



Fig. 2. Top 1% pre-tax national income share for individual adults, Australia, 1912–2016 (data source: World Inequality Database).

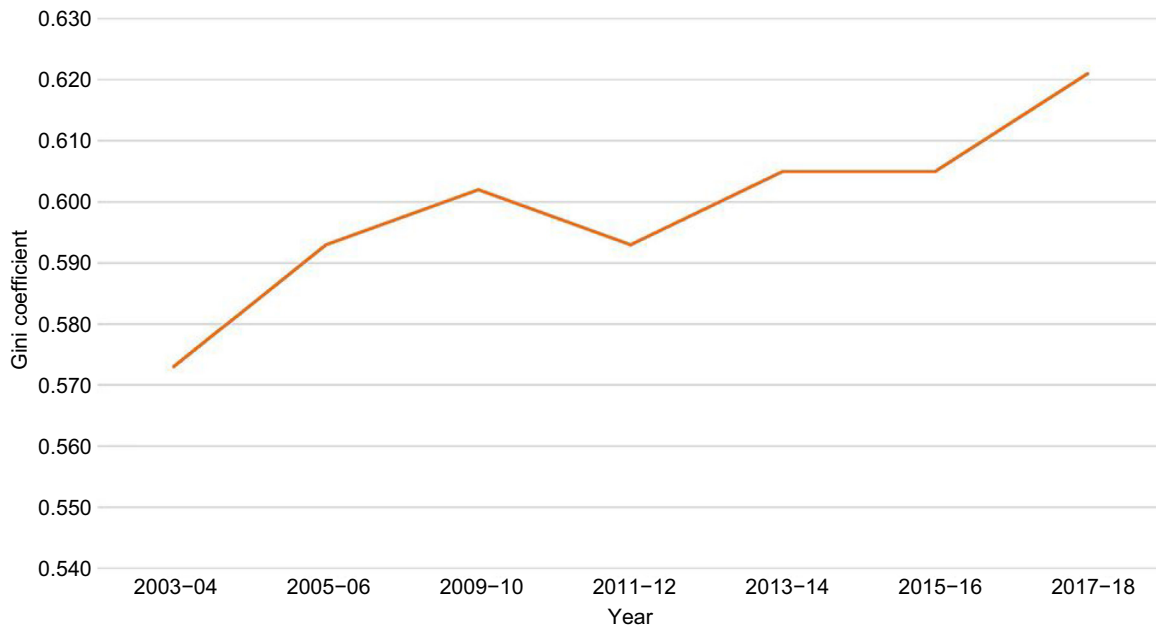


Fig. 3. Gini coefficient of household net worth, Australia, 2003–2004 to 2017–2018 (data source: Household Income and Wealth, Australia, 2017–2018, Australian Bureau of Statistics).

Low skilled jobs declined between 1996 and 2016 (Table 2). Health care and social assistance, construction, retail trade, accommodation and food services, professional, scientific and technical services, education and training, and public administration and safety saw increases in employment.

Discussion

Our analysis shows that inequalities widened between the most and least disadvantaged quintiles of area disadvantage for health, income and employment in recent decades. The analysis using all five quintiles found that the social

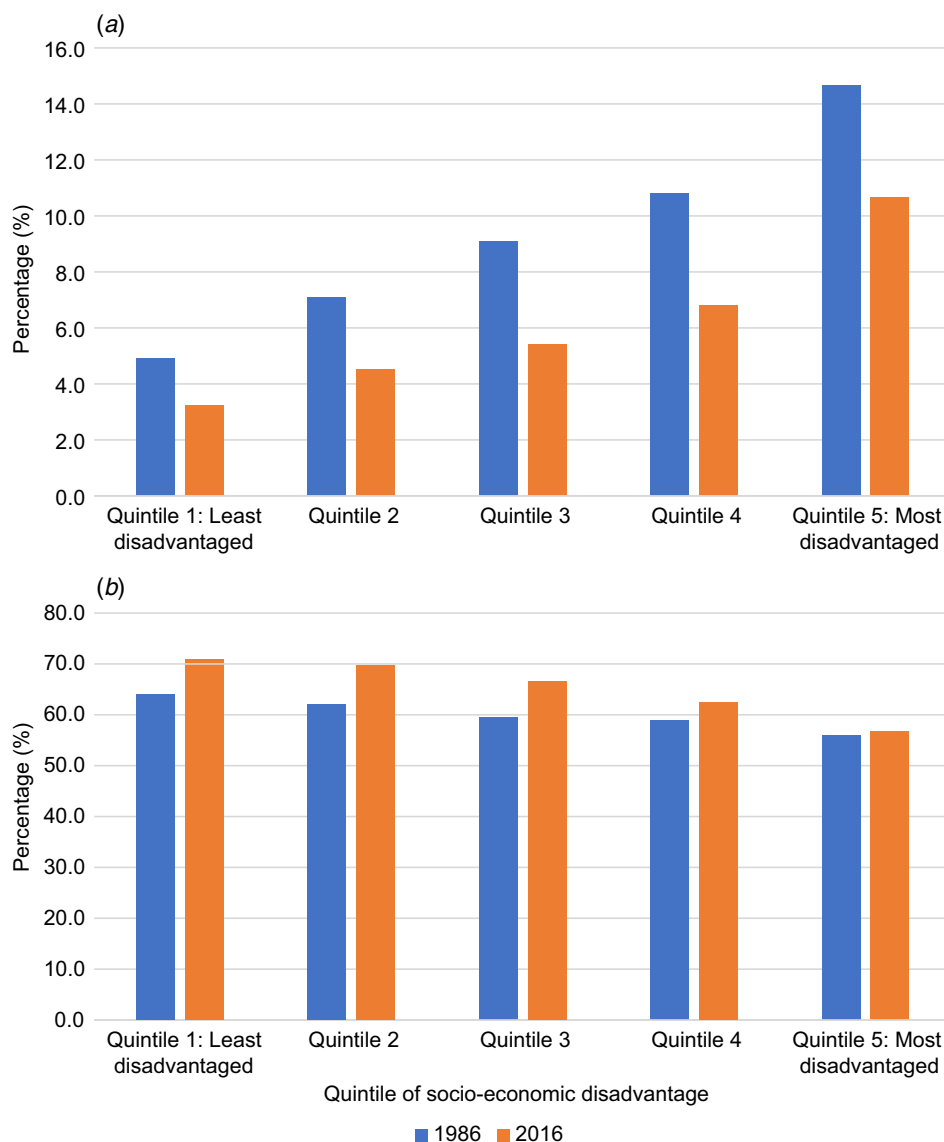


Fig. 4. (a) Unemployment by quintile of socioeconomic Disadvantage (%), 1986 and 2016, Australia. (b) Labour force participation by quintile of socioeconomic disadvantage (%), 1986 and 2016, Australia (data source: Social Health Atlas, Public Health Information Development Unit, 2020).

gradient in avoidable mortality, income, wealth and employment has steepened over this period. This steepening gradient has significance for comprehensive primary health care (CPHC), as the stresses caused an increase in related illnesses (Fisher and Baum 2010; Thoits 2010). Although we found overall improvements in health and employment, the gains were much greater for the 20% of the population living in the least disadvantaged areas.

The skill mix in the Australian labour market changed between 1996 and 2016, especially the decline of unskilled manufacturing jobs. Retail trade, accommodation and food services, health care, and social assistance showed an increase in employees, and these industries are more likely to offer casual and part-time employment. Although we

could not examine associations between the SDHs and health directly, a large body of evidence points to how unequal distribution of income, wealth and employment are linked to increasing socioeconomic health inequalities (Marmot and Wilkinson 2005; Benach et al. 2007; Wilkinson and Pickett 2007; CSDH 2008; Barnay 2016). Our findings of increasing geographical inequality in labour force participation may be partially attributed to a mismatch between skills and available jobs in more disadvantaged areas due to the changed skill mix in the Australian labour market.

Increasing inequality in employment reinforces and exacerbates socioeconomic inequality in income and wealth. Those with higher incomes have higher levels of discretionary spending, whereas those on low incomes spend a much higher

Table 2. Employment by industry, Australia, 1996 and 2016 (data source: Census).

ANZSIC I-Digit	1996	2016	% Change 1996–2016
Agriculture, forestry and fishing	324 330	266 946	–17.7
Mining	86 261	177 647	105.9
Manufacturing	922 899	683 688	–25.9
Electricity, gas, water and waste services	69 441	115 753	66.7
Construction	471 135	911 056	93.4
Wholesale trade	422 683	307 741	–27.2
Retail trade	778 005	1 053 816	35.5
Accommodation and food services	476 672	738 231	54.9
Transport, postal and warehousing	359 157	499 491	39.1
Information media and telecommunications	192 914	179 521	–6.9
Financial and insurance services	296 456	384 608	29.7
Rental, hiring and real estate services	118 554	182 151	53.6
Professional, scientific and technical services	467 170	775 978	66.1
Administrative and support services	211 736	365 731	72.7
Public administration and safety	466 527	713 135	52.9
Education and training	559 212	925 895	65.6
Health care and social assistance	716 163	1 351 015	88.6
Arts and recreation services	107 691	176 667	64.0
Other services	334 432	399 635	19.5
Total	7 636 319	10 683 848	39.9

proportion of their income on essentials (Beech *et al.* 2014). Inequalities in standard of living lead to health inequalities by affecting the quality of housing, food and health care people can afford.

Our findings provide detail on the increasing inequality in SDH, and the corresponding increase in health inequality, by examining the gap between the most and least disadvantaged. The growing gap results from lower socioeconomic groups living and working in difficult circumstances. These conditions mean they are more susceptible to poorer health outcomes through poor employment conditions, and lack of resources for social and economic participation (CSDH 2008).

CPHC professionals need to be aware of the impact of the structural inequalities on their patients and local communities, and provide comprehensive responses that take into account people's living circumstances. Primary health networks can use data on inequalities for intersectoral collaboration, and advocacy for policies likely to reduce economic inequalities.

Socioeconomic factors may be invisible to CPHC practitioners unless they are open to examining the changing socioeconomic dynamics in their patients' lives. Barriers to quality care can be reduced through policies, such as bulk

billing patients, and practitioners asking people about their life circumstances (Browne-Yung *et al.* 2019). In addition, CPHC practitioners are powerful advocates for policy action on the SDH, especially when they understand the changing dynamics.

A government committed to reducing inequalities could reduce income inequality by increasing government income support to above the poverty line. Wealth inequality could be reduced by implementing more progressive taxation. Increasing the stock and quality of public housing would reduce rental stress and food insecurity. Fairer employment contracts and better working conditions would contribute towards reducing employment inequality. Finally, monitoring of health inequalities needs to be improved. In particular, small area data would be useful to CPHC services.

This study's strength is the use of multiple data sources, which draw on population data, and enable more detailed estimates of inequality in health and SDH over three decades, allowing examination of the changes in the social gradient for multiple indicators. IRSD rankings are used in Australia as a proxy for socioeconomic status, and here provide estimates of inequality for indicators where individual data are not available and over a longer time period than for most individual data (Mather *et al.* 2014). However, area-based data have been found to underestimate the extent of health inequality between individuals (Mather *et al.* 2014), and our estimates of health inequality should therefore be treated as conservative. Inferences also cannot be made about individuals based on aggregate, area-based population data (Mather *et al.* 2014), and reciprocal relationships cannot be examined.

Conclusions

This study provides new detail on population trends in inequality in health and SDH in Australia. Australia has become a less equal society in the past three decades, not just due to differences between the most disadvantaged and least disadvantaged, but due to a steepening of the social gradient that leaves all but the least disadvantaged worse off. CPHC can play a vital role in advocating for policies that reduce inequalities in income, wealth and employment, and being aware of the constraints people face, especially during health crises, such as the current COVID-19 pandemic.

References

- ABS (2018) Technical Paper: Socio-Economic Indexes for Areas 2016. ABS.
- Adair T, Lopez A (2020) Widening inequalities in premature mortality in Australia, 2006-16. *Australian Population Studies* 4, 37–56. doi:10.37970/aps.v4i1.62
- Balabanova D, McKee M, Mills A (Eds) (2011) 'Good health at low cost' 25 years on: what makes a successful health system? (School of Hygiene and Tropical Medicine: London, UK)

- Barnay T (2016) Health, work and working conditions: a review of the European economic literature. *The European Journal of Health Economics* 17, 693–709. doi:10.1007/s10198-015-0715-8
- Baum F, Freeman T, Sanders D, Labonté R, Lawless A, Javanparast S (2016) Comprehensive primary health care under neo-liberalism in Australia. *Social Science & Medicine* 168, 43–52. doi:10.1016/j.socscimed.2016.09.005
- Beech A, Dollman R, Findlay R, Cava GL (2014) 'The distribution of household spending in Australia.' RBA Bulletin. (Reserve Bank of Australia: Sydney)
- Benach J, Muntaner C, Santana V (2007) Employment conditions and health inequalities. Final report to the WHO Commission on Social Determinants of Health.
- Brown L, Thurecht L, Nepal B (2012) 'The cost of inaction on the social determinants of health.' (NATSEM, University of Canberra: Canberra)
- Browne-Yung K, Freeman T, Battersby M, McEvoy DR, Baum F (2019) Developing a screening tool to recognise social determinants of health in Australian clinical settings. *Public Health Research & Practice* 29, e28341813. doi:10.17061/phrp28341813
- CSDH (2008) Closing the gap in a generation: health equity through action on the social determinants of health: final report of the commission on social determinants of health. World Health Organization, Geneva. Available at <https://www.who.int/publications/i/item/WHO-IER-CSDH-08.1> [Accessed March 2022]
- Fisher M, Baum F (2010) The social determinants of mental health: implications for research and health promotion. *Australian & New Zealand Journal of Psychiatry* 44, 1057–1063. doi:10.3109/00048674.2010.509311
- Joyce K, Pabayo R, Critchley JA, Bambra C (2010) Flexible working conditions and their effects on employee health and wellbeing. *Cochrane Database of Systematic Reviews* 2010, CD008009. doi:10.1002/14651858.CD008009.pub2
- Katikireddi SV, Higgins M, Smith KE, Williams G (2013) Health inequalities: the need to move beyond bad behaviours. *Journal of Epidemiology and Community Health* 67, 715–716. doi:10.1136/jech-2012-202064
- Marmot M, Wilkinson R (2005) 'Social determinants of health.' (OUP Oxford: Oxford)
- Mather T, Banks E, Joshy G, Bauman A, Phongsavan P, Korda RJ (2014) Variation in health inequalities according to measures of socioeconomic status and age. *Australian and New Zealand Journal of Public Health* 38, 436–440. doi:10.1111/1753-6405.12239
- Moreno-Betancur M, Latouche A, Menvielle G, Kunst AE, Rey G (2015) Relative index of inequality and slope index of inequality: a structured regression framework for estimation. *Epidemiology* 26, 518–527. doi:10.1097/EDE.0000000000000311
- PHIDU (2022) Social Health Atlas of Australia. Available at <https://phidu.torrens.edu.au/social-health-atlases/indicators-and-notes-on-the-data/social-health-atlases-of-australia-contents> [Accessed 26 April 2022]
- Thoits PA (2010) Stress and health: major findings and policy implications. *Journal of Health and Social Behavior* 51, S41–S53. doi:10.1177/0022146510383499
- van der Noordt M, Ijzelenberg H, Droomers M, Proper KI (2014) Health effects of employment: a systematic review of prospective studies. *Occupational and Environmental Medicine* 71, 730–736. doi:10.1136/oemed-2013-101891
- Wilkinson RG, Pickett KE (2007) The problems of relative deprivation: why some societies do better than others. *Social Science & Medicine* 65, 1965–1978. doi:10.1016/j.socscimed.2007.05.041

Data availability. Data used in this manuscript are publicly available, and can be found on the Public Health Information Development Unit website (<https://phidu.torrens.edu.au/social-health-atlases/data>) and the ABS website (<https://www.abs.gov.au/statistics>).

Conflicts of interest. The authors declare no conflicts of interest.

Declaration of funding. This work was supported by a Flinders Foundation Health Seed Grant. The funder had no involvement in preparation of data or the manuscript or the decision to submit for publication.

Acknowledgements. We thank John Glover for advice related to the use of the Social Health Atlas.

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