

MATHS TREATS

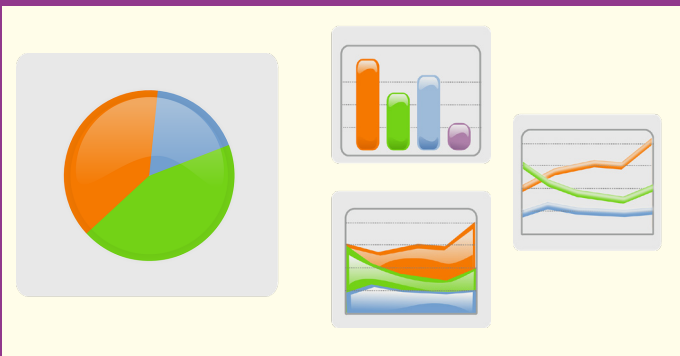
BY LUCIANA
THE POSSUM



TAXATION

The government funds its activities through tax revenue, non-tax revenue (e.g., income from government businesses) and borrowing money. Taxes are collected by different levels of government within Australia (see ATO's Tax 101, p. 8). For example, at the federal level this includes income tax, company tax, goods and services tax (GST), and the Medicare levy; at the state/territory level there are payroll tax, stamp duty, and land tax; at the local level there are property rates, rubbish disposal charges and parking fees. Different services are provided by the three levels of government in Australia (see ATO's Tax 101, p. 15). For example, the federal government funds social security and welfare, defence, and health, ageing and community services; the state/territory governments fund health, education, water and electricity, and transport, roads and communications; the local governments fund waste management and local infrastructure services (like parks and roads).

DATA REPRESENTATION



Data can be represented in different forms such as tables and graphs in order to communicate or support a message.

ACTIVITY

Using the internet, look at a government budget at federal, state/territory or local level, or collect data on government revenue, expenditure, or sources of taxation over time. Create a table or graph to illustrate the data for a particular year. Why did you choose that form of representation? Did you find any technology helpful (e.g., a spreadsheet)? What type of chart would you use to illustrate funding or expenditure over time? What can you interpret about government priorities based on this chart?

MATHEMATICAL MODELLING



Income tax is the main source of federal government revenue in Australia. The Australian individual income tax rates are considered progressive because the more you earn, the higher the tax rate. These tax rates form a particular type of piecewise or hybrid function known as a 'step function'.

ACTIVITY

Graph against different incomes: (1) income tax rates (2) tax paid (3) average tax rate (tax paid \div income). Develop formulas for each graph. How might people be affected by these tax rates? What other approaches to taxation could be used? In your opinion, which approach is simpler? Do you think that income tax is a fair way of generating revenue for government services? Note, the government is planning to reduce the number of income tax rate levels from five to four in 2024. (See <https://budget.gov.au/2019-20/content/tax.htm>.)

REFERENCES AND FURTHER READING

ABOUT TAXATION

Wikipedia: Taxation in Australia, Income tax in Australia, Progressive tax

ATO Tax, Super + You www.taxsuperandyou.gov.au/
Follow the link to the story of tax.

www.ato.gov.au/Rates/Individual-income-tax-rates

DATA SOURCES

www.abs.gov.au www.ato.gov.au www.treasury.gov.au

THE MATHEMATICS BEHIND TAXATION

Wikipedia: Piecewise, Step function

www.khanacademy.org/economics-finance-domain/core-finance/taxes-topic/taxes/v/tax-brackets-and-progressive-taxation

IMAGES

Leadbeater possum - Steve Kuitert, other images - Pixabay.