
1978	"	123.7	332.1 / 206.3	38.4
1979	"	124	330.5 / 205.4	38.3
1980	"	126	331.7 / 206.1	39.1
1981	"	126	331.1 / 205.7	39
1982	1,803.8 / 1,120.8	143	322.4 / 200.3	25.6
1983	"	161	313.4 / 194.7	28
1984	"	164	309.9 / 192.6	28.2
1985	1,831.5 / 1,138.0	180	307.9 / 191.3	30.3

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1986	"	183	305.7 / 190.0	30.5
1987	"	218	263.3 / 163.6	31.3
1988	"	227.3	283.3 / 175.9	35.1
1989	"	236.5	278.9 / 173.3	36
1990	"	260.1	277.5 / 172.5	39.4
1991	1,835.1 / 1,138.0	275.1	269.8 / 167.6	40.4
1992	"	276.5	262.4 / 164.2	39.8
1993	"	275.9	263.1 / 163.5	39.5
1994	"	263	260.1 / 161.6	37.3
1995	"	275.9	256.7 / 159.5	38.6
1996	"	281	259.6 / 161.3	39.8
1997	1,952.5 / 1,213.2	282.1	258.1 / 160.4	37.3
1998	"	280.5	253.2 / 157.3	36.4
1999	"	277.4	252.4 / 156.9	35.9

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	1,952.5 / 1,213.2	280.6	253.6 / 157.6	36.4
2001	"	282.5	256.0 / 159.0	37
2002	2,049.1 / 1,352.0	278.4	257.0 / 159.7	34.9
2003	"	282.5	258.4 / 160.6	35.6
2004	2,175.9 / 1,352.0	290.7	256.2 / 159.2	34.2

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2005	"	301.4	258.5 / 160.6	35.8
2006	"	305.1	260.4 / 161.8	36.5
2007	"	315.8	262.2 / 162.9	38.1
2008	"	310.3	263.2 / 163.5	37.5
2009	"	288.9	264.0 / 163.6	34.9
2010	2,257.7 / 1,402.9	292.1	265.1 / 164.7	34.3
2011	2,387.7 / 1,483.6	307	265.2 / 164.8	34.1
2012	"	324.4	265.1 / 164.7	36
2013	"	339.7	262.5 / 163.1	37.3
2014	"	339.9	267.7 / 166.3	38.1
2015	"	365.7	266.3 / 165.5	37.2
2016	2,615.5 / 1,625.3	* 380	* 265 / 165	36
2017	2,764.6 / 1,717.8	-	-	-

Notes for Table 1:

As noted above, passengers who traveled on more than one *shinkansen* line are counted only once.

Service opened 1964 October 1. Passenger traffic data for FY 1964 pertain to the interval 1964 October 1 - 1965 March 31. Passenger traffic density statistic scaled up to annual rate.

Extension Ōsaka (Shin-Ōsaka Station) – Okayama opened 1972 March 15 (i.e. 16 days before the end of FY 1971). Added to cumulative line length in table above from 1972.

Extension Okayama – Fukuoka (Hakata Station) opened 1975 March 10 (i.e. 21 days before the end of FY 1974). Added to line length from 1975.

Extension Tōkyō (Ueno Station) – Ōmiya opened 1985 March 14 (i.e. 17 days before the end of FY 1984). Added to line length from 1985.

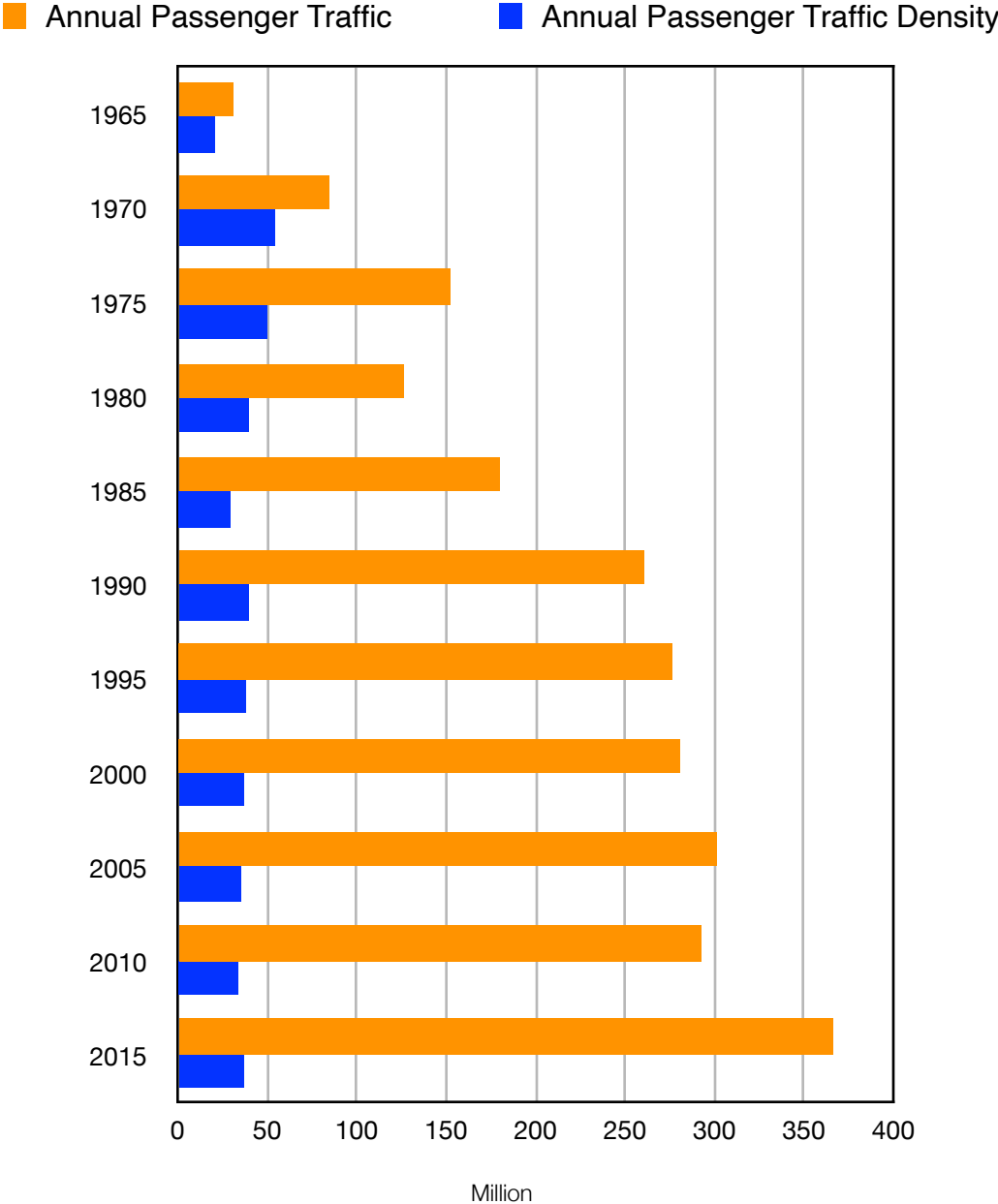
Initial segment of Kyūshū Shinkansen Kagoshima Route opened 2004 March 13 (i.e. 18 days before the end of FY 2003). Added to line length from 2004.

Extension Fukuoka – Yatsushiro (Shin-Yatsushiro Station) opened 2011 March 12 (i.e. 19 days before the end of FY 2010). Added to cumulative line length in table above from 2011.

Extension Nagano – Kanazawa opened 2015 March 14 (i.e. 17 days before the end of FY 2014). Added to cumulative line length in table above from FY 2015.

Initial segment of Hokkaido Shinkansen opened 2016 March 26 (i.e. five days before the end of FY 2015). Added to cumulative line length in table above from FY 2016.

Figure 1: Shinkansen Passenger Traffic Statistics - Summary



Notes for Figure 1:

Charts for Japan, Korea (KR) and Taiwan are prepared to a uniform scale.
Annual Passenger Traffic Density is expressed as passenger-km per km of line length (tennysons).

Table 2: Tōkaidō and San-yō Shinkansen Passenger Traffic Statistics - Summary

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
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See Table 1 for years 1972-1981

1982	1,069.1 / 664.3	125	331.9 / 206.2	38.8
1983	"	128	329.6 / 204.8	39.5
1984	"	129	327.1 / 203.3	39.5
1985	"	133	329.8 / 204.9	41
1986	"	135	328.1 / 203.9	41.4

Notes for Table 2:

See Table 1 for aggregate passenger traffic data for Tōkaidō Shinkansen and San-yō Shinkansen, 1972-1981.

See Table 3 for Tōkaidō Shinkansen passenger traffic data from 1987.

See Table 4 for San-yō Shinkansen passenger traffic data from 1987.

Table 3: Tōkaidō Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
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See Table 1 for years 1964-1971

No separate data for years 1972-1986; see Table 1 and Table 2

1987	515.4 / 320.3	102	314.9 / 195.7	62.3
1988	"	112	324.1 / 201.4	70.4
1989	"	117.3	318.9 / 198.1	72.6
1990	"	130	318.0 / 197.6	80.2
1991	"	134	312.2 / 194.0	81.2
1992	"	132	308.0 / 191.4	78.9
1993	"	132	306.8 / 190.7	78.6
1994	"	128	304.0 / 188.9	75.5
1995	"	132.8	299.9 / 186.3	77.3
1996	"	134.2	305.3 / 189.7	79.5
1997	"	134.4	305.8 / 190.0	79.7
1998	"	130.3	302.3 / 187.9	76.5
1999	"	128.4	302.9 / 188.2	75.4

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	515.4 / 319.5	130.5	304.0 / 188.9	77
2001	"	132.3	306.8 / 190.6	78.7

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2002	"	129.6	305.4 / 189.8	76.8
2003	"	132.1	305.2 / 189.6	78.2
2004	"	136.5	304.3 / 189.1	80.6
2005	"	143.5	305.1 / 189.6	84.9
2006	"	145.3	306.2 / 190.3	86.3
2007	"	151.3	307.6 / 191.1	90.3
2008	"	149.2	308.7 / 191.8	89.3
2009	"	138	309.2 / 192.2	82.8
2010	"	140.8	310.6 / 193.0	84.9
2011	"	143	309.8 / 192.5	86
2012	"	149.2	314.5 / 195.4	91.1
2013	"	154.8	315.7 / 196.2	94.8
2014	"	157.4	318.6 / 198.0	97.3
2015	"	163	320.1 / 198.9	101.2
2016	"	167.7	330.8 / 198.9	104.6
2017	"	* 170	322.1 / 200.1	106.2

Notes for Table 3:

* Preliminary statistic.

See Table 1 for Tōkaidō Shinkansen passenger traffic data, 1964-1971.

Passenger traffic data combined with San-yō Shinkansen data for years 1972-1986. See Table 1 (1972-1981) and Table 2 (1982-1986) for aggregate data.

Table 4: San-yō Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1987	553.7 / 344.1	54	243.6 / 151.3	23.8
1988	"	61	242.5 / 150.7	26.7
1989	"	62.2	241.2 / 149.9	27.1
1990	"	66	243.4 / 151.2	29
1991	"	68	239.4 / 148.7	29.4
1992	"	68	237.7 / 147.7	29.2
1993	"	67	239.2 / 148.6	28.9
1994	"	57	233.5 / 145.1	24
1995	"	63.5	232.4 / 144.4	26.7
1996	"	64.4	240.0 / 149.1	27.9
1997	"	62.8	238.3 / 148.1	27
1998	"	60.2	235.1 / 146.1	25.6
1999	"	58.5	232.7 / 144.6	24.6

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	553.7 / 344.1	58.4	236.3 / 146.9	24.9
2001	"	58.2	240.5 / 149.4	25.3
2002	"	56.6	241.6 / 150.1	24.7
2003	"	57.5	242.0 / 150.4	25.1

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2004	"	58.6	240.5 / 149.5	25.5
2005	"	60.6	245.2 / 152.3	26.8
2006	"	61	248.6 / 154.5	27.4
2007	"	63.4	251.2 / 156.1	28.8
2008	"	62.9	252.5 / 156.9	28.7
2009	"	58.6	253.0 / 157.2	26.8
2010	"	60.5	257.0 / 159.7	28.1
2011	"	64.4	262.3 / 163.0	30.5
2012	"	65.6	261.7 / 162.6	31
2013	"	67.9	259.5 / 161.2	31.8
2014	"	68.1	264.6 / 164.4	32.6
2015	"	72.1	263.1 / 163.5	34.2
2016	"	72.5	261.3 / 162.4	"
2017	"	* 77	* 265 / 165	* 37

Notes for Table 4:

* Preliminary statistic.

Passenger traffic data combined with Tōkaidō Shinkansen data for years 1972-1986. See Table 1 (1972-1981) and Table 2 (1982-1986) for aggregate data.

Table 5: JR-East Shinkansen Passenger Traffic Statistics - Summary

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1982	734.7 / 455.5	18.1	255.5 / 158.4	6.3
1983	"	33.7	244.7 / 151.7	11.2
1984	"	35.4	326.3 / 202.3	15.7
1985	762.4 / 472.7	46.7	249.2 / 154.5	15.3
1986	"	48	253.1 / 156.9	15.9
1987	"	62	195.7 / 121.3	15.9
1988	"	102.9	121.4 / 75.3	17.4
1989	"	102.3	132.5 / 82.8	17.8
1990	"	108.9	135.6 / 84.1	19.4
1991	766.0 / 474.9	109	147.7 / 91.6	21
1992	"	100.9	161.0 / 99.8	21.2
1993	"	98.7	162.5 / 100.7	20.9
1994	"	100	160.3 / 99.4	20.9
1995	"	101.4	"	21.2
1996	"	101.7	162.4 / 100.7	21.6
1997	883.4 / 547.7	103.8	165.2 / 102.4	19.4
1998	"	101.8	171.5 / 106.3	19.8
1999	"	100.4	174.6 / 108.3	19.8

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	"	100.8	175.4 / 108.7	20
2001	"	100.4	176.7 / 109.6	20.1
2002	980.0 / 607.6	103	177.4 / 110.0	18.6
2003	"	102.6	179.2 / 111.1	18.8
2004	"	98.1	187.5 / 116.2	18.8
2005	"	102.6	184.0 / 114.1	19.3
2006	"	102.7	188.7 / 117.0	19.8
2007	"	102.8	193.8 / 120.2	20.3
2008	"	96.9	199.2 / 123.5	19.7
2009	"	94	193.1 / 119.7	18.5
2010	1,061.8 / 658.3	97.2	181.6 / 112.6	16.6
2011	"	104.4	176.5 / 109.4	17.4
2012	"	109.2	184.2 / 114.2	18.9
2013	"	103.7	201.2 / 124.7	19.6
2014	"	100.2	208.7 / 129.4	19.7
2015	"	109.2	209.2 / 129.7	20.4
2016	"	101.4	228.6 / 141.7	20.7
2017	"	100.8	231.9 / 143.8	20.8

Notes for Table 5:

As noted above, passengers who traveled on more than one *shinkansen* line are counted only once.

Tōhoku Shinkansen service opened 1982 June 23. Jōetsu Shinkansen service opened 1982 November 15. Passenger traffic density statistic scaled up to annual rate.

Extension Tōkyō (Ueno Station) – Ōmiya opened 1985 March 14 (i.e. 17 days before the end of FY 1984). Added to cumulative line length in table above from FY 1985.

Table 6: Tōhoku Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1982	465.2 / 289.1	14	267.4 / 166.1	10.4
1983	"	23.4	255.8 / 159.0	12.9
1984	"	24.1	254.6 / 158.2	13.2
1985	492.9 / 306.3	44.5	190.2 / 118.2	16.4
1986	"	43.6	188.4 / 117.1	16.7
1987	"	45.2	197.5 / 122.7	18.1
1988	"	49.1	197.1 / 122.5	19.6
1989	"	51.5	192.1 / 119.4	20.1
1990	"	57.7	185.2 / 115.1	21.7
1991	496.5 / 308.5	65.7	178.0 / 110.6	23.5
1992	"	68.4	173.1 / 107.6	23.8
1993	"	68.6	170.4 / 105.9	23.6
1994	"	69.5	169.2 / 105.1	23.7
1995	"	71.7	166.8 / 103.7	24.1
1996	"	74	164.3 / 102.1	24.5
1997	"	76.8	159.8 / 99.3	24.7
1998	"	79	152.9 / 95.0	24.3
1999	"	79.3	153.1 / 95.1	24.5

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	"	80.1	153.5 / 95.4	24.8
2001	"	80.2	153.0 / 95.1	24.7
2002	593.1 / 368.5	80.4	159.2 / 98.9	21.6
2003	"	80.9	164.0 / 101.9	22.4
2004	"	80.4	166.1 / 103.2	22.5
2005	"	81.7	165.1 / 102.6	22.7
2006	"	82.9	167.5 / 104.1	23.4
2007	"	84.8	168.3 / 104.6	24.1
2008	"	82.2	167.7 / 104.2	23.2
2009	"	77.1	167.9 / 104.3	21.8
2010	674.9 / 419.4	75	167.9 / 104.3	18.7
2011	"	76.2	174.1 / 108.2	19.7
2012	"	82.8	178.2 / 110.7	21.9
2013	"	86.1	"	22.7
2014	"	86.8	174.3 / 108.3	22.4
2015	"	90.5	171.8 / 106.7	23
2016	"	91.1	175.2 / 108.9	22.3
2017	"	* 91	* 175 / 109	* 23

Notes for Table 6:

* Preliminary statistic.

Tōhoku Shinkansen service opened 1982 June 23. Passenger traffic data for FY 1982 pertain to the interval 1982 June 23 - 1983 March 31. Passenger traffic density statistic scaled up to annual rate.

Extension Tōkyō (Ueno Station) – Ōmiya opened 1985 March 14 (i.e. 17 days before the end of FY 1984). Added to cumulative line length in table above from FY 1985.

Table 7: Jōetsu Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1982	269.5 / 167.5	4.1	214.1 / 133.1	8.7
1983	"	10.3	219.3 / 136.3	8.4
1984	"	11.3	220.1 / 136.8	9.2
1985	"	15.8	220.5 / 137.0	12.9
1986	"	16	214.0 / 133.0	12.7
1987	"	16.8	190.9 / 118.6	11.9
1988	"	18.9	189.4 / 117.7	13.3
1989	"	19.8	185.0 / 114.9	13.6
1990	"	22.8	179.3 / 111.4	15.2
1991	"	26	170.0 / 105.7	16.4
1992	"	26.7	165.3 / 102.7	16.4
1993	"	26.6	163.0 / 101.3	16.1
1994	"	26.6	160.4 / 99.6	15.8
1995	"	27.3	157.6 / 97.9	15.9
1996	"	28	155.3 / 96.5	16.2
1997	"	30.5	131.3 / 81.6	14.9
1998	"	35.6	128.8 / 80.1	17
1999	"	35.8	128.1 / 79.6	17

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2000	269.5 / 167.5	36.1	126.7 / 78.8	17
2001	"	36.6	127.0 / 78.9	17.2
2002	"	36.4	128.1 / 79.6	17.3
2003	"	36.6	127.0 / 78.9	17.2
2004	"	35.3	119.8 / 74.4	15.7
2005	"	36.7	125.0 / 77.7	17
2006	"	37.3	125.4 / 77.9	17.3
2007	"	38.3	125.7 / 78.1	17.9
2008	"	37.4	125.9 / 78.2	17.5
2009	"	35.1	126.1 / 78.4	16.4
2010	"	34.4	125.2 / 77.8	16
2011	"	34.8	126.3 / 78.5	16.3
2012	"	36.1	126.5 / 78.6	17
2013	"	37.3	126.1 / 78.4	17.5
2014	"	39.2	123.2 / 76.6	17.9
2015	"	43	114.4 / 71.1	18.2
2016	"	43.1	114.9 / 71.4	18.4
2017	"	* 42	* 115 / 71	* 18

Notes for Table 7:

* Preliminary statistic.

Jōetsu Shinkansen service opened 1982 November 15. Passenger traffic data for FY 1982 pertain to the interval 1982 November 15 - 1983 March 31. Passenger traffic density statistic scaled up to annual rate.

Table 8: Hokuriku Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
1997	117.4 / 72.9	5.1	92.4 / 57.4	8
1998	"	9.1	87.6 / 54.4	6.8
1999	"	9.2	86.4 / 53.7	6.8
2000	"	9.4	85.5 / 53.1	6.9
2001	"	9.6	84.8 / 52.7	6.9
2002	"	9.6	"	6.9
2003	"	9.7	84.9 / 52.7	7
2004	"	9.6	83.9 / 52.1	6.8
2005	"	9.6	83.0 / 51.6	6.8
2006	"	9.9	82.7 / 51.4	6.9
2007	"	10.1	82.1 / 51.0	7.1
2008	"	10	81.6 / 50.7	7
2009	"	9.5	81.7 / 50.8	6.6
2010	"	9.3	81.1 / 50.3	6.4
2011	"	9.4	81.0 / 50.3	6.5
2012	"	9.8	81.2 / 50.4	6.8
2013	"	10.2	81.1 / 50.4	7
2014	"	11.1	86.1 / 53.5	8.1
2015	345.4 / 214.6	31.8	122.1 / 75.9	11.3
2016	"	30.7	120.8 / 75.1	10.8
2017	"	* 30	* 120 / 75	* 11

Notes for Table 8:

* Preliminary statistic.

Hokuriku Shinkansen service opened 1997 October 1. Passenger traffic data for FY 1997 pertain to the interval 1997 October 1 - 1998 March 31. Passenger traffic density statistic scaled up to annual rate.

Extension Nagano – Kanazawa opened 2016 March 14 (i.e. 17 days before the end of FY 2014). Added to cumulative line length in table above from FY 2015.

Segment Takasaki – Jōetsu-Myōkō operated by JR-East. Segment Jōetsu-Myōkō – Kanazawa, inclusive of Jōetsu-Myōkō station, operated by JR-West.

Table 9: Kyūshū Shinkansen Kagoshima Route Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2003	126.8 / 78.6	0.3	105.6 / 65.6	4.6
2004	"	3.8	107.0 / 66.5	3.2
2005	"	3.9	103.5 / 64.3	3.2
2006	"	4	103.2 / 64.1	3.3
2007	"	4.1	104.1 / 64.7	3.4
2008	"	"	103.7 / 64.4	3.4
2009	"	3.8	101.5/ 63.1	3
2010	"	4.4	111.9 / 69.5	3.9
2011	256.8 / 159.6	11.9	152.6 / 94.8	7.1
2012	"	12.1	147.4 / 91.6	6.9
2013	"	12.6	145.1 / 90.2	7.1
2014	"	12.9	144.0 / 89.5	7.3
2015	"	13.6	140.6 / 87.4	7.5
2016	"	13.3	138.5 / 86.1	7.2
2017	"	* 13	* 142 / 88	* 7

Notes for Table 9:

* Preliminary statistic.

Service opened 2004 March 13. Passenger traffic data for FY 2003 pertain to the interval 2004 March 13 - March 31. Passenger traffic density statistic scaled up to annual rate.

Extension Fukuoka (Hakata Station) – Yatsushiro (Shin-Yatsushiro Station) opened 2011 March 12 (i.e. 19 days before the end of FY 2010). Added to cumulative line length in table above from FY 2011.

Table 10: Hokkaidō Shinkansen Passenger Traffic Statistics

Year	Length (km / mi)	Annual Passenger Traffic (millions)	Average Travel Distance (km / mi)	Annual Passenger Traffic Density (millions)
2016	148.8 / 92.5	2.3	144.9 / 90.0	2.1
2017	"	1.8	* 140 / 87	* 2

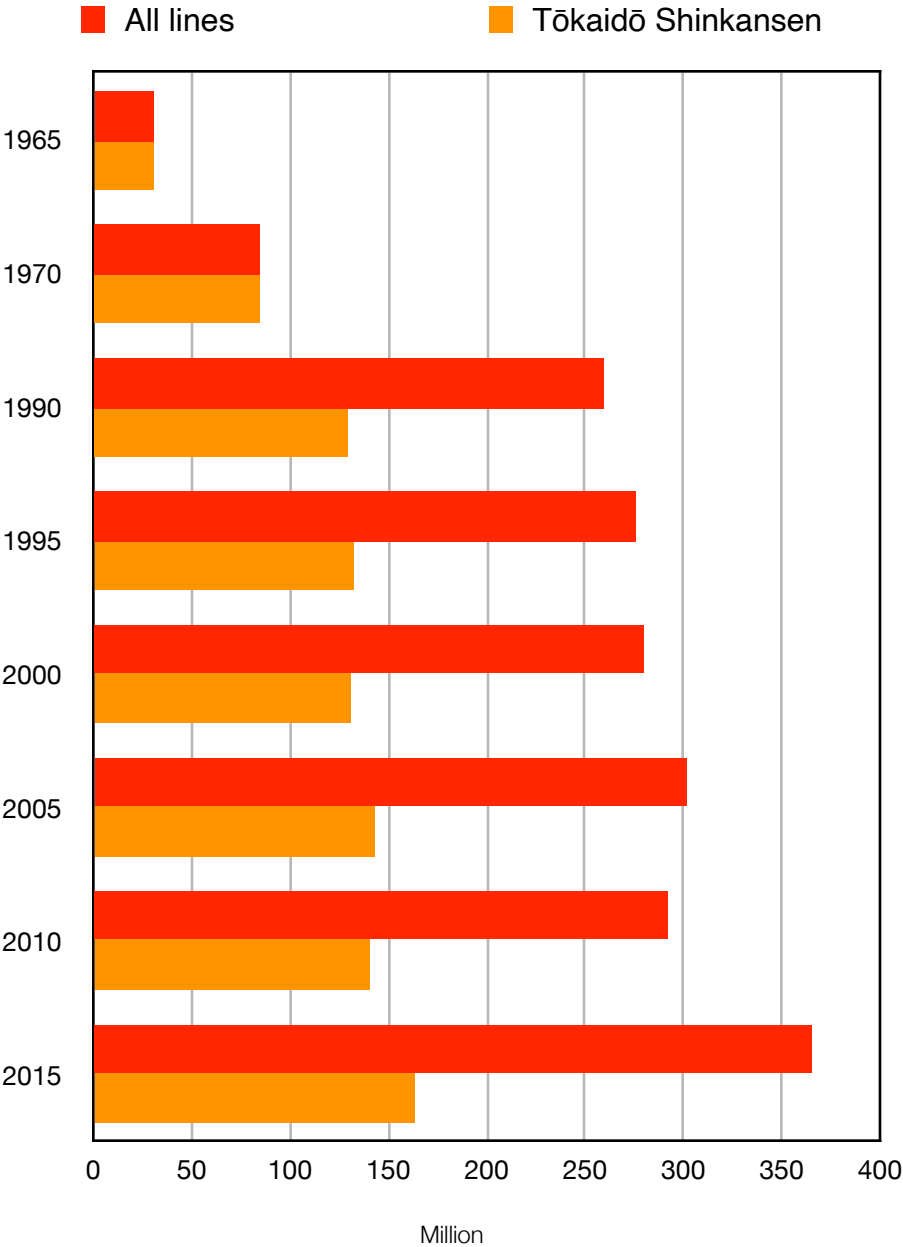
Notes for Table 10:

* Preliminary statistic.

Service opened 2016 March 26 (i.e. five days before the end of FY 2015).

Figures 2 and 3 (below) illustrate the degree to which summary *shinkansen* passenger traffic statistics are dominated by the Tōkaidō Shinkansen. Figure 2 pertains to annual passenger statistics, and Figure 3 pertains to passenger traffic density.

**Figure 2: Tōkaidō Shinkansen and Shinkansen System:
Annual Passenger Traffic**

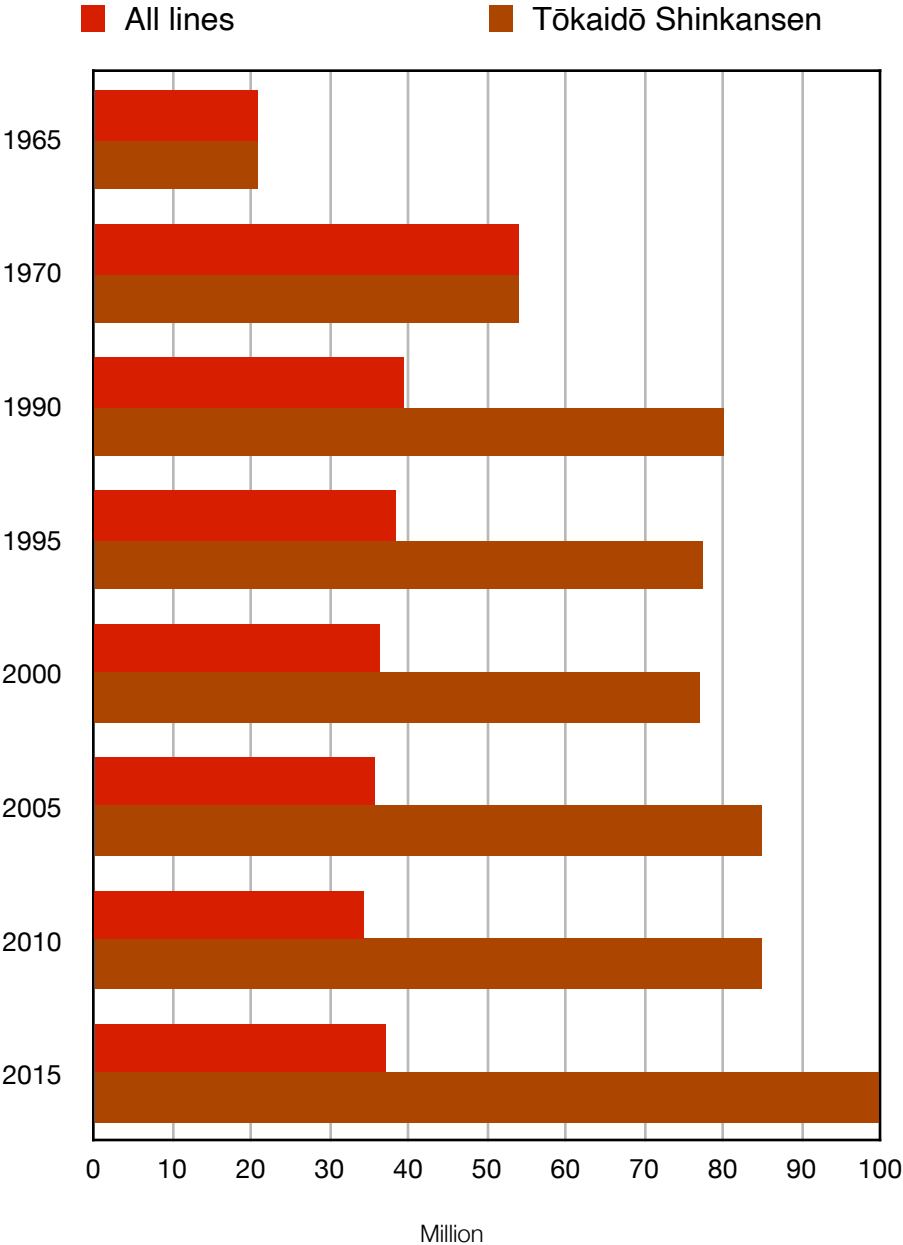


Notes for Figure 2:

Charts for Japan, Korea (KR) and Taiwan are prepared to a uniform scale.

Disaggregate data are not available for the Tōkaidō Shinkansen for the interval 1972-1986.

**Figure 3: Tōkaidō Shinkansen and Shinkansen System:
Annual Passenger Traffic Density**



Notes for Figure 3:

Charts for Japan, Korea (KR) and Taiwan are prepared to a uniform scale.
Annual Passenger Traffic Density is expressed as passenger-km per km of line length (tennysons).
Disaggregate data are not available for the Tōkaidō Shinkansen for the interval 1972-1986.

At 2015, the Tōkaidō Shinkansen accounted for less than 20 percent of *shinkansen* line length, but carried more than 48 percent of all *shinkansen* passengers (Figure 2).

At 2015, the Tōkaidō Shinkansen accounted for less than 20 percent of *shinkansen* line length, but carried nearly 54 percent of all *shinkansen* passenger km. The annual traffic density for the Tōkaidō Shinkansen was more than 2.7 times greater than for all *shinkansen* lines considered in aggregate (Figure 3).

We shall update these tables as on occasion as additional data becomes available.

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(The authors express sincere appreciation to the compiler of this very useful web-page, but the most recent update is for 2012.)

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