

# Data Sets: Sources, Description, and Electronic Access

## Overview

This following contains a brief description of the sources, definitions, and comments on a number of data sets presented throughout the book. They are listed in chronological order as they appear in the text. For each data set the following information is given: title, figure numbers (as appearing in the preceding chapters), file name, time period covered, unit, and description of data items and sources. For those interested in obtaining more historical data sets, we draw attention to the recently released CD-ROM edition (Carter *et al.*, 1997) of the US Historical Statistics (US DOC, 1975).<sup>1</sup>

## Data format

All data sets are stored in two file types: spreadsheet (denoted with the respective file extension .wk1) and in plain, comma-delimited, ascii, UNIX-readable format (denoted with the file extension .csv). Thus, altogether the data sets are stored in 10 files with two formats each, yielding 20 files in the directory set up for internet access/downloading. The spreadsheet format chosen is Lotus-123, assuring maximum compatibility with higher version releases of this or similar spreadsheet programs (e.g., Excel). The comma-delimited ascii format allows utilization of the data set for any alternative software (and quick preview via any internet browser).

Data are generally formatted in columns, and numbered consecutively, e.g., [1], [2], [3], . . . . As a rule column [1] refers to year of data. A brief title and legend for each column is given at the top of the file. The column sequence repeats the summary of data series as described below. Data are stored in the spreadsheet format in whatever numerical precision was available from the different data sources (and can therefore change within any particular data series). The numerical precision of the data in the ascii format files is limited by default to two digits after the decimal point for noninteger values. As a rule blank entries refer to unavailable data, and zero entries refer to true zero values, so these can be determined with certainty from available statistics.

## Sources and description of data sets

Title: Length of transport infrastructures in the USA

Figure: 2.10

File name: usa-infra

Time period: 1825–1985

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<sup>1</sup>Carter *et al.*, 1997. *Historical Statistics of the United States, Bicentennial Edition on CD-ROM*. ISBN 0521-58541-4, Cambridge University Press, price: US\$195. (Unfortunately, neither the publisher nor the editors have ventured to update the data series of the 1975 edition of the *Historical Statistics*. Data series therefore end with the year 1970.)

Unit: 1,000 miles

Data description:

The length of individual transport infrastructures over the period 1825–1985 is given. *Figure 2.10* shows the growth of these infrastructures between their introduction date and achievement of maximum length (100% saturation level in *Figure 2.10*). The data set extends that shown in the figure, also showing the subsequent stagnation and decline of infrastructure length. Infrastructures are disaggregated as follows:

- Canals: length of canals (excluding navigable natural river waterways) from Grübler (1990a) based on Isard (1942). Comparable data after 1900 are unavailable, but canal length declined further from the 2,000 miles still in existence in 1900.
- Railways: length of railway network from Grübler (1990a), based on US DOC (1975, and consecutive years).
- Surfaced roads: length of surfaced (paved) roads from Grübler (1990a), based on US DOC (1975). Pre-1904 data are model estimates (cf. Grübler, 1990a).
- Oil pipelines: length of crude oil and oil product pipelines (all categories including trunk and gathering lines). Source: API (1971) and US DOC (various volumes). Only pipelines regulated by the Interstate Commerce Commission (and subsequently by the Federal Energy Regulatory Commission) are given, representing 80% of total oil pipeline length in the USA.
- Gas pipelines: length of gas utility mains (including all types of field gathering, transmission and distribution gas pipelines). Source: 1809–1905: US Minerals Yearbook (various volumes); 1933–1968: API (1971); 1968–1985: AGA (1986). Data for the period 1906–1932 are unavailable.
- Telegraphs: miles of wire. Source: US DOC (1975). 1866–1915: Western Union Telegraph only; 1918–1970: all telegraph lines. Comparable data post-1970 are unavailable.

Title: Diffusion of emission controls in US passenger car fleet

Figure: 2.12

File name: usa-cars

Time period: 1965–1984

Unit: million cars in operation

Data description:

The data set updates an earlier analysis of Nakićenović (1986) based on US DOC (1983) and MVMA (1985). With the diffusion of catalytic converter cars almost complete by the mid-1980s, no comparable statistics are available post-1984. *Figure 2.12* aggregates the various first emission controls prior to catalytic converters into a “1st controls” category. A more detailed disaggregation is

contained in the data set. *Figure 2.12* shows the relative shares (in total number of cars operated) of three categories of vehicles in logit transform. Vehicle types include:

- None: cars without any emission controls.
- Crankcase: control of unburned fuel emissions (mandated since 1963).
- Exhaust: additional control of hydrocarbon and carbon monoxide emissions (mandated since 1968).
- Evaporation: additional control of fuel evaporation from tanks (since 1971).
- Low-NO<sub>x</sub>: additional controls lowering NO<sub>x</sub> emissions (but no catalysts), mandated since 1973.
- 1st controls: all emission controls except catalytic converters, i.e., sum of columns [2] to [6].
- Catalyst: cars equipped with catalytic converters (mandated since 1975).

Title: Diffusion of agricultural tractors worldwide and by region

Figure: 5.9

File name: w-tractor

Time period: 1910–1990

Unit: Million tractors

Data description:

Tractors used in agriculture by five major world regions and the global total are given. Data sources include Woytinsky and Woytinsky (1953), and *FAO Yearbook: Production* (various volumes). The regional disaggregation data items (shown as cumulative totals in *Figure 5.9*) include:

- Europe: Western, Central, and Eastern Europe (FAO definition).
- Ex-USSR.
- North America: Canada and USA.
- JANZ: Japan, Australia and New Zealand.
- ROW: rest of world (all other regions not listed separately above, number calculated as residual to world total).
- World: World totals as given in original data sources.

Title: World rubber production

Figure: 5.11

File name: w-rubber

Time period: 1900–1990

Unit: 1,000 (metric) tons

Data description:

World production data of rubber (natural, synthetic, and recycled) are given. As additional information the data set (but not *Figure 5.11*) contains data on natural rubber production over the 1900–1950 period disaggregated into rubber collected from forests, and rubber collected in plantations. (This disaggregation was no longer available for later years, where only total natural rubber production is reported.) Data were derived from Woytinsky and Woytinsky (1953), UN *Statistical Yearbook* (various volumes), and *FAO Yearbook: Production* (various volumes). The data set includes the following entries:

- Natural rubber production, harvested from forests (wild growing trees), 1900–1950.
- Natural rubber production, harvested in plantations, 1900–1950.
- Natural rubber production (sum of the above two subcategories), entire time period.
- Synthetic (manufactured) rubber, entire time period.
- Recycled rubber, entire time period.

Title: Percent urban population

Figure: 5.19

File name: w-urban

Time period: 1800–1900

Unit: percent

Data description:

The data set gives the percentage of the total population living in urban settlements. These are defined as settlements of more than 2,500 inhabitants (10,000 in the case of Japan) based on Flora (1975) from which data until 1960 have been retained. Since 1960 data are based on the United Nations 1996 revision of percentage urban populations that adopt a similar definition to Flora (1975), without, however, being strictly consistent (in addition, definitions change over time). Data for seven countries are given. As additional information the 1996 UN estimates for developed, developing, and world totals are given for the period 1950–1990. The countries covered include:

- USA.
- England (including Wales), data since 1960 are from the Central Statistical Office (1996, and earlier volumes).
- Japan (note the different definition of urban population given above).
- Germany (FRG for the 1950–1990 period).
- France.
- Ex-USSR (Territory of Tsarist Russia and former USSR).

- Brazil.
- Developed countries (UN definition of “more developed regions”, corresponding to the OECD countries in their 1990 definition plus Central and Eastern Europe and the former USSR).
- Developing countries (UN definition of “less developed regions”, i.e., all other countries, not classified as “more developed” above).
- World.

Title: World raw steel production by process technology

Figure: 6.4

File name: w-steel

Time period: 1870–1995

Unit: Million tons raw steel

Data description:

The data set updates (based on IISI, various volumes) a set given in Grübler (1987, 1990b), drawing on Roesch (1979), and the statistics of the International Iron and Steel Institute (IISI, various volumes). Prior to 1950 only decadal estimates are available. Since 1950 annual series are given. The total raw steel tonnage figures reported refer to the sum of output by production technology. IISI (1997) estimates that since 1970 these cover 95% of total global crude steel production (the difference is crude steel production for which no information concerning the production process is available). Figures for open-hearth production since 1990 include some smaller amounts (between 10 and 17 million tons) of Chinese steel production accounted as “other” processes in the IISI statistics. In the absence of further information these have been allocated to open-hearth technology. Production figures for Bessemer technology in 1990 are the author’s estimate, thereafter no separate breakdown is available, but global production figures are likely to be negligible. The breakdown by process technology includes the following categories:

- Puddel (production in puddling furnaces and crucible steel).
- Bessemer (production by the Bessemer process).
- Open-hearth (production by Siemens-Martin process).
- Electric arc.
- Basic oxygen (LD, or Linz-Donawitz process).
- Total (total raw steel production; sum of the above categories).

Title: World primary energy use by source and global population

Figures: 6.18, 6.19, 6.29

File name: w-energy

Time period: 1850–1995

Unit: Million tons oil equivalent (energy); million (population)

Data description:

The data set updates an earlier data set developed by Marchetti and Nakićenović (1979) and Nakićenović (1979), drawing on statistics assembled by Schilling and Hildebrandt (1977), based on data of the League of Nations (later to become the United Nations), cf. Darmstadter *et al.* (1971). Unless otherwise specified all data prior to 1965 are based on Marchetti and Nakićenović (1979). Data from 1965 onwards are from *BP Statistical Review of World Energy* (BP, various volumes). This updated data set is identical to the one reported in IPCC (1996a). As a memo item, data on global population since 1850 are also included. To calculate carbon emissions from fossil fuels the following emissions factors are suggested (tons elemental carbon per ton oil equivalent, i.e., tC/toe): wood: 1.25; coal: 1.08; oil: 0.84; natural gas: 0.64. In *Figure 6.29*, the concept of “gross” and “net” carbon intensities are used, where carbon intensity refers to the specific carbon emissions per unit primary energy used (in tC/toe). “Gross” intensities use all energy sources and carbon fluxes in the nominator and denominator, respectively. “Net” intensities exclude (sustainable) fuelwood use and nonenergy feedstock uses (where carbon is sequestered for extended time periods, e.g., in plastics) from the calculations (for a detailed discussion see Grubler and Nakićenović, 1996). Following a usual accounting convention in the energy industry, nonfossil energy sources (hydropower and nuclear) are accounted for by their “substitution” equivalents, i.e., by the amount of fossil energy that would be required to produce the same electricity output as the nonfossil sources. Following IIASA–WEC (1995), a conversion rate of 38.6% in a modern fossil fuel fired electricity plant was assumed, i.e., one unit hydroelectricity is equivalent to 2.6 units of fossil primary energy. [Note that this accounting convention is different from the one used in the original BP statistics that adopt (inconsistently) different accounting conventions for hydro- and nuclear power.] For the period prior to 1965 the conversion rates as used by the original Schilling and Hildebrandt (1977) reference were retained. Data items include the following:

- Wood: global fuelwood use based on data of Putnam (1954), UN (1952), and FAO (1965 *et passim*). The UN conversion rate of 0.23 toe per m<sup>3</sup> fuelwood was used to convert the FAO statistics into energy equivalents. Note that only part of this fuelwood use refers to commercially traded quantities. Uncertainty margins are correspondingly high. The numbers also do not include other noncommercial renewable energy forms such as agricultural residues, dung, and other traditional renewable energy forms (e.g., animal power). These were estimated at less than 700 Mtoe in 1990, i.e., 8% of global primary energy use (IIASA–WEC, 1995). In all likelihood this value represents a historical high in absolute amounts (however, not in relative/percentage terms).
- Coal: global use of coal (hard and brown coals). Data based on Marchetti and Nakićenović (1979) and BP (various volumes).

- Oil: global use of crude oil (energy use only). Data based on Marchetti and Nakićenović (1979) and BP (various volumes). Nonenergy feedstock uses (cf. next data column) were subtracted from the original data sets of total crude oil use.
- Oil feedstock (nonenergy) use: Data calculated based on UN Energy Statistics (various volumes). Data prior to 1950 are zero-order estimates by the author based on US refinery output structure (from Schurr and Netschert, 1960).
- Natural gas: global use of natural gas (excluding gas flaring). Data based on Marchetti and Nakićenović (1979) and BP (various volumes).
- Hydropower: global primary energy equivalent of electricity generated by hydropower. Data based on Marchetti and Nakićenović (1979) and BP (various volumes). The original BP data were converted to a primary energy equivalent assuming a 38.6% thermal efficiency of fossil electricity generation. Prior to 1965, the original estimates of Schilling and Hildebrandt (1977) used in the Marchetti and Nakićenović data set were adopted.
- Nuclear: global primary energy equivalent of electricity generated by nuclear reactors. Data based on BP (various volumes) adopting an equivalent accounting convention as for hydropower (38.6% in the original BP data series). Prior to 1965, nuclear electricity generation data were taken from UN Energy Statistics (1973).
- Population (memo item): global population, mid-year estimates. 1850–1949 data were taken from Grübler and Nakićenović (1994), based on data of Durand (1967) and Demeny (1990). 1950–1995 data are from UN (1996).

Title: US population, GNP, and primary energy use by source

Figures: 6.31, 6.32, 6.33

File name: usa-energy

Time period: 1800–1995

Unit: Million tons oil equivalent (energy), million (population), billion US\$ in constant 1990 money and prices (GNP)

Data description:

The data set updates an earlier set developed by Nakićenović (1984). Unless otherwise specified, the Nakićenović data set was retained until 1950, and updated by US government and UN statistics (US DOC, various volumes; IMF, 1996; EIA, 1997; FAO, various volumes) for the period thereafter. Despite its unique comprehensiveness, the data set nevertheless excludes important renewable energy sources of the 19th century due to the absence of reliable estimates and statistics such as human energy, animal energy (feed), wind power (mills and water pumps), and illuminants (whale oil and candles). These were important energy sources (perhaps up to 30% of the totals as estimated here) in the

pre-1850 period. Thereafter, their omission is likely to result in an underestimation of US primary energy use of less than 15–20%, or less than 5–10% after ca. 1920. By 1950 these traditional energy forms virtually disappeared in the USA, resulting in no underestimation of primary energy use since. Nonfossil energies are accounted with their primary energy equivalents, assuming fossil energies would have provided comparable output (substitution equivalents). For instance, direct water power (mechanical energy from water wheels) is accounted for by the coal needed to produce similar mechanical energy in steam engines. Hydroelectricity is accounted for by the fossil fuel equivalent of generating the same output of electricity from fossil fuels based on the fuel input and conversion efficiencies prevailing in any particular year. The same substitution equivalent method is also used in contemporary US energy statistics (EIA, 1997). Unless otherwise noted, primary energy use refers to apparent consumption, i.e., production plus net balance from trade and stock changes (cf. EIA, 1997). For the calculation of carbon intensities of different fuels, the following emission factors (IPCC, Working Group II, 1996a) have been retained, i.e., wood: 1.25 tC/toe; coal: 1.08, oil: 0.84, and natural gas: 0.64 tC/toe (tons elemental carbon per ton oil equivalent). For all other energy sources carbon intensities were assumed to be zero. The data set includes the following items:

- Population: Mid-year resident US population (in million) updated US DOC (various volumes) from US DOC (1975).
- Gross National Product (GNP) in billion 1990 US\$. The Nakićenović (1984) data set, based on the estimates of Berry (1978) and US DOC (1975), was retained until 1965. The original 1958 US\$ of the Nakićenović set were converted to 1990 US\$ based on the average GDP deflator of 4.4 (IMF, 1996). After 1965, GNP data are from IMF (1996), expressed in constant 1990 US\$ money and prices.
- Primary energy use, total (sum of the following itemized categories).
- Fuelwood: 1800–1970 from Nakićenović (1984), based on Reynolds and Piersons (1942); Putnam (1954); and US DOC (1975). 1990–1995 data are from EIA (1997). For the period 1970–1990, official EIA statistics under-report fuelwood use. The numbers given are the author’s own estimates assuming that fuelwood use has evolved in proportion to 1990 EIA values based on the volumetric fuelwood production statistics as reported in FAO (various volumes).
- Direct waterpower (primary energy equivalent): based on Putnam (1954) and Nakićenović (1984).
- Coal (all categories, i.e., bituminous, sub-bituminous, and anthracite). 1800–1950 data from Nakićenović (1984), based on Putnam (1954), Schurr and Netschert (1960), and US DOC (1975); 1950–1995 data are from EIA (1997).

- Crude oil (and net trade of oil products): 1860–1950 from Nakićenović (1984), based on Putnam (1954) and US DOC (1975); 1950–1995 data are from EIA (1997).
- Natural gas (apparent consumption, excluding gas production flared and repressured into reservoirs): 1850–1950 from Nakićenović (1984), 1950–1995 from EIA (1997). (Data on gas flaring and repressuring are given in Grübler and Nakićenović, 1987.)
- Hydroelectricity (substitution equivalent): 1885–1950 from Nakićenović (1984), 1950–1995 from EIA (1997). The data for hydroelectricity also include other nonfossil electricity generation such as geothermal energy, and more recently wind and solar energy (for further disaggregation cf. the section on Renewable Energy in EIA, 1997).
- Nuclear energy (substitution equivalent): data as given in EIA (1997).

Title: France: Population, GDP, and mobility by mode

Figure: 7.9

File name: f-transp

Time period: 1800–1994

Unit: Million (population), billion French Francs in constant 1905–1913 prices and money (GDP), million passenger-km traveled per year (mobility)

Data description:

The data set draws on the formidable work of the French quantitative economic history school (cf. Marzewski, 1965), most notably the work of Jean-Claude Toutain (1967, 1987), profiting *inter alia* from the fact that traffic survey records have existed in France since the pre-Revolution period. The data set has been updated (Ann. Stat. Transp., various volumes, 1985–1995) from the one described in more detail in Grübler (1990a), including some revisions (a heroic attempt to provide zero-order estimates for the period during World War I and World War II), as well as amendments (a new estimate of nonmotorized mobility, i.e., walking, cf. the discussion below). The data set includes the following items:

- Population: Data based on Toutain (1987), for the period 1800–1980. Later data are from Ann. Stat. (1996). Population data for the two World War periods (and their aftermath), 1914–1919 and 1939–1948, are zero-order estimates by the author.
- GDP (in constant French Francs of 1905–1913). Source: Toutain (1987) for the period 1800–1980 (with the exceptions noted below). Later data are from Ann. Stat. (1996), calculated using the annual GDP growth rates in constant prices given therein. Data for the period 1914–1919 were estimated given the trend in the GNP estimates of Fontvieille (1976), for the World War I period. Data for the period 1939 were derived in a similar way using Fontvieille (1976). 1940–1948 data are (speculative) zero-order estimates of the author. The GNP data series retain the original unit

of Toutain (1987): constant French Francs of 1905–1913. To convert to 1990 money (and to appreciate the extent of inflation since the eve of World War I) a multiplier of 19 will yield approximately a correct order of magnitude.

- Waterways: Data for the period 1800–1913 are from Toutain (1967), referring to all domestic waterborne passenger-km (canals and navigable waterways). Seaborne passenger-km data are unavailable. After 1913 no data are available, but the resulting error in total mobility levels is unlikely to exceed 0.2%, i.e., is insignificant.
- Horses: Passenger traffic data by horses and horse carriages (private and public) are from Toutain (1967), for the period 1800–1940. Subsequent data to 1950 are zero-order estimates by the author based on nonfarm horse population data (Ann. Stat., 1961). Considering the insignificant amounts of mobility by horses thereafter, no attempt was made to extend the data series beyond 1950.
- Railways: Passenger-km by railways (all traffic) for the period 1830–1938 are from Toutain (1967). Later years were obtained from Mitchell (1980), which also included the interwar period estimates, and Ann. Stat. Transp. (1985–1995). Passenger-km provided by TGV trains are subtracted, and are reported as a separate data series.
- Two wheelers (bicycles and motorcycles): 1880–1960: Estimates by the author, based on the number of bicycles and motorcycles registered (data are available since 1880 for bicycles and since 1899 for motorcycles, cf. Ann. Stat., 1961), and average travel distances reported in the traffic surveys given in Sax, 1920 [from where an average of 1,400 (road and passenger) km per year for bicycles and a distance of 3,000 km per year, and a load factor of 1.5, i.e., some 5,000 passenger-km per motorcycle were retained]; the uncertainty margin of this estimate is high:  $\pm 50\%$ . Data since 1960 are based on IRF (various volumes, 1970–1995) statistics for motorcycles. No estimate for bicycles was made after 1960, considering that they accounted for less than 3% of total passenger-km in 1960, and a rapidly declining share thereafter.
- Buses: Estimates of Toutain (1967), for the period up to 1965 (missing data for 1941–1944 are the author’s estimates). After 1965 the statistics published by IRF (various volumes, 1970–1995) have been used.
- Cars: Estimates of Toutain (1967), for the period up to 1965 (missing data for 1941–1944 are the author’s estimates). After 1965 the statistics published by IRF (various volumes, 1970–1995) have been used.
- Air: Domestic and international passenger-km traveled by air by passengers emplaned in France. Data from Ann. Stat. (1961) and Ann. Stat. (various volumes, 1975–1995).

- TGV (superfast trains): Data from Ann. Stat. (various volumes, 1985–1995).
- Walking: Zero-order estimates by the author based on the following simple algorithm: First it is assumed that each citizen spends on average about one hour daily for mobility. Time-budget surveys in the 1960s indicate an average of 58 minutes per day (Grübler, 1990a, based on data from Szalai, 1972) and that figure has remained slightly below one hour according to the latest French travel surveys (Orfeuil, 1993). Then for each transport mode an average representative transport speed was assumed: e.g., 15 km/hr for horse carriages, 30 km/hr for conventional trains, 50 km/hr for cars, 250 km/hr for high speed trains, and 500 km/hr for domestic aircraft trips. Dividing the total daily per capita passenger-km per mode by the respective average transport speed yields the travel time spent in each mode. The remaining travel-time budget (to one hour per day) is then allocated to walking, assuming a mean speed of 4 km/hr, yielding the passenger-km walked as the final estimate. For simplicity (and in the absence of statistical data) the average transport speeds by travel mode were kept constant over the entire time period in the calculations. This might seem surprising considering increasing congestion from denser motorized traffic. However, reduced speed in dense agglomerations has been compensated by improved infrastructures (more highways) for long distance travel and increasing suburbanization (André *et al.*, 1993), thus average car speeds in France have not changed much (Orfeuil, 1996). The resulting estimated modal split of French passenger-km traveled is in good agreement with the latest (1982) national transport survey available and the observed significant decline in walking trips that are increasingly substituted by car travel (Orfeuil, 1993). Nonetheless, the error margin of our estimate remains substantial:  $\pm 25\%$ .

Title: Japan R&D, investments, and costs of photovoltaic (PV) cells

Figures: 9.1, 9.2

File name: j-pvs

Time period: 1973–1995

Unit: 1985 Yen per Watt (costs), kW (installed capacity), billion 1985 Yen (R&D and investment expenditures)

Data description:

The data set draws on an exceptionally comprehensive empirical analysis of the history of PV technology development in Japan performed by Watanabe (1995, 1997). Original as well as derived data underlying *Figures 9.1* and *9.2* are presented, including:

- PV costs: Costs (1985 Yen) of PV cells per Watt (peak) installed.
- Total R&D Expenditures: Annual R&D expenditures, both public (through MITI's sunshine technology program) and private (through industry) are included, which makes the data set one of the few available accounting for R&D efforts comprehensively (in billion 1985 Yen).

- Cumulative R&D expenditures: Calculated from the above annual expenditures (unit: billion 1985 Yen). This measure is used as a proxy for the knowledge stock related to PV technology. Watanabe (1995) estimates through econometric analysis that R&D translates into technology improvements (cost reductions) with a time lag of 2.8 years.
- Installed PV capacity (in kW, i.e., 1,000 Watts).
- Investments in PV capacity expansion (annual capacity additions multiplied by the average price of PV cells, as given above). This measure (unit: billion 1985 Yen) is used as a proxy for the cumulative experience gained with PV technology when compared to R&D efforts.
- Total cumulative expenditures in PV technology (in billion 1985 Yen). Retaining Watanabe's (1995) time lag of three years, R&D and investment expenditures (proxy measures for the inputs to the technological learning process) are aggregated so they can be compared to improvements (cost reductions) in PV technology (proxy measure for the output of technological learning).

## How to download the data

The easiest way to download the data from the IIASA computer is the following:

1. Access the following address: <http://www.iiasa.ac.at/~gruebler>.
2. From the index listing (all related to this book) click the relevant file you wish to download (listed in this Appendix).
3. Recall that files with extensions .csv are in plain ascii format and files with extension .wk1 are spreadsheets (for those encountering problems with the spreadsheet download it is recommended to download the ascii formatted text files, and to then open them locally with available spreadsheet software).
4. Download the file selected to your local computer (in most browsers this is done by a right click on the mouse and then clicking the "Save As" – or equivalent – option).
5. For those having no internet access a floppy with the data set can be obtained for a small handling charge from:

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