Deriving a counterfactual for analyzing the impact of ASETS on employment, program, and benefit outcomes

Final draft of paper

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LIST OF ABBREVIATIONS

AHRDA   Aboriginal Human Resource Development Strategy
APE   Action Plan Equivalent
ASEP   Aboriginal Skills and Employment Partnership Program
ASETS   Aboriginal Skills and Employment Training Strategy
CIA   Conditional Independence Assumption
CSD   Census sub-divisions
EAS   Employment Assistance Service
EBSM   Employment Benefits and Support Measures
EI   Employment Insurance
FSA   Forward Sortation Area
ILMP   Integrated Labour Market Programming
JCP   Job Creation Partnership
LMDA   Labour Market Development Agreement
LMPDP   Labour Market Programming Data Platform:
MTI   Medium Term Indicators
NHS   National Household Survey 2011
SD   Skills Development
SPF   Skills and Partnership Fund
YES   Youth Employment Strategy

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EXECUTIVE SUMMARY

This paper, completed by SRDC, has focused on credible methods to evaluate the Aboriginal Skills and Employment Training Strategy (ASETS). It thus addressed the central question in program evaluation, which is determining the impact the program has had on participants. To measure impacts, evaluators need to estimate the counterfactual outcomes of participants had they not participated in the program. Since there are several potential econometric specifications based on different assumptions applicable in such program impact estimation, the paper was essentially concerned with the implications of adopting different approaches to create and justify such a counterfactual. Similar advanced statistical methods involving the construction of comparison samples have been applied to the evaluation of population-wide active labour market programming in Europe and Canada. However, the application of these approaches to specific programs targeting diverse sub-populations may involve additional challenges. It is these challenges that this paper sought to explore and better understand.

The SRDC research team conducted this exploration independently of ESDC's own evaluation of ASETS using a matching methodology. While ESDC's evaluation focuses on estimating reliable impacts of ASETS adopting necessary assumptions, this paper focused on capturing Indigenous population's unique situations as closely as possible while using the same data. The paper explores options for constructing a comparison group sample and choosing an alternative evaluation strategy.

The main findings highlight potential issues with using matching to create a counterfactual sample for those participating in ASETS.

- If the matched comparison sample does not adequately capture the dynamic difference of events influencing participation, then estimated employment and earnings impacts using difference-in-difference approaches (even after matching) may suffer from an upward bias.

- Labour force dynamics just prior to participation is crucial in the decision-making process around participation. Even after controlling for long periods of pre-program employment and labour dynamics, evaluations often fail to account for this difference in labour force dynamics since the non-participant sample has no program participation date. The issue can be mitigated by randomly assigning a pseudo-program start date across a large pool of potential comparison observations. However, the paper found the approach made the estimation of propensity scores difficult due to the low discriminatory power of factors associated with participation in the data.

- The context and data make it very difficult for researchers and evaluators to control for all important factors in the selection process. Thus, assumptions are required to facilitate impact estimations using the matching method. Robustness of the impact estimates can only be examined to the extent that different choices of assumptions are possible given the limited data available.

The importance and uniqueness of home communities to Indigenous people and the fact that participation of ASETS must nearly always be processed through their respective community suggest that community is crucial among factors to be included in the creation of valid counterfactual samples. Unfortunately, the scale of delivery for some ASETS interventions is small in some communities. This makes it very difficult to match on communities, Indigenous identity, male/female, and the necessary labour force dynamics. To simplify the match and control for only the necessary characteristics of community requires a better understanding of the participation process.

This paper adds somewhat to understanding of the participation process for ASETS participants. However, it concludes that more in-depth and focused research is needed, including additional data collection or linkage, to improve the extent to which analysts can control for the selection process and rely less on ad hoc assumptions in the impact estimations for the ASETS program derived through matching models. Programs are implemented differently in each local context. Thus, further investigation of the processes underlying who participates in the program and their diverse situations and needs is required to ensure the validity of pan-Canadian evaluations of the impact of ASETS and similar Indigenous labour market.

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INTRODUCTION AND POLICY RELEVANCE

This paper is concerned with finding credible methods to evaluate the Aboriginal Skills and Employment Training Strategy (ASETS). A central question in program evaluation is determining the impact the program has had on participants. To measure impacts, evaluators need to estimate the counterfactual outcomes of participants had they not participated in the program. Since it is not possible to observe counterfactual outcomes directly once people participate in the program, evaluators typically need to construct counterfactuals from a comparison group of non-participants who have similar characteristics and history to members of the program group. To assess the impacts of ASETS, therefore, a crucial process is identifying Indigenous people who did not participate in ASETS who have otherwise similar labour market characteristics to those who do, to serve as the counterfactual sample. Since there are several potential econometric specifications based on different assumptions applicable in program impact estimation, this paper is essentially concerned with the implications of adopting different approaches to create and justify such a counterfactual.

The context in which this study reports is that ESDC has already conducted two incremental impact analyses of the ASETS, both using an approach reliant on matching:

- The 2015 evaluation of the ASETS and the Skills and Partnership Fund (SPF) included an incremental impact analysis using the short-term impact estimates from the Aboriginal Human Resource Development Strategy (AHRDS) and Aboriginal Skills and Employment Partnership Program (ASEP) evaluation as proxies for ASETS and SPF.[1] ESDC established a data platform, Medium Term Indicators (MTI) Performance Indicator database, which integrates individual-level data from EI administrative records, program participation records and tax records of Canadian labour force population for evaluation purposes. With a rich set of demographic characteristics and employment history, ESDC was able to simulate eligibility of various programs under the Labour Market Development Agreements for non-participants in MTI. By applying the method of matching of each program participant to observably similar eligible non-participants, ESDC has been successful in estimating the incremental impacts of various interventions under the Labour Market Development Agreements.

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[1]   Despite the fact that AHRDS & ASEP and ASETS & SPF were similar with respect to the types of core programs and services that they provided to Indigenous clients, differences in eligibilities and participation could have influenced the estimated impacts of ASETS and SPF compared with AHRDS and ASEP.

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- The MTI later evolved into the Labour Market Programming Data Platform (LMPDP) which includes program participation information for ASETS, SPF and Youth Employment Strategy. With LMPDP, ESDC's Evaluation Directorate released the second incremental impact evaluation of ASETS based on the method of matching (ESDC, 2020). This most recent evaluation has applied state of the art matching estimation, similar to the approach used for the successful LMDA evaluation, to create multiple counterfactual comparison samples and estimate three-year incremental impacts. For the 2020 evaluation, ESDC's team conducted all the necessary technical examinations of the statistical validity of the matching algorithm to ensure that the impact estimates of ASETS interventions displayed similar properties to the successful LMDA evaluations. The success of impact estimations using sophisticated matching model with large population based administrative data mirrors the experience of Germany and Switzerland in their evaluations of active labour market programs (see Lechner, Miquel, & Wunsch, 2011 and Gerfin & Lechner, 2002).

Methodologically, matching is a semiparametric regression method that relies on the conditional independent assumption (CIA): namely that the statistical control of observable characteristics eliminates any systematic differences between the program and comparison samples other than experience of the intervention. As an assumption, however, the CIA is not verifiable practically. Users of the matching model have to apply their understanding of what drives the sample selection process to draw conclusions as to its applicability. There are at least two approaches:

- Past experience of such specifications and model applications based on available data in a similar context;

- Alternatively, researchers can examine patterns of participation and program context to gauge whether a particular specification would likely satisfy the CIA.

ESDC's evaluation adopts the first of these approaches. This paper presents a study using the second approach to understand the difference between participants and potential comparison samples. It was conducted independently but at the same time as ESDC's 2020 Evaluation of ASETS. The main goal of this paper is to assess the extent to which evaluators could apply and extend ESDC Evaluation Directorate's incremental impact estimation method to apply to all ASETS participants.

This paper is intended to contribute to a more nuanced understanding of the active labour market programs intended for and used by Indigenous people in Canada. The research team consists of researchers from Social Research and Demonstration Corporation (SRDC) and academic experts in Canada. The conceptual framework for the research program follows the current economic literature on human capital development, discrimination, labour market outcomes and evaluation of active labour market programs.

RELEVANT LITERATURE

Much research has explored the long-run consequences of colonization, and forcible assimilation on Canada's Indigenous peoples. Feir and Hancock (2016) consider the role that quantitative social science can play in supporting reconciliation. For example, Feir (2016) and Jones (2017a) investigated the impacts of residential schooling, while Aragón (2015) and Pendakur and Pendakur (2015) explored the empirical effects of increased degrees of self government. Their logic is applied to educational and economic disparity, where the Truth and Reconciliation Commission called for the development of a ''joint strategy to eliminate educational and employment gaps between Aboriginal and non-Aboriginal Canadians''. The earnings and employment rates of Indigenous and non-Indigenous people have continued to differ significantly (Statistics Canada, 2017a). Such disparities continue despite (a) many years of government investments in Indigenous education programs and workforce development programming and (b) evaluations that point to indicators of success, such as increasing rates of Indigenous educational completion. Furthermore, Feir (2013) found evidence of an "on-reserve" penalty for First Nations people that has increased over time, while the off-reserve earnings gap has narrowed, particularly for Métis. Consistent with efforts towards reconciliation, the recent research efforts took into account the unique and complex cultural, historical and socioeconomical context of Canada's Indigenous peoples and sought to avoid treating Canada's Indigenous population as a single group.

Other than ESDC evaluations (2009, 2015, and 2020), there is little empirical evidence to determine the aspects of workforce development programs that specifically serve Indigenous people and communities that are most beneficial. Relatedly, little is known about how well less specific, broad-based programs work for Indigenous people. Rather there is a common set of desirable characteristics (enablers) noted in qualitative, observational and trade reports (Wannell & Currie, 2016; Klinga, 2012; and Caverly, 2007). Conversely, ASETS agreement holders also identify a number of barriers to participation and persistence in programs (Wannell & Currie, 2016). Since a number of these barriers and enablers align with community characteristics and cultural factors, they merit increased empirical attention in the evaluation of workforce development programming.

This paper builds on a human capital framework attributable to Becker (1964). Human capital theory regards people as rational, forward-thinking agents who invest in themselves through education, training, and experience to maximize their long-term well-being. It is an inclusive theory since it can be applied to many outcomes. For example, human capital theory can "explain" continuing low rates of on-reserve high school attainment by comparing empirical estimates of the expected returns to education faced by Indigenous people living on and off reserves (Jones, 2017b). Meanwhile, studies like Pendakur and Pendakur (2011) show that Indigenous to non-Indigenous gaps persist despite exhaustive human capital control variables.

Economists add models of discrimination (e.g., Thurow, 1975) and selective participation in the labour market (Heckman, 1979) to human capital theory to account for differing returns for readily identifiable population groups. For the purposes of this study program, however, we believe it is more instructive to nest an understanding of human capital mechanics within the larger picture of the European colonization of North America's Indigenous peoples including its current consequences and the socio-economic conditions experienced by Indigenous population off and on-reserve.

Taking into consideration human capital theory, selective participation, discrimination, and the unique historical and geographical context of Indigenous people, it becomes very important to understand the program participation process of Indigenous people. Of course, controlling for the participation process is also crucial in non-experimental evaluations of active labour market programs that apply matching models (Heckman & Smith, 1999). Indeed, Biewen, Fitzenberger, Oskikominu, and Paul (2014) showed that impact estimates for Germany's training programs are highly sensitive to such specifications.

CONTEXT AND RATIONALE

With increasing computer power and increasing data collection in the past 40 years, researchers and evaluators have advanced various sophisticated econometric methods to estimate the impacts of government programs. Approaches are typically based on the difference between the actual outcomes observed for program participants and the estimated counterfactual outcomes had the participants not participated in the program. In practice, the models and estimation methods adopted for a particular program depend on the available data. D'Hombres and Santangelo (2019) showed that about two-thirds of impact evaluations of European active labour market programs since 2001 (including training, employment incentives and labour market services) that make use of counterfactuals applied the propensity score matching (PSM) method. The popularity of PSM is supported by the availability of administrative datasets covering many individuals in the population. These datasets provide a large sample size, universal coverage, and rich longitudinal information covering various dynamics that help to meet the data coverage requirements of the PSM method. Of course, the existence of counterfactual impact evaluations using other estimation methods (such as difference-in-difference) also using administrative data reflects that some datasets are limited in important dimensions and may not suit the application of PSM. Nevertheless, ESDC's recent evaluations of Labour Market Development Agreements and ASETS are similar to the common practices in Europe when using administrative data to provide much needed evidence to inform policy decisions.

The LMPDP represents a group of very rich individual-level longitudinal datasets that provide detailed information on employment history, income dynamics, Employment Insurance (EI) benefit use, as well as eligibility and participation in various labour market programs by people

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in Canada. ESDC has simulated eligibility status of individuals on Labour Market Development Agreement (LMDA) programs and AHRDS programs to help construct a counterfactual comparison group sample drawing on EI claimants for the LMDA and AHRDS programs (for those who were eligible for EI claims). The simulated eligibility status for LMDA programs is available to researchers on the LMPDP, but ASETS' eligibility status is not provided through the platform, even though ESDC created a comparison sample for ASETS with a matching model for the ASETS evaluation in 2020.[2] As a result, researchers using the LMPDP to assess the impacts of ASETS must construct their own comparison sample.

Further to the lack of simulated eligibility status for ASETS, it is unclear how ASETS impact analysis should select observations on the LMPDP from Indigenous non-participants of ASETS. In general, the LMPDP consists of three types of Canadian in any given period: active EI claimants, former EI claimants, and non-EI claimants who had used a service/program. To maintain internal validity, ESDC's 2015 evaluation of ASETS and SPF estimated incremental impacts of AHRDS/ASEP only among those who were EI eligible and ignored EI ineligible participants in AHRDS/ASEP.[3] ESDC's 2020 evaluation of ASETS/SPF expanded the coverage and provided impact estimates separately for active EI Claimants, former EI Claimants and non-Claimants.[4] The control for EI eligibility in ESDC's evaluations is necessary, to the extent the data allow, provided EI eligibility plays a substantial role in usage of ASETS among the Indigenous population.[5] What is unclear is whether the Indigenous population might tend to avoid other interactions with the Canadian government (including with the EI system). In other words, some may be making an exception to engage with the ASETS programs, since this was delivered through Indigenous organizations (ASETS agreement holders). This paper examines the extent to which variation in EI usage and LMDA usage needs to be taken into account alongside other characteristics, such as patterns of program participation and the context of ASETS delivery through ASETS agreement holders, to better inform the identification strategy of the counterfactual sample for ASETS impact analysis.[6]

Understanding patterns of program participation, including the events leading up to participation, is crucial for identifying comparable comparison samples when the intent is to use

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[2]   It should be noted that ESDC simulated a pseudo-start date for potential ASETS participation by ASET/SPF eligible active EI claimants representing the comparison sample for the 2020 ASETS evaluation.

[3]   The exclusion of observations from EI ineligible participants in AHRDS/ASEP in the 2015 evaluation is assumed by inference based on the publicly available ESDC evaluation reports and the LMPDP data and documentation provided by ESDC.

[4]   For former EI Claimants and non-Claimants, ESDC's comparison samples consist of Indigenous users of the low intensity support measures in the form of Employment Assistance Services.

[5]   A reviewer pointed out that about two-third of ASETS participants were non-claimants of EI.

[6]   Similar assessments of evaluability could be conducted for the Youth Employment Strategy (YES), though such work is beyond the scope of this paper.

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them as counterfactuals in program impact estimation. As one example, it does seem at face value feasible to use the experiences of Indigenous people residing in other communities to serve as the counterfactual for ASETS participants when their participation is arranged through their local ASETS agreement holder (likely based in their local community). Also, comparing to those in receipt of LMDA measures might be of limited value if many ASETS participants are ineligible for LMDA. In contrast, if labour market characteristics (including employment history and employment income dynamics before participation) of some or all ASETS participants are similar to those of Indigenous EI claimants or LMDA participants, it would likely be possible to construct a counterfactual sample from the LMPDP for ASETS. The comparability of the counterfactual comparison sample is determined by the extent to which the comparison sample captures the participation decisions and characteristics of participants. In the application of matching models in impact estimations, the participation decisions and characteristics of participants are assumed to be captured sufficiently by the propensity score or balancing score. When the statistical supports (or ranges) of the propensity score or balancing score of the program and comparison sample differ, the non-overlapped observations of the two samples are not comparable. The difference violates a "common support condition" and contributes to the bias of the impact estimations. Usually, researchers ensure the common support condition is met by examining the distributions of propensity/balancing scores conditional on the selected specification and model used to estimate the propensity/balancing scores. Another common comparability check is to apply the selected specification of the matching model on known equivalent samples (such as randomly resampling of the comparison sample into two or more samples) and to test whether the outcome differences are zero. Evaluations applying the matching models, including ESDC's 2020 evaluation of ASETS, typically did these checks to ensure the impact estimates met the necessary conditions of comparability. However, these comparability checks are only as good as the specification of the matching model. It remains essential to examine potential "unobserved" or "indirectly observed" differences between program participants and comparison samples that may arise because of misspecification or omission of crucial factors. For example, when people in two distinct communities have divergent patterns of program participation and outcomes for certain subgroups, a matching model that does not control for the community is equivalent to pooling the community samples. The pooling masks the community differences and it may not show up in the comparability check, particularly if the samples are limited and the key subgroup characteristics are also omitted in the specification.

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DATA AND METHODOLOGY

This paper provides a descriptive analysis of ASETS/SPF participation designed to answer
11 questions of importance to the evaluation of labour market programming for Indigenous
participants. Although some of the questions likely have been answered by ESDC's internal
assessments in the past, the answers are important for future users of the LMPDP platform,
outside ESDC.

1. What were the Indigenous identities of users of LMDA, ASETS, AHRDS and non-participants
   in each province or territory from 1999 to 2017 compared to population statistics from the
   Census? Are there differences in access to LMDA and ASETS across various Indigenous
   groups?[7]

2. Does urban-rural status (as determined from the Forward Sortation Area variable of the T1
   Entity) play a role in the use of LMDA and ASETS across Indigenous populations?[8]

3. What interventions are involved in ASETS programming?[9] What are the common
   intervention pathways or action plans in ASETS programming? How do they differ from
   Indigenous participants in LMDA programming? What are the employment outcomes
   associated with common intervention pathways or action plans in ASETS and LMDA
   programming among Indigenous participants?

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[7] It should be noted that Indigenous identity is self-reported in the Canadian Census and respondents do
not consistently report their ethnicity/ancestry from one Census to the next. In contrast, the LMPDP
makes use of the last reported Indigenous identity as the Indigenous identifier. The research team may
apply adjustments to the past published Census figures on Indigenous populations based on synthetic
cohorts to better take into account under-reporting of Indigenous identity in past Censuses.

[8] The research team has been advised that full postal code will not be available from the LMPDP and so
the rural-urban distinction can only be approximated. Forward Sortation Area (FSA) is the most detailed
geographical information provided by the LMPDP. The team converts FSA into Census sub-divisions
(CSDs) through the Postal-Code Conversion File before coding for urban-rural status. However, each
FSA may cover multiple CSDs spanning rural-urban boundaries. Acknowledging the inaccuracy of
urban-rural status, the research team may explore the feasibility and usefulness of conducting analyses
separately by urban-rural status for questions 3 to 11.

[9] Notice that services provided by ASETS agreement holders are considered "interventions" in the
LMPDP. The LMPDP does not identify ASETS agreement holders and so the project will only examine
outcomes and characteristics of participants. The LMPDP groups multiple "services"/"interventions"
within 183 days of each other into an "action plan equivalent" regardless of the source of funding. An
"action plan equivalent" is considered to be an ASETS program if the longest "service"/"intervention"
within the "action plan equivalent" is funded by ASETS. Similarly, an "action plan equivalent" is
considered a LMDA program when the longest "service"/"intervention" within the "action plan equivalent"
is funded by LMDA.

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4. What variation is there in the duration of ASETS programming?[10] How does this differ from Indigenous participation in LMDA programming?

5. What is the demographic profile (age, male/female, marital status) of users of each type of ASETS program? How does the profile differ from Indigenous users of similar programs in LMDA?

6. How does participation in various ASETS programs vary by season and province/territory?[11] How do participation patterns differ from those of Indigenous users of various LMDA programs?

7. What are the annual variations of income and employment among ASETS users in the period one to five years prior to their participation? How do they differ from those of Indigenous users of LMDA?

8. What are the incidence rates of use of EI benefits, ASETS/AHRDA programs, and LMDA programs in the period one to five years before participation in ASETS? How do they compare to those of Indigenous users of LMDA in the same period?

9. What are the employment outcomes, EI usage rates, further ASETS participation patterns, and further LMDA participation patterns in the period one to five years following the ASETS program? How do these outcomes vary by demographic profile, income, and employment dynamics prior to participation in ASETS, and past usage of EI benefits, ASETS, and LMDA prior to participation in ASETS?

10. What are the employment outcomes, EI usage rates, further ASETS participation patterns and further LMDA participation patterns in the period one to five years following the LMDA program among Indigenous users? How do these compare to those of ASETS users?

11. What are the potential challenges of using observations of Indigenous users of LMDA or Indigenous claimants of Employment Insurance serve as a counterfactual comparison sample for the purpose of evaluation of ASETS' impacts on all participants?[12]

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[10] The average duration of ASETS programming may vary with business cycles. However, with only a few years of ASETS and few fluctuations in the economy over the period, the data may not offer sufficient statistical power to identify relationships of co-variation.

[11] To the extent the data allow, participation will be examined by the intersection of season and province/territory/region.

[12] It should be noted that the paper assesses the feasibility of impact estimation of ASETS using LMDA or EI data but does not aim to reproduce the full evaluation of ASETS.

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OUTCOME INDICATORS

Other than the final research question, the variables (and outcomes) required to conduct the analysis are directly described in the above research questions. They are readily derived from the entities provided in the Labour Market Programming Data Platform. A list of the relevant outcome indicators and data sources is presented in Table 42, Appendix A.

EMPIRICAL METHODOLOGY

This paper makes use of summary statistics and bivariate statistics to understand the usage pattern of ASETS and LMDA programs by Indigenous people.[13] The descriptive analyses are intended to inform future development of impact analyses and provide the core elements of a paper intended for academic, practitioner and policy audiences.

For each of the research questions #1 to #10, one or more indicator variables related to each of the attributes being examined is derived from the Labour Market Program Data Platform (LMPDP). Summary statistics and bivariate statistics are calculated separately for each province/territory (and year if possible), to the extent that a sufficient number of observations remains available to provide reliable statistics and to protect the privacy of individuals.

The final research question #11 examines the feasibility of creating a credible counterfactual comparison sample to participants in the ASETS program using either the LMDA participant sample or other non-participant samples for the ASETS program. An exploratory analysis will be conducted to attempt to control for pre-existing differences in characteristics and behaviours prior to ASETS/LMDA participation as identified in research questions #1 to #10.

To understand what level of impact analysis is possible SRDC uses linear regressions and/or propensity score matching techniques to explore comparability between samples.[14] If the construction of a comparison group is deemed feasible and credible, the intent is to calculate — using propensity score matching — a set of incremental impact estimates comparing ASETS' employment and further program/benefit usage outcomes (up to five years post-participation) to

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[13] Although participation in any LMDA and ASETS program is likely triggered by employment or life events and so temporal causality is one of the main variables to control for in impact estimations, it is important as a first step to understand the association between participation and various characteristics (some of which have temporal dimensions). The descriptive analysis conducted before researchers determine how and what temporal causality should be modelled into the comparison group construction.

[14] A properly constructed counterfactual sample is usually robust regardless the parametric or non-parametric specification. As an exploratory analysis on comparability and the intent is not on precise factor decomposition, propensity score matching and linear regressions should identify major issues without the need of non-parametric method.

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those in similar programs under LMDA. Otherwise, the intent is to discuss the challenges of the matching estimation.

CONSTRUCTION OF THE ANALYSIS SAMPLE

Given data issues with the 10% LMPDP sample, the research team has used the 100% sample for analysis. The first step for the sample construction was to identify participants of different programs (LMDA, AHRDs, ASETS, SPF and YES) using the Integrated Labour Market Programming (ILMP) Entity and EI Part I beneficiaries who are not participants in labour market programs in order to derive appropriate analysis weights.

It is not unusual for people to participate in multiple interventions across different programs to address their unique needs. In practice, the multiple interventions are considered components of an action plan. However, the actual action plan is not available, so the LMPDP designates interventions within 183 days of each other to be part of a single Action Plan Equivalent (APE). The principal program category for the APE is the program category of the longest intervention. As a result, an ASETS intervention participant may not have an ASETS APE, if the ASETS intervention is shorter than other interventions within the APE. Also, there were ASETS participants who also used LMDA interventions.[15] To facilitate analysis for this paper:

- Anyone who has ever participated in any ASETS intervention (between 2011 and 2017) is considered an ASETS participant.

- Anyone who has participated in AHRDS (between 1999 and 2010) but not ASETS is considered an AHRDS participant.

- Anyone who has only participated in LMDA (between 1996 and 2017) is considered a LMDA participant.

- Anyone who has used EI Part I benefits (between 1996 and 2017) but not participated in any Employment Benefits and Support Measures (EBSM) is considered a non-participant.

This typology helps focus the analysis on who ASETS participants are and what they experienced.

Since the data comprise all Canadians who have ever participated in any of the programs and/or a representative sample of Canadians who used EI Part I Benefits, some of these people may have

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[15]   Analysis of the data show the some ASETS participants used LMDA interventions simultaneously with the ASETS intervention while others were using both types of interventions in a consecutive sequence. It is unclear whether there was an actively enforced rule of exclusivity between the two programs.

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left the labour market, the country, or become deceased. To be consistent with the snapshot of Canadian workforce in 2016, the analysis sample is further restricted to:

- People of age 25-64;[16,17] and

- People who have reported at least one activity in tax filing (T1), employment (T4s or Records of Employment), labour market program participation, or claiming EI benefits, from 2012 to the latest date of available data; and

- People who have an identified location in one of the Provinces/Territories.

The sample selected for potential impact analysis include only those who started their principal ASETS APE in 2011 to avoid censoring of fifth-year outcomes since version 2.0 of the LMPDP contains tax records up to 2016. Two other samples were initially selected from the LMPDP to serve as a comparison:

- Observations of Indigenous people who did not participate in any ASETS, AHRDA or SPF APE during 2011/2012 are used as the non-participant sample while

- Observations of Indigenous people who participated in LMDA are used as relative impact comparison group.[18]

Selection of the non-participant comparison sample is very challenging: the sample of Indigenous former EI claimants who have never participated in any labour market programs is relatively small once geographical area is controlled for in the estimation. Therefore, we also

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[16] The reference year for age calculation and location depends on the research question. For research question 1, the comparison is made to the Canadian population in 2016 and as a result the reference year is 2016. For research questions 3, 4, 5, and 6, the reference year is the program start year.

[17] A reviewer suggested expanding the age group to include adults under the age of 25 since some the ASET programs target youth. However, it is difficult to measure reliably active labour market participation for young adults. First, it is unclear how young adults make use of active labour market programs and postsecondary education given student financial assistance or grants from multiple sources. Also, young adults are more likely to have available only a short labour market history to control for confounding factors influencing participation. The upper limit of age 64 is likely including people who are about to retire. However, based on human capital theory an effective labour market may change a person's retirement decision and this will be reflected in employment outcomes.

[18] It should be noted that the relative impact estimates calculated by comparing the outcomes of program participants to those of similar participants in another program are very conservative. The relative impact estimates serve to reveal the relative efficacy of two programs. A special case that has been used in past evaluations involved constructing the counterfactual comparison sample from the participants of the Employment Assistance Service (EAS): the estimated impacts were expected to be not greater than the true impacts of the program given that EAS is considered a "low dosage" intervention. It can be argued that relative impact estimates are less affected by self selection bias because motivations for participation would be typically more often similar between the two groups of participants in these programs than between participants and non-participants.

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select a non-participant comparison sample that includes observations of other EBSM participants or former/future ASETS participants in the LMPDP platform.

This exploration focused on comparison samples comprised of non-users of ASETS instead of constructing comparison samples of low-intensity users to estimate the incremental impacts of the high-intensity interventions. The research team did not adopt the strategy of matching stratification by EI-claimant status (active, former, and non-claimant) as used by ESDC (2021) in their evaluation. On one hand, this paper's original aim was to assess the net impacts of each ASETS intervention compared to the counterfactual scenario whereby the intervention was not available. On the other, stratification by EI-claimant status has the side effect [due to issues of sample size] of severely limiting the level of control for geographical area and thus contextual factors of considerable importance to Indigenous populations. Indeed, the results of our exploration suggest that it would probably prove more reliable to focus on incremental impacts — the difference generated by high intensity ASETS interventions relative to low intensity ASETS interventions — even for active EI claimants. The research team acknowledges the feedback from ESDC reviewers that there is a need for further exploration of these implications by EI-claimant status though the team was limited at the time of writing by the available sample sizes.

Even though eligibility criteria for ASETS programming is likely consistent across ASETS agreement holders, the actual selection of interventions in a service plan is expected to vary between ASETS agreement holders and communities according to each community's context. Unfortunately, the participation and selection processes are not well documented. It is unclear how program participation can be simulated for the non-participant comparison sample. Instead, all non-participating Indigenous people are considered potential participants and the impact analysis must rely on the matching algorithm to adjust the comparison sample to become more representative of the participant sample, conditional on the service start. And since it is impossible to knowing when a potential service plan would start for any non-participant, a pseudo-APE start month is randomly assigned to each non-participant comparison sample observation.[19] Assignment of the pseudo-APE start month is equivalent to randomly dividing the comparison sample into 12 monthly samples to match with the 12 monthly samples of ASETS participants for 2011. Although randomly dividing the comparison group sample is not statistically efficient, the division permits estimation of a propensity score for participation based on dynamic events in each person's labour market experience relative to the start of the program. Heckman and Smith (1999) have documented the bias that arises from matching, even with difference-in-difference estimation, when dynamic events leading to program participation are not taken into account.

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[19]   ESDC's 2020 Evaluation of ASETS aligned participants to non-participants from the same quarter to facilitate estimation. Given that Heckman and Smith (1999) emphasize the importance of dynamic events, this paper adopts monthly alignments instead.

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ENGAGEMENT WITH INDIGENOUS ORGANIZATIONS

Ongoing and meaningful engagement with Indigenous organizations is a critical element of research and evaluation of programs involving Indigenous peoples. This research uses secondary data gathered from Indigenous participants in programming funded through federal agencies. It is vital to acknowledge the source of these data, the rights of those whose stories are captured by these data and thus the sensitivity surrounding its analysis. The research team invited 11 Aboriginal Agreement Holders to learn about our research findings through online recorded presentation and online video conference and discussion. The SRDC researchers sought to understand perspectives from each organization on their approaches to programming and their feedback on how the early findings aligned with their local service delivery realities and needs. Researchers sought to learn of any contextual or local realities that might impact the findings of the papers, given these were based on MTI data that may have limitations. The results are incorporated in this paper.

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ANALYSIS RESULTS

In the following, the preliminary results are presented in sequence following the order of the research questions above (in the Data and Methodology section).

1. What were the Indigenous identities of users of LMDA, ASETS, AHRDA and non-participants in each province or territory from 1999 to 2017 compared to population statistics from the Census? Are there differences in access to LMDA and ASETS across various Indigenous groups?

Table 1 presents the numbers of Indigenous and non-Indigenous participants identified from the LMPDP and the corresponding percentage relative to the population aged 25-64 in 2016 published by Statistics Canada. In general, 17.3 per cent of the working age Indigenous population have participated in ASETS.[20] Métis people are less likely to participate in ASETS. Indigenous participation in ASETS is higher in PEI, Northwest Territories, and Yukon.

The pattern of participation in AHRDS is similar to that of ASETS. However, given the longer history of AHRDS the percentages are generally higher. Table 2 presents the numbers of Indigenous and non-Indigenous participants identified from the LMPDP and their corresponding percentages in the population as found in Statistics Canada's published figures for the population aged 25-64 in 2016. In general, 29.9 per cent of working age Indigenous people have participated in AHRDS. Again, Métis were less likely to participate in AHRDS. Indigenous participants from Northwest Territories, Yukon, and Manitoba were more likely to participate in AHRDS.

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[20] It should be noted that participation was defined over a seven-year period of ASETS while the population was a snapshot in 2016. The ASETS participation rate of any given year is lower than 17.3 per cent.

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Table 1   Clients served under Indigenous Labour Market programs between 2011 and 2017 compared to 2016 population

	# of people (% of population)					
	Not Indigenous	First Nation (with or without Status)	Métis	Inuit	Others (multiple or unspecified identities)	Total Indigenous
Newfoundland & Labrador	1 (0.0%)	763 (5.2%)	446 (10.6%)	479 (13.8%)	78 (4.5%)	1,766 (7.3%)
Prince Edward Island	(0.0%)	339 (39.6%)	15 (4.2%)	9 (22.5%)	28 (62.2%)	391 (30.1%)
Nova Scotia	2 (0.0%)	2,113 (16.7%)	81 (0.6%)	38 (10.0%)	297 (36.0%)	2,529 (9.6%)
New Brunswick	5 (0.0%)	1,742 (20.8%)	8 (0.1%)	18 (10.6%)	210 (33.9%)	1,978 (13.1%)
Quebec	137 (0.0%)	6,928 (14.8%)	65 (0.2%)	3,124 (54.6%)	620 (17.2%)	10,737 (11.1%)
Ontario	183 (0.0%)	15,637 (13.3%)	2,478 (3.7%)	401 (22.1%)	1,774 (27.4%)	20,290 (10.6%)
Manitoba	2 (0.0%)	16,820 (31.1%)	5,632 (12.3%)	91 (37.1%)	661 (58.0%)	23,204 (22.9%)
Saskatchewan	293 (0.1%)	13,237 (28.1%)	2,468 (8.6%)	20 (10.8%)	1,173 (x)	16,898 (22.0%)
Alberta	18 (0.0%)	14,620 (23.6%)	3,719 (6.3%)	110 (8.8%)	6,084 (x)	24,533 (19.7%)
British Columbia	13 (0.0%)	25,687 (30.3%)	2,948 (6.4%)	127 (16.5%)	3,231 (96.3%)	31,993 (23.7%)
Northwest Territories	(0.0%)	1,558 (43.6%)	25 (4.2%)	30 (31.6%)	121 (86.4%)	1,734 (39.4%)
Yukon	3 (0.0%)	2,868 (44.6%)	341 (18.3%)	495 (25.1%)	180 (x)	3,884 (37.5%)
Nunavut	1 (0.0%)	15 (11.5%)	8 (6.7%)	1,513 (12.2%)	9 (90.0%)	1,545 (12.2%)
Canada	*658 (0.0%)*	*102,327 (22.3%)*	*18,234 (5.9%)*	*6,455 (22.7%)*	*14,466 (67.6%)*	*141,482 (17.3%)*

Notes: SRDC calculations using LMPDP and Statistics Canada Catalogue 98-510-X2016001. (x) indicates inconsistent figures from two data sources when the number of participants is larger than the population figure.

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Table 2   Clients served under Indigenous Labour Market programs between 1999 and 2010 compared to 2016 population

	# of people (% of population)					
	Not Indigenous	First Nation (with or without Status)	Métis	Inuit	Others (multiple or unspecified identities)	Total Indigenous
Newfoundland & Labrador	143 (0.1%)	1,965 (13.3%)	1,189 (28.1%)	1,131 (32.7%)	219 (12.7%)	4,504 (18.6%)
Prince Edward Island	20 (0.0%)	390 (45.6%)	24 (6.7%)	8 (20.0%)	50 (x)	472 (36.3%)
Nova Scotia	117 (0.0%)	3,638 (28.7%)	170 (1.4%)	57 (15.0%)	736 (89.2%)	4,601 (17.4%)
New Brunswick	119 (0.0%)	2,541 (30.4%)	57 (1.0%)	45 (26.5%)	370 (59.7%)	3,013 (19.9%)
Quebec	2,719 (0.1%)	15,787 (33.8%)	187 (0.5%)	4,577 (80.0%)	1,510 (41.9%)	22,061 (22.9%)
Ontario	4,273 (0.1%)	26,081 (22.2%)	5,391 (8.1%)	554 (30.5%)	4,189 (64.7%)	36,215 (18.9%)
Manitoba	665 (0.1%)	27,100 (50.2%)	11,330 (24.7%)	178 (72.7%)	1,147 (x)	39,755 (39.3%)
Saskatchewan	8,529 (1.7%)	16,163 (34.3%)	8,349 (29.1%)	38 (20.5%)	2,620 (x)	27,170 (35.3%)
Alberta	1,787 (0.1%)	23,696 (38.2%)	11,554 (19.7%)	223 (17.8%)	9,457 (x)	44,930 (36.1%)
British Columbia	1,304 (0.1%)	37,682 (44.5%)	6,460 (14.1%)	164 (21.3%)	5,631 (x)	49,937 (37.1%)
Northwest Territories	121 (0.7%)	2,509 (70.2%)	91 (15.4%)	72 (75.8%)	203 (x)	2,875 (65.3%)
Yukon	219 (1.7%)	3,820 (59.5%)	636 (34.2%)	704 (35.6%)	210 (x)	5,370 (51.9%)
Nunavut	90 (2.3%)	50 (38.5%)	20 (16.7%)	3,843 (31.1%)	23 (x)	3,936 (31.2%)
Canada	*20,106 (0.1%)*	*161,422 (35.2%)*	*45,458 (14.6%)*	*11,594 (40.7%)*	*26,365 (x)*	*244,839 (29.9%)*

Notes: SRDC calculations using LMPDP and Statistics Canada Catalogue 98-510-X2016001. (x) indicates inconsistent figures from two data sources when the number of participants is larger than the population figure.

The Indigenous population participated less in LMDA (Table 3). Only 18.5 per cent of the Indigenous population has participated in a LMDA program rather than an ASETS or AHRDS program.[21] Across the non-Indigenous population, 28.8 per cent have participated in a LMDA program. The Indigenous population's participation in LMDA programs was below the level of the non-Indigenous population in every province or territory. However, the presence of AHRDS and ASETS may have substituted the need for LMDA among Indigenous people.

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[21] Anyone who participated in a LMDA intervention between 1996 and 2017 is considered a LMDA participant.

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Table 3   LMDA participants compared to 2016 population

	# of people (% of population)					
	Not Indigenous	First Nation (with or without Status)	Métis	Inuit	Others (multiple or unspecified identities)	Total Indigenous
Newfoundland & Labrador	115,279 (43.7%)	1,531 (10.4%)	664 (15.7%)	535 (15.5%)	822 (47.5%)	3,552 (14.7%)
Prince Edward Island	40,523 (55.5%)	344 (40.2%)	133 (36.9%)	15 (37.5%)	143 (x)	635 (48.8%)
Nova Scotia	141,617 (30.3%)	1,641 (13.0%)	760 (6.1%)	69 (18.2%)	655 (79.4%)	3,125 (11.8%)
New Brunswick	146,056 (37.9%)	1,344 (16.1%)	73 (1.2%)	429 (x)	478 (77.1%)	2,324 (15.4%)
Quebec	1,461,918 (34.2%)	5,002 (10.7%)	455 (1.1%)	118 (2.1%)	5,811 (x)	11,386 (11.8%)
Ontario	1,652,675 (23.5%)	11,534 (9.8%)	5,762 (8.7%)	381 (21.0%)	7,976 (x)	25,653 (13.4%)
Manitoba	176,781 (31.9%)	14,619 (27.1%)	9,450 (20.6%)	2,287 (x)	1,207 (x)	27,563 (27.2%)
Saskatchewan	94,960 (19.4%)	5,028 (10.7%)	4,155 (14.5%)	105 (56.8%)	1,926 (x)	11,214 (14.6%)
Alberta	700,348 (32.8%)	6,891 (11.1%)	2,427 (4.1%)	361 (28.8%)	22,032 (x)	31,711 (25.5%)
British Columbia	683,139 (28.5%)	15,562 (18.4%)	5,460 (11.9%)	263 (34.2%)	7,997 (x)	29,282 (21.7%)
Northwest Territories	5,279 (31.7%)	278 (7.8%)	64 (10.8%)	26 (27.4%)	148 (x)	516 (11.7%)
Yukon	4,083 (30.8%)	1,104 (17.2%)	321 (17.3%)	520 (26.3%)	203 (x)	2,148 (20.8%)
Nunavut	1,382 (35.9%)	25 (19.2%)	10 (8.3%)	2,473 (20.0%)	35 (x)	2,543 (20.1%)
Canada	*5,224,040 (28.8%)*	*64,903 (14.2%)*	*29,734 (9.6%)*	*7,582 (26.6%)*	*49,433 (x)*	*151,652 (18.5%)*

Notes: SRDC calculations using LMPDP and Statistics Canada Catalogue 98-510-X2016001. (x) indicates inconsistent figures from two data sources when the number of participants is larger than the population figure.

The Indigenous population was substantially less likely to participate in EI regular benefits outside of labour market programming than the non-Indigenous population. Only 12.3 per cent of Indigenous people had used EI Part I benefits without participating in any labour market programming, while 60.4 per cent of non-Indigenous people had done the same.[22] As a result, Indigenous EI Part I benefit recipients with no program participation are likely a very select group, while the sample size is smaller than the ASETS participant sample. These observations imply construction of a comparable comparison group for evaluation of ASETS could be challenging.

[22] Anyone who had ever received EI Part I benefits between 1996 and 2017 is considered an EI Part I benefit recipient.

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Table 4   EI Part I benefit recipients (with no program participation) compared to 2016 population

	# of people (% of population)					
	Not Indigenous	First Nation (with or without Status)	Métis	Inuit	Others (multiple or unspecified identities)	Total Indigenous
Newfoundland & Labrador	152,679 (57.9%)	764 (5.2%)	334 (7.9%)	473 (13.7%)	333 (19.2%)	1,904 (7.9%)
Prince Edward Island	27,160 (37.2%)	31 (3.6%)	(0.0%)	(0.0%)	31 (68.9%)	62 (4.8%)
Nova Scotia	291,981 (62.4%)	1,250 (9.9%)	76 (0.6%)	15 (3.9%)	743 (90.1%)	2,084 (7.9%)
New Brunswick	204,605 (53.1%)	847 (10.1%)	17 (0.3%)	11 (6.5%)	292 (47.1%)	1,167 (7.7%)
Quebec	2,954,197 (69.1%)	7,748 (16.6%)	336 (0.8%)	32 (0.6%)	3,174 (88.2%)	11,290 (11.7%)
Ontario	4,355,914 (61.9%)	12,324 (10.5%)	522 (0.8%)	100 (5.5%)	8,367 (x)	21,313 (11.1%)
Manitoba	290,089 (52.4%)	11,955 (22.1%)	6,700 (14.6%)	63 (25.7%)	1,112 (97.5%)	19,830 (19.6%)
Saskatchewan	307,146 (62.8%)	7,957 (16.9%)	4,065 (14.1%)	75 (40.5%)	1,465 (x)	13,562 (17.6%)
Alberta	1,038,129 (48.7%)	3,099 (5.0%)	1,079 (1.8%)	40 (3.2%)	5,015 (x)	9,233 (7.4%)
British Columbia	1,290,921 (53.8%)	6,814 (8.0%)	475 (1.0%)	59 (7.7%)	10,873 (x)	18,221 (13.5%)
Northwest Territories	8,412 (50.6%)	62 (1.7%)	3 (0.5%)	14 (14.7%)	76 (54.3%)	155 (3.5%)
Yukon	7,228 (54.5%)	518 (8.1%)	160 (8.6%)	161 (8.2%)	25 (29.4%)	864 (8.4%)
Nunavut	4,277 (x)	13 (10.0%)	8 (6.7%)	807 (6.5%)	10 (x)	838 (6.6%)
Canada	*10,932,738 (60.4%)*	*53,382 (11.6%)*	*13,775 (4.4%)*	*1,850 (6.5%)*	*31,516 (x)*	*100,523 (12.3%)*

Notes: SRDC calculations using LMPDP and Statistics Canada Catalogue 98-510-X2016001. (x) indicates inconsistent figures from two data sources when the number of participants is larger than the population figure.

2. Does urban-rural status (as determined from the Forward Sortation Area variable of the T1 Entity) play a role in the use of LMDA and ASETS across Indigenous populations?

According to Statistics Canada, approximately 60 per cent of Canada's Indigenous population is living in the rural area. On average, only 52 per cent (Table 5) of ASETS participants and 48 per cent of LMDA participants (Table 6) were living in a rural area. Both figures are lower than for the Canadian population. The percentage of rural residents varies depending on the intervention – from a low of 38 per cent for the ASET counselling interview intervention to a high of 72 per cent for ASET Essential Skills training. For LMDA participants, the percentage of rural residents runs as low as 34 per cent for LMDA counselling interviews and as high as 63 per cent for LMDA

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Fee-payer skills development. Rural-urban status seems to play a role in the participation of various ASETS or LMDA interventions. For example, ASETS wage subsidy and job partnership involve a higher proportion of rural Indigenous residents than the two similar interventions under LMDA.

Table 5   Percentage of ASETS participants living in urban versus rural areas

	Urban (%)	Rural (%)
312 – ASETS Skills Development Apprentice intervention	58.4	41.6
313 – ASETS Skills Development other intervention	48.8	51.2
320 – ASETS Wage subsidy intervention	39.8	60.2
330 – ASETS Self-employment intervention	57.4	42.6
340 – ASETS Job partnership intervention	30.0	70.0
352 – ASETS Counselling Interview intervention	61.6	38.4
354 – ASETS EAS other intervention	50.9	49.1
355 – ASETS Essential Skills Training intervention	28.5	71.5
356 – ASETS Student Work Experience intervention	49.0	51.0
All ASETS APE	*48.4*	*51.6*

Note: SRDC calculations using LMPDP.

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Table 6   Percentage of LMDA participants living in urban versus rural areas

	Urban (%)	Rural (%)
011 – LMDA Fee-payer skills development intervention	36.8	63.2
012 – LMDA Skills development apprentice intervention	57.1	42.9
013 – LMDA Skills development intervention other than above	41.5	58.5
020 – LMDA Wage subsidy intervention	45.0	55.0
030 – LMDA Self-employment assistance intervention	58.0	42.0
040 – LMDA Job partnership intervention	45.7	54.3
051 – LMDA Job finding club intervention	64.7	35.3
052 – LMDA Counselling interview intervention	66.3	33.7
053 – LMDA EAS intervention	59.6	40.4
054 – LMDA An EAS intervention other than above	58.6	41.4
055 – Research and Innovation Intervention	53.2	46.8
060 – LMDA the "Aboriginal" intervention	51.6	48.4
070 – Misc. NESS/SDF code	47.9	52.1
080 – Misc. CS code	36.9	63.1
098 – Undocumented	37.1	62.9
099 – Missing Code	47.2	52.8
All ASETS APE	*52.4*	*47.6*

Note: SRDC calculations using LMPDP.

3. What interventions are involved in ASETS programming? What are the common intervention pathways or action plans in ASETS programming? How do they differ from Indigenous participants in LMDA programming? What are the employment outcomes associated with common intervention pathways or action plans in ASETS and LMDA programming among Indigenous participants?

For ASETS programming, there are generally nine categories of programs: two in skills development, one wage subsidy, one self-employment, one job partnership, one counselling service, two employment assistance services, one essential skills training, and one student work experience. However, it is not rare that APEs are mixed with interventions from other programs. Table 7 presents the percentage of ASETS APEs involving other interventions. The most common overlap is LMDA. As a result, there is no such treatment as "pure" ASETS programming.

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Table 7   ASETS APEs with other interventions

	Percentage with interventions from:					
	1: LMDA	2: AHRDA	3: ASET	4: SPF	5: Career Focus	6: Skills Link
312 – ASET Skills Development Apprentice intervention	39.4	2.0	100.0	6.7	0.0	0.0
313 – ASET Skills Development other intervention	21.1	1.6	100.0	2.7	0.0	0.1
320 – ASET Wage subsidy intervention	14.9	1.3	100.0	2.0	0.0	0.1
330 – ASET Self-employment intervention	13.8	1.9	100.0	0.6	0.0	0.2
340 – ASET Job partnership intervention	8.1	0.9	100.0	1.7	0.0	0.7
352 – ASET Counselling Interview intervention	5.4	0.7	100.0	0.5	0.0	0.0
354 – ASET EAS other intervention	6.0	0.3	100.0	0.4	0.0	0.0
355 – ASET Essential Skills Training intervention	13.8	1.2	100.0	2.1	0.0	0.1
356 – ASET Student Work Experience intervention	12.5	0.7	100.0	0.7	0.0	0.2

Notes: SRDC calculations using LMPDP. Only ASETS APEs between 2011 and 2017 from the analysis sample of ASETS participants were used in the calculations.

AHRDS has many similar intervention categories, though there are also some unclear interventions from the LMPDP (0). Similar to ASETS, it was not rare for AHRDS APEs to include some LMDA interventions.

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Table 8   AHRDS APEs with other interventions

	Percentage with interventions from:				
	1: LMDA	2: AHRDA	4: SPF	5: Career Focus	6: Skills Link
011 – AHRDS Fee-payer skills development intervention	19.3	100.0	0.0	0.0	0.1
012 – AHRDS Skills development apprentice intervention	22.5	100.0	0.0	0.0	0.0
013 – AHRDS Skills development intervention other than above	15.7	100.0	0.0	0.0	0.2
020 – AHRDS Wage subsidy intervention	12.6	100.0	0.0	0.0	0.2
030 – AHRDS Self-employment assistance intervention	18.7	100.0	0.0	0.0	0.0
040 – AHRDS Job partnership intervention	10.9	100.0	0.0	0.0	0.2
051 – AHRDS Job finding club intervention	14.0	100.0	0.0	0.0	0.0
052 – AHRDS Counselling interview intervention	11.3	100.0	0.1	0.0	0.0
053 – AHRDS EAS intervention	11.9	100.0	0.0	0.0	0.0
054 – AHRDS An EAS intervention other than above	9.3	100.0	0.0	0.0	0.0
060 – AHRDS the "Aboriginal" intervention	14.9	100.0	0.0	0.0	0.2
070 – Misc. NESS/SDF code	6.1	100.0	0.0	0.0	0.5
098 – Undocumented	15.1	100.0	0.0	0.0	0.1
099 – Missing Code	17.6	100.0	0.0	0.0	0.9

Notes: SRDC calculations using LMPDP. Only AHRDS APEs between 1999 and 2010 from the analysis sample of AHRDS participants were used in the calculations.

LMDA programs include a handful of additional interventions compared to AHRDS, such as research and innovation (0). Members of the Indigenous population who participated in a LMDA program but not a ASETS or AHRDS program were not likely to participate in other EBSM interventions (with the exception of Skills Link, though this is concentrated in those assigned the unclear "070: Misc. NESS/SDF code" LMDA program code).

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Table 9   LMDA APEs with other interventions

	Percentage with interventions from:			
	1: LMDA	4: SPF	5: Career Focus	6: Skills Link
011 – LMDA Fee-payer skills development intervention	100.0	0.4	0.0	0.2
012 – LMDA Skills development apprentice intervention	100.0	0.1	0.0	0.0
013 – LMDA Skills development intervention other than above	100.0	0.2	0.0	0.2
020 – LMDA Wage subsidy intervention	100.0	0.2	0.0	0.3
030 – LMDA Self-employment assistance intervention	100.0	0.1	0.0	0.0
040 – LMDA Job partnership intervention	100.0	0.3	0.0	0.1
051 – LMDA Job finding club intervention	100.0	0.0	0.0	0.0
052 – LMDA Counselling interview intervention	100.0	0.1	0.0	0.0
053 – LMDA EAS intervention	100.0	0.0	0.0	0.0
054 – LMDA An EAS intervention other than above	100.0	0.0	0.0	0.0
055 – Research and Innovation Intervention	100.0	1.2	0.0	0.0
060 – LMDA the "Aboriginal" intervention	100.0	0.0	0.0	0.0
070 – Misc. NESS/SDF code	100.0	0.0	0.3	20.9
080 – Misc. CS code	100.0	0.0	0.0	0.3
098 – Undocumented	100.0	0.0	0.0	0.7
099 – Missing Code	100.0	0.8	0.0	1.8

Notes: SRDC calculations using LMPDP. Only LMDA APEs between 1996 and 2017 from the analysis sample of LMDA participants were used in the calculations.

In terms of pathway, an ASETS intervention may appear before or after other non-ASETS interventions within a multiple intervention APE. The majority of ASETS APEs started with an ASETS intervention (0). The most likely intervention to follow a LMDA start of an ASETS APE was ASETS' Skills Development for Apprentices, but nonetheless for fewer than 25 per cent. After the first ASETS intervention, 20 to 43 per cent of ASETS programs would include a second ASETS intervention (0). Again, ASETS' Skills Development for Apprentices is the most likely included program followed by a LMDA intervention.

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Table 10   ASETS APE intervention sequences – Start

Percentage (%)	Start with ASETS	LMDA before ASETS	AHRDS before ASETS	SPF before ASETS	CF before ASETS	SL before ASETS
312 – ASET Skills Development Apprentice intervention	76.3	21.4	1.8	2.0	0.0	0.0
313 – ASET Skills Development other intervention	85.9	12.3	1.5	0.9	0.0	0.0
320 – ASET Wage subsidy intervention	90.4	7.8	1.3	0.8	0.0	0.0
330 – ASET Self-employment intervention	90.6	7.6	1.9	0.2	0.0	0.1
340 – ASET Job partnership intervention	94.6	4.1	0.9	0.7	0.0	0.1
352 – ASET Counselling Interview intervention	96.9	2.4	0.7	0.1	0.0	0.0
354 – ASET EAS other intervention	96.3	3.4	0.3	0.1	0.0	0.0
355 – ASET Essential Skills Training intervention	90.7	8.0	1.1	0.5	0.0	0.0
356 – ASET Student Work Experience intervention	91.1	8.2	0.6	0.1	0.0	0.0

Notes: SRDC calculations using LMPDP. Only ASETS APEs between 2011 and 2017 from the analysis sample were used in the calculations. The sum of each row exceeds 100 per cent since some APEs comprise multiple non-ASETS interventions before the instance of ASETS within the APE. Since an APE would be considered to have ended if there was no intervention following within 183 days, non-ASETS interventions are all within 183 days before the start of the ASETS intervention.

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Table 11   ASETS APE interventions sequences – Post

Percentage (%)	LMDA after ASETS	AHRDS after ASETS	ASETS after ASETS	SPF after ASETS	CF after ASETS	SL after ASETS
312 – ASET Skills Development Apprentice intervention	26.8	0.3	43.1	5.6	0.0	0.0
313 – ASET Skills Development other intervention	13.1	0.2	40.6	2.1	0.0	0.0
320 – ASET Wage subsidy intervention	9.0	0.2	38.6	1.3	0.0	0.1
330 – ASET Self-employment intervention	7.8	0.4	38.2	0.4	0.0	0.1
340 – ASET Job partnership intervention	4.9	0.0	23.1	1.1	0.0	0.6
352 – ASET Counselling Interview intervention	3.7	0.2	34.3	0.4	0.0	0.0
354 – ASET EAS other intervention	3.8	0.1	19.6	0.4	0.0	0.0
355 – ASET Essential Skills Training intervention	8.7	0.2	27.6	1.8	0.0	0.0
356 – ASET Student Work Experience intervention	7.5	0.2	26.0	0.6	0.0	0.1

Notes: SRDC calculations using LMPDP. Only ASETS APEs between 2011 and 2017 from the analysis sample starting with an ASETS intervention were used in the calculations. The percentages for ASETS APEs ending with the ASETS intervention are not presented. Since some APEs consist of multiple non-ASETS interventions after the instance of ASETS intervention, the columns are not mutually exclusive. Since an APE would be considered to have ended if there was no following intervention within 183 days, non-ASETS interventions are all within 183 days after the end of the ASETS intervention.

Table 12 illustrates that many Indigenous LMDA participants (who did not participate in ASETS or AHRDS) participated in a second LMDA intervention after the first one, ranging from 20 per cent for Research and Innovation to 77 per cent for self-employment assistance. Compared to the ASETS' pathway, programming of some APEs under LMDA appears to follow a very different pathway.

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Table 12   LMDA APE intervention sequences

Percentage (%)	Start with LMDA	LMDA after LMDA	SPF after LMDA	CF after LMDA	SL after LMDA
011 – LMDA Fee-payer skills development intervention	99.9	75.7	0.3	0.0	0.1
012 – LMDA Skills development apprentice intervention	100.0	37.9	0.0	0.0	0.0
013 – LMDA Skills development intervention other than above	99.9	69.0	0.2	0.0	0.1
020 – LMDA Wage subsidy intervention	99.8	64.0	0.1	0.0	0.2
030 – LMDA Self-employment assistance intervention	99.9	77.1	0.0	0.0	0.0
040 – LMDA Job partnership intervention	99.9	63.7	0.3	0.0	0.1
051 – LMDA Job finding club intervention	100.0	31.4	0.0	0.0	0.0
052 – LMDA Counselling interview intervention	100.0	40.9	0.1	0.0	0.0
053 – LMDA EAS intervention	100.0	36.3	0.0	0.0	0.0
054 – LMDA An EAS intervention other than above	100.0	51.3	0.0	0.0	0.0
055 – Research and Innovation Intervention	98.8	20.3	0.0	0.0	0.0
060 – LMDA the "Aboriginal" intervention	100.0	65.0	0.0	0.0	0.0
070 – Misc. NESS/SDF code	100.0	43.9	0.0	0.3	20.9
080 – Misc. CS code	99.9	18.3	0.0	0.0	0.2
098 – Undocumented	99.9	49.5	0.0	0.0	0.7
099 – Missing Code	99.7	57.1	0.8	0.0	1.8

Notes: SRDC calculations using LMPDP. Only LMDA APEs between 1996 and 2017 for LMDA participants from the analysis sample were used in the calculations.

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4. What variation is there in the duration of ASETS programming? How does this differ from Indigenous participation in LMDA programming?

The LMPDP provides information about the start and end dates (or imputed end dates) of programming, and it is possible to calculate an approximate duration of an APE.[23] The duration across all ASETS APEs ranges from 1 calendar day to 2,773, with 75 per cent of APEs under 171 days (Table 13). Skills development for Apprentices and Wage Subsidies under ASETS had a longer duration than other ASETS APEs while Counselling and Employment Assistance Services had the shortest duration, as expected. Compared to AHRDS, ASETS' APE durations are in general shorter (Table 14).

Table 13   Durations of ASETS Action Plan Equivalents

	# APE	Average days	Min	25th percentile	Median	75th percentile	Max
312 – ASETS Skills Development Apprentice intervention	4,304	204.3	1	65	143	284	1,654
313 – ASETS Skills Development other intervention	69,842	168.9	1	19	96	247	2,773
320 – ASETS Wage subsidy intervention	7,568	198.6	1	89	152	262	1,979
330 – ASETS Self-employment intervention	1,254	161.5	1	20	113	244	1,651
340 – ASETS Job partnership intervention	7,067	123.3	1	33	93	160	1,598
352 – ASETS Counselling Interview intervention	27,939	54.1	1	1	37	64	1,330
354 – ASETS EAS other intervention	25,915	42.9	1	1	7	39	1,305
355 – ASETS Essential Skills Training intervention	14,103	130.3	1	5	61	184	1,673
356 – ASETS Student Work Experience intervention	2,061	114.8	1	54	82	116	1,365
All ASETS APEs	*160,053*	*124.7*	*1*	*6*	*59*	*171*	*2,773*

Notes: SRDC calculations using LMPDP. Only ASETS APEs between 2011 and 2017 from the analysis sample were used in the calculations.

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[23]   The start date of an intervention is generally believed to be accurately captured while the end date may suffer from various issues. ESDC has conducted quality checks on the end dates and imputes the end dates for missing or erroneous values. The calculated durations may not reflect the true duration of the services. Since the Action Plan Equivalent (APE) is also an artificially created metric to proxy an actual service plan, the statistics of APE duration do not accurately represent the actual duration of programming duration. However, with the assumption that imputation and proxying errors are independently distributed across various programming, the relative differences in the approximate duration remain informative about usage patterns.

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Table 14   Duration of AHRDS Action Plan Equivalents

	# APE	Average days	Min	25th percentile	Median	75th percentile	Max
011 – AHRDS Fee-payer skills development intervention	41,102	182.2	1	26	119	267	2,343
012 – AHRDS Skills development apprentice intervention	364	98.4	1	38	48	125	821
013 – AHRDS Skills development intervention other than above	38,024	207.2	1	40	145	296	2,411
020 – AHRDS Wage subsidy intervention	6,202	204.3	1	96	161	261	1,545
030 – AHRDS Self-employment assistance intervention	1,708	231.4	1	90	220	355	1,423
040 – AHRDS Job partnership intervention	5,676	172.3	1	82	133	196	2,842
051 – AHRDS Job finding club intervention	566	62.8	1	12	58	58	685
052 – AHRDS Counselling interview intervention	10,388	79.8	1	1	18	130	1,261
053 – AHRDS EAS intervention	20,025	65.3	1	2	58	87	1,514
054 – AHRDS An EAS intervention other than above	11,338	68.9	1	1	12	125	1,003
060 – AHRDS the "Aboriginal" intervention	49,760	158.5	1	21	102	222	2,818
070 – Misc. NESS/SDF code	7,499	164.2	1	35	132	229	1,449
098 – Undocumented	1,925	160.3	1	68	113	215	1,400
099 – Missing Code	2,541	186.4	1	32	117	271	1,782
All AHRDS APEs	*197,118*	*156.8*	*1*	*19*	*101*	*221*	*2,842*

Note: SRDC calculations using LMPDP.

Comparison of ASETS and AHRDS APE durations to those of LMDA among Indigenous participants (Table 15) indicates some similarities as well as some differences. Wage Subsidy has a similar variation in duration, while Self-employment Assistance is substantially longer under LMDA than in AHRDS or ASETS. Also, Employment Assistance Services is the dominant APE [with slightly longer duration] under LMDA but not in AHRDS nor ASETS. For evaluation of ASETS, some interventions under LMDA might be able to serve as a benchmark for ASETS interventions while others with very different durations are not directly comparable. Of course, ASETS interventions may impose very different criteria to accept participants than LMDA interventions and the comparisons might not be legitimate. However, the comparison would be valid for those participants who are eligible for both LMDA and ASETS at the same time (such as

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for some active EI benefit claimants). Some select one intervention over the other for reasons unrelated to the intervention outcomes.

Table 15   Durations of LMDA Action Plan Equivalent among Indigenous users

	# APE	Average days	Min	25th percentile	Median	75th percentile	Max
011 – LMDA Fee-payer skills development intervention	21,713	261.1	1	88	203	366	2,245
012 – LMDA Skills development apprentice intervention	14,090	84.8	1	29	54	93	1,102
013 – LMDA Skills development intervention other than above	12,990	238.2	1	56	159	336	2,448
020 – LMDA Wage subsidy intervention	8,907	217.1	1	109	172	281	1,778
030 – LMDA Self-employment assistance intervention	4,418	324.9	1	209	346	408	1,574
040 – LMDA Job partnership intervention	3,160	196.2	1	83	149	265	1,623
051 – LMDA Job finding club intervention	1,422	40.7	1	12	22	57	487
052 – LMDA Counselling interview intervention	61,751	118.6	1	14	110	148	2,293
053 – LMDA EAS intervention	120,359	70.2	1	1	58	92	2,069
054 – LMDA An EAS intervention other than above	16,500	117.8	1	28	91	161	1,395
055 – Research and Innovation Intervention	669	112.2	1	37	84	152	855
060 – LMDA the "Aboriginal" intervention	1,949	112.4	1	3	69	161	1,275
070 – Misc. NESS/SDF code	2,408	158.7	1	75	134	203	1,551
080 – Misc. CS code	2,972	201.5	1	174	174	174	1,440
098 – Undocumented	4,208	118.7	1	35	84	170	1,221
099 – Missing Code	382	224.3	1	124	164	287	1,476
All LMDA APEs	*277,898*	*120.9*	*1*	*14*	*67*	*162*	*2,448*

Notes: SRDC calculations using LMPDP. Only LMDA APEs between 1996 and 2017 from the analysis sample were used in the calculations.

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5. What is the demographic profile (age, male/female, marital status) of users of each type of ASETS program? How does the profile differ from Indigenous users of similar programs in LMDA?

Tables Table 16 and Table 17 present the demographic profile of users of each type of ASETS program as well as LMDA programs (among Indigenous users). In both programs, Skills Development for Apprentices has younger, mostly male participants while Job Creation Partnership has more older male participants. Interestingly, marital status for ASETS participants is less likely to be available from the tax return database.

Table 16   Profiles of ASETS participants at the beginning of the APE

	Average age	Male (%)	Female (%)	Married or common law (%)	Widowed, divorced, separated or single (%)	Unknown marital status (%)
312 – ASETS Skills Development Apprentice intervention	34.2	80.7	19.3	27.6	50.2	22.1
313 – ASETS Skills Development other intervention	37.3	52.2	47.8	26.0	55.0	19.0
320 – ASETS Wage subsidy intervention	38.4	55.4	44.6	30.6	52.1	17.3
330 – ASETS Self-employment intervention	41.1	49.4	50.5	32.6	46.5	20.9
340 – ASETS Job partnership intervention	38.0	59.4	40.5	29.3	51.8	18.8
352 – ASETS Counselling Interview intervention	38.4	53.0	47.0	21.5	52.3	26.2
354 – ASETS EAS other intervention	38.3	61.4	38.6	21.4	55.9	22.7
355 – ASETS Essential Skills Training intervention	38.7	52.3	47.6	33.1	51.6	15.3
356 – ASETS Student Work Experience intervention	31.4	32.2	67.7	23.9	58.4	17.8
All ASETS APE	*37.7*	*54.8*	*45.2*	*25.5*	*54.0*	*20.5*

Notes: SRDC calculations using LMPDP. Only ASETS APEs between 2011 and 2017 from the analysis sample were used in the calculations.

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Table 17   Profiles of LMDA participants at the beginning of the APE

	Average age	Male (%)	Female (%)	Married or common law (%)	Widowed, divorced, separated or single (%)	Unknown marital status (%)
011 – LMDA Fee-payer skills development intervention	37.7	55.7	44.3	43.4	51.5	5.2
012 – LMDA Skills development apprentice intervention	32.2	92.1	7.8	49.5	45.2	5.2
013 – LMDA Skills development intervention other than above	36.8	58.7	41.3	43.9	52.6	3.4
020 – LMDA Wage subsidy intervention	39.1	57.1	42.9	39.8	52.8	7.3
030 – LMDA Self-employment assistance intervention	39.8	54.5	45.5	52.3	42.1	5.6
040 – LMDA Job partnership intervention	39.1	58.4	41.6	38.2	55.7	6.2
051 – LMDA Job finding club intervention	38.8	45.9	54.1	32.5	60.8	6.7
052 – LMDA Counselling interview intervention	39.2	54.7	45.3	30.6	56.1	13.3
053 – LMDA EAS intervention	38.6	48.5	51.4	25.2	61.9	12.9
054 – LMDA An EAS intervention other than above	39.5	53.6	46.3	29.6	60.2	10.2
055 – Research and Innovation Intervention	40.5	62.2	37.8	44.4	29.7	25.9
060 – LMDA the "Aboriginal" intervention	38.5	54.5	45.4	41.0	52.8	6.2
070 – Misc. NESS/SDF code	36.0	54.6	45.3	37.7	58.8	3.6
080 – Misc. CS code	47.1	58.9	41.0	47.3	45.9	6.8
098 – Undocumented	38.4	67.0	33.0	44.6	52.3	3.1
099 – Missing Code	38.6	60.2	39.8	27.2	58.9	13.9
All ASETS APE	*38.4*	*54.4*	*45.5*	*32.1*	*57.3*	*10.7*

Notes: SRDC calculations using LMPDP. Only LMDA APEs between 1996 and 2017 from the analysis sample were used in the calculations.

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6. How does participation in various ASETS programs vary by season and province/territory? How do participation patterns differ from those of Indigenous users of various LMDA programs?

Figures 1 to 3 show the total numbers of ASETS APEs by season and province/territory. ASETS Skills Development – other is seasonal. It tends to start more often in Spring, decline in Summer, rise again in Fall, and decrease in Winter. Almost all programs are seasonal in that they are less likely to start in Winter. The patterns may reflect the needs of ASETS programs attributable to seasonal patterns of labour demand.

Figure 1   ASETS APE start by season and province (Atlantic)

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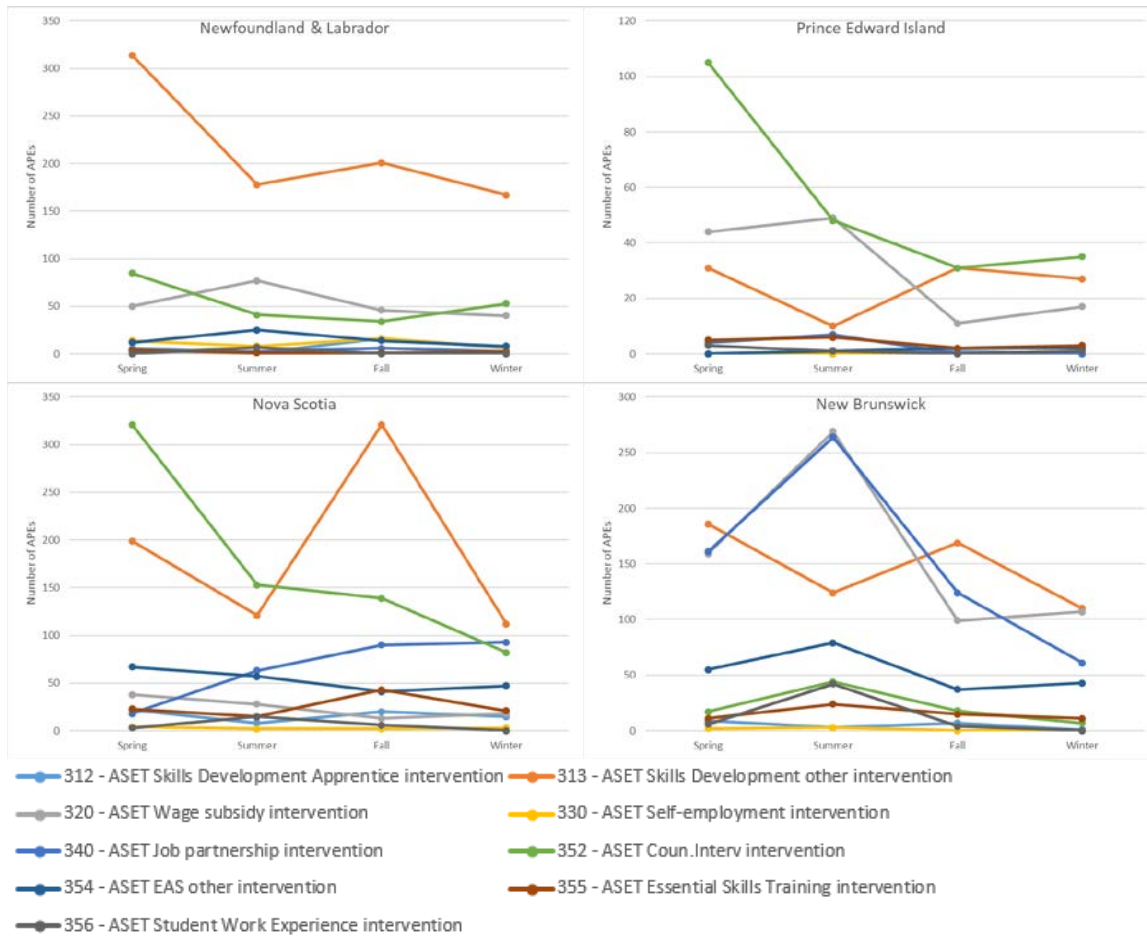
Figure 2   ASETS APE start by season and province (Centre-West)

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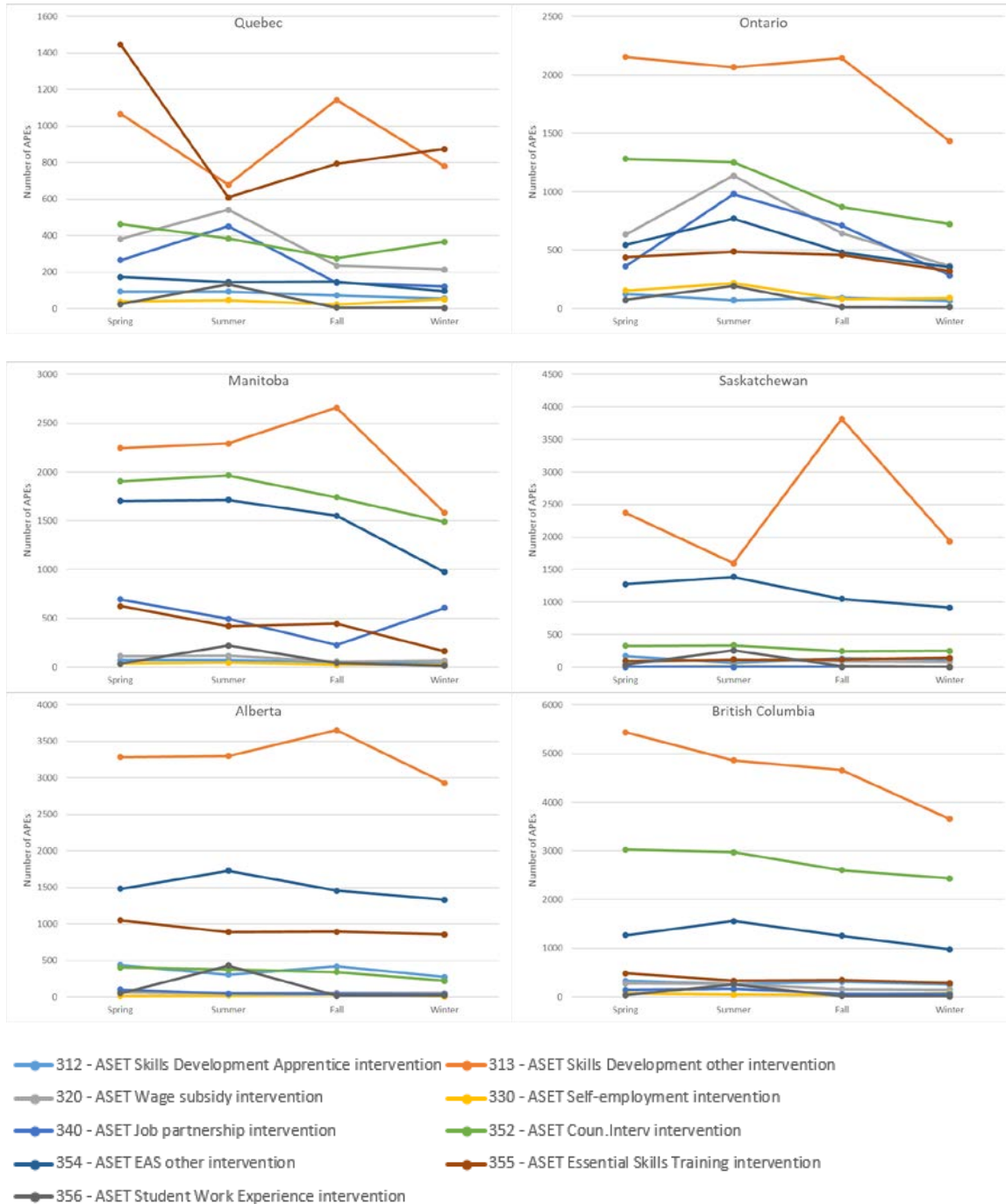
Figure 3   ASETS APE start by season and territory
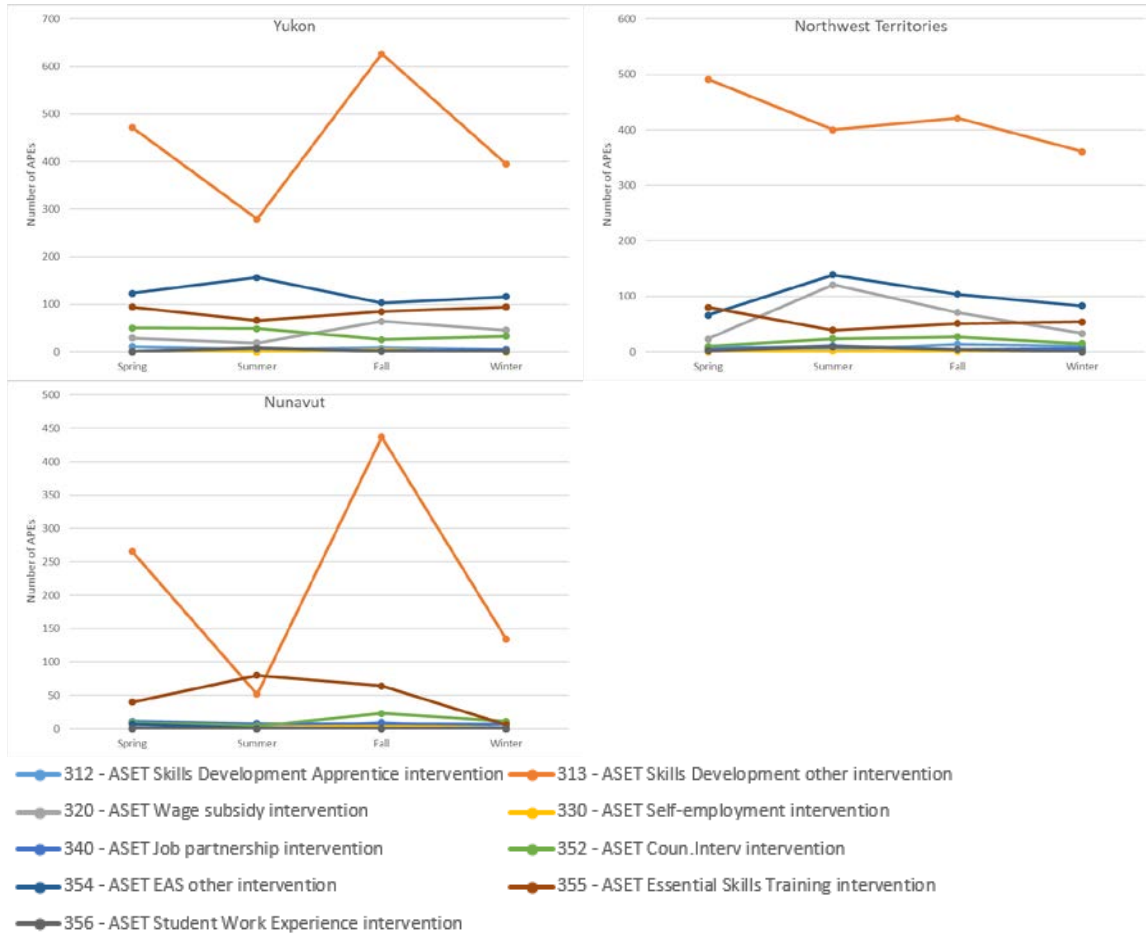
Figures 4 to 8 show the total numbers of LMDA APEs by season and province/territory. LMDA's Skills Development for Apprentices starts more often in Spring, declines in Summer, rises again in Fall, and decreases again in Winter. Again, the variation in seasonal patterns of APE start dates by province/territory may reflect the differences in the potential needs of the programs attributable to seasonal conditions in local labour markets.

Figure 4   LMDA APE start by season and province (East)

052 - LMDA Counselling interview intervention   053 - LMDA EAS intervention

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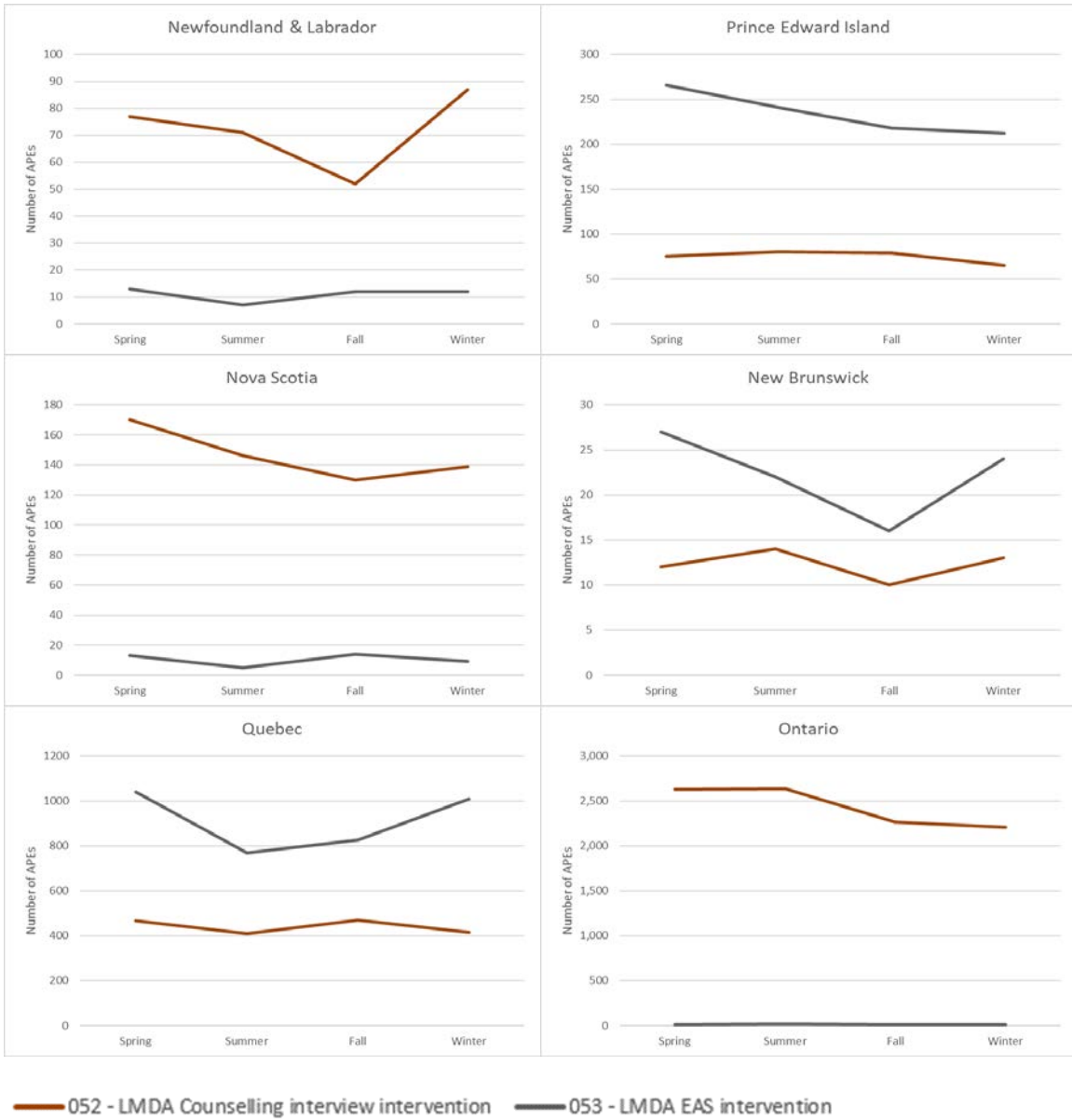
Figure 5   LMDA APE start by season and province/territory (West)

052 - LMDA Counselling interview intervention   053 - LMDA EAS intervention

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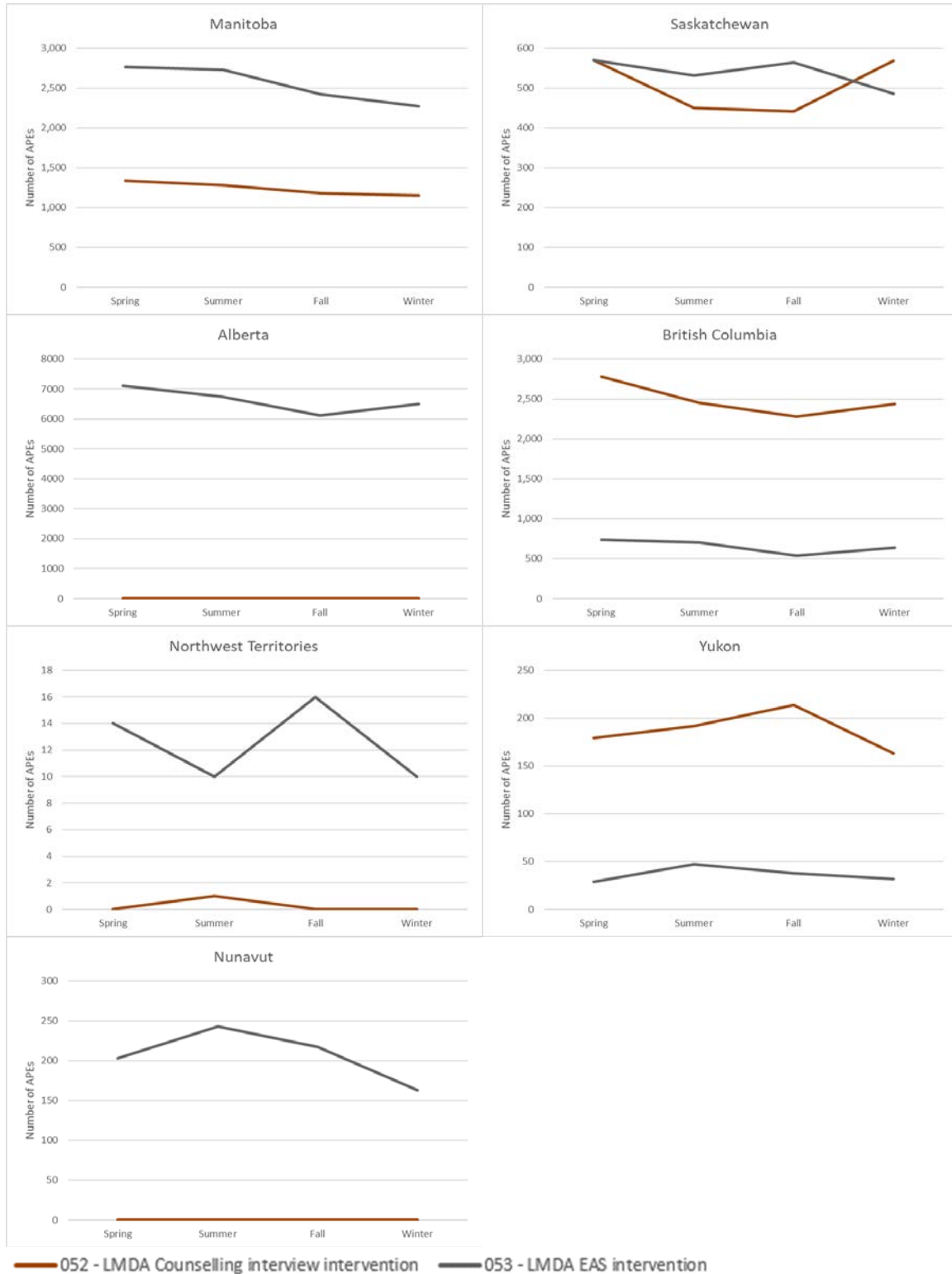
Figure 6   LMDA APE start by season and province (East)

011 - LMDA Fee-payer skills development intervention

012 - LMDA Skills development apprentice intervention

013 - LMDA Skills development intervention other than above

020 - LMDA Wage subsidy intervention

030 - LMDA Self-employment assistance intervention

040 - LMDA Job partnership intervention

054 - LMDA An EAS intervention other than above

055 - Research and Innovation Intervention

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Figure 7 LMDA APE start by season and province (West)

011 - LMDA Fee-payer skills development intervention
012 - LMDA Skills development apprentice intervention
013 - LMDA Skills development intervention other than above
020 - LMDA Wage subsidy intervention
030 - LMDA Self-employment assistance intervention
040 - LMDA Job partnership intervention
054 - LMDA An EAS intervention other than above
055 - Research and Innovation Intervention

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Figure 8   LMDA APE start by season and territory
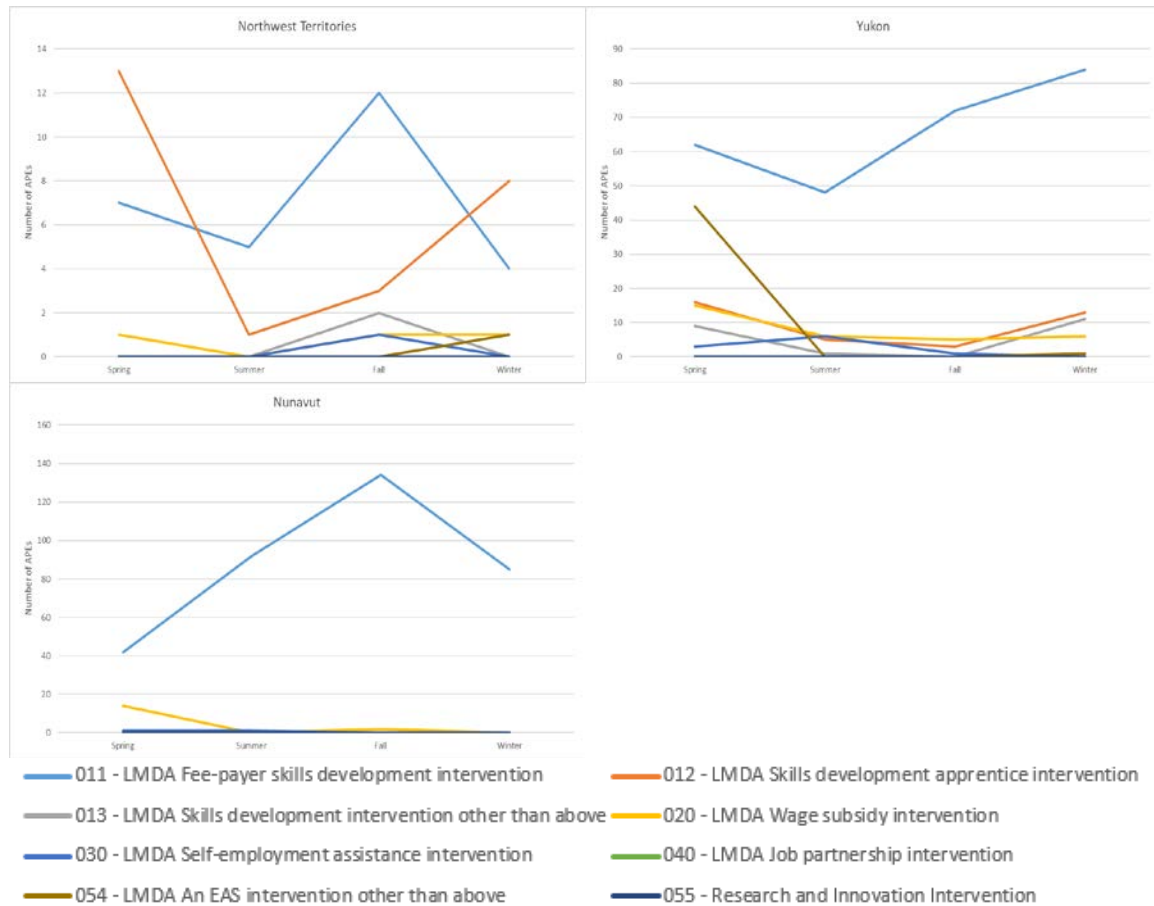
7. What are the annual variations of income and employment among ASETS users in the period
    one to five years prior to their participation? How do they differ from those of Indigenous
    users of LMDA?

To estimate variation in income and employment among ASETS users in the period one to
five years prior to their participation, we selected the sample of ASETS users who started their
ASETS APE in the year 2011. For comparison, we also selected a sample of Indigenous non-
participants (who did not start any ASETS APE in 2011 and 2012). Table 18 shows that family
income (as reported in tax return T1) was generally stable in the five years prior to participation
but there were differences in average family income between different ASETS interventions.
Two interventions with the lowest average family income are ASET Job Creation Partnership and
ASET Student Work Experience. The non-participant sample had substantially higher average
income. In contrast, Table 19 shows that average income from work was decreasing from
five years before participation for ASETS participants with the exception of those entering Skills

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Development – Apprentice or Essential Skills interventions. Again, Indigenous non-participants in ASETS experienced an increase in income from work during the same period.

Table 18   Average family income (2010 dollars) of 2011 ASETS participants and non-participants

Years before reference year	Average annual family income ($)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
5	31,801	17,845	16,466	14,446	28,553	8,386	15,653	15,457	23,538	10,159
4	34,090	20,754	17,885	15,037	29,768	9,161	16,814	16,480	25,572	11,872
3	35,507	22,465	18,003	15,737	27,953	9,905	17,202	16,663	26,169	12,980
2	35,591	22,425	17,487	14,663	28,080	9,788	16,291	15,833	26,317	11,865
1	38,236	22,308	17,269	14,888	30,034	9,403	16,140	15,421	27,016	11,265
0	37,923	22,894	17,557	15,091	27,868	9,490	17,266	16,283	28,213	11,264

Notes: SRDC calculations using LMPDP. Comparison group consists of observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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Table 19   Average work Income (2010 dollars) of 2011 ASETS participants and non-participants

Years before reference year	Average income from employment, business, or self-employment ($)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
5	18,609	12,659	9,093	7,502	16,080	3,612	8,847	9,320	14,166	4,579
4	19,832	14,742	9,614	7,860	15,891	4,038	9,520	9,835	14,870	5,419
3	20,631	15,938	9,578	8,092	14,643	4,244	9,521	9,933	14,943	5,256
2	19,743	14,219	8,495	6,983	14,421	3,959	7,715	8,375	14,931	4,487
1	20,363	14,029	7,963	6,470	13,281	3,507	7,451	8,024	15,436	3,438
0	21,412	14,035	7,420	6,892	11,069	3,614	7,151	8,902	16,684	3,073

Notes: SRDC calculations using LMPDP. Comparison group consists of observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

In comparison, Indigenous LMDA participants from the same 2011 cohort have a substantially higher average family income and average work income (Table 20 and Table 21). Similar to ASETS participants, there was a decrease in work income compared to five years before participation in most LMDA interventions with the exception of Skills Development – Apprenticeship.

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Table 20   Average family Income (2010 dollars) of 2011 Indigenous LMDA participants

Years before reference year	Average family income ($)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
5	35,895	22,110	23,686	43,567	22,061	26,152	20,120
4	40,700	24,676	25,020	45,942	24,029	27,216	21,532
3	46,626	25,111	25,666	44,807	24,140	27,619	22,123
2	48,155	23,667	25,033	47,155	25,541	27,000	21,096
1	53,366	23,762	24,777	47,560	24,915	26,469	20,740
0	59,371	25,216	24,853	40,724	23,017	25,815	20,367

Note: SRDC calculations using LMPDP.

Table 21   Average work income (2010 dollars) of 2011 Indigenous LMDA participants

Years before reference year	Average income from employment, business, or self-employment ($)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
5	28,305	13,062	12,857	27,386	11,876	14,868	11,968
4	31,992	14,416	14,056	27,864	13,454	15,944	12,835
3	36,133	14,460	14,371	27,014	13,937	16,301	13,167
2	34,475	12,460	12,460	28,693	12,001	14,452	11,259
1	39,834	12,090	11,475	25,773	10,374	13,716	10,777
0	43,556	11,067	11,468	11,742	6,105	11,937	10,369

Note: SRDC calculations using LMPDP.

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The general decrease in work income is likely related to reduced employment. Table 22 shows the employment rates of each ASETS intervention in the 5 years (20 quarters) before the start of their APE. Coincidently, the comparison group also saw a decrease in their employment rate during the same period. A more compelling indicator of employment dynamics leading to program participation is the incidence of job separation (Table 23). Typically, ASETS participants experienced more job separation than non-participants (with the exception of Essential Skills participants) and job separation incidence was higher immediately before participation, suggesting job separation was a key factor determining ASETS participation.

Table 22   Employment rates of 2011 participants prior to participation

Months before reference month	Quarterly employment (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
20	73.5	72.2	69.4	69.9	73.1	74.9	65.9	70.9	73.5	66.0
19	73.5	78.1	70.5	72.8	75.4	73.5	66.4	71.4	73.1	67.0
18	73.4	76.7	69.4	71.4	71.4	72.5	66.8	71.1	71.9	69.6
17	73.2	76.5	69.4	68.9	68.0	72.1	67.7	70.1	72.7	67.7
16	73.2	76.2	70.0	71.2	70.9	71.1	68.6	71.2	73.1	68.6
15	73.0	75.5	70.5	71.1	71.4	69.3	67.8	72.0	72.9	64.7
14	72.7	77.4	69.5	69.9	70.3	68.3	67.7	70.4	72.1	66.1
13	72.5	78.4	68.9	67.9	67.4	67.2	65.6	69.1	72.6	63.9
12	72.0	79.8	68.9	71.5	69.7	67.9	65.1	70.5	71.7	65.9
11	71.1	76.2	67.9	71.1	68.0	67.8	63.5	69.1	71.0	63.6
10	70.2	73.6	65.2	70.3	69.1	65.5	62.0	66.6	70.2	64.9
9	69.3	71.5	64.0	67.5	71.4	69.5	59.9	64.1	68.2	59.0
8	68.5	70.1	63.3	69.6	72.6	73.9	60.0	64.8	68.2	62.0
7	68.2	69.7	63.7	67.8	69.1	72.1	59.3	64.4	68.0	60.7
6	68.0	66.6	63.4	65.8	70.9	69.2	58.6	63.9	67.7	67.2
5	67.8	66.8	62.8	63.2	66.3	68.6	59.2	61.4	67.0	61.3
4	67.7	67.5	62.5	67.9	64.0	73.3	58.9	64.0	68.0	64.6
3	67.8	71.1	63.6	68.1	60.0	72.3	59.6	65.1	67.2	62.3
2	67.9	70.4	63.3	69.3	56.6	71.1	58.9	66.0	68.6	68.2
1	67.8	69.4	62.2	68.4	55.4	72.9	57.8	65.9	68.5	67.2

Notes: SRDC calculations using LMPDP. Comparison group consists of observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for the details.

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Table 23   Job separation incidence of ASETS participants before participation

Months before reference month	Monthly job separation (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
12	3.9	6.6	5.0	4.7	6.9	3.8	5.9	4.7	4.5	2.6
11	3.8	6.2	4.6	4.5	3.4	5.5	4.2	5.7	3.4	5.2
10	3.9	5.5	4.4	6.0	4.0	6.7	4.4	5.3	3.3	3.6
9	3.8	3.8	4.5	8.4	5.1	5.3	4.8	5.4	2.8	6.2
8	3.9	7.8	4.4	5.7	4.6	6.9	4.6	5.6	3.0	2.6
7	3.9	6.2	4.7	6.2	5.7	4.5	5.2	5.4	3.6	2.3
6	3.9	5.9	4.4	5.8	1.1	6.0	4.2	6.0	3.5	2.6
5	3.9	5.9	4.8	6.0	4.0	5.7	4.3	4.5	2.8	1.3
4	3.9	6.2	4.7	4.7	3.4	2.7	4.6	5.0	3.4	1.6
3	3.9	6.9	4.7	5.2	5.1	3.2	4.3	5.0	3.2	2.3
2	3.8	6.9	5.5	6.6	3.4	4.4	5.8	7.1	3.7	4.3
1	3.9	8.3	7.0	5.6	6.9	4.7	8.0	8.4	3.3	4.3

Notes: SRDC calculation using LMPDP. Comparison group consists of observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

Figure 9 presents the percentage of ASETS participants with job separation within different windows of time relative to the ASETS program start. A steeper curve represents a surge of job separation in the month adjacent to the window. The figure demonstrates that job separation generally accelerated in the 12 months prior to ASETS participation but different interventions have different patterns. From 13 months out and longer changes in job separation incidences were similar.

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Figure 9   Accumulated job separation percentages of ASETS participants

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The patterns of employment rates (Table 24) and job separation incidences (Table 25) for LMDA participants are very similar to those for ASETS participants.

Table 24   Employment rates of Indigenous LMDA participants before participation

Months before reference month	Quarterly employment (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
20	85.9	70.0	72.8	80.9	78.0	72.9	70.3
19	87.6	72.6	73.2	80.1	77.3	73.4	70.9
18	88.2	71.8	71.4	81.3	79.1	73.8	70.5
17	87.7	72.3	72.9	81.3	78.7	73.8	70.3
16	88.0	71.0	74.9	79.7	80.1	74.0	69.6
15	89.9	72.5	74.6	80.9	78.0	74.6	69.5
14	89.3	72.6	74.7	82.4	79.4	74.3	69.6
13	88.6	72.5	72.9	82.0	77.7	74.0	69.5
12	89.3	72.5	72.7	82.4	80.1	73.1	68.1
11	88.3	73.5	72.6	82.4	80.1	73.2	67.1
10	88.0	69.9	69.4	84.8	76.6	71.9	65.4
9	87.2	67.4	69.0	84.0	72.7	70.0	63.3
8	85.4	67.6	69.4	83.2	73.4	68.2	60.1
7	86.4	69.0	69.2	84.8	77.0	69.0	59.6
6	87.2	68.2	67.7	84.0	73.8	68.5	59.6
5	88.0	66.7	67.6	82.4	72.7	67.3	59.3
4	88.7	67.4	68.7	78.9	69.5	66.5	58.5
3	90.5	70.6	65.0	78.1	66.3	65.8	58.9
2	91.4	66.5	64.3	69.1	60.3	65.2	60.1
1	91.5	64.1	61.9	59.8	52.5	62.3	59.0

Note: SRDC calculations using LMPDP.

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Table 25   Job separation incidences among Indigenous LMDA participants before participation

Months before reference month	Monthly job separation (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
12	9.1	5.6	6.3	7.0	4.6	6.3	5.1
11	7.6	5.8	7.5	8.2	8.2	6.1	5.2
10	8.7	6.0	8.6	5.1	7.1	6.0	5.3
9	7.4	8.3	4.9	8.6	11.3	6.0	5.1
8	7.3	7.6	7.4	8.6	7.4	6.0	5.4
7	6.1	5.5	6.4	7.8	7.1	6.7	5.4
6	7.2	6.8	6.1	8.6	8.9	6.2	5.1
5	7.7	7.3	6.9	10.2	6.7	6.3	5.5
4	7.9	6.3	6.5	5.1	8.9	7.2	5.6
3	8.4	7.6	7.4	10.5	7.8	8.3	6.0
2	8.2	7.4	8.2	7.0	8.5	7.7	6.9
1	14.3	8.0	9.8	13.7	10.6	10.6	8.9
0	26.8	6.8	9.3	10.5	7.8	8.1	7.6

Note: SRDC calculations using LMPDP.

8. What are the incidence rates of use of EI benefits, ASETS/AHRDA programs, and LMDA programs in the period one to five years before participation in ASETS? How do they compare to those of Indigenous users of LMDA in the same period?

Coinciding with increasing job separation and decreasing employment before participation in ASETS, the percentage of ASETS participants who claimed EI benefits also generally increased in the quarters prior to their participation. Interestingly, there was a sharp decrease in use of EI in the quarter just before participation in ASET Wage Subsidy, ASET Self-employment, and ASET Job Creation Partnership. This pattern could imply EI regular benefit exhaustion before switching onto the ASETS program. Table 27 shows a decreasing use of LMDA among ASETS

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participants in the three quarters prior to their ASETS participation. Similarly, Table 28 shows a decreasing use of ASETS among ASETS participants in the three quarters before their ASETS participation. Regardless, a minority of ASETS participants used both LMDA or ASETS in the years before their participation.

Table 26   EI usage of ASETS participants before participation

Months before reference month	Quarterly EI usage (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
20	9.5	5.9	7.6	10.7	8.0	8.7	8.0	7.1	4.7	5.0
19	9.3	5.2	7.5	10.1	6.9	11.6	7.1	5.9	4.5	5.9
18	9.2	6.2	6.3	13.5	6.9	11.9	6.5	6.0	4.7	5.3
17	8.8	6.2	6.2	8.4	8.0	7.3	5.8	5.2	4.0	2.3
16	8.5	7.8	7.2	12.1	9.7	7.5	7.6	6.6	4.2	5.0
15	8.3	8.6	7.3	13.5	7.4	11.0	7.0	6.1	4.3	6.3
14	8.3	6.9	6.5	12.6	9.7	12.2	6.8	6.4	4.2	6.6
13	8.2	5.7	6.2	8.2	10.3	8.6	6.8	5.5	3.5	4.3
12	8.3	6.7	8.0	12.0	6.9	8.7	9.6	7.6	5.3	7.9
11	8.5	6.2	7.5	14.3	10.3	10.7	8.7	7.5	5.1	8.5
10	9.0	7.8	7.0	17.1	14.3	13.1	8.6	8.7	5.7	7.2
9	9.5	11.9	7.5	11.1	5.1	10.7	7.2	7.5	4.2	5.2
8	9.9	12.6	9.8	14.8	8.6	12.4	10.4	10.2	5.2	6.2
7	9.6	13.0	8.8	14.9	8.0	15.0	8.9	8.9	5.5	8.5
6	9.1	12.6	7.6	19.6	13.1	16.1	7.8	7.2	5.6	6.2
5	8.6	11.1	7.5	10.9	8.6	10.2	7.2	5.6	5.3	3.0
4	8.0	8.8	9.3	15.7	14.9	10.2	9.5	8.1	6.6	4.3
3	7.7	9.0	9.0	18.0	14.9	12.6	9.2	8.3	6.3	5.6
2	7.8	8.8	8.2	19.0	12.0	14.8	8.5	7.9	5.7	2.3
1	7.7	10.7	8.0	9.4	6.9	7.4	6.5	6.1	4.0	2.0

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.
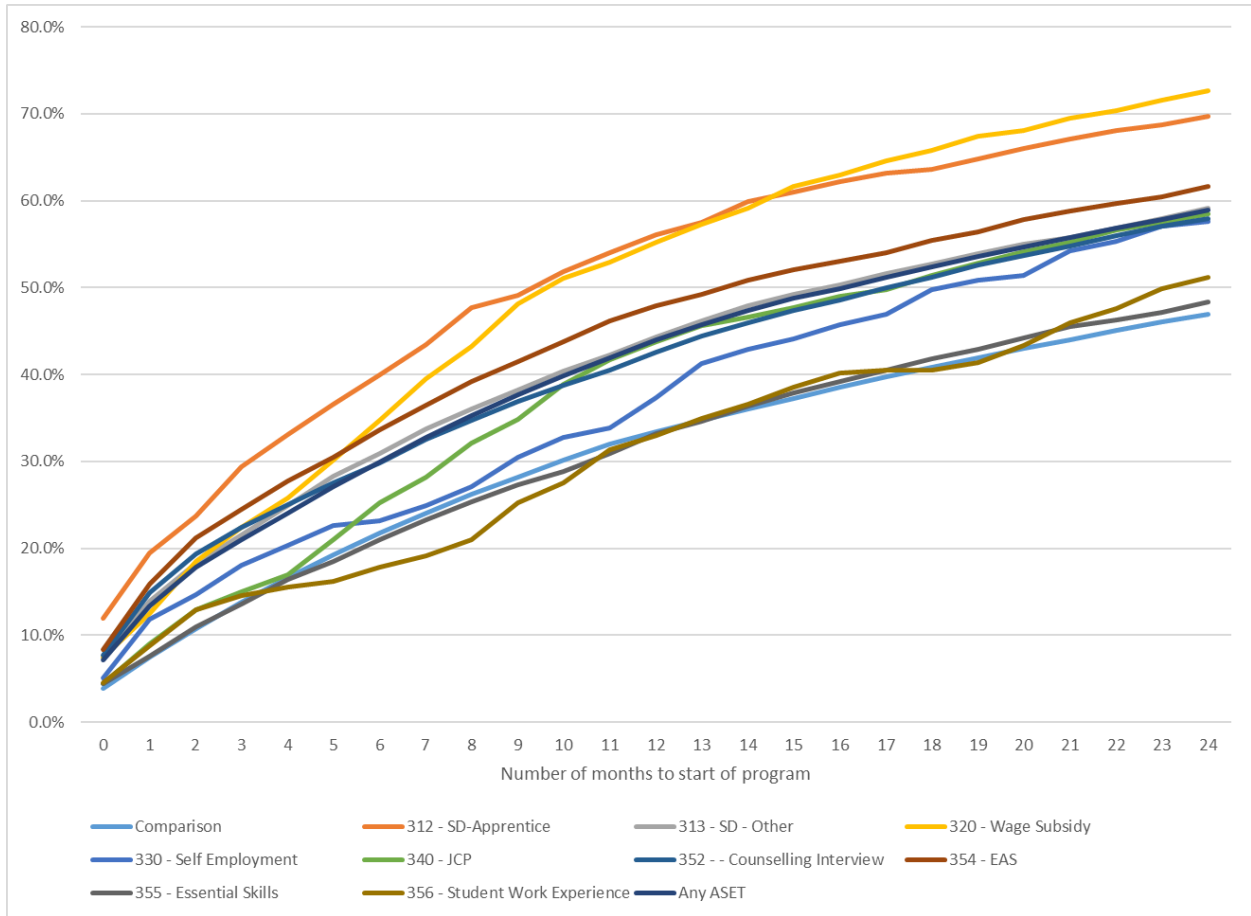
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Table 27   Past LMDA usage of ASETS participants

Months before reference month	Quarterly LMDA participation (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
20	4.4	8.8	6.8	3.8	5.7	2.8	6.3	8.9	5.0	5.9
19	4.3	8.3	6.6	4.0	5.7	3.3	6.8	8.3	4.8	5.6
18	4.3	11.2	6.8	4.8	5.7	3.3	6.2	7.5	5.7	7.6
17	4.4	11.6	6.7	4.7	7.4	3.6	6.7	7.9	5.7	5.9
16	4.6	13.1	6.9	6.4	8.6	4.4	7.4	8.1	6.1	6.3
15	4.8	14.5	7.8	7.4	8.0	3.7	8.2	8.7	6.8	7.9
14	5.0	12.1	8.4	8.4	6.3	4.7	9.0	9.4	6.9	6.9
13	5.0	12.6	8.5	7.9	9.1	5.5	9.3	9.3	7.9	5.2
12	4.8	14.0	8.4	6.9	8.6	4.3	8.6	9.4	8.1	8.5
11	4.8	12.4	8.6	5.7	9.7	4.8	8.2	9.1	7.6	7.5
10	4.6	11.9	8.5	5.5	9.1	4.2	8.4	9.5	7.0	9.8
9	4.8	12.6	9.0	5.8	9.7	4.7	8.8	9.8	7.0	8.9
8	5.0	14.5	9.2	6.1	9.1	4.9	9.0	10.3	7.0	12.1
7	5.0	16.1	9.1	6.4	7.4	5.5	8.5	10.6	6.1	13.1
6	5.0	15.6	8.8	6.4	7.4	5.2	7.8	10.7	5.9	8.5
5	4.7	14.5	8.2	6.0	5.7	3.7	7.8	9.7	5.6	8.9
4	4.5	14.2	7.4	4.2	5.7	3.5	7.5	9.5	4.8	7.9
3	4.2	13.3	5.9	3.2	5.7	2.7	6.4	7.7	4.7	6.2
2	4.0	6.6	2.4	0.9	1.1	1.3	2.2	2.9	1.5	3.0
1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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Table 28 Past ASETS/AHRDA usage of ASETS participants

Months before reference month	Quarterly ASET/AHRDA participation (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
20	3.8	13.8	10.0	12.2	9.7	10.3	10.9	12.6	14.0	11.6
19	3.7	13.3	10.1	12.1	9.1	21.5	11.3	12.5	12.6	10.6
18	3.7	16.4	10.3	10.3	8.0	9.3	10.8	11.5	12.0	9.6
17	3.6	16.2	11.2	10.7	6.3	9.3	11.5	11.6	11.6	6.9
16	3.5	14.5	11.3	13.3	8.6	12.8	12.2	12.4	12.5	12.2
15	3.5	15.2	10.8	13.1	8.6	11.2	10.2	11.7	11.7	11.9
14	3.4	12.6	11.0	11.0	7.4	10.3	10.5	12.7	11.1	8.6
13	3.4	14.0	10.8	11.9	8.0	11.9	11.1	13.2	13.2	10.8
12	3.3	14.7	11.3	13.1	5.7	13.5	11.1	12.6	14.0	14.8
11	3.3	13.5	11.3	12.4	6.3	12.1	10.5	13.5	13.4	14.1
10	3.3	12.1	11.4	10.5	6.9	11.6	10.8	13.1	13.0	10.8
9	3.2	12.6	11.6	13.4	8.0	12.3	11.7	14.1	13.4	12.1
8	3.1	16.4	12.8	16.9	9.1	19.3	13.5	14.8	15.5	23.0
7	3.0	17.1	12.0	14.3	7.4	15.2	12.8	14.7	13.4	19.0
6	2.7	16.6	11.6	12.9	8.0	13.0	12.5	14.7	11.9	10.5
5	2.3	17.8	11.2	13.1	8.0	11.7	12.5	14.9	12.4	12.8
4	1.8	14.0	9.6	12.4	5.1	12.6	12.9	14.6	10.9	26.9
3	1.1	11.1	6.7	10.5	6.3	9.4	10.3	9.5	7.1	21.3
2	0.6	4.3	2.4	2.2	2.3	2.0	3.4	3.1	1.8	3.0
1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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It is not surprising that there was an increasing percentage of Indigenous LMDA participants claiming EI benefits in the quarters leading up to their participation (Table 29) given the eligibility requirements for LMDA. The proportions using EI benefits were generally higher than those for ASETS participants in the comparable intervention. Also not surprising is a minority of LMDA participants had used LMDA (Table 30) or ASETS/AHRDA (Table 31) in the past, though the percentage dropped immediately before the start of their LMDA program.

Table 29   EI benefit usage of LMDA participants before participation

Months before reference month	Quarterly EI usage (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
20	9.2	8.9	10.4	7.8	14.2	8.1	5.9
19	10.0	11.6	12.9	7.8	12.1	8.4	6.2
18	11.1	12.4	12.9	8.2	9.2	7.8	6.4
17	12.1	12.8	11.3	10.5	11.7	9.2	6.2
16	10.0	9.3	10.3	11.3	14.5	8.5	6.0
15	11.5	11.9	11.1	12.5	18.1	8.8	6.0
14	12.8	12.5	11.6	11.3	16.7	8.5	5.8
13	16.1	12.9	10.0	10.9	15.2	9.9	6.0
12	15.0	10.4	12.6	10.5	18.1	8.8	6.0
11	15.0	13.8	14.5	12.9	20.6	9.4	6.3
10	16.3	15.4	14.1	10.9	21.3	10.2	7.3
9	21.8	14.7	11.6	12.9	19.5	11.5	8.1
8	20.3	11.7	12.8	12.9	20.9	11.7	8.7
7	20.6	15.2	15.9	14.5	22.7	11.3	8.6
6	18.8	15.4	15.8	14.1	20.6	11.0	8.3
5	20.7	14.6	13.8	17.2	22.0	12.2	8.1
4	17.2	11.8	15.1	18.8	23.0	11.8	7.9
3	17.2	15.7	19.0	23.0	25.9	12.8	8.0
2	16.0	19.0	20.4	28.1	23.4	14.2	8.3
1	18.7	22.1	17.1	39.8	24.5	18.8	8.7

Note: SRDC calculations using LMPDP.

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Table 30   Past LMDA usage of LMDA participants

Months before reference month	Quarterly LMDA participation (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
20	9.3	6.8	8.0	9.8	14.5	9.3	11.2
19	8.4	7.6	7.9	10.2	15.6	8.9	11.2
18	8.0	7.1	6.9	9.0	16.0	8.7	11.2
17	9.5	6.8	7.4	7.0	14.2	8.9	11.4
16	11.1	7.3	7.5	7.4	17.0	9.5	11.6
15	11.2	8.0	8.6	9.0	15.6	9.8	11.8
14	12.5	8.3	9.1	10.9	18.4	9.8	11.7
13	14.4	9.0	10.3	10.5	17.0	10.5	11.6
12	17.6	9.7	10.1	12.1	17.4	10.0	12.4
11	17.6	8.9	10.1	9.0	16.7	10.0	13.5
10	17.9	9.5	10.8	5.9	17.0	10.3	14.1
9	19.4	9.7	12.5	4.3	17.7	10.5	15.2
8	24.9	11.7	14.1	5.9	19.5	11.7	17.5
7	24.4	11.8	13.1	7.8	19.1	11.6	17.7
6	20.8	12.4	11.6	7.4	20.9	12.0	16.9
5	24.5	12.4	11.2	9.0	23.8	12.4	17.2
4	29.2	12.6	14.2	12.5	19.9	12.9	18.0
3	20.5	10.4	10.7	7.8	20.2	9.8	13.6
2	5.2	3.0	3.0	1.6	7.4	3.1	4.9
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: SRDC calculations using LMPDP.

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Table 31 Past ASETS/AHRDA usage of LMDA participants

Months before reference month	Quarterly ASET/AHRDA participation (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
20	6.4	8.3	4.9	6.3	7.4	5.4	5.8
19	6.2	8.2	4.9	5.5	5.7	5.6	5.9
18	5.6	7.6	3.9	9.4	7.4	5.7	5.9
17	5.7	7.3	3.6	7.4	8.9	5.3	5.8
16	6.4	6.9	4.5	5.9	6.7	5.3	5.8
15	6.4	6.8	4.3	4.7	7.8	5.3	5.6
14	6.1	6.0	3.9	4.3	7.8	5.1	5.4
13	6.9	6.3	4.8	4.3	7.4	5.0	5.4
12	7.2	6.4	5.0	4.7	9.2	5.1	5.6
11	6.8	6.7	5.6	4.7	8.2	5.1	5.7
10	6.8	6.7	6.3	4.3	8.2	5.1	5.6
9	7.1	6.5	6.4	4.3	8.9	5.2	5.8
8	7.4	7.1	6.3	2.7	7.1	5.1	5.9
7	7.8	6.7	6.8	2.7	6.7	5.2	5.7
6	7.1	6.7	5.4	2.3	8.2	4.9	5.3
5	6.7	6.8	4.2	3.1	8.2	4.9	4.9
4	6.3	6.1	4.6	3.9	5.3	4.7	4.3
3	4.4	4.7	4.0	2.3	5.3	3.1	3.0
2	1.5	1.4	1.3	1.2	2.1	1.2	1.1
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: SRDC calculations using LMPDP.

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9. What are the employment outcomes, EI usage rates, further ASETS participation patterns, and further LMDA participation patterns in the period one to five years following the ASETS program? How do these outcomes vary by demographic profile, income, and employment dynamics prior to participation in ASETS, and past usage of EI benefits, ASETS, and LMDA prior to participation in ASETS?

Level of employment varies by ASETS interventions during and after the program (Table 32). Not surprising is an immediate surge in employment for Wage Subsidy, Job Creation Partnership and Student Work Experience participants, though the level of employment gradually decreases afterwards. Participants in the two skills development interventions in ASETS experienced a sustained increase in employment after the first quarter. The patterns of employment are reflected in earnings (Table 33). Comparison group participants experienced a slight decrease in employment but an increase in earnings. However, given the comparison group people faced a very different situation than the ASETS participants, a fair comparison must be based on comparable sample members, discarding the outcomes of those not comparable.

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Table 32   Employment rate since ASETS participation

Months after reference month	Quarterly employment (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
1	67.8	65.4	62.3	85.2	56.0	86.9	59.4	73.3	74.0	80.7
2	67.7	71.1	65.4	81.6	54.9	79.2	59.8	71.2	72.9	75.7
3	67.6	76.0	66.2	74.7	54.9	72.8	60.4	68.8	73.3	72.4
4	67.3	76.2	67.0	73.5	55.4	69.3	59.9	68.2	72.2	72.9
5	67.2	75.2	67.3	74.2	56.0	70.5	60.0	68.3	72.6	74.9
6	67.0	74.7	67.3	73.2	54.6	67.1	59.9	67.8	72.7	72.9
7	66.9	76.0	68.1	70.3	55.5	64.7	60.1	66.9	71.7	67.0
8	66.9	73.6	67.8	71.0	58.4	69.2	61.1	66.0	70.7	65.6
9	66.7	75.9	68.4	73.8	56.6	72.4	61.0	66.8	71.5	66.9
10	66.6	73.5	67.9	71.5	52.6	71.8	59.2	66.6	70.2	69.8
11	66.4	74.9	68.3	69.4	56.4	66.6	60.6	66.5	68.7	68.4
12	66.4	74.2	67.6	69.5	55.8	67.0	60.4	64.2	67.6	68.4
13	66.3	74.1	67.2	71.1	55.6	67.4	60.8	65.6	68.4	70.0
14	66.3	72.7	66.9	70.4	54.4	66.5	60.0	65.2	68.3	69.9
15	66.2	70.3	66.6	72.1	57.5	65.1	60.3	64.5	68.9	73.6
16	65.9	69.0	65.5	71.2	58.1	67.1	60.7	62.4	67.3	70.5
17	65.9	68.6	65.8	70.4	61.4	68.5	62.0	63.7	68.6	68.5
18	66.1	70.9	66.1	69.2	65.2	67.1	62.1	65.3	68.1	69.5
19	66.3	73.1	66.9	68.4	62.2	63.9	63.1	64.3	68.8	72.1
20	66.1	72.0	65.4	68.9	58.1	65.1	62.8	63.0	66.9	71.6

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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Table 33   Quarterly earnings since ASETS participation

Months after reference month	Average quarterly earnings ($)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
1	6,016	3,159	2,644	4,313	2,754	3,767	2,430	3,736	5,258	2,186
2	6,106	4,094	3,018	4,111	3,273	2,999	2,776	3,725	5,571	1,640
3	6,175	5,039	3,226	3,795	3,020	2,803	3,029	3,685	5,754	1,821
4	6,222	5,712	3,491	3,729	3,799	2,811	3,053	3,838	5,707	2,188
5	6,277	5,535	3,683	4,069	4,263	3,202	3,148	3,991	5,518	2,598
6	6,313	6,073	3,965	3,963	3,823	2,879	3,262	4,089	5,533	2,381
7	6,342	5,879	4,116	3,828	3,883	2,891	3,325	4,111	5,623	2,730
8	6,392	6,419	4,182	3,765	3,676	3,041	3,391	4,031	5,576	2,928
9	6,412	6,417	4,279	4,071	4,013	3,477	3,398	4,092	5,633	3,306
10	6,431	6,364	4,429	4,165	3,980	3,364	3,449	4,065	5,694	3,272
11	6,450	6,702	4,443	4,093	4,502	3,220	3,561	4,177	5,768	3,596
12	6,458	6,808	4,422	4,099	4,467	3,311	3,588	4,139	5,571	3,874
13	6,473	6,694	4,506	4,334	4,423	3,509	3,751	4,210	5,408	4,002
14	6,472	7,003	4,564	4,261	4,633	3,319	3,616	4,235	5,505	4,103
15	6,466	6,700	4,509	4,268	4,845	3,360	3,772	4,146	5,617	4,775
16	6,433	6,144	4,402	4,219	4,882	3,517	3,702	3,879	5,531	4,610
17	6,401	6,011	4,389	4,358	4,774	3,781	3,754	3,996	5,490	4,436
18	6,388	6,214	4,516	4,274	5,887	3,449	3,781	3,945	5,581	4,513
19	6,349	6,259	4,507	4,357	6,827	3,386	3,831	3,946	5,662	4,660
20	6,301	5,984	4,375	4,380	6,148	3,424	3,845	3,841	5,640	4,814

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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The following tables indicate no clear trend in the usage of EI benefit, LMDA, and ASETS after the start of the ASETS program. EI use among ASETS participants following the program fluctuates but is not substantially lower than the level before their participation (Table 34). LMDA usage also fluctuates though trends down after a couple of years (Table 35). Usage of ASETS remains high in the first few quarters but also trends down afterwards (Table 36).

Table 34 EI benefit usage since ASETS participation

Months after reference month	Quarterly EI usage (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
1	7.8	11.8	8.9	13.5	7.4	13.0	8.5	7.1	4.5	3.9
2	7.9	10.7	6.8	18.6	10.9	17.5	7.9	7.8	5.8	3.9
3	7.8	7.8	5.8	14.5	6.3	12.8	5.8	6.5	5.6	1.6
4	7.6	10.5	7.2	20.0	5.7	11.6	8.3	8.3	6.4	4.3
5	7.5	11.0	6.7	19.3	5.1	15.8	8.2	8.0	5.7	6.3
6	7.3	12.4	6.7	18.0	3.4	18.5	7.6	8.2	5.6	4.0
7	7.2	10.6	6.2	11.5	4.6	9.6	5.2	6.5	4.8	3.0
8	7.1	10.8	7.4	15.3	7.5	7.5	8.0	8.2	5.5	5.3
9	7.0	10.1	7.5	15.5	6.9	10.0	6.6	7.1	5.2	6.3
10	7.0	9.2	7.2	15.2	4.6	12.5	6.8	6.5	5.9	5.0
11	6.9	10.6	6.6	9.1	3.5	7.4	5.1	5.7	5.3	4.0
12	6.8	10.6	8.3	11.3	10.5	8.1	8.1	7.3	6.2	7.0
13	6.8	12.6	8.2	10.9	8.8	11.2	7.7	7.2	6.0	7.7
14	6.9	10.2	7.4	13.4	8.9	12.3	7.6	7.2	5.1	5.7
15	7.1	10.7	7.0	9.4	3.0	8.5	5.6	5.8	4.9	3.7
16	7.4	12.2	8.6	11.9	4.8	9.0	8.4	8.6	6.0	5.8
17	7.4	14.0	8.9	12.0	6.6	11.8	7.2	8.3	6.0	7.8
18	7.4	9.1	7.5	11.6	10.4	14.2	7.1	7.5	6.6	7.2
19	7.3	12.5	6.8	7.8	7.1	9.5	6.1	5.7	5.5	4.1
20	7.2	12.1	8.7	10.4	12.9	9.6	8.1	8.5	6.8	6.9

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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Table 35   LMDA usage since ASETS participation

Months after reference month	Quarterly LMDA participation (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
1	3.7	50.0	22.8	14.5	15.4	8.3	8.0	10.8	15.9	23.9
2	3.5	41.2	18.6	13.2	12.6	6.6	5.6	6.9	12.6	16.4
3	3.3	32.3	15.5	11.9	10.3	4.6	5.5	6.5	9.7	10.9
4	3.3	25.5	12.5	9.7	8.0	4.4	5.9	6.5	8.5	11.6
5	3.3	19.1	10.4	7.2	9.1	3.4	6.5	7.3	7.3	8.9
6	3.6	17.4	9.5	6.0	7.5	3.2	7.4	7.6	6.7	7.6
7	3.8	13.9	8.8	5.9	7.5	3.8	7.3	8.0	6.0	7.3
8	4.0	14.6	8.5	6.0	8.1	4.1	8.2	8.1	6.0	7.0
9	4.1	13.7	8.3	5.7	8.1	4.3	7.5	8.9	5.9	7.3
10	4.2	15.7	8.3	5.3	7.5	3.5	7.2	9.5	6.4	9.3
11	4.2	15.5	7.9	5.0	7.0	2.9	7.7	8.9	6.5	8.6
12	4.2	13.8	8.0	4.7	4.1	2.3	7.8	8.6	6.2	7.0
13	4.1	12.6	7.7	4.8	4.1	2.7	8.4	8.2	5.5	6.7
14	4.1	10.0	7.4	4.7	4.1	3.0	7.9	8.0	5.5	7.7
15	4.0	10.2	7.0	5.4	3.6	3.8	8.0	8.6	5.7	7.1
16	4.0	8.5	7.1	4.6	4.2	3.5	8.6	8.6	5.7	5.1
17	4.1	8.1	6.8	4.0	5.4	3.2	7.9	8.9	5.6	5.1
18	4.1	9.4	6.7	3.9	4.9	3.4	7.8	8.2	6.5	5.1
19	4.1	8.7	6.4	4.3	3.8	3.0	7.4	8.8	6.5	4.5
20	4.0	9.3	6.6	3.9	5.2	3.3	6.9	7.9	5.9	5.5

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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Table 36　ASETS usage since ASETS participation

Months after reference month	Quarterly ASET/AHRDA participation (%)									
	Comparison	312 – ASET SD – Apprentice	313 – ASET SD – Other	320 – ASET Wage Subsidy	330 – ASET Self-employment	340 – ASET JCP	352 – ASET – Counselling Interview	354 – ASET EAS	355 – ASET Essential Skills	356 – ASET Student Work Experience
1	0.0	88.6	67.5	85.5	68.0	77.9	42.1	36.3	59.1	77.0
2	0.0	62.8	45.5	52.4	42.3	26.4	15.4	15.1	38.7	22.3
3	0.0	43.7	35.0	32.5	30.9	13.5	12.8	12.4	21.5	18.4
4	0.0	31.7	24.3	26.0	19.4	17.1	15.5	12.1	15.1	23.4
5	0.2	22.2	18.8	19.5	16.0	13.2	13.8	10.7	14.6	20.8
6	0.6	19.3	15.7	15.3	11.5	9.2	12.5	10.3	14.4	10.2
7	1.1	18.0	14.4	14.3	9.8	7.3	12.0	10.1	12.0	11.2
8	1.5	16.5	12.6	15.7	13.9	11.2	13.1	10.8	13.1	12.9
9	1.8	14.9	11.6	14.6	12.1	8.9	10.4	9.6	13.0	14.6
10	2.0	13.7	10.8	12.1	11.6	6.4	10.4	9.9	12.7	10.3
11	2.1	13.0	9.7	11.1	10.5	7.1	10.4	10.2	12.3	14.3
12	2.1	11.4	9.9	12.8	9.3	11.1	10.9	10.7	13.4	14.3
13	2.1	12.1	10.2	12.2	6.4	9.2	10.8	9.3	13.4	12.3
14	2.1	8.3	9.0	11.0	8.3	6.3	10.2	9.2	12.6	7.0
15	2.1	9.0	8.5	9.3	9.0	6.6	10.1	9.2	10.6	7.4
16	2.1	8.0	8.6	11.1	9.6	10.4	10.3	9.9	10.6	9.5
17	2.1	9.1	8.3	11.7	8.4	6.9	9.3	9.0	10.7	8.8
18	2.2	10.8	8.4	8.7	6.1	7.3	9.2	9.7	9.8	6.2
19	2.2	9.7	8.4	7.7	5.8	7.6	9.2	9.8	8.7	6.2
20	2.2	9.1	8.4	8.9	7.7	10.1	9.2	9.0	9.1	6.9

Notes: SRDC calculations using LMPDP. Comparison group comprises observations of Indigenous people who did not use any ASETS service in 2011-2012, and their demographics, labour market characteristics and EI claimant status are different from those of ASETS participants. See the Construction of the Analysis Sample on p. 12-14 for details.

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These post-program outcomes are correlated with demographic characteristics and pre-program employment dynamics. To control for these factors, SRDC regressed the total number of months in employment on a series of pre-participation characteristics. For brevity, the detailed estimates are not presented. These are the key observations:

- Male and Indigenous identity (Status First Nations) are positively related to post-program employment.

- Location is associated with employment outcomes (as captured in Forward Sortation Area and rural/urban status).

- People of 45 to 54 years have the highest post-program employment rates.

- Being Married and presence of dependent children are both associated with higher post-program employment.

- Use of social assistance before the program is associated with lower post-program employment.

- Pre-program income is related to post-program employment.

- Pre-program employment and job separation patterns are important. Specifically, job separation right before program participation seems to be associated with better employment outcomes.

- Pre-program claiming of EI benefit is also associated with better employment outcomes, though this might be related to the better labour market attachment of the participants.

- Past usage of LMDA is associated with better employment outcomes.

With many potential factors included in the regression, the regression explains approximately 33 per cent of the variation in the number of months of employment during the five years since the ASETS program start. These factors ought to be factored into the quantitative evaluation analysis.

10. What are the employment outcomes, EI usage rates, further ASETS participation patterns and further LMDA participation patterns in the period one to five years following the LMDA program among Indigenous users? How do these compare to those of ASETS users?

Similar to the findings for ASETS, the level of employment varies by LMDA interventions during and after the program (Table 37). Not surprising is an immediate surge of employment for the Wage Subsidy intervention, though LMDA participants in Job Creation Partnership experienced a slower increase in employment than their ASETS counterparts. Similar to ASETS, the level of

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employment gradually decreased afterwards. Participants of the two skills development interventions in LMDA also experienced a sustained increase in employment after the first quarter. Despite these patterns of employment, LMDA participants' earnings trended up in the five years following their program start (Table 38). In general, Indigenous LMDA participants had a higher post-program employment rate and higher average earnings compared to ASETS participants in a comparable intervention.

Table 37   Employment rate since LMDA participation

Months after reference month	Quarterly employment (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
1	85.3	64.1	82.4	38.7	55.0	63.6	61.4
2	88.7	66.8	79.1	45.1	65.6	67.9	63.3
3	90.1	68.1	74.4	47.1	72.7	68.9	63.6
4	91.7	70.1	75.0	53.1	74.8	67.8	62.7
5	90.4	71.7	74.2	52.4	74.5	67.7	62.6
6	90.7	72.2	72.0	52.6	72.9	67.9	62.3
7	89.5	71.5	69.4	56.9	73.2	67.5	62.4
8	89.7	72.3	71.0	59.0	73.5	67.4	61.8
9	88.4	73.3	72.6	56.6	72.4	67.6	61.9
10	87.7	72.9	72.5	57.4	69.8	68.0	61.5
11	87.6	72.1	70.5	59.4	68.3	68.2	60.4
12	87.7	71.8	72.1	58.6	70.5	67.3	60.3
13	87.9	71.9	71.5	61.3	69.7	67.1	59.8
14	87.3	72.9	71.4	60.4	67.9	67.3	59.4
15	86.5	72.0	71.9	59.2	69.8	67.6	59.2
16	87.2	71.4	72.7	59.8	66.5	67.0	57.8
17	86.3	72.3	74.1	61.7	66.4	67.5	57.1
18	85.1	70.4	72.4	59.6	63.2	68.0	57.0
19	85.7	69.7	69.9	63.7	66.1	67.7	56.5
20	85.2	69.3	71.8	62.0	67.0	67.4	56.1

Note: SRDC calculations using LMPDP.

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Table 38   Quarterly earnings since LMDA participation

Months after reference month	Average quarterly earnings ($)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
1	9,562	3,333	3,909	1,096	1,554	2,757	2,581
2	11,886	4,051	3,770	1,783	2,116	3,563	3,065
3	12,129	4,394	3,755	2,151	2,840	3,850	3,281
4	12,647	4,795	4,124	2,336	3,271	3,875	3,329
5	12,996	5,287	4,374	2,686	3,663	4,028	3,422
6	13,467	5,328	4,224	2,848	3,703	4,250	3,560
7	13,682	5,242	4,134	3,530	3,893	4,325	3,600
8	13,760	5,483	4,091	3,880	3,902	4,375	3,595
9	14,111	5,877	4,365	3,625	3,942	4,404	3,677
10	14,089	5,990	4,689	3,697	3,960	4,615	3,760
11	14,364	5,859	4,520	4,020	4,400	4,639	3,776
12	14,393	6,007	4,347	4,153	3,910	4,643	3,761
13	14,573	5,943	4,577	4,486	4,316	4,667	3,783
14	14,370	5,978	4,664	4,458	4,235	4,770	3,794
15	14,315	6,040	4,710	4,681	4,434	4,770	3,744
16	14,114	5,955	4,890	4,386	4,020	4,648	3,601
17	13,875	6,141	5,185	4,470	3,903	4,733	3,583
18	13,575	5,773	4,802	4,375	3,956	4,863	3,583
19	13,266	5,576	4,749	4,660	3,882	4,795	3,571
20	13,245	5,791	4,849	4,557	3,834	4,654	3,431

Note: SRDC calculations using LMPDP.

With respect to the use made of EI benefit and LMDA after the start of the LMDA program, Table 39 and Table 40 show a trend of generally decreasing usage over time which is not

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surprising. Compared to ASET participants use of EI (Table 34), LMDA participants used more EI benefit at the beginning of the LMDA program. Some LMDA participants also used ASETS interventions (Table 41) subsequently though the proportions are relatively small (Table 36).

Table 39　EI usage since LMDA participation

Months after reference month	Quarterly EI usage (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
1	26.8	17.4	16.0	25.8	22.7	13.2	8.3
2	17.5	14.3	15.1	15.3	14.5	9.1	6.6
3	15.7	11.3	12.4	6.3	14.9	9.3	6.1
4	16.5	8.2	12.2	6.3	17.4	8.6	6.1
5	16.7	12.3	14.5	5.5	17.7	8.4	6.3
6	15.8	13.6	14.8	6.3	15.4	8.4	6.7
7	16.5	12.7	13.7	5.5	15.4	9.0	6.6
8	13.6	8.9	11.9	6.0	16.5	8.5	6.0
9	14.1	11.8	13.7	5.2	16.8	8.9	6.0
10	13.2	13.0	13.9	5.2	15.5	8.7	6.3
11	14.1	13.3	11.0	6.0	12.9	9.7	5.9
12	10.9	9.7	11.8	4.8	14.0	8.6	5.8
13	9.9	12.1	13.7	7.7	13.7	8.9	6.2
14	11.1	12.9	12.4	9.4	13.0	8.7	6.5
15	12.4	13.6	11.6	9.4	14.5	9.4	7.0
16	10.9	10.0	11.2	6.1	16.7	8.8	7.0
17	12.8	13.8	12.5	7.8	17.9	9.0	7.3
18	12.8	14.4	15.2	8.3	12.9	9.2	7.3
19	13.1	13.5	11.1	9.3	11.1	9.8	7.2
20	10.5	9.0	11.3	6.0	14.4	8.2	6.7

Note: SRDC calculations using LMPDP.

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Table 40   Subsequent LMDA usage since LMDA participation

Months after reference month	Quarterly LMDA participation (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
1	58.6	75.7	88.1	95.3	88.7	59.8	41.4
2	26.8	55.2	56.5	83.1	61.7	28.8	20.6
3	19.2	37.1	32.9	70.2	41.5	16.9	17.2
4	23.3	26.0	23.4	56.3	26.2	13.4	16.6
5	21.6	19.2	18.4	34.6	21.3	12.0	15.6
6	16.2	15.1	16.2	22.5	17.5	12.3	15.4
7	14.8	13.1	13.5	17.8	12.5	12.0	16.2
8	15.0	12.4	13.7	11.2	11.1	12.2	17.0
9	12.1	9.9	14.9	10.0	12.2	12.1	16.1
10	10.4	9.7	14.2	8.4	14.0	11.6	15.5
11	9.0	9.3	13.5	8.0	13.7	11.0	15.4
12	9.2	8.7	14.3	8.0	14.4	11.0	15.4
13	8.4	8.2	13.2	8.5	13.0	10.7	14.8
14	7.4	7.5	12.7	6.1	13.0	10.4	14.0
15	5.5	7.3	10.9	5.7	10.2	10.4	13.9
16	5.9	7.5	9.7	7.0	10.5	10.4	14.1
17	5.4	7.9	9.8	6.6	10.6	10.6	13.9
18	5.4	8.2	11.3	6.3	14.0	10.7	13.6
19	4.8	7.8	9.8	5.1	13.3	10.8	13.4
20	5.3	7.8	10.0	7.3	12.6	10.8	13.4

Note: SRDC calculations using LMPDP.

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Table 41   Subsequent ASETS usage since LMDA participation

Months after reference month	Quarterly ASETS participation (%)						
	12 – LMDA SD – Apprentice	13 – LMDA SD – Other	20 – LMDA Wage Subsidy	30 – LMDA Self-employment	40 – LMDA JCP	52 – LMDA – Counselling Interview	53, 54 – EAS
1	5.7	13.9	9.2	10.5	19.5	3.8	2.4
2	4.0	11.6	7.7	9.8	17.4	3.2	2.2
3	3.5	9.0	6.1	8.6	14.2	3.6	3.1
4	4.1	7.4	4.9	7.1	12.1	4.0	3.7
5	3.6	7.5	4.5	5.1	10.3	4.2	4.1
6	3.4	6.2	4.5	5.1	8.2	4.3	4.4
7	3.4	6.0	5.3	4.0	6.4	4.3	4.7
8	3.7	6.8	5.5	2.4	5.7	4.5	4.9
9	3.4	6.7	5.2	2.4	5.7	4.2	4.8
10	3.4	6.6	3.9	1.6	6.8	4.4	4.7
11	2.6	6.6	4.3	1.2	8.3	3.9	4.8
12	3.0	6.7	5.6	2.4	7.6	4.3	4.7
13	2.6	6.4	4.3	2.8	6.9	4.2	4.7
14	3.0	5.2	4.8	2.0	5.8	3.9	4.5
15	2.5	4.8	4.0	1.6	5.5	3.8	4.3
16	2.9	4.6	4.1	2.0	3.6	4.1	4.5
17	2.4	4.8	3.7	2.5	4.0	4.2	4.6
18	2.8	5.7	3.5	2.9	6.6	4.5	4.5
19	2.8	4.7	3.6	4.6	5.9	4.6	4.4
20	2.9	4.8	4.6	4.7	6.7	4.6	4.5

Note: SRDC calculations using LMPDP.

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11. What are the potential challenges of using observations of Indigenous users of LMDA or
    Indigenous claimants of Employment Insurance serve as a counterfactual comparison sample
    for the purpose of evaluation of ASETS' impacts on all participants?

SRDC attempted to create a counterfactual comparison sample using observations of Indigenous
people in the LMPDP.[24] Despite a huge data platform including all people in Canada, the number
of observations for Indigenous Canadians is much smaller. For example, the number of
participants who start their ASETS APE in the year of 2011 is about 19,000, while the number of
Indigenous LMDA participants with a start of LMDA APE in the year of 2011 is about 34,500. The
number of Indigenous EI Claimants who have never participated in any of the ASETS, AHRDA, or
other EBSM is about 26,000. Limited numbers for comparison samples present some major
challenges to satisfying all the necessary conditions to create a credible counterfactual
comparison sample. This is the reason that we relied on a much larger pool of observations (of
about 364,000 observations) representing all Indigenous people in the LMPDP who did not start
an ASETS APE in 2011 and 2012 for sourcing a potential comparison sample.

The key challenge in creating a counterfactual sample for ASETS participants is to identify
observations in the potential comparison sample who are seemingly "similar" to each of the
participants. There is a wide level of interpretation in what can be considered "similar". For each
participant, there are certain characteristics that the comparison sample observations *must*
match in order not to rely on implicit interpolation/extrapolation in the estimation. For example,
even though eligibility criteria for ASETS programming is likely consistent across ASETS
agreement holders, the actual selection of interventions in a service plan is expected to vary
between ASETS agreement holders and communities according to each community's context.
Therefore, Indigenous identity and the community need to be identical between a comparison
observation and the "matched" ASETS participant.

Controlling for community in constructing the sample becomes the first major challenge. Among
the ASETS interventions, Self-employment, Student Work Experience, Skills Development –
Apprentice, and Wage Subsidy, have 170 to 930 observations in the 2011 cohort.[25] Analysts could
proxy communities using full 3 digits of Forward Sortation Area for rural residents and the
first 2 digits for urban residents. This results in 307 different communities in the data. It is

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[24]   SRDC is grateful to a reviewer who pointed out that roughly two thirds of ASETS participants were non-
       claimants of EI and as a result, Indigenous LMDA participants could only serve as a "comparison"
       sample for the current and former EI claimants among ASETS participants to estimate the impact
       differences between LMDA and ASETS. This is indeed a reasonable interpretation of "similarity".
       Removing non-claimants of EI from the ASETS participant sample would exacerbate the small sample
       size issue in controlling for community.

[25]   ESDC did not analyze the net impacts of Self-employment and Skills Development – Apprentices in the
       2020 ASETS evaluation because of inherent difficulties faced constructing a comparable comparison
       group sample.

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unavoidable that some of these communities have fewer than 5 observations in the sample and data privacy requirements must exclude such small cell sizes in any rigorous evaluation that must control for community.[26] About 66 per cent of Self-employment ASETS participants in 2011 came from communities with 4 or fewer participants. Similarly, 46 per cent of Student Work Experience participants and 34 per cent of Skills Development – Apprenticeship participants are from communities with 4 or fewer participants in 2011. The issue of small sample is even more severe if the sample is stratified by EI-claimant status. Removal of observations in small "cells" in the counterfactual sample substantially reduces the scope of the evaluation. It also disproportionally reduces the representation of rural residents in the evaluation relative to urban residents.

Two alternatives can be considered to improve the scope for evaluation.

- The first is to use multiple cohort-years (such as 2012 and 2013) in the evaluation to increase the sample size and reduce the risk of substantial non-coverage due to small cell sizes. However, it becomes increasingly important to control for time trends. The later cohort-year sample also have a shorter follow-up period due to the lack of availability of tax data after 2016.

- The second is to use a higher-level geographic classification for community definitions. For example, some may use a consistent first 2 digits of the Forward Sortation Area as the community definition throughout. The risk is a bias introduced through treating multiple different ASETS agreement holders in rural areas of provinces/territories (or region in Ontario or Quebec) as if they are the same. During SRDC's engagement with Indigenous organizations, First Nations, Métis, and Inuit ASETS Agreement Holders told the research team about their very different and unique local labour markets and challenges faced by their communities. Some First Nation reserves are inaccessible by road and their communities cannot access many private employers, even while other rural communities could include some industries. Treating multiple rural areas within and between provinces/territories as a homogenous group is likely to introduce substantial bias.

Another key challenge to creating a counterfactual sample from the limited program sample is the need to control for pre-program participation events. Typical evaluations using matching control for time-specific employment histories between the program group and the comparison group without considering events that occur up until the program start. This is not necessarily an issue when all participants start at the same specific time, though it becomes an issue for ongoing programs. Our findings above indicate the seasonal nature of participation and the importance of controlling for different sequences of events immediately before the start of a

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[26]   Elimination of four or fewer observations from estimation is consistent with the Statistics Canada Census disclosure rule to maintain privacy and validity of the study.

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program. It is feasible to randomly assign a pseudo-program start date to a large pool of observations of potential comparison sample members such that both seasonality and sequence of events relative to the start of the program are controlled for. This is not possible for smaller pools of potential comparison sample members, such as Indigenous EI claimants.

SRDC attempted to estimate propensity scores and conduct a matching estimation for each type of ASETS APE from the 2011 cohorts. Even with a coarser level of control for provinces/territories and rural-urban status to minimize the dropping of observations, the relatively large sample of non-participants resulted into a very skewed propensity score distribution. There were many cases violating the common support assumption required for matching. Taken together, the large potential pool of comparison sample members and the many factors relating to pre-program events result in computational difficulties for the estimation of the logistic regression model for ASET Job Creation Partnership. For those interventions where a binomial logistic regression could be successfully estimated, the explanatory power (as expressed in Pseudo R-squared) varied from 0.13 to 0.26. The discriminatory power of the propensity score model is thus rather poor. Some additional individual-level data, such as industry, occupation and education level might plausibly help to improve the model power. However, industry was captured only in job separations, while occupations and education were only captured in program participation. As a result, for comparison group observations with only a long-distant event of job separation or program participation, substantial imputation would be needed. Finally, even though many ASETS participants entered the program to obtain help finding a new job due to a series of adverse employment events, a non-trivial proportion also had very stable employment before their participation. Identification of similar non-participants within the comparison sample with stable employment would be difficult.

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CONCLUSION

Heckman and Smith (1999) have shown that labour force dynamics rather than employment or income dynamics drives patterns of active labour market program participation. They demonstrated that capturing this process is key for the credibility and validity of a counterfactual comparison group. This paper similarly found evidence of *Ashenfelter's Dip* (Ashenfelter, 1978) in pre-participation earnings among ASETS participants while many experienced a job separation right before their participation. ESDC's 2020 Evaluation of ASETS mitigated the *Ashenfelter's Dip* by controlling for 3-year pre-participation average in the outcomes which smooths out any dips caused by behavioural change prior to participating in the program. In theory, the inherent disadvantage of applying longer pre-participation smoothing is the strong assumption that earnings dipping events in the more distant past are the same as the more recent events. Our results point to two potential issues in the current application of matching to create a counterfactual sample for participation in ASETS interventions. If the matched comparison sample does not adequately capture the dynamic difference of events in participation, then estimated employment and earnings impacts using difference-in-difference approaches (even after matching) may suffer from an upward bias. Second, labour force dynamics just prior to participation is crucial in the decision-making process around participation. Typical evaluations, even after controlling for long periods of pre-program employment and labour dynamics, fail to account for this difference in labour force dynamics since the non-participant sample has no program participation date. The second issue can be mitigated either by using a snapshot cohort (with a limited number of observations) or by randomly assigning a pseudo-program start date across a large pool of potential comparison observations. Since a snapshot cohort for a single month is too small to be useful, this study tried to randomly assign a pseudo-program start month to a large pool of potential comparison observations. However, the approach made the estimation of propensity scores difficult due to the low discriminatory power of factors for participation in the data. Nevertheless, this study's results suggest that some assumptions are required to facilitate the impact estimations using the matching method. Robustness of the impact estimates can only be examined to the extent that different choices of assumptions are possible given the limited data available. The context and data make it very difficult for researchers and evaluators to control for all important factors in the selection process.

The substantial overlapping usage of ASETS and LMDA interventions suggests that eligibility for LMDA (or EI) might not be as an important a factor in comparability as was once thought, though it could reflect the contextual differences between communities. When SRDC engaged with ASETS Agreement Holders to discuss its research findings, organizations reported stretching limited funds by directing participants to other programs that might be able to help them. For example, some organizations referred people who were EI-eligible to providers funded under the LMDA first before they provide services under ASETS. There are also cases when

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ASETS training supported people to obtain seasonal work in their communities. Following this work, they became able to claim EI or to get access to additional training through EI programming. Conversely, LMDA holders might pass clients who were ASETS-eligible over to ASETS depending on their budget situation. Interactions with provincial programs and services add further complexity. In addition to the importance of each community context, researchers and other data users should be aware that focusing on the programs under ASETS does not reflect the full range of programs and training efforts that organizations (or individual clients) are involved in. The interactions between ASETS, EI benefits and LMDA programming suggest that sub-dividing the sample by EI-claimant status to estimate impacts needs further investigation to ensure each comparison sample is comparable to the program sample since various ASETS interventions may affect EI claimant status differently.

The importance and uniqueness of home communities to Indigenous people and the fact that participation of ASETS must nearly always be processed through their respective community suggest that community is crucial among factors to be included in the creation of valid counterfactual samples. Unfortunately, the scale of delivery for some ASETS interventions is small in some communities. This makes it very difficult to match on communities, Indigenous identity, male/female, and the necessary labour force dynamics. To simplify the match and control for only the necessary characteristics of community requires a better understanding of the participation process. Heckman and Smith (1999) state that "… *the design of successful estimators may benefit from a deeper understanding of the programme participation process.*" (pp.315-316) because omission of key factors explaining participation is the source of unmeasurable bias in program impact estimation. Indigenous organizations attending SRDC's engagement meetings emphasized how distinctions were important. For example, Métis organizations provided services to all Métis people in their province and did not engage sub-agreement holders, while other Indigenous groups could engage sub-agreement holders to deliver services. Also, First Nations could access post-secondary funding federally over the ASETS period, for example, while the Métis could not (until recently). Some First Nations ASETS Agreement Holders could also leverage social assistance funds and programs while Métis people would fall under provincial jurisdiction. Labour mobility and community characteristics differ, which impacts employment opportunities, labour market stability, and outcomes captured in the evaluation.

This paper adds somewhat to our understanding of the participation process for ASETS participants. However, more in-depth and focused research is needed, including additional data collection or linkage, to improve the extent to which analysts can control for the selection process and rely less on ad hoc assumptions in the impact estimations for the ASETS program derived through matching models. Programs are implemented differently in each local context. Thus, further investigation of the processes underlying who participates in the program and their diverse situations and needs is required to ensure the validity of pan-Canadian evaluations of the impact of ASETS and similar Indigenous labour market.

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APPENDIX A: ANALYSIS DATA AND INDICATORS

Table 42   Summary table of data used and description of intended econometric analysis

Paper	Outcomes	Methods	Data sources
Descriptive Analysis of ASETS Participations	Total number of participants in any ASETS program Total number of participants in specific types of ASETS programs Demographic and socioeconomic profiles of ASETS participants Average duration (days) between interventions in ASETS programs (Action Plan Equivalents) Average duration (days) of participation in any ASETS programs (Action Plan Equivalents) Average duration (days) of participation in specific ASETS programs (Action Plan Equivalents) Indicators of various combinations of interventions within a specific type of ASETS program (Action Plan Equivalent) Indicators of employment one to five years before each specific type of ASETS program (Action Plan Equivalent) Indicators of income dynamics one to five years before each specific type of ASETS program (Action Plan Equivalent) Indicators of EI benefit receipts one to five years before each specific type of ASETS program (Action Plan Equivalent)	Summary statistics Bivariate statistics	Labour Market Programming Data Platform: ▪ Client Entity for Demographics ▪ ILMP Entity for intervention usages ▪ Program Participation Entity for ASETS and LMDA participations ▪ Annual Income Data Entity for income information ▪ Annual Job Episode Data Entity for employment history and outcomes ▪ Annual Job/Earnings Data Entity for earnings history and outcomes ▪ EI Entity for EI benefit usages ▪ Program Eligibility Entity for simulated LMDA program eligibility Census (1996-2006, 2016) and NHS, to create provincial/territorial level distributions of Indigenous identity

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Paper	Outcomes	Methods	Data sources
	Indicators of ASETS/AHRDA program participations one to five years before each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of LMDA program participations one to five years before each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of employment outcomes one to five years after each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of income outcomes one to five years after each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of EI benefit receipts one to five years after each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of ASETS/AHRDA program participations one to five years after each specific type of ASETS program (Action Plan Equivalent)		
	Indicators of LMDA program participations one to five years after each specific type of ASETS program (Action Plan Equivalent)		
	Version of above indicators for LMDA programs among Indigenous users		

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