



information

CIRCULAR

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THE RELATIONSHIP BETWEEN MORTALITY RATES IN ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD) COUNTRIES AND LIFESTYLE FACTORS

Introduction

The aim of this information circular is to describe variations in lifestyle variables (eg. dietary factors, cigarette and alcohol consumption) which are associated with the four national priorities for Australia and other OECD countries. Selected economic and environmental factors are also included.

The circular particularly focuses on ischaemic heart disease and malignant neoplasms of the respiratory and intrathoracic organs and should be read in conjunction with information circular 33, which describes mortality patterns in the OECD countries. This circular pays particular attention to France, Greece and Japan. As shown in information circular 33, Japan had the lowest mortality rate for all causes, while France had the lowest mortality rate amongst European countries. Greece had the lowest mortality rate amongst European countries for several disease categories.

Total health expenditure (value per capita - current prices in purchasing power parity dollar*)

- ❖ Turkey (110) and Greece (334) were the countries with the lowest health expenditure in 1988 (Appendix A, Figure A1).
- ❖ The U.S. (2146) had the greatest health expenditure in 1988, and this was considerably greater than Canada (1558), which was the next highest country. The U.S. also had the highest value in 1965.
- ❖ Australia and France had expenditures greater than the median value in 1988 and 1965.
- ❖ Japan was below the median in both years.

Salaried employment, unemployment and pollution

- ❖ International comparisons of salaried employment, unemployment and pollution are shown in Appendix A, Figures A2 to A4.

* Purchasing Power Parity dollar is currency which is adjusted for the relative value of the local currency, so that the currencies of different countries are comparable.

Tobacco consumption

(a) Grams per capita

- Finland had the lowest tobacco consumption measured in grams per capita in both 1988 and 1965 (Appendix A, Figure A5).
- Greece had the highest value in 1988, although it was one of the lowest in 1965.
- Australia had a tobacco consumption below the median in 1988, although it had the fourth highest consumption in 1965.
- France was close to the median value in both years.
- There was no data available for Japan.
- Between 1965 and 1988, there has been a general reduction in the prevalence of tobacco consumption, with the exception of Greece and Austria.

(b) Daily consumption per smoker

- Spain (11.9), Denmark (12.0) and France (13.9) were the countries with the lowest tobacco consumption in 1988, expressed as daily consumption per smoker (Appendix A, Figure A6).
- Canada (24.7), followed closely by Japan (23.3) had the greatest consumption.
- Australia had a value slightly above the median in 1988. There was no data for Australia in 1965.
- There was no data for Greece.

(c) Per cent of male population who smoked

- The countries with the lowest tobacco consumption amongst males in 1988 were Sweden (27.7%), New Zealand (28.7%) and the United States (30.8%) (Appendix A, Figure A7).
- Of all the OECD countries, Japan had the highest percentage of males aged 15 years or over who smoked in 1988 (61.2%), and in 1965 (82.3%).
- Australia (32.9%) was below the median in 1988, while France (39.3%) was above the median value for this year.
- There was no data for Greece.

(d) Per cent of female population who smoked

- The countries with the lowest percentage of females who smoked in 1988 were Portugal (5.1%), Japan (13.1%), Italy (17.3%) and France (19.1%) (Appendix A, Figure A8).
- Forty-two per cent of females aged 15 years or over smoked in Denmark in 1988, which was the highest percentage of all the OECD countries.
- Australia (26.6%) had a value close to the median in 1988.
- There was no data for Greece.

Alcohol intake (litres per persons)

- Greece had the lowest alcohol intake in both 1988 and 1965 (Appendix A, Figure A9).
- France had the greatest intake in both years.
- Australia had an alcohol intake which was greater than the median in 1988 and 1965.
- Japan was below the median value in both years.
- Between 1965 and 1988, there was a general increase in alcohol intake, with the exception of France.

Diet

(a) Animal energy intake (percentage of total energy)

- In 1988, Turkey (12%) had the lowest animal energy intake expressed as a percentage of total energy intake of all the OECD countries, followed by Greece (23%), Portugal (23%) and Japan (26%) (Appendix A, Figure A10).
- Finland's intake (51%), which was the highest in 1988, was over four times greater than the value for Turkey.
- Australia's value was equal to the median for 1988 and was above the median in 1965.
- France (45%) had the second highest value in 1988.
- For many of the OECD countries, there has been an increase in animal energy intake between 1965 and 1988. However, for many other countries, there has been a decrease, including the United States, Australia, Norway and Denmark.

(b) Crop energy intake (percentage of total energy)

- The findings for crop energy intake amongst the OECD countries had the reverse pattern to that which was found for animal energy intake (Appendix A, Figure A11).
- In 1988, Finland (49%) had the lowest value, followed by France (55%), Austria (55%), Canada (55%) and Germany (55%).
- Turkey (88%) had the highest crop energy intake in 1988, followed by Greece (77%), Portugal (77%) and Japan (74%).
- Australia's value was equal to the median in 1988 and slightly below the median in 1965.

(c) Sugar intake (kilos per capita)

- Japan (19.7) had the lowest sugar intake in 1988 (Appendix A, Figure A12).
- Iceland (49.5) had the highest intake followed closely by Australia (48.3).
- Greece had the lowest sugar intake in 1965, but by 1988, it was only slightly below the median value.

- There was no data for France in 1988.

(d) Butter consumption (kilos per capita)

- Spain (0.4), Japan (0.7), Portugal (1.0) and Greece (1.6) consumed the lowest amount of butter in 1988. These countries also had a very low consumption in 1965 (Appendix A, Figure A13).
- Luxembourg (21.8) had a far higher value than the other countries in 1988. The next highest country was the Netherlands (14.4), followed by New Zealand (11.5) and France (8.8).
- Australia's (3.1) butter consumption in 1988 was below the median, while in 1965 it was above the median.

Discussion

Figure A14 in Appendix A plots ischaemic heart disease mortality rates in 1988 by total health expenditure in 1988. It is evident that a narrow range of expenditures on health care in OECD countries leads to a wide range of outcomes in terms of ischaemic heart disease mortality for countries in the middle expenditure range (Appendix A, Figure A14). There are some countries where expenditure is much lower than the rest, but levels of mortality are also lower. By contrast, the high expenditures in the USA have not led to lower mortality. Clearly, other differences between populations account for the mortality rates - diet and smoking habits are two that seem obvious.

There is a general association between animal energy intake, measured as a per cent of total energy intake*, and mortality rates for ischaemic heart disease (Appendix A, Figure A15). Figure A16 in Appendix A is the mirror-image of Figure A15 and shows that there is an inverse correlation between crop energy intake and ischaemic heart disease mortality rates for the OECD countries. Those countries with a high crop energy intake in 1965 (Japan, Spain, Portugal, Italy and Greece) had low mortality rates in 1988, and New Zealand and Ireland had low crop intakes in 1965. They both had high mortality rates for ischaemic heart disease.

When comparisons were made between 1965 and 1988 for the lifestyle variables, the general patterns which emerged were that tobacco consumption (measured in grams per capita) declined, but alcohol consumption increased. For many countries, there has been an increase in animal energy intake (as a per cent of total energy) over the past two decades, with the exception of Ireland, the United Kingdom,

the United States, Norway, Australia, Sweden, Denmark and Canada.

Japan had the highest percentage of males who smoked in 1965, although a low percentage of Japanese females smoked in 1965 when compared to the United States, Canada and the Netherlands (Appendix A, Figures A7 and A8). Japan also had the highest daily consumption per smoker in 1965 compared with the four other countries for which there was data (Netherlands, France, Germany and the United Kingdom). However, Japan did not have a high mortality rate for malignant neoplasms of the respiratory and intrathoracic organs. This suggests that other factors can lessen the adverse effects of smoking. The type of food consumed may be one such factor.

Figure A17 in Appendix A shows the level of tobacco consumption in 1965 by deaths in 1988 from malignant neoplasms of the respiratory and intrathoracic organs as it is generally thought that there is about a 20 year latent period between the onset of smoking and the development of smoking related cancers. However, it is known that ex-smokers are at lower risk than continuing smokers, and so the associations will be somewhat confounded by patterns of quitting. The unexpectedly low rates in the USA and Canada may be due to the earlier decline in smoking in older men and the consequent reduction in lung cancer incidence in this group.

Australia was in the middle range for animal energy intake as a percentage of total energy intake in 1965 and 1988, and it had the second highest sugar intake in 1988. It had a high tobacco consumption measured in grams per capita in 1965, which declined and fell below the median in 1988. Australia occupied the unenviable position of leading the English-speaking OECD countries in alcohol consumption. Reducing this at least to the level of the lowest of the English-speaking countries should be achievable; reducing to the lowest of all OECD countries would be even more desirable.

* Energy, measured in kJ, is the metric term for the old kilocalorie. A high energy food is one which contains a lot of kJ (kilocalories).

Conclusion

The figures presented illustrate that the known associations between high animal fat intake and heart disease can be discerned even when the analysis is restricted to OECD countries. The associations are not simply due to including less developed countries with diets very different from our own.

More importantly, these figures show the extent of lifestyle changes that are potentially achievable by the Australian public. It is clear that Australia is 'about average' for most factors and that improvements in health and reductions of disease would follow if the levels of these factors were closer to those of the lowest of the OECD countries.

Reducing the contribution of animal fats to total energy intake and replacing this with more cereals, fruit and vegetables would have many benefits on health, including reductions in ischaemic heart disease. The current trend is in the right direction, but the data from Greece, Italy and Portugal shows what is possible for an OECD country. The benefits of refraining from smoking are well known.

Collaboration at many levels is needed to keep pushing lifestyle change in a favourable direction. The 1993 *Regional Health Survey* in Queensland showed that large sections of the community respond to simple health promotion messages. For example, 70% of men and 83% of women reported trimming the fat off meat or chicken, and the 1987 *Queensland Risk Factor Survey* (Steinbeck, 1987) showed that 60% of men and 80% of women do not usually add salt to their food after cooking. However, other habits are harder to adopt; only 43% of men and 54% of women managed to consume the recommended two pieces of fruit per day, and a low 8% of men and 11% of women achieved the current goal of five serves of vegetables per day (Regional Health Surveys, 1993).

As many external factors impinge on the choice of an individual, education alone cannot achieve the changes needed. For example, in relation to diet, the food supply needs to be in alignment with the goals. The 1993 *Regional Health Survey* showed that 20 to 30% of men and women ate take-away food the day before the survey. This is not surprising in a working population. However, it means that the types of take-away foods available must include a range of good quality, lower fat choices at competitive prices. School and worksite canteens would also be appropriate places for collaboration. Health professionals wishing to promote healthier lifestyle

choices need to work with industry and policy makers and not simply with the individual consumer.

These findings highlight the central importance of diet and point to the need for further action in Queensland focusing on diet to maximise health gain.

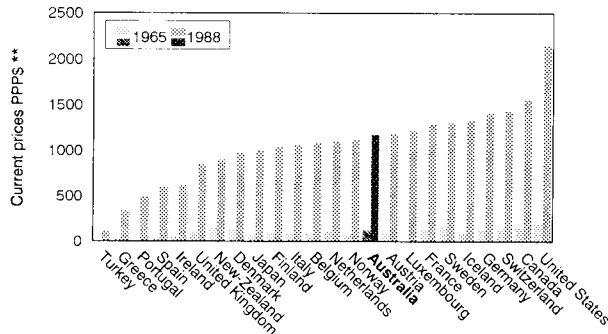
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Steinbeck K. 1991. *1987 Queensland Risk Factor Survey Comprehensive Data Book*, Epidemiology and Prevention Unit, Queensland Department of Health.

Regional Health Surveys 1993, *Inter-Regional Comparisons: Food Habits, Food Inadequacy and Overweight*, Epidemiology and Health Information Branch, Queensland Department of Health.

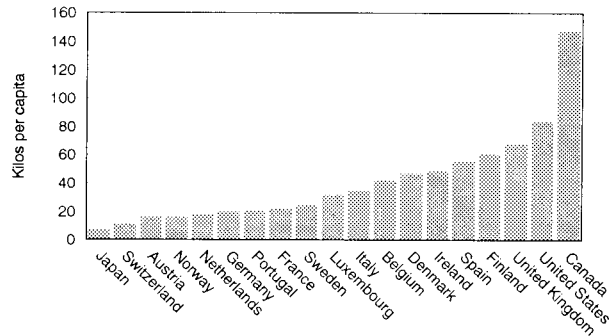
APPENDIX A

Figure A1: SOCIAL, ECONOMIC AND ENVIRONMENTAL FACTORS
Total health expenditure - value per capita 1988, 1965*



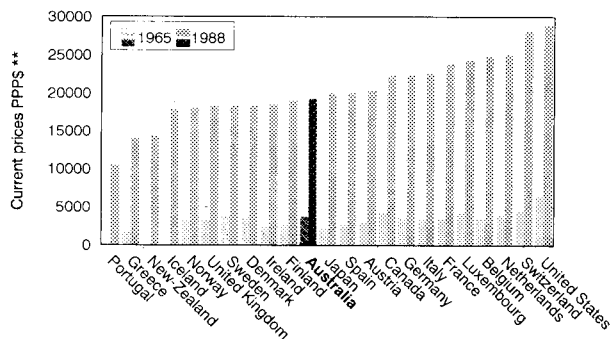
* It was not possible to obtain 1965 death for New Zealand. 1968 data has been presented.
** Purchasing Power Parity

Figure A4: SOCIAL, ECONOMIC AND ENVIRONMENTAL FACTORS
Total sulphur dioxide (SO2) emissions 1988*



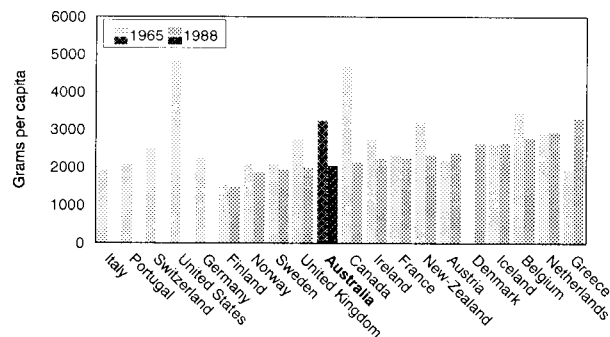
* It was not possible to obtain 1988 data for all countries. The following data were presented: Belgium (1987), Canada (1987), Japan (1986) and Spain (1985).

Figure A2: SOCIAL, ECONOMIC AND ENVIRONMENTAL FACTORS
Salaried employment - average earnings 1988, 1965*



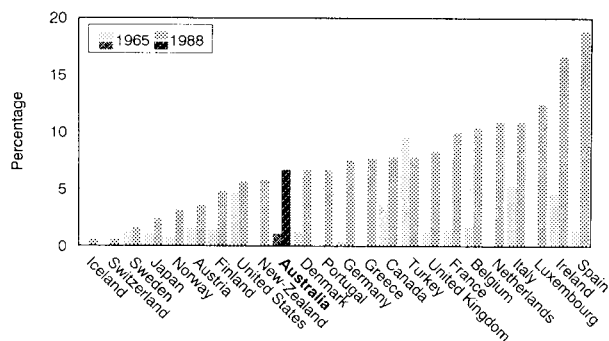
* It was not possible to obtain 1988 data for the United Kingdom. 1987 data has been presented.
** Purchasing Power Parity

Figure A5: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Tobacco consumption - grams per capita 1988*, 1965



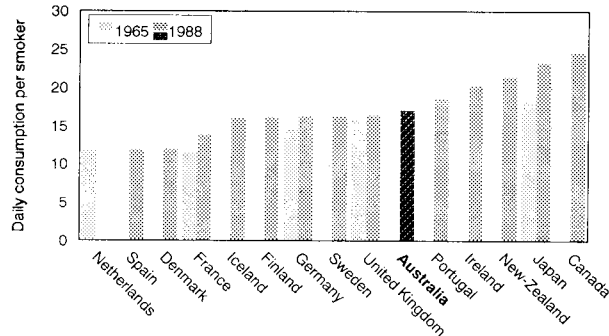
* It was not possible to obtain 1988 data for the United Kingdom. 1965 data were presented.

Figure A3: SOCIAL, ECONOMIC AND ENVIRONMENTAL FACTORS
Unemployment as a share of the labour force 1988, 1965*



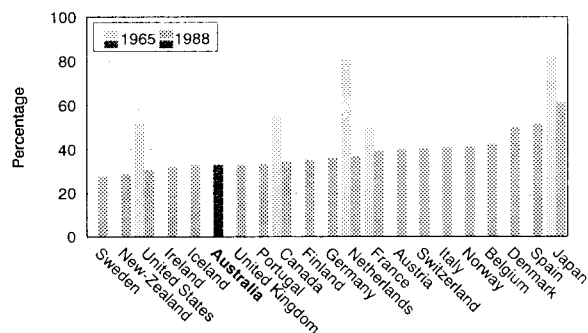
* It was not possible to obtain 1965 data for Austria. 1968 data has been presented.

Figure A6: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Tobacco consumption - daily consumption per smoker 1988*, 1965**



* It was not possible to obtain 1988 data for all countries. The following data were presented: Australia (1989), Spain (1987), Portugal (1987) and Ireland (1987).
** It was not possible to obtain 1965 data for all countries. The following data were presented: Japan (1967) and the Netherlands (1966).

Figure A7: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Tobacco consumption - percentage of male population (aged 15 years or over) who smoked 1988*, 1965**



* It was not possible to obtain 1988 data for all countries. The following data were presented: Germany (1989), Spain (1989), Ireland (1987), Portugal (1987), Switzerland (1987), Australia (1986), Austria (1986) and Italy (1986).
** It was not possible to obtain 1965 data for the Netherlands. 1966 data were presented.

Figure A10: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Animal energy intake - daily intake per capita 1988, 1965

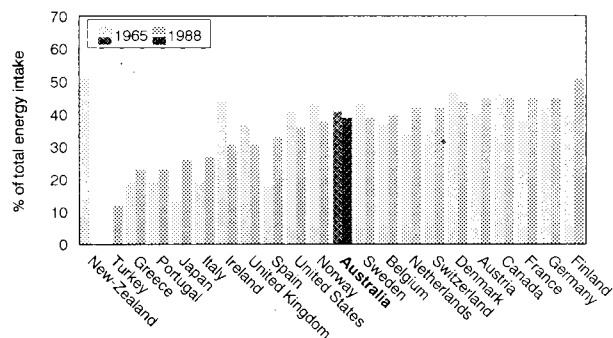


Figure A11: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Crop energy intake - daily intake per capita 1988, 1965

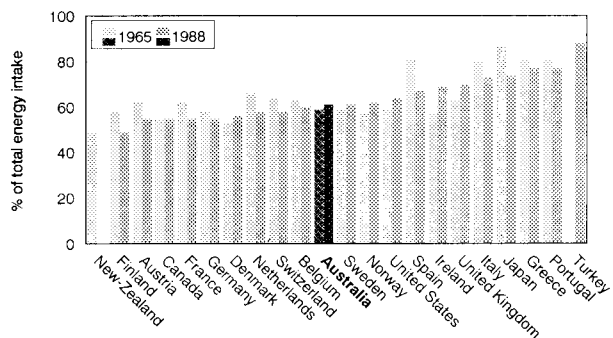
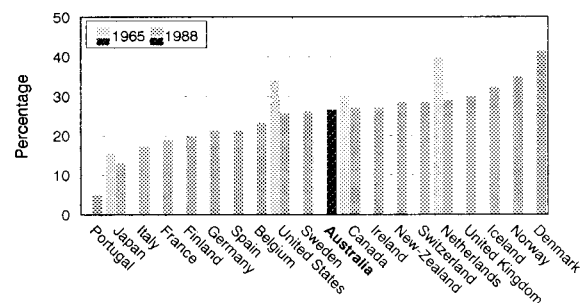
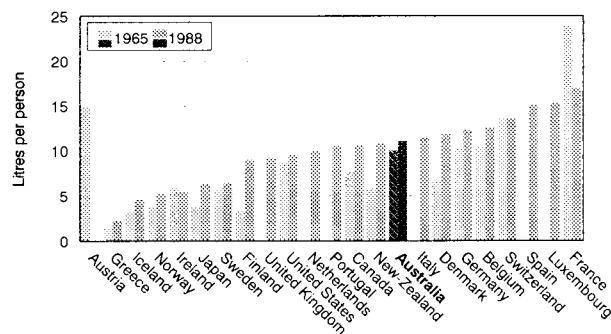


Figure A8: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Tobacco consumption - percentage of female population (aged 15 years or over) who smoked 1988*, 1965**



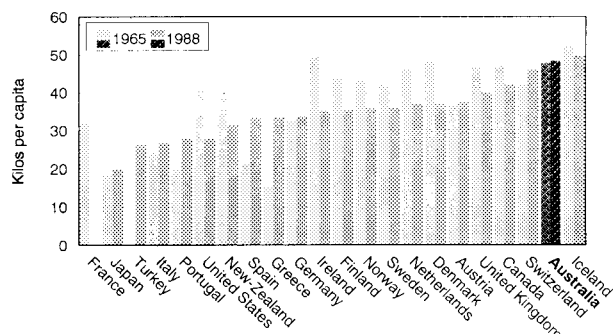
* It was not possible to obtain 1988 data for all countries. The following data were presented: Germany (1989), Spain (1989), Australia (1989), Portugal (1987), Ireland (1987), Switzerland (1987) and Italy (1986).
** It was not possible to obtain 1965 data for the Netherlands. 1966 data has been presented.

Figure A9: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Alcohol intake 1988*, 1965



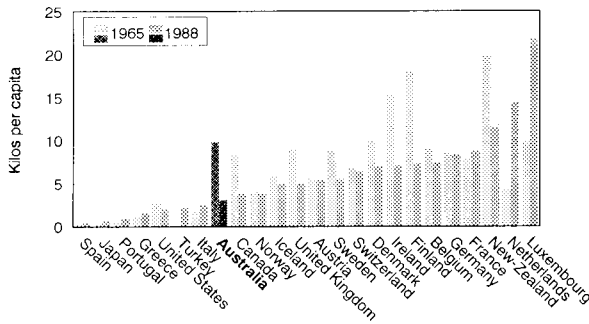
* It was not possible to obtain 1988 data for all countries. The following data were presented: Ireland (1987), Japan (1987), United States (1987), Germany (1986), Spain (1986), Luxembourg (1986) and Canada (1985).

Figure A12: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Sugar intake 1988*, 1965



* It was not possible to obtain 1988 data for all countries. The following data were presented: Ireland (1987), Netherlands (1987), Portugal (1986) and Spain (1985).

Figure A13: LIFESTYLE FACTORS AMONGST OECD COUNTRIES
Butter consumption 1988*, 1965



* it was not possible to obtain 1988 data for all countries. The following data were presented: United States (1987), New Zealand (1987) and Luxembourg (1985).

FIGURE A14: ISCHAEMIC HEART DISEASE MORTALITY RATES (1988) BY TOTAL HEALTH EXPENDITURE (1988)*

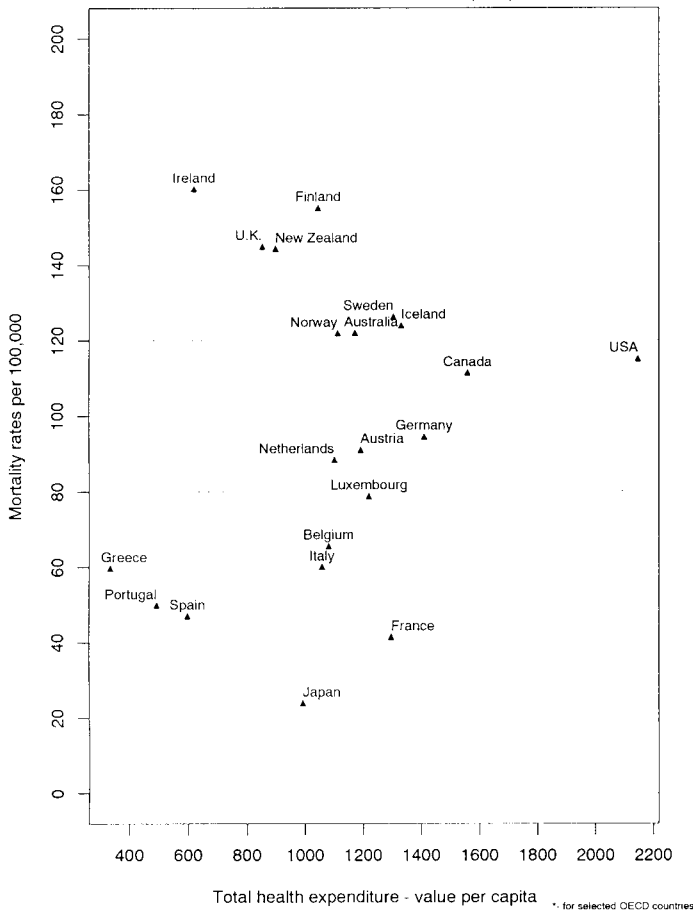


FIGURE A15: ISCHAEMIC HEART DISEASE MORTALITY RATES (1988) BY ANIMAL ENERGY INTAKE (1965)*

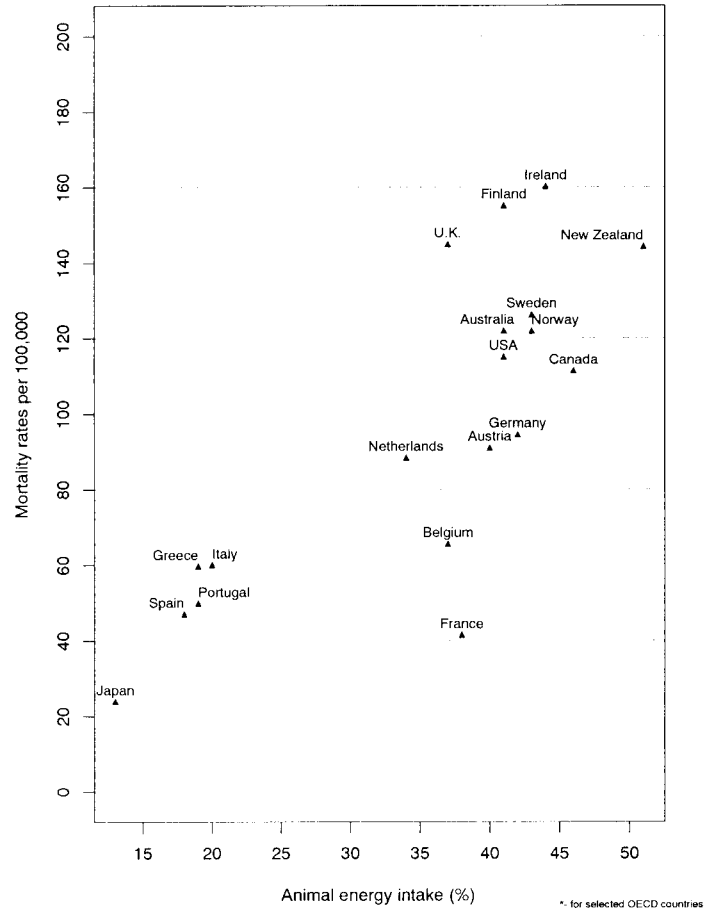


FIGURE A16: ISCHAEMIC HEART DISEASE MORTALITY RATES (1988) BY CROP ENERGY INTAKE (1965)*

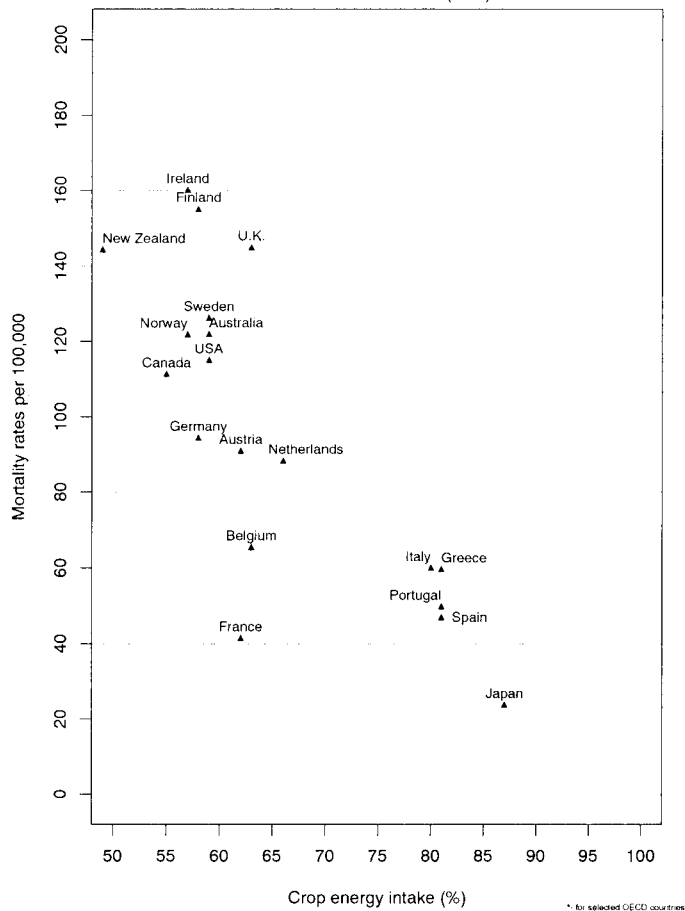


FIGURE A17: MALIGNANT NEOPLASMS OF RESPIRATORY AND INTRATHORACIC ORGANS MORTALITY RATES (1988) BY TOBACCO CONSUMPTION (1965)*

