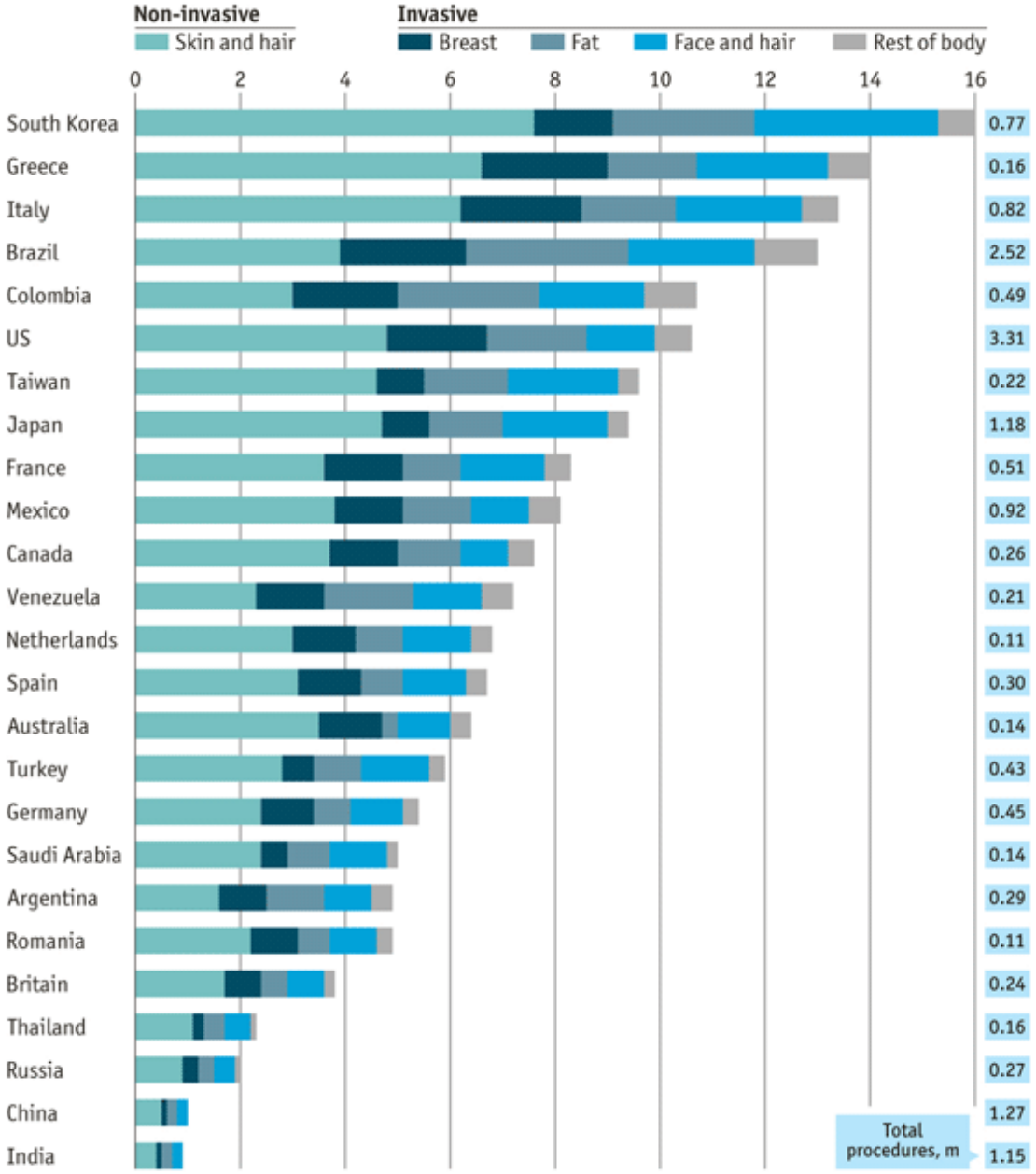
Market research

Plastic surgery

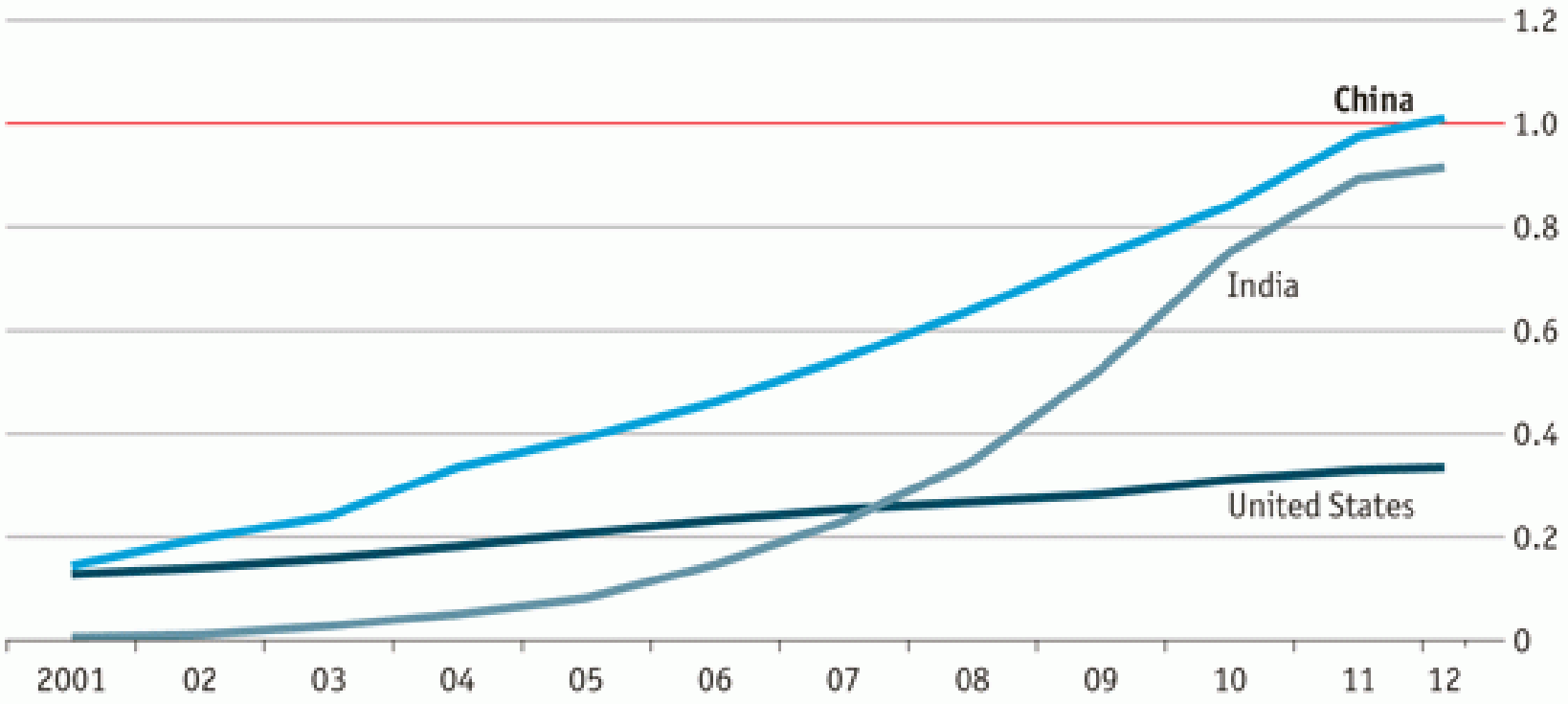
Procedures per 1,000 population, 2010



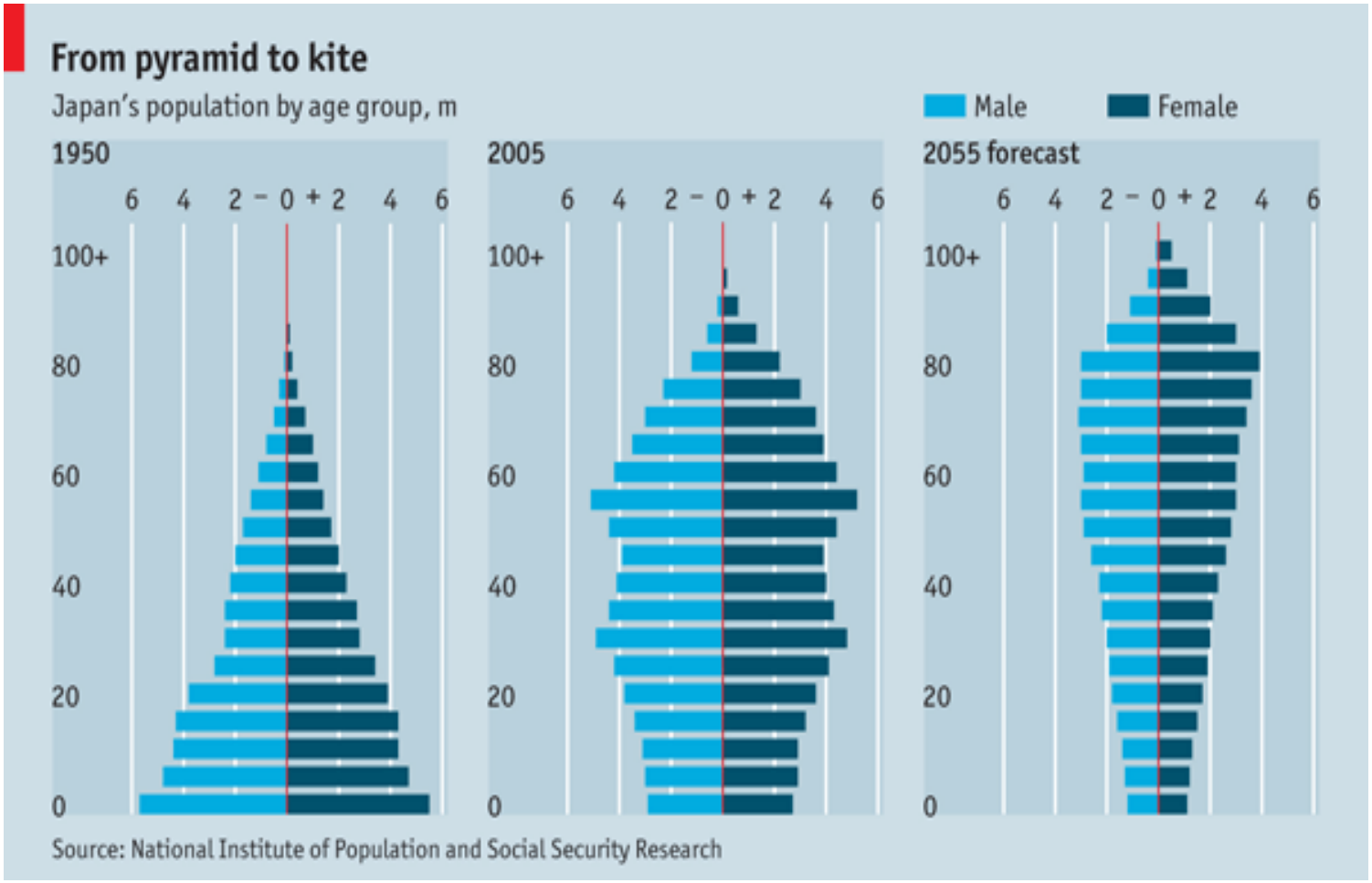
Sources: International Society of Aesthetic Plastic Surgery; UN

Mobile-phone subscriptions

bn



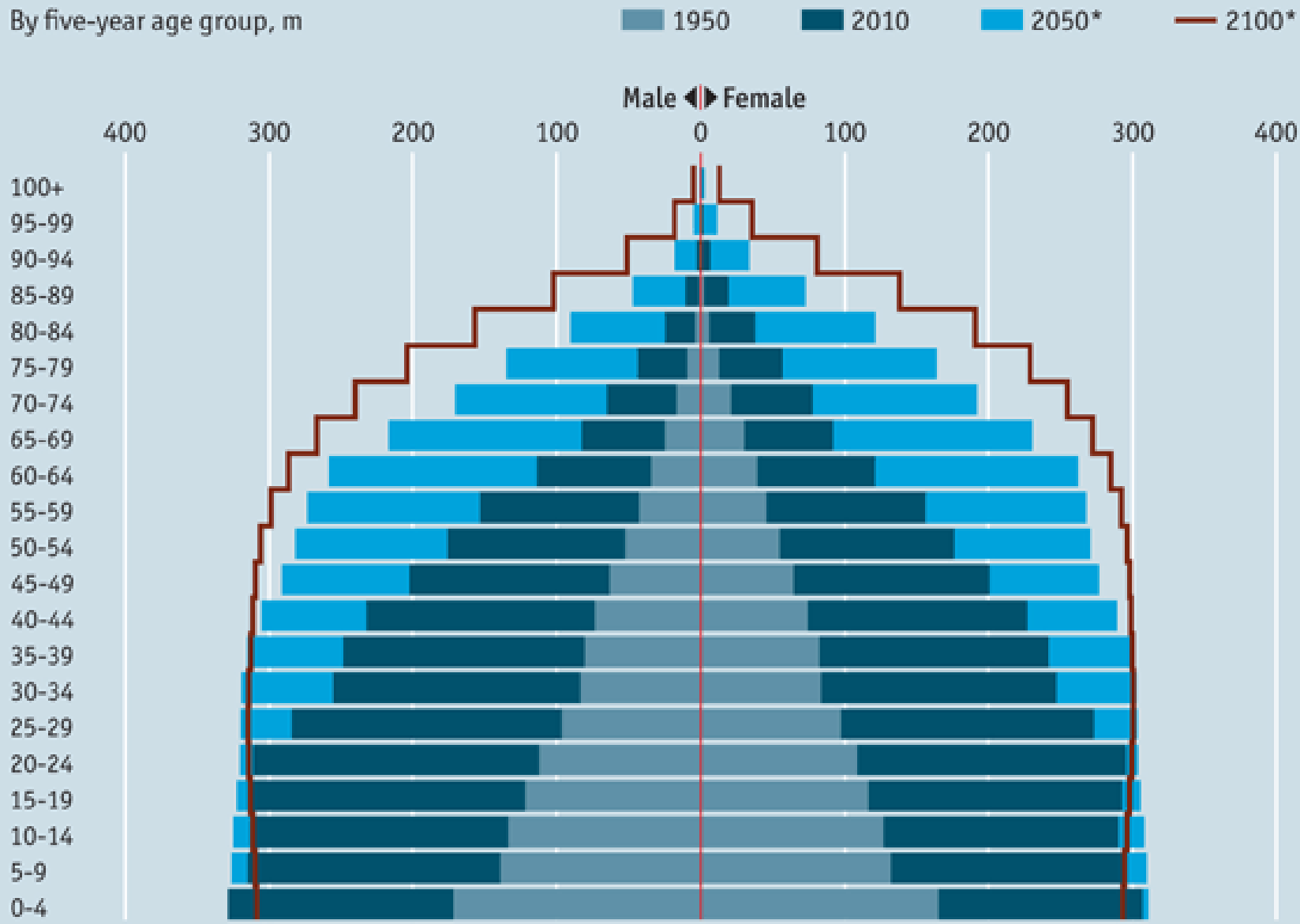
Source: Chetan Sharma Consulting



How is this useful for market research?

World population

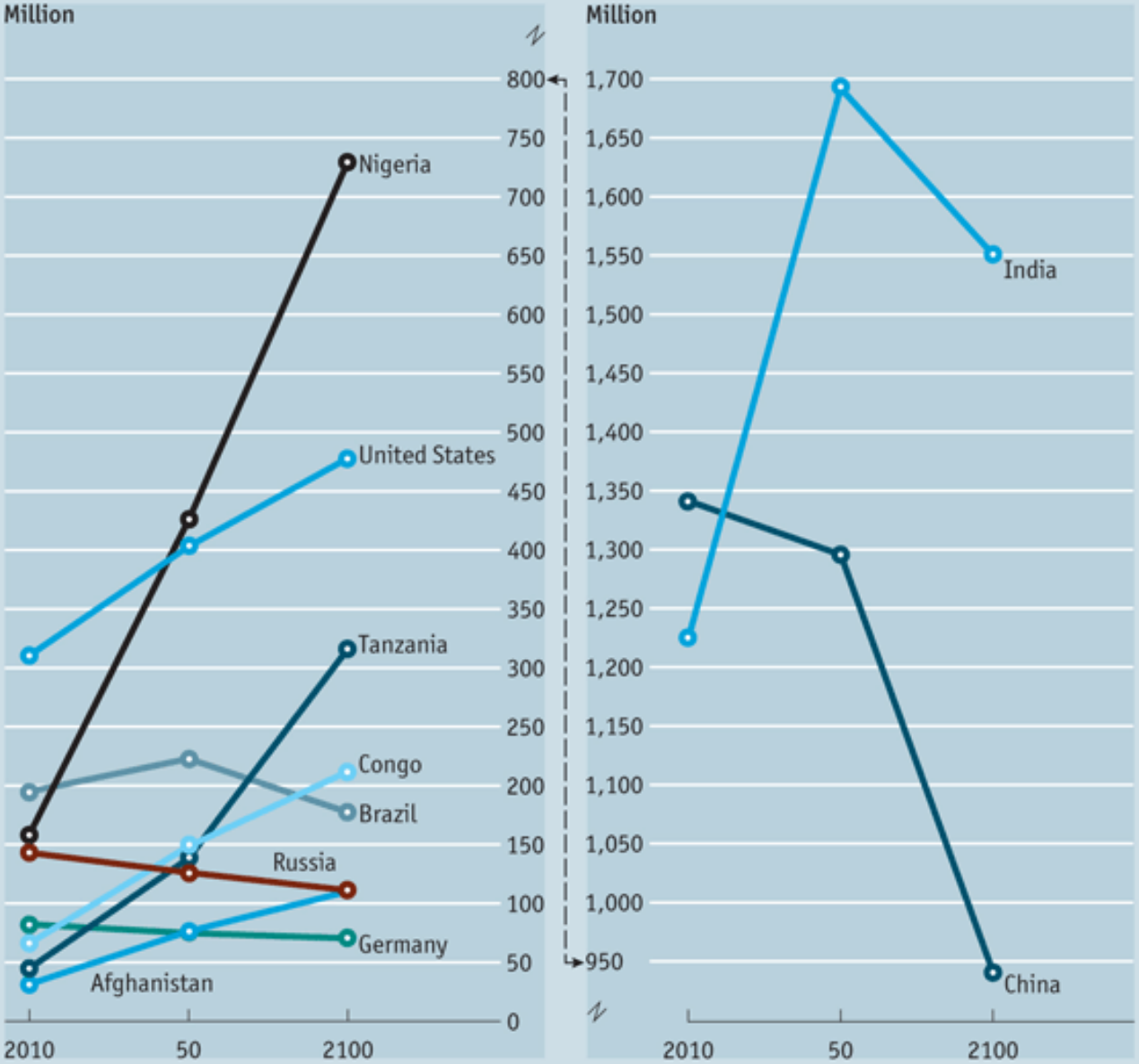
By five-year age group, m



Source: UN

*Projection

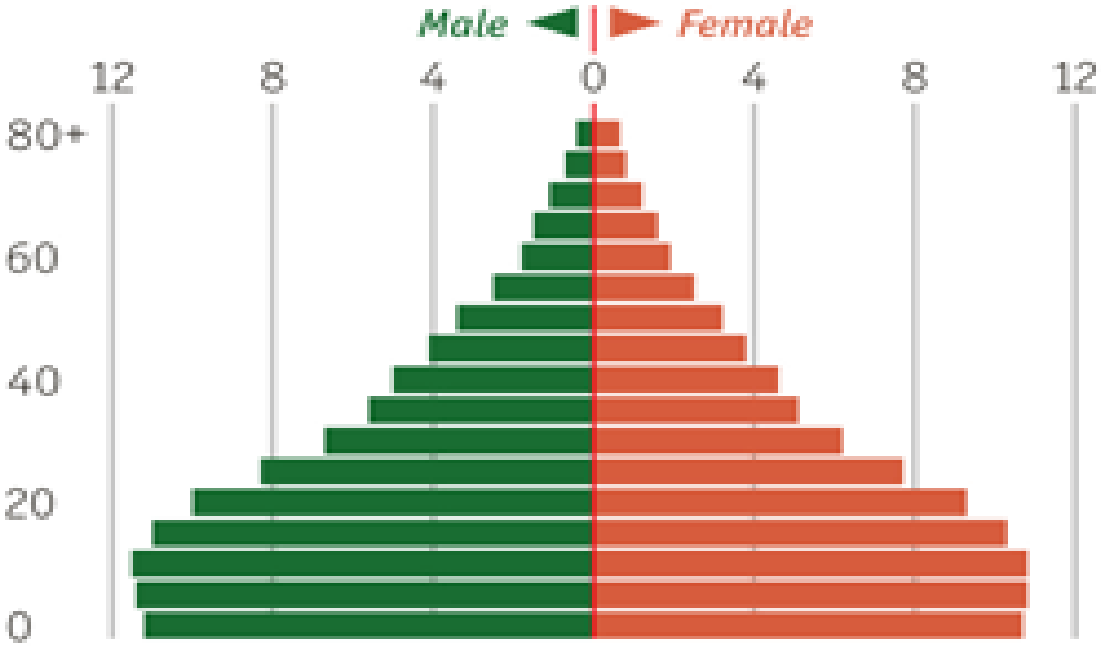
Population forecasts for selected countries



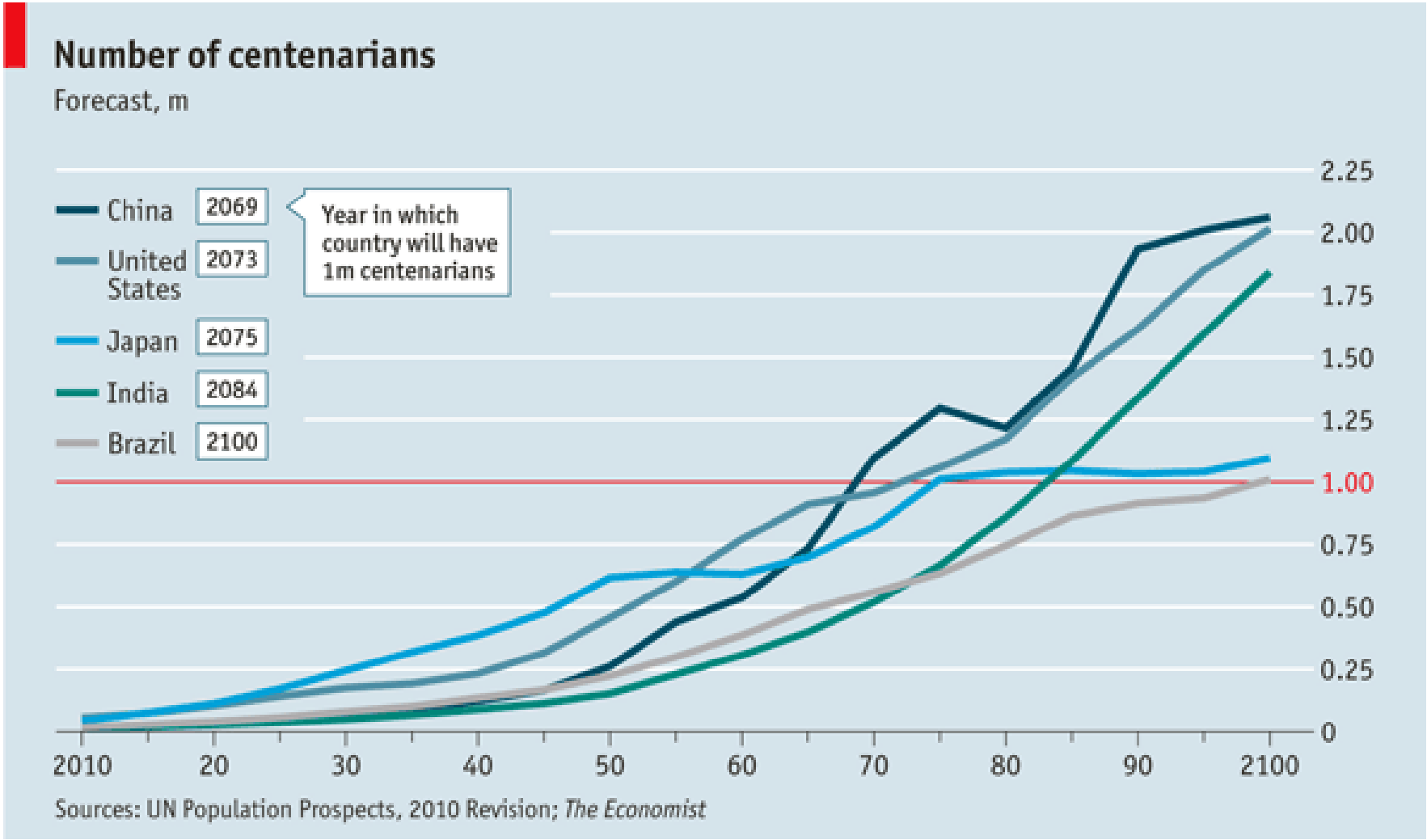
Source: UN Population Prospects, 2010 Revision

Burgeoning

Pakistan's population by sex and age group, 2011, m



Source: US Census Bureau

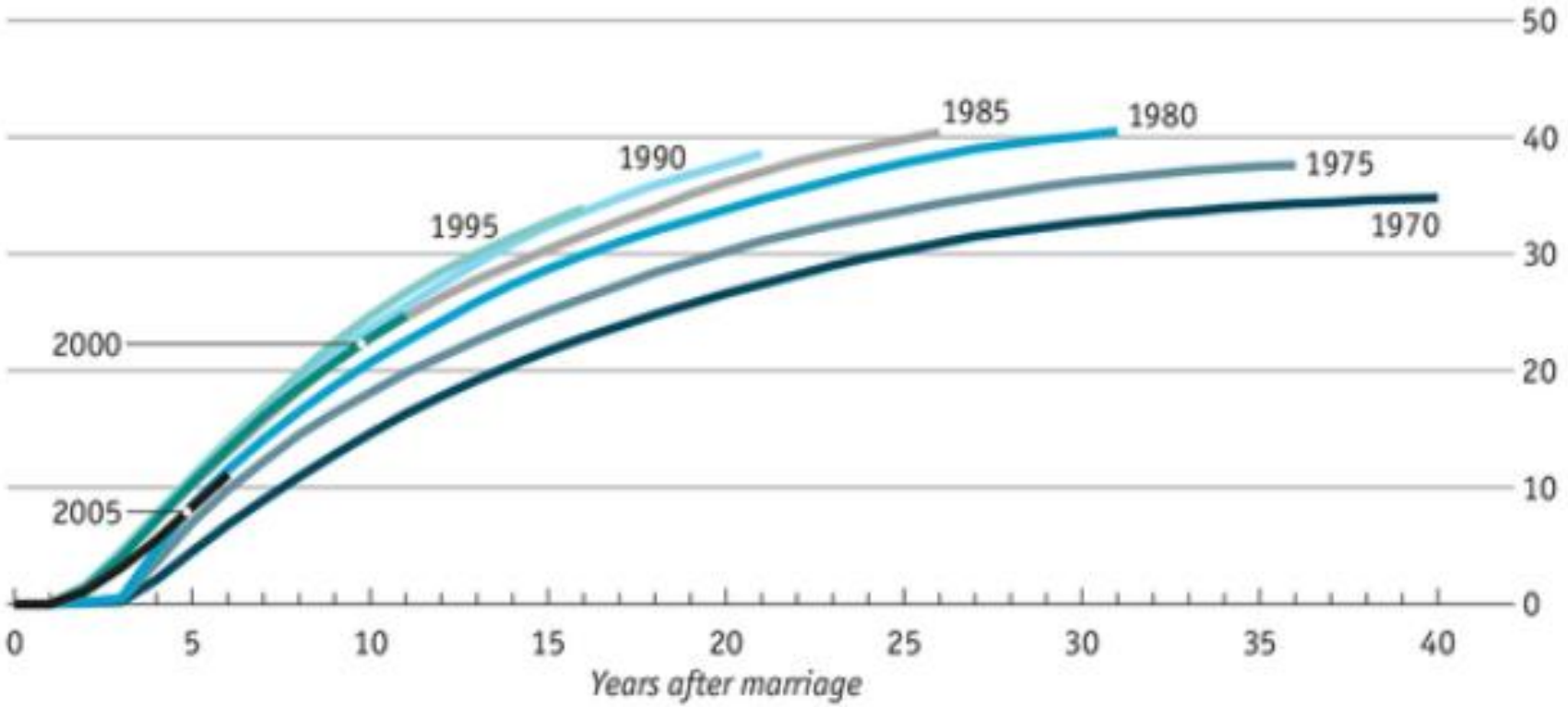


Living longer…is this accurate? Is it possible to think about 87 years from now?

South Korea and Japan. Extreme sexism still exists in these 'modern' countries

Marriages that end in divorce

England and Wales, % of total

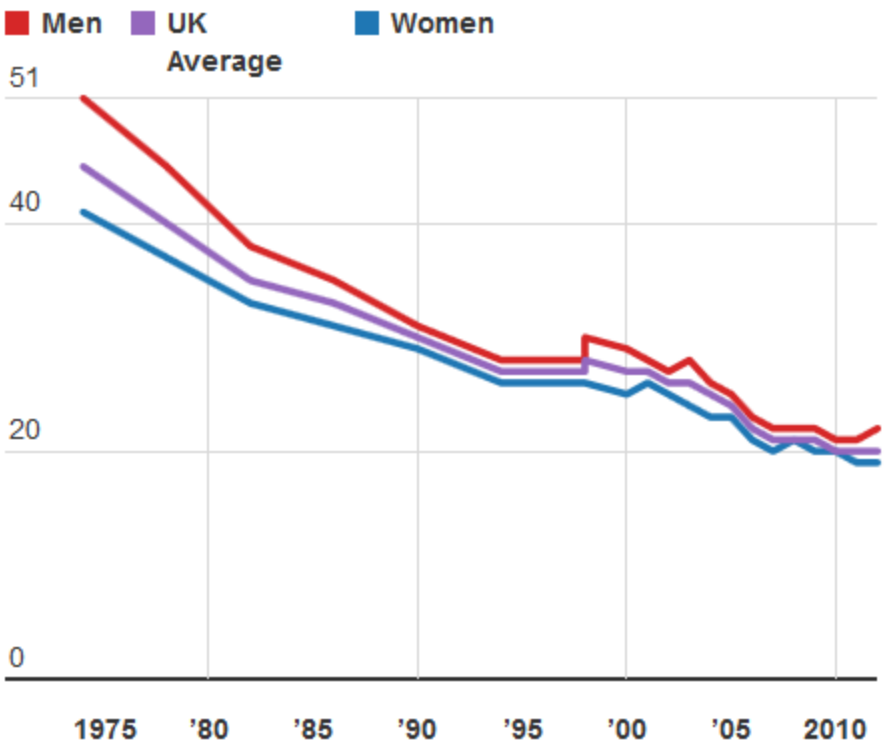


Source: ONS

In the UK, marriages are getting **shorter** (at least the ones that end in divorce)

Smoking rates

% of individuals aged 16+

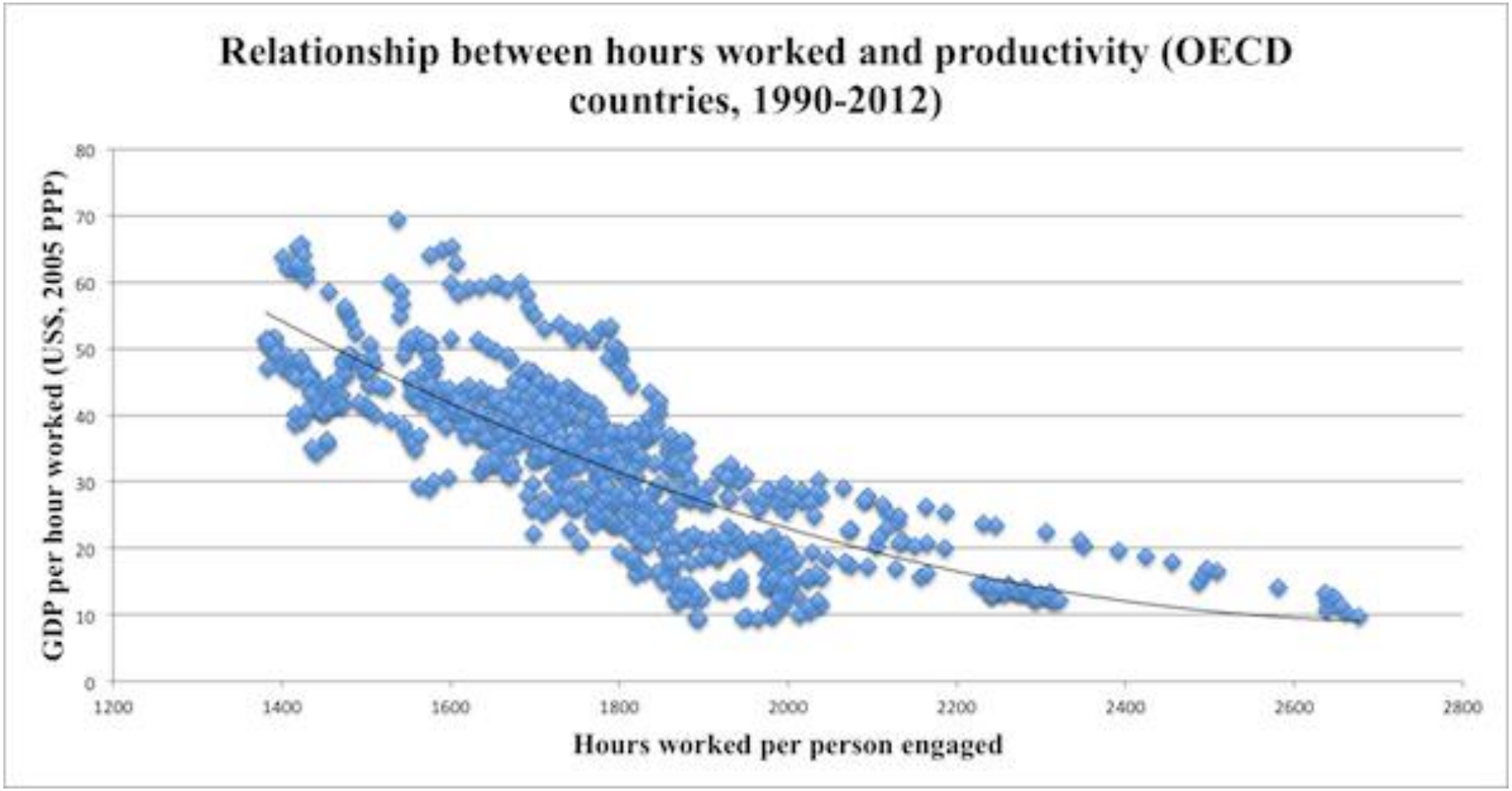


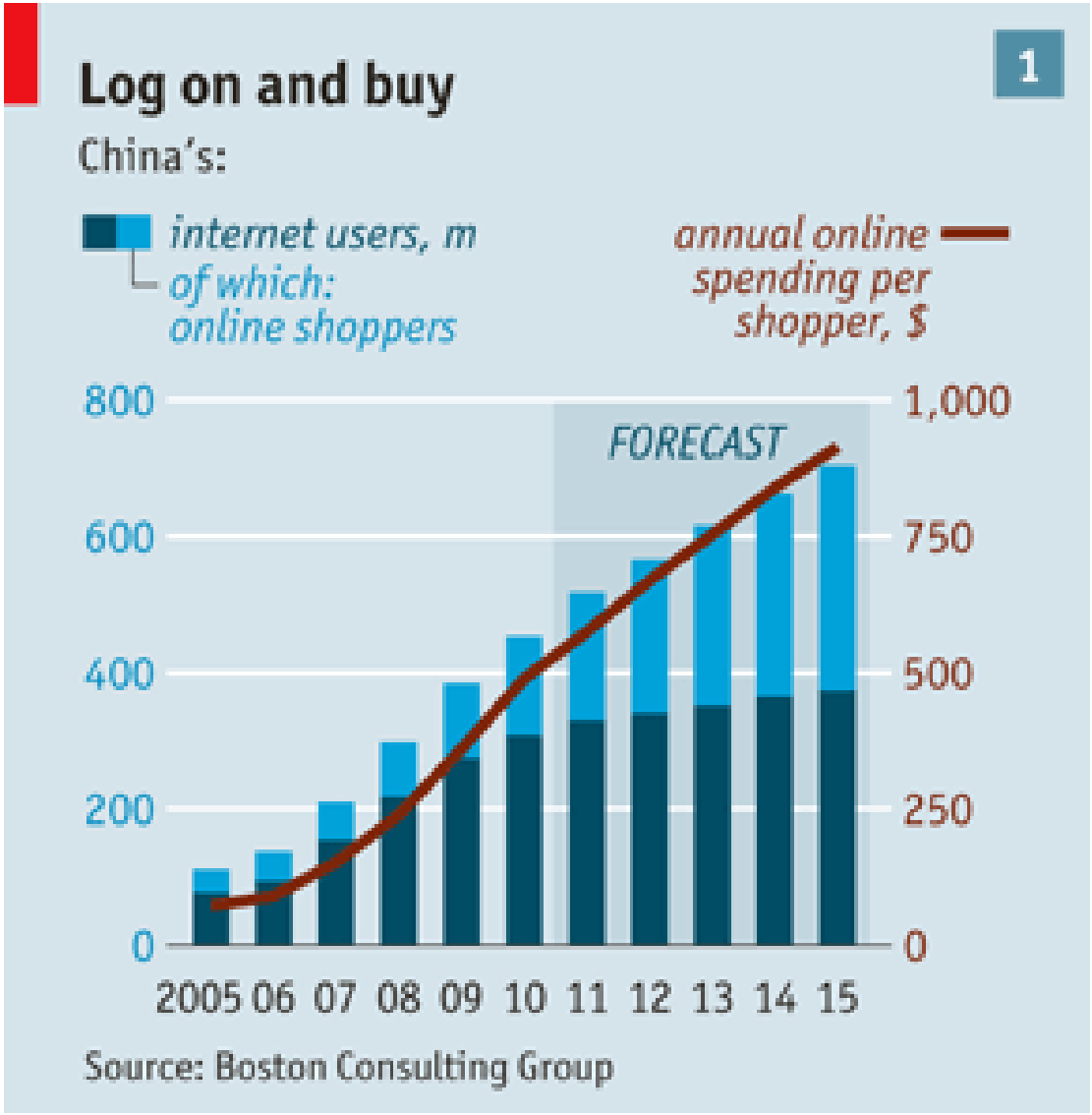
Created with Datawrapper

A few smoking policies might have played a role:

2006: Public smoking ban
2007: Age of sale raised from 16 to 18
2008: Printed warnings on packaging
2012: Tobacco displays banned (Wales)

Source: ONS, Get the data


Relationship between hours worked and productivity (OECD countries, 1990-2012)
GDP per hour worked (US$, 2005 PPP)
0
10
20
30
40
50
60
70
80
1200
1400
1600
1800
2000
2200
2400
2600
2800
Hours worked per person engaged

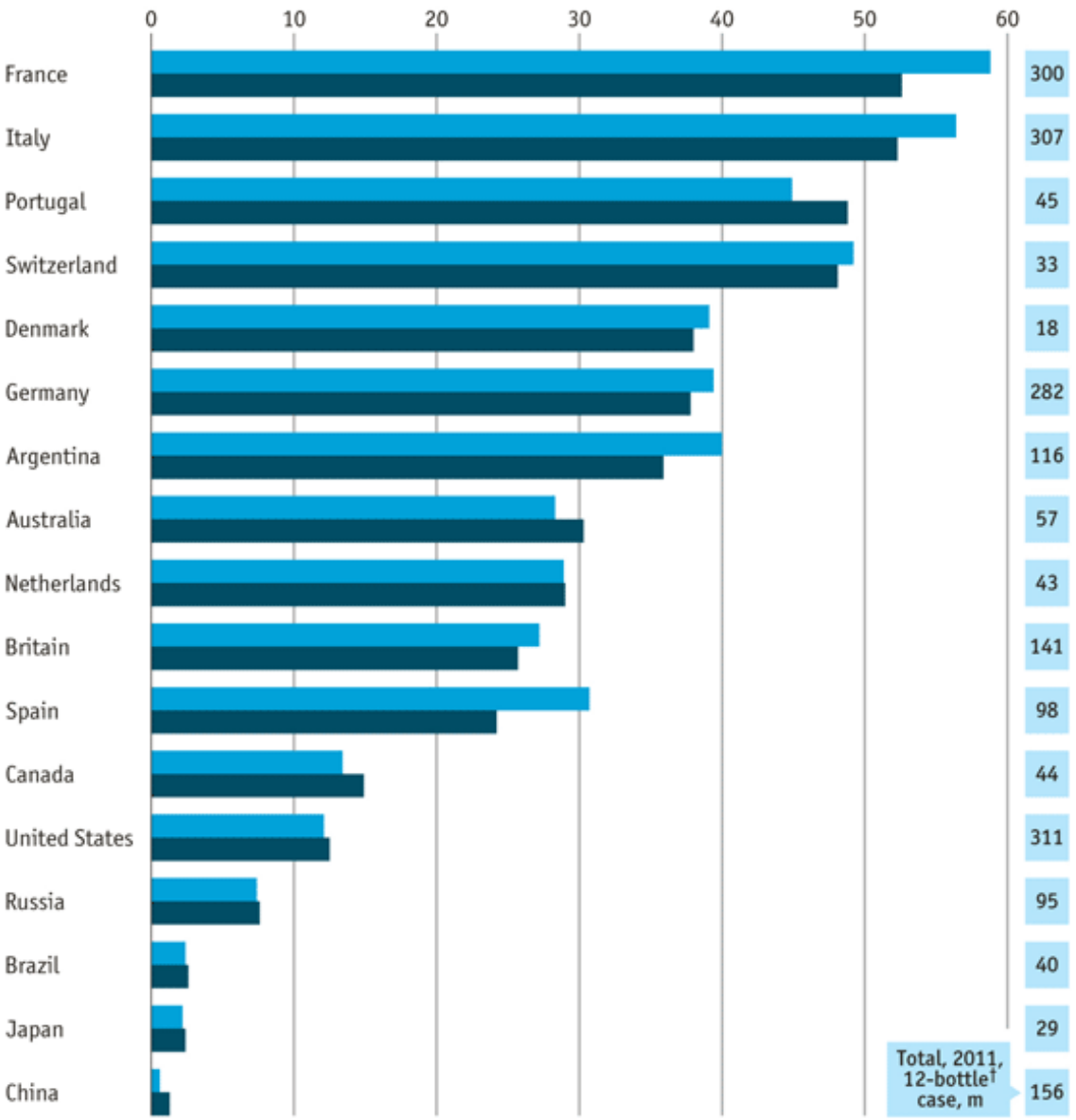


Changes in the way people buy: technology and social impacts (geographic)

The rich… What does the data say?

Wine consumption

Selected countries, still and sparkling, litres per person*



Sources: Vinexpo; International Wine & Spirit Research

*Of legal drinking age †750ml

FINANCIAL TIMES All times are London time

Why are Chinese schoolkids so good?

December 7, 2010 5:40pm by Henry Mance | Share

There are two stereotypes about schooling in east Asia: the students work extremely hard, and the learning is by rote. In fact, things are more complicated, as the OECD's latest global schools survey has shown.

Shanghai came top in the Pisa survey, with three other east Asian territories in the first five. But not all east Asian countries did well, says the OECD's Andreas Schleicher, adding that it's innovative thought that is assessed. Shanghai schools aren't turning children into walking textbooks: they are channelling their ability and enthusaism into exceptional results. How?

Sampling

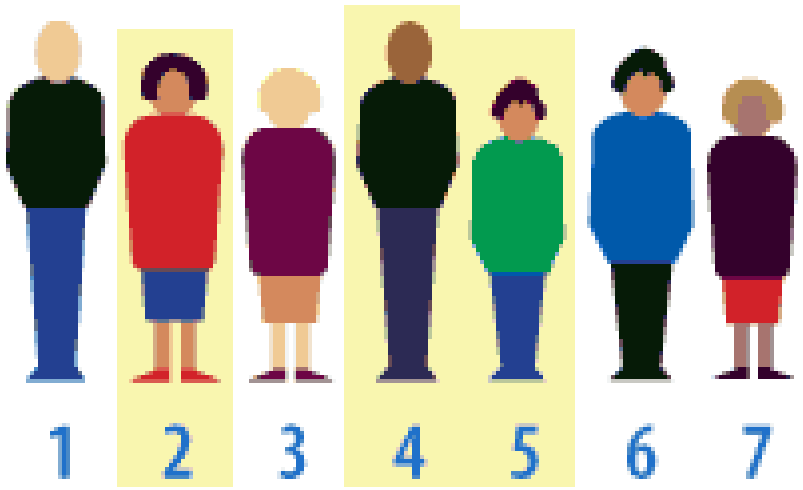
1-PROBABILITY SAMPLING

- Thus involves the selection of a sample from a population based on random chance

- Because the sample is random the probability of each unit's inclusion in the 'statistical population' and the chances of errors can be calculated

2 SIMPLE RANDOM SAMPLING

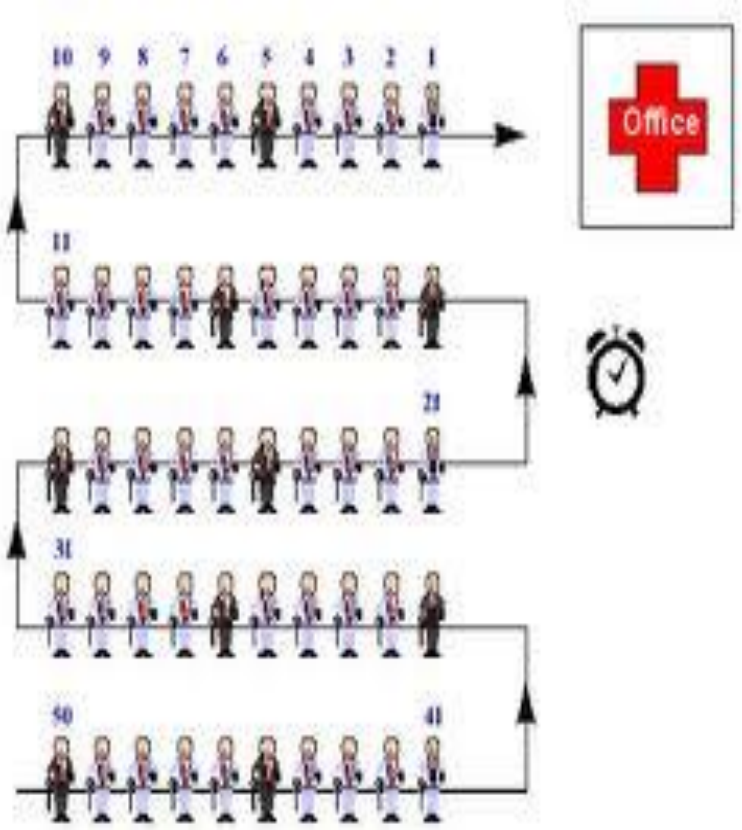
- Each member of the target population has an equal chance of being included
- To select a RS we need:
- 1-List of all the people in the **target population**
- 2-Sequential numbers given to each member of the population
- 3-List of Random Numbers
- If a sample of 100 is required the first 100 numbers on list are taken and the people allocated the numbers will form the sample (sampling frame)



Assign Numbers, Auto-Generate Random Selections

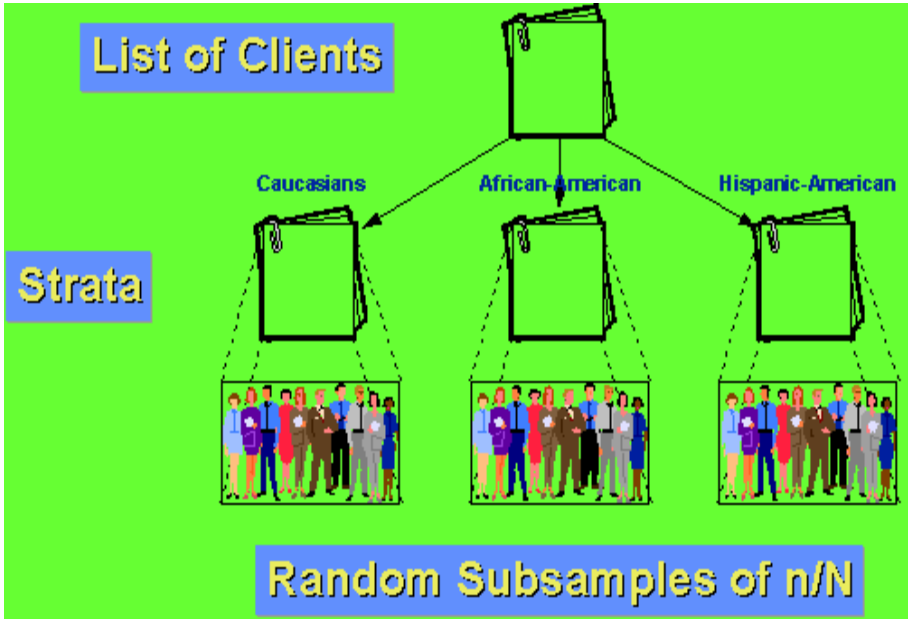
3 SYSTEMATIC SAMPLING

- Here, we select every *nth* item from the target population
- For example, a supermarket could select every 10^{th} or 100^{th} customer to study buying habits
- We must ensure **no** hidden patterns are overlooked and that we start from a random starting point



4 STRATIFIED SAMPLING

- Stratified samples are particularly useful when, say, a computer game is being launched then only 16-24 year-olds will be surveyed



5 QUOTA SAMPLING

- Similar to stratified sampling, but here interviewees are selected to the different proportions that certain groups make up of the total (see example, page 272)

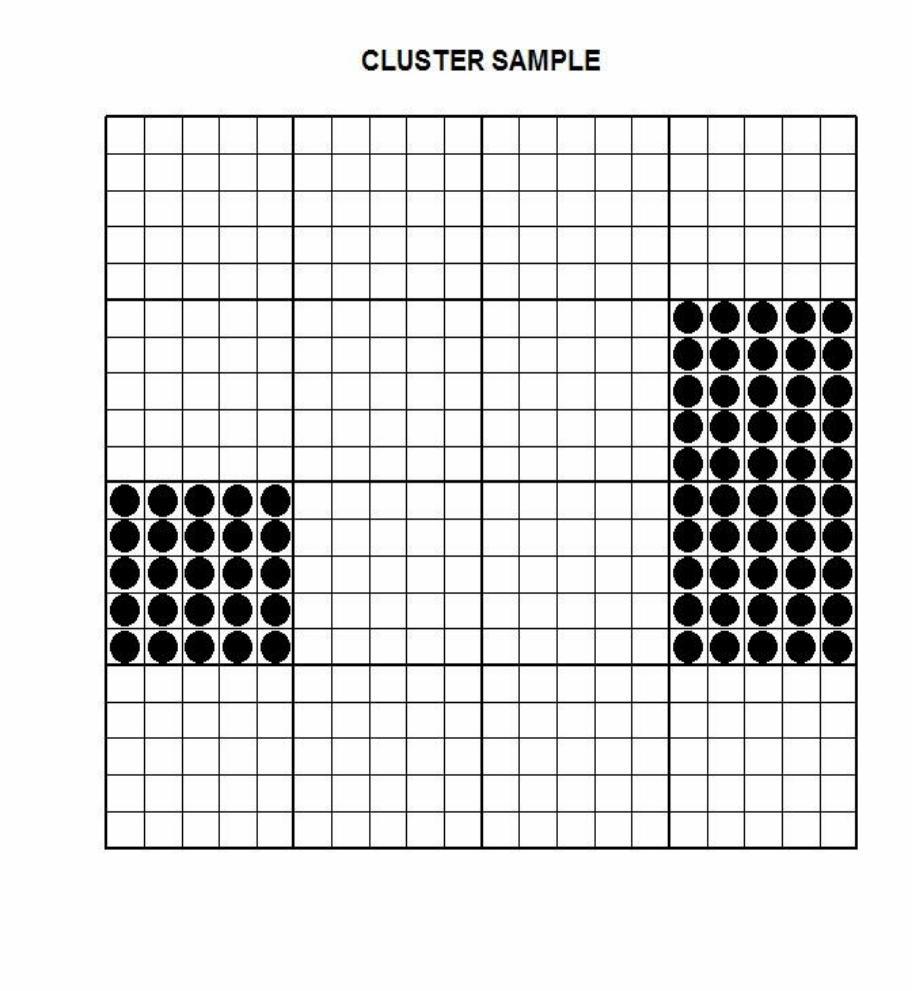
- As selection is left to interviewer, individual bias might also be a problem here

	Chocolate Buyers	Respondent quota (sample size = 200)
Men	40%	80
Women	60%	120

6 CLUSTER SAMPLING

- When a full sampling frame is not available or the population is too dispersed, then CS takes a sample from just a few groups-not the whole population (ie from a town or region)

- Eg a MNC checking for attitudes to its product might save time and money with this approach



Quick Review

- 1 Random Sampling
- 2 Systematic Sampling
- 3 Stratified Sampling
- 4 Quota Sampling
- 5 Cluster Sampling
- 1D 2E 3B 4D 5A

- **A** - Using one or a number of specific groups from which we select our sample
- **B** - Draws a sample from a specified sub-group or segment
- **C** - When to population has been stratified then we draw an appropriate number of respondents from each stratum
- **D** - Every member of the target population has an equal chance of being selected
- **E** - every nth item in target population is targeted

Name	Description	Example
A. Closed-End Questions		
Dichotomous	A question with two possible answers	In arranging this trip, did you personally phone American? Yes No
Multiple choice	A question with three or more answers	With whom are you traveling on this flight? ☐ No one ☐ Children only ☐ Spouse ☐ Business associates/friends/relatives ☐ Spouse and children ☐ An organized tour group
Likert scale	A statement with which the respondent shows the amount of agreement/ disagreement	Small airlines generally give better service than large ones. Strongly disagree 1____ Disagree 2____ Neither agree nor disagree 3____ Agree 4____ Strongly agree 5____
Semantic differential	A scale connecting two bipolar words. The respondent selects the point that represents his or her opinion.	American Airlines Large _____ Small Experienced _____ Inexperienced Modern _____ Old-fashioned
Importance scale	A scale that rates the importance of some attribute	Airline in-flight service to me is Extremely important 1____ Very important 2____ Somewhat important 3____ Not very important 4____ Not at all important 5____
Rating scale	A scale that rates some attribute from "poor" to "excellent"	American in-flight service is Excellent 1____ Very Good 2____ Good 3____ Fair 4____ Poor 5____
Intention-to-buy scale	A scale that describes the respondent's intention to buy	If an in-flight telephone were available on a long flight, I would Definitely buy 1____ Probably buy 2____ Not sure 3____ Probably not buy 4____ Definitely not buy 5____

B. Open-End Questions		
Completely unstructured	A question that respondents can answer in an almost unlimited number of ways	What is your opinion of American Airlines?
Word association	Words are presented, one at a time, and respondents mention the first word that comes to mind.	What is the first word that comes to your mind when you hear the following? Airline_____ American_____ Travel_____
Sentence completion	An incomplete sentence is presented and respondents complete the sentence.	When I choose an airline, the most important consideration in my decision is _____ .
Story completion	An incomplete story is presented, and respondents are asked to complete it.	"I flew American a few days ago. I noticed that the exterior and interior of the plane had very bright colors. This aroused in me the following thoughts and feelings . . . ." Now complete the story.
Picture	A picture of two characters is presented, with one making a statement. Respondents are asked to identify with the other and fill in the empty balloon.	
Thematic Apperception Test (TAT)	A picture is presented and respondents are asked to make up a story about what they think is happening or may happen in the picture.	

Non-probability sampling (Not CIE)

- A Convenience-ease of access, fellow workers, family
- B Snowball-first respondent refers a friend, who refers a friend etc
- C Judgmental-researcher chooses who would be appropriate to study (v quick)
- D Ad Hoc Quotas-a quota is established (say 60% women) and researchers are told to choose any respondent they want up to pre-set quota
- All the above are LESS ACCURATE than PROBABILITY SAMPLING

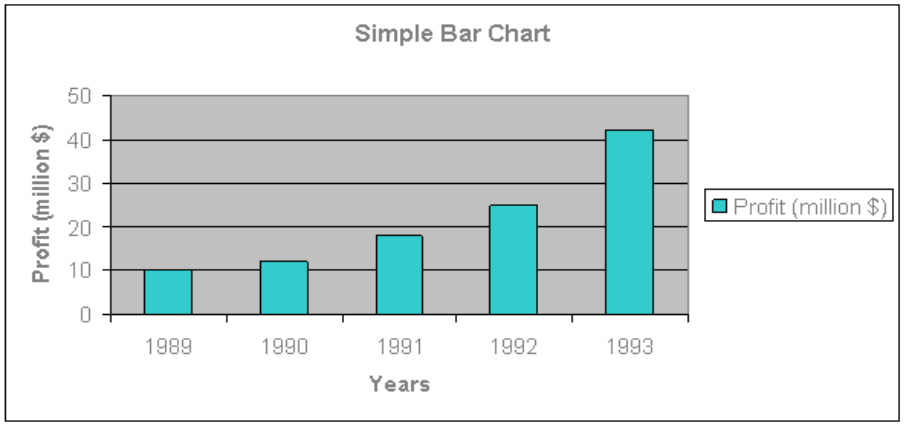
I - TABLE

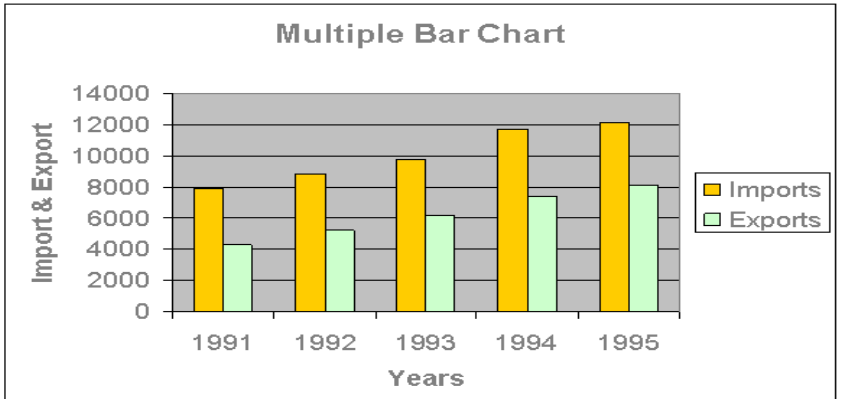
- Numerate data can be presented in this form
- Table form allows ease of reference and lots of data can be presented here
- Lacks the visual impact of a graph and trends are much less obvious

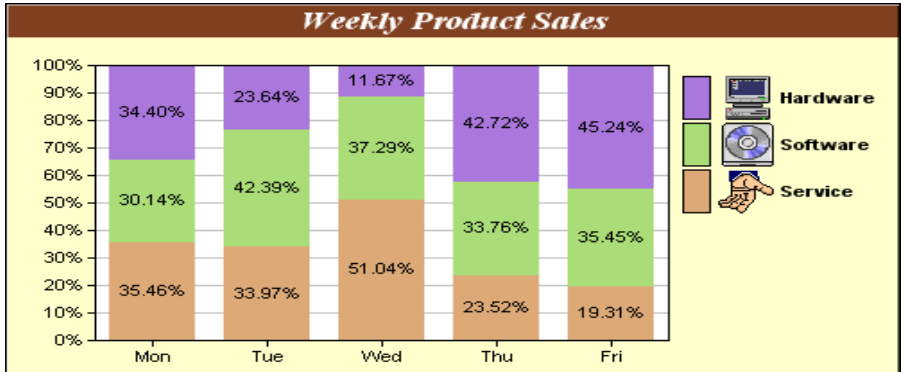
Name	Thread pitch (mm)	Minor diameter tolerance	Nominal diameter (mm)	Head shape	Price for 50 screws	Available at factory outlet?	Number in stock	Flat or Phillips head?
M4	0.7	4g	4	Pan	$10.08	Yes	276	Flat
M5	0.8	4g	5	Round	$13.89	Yes	183	Both
M6	1	5g	6	Button	$10.42	Yes	1043	Flat
M8	1.25	5g	8	Pan	$11.98	No	298	Phillips
M10	1.5	6g	10	Round	$16.74	Yes	488	Phillips
M12	1.75	7g	12	Pan	$18.26	No	998	Flat
M14	2	7g	14	Round	$21.19	No	235	Phillips
M16	2	8g	16	Button	$23.57	Yes	292	Both
M18	2.1	8g	18	Button	$25.87	No	664	Both
M20	2.4	8g	20	Pan	$29.09	Yes	486	Both
M24	2.55	9g	24	Round	$33.01	Yes	982	Phillips
M28	2.7	10g	28	Button	$35.66	No	1067	Phillips
M36	3.2	12g	36	Pan	$41.32	No	434	Both
M50	4.5	15g	50	Pan	$44.72	No	740	Flat

2 - BAR CHARTS

- Use bands of equal width but varying height to represent relative values
- They allow easy comparison over time or between different items
- Become difficult to read if there are many subdivisions of data

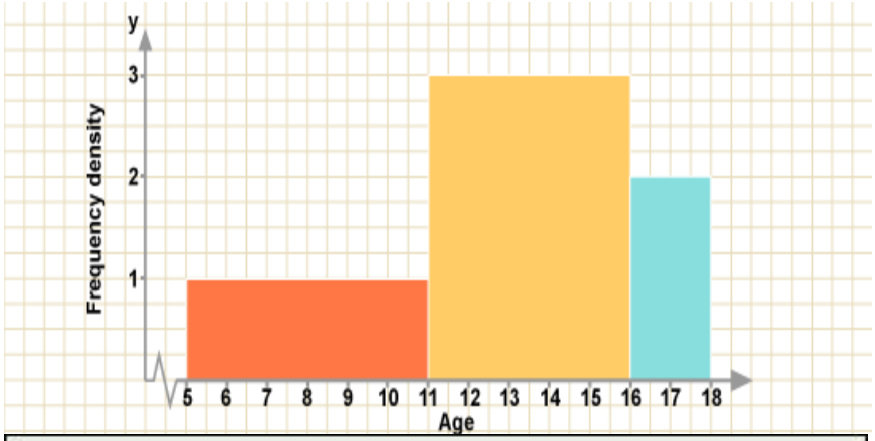




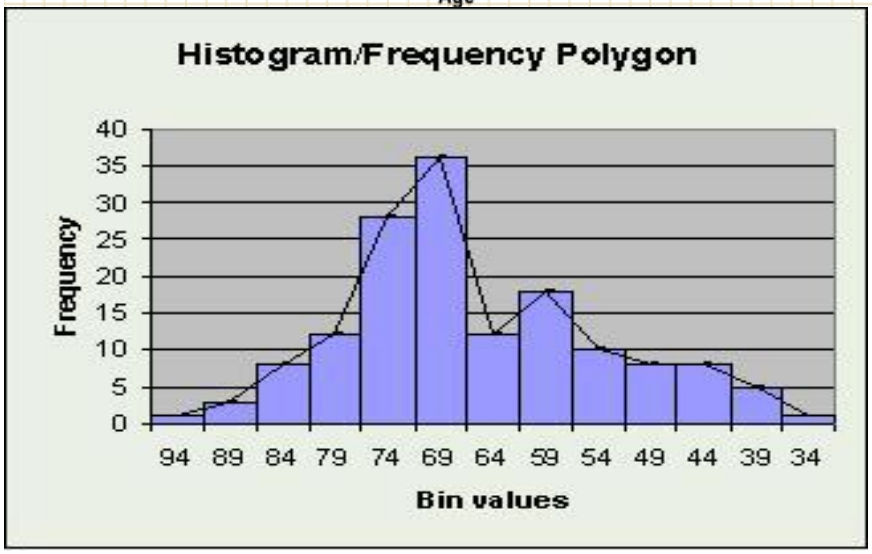


3 - HISTOGRAMS

- Here, it is NOT the height of the bar that represents relative values but the AREA of each bar-because



- Histograms represent relative frequencies from 'class intervals'/ grouped data, and, as such, have no gaps



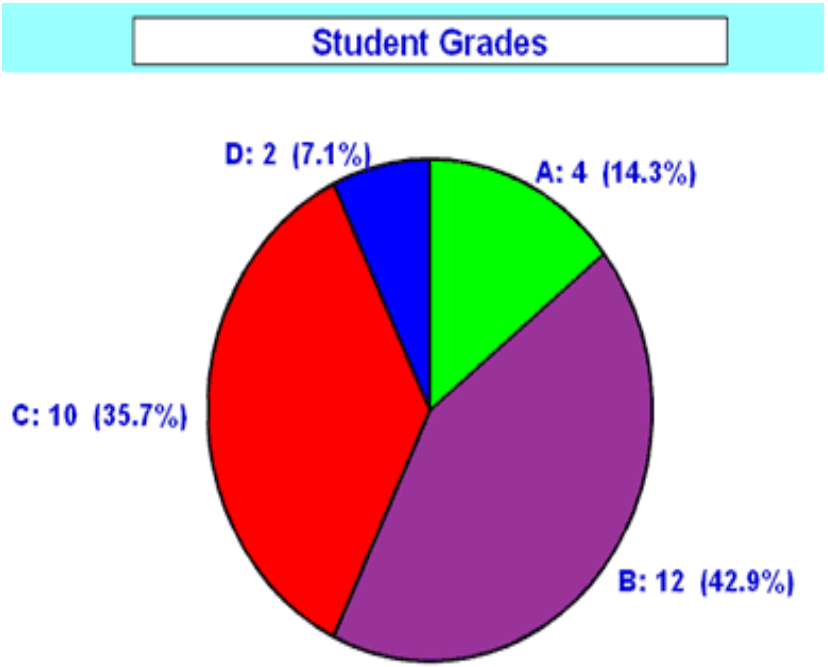
4 - LINE GRAPHS

- are most commonly used showing changes in a variable over time-time-series graphs

- The line graph formed by plotting coordinates together shows easy reference to trends in the data and shows seasonal or other fluctuations clearly

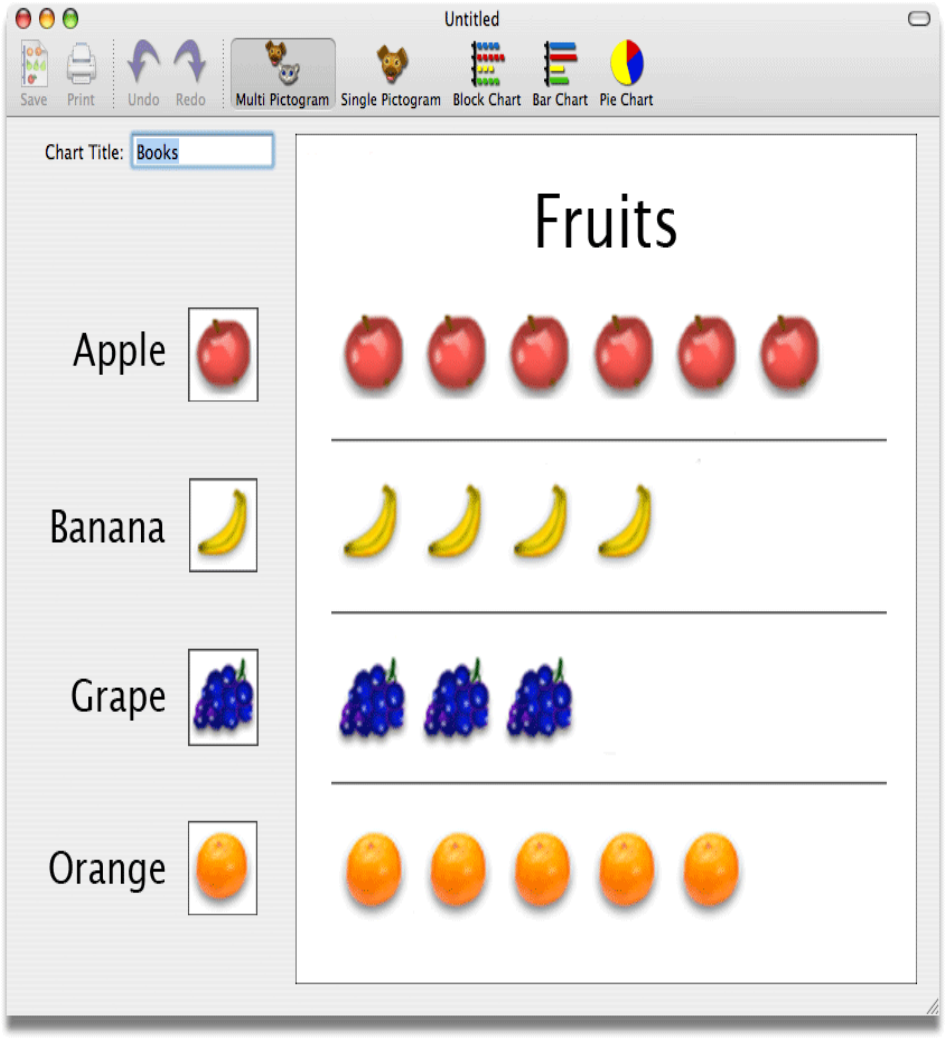
5 PIE CHARTS

- are used to present data when the proportions are important
- Allow comparison over time to see how components change
- Sections can be quickly calculated on spreadsheets:
- Value of component x 360
- Total Value
- However, it does not allow for changes in the size of the pie and also poor for showing precise values



6 PICTOGRAMS

- use pictures to represent data.
- This pictogram shows the number and types of fruit eaten by someone in the past week



Activity 15.5 on page 279

CHOOSING A PRESENTATION FORMAT

Method	Most useful for……..
Tables	
Bar Charts	
Histograms	
Line Graph	
Pie Charts	
Pictograms	

Analysing Research Results

- A simple but effective way that most managers start with is to identify key trends or features of the data
- Data will initially be in ‘raw form’, how it was recorded, and we need to change this to a form suitable for analysis and aiding decision-making

- Number of hours per week respondents listened to a radio show:
- 2011-20 respondents 1,5,10,15,3,6.5,6,4,7.5, 16,12,4,0,2,20,18,12,20,11, 10.
- 2012-20 respondents
- 15,12,4,5,12,6,0,2,3,10,7,8, 3,12,22,18,20,14,11,8

Averages

- An average is a typical or representative measure of a se
- Averages tell us something about the central tendency of a set of data
- There are three main types of average commonly used and they give us different information about what is meant by a “typical” result

Averages1-ARITHMETIC MEAN

- Calculated by totalling all the results and dividing by the number of results

- Always be wary of small samples and remember that any calculation based on a set of data is only as accurate as the data in the first place

- 2011 the result is:
- $\frac{173}{20}$ = 8.65 hours
- 2012 the result is:
- $\frac{193}{20}$ = 9.6 hours

Averages 2-MODE

- The mode is the value that occurs most frequently and is usually readily identifiable if we put the data in ascending (or descending) order
- Result is of limited value and we MUST NOT assume that average listening time has increased from 10 to 12 hours
- It does, with the mean, give us more information on the centralising tendencies of a set of data

- ***2011***
- 0,1,2,3,4,4,5,6,6.5,7.5,10, 10,10,11,12,12,15,16,18,20
- ***2012***
- 0,2,3,3,4,5,6,7,8,8,10,11,12,12, 12,14,15,18,20,22

Averages 3-MEDIAN

- The value of the middle item when data have been ordered/ranked, thus dividing the data into two equal parts

- If we have an odd number of values the formula is:
- $\frac{\text{Number of values} + 1}{2}$
- With an even number:
- $\frac{\text{Number of values}}{2}$

- **Activity 15.6, page 281**

FREQUENCY DATA

- When data are presented in a table, it is common to show them in frequency form,eg 15.9
- The mean is $\frac{\Sigma f(x)}{f} = 6.38$
-
- The mode is **6**
- The median is the 50th term, see table 15.10, **6**

Shoe size	Number sold (f)	Frequency x shoe size
3	4	12
4	13	52
5	18	90
6	20	120
7	17	119
8	12	96
9	11	99
10	5	50
	f = 100	**Σf(x)=638**

GROUPED FREQUENCY DATA

- Data is presented in this form when what is being considered is not a whole number, but a range of possible responses, eg which age grouping are you in? 0-9,10-19,20-29 etc
- See table 15.11 and Fig 15.8,page 282

Wage $	Wrkrs f	Midpnt x	fx	Cmltve frqncy
200-249	25	225	5,625	25
250-299	40	275	11,000	65
300-349	58	325	18,850	123
350-399	12	375	4,500	135
	Σf 135		**Σf(x)** 39,975	

Table 15.12 on page 283

How useful are averages?

Average Measure	USES	ADVANTAGES	DISADVANTAGES
MEAN			
MODE			
MEDIAN			

Measures of Dispersion/Spread of Data

1 THE RANGE

- *is the difference between the highest and the lowest value*
- The main problem with this measure is that it can be distorted by outliers/ extreme results.
- To hopefully account for this we could use the 'Butler Range' where the smallest and largest values are discounted

2 INTER –QUARTILE RANGE

- *is the range of the middle 50% of the data*
- Another way of overcoming the problem is using the IQR
- This is calculated by dividing the data into quartiles (quarter sections),where the median divides the data into two halves the quartiles divide each half again (see fig 15.9)
- IQR is calculated by subtracting the value at the third quartile from the value at the first one

MARKET RESEARCH

- • Primary and secondary research
- • Methods of information gathering
- • Sources of information
- • Sampling methods

- Market research results
- Cost effectiveness

- • Purpose of market research in determining customer characteristics, wants and needs

- • Distinction between primary and secondary research, desk and field research, and the main features of each
- • Printed, paid for and web based sources of information
- • Random, stratified and quota sampling; the
- appropriateness of each to given situations
- • Limitations of sampling
- • The reliability of data collection

- • Analysis of results obtained from market research
- • Presentation of information
- • Cost effectiveness of market research in given situations (treated descriptively)