

ESTIMATING THE ECONOMIC RETURNS TO FLEXIBLE LEARNING OPTIONS IN AUSTRALIA – A SOCIAL RETURN ON INVESTMENT ANALYSIS

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About the project

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Keywords

Flexible learning options; alternative education; youth disengagement; social return on investment; economic returns to education; propensity score matching

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EXECUTIVE SUMMARY

Disengagement in Australia

The Australian Curriculum, Assessment and Reporting Authority (ACARA) reports an aggregated Year 12 completion rate of 76% in 2016, with high school completion among males as low as 46% and 55% in the Northern Territory and Tasmania, respectively (ACARA, 2018). As in other OECD member states, educational disengagement in Australia remains disproportionately high among socioeconomically disadvantaged students and at crisis levels among Indigenous young people. Flexible learning options (FLOs) aim to prevent the educational disengagement of highly disadvantaged young people by enhancing their sense of wellbeing and belonging within the learning environment, and by providing a suite of wraparound services necessary to sustain their participation in formal education. FLOs currently serve an estimated 70,000 students in Australia, underscoring the critical role these programs play in the provision of alternative educational pathways for a large number of disenfranchised learners. Through a review of the relevant qualitative literature and extensive field work at eight flexible learning sites throughout Australia, the research team identified key factors associated with youth disengagement from traditional forms of secondary schooling, including educational experiences, interpersonal issues, health and wellbeing status, and a range of socioeconomic and demographic indicators. This study utilises a matching estimators technique to clarify the link between individuals' youth engagement status and subsequent labour market and social outcomes, controlling for key personal and environmental background characteristics. Using data from the 2003 cohort of the Longitudinal Surveys of Australian Youth (LSAY), we find that preventing the disengagement of disadvantaged young people reduces their subsequent likelihood of experiencing disengagement as young adults by more than half.

Economic benefits of re-engagement

This study estimates a range of economic benefits likely to accrue to individuals and the public sector as a result of FLO participation across one's typical working life (i.e., age 20–64). The public economic benefits attributable to the long-term engagement of FLO participants accrue to the state in the form of increased income tax and GST on marginal consumer spending, and reduced income support transfers, direct criminal justice system costs, and excess public health system expenditures. The state can also expect a net gain in economic efficiency due to a lower overall tax burden (i.e., a reduction in deadweight loss associated with taxation for the provision of public support services). Each male FLO participant who remains engaged throughout his working adulthood is expected to generate an estimated \$905,854 in net public benefits. Each long-term engaged female FLO participant will generate an estimated \$717,080 in net public benefits.

Income & taxes – We estimate that over the course of their working lives, male FLO participants will earn approximately \$1.8 million in income from paid employment, generating an additional \$292,000 in income tax and \$69,000 in GST over their disengaged male counterparts. Female FLO participants are expected to earn an average \$1.2 million from paid employment, generating \$113,000 and \$42,000 more in income tax and GST, respectively, than disengaged females of similar backgrounds.

Welfare transfers – The public sector is expected to save approximately \$474,000 and \$469,000 in individual Newstart income subsidies for young men and women, respectively, who remain engaged as adults as a result of their participation in FLOs.

Criminal offending & public health – Male FLO participants are expected to save the public sector around \$19,000 in criminal justice expenditures and \$16,000 in public health services. Lower levels of criminal offending and public health service utilisation among female FLO participants is expected to reduce public expenditures by approximately \$6,000 and \$8,000, respectively.

Productivity – Finally, by avoiding the higher marginal excess tax burden associated with public service provision for disengaged individuals, male and female participants are expected to generate approximately \$36,000 and \$79,000, respectively, in additional economic output.

The Social Return on Investment in FLOs

We find that under a broad range of economic conditions, FLOs are likely to yield a net positive return on investment. We estimate that for every dollar invested in flexible learning in Australia, society is likely to accrue between \$5.9 and \$17.6 in return. Under realistic modelling conditions, where approximately 30% of participants' long-term engagement as adults is attributed to re-engagement through flexible learning – the current participant cohort of approximately 70,000 disadvantaged young people can be expected to generate upwards of \$16.422 billion in public economic benefits over and above the cost of these programs. That supporting FLOs is fiscally sustainable – under even the most stringent economic assumptions – suggests a strong moral imperative that society continue to do so.

1. INTRODUCTION

Australia's federal, state and territory governments have explicitly committed to improving rates of upper secondary educational attainment (i.e., Year 12 completion), with an emphasis on the improved retention of young people at risk of early school leaving (CoAG, 2009). Concurrently, there has been a significant expansion in the provision of alternative education for disadvantaged young people. This study aims to articulate a range of personal and public economic benefits expected to accrue through investments in 'flexible learning options' (FLOs) – holistic re-engagement programs that emphasise inclusivity and wellbeing support for marginalised young people. We employ a well-established methodology of impact evaluation known as Social Return on Investment (SROI) analysis. In the sections that follow, we aim to quantify plausible, conservative estimates of the economic benefits associated with flexible learning in Australia, stemming from increased levels of adult engagement in the workforce and associated increases in personal income and taxes, as well as reductions in public service expenditures on public income support (welfare) payments, criminal justice system costs and public health expenditures.

This report is outlined as follows. Section 1 serves as an introduction to our study and provides a broader context for understanding the phenomenon of youth disengagement in Australia. Through a brief discussion of contemporary engagement theory, we elaborate how FLOs assist young people to overcome the myriad barriers to engagement faced within (and beyond) traditional school settings. In Section 2, we survey recent studies of the economic returns to education and to school-based re-engagement programs in particular. We also discuss the various methodological challenges of substantiating causal links between educational (re)engagement and subsequent employment outcomes in light of the confounding effects of inter-generational disadvantage experienced by many young Australians. We posit an alternative methodology to this end: matching estimators for average treatment effects. Section 3 details our implementation of propensity score matching to estimate the impact of re-engaging young people with regard to their subsequent engagement and work-life trajectories. We quantify the number of FLO program beneficiaries expected to remain engaged throughout adulthood and characterise a comparator group for use in the study's estimation of related economic costs and benefits. In Section 4, we call attention to links established in the literature between individuals' engagement status and their various social and economic outcomes. The economic benefits of re-engagement through FLOs are then estimated with regard to differential earned income, taxes, welfare transfers, criminal offending and public health expenditures. These cost estimates are disaggregated by gender and augmented to reflect the additional tax burden associated with the provision of public services for individuals experiencing long-term disengagement. In Section 5, we sum the net present values of the personal and public economic benefits attributable to FLO participation. We also estimate a weighted average program cost to which these benefits are compared. The resulting ratio represents the estimated SROI of flexible learning in Australia. To test the robustness of these findings, we conduct a sensitivity analysis, estimating a range of plausible outcome scenarios under various macro-economic and social conditions. In Section 6, we discuss methodological limitations of our research and key implications of our findings. In Section 7, we briefly summarise our results and provide concluding remarks.

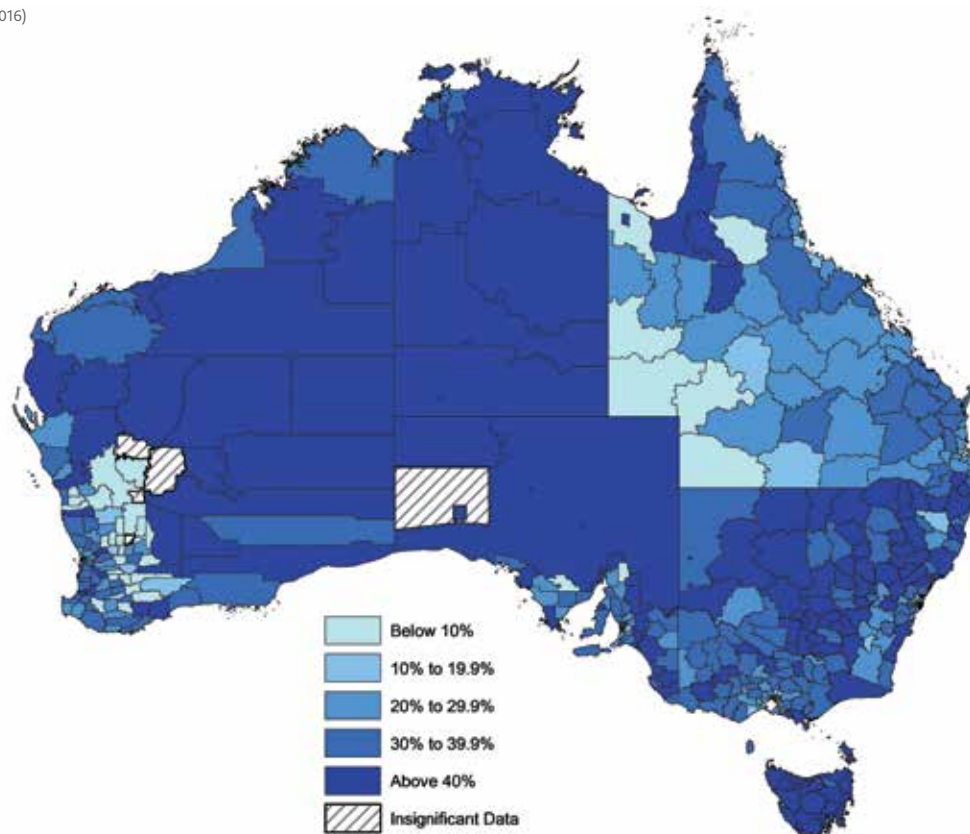
1.1. Disengagement in Australia

The Organisation for Economic Co-operation and Development (OECD) identifies persistent, high rates of secondary-level educational non-completion among member states as a serious impediment to economic growth, equality of opportunity and social cohesion (OECD, 2016). In Australia, overall completion of upper-secondary education fell well short of the Council of Australian Governments (CoAG) target of 90% by 2015 (CoAG Reform Council, 2013). The Australian Curriculum, Assessment and Reporting Authority (ACARA) reports an aggregated Year 12 completion rate of 76% in 2016, with completion among males as low as 46% and 55% in the Northern Territory and Tasmania, respectively (ACARA, 2018) (see Figure 1). As in other OECD member states, educational disengagement in Australia remains disproportionately high among socioeconomically disadvantaged students and at crisis levels among Indigenous young people. Year 12 completion falls to less than a quarter among young people of the lowest socioeconomic means in the Northern Territory and nearly half of Australia's Indigenous youths nationwide do not complete high school (ABS, 2016; ACARA, 2018). Addressing this disparity was a principal component of the CoAG Aboriginal and Torres Strait Islander Education Action Plan, which aimed to halve the educational disengagement gap among Indigenous Australians by the end of the current decade (MCEECDYA, 2010).

In line with national commitments to improve educational outcomes among Australia's disadvantaged youth (MCEETYA, 2008; Council of Australian Governments (CoAG), 2012), school systems and non-governmental organizations have collaborated with state and federal governments to provide marginalised young people alternative pathways to Year 12 completion (or equivalent qualification) known colloquially as 'FLOs' (McGinty & Brader, 2005; te Riele, 2012). FLOs may be registered independently as schools or embedded within established educational institutions or non-governmental organizations. Common to all such programs is the mission to prevent the educational disengagement of highly disadvantaged young people, with strong emphasis on enhancing marginalised young people's sense of belonging and provision of comprehensive mental and emotional wellbeing support (McGinty & Brader, 2005; Mills & McGregor, 2014; te Riele, 2014; Myconos et al., 2016). In her review of Australia's flexible learning sector, te Riele (2014) charted over 900 FLOs operating throughout Australia, serving over 70,000 students annually, though these estimates are likely to understate the current scale of this growing sector. Nearly all of the FLOs surveyed "target young people who are at risk of non-completion and early

Figure 1. Per cent early school leaving (Year 12 non-completion), age 20-24 by region

Source: ABS (2016)



school leavers” (te Riele, 2014, p. 14), underscoring the critical role FLOs play in extending the educational horizons of a large number of disenfranchised learners.

In addition to offering formal academic credentials, FLOs commonly feature applied learning activities and individualised learning plans tailored to participants’ distinct needs. Te Riele (2012, p. 4) also observes that successful programs:

have relatively high levels of staffing with high staff-student ratios. Research provides evidence this contributes to program success partly because it enables positive relationships between staff and students that are seen as essential. Many programs employ a variety of staff, not just teachers but also youth workers and counsellors.

Amid the rapid expansion of Australia’s flexible learning sector and in light of these programs’ substantial costs, flexible learning service providers acknowledge a political imperative to substantiate the economic benefits of FLOs. Although an expanding body of qualitative research suggests that FLOs improve participants’ wellbeing (for a comprehensive overview of FLO context, pedagogy and impact, see te Riele, 2014; te Riele et al., 2017; Thomas et al., 2017; McGinty et al., 2018), there is scant quantitative research estimating the long-term economic returns to flexible learning.

1.2. Understanding engagement

At the very core of this analysis is the link between youth and adult engagement and its related economic impacts. We therefore begin by clarifying what is meant by ‘engagement,’ an inherently elusive construct. In public discourse concerning policy responses to youth unemployment, ‘disengagement’ is often no more than a superficial catchphrase (McMahon & Portelli, 2004; Zepke & Leach, 2010) – a synonym for early school leaving or a lack of participation in (typically full-time) training or employment. Critical scholars, on the other hand, recognise engagement’s manifold, often overlapping dimensions (and the variability of their definitions) (Appleton et al., 2008; Fredricks et al., 2016). Reschly & Christenson (2012) characterise contemporary engagement literature as fragmented between three schools of thought: (1) dropout prevention theory and intervention, (2) general school reform perspective, and (3) motivation.

There is, however, an emerging consensus amongst educational scholars regarding the multidimensional nature of engagement. In a meta-synthesis of educational engagement literature, Appleton et al. (2008) identify that older models of engagement expressed at least behavioural (i.e., student conduct, including participation and attendance) and affective (i.e., self-conceptual, emotional and inter-personal) dimensions (Finn, 1989). Subsequent theorisation tended to include a mental (i.e., cognitive investment) dimension (Fredricks et al., 2004). Fredricks et al. (2016) have appended to these syntheses notions of social-behavioural, agentic and volitional engagement (i.e., energy as action).

Whilst flexible learning pedagogy and practice reflect a holistic understanding of youth educational engagement, their praxis may be more clearly articulated as a form of 'critical democratic' engagement (McMahon & Portelli, 2004). 'Democracy,' understood here as a way of being, constitutes an "ongoing reconstructive process" (p. 13) through which the institutionalised disenfranchisement of young people may be critically deconstructed and effectively challenged. Critical democratic engagement as practiced in FLOs represents the active, discursive development of values, skills and worldviews between student and educator. These deeply personal interactions produce individually tailored learning experiences founded on equity, respect and the value of the individual, irrespective of circumstance. The effective engagement of marginalised students is therefore incompatible with a 'one size fits all' approach (Zepke, 2014) and a young person's experience of disenfranchisement should be understood as a uniquely personal one. At the same time, "when the groups that disengage from schooling are considered, the topic reveals itself as a broad issue of social justice" (Mills & McGregor, 2016, p. 12).

1.3. Overcoming barriers to engagement

Leading scholars in the field of flexible learning in Australia have consistently reiterated the strong and persistent influence of socioeconomic disadvantage on the engagement of young people, citing well-established links between the social, economic and political marginalisation of young people and the phenomenon of disengagement (see, for example, Mills et al., 2016). Te Riele (2017, p. 10) correlates the sharp increase in demand for flexible learning in Australia to persistent "social inequality, a precarious youth labour market, and educational policy pressures" serving to alienate ever larger numbers of young people from traditional school settings. "The response of FLOs to these complex and inter-related features of disenfranchisement," te Riele concludes, "is based on notions of social justice. Drawing on the use by Mills et al. (2015) of Nancy Fraser's framework, these responses can be understood to relate to distribution, recognition and representation" (te Riele, 2017, p. 5).

Myconos et al. (2016) identify a range of intersecting and dynamic barriers to engagement experienced by disadvantaged young people, including "interrupted schooling, low literacy and numeracy, learning disabilities, anxiety and depression, substance misuse, socio-economic insecurity, physical insecurity and youth justice involvement" (p. 346). Against this backdrop, the authors explore two key mechanisms through which re-engagement in FLOs is enacted: the unconditional acceptance of young people and direct wellbeing support integrated within these educational settings. The authors stress that FLOs "ensured each young person 'counted' and was made to feel 'worthwhile'" (p. 347), a poignant divergence from participants' recollections of their experiences of 'mainstream' schools, where many young people feel actively positioned as 'different' within a schooling environment that is neither 'for' nor 'about' them (Lewthwaite et al., 2017, p. 15). The result is that, in FLOs, previously excluded young people experience revitalised connections to learning characterised by choice, agency and personal value. FLOs therefore assist disengaged young people not only through a focus on 'traditional' academic outcomes such as literacy and numeracy, but also by cultivating young peoples' agency to challenge the systemic socioeconomic marginalisation of their communities. It is precisely this notion of 'engagement' that underpins the economic valuations of this report.

2. METHODOLOGY

2.1. Estimating the economic returns to school-based interventions

To inform this study's valuation methodology, the authors undertook an exhaustive review (with selective citation) (Cooper, 1988) of studies pertaining to the estimation of economic returns to school-based educational interventions in Australia and elsewhere throughout the OECD (see Table 1 for an annotated summary of literature reviewed). The review was then expanded to include representative research on the economic returns to secondary schooling in the OECD more generally (i.e., beyond the confines of educational *intervention* programs). Studies were thematically organised according to selected costs of educational disengagement, including income effects (i.e., workforce participation, and wage and income tax differentials); unemployment costs (i.e., provision of public benefits, and forgone tax revenues); health effects (i.e., direct public health system costs, and indirect morbidity and mortality costs); criminal offending (i.e., costs of offenses and direct criminal justice system costs); and incidence of state pension. Most studies considered each of these cost-types across a range of distinct temporal segments (i.e., delineated to school, work and retirement-age cohorts). Studies were also differentiated according to their primary indicative metrics (e.g., Year 12 completion; education, employment or training status; or years of schooling).

Table 1. Annotated summary of education valuation studies

Studies estimating the economic returns to school-based interventions by region

AUTHORS		SYNOPSIS
Australia	Applied Economics (2002)	Cost/benefit analysis of providing year 12 education to 50% of the 2003-07 cohort of dropouts; includes costs for a variety of intervention and training programs and allows for existing workforce displacement by new graduates.
	Allen Consulting (2003)	Extends the Applied Economics cost/benefit analysis (2002) by estimating indirect costs and benefits of increasing the proportion of year 12 completion in Australia. Models an ongoing intervention program over time.
	Access Economics (2005)	Economic benefit of increased education and training in Australia; cohort model treats education as an endogenous part of the production function to deal with intergenerational effects. Includes educational intervention costs.
	Access Economics (2008)	Cost/benefit analysis of eliminating the year 12 education gap in Victoria and provision of youth mental health services; includes costs of education and health programs.
	DAE (2012)	Cost/benefit analysis of 'Hands-on Learning,' a small-scale program to prevent disengagement of at-risk secondary students in Australia. Includes costs of educational intervention.
UK	Godfrey et al. (2002)	Cost/benefit analysis compares costs of group of NEETs (16-18) to a hypothetical counterfactual cohort of non-NEETs in the UK; considers intervention costs.
	Coles et al. (2010)	Update to Godfrey et al (2002). Tabulates costs of NEET (16-18) in the UK. Case studies are used to elucidate various sub-typologies of NEET and their associated costs. Cost savings (benefits) of interventions also explored.
US	Levin et al. (2007)	National-level cost/benefit analysis of five leading educational interventions in the US. Accrued (life-time) benefits of improved Year 12 completion modelled as a function of each intervention program's empirical effectiveness.
	Belfield & Levin (2007)	Accrued (lifetime) fiscal and social costs of high school drop outs in California, net of the additional education costs associated with higher Year 12 completion rates.
Canada	Hankivsky (2008)	Accrued (lifetime) economic and social costs of high school disengagement in Canada. Study follows methodologies of Levin et al (2007).
Ireland	Smyth & McCoy (2009)	Heterogeneous returns to education in Ireland by socioeconomic status and other background characteristics. Explores accrued (life-time) costs of early school leaving and potential savings through intervention.
Estonia	Anspal et al. (2011)	Accrued (lifetime) economic and social costs associated with various levels of educational attainment in Estonia. Includes review of studies into local educational intervention policy.

Studies estimating the economic returns to secondary-level education (in general) by region

AUTHORS	SYNOPSIS	
Australia	Marks & Fleming (1998)	Labour force participation of early school leavers in Australia. Models wages and school disengagement against socioeconomic, demographic, school and attitudinal factors. Uses Longitudinal Survey of Australian Youth (LSAY).
	Rummery et al. (1999)	Rank-order instrumental variable used to estimate per cent wage increase from additional schooling in Australia. Uses data from the 1985 Australian Longitudinal Survey.
	King (1999)	Accrued (lifetime) costs borne by the individual and government from a single-year cohort of early school-leavers; includes a stylized adjustment for 'ability and socioeconomic status premium'
	Ryan (2003)	South Australia's Early Years of Schooling policy (mid-1980s) used as an instrument to estimate causal effect of schooling on labour market outcomes; utilises Australia's LSAY and Youth in Transition (YIT) longitudinal data sets.
	Biddle (2006)	Labour force outcomes and accrued (lifetime) expected income of Indigenous Australians by education and residence in a Community Development Employment Project (CDEP) region. Uses National Aboriginal and Torres Strait Islander Social Survey (NATSIS).
	Leigh (2008)	OLS returns to education (including VET certification) in Australia, adjusted for ability and social returns to schooling. Uses 2001-2005 waves of the Household Income and Labour Dynamics in Australia (HILDA) longitudinal survey.
	Lamb & Huo (2017)	Accrued (working-life) costs of Year 12 non-completion and long-term disengagement. Income and public expense differentials based on average earnings of high school completers and individuals in any combination of full-time work and study.
US	Rouse (2005)	Accrued earnings and income tax deficits due to high school non-completion in the US. Individuals categorized into three groups: no high school diploma, diploma only, and at-least a diploma (some post-secondary education).
	AfEE (2010)	Benefits of reducing high school dropout rates; projections for the 50 largest US municipalities. Earnings of would-be graduates based on local average earnings by education level.
EU	Mascherini et al. (2012)	Economic and social costs of NEET status across the EU. Risk factors for being NEET (all ages) are analysed (OLS, Random effects, fixed effects); NEET earnings projections estimated with interaction effects using propensity score matching.

Estimating the cost of disengagement is predicated upon an expansive corpus of econometric research substantiating the links between educational attainment and subsequent labour force status. Card (1999) observes that the bulk of contemporary econometric modelling of the economic returns to education can be traced to Mincer's (1974) pivotal regression of Becker's (1964) human capital production theory. A litany of studies has subsequently expanded upon Mincer's framework (for a thorough review of recent research, see Card, 1999; Harmon et al., 2000; Blundell et al., 2005; Rouse, 2005; Cunha & Heckman, 2007). Controlling for select background characteristics such as education of parents, intrinsic ability and socioeconomic status, researchers generally concur that there is a positive linear correlation between educational attainment and earnings (Levin et al., 2007). In light of the wide body of evidence linking higher levels of educational attainment to greater earnings, this relationship is generally treated as causal (Belfield & Levin, 2007).

Much of the research ostensibly evaluating the costs and benefits of secondary educational interventions does not actually enumerate the economic returns attributable to participation in such programs, *per se*. Rather, researchers in Australia (Applied Economics, 2002; Allen Consulting, 2003; Access Economics, 2005, 2008), the US (Rouse, 2005; Belfield & Levin, 2007; Levin et al., 2007; AfEE, 2010), Canada (Hankivsky, 2008), Ireland (Smyth & McCoy, 2009), Estonia (Anspal et al., 2011) and elsewhere in the EU (Mascherini et al., 2012), have tabulated the various costs of early school leaving. In a range of national settings, these studies model anticipated income, consumption and associated tax revenues – as well as public spending on welfare, health, crime and other social externalities – as a function of Year 12 completion. In some cases, the costs associated with improving aggregated high school graduation rates or of particular intervention programs are deducted to derive the net present value of increased Year 12 completion at a state or national level. The causal influence of high school completion on future wages is generally accepted *a priori*, informed by the long-established body of economic literature mentioned above. The impact of individuals' distinct background characteristics on their lifetime economic outcomes independent of education, however, is frequently disregarded (Brunello & De Paola, 2013).

In the UK, Godfrey et al. (2002) and Coles et al. (2010) extend the valuation exercise beyond Year 12 completion status, incorporating the concept of 'NEET' (not in employment, education or training) as a more inclusive indicator of engagement. NEET speaks to a broader set of potential outcomes pertinent to the discussion about educational re-engagement programs. Hence NEET status may be a more appropriate indicative metric for the valuation of FLOs, for whom the re-engagement of disadvantaged young people is the key objective.

In Australia, Deloitte Access Economics (DAE) (2012) estimated the long-term economic returns to 'Hands on Learning' (HOL), a school-based FLO designed to prevent the impending disengagement of severely 'at-risk' students (see te Riele, 2012 for a critical discussion of re-engagement research vernacular). DAE surveyed 70 HOL participants to determine their post-school outcomes, finding that school completion for these young people is consistently over 95%, of whom approximately 76% find immediate employment and 22% enter into post-school vocational training. HOL participants had a mere 2% rate of unemployment directly after graduation (DAE, 2012). Using national data from the Australian Bureau of Statistics (ABS), the long-term economic trajectories of participants were estimated and then compared to the average labour force and earnings outcomes of early high school leavers. While DAE empirically differentiates post-school labour market outcomes to veritable program beneficiaries, its earnings estimates are nonetheless based on average national wages (by level of educational attainment) that do not account for the prior socioeconomic marginalisation of HOL participants.

Most recently, Lamb & Huo (2017) conducted an economic analysis of the costs associated with Year-12 non-completion and long-term disengagement in Australia. The authors follow the aforementioned approach to the attribution of future costs in the domains of foregone earnings and income tax, welfare payments, crime and law enforcement, and health according to individuals' education and engagement status. The differential earnings and costs attributed to disengaged individuals are then compared against all others, i.e., all engaged individuals within (10-year) age cohorts.

2.2. The fallacy of the 'average' young person

Despite widespread application of Mincer's Human Capital Production function, the true relationship between schooling and earnings remains the subject of considerable debate. As Card (1999) suggests, many researchers find a strict causal relationship between educational attainment and wages counterintuitive, particularly in light of markedly heterogeneous outcomes observed in the real world. With regard to the impact of engagement on educational and employment outcomes, where multiple dimensions demonstrate dynamic inter-dependence (Hale et al., 2015), the impact of any single dimension of engagement and related individual outcomes is patently confounded. Nonetheless, in education valuation studies, Year 12 completion (or its equivalent) is often implied to be the principal driver of future earnings.

This oversimplification of the relationship between youth educational attainment and adult earnings highlights a problematic trade-off inherent to parametric estimation:¹ Mincer's seminal regression of log wages by years of schooling (controlling only for age and professional experience) fails to account for subsequently established correlations between earnings, schooling and myriad other background characteristics, including gender, place of residence, socioeconomic status (Marks & Fleming, 1998),² race (Heywood & Parent, 2012), Indigenous status (Biddle, 2006; Hunter & Yap, 2014), and disability (Brazenor, 2002), among others. By omitting potentially important explanatory variables, a multiple linear regression based on Mincer's specification is likely to misstate the influence of flexible learning on future engagement status and related economic outcomes.

On the other hand, if socioeconomic status and other background characteristics are highly correlated with one's educational attainment, these factors' impact on individuals' future economic outcomes will be difficult to distinguish from each other. In much of the contemporary research on the economic returns to education, this methodological trade-off has manifested in sparse model specifications and a failure to differentiate marginalised students according to relevant background characteristics. Consequently, quantitative estimations tend not to reflect disparate outcomes at the margins of the socioeconomic distribution.

As observed by Anspal et al. (2011) in their estimation of the costs of early school leaving in Estonia, the phenomenon of high school disengagement is anything but random. Indeed, educational researchers have identified a wide range of factors shown to influence the likelihood of school completion. In Australia, DEEWR (2011) highlights Indigenous status, remoteness of residence, health and disability status, and English-language proficiency as having significant influence on high school disengagement. In the UK, Coles et al. (2010) underscore additional risk factors for educational disengagement, including low socioeconomic status of parents, community decay, being in (state) care, teenage pregnancy, substance misuse, and criminal offending. Concurrently, many of these factors also influence employment status and other economic outcomes. Despite broad understanding of the limitations of parametric estimation, however, contemporary estimates of the cost

¹ 'Parametric estimation' refers to statistical methods that assume a particular form of the relationship between variables. Linear regression is a common parametric method, wherein the relationship between independent and dependent variables is assumed to be 'linear.'

² Marks & Fleming (1998) identify a "small" correlation between earnings and socioeconomic status—proxied by parent employment status. Though statistically significant, this relationship is not given substantial weight in their analysis.

of school non-completion have overwhelmingly dismissed the joint-determination of educational attainment and labour market participation. With few exceptions, income and public expenditure projections are built upon long-established, though potentially problematic, multiple regression coefficients.

Given the stark degree of socioeconomic stratification in Australia (Bray, 2012; Leigh, 2013), it is difficult to imagine the ability of a high school diploma alone to deliver a young person from transgenerational social and economic exclusion. To wit, despite a 10.4-point increase in Year 12 attainment (or equivalent) among Indigenous Australians aged 20-24 in the Northern Territory between 2006 and 2011, nearly four out of five Indigenous youths in the region remain not-fully engaged in work or study (CoAG Reform Council, 2013). The erroneous assumption – that upper-secondary education bears such palliative effect as to render one’s socioeconomic and personal circumstances immaterial – is implied within analyses that overlook the interaction between individuals’ background characteristics, educational attainment, macroeconomic realities, and long-term socioeconomic trajectories.

Estimations of economic returns to education typically provide a picture of the average effect of educational attainment on wages across the broad population, rather than expected rates of return for individuals with particular background characteristics (Anspal et al., 2011). As a result, disparate socioeconomic realities among minority groups tend to be subsumed within the broader trend. Indeed, the pathways traversed by Australia’s most disadvantaged students bear little resemblance to the country’s ‘average’ economic outcome. Yet in estimating the impact of FLOs, it is precisely these marginalised young people who are of principal concern. Hence a model is required that can provide a valid estimate of the value of intervention that accounts for the distinct circumstances of Australia’s most disenfranchised students.

In order to quantify the long-term economic returns to FLOs, it is first necessary to recognise that disaffection with learning is a product of personal circumstances that set FLO participants systematically apart from the majority of their counterparts in mainstream schooling. Such differences constrain the statistical inferences that can be drawn about the lifelong returns attributable to participation in FLOs. Moreover, generalised assertions about the average earnings of early high school leavers and graduates do little to inform the development of cogent intervention strategies. Overcoming intergenerational cycles of disadvantage and poverty mandates a clear understanding of what works for particular at-risk groups. As FLOs address a broad spectrum of challenges faced by disenfranchised young people in Australia, gauging the full value of these programs requires a critical accounting of the myriad factors that impact a young person’s life chances.

2.3. Alternative research framework: matching estimators

Through a review of the relevant qualitative literature and extensive field work at eight flexible learning sites throughout Australia, our research team has identified a range of personal characteristics associated with youth disengagement from traditional forms of secondary schooling and, by extension, enrolment in a FLO. These characteristics, audited by FLO administrators and social workers as part of the student intake process, include: educational experiences, interpersonal issues, health and wellbeing status, and various socioeconomic and demographic indicators. Table 2 provides a breakdown of the factors understood to play a role in the (dis)engagement of young people attending FLOs.

Table 2. Determinants of FLO student enrolment

DOMAIN	ISSUE	INDICATOR
Educational	Learning support	• literacy, numeracy; learning disability; English as an additional language; giftedness
	Engagement	• attendance, participation; interrupted schooling (e.g., cultural absence)
	Personal support	• school follow-up re. absences, significant life events
	Discipline	• removal from class, detention, suspensions, expulsion
Interpersonal	Peer connections	• communication, empathy, cooperation
	Belonging	• friendships, isolation (social, cultural); bullying; peer influences
	Carer responsibilities	• parenthood, other carer responsibilities (incl. for adults)
Health & wellbeing	Home Environment	• domestic cohesion, family support; abuse/neglect; mobility (i.e., frequent moving); in state/residential care
	Physical health	• sleep, diet; hygiene; disability, medical condition; exposure to violence
	Mental & emotional health	• trauma, adjustment; anger, anxiety, depression, self-harm; behavioural disability (e.g., ADHD); attention, memory
	Empowerment	• self-regard, locus of control, dispositional optimism, resilience; motivation, personal organisation, goal setting, satisfaction
	Substance misuse	• nicotine, alcohol, narcotics, volatile substances (e.g., chemical inhalants)
	Youth justice system	• trouble with police (general); engaged in crime, juvenile incarceration

Socioeconomic & demographic	Poverty	• homelessness (incl. couch surfing); prohibitive costs of transport, housing, food, schooling
	Indigeneity	• social & cultural capital; remoteness of residence, separation from kin networks, boarding (residential schooling)
	Refugee status	• social & cultural capital; facilitated transition (esp. by family); previous access to schooling

Sources: Barrett (2012); Myconos (2012, 2014); EREA (2015)

In myriad ways, FLO participants are distinct from the 'typical' Australian student. These diverse young people arrive at flexible learning amid extraordinary circumstances, challenges and uncertainty. Each of the determinants listed here may lead a student down the path of disengagement, and many young people experience a complex array of risk factors simultaneously. As such circumstances contribute to students' propensity to disengage from mainstream schooling (and enrol into a flexible learning alternative), they must be accounted for in the estimation of FLO participants' long-term engagement status and subsequent economic trajectories.

In scientific contexts, intervention impacts are often investigated through experimental analysis. In such experiments, study participants are randomly assigned to treatment and control groups. Random assignment is critical, as it allows participants' varied background characteristics to be evenly distributed across the groups to be compared. In clinical trials of a novel drug therapy, for example, mean differences that emerge during the course of the experiment can be ascribed explicitly to the therapy under investigation, as random assignment ensures potentially mitigating factors are not particular to either the treatment or control group (Gemici et al., 2012).

Yet in education studies, experimental analysis is frequently impossible or inappropriate. In the valuation of alternative education, for example, it would be unfeasible to randomly assign students to 'treatment,' i.e., participation in a flexible learning program. In reality, students at-risk of disengagement 'self-select' into intervention programs based on individual circumstances that systematically distinguish them from non-participants. In the case of FLOs, the non-random nature of student enrolment obscures the extent to which outcomes are attributable to the intervention rather than students' own background characteristics. This so-called 'selection bias' is a stumbling block for estimating the impact of flexible learning programs with non-experimental data.

Propensity score matching (PSM) for the estimation of treatment effects, however, can closely approximate a randomized controlled trial. Using observational data, subjects likely to participate in flexible learning can be paired with appropriate controls according to a comprehensive list of shared background characteristics. Based on their individual 'propensity scores' – the conditional probability of selecting into a flexible learning program given a defined set of observed characteristics (Rosenbaum & Rubin, 1983) – each participant can be compared with non-participants who are otherwise sufficiently similar. As the treatment and control cohorts share all potentially mitigating factors in common, the emergent differences between them can be ascribed to participation in FLOs.

PSM has been used to estimate causal treatment effects in a number of social fields, including education and labour economics (Gemici et al., 2012). In the United States, Dehejia & Wahba (1999) confirmed the utility of this approach by reproducing validated estimates of the impact of a national labour training program on post-intervention earnings. Elsewhere in the US, Morgan et al. (2008) used PSM to estimate the treatment effects of special education services for children with disabilities. To compare the social and economic costs associated with being NEET across European Union member states, Mascherini et al. (2012) employed a matching estimators technique. Utilizing the European Labour Force Survey, the study first distinguishes short-term, seasonal NEET status from the longer-term NEET condition associated with educational disadvantage and disaffection (on this distinction, see also Lamb & Huo, 2017); the latter are independently associated with both NEET status and detrimental social and labour market outcomes. The authors then use PSM to compare cohorts of NEET and non-NEET individuals with similar background characteristics. The matching estimators technique (partially) reconciles labour market outcomes with individuals' background characteristics, providing a clearer picture of the consequences of disengagement for young people facing particular social and economic obstacles.

Gemici et al. (2012) suggest the use of PSM analysis to estimate the impact of vocational education and training (VET) programs in Australia. They observe that Australia's ongoing Longitudinal Survey of Australian Youth (LSAY), and Household, Income and Labour Dynamics in Australia (HILDA) survey provide rich data to support such an undertaking. Despite the potential value of this approach, however, a matching estimators technique has not yet been used to estimate the costs of being NEET in Australia, nor the benefits of educational engagement for disenfranchised young Australians. In a study of flexible learning options' psychosocial outcomes, Thomas & Welters (2018) utilise PSM analysis to investigate the importance of young people's sense of belonging in school on their subsequent quality of life as young adults.

PSM analysis for investigating causal effects in observational studies is not without constraints. Foremost, matching on the propensity score can only approximate conditions of random assignment. PSM remains sensitive to issues of endogeneity (e.g., due to unobserved confounding variables), so it is imperative that the model be correctly specified. That is to say, individuals

in the treatment and control groups must be matched on all relevant factors impacting selection into the treatment under investigation (Rosenbaum & Rubin, 1983). As such, utilising PSM analysis to estimate returns to participation in flexible learning in Australia is necessarily data-intensive, requiring broadly based longitudinal data from which to draw fully articulated participant and control groups.

3. ESTIMATING THE IMPACT OF FLOS

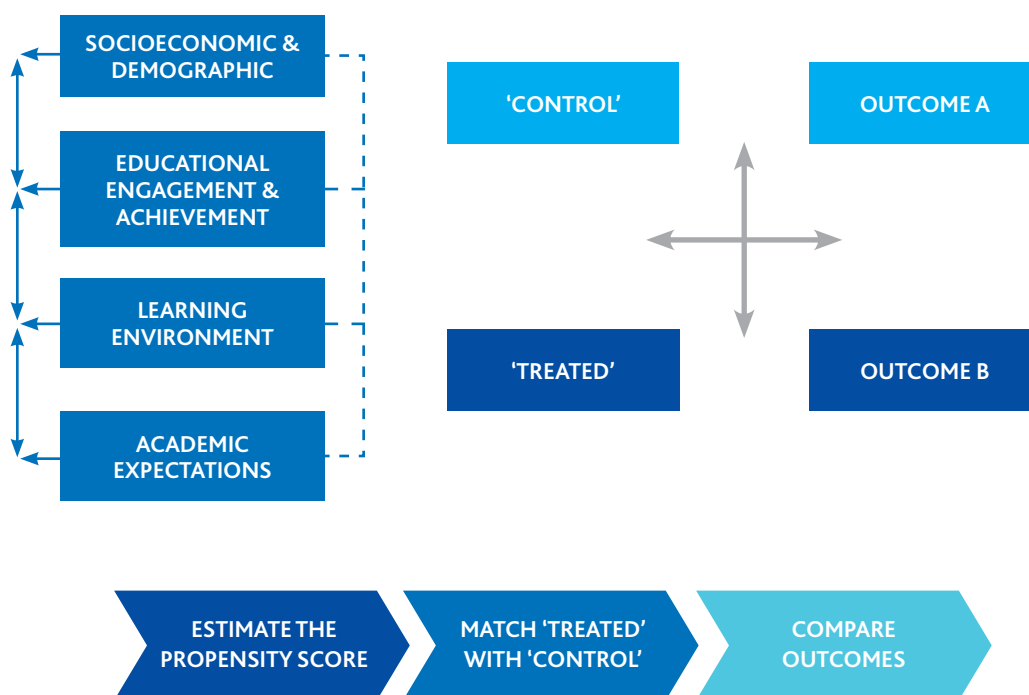
3.1. The link between youth and adult engagement status

Disengagement is not a single event. The process by which a young person becomes disaffected with and disconnected from education and work is dynamic and typically protracted. Disengagement comprises an evolving response to circumstances and barriers commonly faced by disenfranchised young people, as well as particular individual, family and institutional responses to each. The 'engagement' of highly disadvantaged individuals also takes many forms. For young people faced with poverty, mental illness, substance dependency or juvenile justice involvement, undertaking formal education, training or employment – even on an irregular or part-time basis – may rightfully be considered a significant and valuable indication of engagement. Likewise, as adults, marginalised Australians must overcome considerable personal, social and systemic barriers to equitable participation. It is therefore important to acknowledge these individuals' efforts to engage, even if they remain excluded from full-time employment, education and training. For the purpose of this study, we characterise an individual as having experienced 'disengagement' – first as a young person up until the typical school-leaving age (aged 15-17) and subsequently as a young adult (aged 23/24 – at which point the engagement status of individuals with maximum Year 10-12 education is primarily determined by their labour force status) – only if she has not been in any form of accredited learning, training (including apprenticeship) or employment for at least six months of any rolling twelve-month period. This age range coincides with targets set forth in the National Partnership on Youth Attainment and Transitions (CoAG, 2009), which committed the Commonwealth and state and territory governments to improve the engagement and transition from schooling of young people aged 15-24. By setting restrictive criteria for disengagement, we narrow our analysis to LSAY respondents with the highest level of disadvantage, who are more similar to FLO participants than the 'average' LSAY respondent. With this definition in mind, we set out to determine the impact of disadvantaged young people (aged 15-17) remaining engaged upon their subsequent likelihood of experiencing disengagement as adults (aged 23/24). For the purpose of this study, this estimated effect serves as a proxy indicating the reduced (though not eliminated) risk of experiencing long-term disengagement in adulthood attributable to participation in a FLO.

Unfortunately, FLO service providers in Australia do not yet have adequate means to track young people in FLOs beyond the period of their participation. Likewise, disparate definitions about what constitutes 'flexible learning' (for elaboration, see Riele, 2012) has precluded the standardised collection of data pertaining to this sector by state and federal authorities. While efforts are underway to improve information gathering, the complex and often 'messy' process by which young people transition from FLOs makes any such undertaking exceedingly difficult and cost-intensive. Hence, at present, we require an alternative source of data within which we may identify a cohort of young people who adequately resemble FLO participants. The Longitudinal Surveys of Australian Youth (LSAY), a series of panel studies following nationally representative samples of approximately 10,000 young Australians as they transition from lower secondary school to further education, training and employment, provides rich information concerning students' socioeconomic background, learning environment characteristics, educational attainment and subjective perceptions. Since 2003, the first wave of each new LSAY cohort has been conducted in conjunction with the Program for International Student Assessment (PISA), providing additional data on students, including their socioeconomic circumstances and learning environments. In addition to social and economic outcomes, LSAY's annual follow-up interviews also explore respondents' self-reported life satisfaction, wellbeing and overall quality of life. This study employs data from the 2003 LSAY cohort, following a group of young people from age 15/16 to age 25/26 (covering the period 2003-2014).

To estimate the impact of keeping disadvantaged young people engaged on their subsequent likelihood of experiencing disengagement as adults, the likelihood of youth disengagement is first regressed on a range of variables known to influence engagement. This result comprises the likelihood (i.e., the 'propensity') that a respondent would have experienced disengagement at age 15-17, given her particular configuration of background characteristics and institutional and environmental circumstances. Propensity scores are then used to match respondents who experienced disengagement as young people with otherwise similar respondents who remained engaged. The engagement statuses of these two groups are compared at age 23/24; the difference in the proportions of disengaged 23/24-year-olds represents the reduced theoretical likelihood of experiencing disengagement as an adult were a disengaged young person to have remained in education, training or employment at age 15-17 (see Figure 2).

Figure 2. Propensity score matching for estimation of treatment effects



LSAY variables included in the estimation of young people’s propensity to experience disengagement (age 15–17) pertain to students’ socio-demographic background, educational engagement and academic performance, learning environment characteristics and academic expectations.³ All were measured at age 15/16. We included three variables related to socio-demographic background: gender, Indigenous status, and whether the respondent attended an accredited preschool (i.e., kindergarten) program. Two variables pertain to students’ environmental characteristics: PISA’s index of social, economic and cultural status (ESCS) and place of residence. We included two variables concerning academic achievement: history of having repeated a grade level and self-assessed relative numeracy. We included two variables pertaining to students’ psychological (i.e., ‘affective’) and cognitive engagement. Five variables were included to characterise the learning environment: peer attitudes toward schooling, own attitudes toward schooling, teacher support in the classroom, student-teacher relationships and disciplinary climate. We used PISA’s index of students’ own attitudes toward schooling and an index of students’ perceptions of classroom-level individualised learning support. PISA’s index of student-teacher relations was used to provide an indication of students’ perceptions of the quality of their inter-personal relationships with teachers. PISA’s index of school disciplinary climate in mathematics lessons was included to indicate students’ perceptions of their peers’ general level of behavioural engagement in school. We included a binary variable denoting student expectation to complete lower secondary school as an indication of their anticipated academic trajectory. Finally, we included LSAY’s final sampling and first-stage attrition weight to capture potentially significant socio-demographic characteristics impacting youth and adult engagement not elsewhere covered in the survey.

Results of the first-stage probit regression (i.e., the estimation of young people’s propensity to experience disengagement given their observed background characteristics, age 15–17) are presented in Table 3. Being of lower relative socioeconomic status, residence in a large urban centre, lower self-assessment of relative aptitude in mathematics, perceived positive attitudes toward schooling among peers, and having an expectation not to complete lower secondary education were associated with a statistically significant increased risk of disengagement. Respondents who reported stronger levels of affective engagement were shown to have a statistically significant reduced likelihood of experiencing disengagement (age 15–17).

³ Included variables are understood to encompass the impacts summarised in Table 2.

Table 3. Propensity score estimates (first-stage probit regression)

DETERMINANTS	ENGAGEMENT STATUS (AGE 15-17)	EXPERIENCED DISENGAGEMENT
Socio-demographic background		
Gender (1 if female)		-0.12 (0.08)
Indigenous (1 if yes)		0.22 (0.20)
Economic, social and cultural status		-0.14 (0.05) ***
Preschool (1 if yes)		0.06 (0.18)
Place of residence		
Capital city		reference
Non-capital city (>100,000)		- 0.46 (0.14) ***
Non-capital city (> 25,000)		- 0.12 (0.12)
Rural/remote area		0.02 (0.11)
Academic achievement		
Repeated a grade level		-0.20 (0.18)
Numeracy		
Above average		reference
Average		-0.04 (0.09)
Below average		0.25 (0.12) **
Educational engagement		
Affective engagement [†]		0.20 (.10) **
Cognitive engagement [†]		0.05 (0.10)
Own attitudes towards school		-0.04 (0.04)
Learning environment		
Peer attitudes toward school [†]		-0.22 (0.10) **
Strong teacher support in classroom		-0.05 (0.04)
Student-teacher relationships		0.04 (0.05)
Positive disciplinary climate		-0.01 (0.04)
Academic trajectory		
Expect to complete lower secondary [†]		0.25 (0.08) ***
Weight		
Sampling & wave 1 attrition weight		-0.15 (0.09) *
Number of observations		2,989
Pseudo r-squared		0.0477
Log pseudolikelihood		-577.77

Note: *** p < 0.01 ** p < 0.05 * p < 0.10. Standard error in parentheses † Indicates scale item has been inverted.

Stage two of the PSM analysis estimates the average impact of having experienced disengagement as a young person (aged 15–17) on the likelihood of experiencing subsequent disengagement age 23/24. Results are summarised in Table 4. We find strong statistical support for the hypothesis that preventing disengagement at age 15–17 reduces ‘at-risk’ individuals’ subsequent likelihood of experiencing disengagement as young adults. In fact, keeping a disadvantaged young person engaged appears to reduce her risk of future disengagement by more than half. Furthermore, the phenomenon of adult disengagement in Australia is evidently common. Nearly 12% of Australians who remained engaged as teenagers will nonetheless go on to experience disengagement as young adults—i.e., more than one in 10 young adults will experience at least six months of not being in education, training or employment (age 23/24), despite having remained engaged age 15–17.

Table 4. Matching estimates—Likelihood of experiencing disengagement (age 23/24)

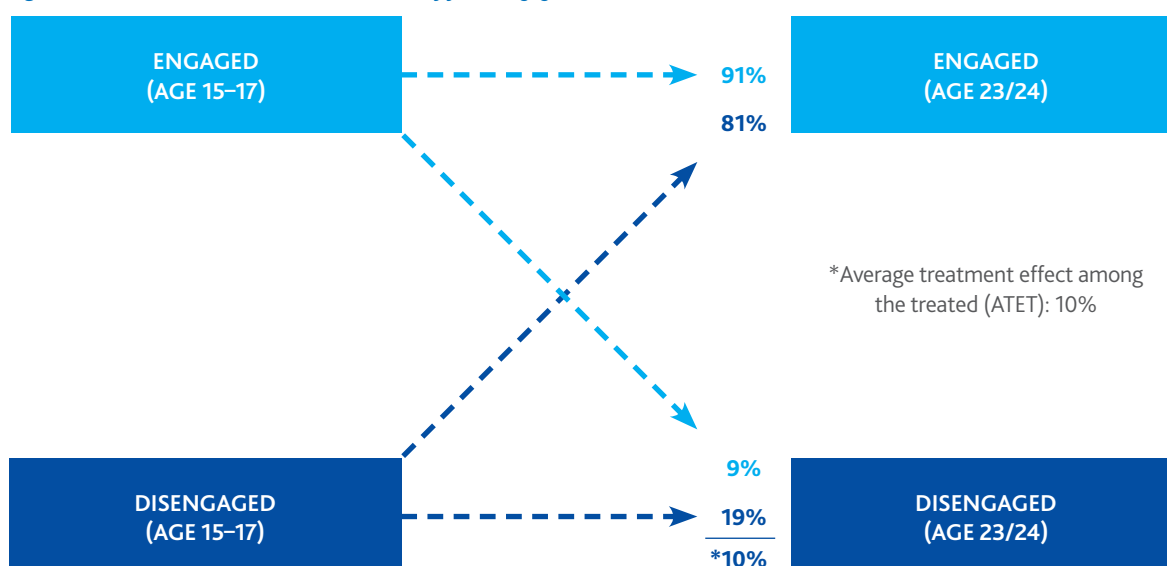
Prevalence of disengagement (age 23/24)	Disengaged, age 15-17	Engaged, age 15-17	Treatment effect (ATET) [†]
All respondents	0.19	0.12	
Matched respondents only	0.19	0.09	0.10 ***
Treatment effect [†]	Se	n-treated	n-control
	0.04	154	2,835

Note: *** p < 0.01, ** p < 0.05, * p < 0.10

† Average treatment effect of the treated (ATET); Se is standard error; n-treated is the number of young people in the sample who experienced disengagement at age 15–17; n-control is the number of young people who did not.

Matching results are illustrated in Figure 3. The findings illuminate several considerations. First, in the absence of FLOs, nearly one in five young people (19%) who experience disengagement as 15–17-year-olds will go on to experience disengagement as young adults. Among young people who are at high risk of experiencing disengagement, however, staying engaged (e.g., through flexible learning) is associated with a subsequent risk of adult disengagement of just over 9%—an adjusted level of risk below that of their counterparts in the general population (see ‘matched respondents’ in Table 4).

Figure 3. PSM estimation results—Adult outcomes by youth engagement status



3.2. Characterising a comparator group

In order to ascertain the long-term economic benefits associated with participation in flexible learning, it is first necessary to envision the pathways that disenfranchised young people would likely follow were it not for their educational re-engagement. This counter-factual trajectory, avoided through participation in a FLO, serves as a benchmark against which the average economic outcomes of otherwise comparable adults may be evaluated. The comparison of these different pathways through one’s working life requires three key assumptions:

FLO participants who experience disengagement at age 23/24 will continue to do so throughout their adult lives – For the purpose of this study, adult (dis)engagement status is held constant. The PSM results above (see Section 3.1) suggest that a small minority (around 9%) of FLO participants will experience disengagement at age 23/24 despite having remained engaged in education as young people (age 15–17). Based on their high risk-exposure, it is assumed that these individuals will remain disengaged throughout their adult lives.⁴ As we extend our definition of engagement to encompass any part or full-time participation in work, study or training over half of any 12-month rolling period, it is reasoned that an insignificant minority

4 Holding (dis)engagement status constant is consistent with other research and based on empirical observations: in 2016, approximately 15% of 20 – 24-year-old Australians with maximum Year 10-12 educational attainment were not engaged in any form of study or paid employment (ABS, 2016); Lamb & Huo (2017) estimate that approximately “one in six people will be disengaged from full-time work, study or training for most of their lives (p. 18) [emphasis added].

of FLO participants who are engaged at age 23/24 will experience subsequent (similarly defined) long-term disengagement. Insofar as we may have excluded individuals who experience disengagement at age 23/24, but for whom participation in flexible learning facilitates re-engagement later in life, our analysis may underestimate the economic value of FLOs.

The variability in individuals' long-term social and economic outcomes can generally be accounted for by variability in their engagement status as young adults. Engaged individuals tend to earn more income and demonstrate greater overall aversion to risk in the personal and social spheres (see Section 4). These empirically demonstrated correlations are fundamental to social return on investment analyses tying engagement status (or, frequently, educational attainment) to wages, risk exposure and associated cost profiles. The purported causal relationships between youth engagement and adult employment, self-regulation and health status are not covered in depth in this study. Readers interested in the statistical substantiation of these linkages are encouraged to explore further the academic resources informing this study's costings rationale (see Table 1 and Section 4).

Educational re-engagement through flexible learning does not fully compensate for the social and economic disadvantages experienced by participants. While this assumption is briefly addressed in the quantification of the counter-factual group below (see Section 3.3), it suggests an additional and significant corollary: FLO participants are not representative of the 'average' Australian student. FLO participants experience relatively (much) higher rates of disadvantage, including poverty, social and economic marginalisation, trauma, substance misuse, mental illness, dislocation, and interrupted learning. The so-called 'average' Australian thus makes for a poor counter-factual comparator. Despite remaining engaged as teens, for example, FLO participants are unlikely to join the ranks of Australia's highest earners. They are also likely to maintain higher exposure to the criminal justice system and to incur greater health-related expenditures relative to their counterparts of the same age nationwide. The public costs (savings) estimated in Section 4 must therefore be adjusted to reflect a realistic approximation of anticipated earnings and reduced – though not eliminated – exposure to social risk among FLO participants. Where cost projections are based on unadjusted mean expenditures incurred by the comparator group, they represent highly conservative estimates; the true savings associated with the averted long-term disengagement of flexible learning participants are therefore likely to be much greater than reported here.

With these caveats in mind, we have constructed a comparator whose long-term economic outcomes plausibly approximate those of FLO participants. Using data from the 2016 Australian Census of Population and Housing (Census) (ABS, 2016), we identify a comparable base cohort according to highest level of educational attainment. FLOs, as defined for the purposes of this study, comprise an accredited program offering at least Year 9 (or equivalent) schooling progression. Depending on the particular (sub)group and program type, however, many participants do not exit a flexible learning program with a Year 12 completion (or equivalent) credential. We therefore choose individuals who report at least some upper-secondary education as their highest level of educational attainment as the most appropriate (and more conservative) comparator. This includes respondents with at least Year 10 participation, up to and including Year 12 completion. Wages and estimated public income subsidies and taxes are based on adjusted empirical observations obtained from the Census. Estimates of excess criminal justice expenditures and public health costs, on the other hand, are based on adult (dis)engagement status (see Lamb & Huo, 2017). Estimation of health and criminal justice expenditures are therefore inherently conservative, as FLO participants generally maintain higher exposure to risk and increased associated costs throughout their working-age lives relative to the broader cohort of all engaged adults. Projected benefits are presented in 2016 equivalent values (AUD) using a discount rate of 3.5%, comprising "the gap between the long term CPI and Beneficiary Living Cost Index [...] and the discount rate of 6.0 per cent per annum [...] representing a longer term average of the 10 year government bond yield" (Lamb & Huo, 2017, p. 26).

3.3. Quantifying the counter-factual group

The value of economic benefits attributable to FLOs is a function of the proportion of program beneficiaries who avoid long-term disengagement as a result of participation. While many young people experience profound healing, intellectual growth, maturation and empowerment in FLOs, these programs cannot guarantee the subsequent engagement of all participants. As detailed in Section 3.1, we estimate that approximately 9.1% of disenfranchised learners currently being served by FLOs will nonetheless remain disengaged throughout adulthood.

While 90% of the flexible learning cohort are expected to remain engaged throughout their working lives, identifying the proportion whose long-term engagement can reasonably be attributed to FLO participation is not necessarily straightforward. The results of our PSM analysis indicate an average treatment effect among the treated (ATET) of 10%. That is to say, approximately one-tenth of the long-term engagement observed among adult survey respondents in our matched sample can be viewed as an outcome of having remained engaged as young people. The ATET can be thought of as a conservative baseline—or minimum likely effect—whose economic value can be estimated and upon which additional values can be credibly scaffolded.

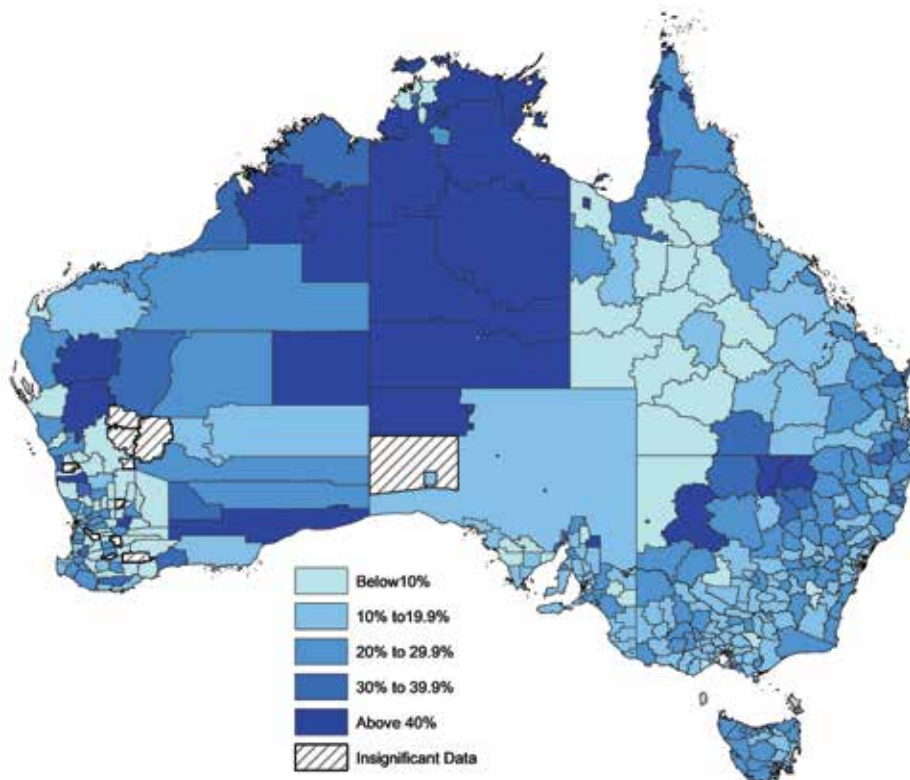
In the following sections, we tabulate the personal and social benefits of youth engagement (i.e., the private and public costs of disengagement avoided through provision of FLOs) that are likely to accrue to the current cohort of 70,000 beneficiaries. In Section 4, these benefits are estimated at the level of the individual (i.e., the personal and public benefits attributable to the long-term engagement of a single program participant). In Section 5, we sum the estimated public benefits over a number of plausible impact scenarios, starting at the 10% baseline effect (i.e., the empirical ATET) laid out above. We then build upon this minimum value with additional (unmeasured) effect estimates to provide a realistic basis for program valuation.

4. THE ECONOMIC BENEFITS OF RE-ENGAGEMENT

An estimated 580,000 young Australians aged 20-24 are not in employment, education or training (NEET) (see Figure 4), bearing considerable costs both for these individuals, as well as the Australian public more broadly (OECD, 2016). In this section, we discuss a range of economic consequences of disengagement and estimate the personal and public economic benefits attributable to re-engagement through flexible learning in Australia.

Figure 4. *Per cent not engaged in education or employment (age 20-24)*

Source: ABS (2016)

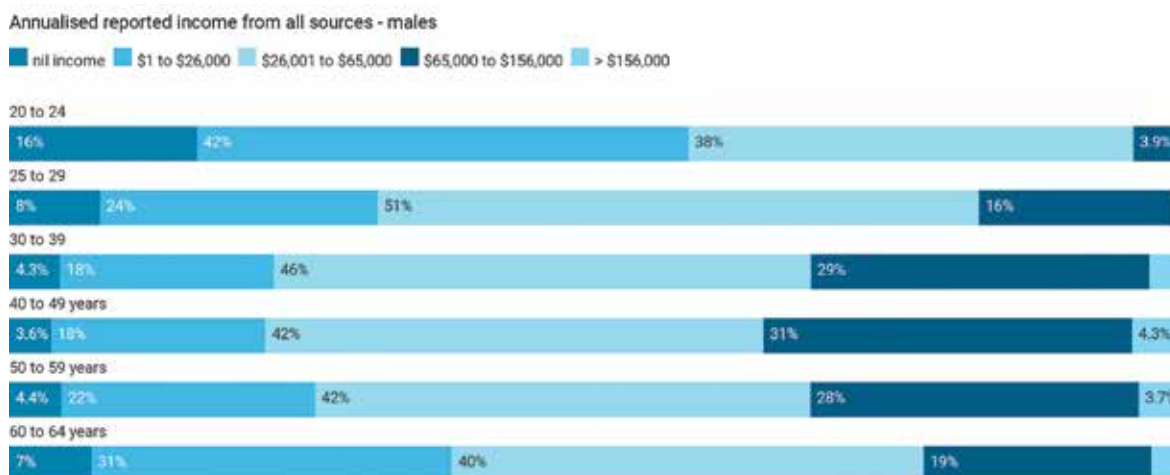


4.1. Earned wages, income subsidies, income tax & GST

This study estimates a range of economic benefits likely to accrue to individuals and the public sector as a result of FLO participation across one's typical working life (i.e., age 20-64). The most significant aspect of these benefits accrues in the form of earned income (personal benefit) and associated income tax (public benefit). There is a large body of research evidence linking youth background, socioeconomic circumstances and learning environment characteristics to post-schooling transitional pathways and subsequent workforce outcomes (see Table 1). For a nuanced longitudinal study of youth transitional pathways using optimal matching and cluster analysis, see also (Dorsett & Lucchino, 2014).

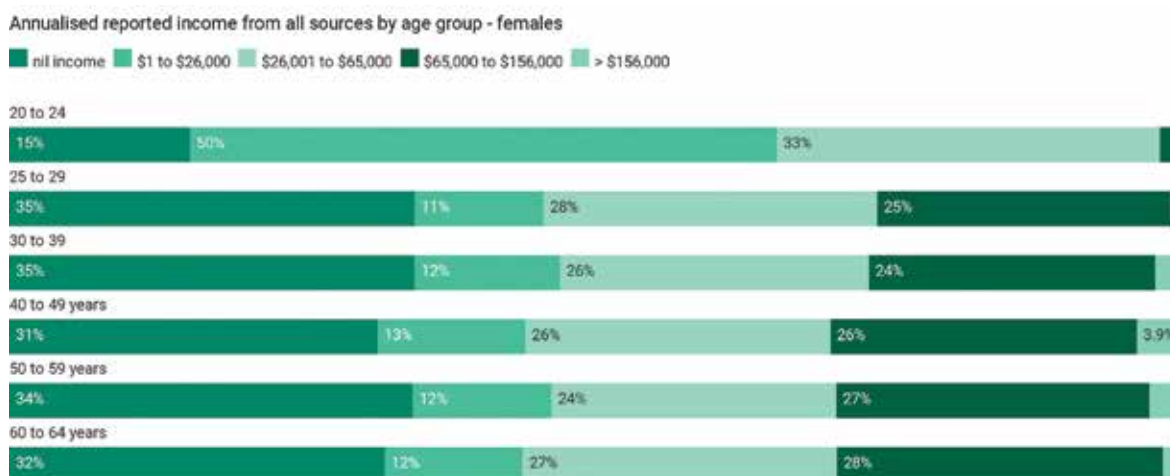
We estimate the income of (long-term engaged) FLO participants (aged 20-64) using self-reported income from the 2016 Census. Utilising the ABS TableBuilder, we consolidate respondents' reported weekly income by age, gender and highest educational attainment. The annualised estimated income of males and females with Year 10-12 maximum schooling (including Year 12 completion or equivalent) is summarised in Figure 5 and Figure 6, respectively.

Figure 5. Annualised reported income of Australian males with Year 10–12 maximum schooling by age



Source: ABS (2016)

Figure 6. Annualised reported income of Australian females with Year 10-12 maximum schooling by age



Source: ABS (2016)

In their recent estimation of the costs of school non-completion and disengagement in Australia, Lamb & Huo (2017) compare the average earned income of individuals who did not complete Year 12 against all Year 12 completers, as well as the average earned income of long-term disengaged individuals against all others. In both cases, the comparator group ostensibly includes individuals with more than Year 12 education—including those with professional and tertiary-level credentials—whose salaries are markedly higher than individuals with maximum Year 12 attainment (or equivalent). Australia's national income distribution (as is the case universally) is strongly right-skewed, meaning there exists a minority of earners with higher annual income than most (i.e., the so-called '1%'). Inclusion of these earners in a comparison of average economic outcomes would increase the apparent mean earned income of Year 12 completers and engaged individuals and, relative to early school leavers, the earnings premiums ascribed to these statuses. FLO participants, however, typically face significantly higher rates of social and economic disadvantage, including, *inter alia*, mental illness, social marginalisation and a legacy of intergenerational poverty. Statistically speaking, FLO participants are therefore highly unlikely to join the ranks of the nation's highest earners.

For the purpose of this study, then, Census respondents who report weekly earnings in excess of \$3,000 (i.e., more than \$156,000 per annum) have been excluded from the comparator group.

Lamb & Huo exclude from their comparative analysis individuals who earn nothing, regardless of the frequency with which this occurs. As can be seen in Figure 5 and Figure 6, however, significant proportions of males and especially females with a maximum Year 10-12 education report no weekly earnings from any source. As this is a common outcome among younger males, and females of this educational cohort of all ages, we include individuals who report zero income in our comparator group. Including these respondents helps to mitigate the tendency of Australia's right-skewed income distribution from overstating the mean anticipated earnings of FLO participants, and allows for realistic depiction of common economic trajectories irrespective of labour force status. This is particularly important with regard to the inclusion of females, for whom the relationship between youth engagement and adult economic outcomes is confounded by lower overall participation in the (paid) labour force. The current study does, however, exclude Census respondents who did not state their income, as well as respondents who reported negative income (e.g., from a net accumulation of debt). The sum of individuals excluded from the comparator group (i.e., the unadjusted distribution's highest earners, negative earners and respondents with unstated income) comprised approximately 5.1% and 3.4% of all male and female respondents, respectively, aged 20-64.

4.1.1. Earned income

Based on reported weekly earnings from all sources (ABS, 2016)—including wages and all public income subsidies—we estimate the earned income component (i.e., wages) of males and females aged 20-64 with upper-secondary (i.e., Year 10-12) maximum educational attainment. As the Census reports earnings ranges by five-year age groups, we ascribe the mid-point of each earnings range to all members of the within-age cohort (adjusted for inflation). To isolate earned income, we use data from the ABS Household Income and Wealth 2015-16 survey (ABS, 2017) to estimate the average proportion of household income attributable to aggregated cash-equivalent social benefits, including aged pension, disability and carer payments, family support payments, unemployment and study payments, and other unspecified forms of public income support. Among households who receive between 1% and 20% of total income in the form of public assistance benefits (excluding households with nil or negative income), public assistance benefits comprised around 7.9% of gross weekly income. This proportion is deducted from the reported total weekly income of the comparator group, providing an estimate of earned income (i.e., income excluding government transfers) of engaged individuals with at least partial upper-secondary educational attainment.⁵ Earned income estimates are then projected forward from 2016 to reflect 3.1% expected wage inflation.⁶ Annualised earned income estimates are then summed and presented in 2016 values. Among those who remain engaged as adults, the net present value (NPV) of an individual FLO participant's gross earned income was estimated at approximately \$1.8 million for males and \$1.2 million for females (2016).

4.1.2. Public income support—Newstart

Australians of at least 22 years of age are eligible for the public, income-tested 'Newstart' unemployment subsidy. Based on anticipated earned income, the average male FLO participant who remains engaged as an adult will not be eligible for the Newstart subsidy at any point over the time horizon of the analysis (i.e., by age 22, the earned income of the typical male representative of the comparator group exceeds the maximum threshold for Newstart income support). On average, female members of our comparator group will remain eligible for partial Newstart income support until age 25. After deductions for anticipated earned income, female FLO participants who remain engaged as adults will collect an average of \$5,100 in Newstart subsidies (2016 NPV).

4.1.3. Income tax

The income taxes paid by wage earners comprise a substantial public benefit directly tied to individuals' engagement status. Taking into consideration the inflation-adjusted self-reported earned income (i.e., wages) of engaged individuals, we estimate that male and female FLO participants will contribute approximately \$292,000 and \$113,000 in income taxes, respectively (2016 NPV).⁷ Should participants' wages increase at a higher rate than the 20-year national average wage inflation rate (3.1%), upper tax bracket thresholds would be crossed sooner for both males and females, resulting in greater overall expected income tax contributions. Similarly, unanticipated fluctuations in real-term consumer prices (CPI) could alter the tax-exemption earnings thresholds, resulting in higher or lower contributions. These possibilities are addressed further in Section 5.4, Sensitivity Analysis.

4.1.4. Goods and Services Tax

In Australia, consumers pay a 10% Goods and Services Tax (GST) on a range of durable and non-durable consumer transactions. Engaged individuals' higher consumer spending and commensurate GST comprises an additional public

⁵ The reconciliation of gross and earned income assumes uniform within-household eligibility for public income support, as well as static proportions of public allowances to total household income over the forecast period.

⁶ Expected rate reflects Australia's 20-year average wage inflation (public and private sectors, all industries) (ABS, 2018b).

⁷ Estimates are based on average within-tier unadjusted average tax rates and exclude the Medicare and temporary budget repair levies. Estimates assume that Australia's income tax structure—including inflation-adjusted current minimum earnings thresholds of \$18,200, \$37,000 and \$87,000, marginal tax rates and inflation-adjusted average within-tier base contributions—will remain constant throughout the time horizon of the study.

benefit of engagement realised through participation in FLOs. To estimate the proportion of additional income that engaged individuals are likely to spend on goods and services subject to GST, we considered engaged individuals' marginal propensity to spend on strictly non-durable goods (i.e., excluding durable products like automobiles). In a discussion paper for the Economic Research Department of the Reserve Bank of Australia, Berger-Thomson et al. (2009) use fixed effects modelling and propensity score matching to estimate Australian consumers' marginal propensity to spend permanent additional income in the form of tax cuts (as well as one-off lump-sum transfers). Their review of the literature noted that liquidity-constrained households (i.e., those with low-income and/or low wealth) tend to spend a greater proportion of permanently increased income on non-durable consumables. The authors estimate that in Australia, households typically spent between 68% and 78% of increased income on strictly non-durable goods and services (i.e., groceries, alcohol, tobacco products, transport (including public transport, taxis and motor vehicle fuel), telecommunications, holiday expenditures, health care services (including private health insurance), and utilities). We use the lower of these estimates as a conservative indication of FLO participants' marginal propensity to spend realised income (net of taxes) attributable to their engagement status. Over the course of their working lives, engaged males and females of the FLO comparator group are expected to contribute over \$69,000 and \$42,000 more in GST, respectively, than their disengaged counterparts (2016 NPV). These estimates assume a static GST rate over the timeline of the analysis; proposed increases to the GST rate could potentially increase the value of these anticipated contributions.

4.1.5. Criminal Justice System Costs

There is a rich body of research literature establishing the links between disengagement and criminal offending. Correlative studies, however, are subject to misinterpretation due, *inter alia*, to the multiple and overlapping risk factors associated with criminal offending (Winefield et al., 1993), including educational disenfranchisement, economic marginalisation, domestic insecurity, social exclusion, lack of positive peer connections and illicit substance misuse (Fergusson et al., 1997). Nonetheless, in their study of young people in New Zealand, Fergusson et al. (1997) found a clear connection between youth inactivity and unemployment and increased criminal offending. The authors found that young people experiencing extended periods of inactivity (i.e., not in education or employment in excess of six months) were three to 10 times more likely to face arraignment and conviction for crimes against property and person. Importantly, these associations were shown to be closely related to individuals' personal and social circumstances, including family background, peer group and learning environments. The authors surmised that observed associations between crime and disengagement reflect endogenous factors linking youth disadvantage both to adult labour force outcomes and the likelihood of criminal offending, as well as the direct effects of unemployment on the opportunity cost of criminal offending. Importantly, Fergusson et al. (1997) recognised that

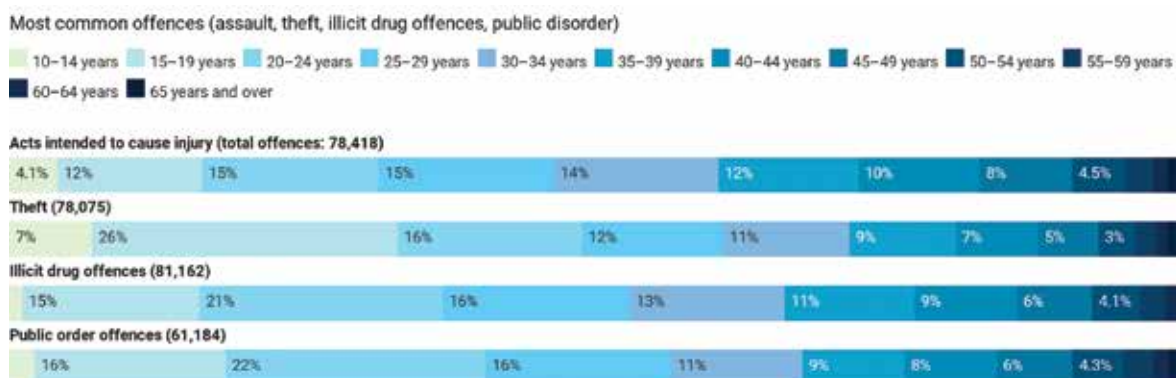
[...] a substantial component of the association between unemployment and offending was explained by factors that were present prior to school leaving age. These results clearly suggest that, in part, the association between unemployment and offending may arise because the risk factors and life pathways that are associated with the development of criminal offending overlap or are correlated with the risk factors and life pathways associated with youth unemployment. (p. 65)

Hence early intervention to prevent the disengagement of youth is critical to the interruption of negative path dependencies leading disenfranchised young people toward adult disengagement and associated increased exposure to the risk of criminal offending. On this point, in their recent analysis of the potential economic benefits of crime reduction in Australia, Heerde et al. (2018) emphasise several aspects relating to the protection of young people critical to the prevention of criminal offending, including the amelioration of socioeconomic disadvantage, personal insecurity (in particular within the home), disaffection with schooling and early onset substance misuse, especially alcohol (p. 2). They also observe that exposure to punitive forms of discipline in schools, often leading to suspension and other forms of educational exclusion, serve to entrench self-reinforcing student-teacher antipathy and correlate strongly with disengagement and subsequent antisocial and violent behaviour (p. 3).

We limit our analysis to a discussion of the four most common (if not the most expensive) categories of criminal offending in Australia (2016-17): illicit drug offences (81,160), acts intended to cause injury (78,421), theft (78,093), and disturbance of public order (61,198) (ABS, 2018a). Contemporary trends in criminal offending are summarised by type and age cohort in the figures below. As demonstrated, most (police-reported) criminal offences are undertaken by young people, with individuals under the age of 30 responsible for 53% of illicit drug offences, 46% of incidents of physical assault, 61% of property theft, and 56% of public order offenses (see Figure 7).

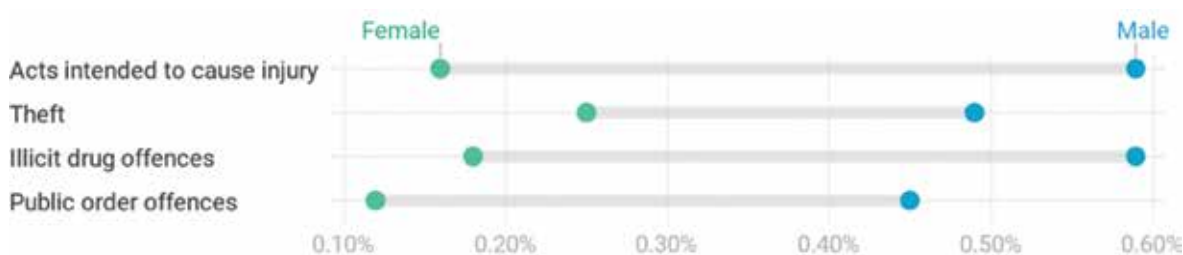
Figure 7. Principal offence (most common offences) by age (2016-17)

Source: ABS (2018a)



Aggregated offender rates (incident per 100,000) are also substantially higher among males than females in all categories of offending (see Figure 8).

Figure 8. Offender rates (most common offences) by gender (2016-17)



Source: ABS (2018a)

Although there is a diverse range of costs associated with youth and adult criminal offending of all types (e.g., damage to property and person, victim support and productivity losses), following Lamb & Huo (2017), we present only direct (adult) criminal justice system costs (i.e., police, prosecution, court, corrective services, Commonwealth portfolio agencies, state and territory agencies, forensic mental health services, and legal aid). As our analysis is limited to benefits accrued over the course of FLO participants' working lives, we exclude juvenile justice system costs (i.e., offenses by individuals aged 10-14); offenders aged 15-19, however, are included in the calculation of average adult criminal justice system costs (per police reported offence). Our calculation of the average cost of all types of offending (is based on inflation-adjusted estimates provided by Smith et al. (2014) of aggregated criminal justice system costs—less youth justice system costs—in Australia (2011-12). Based on total direct adult justice system costs and the prevalence of offending related to illicit drugs, acts intended to cause physical harm (i.e., assault), theft and public order offences, we estimate a weighted average cost per offence of \$46,022. The average estimated cost of offending is then used to calculate the total cost to the public of the most prevalent criminal offences, with risk adjusted for gender and engagement status.

Using data from the 2011 Census, as well as several ABS studies of prisoners and criminal offending in Australia, Lamb & Huo (2017, p. 39) estimate that disengaged adults are approximately seven times more likely to offend than their engaged counterparts. Using the national average offending rates detailed above as a baseline, we adjust by a factor of seven to estimate the reduced risk of offending among the males and females of our comparator group. Using national average risk rates as a baseline is likely to understate the potential savings of avoided criminal justice system costs attributable to FLO participation, as disenfranchised young people are considerably more exposed to personal, family and peer risk behaviours and associated justice system involvement than the national average. Use of the national risk rates is thus consistent with our aim to present conservative estimates of public savings attributable to FLO participation. We then multiply the empirical (average) and adjusted (comparator) risk rates by the average (direct) costs of offending, adjusted for inflation, in order to project average anticipated costs of offending. Projected estimates are then discounted at 3.5% to NPV (2016). The difference between the NPVs of the unadjusted and adjusted cost estimates represents the expected public savings from reduced criminal offending attributable to FLO participation. See Table 5 below.

Table 5. Public savings from reduced criminal offending attributed to FLO participation, NPV (2016)

	Offence	Risk (Disengaged)	Average annual cost per-offender (2017)	Risk (Engaged)	Average annual cost per-offender (2017)
Males	Illicit drugs	0.64%	\$295.46	0.09%	\$42.21
	Assault	0.59%	\$271.07	0.08%	\$38.72
	Theft	0.41%	\$187.77	0.06%	\$26.82
	Public order offences	0.50%	\$231.49	0.07%	\$33.07
	Subtotal (2016 NPV)	\$22,317		(\$3,165)	
Differential (net savings per (re)engaged individual)					\$19,682
Females	Illicit drugs	0.19%	\$87.90	0.03%	\$12.56
	Assault	0.14%	\$63.97	0.02%	\$9.14
	Theft	0.19%	\$88.36	0.03%	\$12.62
	Public order offences	0.13%	\$57.99	0.02%	\$8.28
	Subtotal (2016 NPV)	\$6,704		(\$957)	
Differential (net savings per (re)engaged individual)					\$5,746

Sources: Smith et al. (2014); Lamb & Huo (2017); ABS (2018a)

Recognising that between 79% and 85% of illicit drug, assault, theft and public disorder offences are committed by individuals aged 20-44 (ABS, 2018a), we do not forecast associated costs beyond this time horizon. By limiting the temporal scope of the cost projection and range of offences included, as well as omitting a multitude of indirect costs attributable to these categories of offending, we arrive at an inherently conservative estimate of the public benefits of reduced offending attributable to FLO participation. We estimate approximately \$19,000 in average reduced criminal justice system costs for engaged adult males and approximately \$5,700 in average reduced costs for engaged adult females attributable to participation in FLOs.

4.1.6. Public Health Expenditure

The excess public health costs associated with youth disengagement and, by extension, long-term adult disengagement status, stem from several inter-related sources. Disengaged youth are more likely to have worse physical and mental health outcomes (Najman et al., 2006; Henderson et al., 2017) are more likely to require extended and multi-level treatment for drug and alcohol misuse (Williams & Chang, 2000), and generally utilise a higher level of public health services to these ends (Godfrey et al., 2002; Belfield & Levin, 2007; Levin et al., 2007; Belfield et al., 2012; Henderson et al., 2017; Lamb & Huo, 2017). Adults with higher educational attainment tend to be more risk-averse with regard to health behaviours linked to chronic disease (Bennett et al., 2009), and tend to be more aware of physical and mental health and associated risks more broadly (Berkman et al., 2011). In a recent systematic review of research into the links between adolescent health, education and future employment, Hale et al. (2015) found compelling evidence that young people's health—mental health, in particular—is closely linked with their academic and subsequent socioeconomic outcomes:

Both physical and mental health problems have the potential to disrupt acquisition of skills and transitions into the workforce, and there is evidence from a number of studies that poor health in adolescence predicts a range of poor adult outcomes, from low educational status to unemployment and receipt of government assistance. (p. 129)

FLOs strongly emphasise the wellbeing of participants through trauma-informed practice, continuous monitoring of young people's mental and physical health needs, on-site social workers and other wellbeing support professionals, and extensive networks for inter-agency referrals. Together, these programmatic aspects comprise a systematic and holistic approach to re-engagement that serves to enhance participants' long-term mental and physical health trajectories. By keeping young people engaged during the formative years of their transition from secondary-level schooling into further education, training and employment, FLOs significantly reduce the likelihood that participants will become disengaged over the long-term. The (averted) public health costs associated with long-term disengagement should therefore be included in the estimation of accrued public benefits attributable to the re-engagement of disenfranchised young people through FLOs.

Lamb & Huo (2017, p. 42) estimate that disengaged Australian adults are more likely than their engaged counterparts to have chronic health problems and are less likely to hold private health insurance. Due to the socioeconomic disadvantages

associated with low educational attainment and non-participation in the labour force, adults who experience long-term disengagement accrue higher public health costs relative to engaged individuals. Consistent with their conservative approach to the estimation of the costs of long-term disengagement, Lamb and Huo limit their estimation to the excess health costs of more frequent emergency department usage and extended public hospital admissions. We use Lamb and Huo’s estimates verbatim, adjusted over the time frame of the analysis for inflation (CPI) and discounted to 2016 values at 3.5%. Male and female FLO participants are expected to generate approximately \$16,000 and \$8,000, respectively, in public health system savings relative to their disengaged adult counterparts. Adjusted NPVs are summarised in Table 6.

Table 6. *Select excess public health costs attributable to long-term disengagement by gender*

Excess public health services	Estimated annual cost per-person—males (2016)	Estimated annual cost per-person—females (2016)
Extended admissions to public hospitals	\$321	\$177
Emergency department admissions	\$76	\$28
<i>Subtotal</i>	\$397	\$205
NPV per-person (2016)	\$15,889	\$8,026

Source: Lamb & Huo (2017)

4.1.7. Marginal excess tax burden

Finally, the financing of public services requires significant infrastructure for effective tax collection, administration and enforcement. Lamb & Huo (2017) also note the price distortions and reduced economic activity attributable to taxation itself, i.e., the ‘marginal excess tax burden’ (METB). Based on Australian Government Treasury estimates of the METB of stamp duties on land conveyances, corporate income tax, personal income tax and GST (Cao et al., 2015), Lamb & Huo apply a weighted average METB of 24.2% to estimated public expenditures related to the provision of public services to long-term disengaged adults. We apply this same rate to our own estimates of the NPV (2016) of *averted* income support transfers, criminal justice system expenditures and excess public health costs, less the costs of collection of *additional* income tax and GST. We estimate a net averted METB of approximately \$36,000 for male FLO participants and approximately \$79,000 for female members of the comparator group.

5. THE SOCIAL RETURN ON INVESTMENT IN FLOS

As a valuation exercise, Social Return on Investment (SROI) analysis provides for a systematic appraisal of a range of economic values associated with the provision of a social good. According to BetterEvaluation (2018), an international collaborative effort to promote best practices in holistic project assessment, “SROI balances proving and improving and addresses the paradox between accountability and learning by placing the perspectives of the different stakeholders at the center of the valuation process.”

By helping reveal the economic value of social and environmental outcomes it creates a holistic perspective on whether a development project or social business or enterprise is beneficial and profitable. This perspective opens up new opportunities and forms the basis for innovative initiatives that genuinely contribute to positive social change and poverty reduction for all. (n.p.)

At its simplest, the SROI comprises a ratio of the total value of an initiative’s estimated economic benefits to its costs. In this section, we summarise the various economic values presented in Section 4. Benefits are delineated as private (i.e., accruing to individuals) and public (i.e., accruing to the state). We then compare aggregated public values to total program costs in order to estimate the SROI ratio.

5.1. Private benefits of FLO participation

The difference between earned income plus Newstart benefits (received by engaged individuals) and the full Newstart allowance (received by long-term disengaged individuals in the absence of any earned income) comprises the average estimated net personal economic benefit of participation in a FLO. On average, a male participant who remains engaged in the long term will experience a net increase in gross income of \$1.311 million. This estimate comprises earned income (\$1.785 million) less the full estimated Newstart subsidy (\$473,715). On average, female FLO participants who remain engaged long-term gain an estimated \$738,000 in additional income, comprising earned income (\$1.211 million) plus partial public wage subsidies (\$5,110) less the full estimated Newstart entitlement (\$417,715). Results are summarised in Table 7.

Table 7. Net personal economic benefit of FLO participation, NPV (2016)

FLO Participant cohort	Earned wages	Partial income subsidy	Full Newstart Allowance	Net personal economic benefit
Males	\$1,784,709	\$ -	(\$473,715)	\$1,310,995
Females	\$1,206,348	\$5,100	(\$473,715)	\$737,743

Source: ABS (2016); Department of Human Services (2018)

5.2. Public benefits of FLO participation

Public economic benefits attributable to the long-term engagement of FLO participants accrue to the state in the form of increased income tax and GST on marginal consumer spending, and reduced income support transfers, direct criminal justice system costs, and excess public health system expenditures. The state can also expect a net gain in economic efficiency due to a lower overall tax burden (i.e., a reduction in deadweight loss associated with taxation for the provision of public support services). Each male FLO participant who remains engaged throughout his working adulthood is expected to generate an estimated \$905,854 in net public benefits. Each long-term engaged female FLO participant will generate an estimated \$717,080 in net public benefits. Results are summarised in Table 8.

Table 8. Economic value of public benefits attributed to FLO participation by gender (2016 NPV)

Cost/benefit	Net public benefit—long-term engaged	
	Males	Females
Income tax	\$292,172	\$113,157
Newstart†	\$473,715	\$468,605
GST	\$69,280	\$42,472
Criminal justice	\$19,151	\$5,747
Health	\$15,889	\$8,026
METB†	\$35,647	\$79,073
Total	\$905,854	\$717,080

†Net of taxation of the earned income and consumption of the comparator group

5.2.1. Summary of net present values—Scenario analysis

Whilst considerable economic benefits are projected to accrue to long-term engaged FLO participants and the public, it is unlikely that all participants will remain engaged throughout their adult working lives. As discussed in Section 3, FLOs are expected to significantly reduce—but not eliminate—the risk that participants will experience long-term disengagement as adults. Conservatively, we attribute a minimum of approximately 10% of the long-term engagement of the cohort to participation in FLOs. As discussed, however, the 'true' impact is likely to be much higher. Much transpires throughout the period of transition from schooling into further education, training and labour force participation. FLOs are likely to make significant contributions to the successful transitions of disadvantaged young people, from enhanced mental and emotional wellbeing, literacy and numeracy, to course completion credentials and personalised guidance and accompaniment throughout the transition phase. At the same time, not all of the engagement observed in our comparator group can be attributed directly to the modelled effect of youth engagement alone. To reflect this likelihood, we aggregate the public economic benefits of FLOs under a range of plausible effect estimates. At minimum, we estimate public benefits of

approximately \$5,805 billion (2016 NPV) attributable to the current FLO cohort. This benefit reflects only the 10% modelled impact of youth engagement status (age 15-17) on adult engagement status (age 23/24) (see ATET, Section 3.1).⁸ In each scenario, we add to this baseline value estimates of the public savings associated with increased long-term engagement plausibly attributable to FLO participation. Results are summarised in Table 9. Allowing for an additional (unmeasured) effect of 20% increases the estimated gross public value of FLOs to \$15.832 billion (2016 NPV).

Table 9. Net present value of public economic benefits of FLOs (2016)

	Male	Female	All
Total FLO cohort	41,601 (59%)†	28,399 (41%)†	70,000
Long-term disengaged (9.09%)	3,781	2,582	6,370
Engaged as a result of participation (10.0%)	4,160	2,840	7,000
Engaged (regardless of participation) (80.9%)	33,660	22,977	56,630
Impact scenarios			Total (\$ million)
Baseline: 10.0% (empirical ATET)	\$3,768	\$2,036	\$5,805
Scenario 2: baseline +10% (unmeasured)	\$7,537	\$4,073	\$11,610
Scenario 3: baseline +15% (unmeasured)	\$9,421	\$5,091	\$14,512
Scenario 4: baseline +20% (unmeasured)	\$11,305	\$6,109	\$17,415

† Total enrolment disaggregated by gender (see Section 5.2.2).
Source: My School (2018)

5.2.2. Summary of Costs

The SROI is presented as the ratio of the aggregated NPV of economic benefits to total program costs. As FLOs represent a broad spectrum of programs, offering a diversity of pedagogies, services and support, summarising program expenditures on a per-student basis is an inherently reductive undertaking. To facilitate inter-program comparability, we identified three FLOs located in Queensland, the Northern Territory and Victoria that embody the philosophy, pedagogy and praxis detailed throughout this study. Each of the selected FLOs are registered as schools and offer credentialed educational progression, including Year 12 completion (or equivalent). To ensure consistent parameters for cost analysis, data was drawn from the *My School* website, an online clearinghouse of registered Australian schools' demographic, academic and financial data (My School, 2018). De-identified school characteristics are presented in Table 10.

Table 10. FLO school characteristics (2016) (de-identified)

School	Location	FTE teaching staff	FTE non-teaching staff	Boys	Girls	% Indigenous
FLO (a)	Outer-regional	<20	<20	70-80	50-60	<50%
FLO (b)	Remote	<10	<20	60-70	40-50	>50%
FLO (c)	Capital city	<40	<50	220-230	160-170	<25%

Source: My School (2018)

A summary of the weighted-average, net per-student annual cost (2016) of the three selected FLOs is presented in Table 11. Detail has been omitted where necessary to ensure de-identification of FLOs and comparator schools.

⁸ Impact scenarios assume 2.57% CPI, 3.10% wage inflation, 7.9% income derived from public subsidy, and 3.5% discount rate.

Table 11. FLO weighted-average per-student expenditure (2016) (de-identified)

School	Enrolment	Per-student expenditure—FLO (per annum)	Per-student expenditure—mainstream (per annum) [†]	Cost over baseline
FLO (a)	13 [#]	\$20,###	(\$17,###)	\$3,###
FLO (b)	11 [#]	\$31,###	(\$30,###)	\$7##
FLO (c)	39 [#]	\$23,###	(\$13,###)	\$10,###
Total	63[#]	\$24,5## (Weighted average)	(\$17,4##) (w.a.)	\$7,0## (w.a.)

[†] Averted per-student (mainstream) school expenditure based on nearest, non-selective public high school

[#] Figures redacted to ensure anonymity of participating FLOs

Source: My School (2018)

5.3. SROI

Based on a two-year average duration of enrolment, we estimate a total program expenditure per 70,000 student-cohort of approximately \$992 million (2016).

The ratio of economic benefits to total program costs—the Social Return on Investment—is therefore estimated between:

$$\begin{aligned}
 & \$5.805 \text{ billion} / \$992 \text{ million, or approximately } \mathbf{5.9 : 1} \text{ (baseline)} \\
 & \quad \quad \quad \& \\
 & \$17.415 \text{ billion} / \$992 \text{ million, or } \mathbf{17.6 : 1} \text{ (scenario 4)}
 \end{aligned}$$

5.4. Sensitivity analysis

The SROI ratios calculated above are variously sensitive to a number of model input parameters, including the average duration of program participation, the proportion of adult engagement attributed to FLO participation, anticipated consumer price and wage inflation, the average proportion of participants' total household income likely to be derived from public income subsidies and the model discount rate. Below, we test the sensitivity of the estimated SROI with respect to changes in these parameters. Results are summarised in Table 12.

Table 12. Sensitivity analysis

Parameter	← less favourable	more favourable →
Program duration (yrs.)	2.25	1.75
CPI	3.00%	2.00%
Wage Inflation	2.50%	3.50%
Public subsidies (per cent of total income)	10.0%	6.00%
Discount rate	4.00%	3.00%
	less likely ←	more likely ← → less likely
SROI	13.6	22.7

Under each of the parameter specifications presented in Table 12, social investment in flexible learning yields strong public returns. The model's most influential parameter, 'program duration,' explains the majority of the variation illustrated above. Nonetheless, under even the most unfavourable macroeconomic conditions, the typical participant could spend well over a decade in a flexible learning program and still be expected generate a positive net return on investment. That even this highly unlikely scenario nonetheless yields a positive return comprises a compelling economic case for the continued fiscal support of FLOs in Australia.

6. CONCLUSION

This study found that under a broad range of economic conditions, FLOs are likely to yield a net positive return on investment. We estimate that for every dollar invested in flexible learning in Australia, society is likely to accrue between \$5.9 and \$17.6 in return. Under realistic modelling conditions, where approximately 30% of participants' long-term engagement as adults is attributed to re-engagement through flexible learning—the current participant cohort of approximately 70,000 disadvantaged young people can be expected to generate upwards of \$16.422 billion in public economic benefits over and above the cost of these programs. These economic benefits stem from increased collection of income tax and GST, as well as reduced state obligations for welfare transfers, direct criminal justice system expenditures and public health services. Our estimates, based on a small selection of the known benefits of increased socioeconomic participation, are intentionally conservative; the 'true' economic value of educational re-engagement is likely to be much higher than reported here. FLOs have proven their unique worth with regard to the holistic re-engagement of disenfranchised young people. That supporting FLOs is fiscally sustainable—under even the most stringent economic assumptions—suggests a strong moral imperative that we continue to do so.

Drummond et al. (2005) advise caution with regard to the use of cost-benefit ratios. The appeal of presenting a cost effectiveness estimation as a ratio of input dollars to return dollars lies in its seeming usefulness for inter-program comparison. The full cost of an intervention, after all, is not merely its direct consumption of resources, but the foregone benefits those resources would have produced if put to alternative use (p. 9). This is of pressing concern wherever said resources are public and in scarce supply. Should the return presented here be used to inform the mutually exclusive allocation of finite resources between competing alternatives, it must be ensured that the calculation of the projects' respective cost-benefit ratios be methodologically identical, with like rationale for the inclusion of specified costs and benefits. In the real world, however, where re-engagement program characteristics, costs and outcomes differ substantially, such a comparison is likely to be fraught with inconsistencies.

This analysis has been limited to the impact of individuals' (re)engagement in youth on their subsequent engagement status as adults. Among our target group, approximately 10 per cent of adult engagement has been attributed to youth engagement (i.e., through FLOs). This report does not directly model the proportion of adult engagement that may be linked to respondents' experiences—independent of their engagement status—during the formative years of their education and period of transition into the work force. In other words, this study does not attempt to measure the contribution of FLOs' myriad other programmatic aspects to participants' subsequent engagement as adults. Among other outcomes, FLOs enhance young people's sense of belonging, mental and emotional wellbeing, personal agency, inter-personal and life skills, literacy, numeracy, and critical thinking. They help young people develop a positive outlook on the future and the personal agency needed to actualise life-affirming, productive goals. They offer educational credentials, including Year 12 (or equivalent) completion and a broad range of vocational certifications. And FLOs provide highly personalised support to facilitate the successful transition of young people into further education, training and employment. Each of these contributions—not to mention their myriad interactions—is likely to contribute to participants' long-term engagement. The econometric substantiation of these additional outcomes, however, lies beyond the remit of the current study.

This limitation need not prevent a realistic appraisal of FLOs' wider economic values. Appreciating FLOs' broader depth of impact only demands that we take a momentary step back from the numbers and draw upon our relationships with flexible learning providers, young people and their families. We must seek to understand the outcomes that flexible learning practitioners value and discern the nuance with which these are articulated and continuously assessed (see Thomas et al., 2017). Simply, the quantitative valuation exercise may be meaningfully extended with an unassuming dose of qualitative common sense. This analysis posits a range up to and including 30% of adult engagement attributable to FLOs. Though this case may be substantiated qualitatively, we have not endeavoured here to do so quantitatively. This SROI analysis may therefore be seen as a stepping stone toward establishing a more comprehensive economic case for investment in flexible learning. Further research is required to ground such a case in predominantly quantitative terms of reference.

Effective educational policy demands a clear understanding of what works, for whom. To explicate the value of participation in flexible learning, one must consider not only the educational destination, but also account for the obstacles overcome by disadvantaged young people. Like marginalised youth elsewhere in the OECD, early school leavers in Australia are far from 'average.' Aggregating the impact of schooling across all young people and pedagogies obscures the added value of tailored learning interventions for marginalised youth. If flexible learning helps young Australians to close the gap with their peers, marginal returns to FLO participation may indeed be higher than the national average return to high school completion. On the other hand, if poverty, disaffection with learning or lack of human security prove irreparable in the determination of one's long-term trajectory, then the economic returns to flexible learning could well be lower than the national average return to schooling. In the latter case, policy makers may inappropriately place the onus for poverty on the individual, rather than on systemic failures perpetuating intergenerational disadvantage. By extension, there may be insufficient impetus to address the underlying causes of social and economic exclusion. Where education is uncritically held up as society's great equalizer, policymakers may fail to grasp the importance of social welfare, health, proximate and appropriate employment opportunities, and other requisites of economic equality.

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