

China Rails

Rail transport is the most commonly used mode of long-distance transportation in Mainland China. How many railway tickets are processed daily?

State your assumptions

- 1 Billion people in China
- An extrapolation from the Chinese work force will give a good approximation
- Rural Chinese workers, for the most part, are not traveling long-distance

Pick your main metrics and approach

- Population
- Demographics

Estimate quickly and with round numbers

- 40% of the population 15-64 years old, are in school or unable to work
- Remaining 60% of 1 billion population = 600 million workers
- Rural/Urban % = 60/40
 - $600 \text{ million} \times 40\% = 240 \text{ million urban workers}$
- Estimating trains are used an average of 2 times/year per person (round trip)
 - $240 \text{ million} \times 2 \text{ trips} = 480 \text{ million trips}$
- $480 \text{ million} \times 2 \text{ tickets} = 960 \text{ million tickets}$
- $960 \text{ million tickets} \div 360 \text{ days/year} \approx 3 \text{ million tickets}$

Assess your approach and answer

- 3 million tickets processed daily (real answer, 2006, 4 million)
- Alternate approach – Observe traffic at one railway station and extrapolate across all stations handled by the Chinese Ministry of Railways

Keep exceptions and next steps in mind

- The above yearly travel estimates influenced by experience of American culture (sensitive variable)

US Books

How many books are sold in the United States each year?

State your assumptions

- Counting U.S. sales only
- 30% are online
- 70% traditional sales
- Average store open 10 hours/day

Pick your main metrics and approach

- Observe book buyers in brick and mortar stores

Estimate quickly and with round numbers

- 1 to 3 people walk in every 5 minutes = 24 customers/hour
 - 1/3 buy books
 - Consumers who purchase, purchase 2 books on average
- $(24 \div 3) \times 2 \times 10 = 160$ books per store per day
 - $160 \times 350 = 56,000$ books per store per year
- Stores = Big Box, Chain Bookstores, Independent Bookstores, Major Airports
- Est. in United States = 30,000 + 5,000 + 1000 + 250
- 56,000 books \times 36,000 stores \approx 2 billion books sold in stores
- 2 billion books = 70% traditional sales
- Total \approx 3 billion

Assess your approach and answer

- 3 billion books sold each year (real answer, 2007, 3.13 billion books)

Keep exceptions and next steps in mind

- Online sales is trending up; could be well over 30% of market
- Above calculations do not account for Returns

US Movie Tickets

How many movie tickets are purchased annually in the United States?

State your assumptions

- 300 million people in the U.S.
- Group 1: 15 to 25 year olds = primary movie goers (15% of population)
- Group 2: 25-55 year olds = secondary (45% of population)
- Group 3: 0-14 and 56+ (40% of population)

Pick your main metrics and approach

- Population

Estimate quickly and with round numbers

- Group 1: average 12 times/year to the movies (once/month)
- Group 2: average 6 times/year
- Group 3: average 3 times/year
- $300 \times 15\% \times 12 = 540$ million
- $300 \times 45\% \times 6 = 810$ million
- $300 \times 40\% \times 3 = 360$ million

Assess your approach and answer

- 1.71 Billion tickets purchased annually in the U.S. (real answer, 2006, 1.45 billion)
- Alternate approach – Number of US theatres, number of screens in average movie theatre, % of empty seats per movie

Keep exceptions and next steps in mind

- This approach is framed in a simple age/population framework and does not account for vast socio-economic differences
- Group estimates above (i.e. 12, 6, and 3 movies/year) based on observation of personal relational network and educated guessing

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Additional Information

Provided to interviewee

Chinese Age Structure (2008):

0-14 years:	20.1%
15-64 years:	71.9%
65-over years:	8%

Urban-rural ratio (2007)

Urban:	42.3%
Rural:	57.7%

US Movie Tickets

Additional Information

Census Information (year 2000): Provided to interviewee

Subject	Number	Percent
Total population.....	281,421,906	100.0
SEX AND AGE		
Male.....	138,053,563	49.1
Female.....	143,368,343	50.9
Under 5 years.....	19,175,798	6.8
5 to 9 years.....	20,549,505	7.3
10 to 14 years.....	20,528,072	7.3
15 to 19 years.....	20,219,890	7.2
20 to 24 years.....	18,964,001	6.7
25 to 34 years.....	39,891,724	14.2
35 to 44 years.....	45,148,527	16.0
45 to 54 years.....	37,677,952	13.4
55 to 59 years.....	13,469,237	4.8
60 to 64 years.....	10,805,447	3.8
65 to 74 years.....	18,390,986	6.5
75 to 84 years.....	12,361,180	4.4
85 years and over.....	4,239,587	1.5
Median age (years).....	35.3	(X)
18 years and over.....	209,128,094	74.3
Male.....	100,994,367	35.9
Female.....	108,133,727	38.4
21 years and over.....	196,899,193	70.0
62 years and over.....	41,256,029	14.7
65 years and over.....	34,991,753	12.4
Male.....	14,409,625	5.1
Female.....	20,582,128	7.3