

Cost Offsets of Supportive Housing: Evidence for Social Work

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Abstract

Policy makers and advocates in industrialised economies have increasingly couched arguments for addressing homelessness in cost-offset paradigms. In the USA, there is a robust body of evidence demonstrating cost offsets of supportive housing, whereas rigorous evidence from the UK, Europe and Australia is limited. The present article contributes to the evidence base with results drawn from a linked administrative data-set including: police, prison, probation, parole, courts, emergency department, hospital-admitted patients, ambulance, mental health and homelessness services data. The results show that in twelve months when people were homeless, they used on average \$48,217 (£25,776) worth of government services; in the twelve months as tenants of supportive housing, the cohort used on average, including the cost of supportive housing, \$35,117 (£18,773) in government services. Although social work only infrequently draws on cost arguments to substantiate practice and intervention, the article argues that cost-offset evidence is consistent with social work's commitment to evidence base practice. Moreover, analysis of services that people use when securely housed compared to homeless adds further evidence to demonstrate that people's actions, and their status as clients, is mediated by resources and opportunities available.

Keywords: Administrative data, cost offsets, supportive housing, homelessness

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Introduction

Policy makers and advocates in industrialised economies have increasingly couched arguments for addressing homelessness in cost-effectiveness and cost-offset paradigms. In Australia, the 2008 national policy statement identifying the need for governments to achieve measurable reductions in homelessness occurred alongside governments overtly identifying the need for homelessness programmes to achieve client outcomes that could be measured financially (Zaretzky and Flatau, 2013). Augmenting or even surpassing notions of social justice, contemporary advocacy to end homelessness draws on the proposition that it is more expensive to keep an individual homeless than it is to provide formerly homeless individuals with housing and linked support. The Australian Government (2008, p. 10) refers to ending homelessness as a ‘good investment of public money’, as ending homelessness delivers ‘whole-of-government savings in avoidable health, justice and police outlays’. In the USA, likewise, the national policy to end homelessness endorsed by Congress draws heavily on cost-offset arguments: ‘failure to invest in solutions is the more costly route. Not only is homelessness destructive and demoralising for individuals and families, it is also expensive for taxpayers’ (United States Interagency Council on Homelessness, 2014, p. 5).

In the UK, current debate focuses on how localism, undermining of the social housing system and welfare changes exacerbate homelessness and hamper policy and practice responses (Fitzpatrick *et al.*, 2016). Changed institutional and resource forces contributing to the incidence of homelessness notwithstanding, local policy explicitly identifies addressing homelessness as cost-effective social policy. Citing a UK government document reporting a net annual £3.41 billion benefit from a £1.61 billion investment in the Supporting People programme, the City of London 2014–2019 homelessness strategy evokes a multidisciplinary response to people who are homeless, particularly prevention, as economically sound. The City of London (2014, p. 22) strategy says that appropriately resourced responses to people who are homeless ‘can stem escalating need which could require more costly public services’. Drawing on ideas evident in policy internationally, the City of London concludes that, in delivering lasting outcomes for people who are homeless, the policy ‘Will seek to minimise the cost burden to the City and the wider public purse’ (City of London, 2014, p. 22).

Ending homelessness, rather than just managing people who are homeless, has become a matter of fiscal governance. The argument rests on the premise that providing long-term housing and linked support—as opposed to crisis accommodation and the myriad health and criminal justice services that people who are chronically homeless disproportionately use—constitutes a whole-of-government cost offset. The EU’s

(2013, p. 5) key statement on addressing homelessness recognises that data in the EU is 'scarce', but citing international research it asserts that 'the costs, in real terms, of not addressing homelessness is very high'. The EU advances the argument that homelessness is costly because people who are homeless use a disproportionately high rate of services and that, as homeless, people make an unnecessary limited tax and social contribution (European Union, 2013).

The financial arguments about ending homelessness are strategically important. Even 'those not convinced by the moral necessity to address homelessness could support government policy to address homelessness on the basis that doing otherwise is financially irresponsible' (Parsell and Jones, 2014, p. 434).

Evidence for addressing homelessness as cost-effective is weak in Europe, the UK and Australia (Culhane, 2008; Pleace *et al.*, 2013) and the relevance of the US evidence for international transfer needs to be empirically demonstrated. Even when cost-offset arguments can be substantiated, they may sit uncomfortably with the social work profession, as many important and valued interventions do not produce cost offsets, but are nonetheless important to people's lives and morally compelling. Moreover, social work generally values human development and human rights more than economic imperatives, eschewing neo-liberal approaches to social problems. That said, economic arguments can help build support for populations who are historically devalued, like rough sleepers and people experiencing multiple exclusion homelessness (Manthorpe *et al.*, 2015). As demonstrated above, advocates have prosecuted cost-offset arguments to pursue social policy towards people excluded from housing that have a clear social justice outcome (Parsell and Jones, 2014).

These are serious issues for social workers in direct support roles and in manager positions and brings attention to the need to consider fiscal research evidence alongside social work theories and frameworks derived from empirical research driving evidence-based practice. The social work profession has the capacity to articulate the cost offsets of social programmes, in this case supportive housing, complementary to a commitment of promoting excellence in the profession (Healy, 2015). The challenge of demonstrating effectiveness of social work practice (Cree *et al.*, 2016) can in part be addressed by generating evidence about the costs inefficiencies of social problems and cost offsets that can be achieved when social problems are ameliorated (see Rizzo and Rowe, 2014). We argue that producing evidence about cost offsets of interventions is consistent with and can assist other forms of evidence and practice knowledge to drive social work evidence forward (Nevo and Slonim-Nevo, 2011).

In this article, we present research evidence to strengthen the body of knowledge about the cost offsets of addressing chronic homelessness with supportive housing. In Australia, there is no formal definition of

chronic homelessness, but it is often evoked to describe people who have experienced long-term homelessness who also experience intersecting social and health problems in addition to housing exclusion; in this way, chronic homelessness is similar to what is referred to as multiple exclusion homelessness (Manthorpe *et al.*, 2015). Drawing on Rog *et al.* (2014), supportive housing includes affordable rental housing where tenants have a lease; support and housing are closely integrated as a model but tenants assume control over the frequency and nature of support. Although governments are attracted to ending homelessness as a sound financial investment, outside of the USA, there is little rigorous evidence based on administrative data to substantiate the cost-offset arguments. The empirical research informing this article examined whether supportive housing constitutes a means for people who have exited homelessness to reduce their use of government-funded services. In turn, reduced service utilisation forms the basis of associated whole-of-government cost offsets. Examining linked administrative data from eight government departments, in this article, we address two research questions. First, do tenants of supportive housing use fewer services in the first year of their tenancy compared to the services they used in the full year immediately prior to commencing their tenancy when they were homeless? Second, what estimated whole-of-state-government cost offsets are associated with reduced service utilisation among people who move from chronic homelessness to supportive housing?

Existing research

In the USA, where cost-offset arguments shape social policy to housing exclusion and welfare targeting (United States Interagency Council on Homelessness, 2014), researchers have used administrative data to identify cost offsets of addressing homelessness with permanent supportive housing. The research demonstrates that people experiencing chronic homelessness, although not necessarily families who are homeless, use disproportionately large rates of health and criminal services (Bamberger and Dobbins, 2015; Culhane, 2008; Culhane *et al.*, 2002; Larimer *et al.*, 2009; Srebnik *et al.*, 2013; Wright *et al.*, 2016). When individuals exit chronic homelessness and access and sustain supportive housing, they use fewer government services. Culhane (2008) shows that, for people who are chronically homeless who disproportionately use health and criminal services, some and even all of the costs of providing permanent supportive housing can be offset by their reduced use of other government-funded services, especially psychiatric inpatient care and incarceration.

Indeed, supportive housing not only achieves cost offsets associated with reduced service use, but Wright *et al.* (2016) reported survey data

to show that reduced medical costs were a product of better and more appropriate engagement with primary care, whereas, when individuals were homeless, they were more reliant on expensive acute and unplanned care.

If cost offsets can be empirically substantiated, however, they are located at the broader government or societal level. The identification of cost offsets across government departments and funding silos are significant for social work advocating for resource realignment and social policy change. In systems where services are funded through direct subsidies, governments often allocate block funding to service providers irrespective of service usage. If service usage decreases among a cohort and associated cost offsets can be identified, it is often the case that funding is not recuperated and redirected elsewhere (Culhane, 2008).

Drawing on research from the USA, researchers from the UK, Europe and Australia have made some initial steps to develop local cost-offset evidence for addressing homelessness with supportive housing. Bretherton and Pleace (2015) examined nine Housing First programmes in England and estimated that supportive housing can reduce annual support costs by between £4,794 and £3,048 per person. Further, when reduced emergency medical services and criminal justice contact are included, supportive housing is estimated to achieve whole-of-government savings at a rate more than £15,000 per person annually. Bretherton and Pleace (2015) acknowledge that their findings constitute illustrative estimates, as they did not access administrative data to identify and measure the patterns and changes in service utilisation of people pre and post supportive housing access. Busch-Geertsema's (2013) analysis of Housing First likewise indicates cost offsets of supportive housing in Lisbon, Amsterdam and Budapest compared to the cost of homeless shelters. The evidence from Europe, Busch-Geertsema (2013, p. 74) stresses, is tentative because the initial findings are not based on 'robust data on previous service use'.

Zaretzky and Flatau (2013) used survey research to identify service utilisation and associated cost offsets with a homeless population over twelve months with two waves of data collection: ($n = 204$) and ($n = 61$). Although cost-effectiveness of homelessness interventions were estimated, Zaretzky and Flatau (2013) acknowledged their results were limited by participant attrition and self-reported data. Johnson *et al.* (2014) measured service usage patterns of people who had exited homelessness and accessed supportive housing with longitudinal survey data. They found significant reductions in the use of emergency departments, inpatient hospital stays, psychiatric care, homelessness services and criminal justice services as people went from homelessness to supportive housing (Johnson *et al.*, 2014).

The Johnson *et al.* (2014, p. 28) study provides important cost-benefit analysis about exiting homelessness and sustaining housing but, as with Zaretzky and Flatau (2013), they recognise that their analysis would

have been stronger if they were able to access administrative data to identify service usage. Although administrative data can be limited because of problems with recording and linking events and names, it can provide reliable and rigorous evidence about service use over a longer period of time (Clifasefi *et al.*, 2011). Administrative data overcome the threat to validity that self-report data on historic service use represent. The present study addresses this methodological gap by examining linked administrative data.

Overview of supportive housing and study site

The research was conducted with tenants of a single-site supportive housing building in Brisbane, Australia's third largest city. The Australian Bureau of Statistics (2012) enumerated 1,943 people as homeless on census night in Brisbane inner city. Of these, seventy-two individuals were identified as rough sleeping (Australian Bureau of Statistics, 2012). People sleeping rough are targeted for the supportive housing, and the model of supportive housing is closely linked to assertive street outreach (Parsell, 2011) and headline objectives to reduce the incidence of homelessness (Australian Government, 2008).

There are numerous models of supportive housing tailored for different groups (Clapham, 2015). Key criteria of supportive housing for people exiting homelessness and people with mental illness include rent that is affordable, a separation between tenancy and support provider, and support services that are voluntary, tenant-led and support that is not contingent upon the delivery of housing (Rog *et al.*, 2014). Single-site supportive housing involves the concentration of housing in the one building, with support, often including concierge and security, located on-site (Parsell *et al.*, 2015). There are debates about the normative value of scattered site supportive housing where support is person-based rather than place-based (Busch-Geertsema, 2013); recent research has indicated that on-site support can constitute an intrusion, but tenants also actively use support and monitoring to achieve safety and autonomy (Parsell, 2015). Padgett *et al.* (2011) also highlight the normative value and effectiveness of the Housing First approach to supportive housing. Consistently with the Housing First model (Padgett *et al.*, 2011; Tsemberis, 2010), the single-site supportive housing in the study site allocates housing to individuals so they can achieve immediate exits from homelessness without the need to comply with sobriety and abstinence. The support available to tenants includes a clinical nurse, concierge and security, and on-site case managers who act as direct service providers as well as brokers and refer to external services.

Research design

We accessed administrative data to measure supportive housing tenants' service usage. Service usage was measured over a two-year period across two time points: the twelve months prior to commencing their supportive housing tenancy (pre, when they were homeless) and the twelve months after they commenced their supportive housing tenancy (post, when they were tenants of supportive housing). With aggregates of service use pre tenancy and post tenancy, we empirically measured whether tenants' service utilisation reduced in the year they were supportive housing tenants compared to the year they were homeless.

To statistically test for significant differences in service usage pre and post tenancy commencement, a series of Wilcoxon's Signed Rank Tests were conducted. Non-parametric analyses were used due to the small sample size and skewed nature of the data.

We also estimated the cost of providing services accessed. Our costing estimates draw on the cost of providing the service as identified by the relevant government authority. For police services/intervention, there is no published costing information available (Keelty, 2013), and we arrived at estimates drawing on published literature (Allard *et al.*, 2013) and advice from the police service. The costing estimates of services used by participants as homeless and as supportive housing tenants provides information to demonstrate cost offsets associated with supportive housing.

Based on services identified in the literature as frequently and disproportionately used by people who are homeless (Culhane *et al.*, 2002; Johnson *et al.*, 2014; Srebnik *et al.*, 2013; Wright *et al.*, 2016), we accessed service usage histories and costing information from eight service providers. The eight providers, and the information accessed, included: (i) public emergency hospital presentations, comprising the triage category, departure status and visit type; (ii) public hospital-admitted patient records, comprising length of stay, elective status, discharge status and major diagnostic category; (iii) public mental health, comprising intervention type, treatment unit and duration in minutes; (iv) ambulance incidents, comprising number of incidents (these data were accessed from the emergency department information reporting 'mode of arrival'); (v) corrections, comprising identification of custody, probation or parole, episode commencement, completion and duration; (vi) courts, comprising number of court appearances; (vii) police, comprising occurrences as offender, offences as an offender, occurrences as a victim and number of times in police custody; and (viii) specialist homelessness services, comprising nights in homelessness accommodation and financial assistance provided. Additionally, in our analysis of cost offsets, we include the average cost to the state government of providing supportive housing.

Research participants: the tenants

We purposefully sampled individuals who had resided in the supportive housing for at least twelve months at the time we sought their consent. We excluded tenants who had resided at supportive housing for less than twelve months because our design required service usage to be accessed and measured over a twenty-four-month period that involved twelve months post tenancy commencement.

At the time we sought consent to participate, in March 2015, there were sixty-one tenants eligible for inclusion. Of the sixty-one eligible tenants, forty-one provided their informed consent to participate. The researchers went to extensive lengths to explain the nature of participation to ensure individuals could provide informed and voluntary consent. The process of recruitment and all stages of the research were in accordance with multiple human ethics approvals. The research received institutional ethical approval from the first two authors' university, as well as ethics approval from the state health department, Australian Institute of Health and Welfare, Department of Justice and Attorney-General (Courts and Corrections) and the police department.

The research team intended to invite all of the sixty-one eligible tenants to participate. Of the twenty eligible tenants who did not participate, thirteen were not able to be contacted by the research team. Seven eligible tenants who were invited to participate declined. Of the forty-one tenants who participated, thirty-five consented to have all of their service usage history (described above) accessed. Six tenants provided partial consent, whereby they did not consent to have a combination of their corrections, courts, police and mental health data accessed.

The sample equally reflected gender ($F = 22$; $M = 19$). Eight people (20 per cent) identified as Indigenous Australians. The average age was forty-three years, ranging from twenty-three to sixty-eight years (Standard Deviation 12.04). All people were homeless upon accessing the supportive housing and twenty-three (56 per cent) estimated having experienced more than one year of homelessness prior to supportive housing; five of these people (12 per cent) reported experiencing more than ten years of their lives homeless. Thirty-six people (88 per cent) reported a disability that prevented them from paid employment, whereas two (5 per cent) reported participating in part-time employment. Twenty-nine participants (71 per cent) said that it had been more than one year since they were previously employed; of these people, five (12 per cent) reported that they had not been employed for more than ten years. Four (10 per cent) reported never having participated in paid employment. The long experiences of homelessness, together with the exclusion from employment, are consistent with the allocation practices of the supportive housing provider. To allocate housing, the support

Table 1 Admitted patients

<i>N</i> = 41	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Days*	420	399	–21 (5%↓)
Cost**	\$1,064,167 £568,905	\$472,673 £252,691	–\$591,495 –£316,225

*Wilcoxon-Signed Rank Test (*Z*) –0.258; Effect size η^2 –0.028; *p*-value 0.796.

**Admitted patients costs sourced from the health department. Where direct cost to a hospital for admitted patients was missing, we used the figure for the amount funded to the hospital by the health department.

provider used a Vulnerability Index Tool (Hwang *et al.*, 1997) to identify health and social risk factors to allocate housing to people, who were not only experiencing chronic homelessness and who were assessed as requiring support to sustain a tenancy, but also people who were ranked by the practice tool as most vulnerable.

Results: service usage, usage change and approximate costs

Tables 1–8 demonstrate that the cohort used fewer services, often considerably fewer, in the first year residing in supportive housing compared to the year prior to commencing their tenancy when they were homeless. With the exception of Table 1, reduced costs are directly associated with reduced frequency of service use. On the other hand, in Table 1, the reduction in costs is disproportionate to the reduction in admitted patients' service usage. This is because we accessed precise costing information from the health department, whereby tenants used admitted patients services post tenancy commencement that were far less expensive than the health services used pre tenancy commencement.

Moving beyond Table 1, the cohort used health, criminal justice and homelessness services that cost the state government \$1,976,916 (Australian Dollars) or £1,056,757 (exchange rate 1.87 Australian Dollars = 1 Great British Pound) in the year they were homeless, whereas the cost of the services they used in the year they were supportive housing tenants was \$852,314 (£455,603) (Table 9). Their twelve-month use of services as tenants thus reduced by \$1,124,603 (£601,154) on the amount used over twelve months as homeless.

Table 2 Mental health

<i>N</i> = 41	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Episodes*	1,029	359	−669 (65%↓)
Minutes**	27,152	10,560	−16,592 (61%↓)
Cost***	\$372,498	\$129,958	−\$242,540
	£199,146	£69,470	−£129,653

*Wilcoxon-Signed Rank Test (*Z*) −2.403; Effect size η^2 −0.265; *p*-value 0.016.

**Wilcoxon-Signed Rank Test (*Z*) −2.281; Effect size η^2 −0.265; *p*-value 0.023

***Mental health costing is based on \$362 (£193) average cost per treatment day of ambulatory care in the 2012–13 financial year (Productivity Commission, 2015c, Table 12A.63).

Table 3 Emergency department

<i>N</i> = 41	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
	Presentations*	156	144
−12 (8%↓)			
Cost**	\$102,510	\$104,860	+\$2,350
	£54,796	£56,053	+£1,256

*Wilcoxon-Signed Rank Test (*Z*) −0.827; Effect size η^2 −0.265; *p*-value 0.408.

**Emergency department presentation cost derived from two sources. First, estimated costs were provided by the health department. This figure omits costs for four emergency presentations that could not be found. Second, the health department was unable to provide costing estimates for public patient emergency department presentations at one hospital. Therefore, the 2011–12 Australian mean for emergency department presentations (\$585; £312) was used (Productivity Commission, 2015c, p. 11.57).

Cost offsets

If we divide the total costs of services used by the forty-one tenants (\$1,976,916; £1,056,757) pre tenancy commencement, we see that each tenant used on average \$48,217 (£25,776) in health, criminal justice and homelessness services in a year as homeless, and the same tenants used on average \$20,788 (£11,112) in health, criminal justice and homelessness services in a year as a supportive housing tenant. We also examined the statistical differences and associated statistical effect sizes. There were no statistical differences between days in the hospital, emergency department presentations or ambulance use. There was a statistically significant reduction in mental health minutes and episodes after tenancy compared to before, with a small-medium effect sizes ($r = -0.25$ to -0.27). There was a statistically significant reduction in court appearances and occurrences as offenders, with a small effect size ($r = -0.23$ to -0.24). The largest statistical effects were in specialist homeless service use. Statistically significant less brokerage was provided after twelve

Table 4 Ambulance

<i>N</i> = 41	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Incidents*	64**	63	-1 (2%↓)
Cost***	\$41,600 £22,237	\$40,950 £21,889	-\$650 -£347

*The ambulance incidents exclude an outlying tenant whose ambulance use demonstrated an underlying process in contrast to other tenants that does not provide reliable information about changed service use among the cohort. The outlying tenant went from four ambulance incidents in the twelve months prior to supportive housing to forty-one ambulance incidents in the twelve months post tenancy commencement. The tenant had a chronic health condition that required weekly ambulance transport to the hospital.

**Wilcoxon-Signed Rank Test (Z) -0.331; Effect size η^2 -0.037; p -value 0.741.

***Ambulance incident cost of \$650 (£347) in the 2012–13 financial year derived from figures published by Queensland Government (2013).

Table 5 Corrective services

<i>N</i> = 35	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Days in custody	132	0	-132 (100%↓)
Cost per day*	\$28,908 £15,452	\$0	-\$28,908 -£15,452
Days on parole or probation	66	154	66
-88 (57%↓)			
Cost per day**	\$3,388 £1,811	\$1,452 £776	-\$1,936 -£1,034
Custody, parole and probation total cost	\$32,296 £17,263	\$1,452 £776	-\$30,844 -£16,487

*Day in custody cost of \$219 (£117) derived from 2013–14 net operating expenditure published by the Productivity Commission (2015a, pp. 8.23–4).

**Day on parole or probation cost of \$22 (£12) derived from 2013–14 net operating expenditure published by the Productivity Commission (2015a, pp. 8.23–4).

months post tenancy commencement, compared to twelve months pre tenancy, with a medium effect size ($r = -0.31$). There were also significantly fewer nights in homeless accommodation after the tenancy compared to before, which was a medium–large effect ($r = 0.42$).

With the identification of the changes in and costs of services used, we can estimate cost offsets of supportive housing. The cost to the state government of providing supportive housing, based on the funding for

Table 6 Courts

N = 37	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
	Appearances*	108	61
–47 (44%↓)			
Cost**	\$23,400	\$13,217	–\$10,183
	£12,508	£7,065	–£5,443

*Wilcoxon-Signed Rank Test (Z) –2.089; Effect size η^2 –0.240; *p*-value 0.037.
**Court costs based on the average cost of a finalisation in the magistrates’ court in 2013–14. The Productivity Commission (2015b, p. 7A.22) estimates that, in 2013–14, there were an average of 2.4 appearances in the magistrates’ court for every finalisation. The average cost of a finalisation in the magistrates’ court in the 2013–14 financial year is \$520; £278 (2015c, p. 7.55). To arrive at costing estimates, we divided the number of court appearances by 2.4.

Table 7 Police

N = 37	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Occurrences as offender*	50	24	–26 (52%↓)
Cost**	\$122,650	\$58,872	–\$63,778
	£65,562	£31,469	–£34,092
Offences as offender	57	28	–29 (51%↓)
Occurrences as victim***	24	11	–13 (54%↓)
Cost****	\$5,832	\$2,673	–\$3,159
	£3,117	£1,428	–£1,688
Nights in police custody*****	45	27	–18 (40%↓)
Cost*****	\$37,350	\$22,410	–\$14,940
	£19,965	£11,979	–£7,986
Total police cost	\$165,832	\$83,955	–\$81,877
	£88,645	£44,878	–£43,767

*Wilcoxon-Signed Rank Test (Z) –1.959; Effect size η^2 –0.228; *p*-value 0.050.
**Cost per offender \$2,453 (£1,311) derived from modelling of the cost to police department responding to an offender (Allard et al., 2013). Cost per offender also estimated by T. Allard (personal communication, 16 December 2015).
***Wilcoxon-Signed Rank Test (Z) –1.750; Effect size η^2 –0.139; *p*-value 0.080.
****Cost per victim \$243 (£130) derived from modelling of the cost to police department responding to a victim (Allard et al., 2013). Cost per victim also estimated by T. Allard (personal communication, 16 December 2015).
*****Wilcoxon-Signed Rank Test (Z) –1.500; Effect size η^2 –0.126; *p*-value 0.280.
*****Cost per night in custody \$830 (£443) is a broad estimate calculated by police department to hold a person overnight in a watchhouse.

tenancy and support, is \$14,329 (£7,661) per tenant per year. We add the annual cost to the state government of providing supportive housing of \$14,329 (£7,661) to the annual estimated cost to the state government of providing health, criminal justice and homelessness services per

Table 8 Specialist homelessness services

<i>N</i> = 41	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Short-term accommodation (nights)	1,138	1	−1,137 (99%↓)
Medium-term accommodation (nights)	558	0	−558 (100%↓)
Long-term accommodation (nights)	140	6	−134 (96%↓)
Total homeless accommodation (nights)*	1,836	7	−1,829 (98%↓)
Cost**	\$158,539	\$604	−\$157,935
	£84,746	£322	−£84,423
Brokerage provided***	\$16,074	\$4,645	−\$11,429
	£8,592	£2,482	−£6,109
Total costs	\$174,613	\$5,249	−\$169,364
	£93,339	£2,805	−£90,533

*Wilcoxon-Signed Rank Test (*Z*) −3.783; Effect size @ −0.418; *p*-value < 0.001.

**The estimated \$86 (£46) per bed per night is derived from an average of funding allocated by state government to homelessness services.

***Wilcoxon-Signed Rank Test (*Z*) −2.768; Effect size @ −0.306; *p*-value 0.006.

Table 9 Combined costs

	12 months pre tenancy commencement	12 months post tenancy commencement	Difference between pre and post
Admitted patients	\$1,064,167	\$472,673	−\$591,495
	£568,905	£252,691	−£316,225
Mental health	\$372,498	\$129,958	−\$242,540
	£199,146	£69,470	−£129,653
Emergency department	\$102,510	\$104,860	+\$2,350
	£54,796	£56,053	+\$1,256
Ambulance	\$41,600	\$40,950	−\$650
	£22,237	£21,889	−£347
Corrective services	\$32,296	\$1,452	−\$30,844
	£17,263	£776	−£16,487
Court	\$23,400	\$13,217	−\$10,183
	£12,508	£7,065	−£5,443
Police	\$165,832	\$83,955	−\$81,877
	£88,645	£44,878	−£43,767
Specialist homelessness services	\$174,613	\$5,249	−\$169,364
	£93,339	£2,805	−£90,533
Total	\$1,976,916	\$852,314	−\$1,124,603
	£1,056,757	£455,603	−£601,154

individual of \$20,788 (£11,112) to arrive at the total annual cost to the state government of providing both supportive housing and health, criminal justice and homelessness services to each individual: \$35,117 (£18,773).

Thus, in twelve months when individuals were homeless, they each used an average of \$48,217 (£25,776) in health, criminal justice and homelessness services funded by the state government. In the first twelve months residing in supportive housing, the tenants each used an average of \$35,117 (£18,773) of state government-funded services, and this amount includes not only health, criminal justice and homelessness services, but it includes the tenancy and support costs to fund supportive housing.

Compared to the costs to the state government of a person being chronically homeless for twelve months, a twelve-month supportive housing tenancy achieves a tenant reducing their use of state government services—inclusive of the cost of providing supportive housing—by \$13,100 (£7,002).

Limitations

There are five limitations to this study. These limitations result in indicative estimates for cost offsets which are not precise. First, we calculated the cost on forty-one tenants, whereas we only had complete service usage history for thirty-five tenants. By not accessing full data for six tenants, it is probable that we are missing service usage episodes. If the overall downward trend from the six missing tenants replicates the trend of the other thirty-five, excluding their data contributes to a cost-offset underestimation. Moreover, accessing supportive housing after exiting homelessness is likely to address barriers to accessing some services, such as drug and alcohol treatment. Our analysis is limited, as we were not able to access drug and alcohol treatment service usage.

Second, costing data does not always perfectly correspond with the actual cost of providing the service in each individual case when the service was accessed. For example, the costing estimates used for ambulance, courts, corrections, police and specialist homelessness services accommodation are based on the one financial year, either 2012–13 or 2013–14. The majority of tenants used the services in these financial years but, because tenants commenced their tenancies within a two-year window anywhere from July 2012 to March 2014, our analysis includes some service use (pre and post tenancy commencement) that occurred in the 2011–12 and 2014–15 financial years. There are modest differences in how much services cost from year to year, and our analysis does not factor in these differences.

Third, we identified an average cost of services used per tenant, but our service utilisation data show great diversity in service use among tenants. Some individuals used no or very few services in both the year pre and post tenancy commencement; our cohort of forty-one masks considerable within-group variation of service usage. It is for the heavy

service users that the cost offsets are most significant, whereas, for individuals who used few services pre and post tenancy commencement, the cost offsets are minimal. Moreover, because our sample of tenants is small, our non-parametric testing lacked statistical power. Importantly, the cost offsets attributed to reduced service usage among some tenants are so significant that the cost offsets are realised at the total cohort level.

Fourth, and as [Srebnik *et al.* \(2013\)](#) argued in their study of a single-site supportive housing model in the USA, our results are not generalisable outside of the study population. We recommend the findings from this innovative Australian study be used as an impetus for a larger multi-site controlled trial to establish generalisability.

Fifth, although we have rigorous objective data about tenants service utilisation histories in the twelve months before and twelve months immediately after commencing their supportive housing tenancy, the administrative data rely on the accurate and consistent recording by service providers. Incorrect dates of birth, misspelt names and the use of pseudonyms all impact upon the reliability of the administrative data underpinning the analysis ([Clifasefi *et al.*, 2011](#)). Further, accessing the data for replication is technically possible, but the two and a half years it took the research team to gain final approval meant that the long ethical and administrative processes to access data from multiple government agencies is a barrier to replication.

Discussion and conclusion

The administrative data demonstrate that costs to the state government of providing supportive housing are offset by tenants reducing service use. Social workers and service providers need to highlight fiscal advantages of supportive housing in addition to evidence about how supportive housing contributes to formerly homeless people's well-being. Indeed, reduced service utilisation, above and beyond cost offsets, signifies a changed and improved way of living. Through analysis of actual service usage rather than simulations of what services tenants would use based on population norms, social work is in a position to advocate for and assist in the provision of supportive housing.

The usefulness of cost-offset evidence for social work is also consistent with social work's focus on social systems and people interacting within an environment. All of our lives are interconnected; the problems we experience and the solutions required must work from a premise of interconnected lives. Understanding cost offsets at a whole-of-government level is significant, as supportive housing receives funding, for housing and support, from the state government housing authority. The cost offsets of supportive housing are directly linked to the function of, and

resources received by, health and criminal justice departments. Even though it is the one state government that funds housing, health and criminal justice departments, these departments have distinct and siloed budget lines. Thus the department of housing allocates funding to deliver supportive housing to achieve direct benefits to health and criminal justice departments. The cost-offset evidence highlights the need to think about social interventions and resources as having whole-of-society and inter-governmental financial benefits, even though siloed government departments are often not incentivised and structured to think about how the resources they provide financially impact other departments.

We have not moved from the cost-offset analysis to cost-benefit analysis (see [Johnson *et al.* \(2014\)](#) for a thorough cost-benefit analysis). Our data show cost offsets that are directly attributed to reduced service usage, but we have not speculated or analysed broader cost benefits that may be attributed to improved health, well-being, labour market participation and other qualitative dimensions such as family relationships, caring responsibilities and social participation. The cost offsets may be extended with future financial modelling of the cost benefits to society when people are able to exit chronic homelessness and sustain housing. Additionally, implicit in our analysis is not just cost offsets, but reduced use of government services that are associated with improved lives. The reduced criminal offences, time in police custody and incidences of victimisation clearly demonstrate positive life outcomes that have significance well beyond monetary value ([Theobald and Farrington, 2014](#)).

We stress that a downtrend and any associated cost offsets are only one potential argument for the justification to respond to people who are chronically homeless with supportive housing. Our analysis of reduced service utilisation and cost offsets is presented to augment more fundamental arguments for ensuring that chronically excluded individuals are able to access secure housing, such as through enabling greater participation in society. Although we believe that cost offsets ought not to be the primary motivator for ending chronic homelessness, the evidence about cost offsets does indeed strengthen and give additional credibility to moral arguments for supportive housing. Social work can use cost-offset data along with other empirical evidence, practice evidence and normative arguments ([Nevo and Slonim-Nevo, 2011](#)) to advocate and justify intervention and policy change. Advocacy for policy change or practice because of the cost offsets associated with meeting the needs of certain cohorts must be nuanced. The payment by results approach in the UK, which has similarly been transferred to Australia through Social Benefit Bonds, advocates for a focus on addressing problems that can be clearly demonstrated and in ways that reduce costs for tax payers. A House of Commons report acknowledges criticisms that directing funding towards social programmes and interventions on the

basis of demonstrable cost offsets and benefits may perversely lead to service providers falsifying outcomes data and avoiding cohorts that are difficult to assist achieve positive measurable outcomes (Grimwood *et al.*, 2013).

Given social work's diverse roles in criminal justice, health and homelessness systems, policy and practice, the implications of this research for social work are many. Consistently with social work's focus on the person in the environment and linked understanding of people's behaviours and agency as socially located (Parsell *et al.*, 2016), the research provides further evidence of the way that what people do—which services they access and what support they need—is mediated by the resources available. As one example, our research demonstrated that people's *reliance* on homelessness accommodation and brokerage funding was almost completely solved by the provision of supportive housing. The results show similarly stark differences in the provision of housing vis-à-vis homelessness in people's use of mental health services, or whether they are clients of criminal justice systems. In short, the provision of supportive housing demonstrably changed what services people used and how they lived their lives. They went from being homeless clients, patients, offenders and inmates, to supportive housing tenants.

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