Second Draft

Earnings Impact of Self-Employment Assistance For the Canadian Unemployed, 1987 – 1996

By

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ABSTRACT

One potential policy intervention to increase the self-sufficiency prospects for unemployed workers is to allow those eligible for income maintenance to pursue the alternative of creating their own employment by starting their own business. The Canadian program of self-employment assistance evolved in three main phases from its inception in 1985 to the present. This paper examines whether the self-employment strategy results in more successful earnings outcomes for program participants, using administrative data, and whether the three policy regimes differ in their relative effectiveness. The empirical evidence provides support for the hypothesis that total earnings from paid and self-employment are improved by adding a self-employment option to earning a living. This increase in self-sufficiency, however, appears to be affected by program changes and self-selection issues.

ACKNOWLEDGEMENTS

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I. Introduction

Self-employment assistance programs for the unemployed have gained widespread appeal in the last two decades, beginning with the French Chomeurs Createurs pilot in 1979 and embraced by some seventeen OECD countries by the mid-1980's.[1] The growth and continued public support of self-employment as an employment option is, in part, a response to the policy challenges of persistent unemployment, slow job creation and changes in the structure of work and working time. It is further encouraged, however, by the generally positive international evidence of success of self-employment assistance in increasing participants' incomes while reducing dependency on income maintenance programs. This cumulative evidence, initially fairly basic in program monitoring data, now includes rigorous and solid impact assessments from comparative group evaluations and random assignment experiments.[2]

Evolution of self-employment programming

Canada has operated a self-employment assistance program since 1987. Its primary objective then and now is to facilitate labour market self-sufficiency for individuals in receipt of unemployment insurance or welfare benefits by assisting them to develop a self-employment job alternative without losing income assistance. However, program features and delivery changed over the past decade such that three distinct policy regimes can be identified.

1987 – 1991

The Self-Employment Incentive (SEI) was conceived as an option under the Community Futures Program that was part of the Canadian Jobs Strategy introduced in 1985. As such, the SEI was only available in some 200 non-metropolitan areas experiencing labour market adjustment difficulties selected for the Community Futures Program. As part of the Canadian Jobs Strategy, the SEI was funded from general revenues and not from the Unemployment Insurance (UI) Account or the Canada Assistance Plan (CAP). This meant that a weekly taxable allowance or grant of $180 (rising to $230 in 1991) for up to 52 weeks was given to successful applicants for income support, in lieu of UI or social assistance during a period of self-employment development. The option gave access to free business counseling and was not, therefore, just a small business subsidy.

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[1] For summary accounts of the international experience, see OECD (1989), *Self Employment Schemes for the Unemployed*, ILE Notebooks No. 10, and U.S. Department of Labor (1992), *Self Employment Programs for Unemployed Workers*, Unemployment Insurance Occasional Paper 92-2.

[2] The progress from rudimentary program monitoring to formal evaluations and demonstration projects can be seen from the following publications: OECD (1989), *Preliminary Report by OECD Evaluation Panel No. 11: Self-Employment and Employment Creation Schemes*, and U.S. Department of Labor (1995), *Self-Employment Programs: A New Reemployment Strategy, Final Report on the UI Self-Employment Demonstration*.

To be eligible, applicants must be in receipt or entitled to UI or welfare benefits at the time of application, have an approved business plan, an equity stake of at least 25 percent of the benefit entitlement (180 x 52) or $2,340 to invest in the business over the 52 weeks, agreed to work full time (at least 30 hours per week) in the business and be a resident in a designated higher unemployment rural Community Futures area.

The SEI was administered by local employment offices with assistance from the Community Futures Business Development Centre (BDC). Indeed, the BDC played a significant role in the delivery of SEI. It provided the SEI client with counselling and support prior to and after program approval. In most cases, the BDC opinion in writing on the proposal viability was required for official approval. As well, it provided or arranged for appropriate basic business set-up training.

Its appeal to policy makers was in part the lower prospective cost as it replaced otherwise passive income security assistance with an active measure in support of labour market sufficiency. SEI direct costs were also lower as it involved community stakeholders rather than a large bureaucracy for delivery.

1992 – 1995

The Self-Employment Assistance (SEA) program was introduced in June 1992, replacing the SEI. This followed the November 1990 amendment of the UI Act that provided for new regulations and additional funding under the Developmental Uses of Unemployment Insurance.[3] The legislative change was intended to realign UI program away from passive income support towards active training and re-employment assistance for the unemployed. In this context, SEA differed from its predecessor in the increased level of funding that is provided to participants as well as a greater emphasis in mandatory training.

The fundamental change in the funding source away from general tax revenues (Consolidated Revenue Fund) to the UI Account affected program coverage and delivery in significant ways. It made program access universal for unemployment insurance beneficiaries and no longer limited to designated Community Futures areas. As Business Development Centres were not available outside these areas, alternate capacity had to be organized to support micro-enterprise ventures at the development and implementation stages. Consequently, the role of local community coordinator or third-party provider of program delivery was introduced on a wider scale.

At the same time, while provisions continued to allow the use of Consolidated Revenue Funds to address income support requirements for

[3] Employment and Immigration Canada (December 1992), *Employment Directives, Chapter 35*.

welfare recipients, the priority given to UI claimants by virtue of the expanded Development Uses budget potentially affected client targetting in a number of ways. The enriched SEA financial incentives under UI resulted in greater program take-up by qualified UI claimants. The rate of SEA allowance was equal to the UI benefit rate that could be topped up with supplementary allowances including child care, commuting, living-away from home and disability. Where entitlement was insufficient to cover the SEA participation, entitlement was extended to cover the 52 week SEA period, with the maximum of 156 weeks total UI benefit duration. Earnings from self-employment during the claim period were not deducted or clawed back while paid employment earnings were subject to the usual 25 percent earnings allowance rule. In contrast, social assistance or welfare recipients received a basic training allowance which may be lower than UI benefits plus supplementary allowances paid by the designated coordinator up to a maximum 52 weeks with no extensions. Furthermore, earnings from both self-employment and paid employment were treated on the same footing for dollar for dollar clawback beyond a certain threshold by the federal-provincial Canada Assistance Plan. In short, UI claimants were more likely to be selected for program participation and their self-selection was enhanced by greater financial incentives.

Once selected into the program, SEA participation is governed by an agreement or contract between Employment and Immigration Canada (EIC) and the UI client while a letter of understanding formed a similar basis between program delivery coordinators and welfare recipients. These agreements outlined roles and responsibilities, including the SEA support payments and services for business viability assessment. In return, participants agreed to develop and implement a business plan showing potential for long term self-employment, undertake appropriate business start-up training, make a personal investment of at least 25 percent up to a maximum of $4,000, work full-time on the business while receiving financial assistance, and start a new business or take over an existing business without prior ownership. Seasonal enterprises were eligible and participants could be engaged in more than one full-time seasonal enterprise.

1996 – present

The present SEA program, following a major overhaul and tighter integration of the insurance and employment programs with the Employment Insurance (EI) Act in July 1996, is distinguished from its predecessor in program entitlement and delivery. Under this legislation, training is ceded as a provincial jurisdiction and bilateral, three-year Labour Market Development Agreements have been put in place with most provinces and territories based upon different program delivery models. These range from the status quo of federal delivery to full provincial devolution, with co-management as a preferred option in between. The move to further decentralization of labour market programming recognizes the need to find flexible, local solutions to local adjustment difficulties. In this

context, decisions about the amount of entitlement and the substantive content of employment interventions are mainly left at the discretion of local officials on the understanding that they are also accountable for evidence-based performance outcomes.

As one of five remaining Employment Benefits and Support Measures (EBSM)[4], the SEA is changing on at least three fronts. Prior to the 1996 Employment Insurance legislation, SEA participants were eligible for a maximum 52 weeks of SEA income support, including extensions to regular insurance benefits at the same benefit rate. In the post-EI world, flexible programming means periods of income support are now being consider that are potentially much shorter than 52 weeks. Second, extensions to regular insurance benefits are now at a negotiated "personal allowance" which may be less than the regular insurance replacement rate. Finally, there is now a more permissive attitude towards seasonal business ventures.

To summarize, the self-employment assistance program has changed in important details of client selection, entitlement and program delivery over the past ten years. Relative to the earlier SEI option of 1987-1991, the UI Developmental Uses SEA of 1992-1995 was more generous and made UI beneficiaries a client priority. The post-EI SEA of 1996-present appears to be less constrained by national guidelines and is potentially less generous in its entitlement to EBSM clients. These changes in policy and programming raise important questions about their relationship to program effectiveness.

Some answers are available about program effectiveness for the SEI and pre-EI SEA programs. The Canadian evidence on incremental program impacts is documented in two evaluations conducted in 1993 and 1995.[5] However, no assessment to date has been made about program effectiveness across policy regimes.

Present contribution

The motivation of this paper is to update and extend the Canadian evaluation knowledge of the self-employment policy alternative. It will present new evidence on the effectiveness of the Self-employment Incentives Option relative to the later Self-employment Assistance program, focussing specifically on the earnings outcome.

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[4] The EBSMs include targetted wage subsidies, earnings supplementation, self-employment assistance, skills loans and grants in support of individual training decisions, job creation partnerships.

[5] G. Wong, F. Phelan, R. Dugan and Z. Lin (1993), *Self-Employment for Unemployed Workers: Evaluation Lessons Learned,* Employment and Immigration Canada, and Ekos Research Associates (1995), *Evaluation of the Self-Employment Assistance Program*, Employment and Immigration Canada.

The rest of the paper is organized as follows to achieve this purpose. Section 2 describes the sample and data for the treatment and comparison groups. Section 3 outlines the fixed effects estimation procedures and empirical results on program incrementality, controlling for sample heterogeneity. Section 4 offers a discussion of the findings and concludes.

II. The Sample and Data

Human Resources Development Canada has three longitudinal administrative microdata sets, linked by masked social insurance numbers, which provide a sampling frame and important tombstones for self-employment participants and comparison group members. From the Status Vector of the insurance benefits master file, detailed information is available on work history associated with job separations with insurable earnings and UI claim history. The Canadian Jobs Strategy (CJS) file provides a record of program interventions financed from general revenues. The T1 taxfiler administrative data gives annual individual income by source.

From an evaluation perspective, such longitudinal microdata present opportunities for ongoing impact monitoring and assessment. Used in a comparative group design, the counter-factual analysis of such data can also evaluate the incremental effects of the intervention in question. Relative to special purpose external surveys, longitudinal administrative data sets represent both a long retrospective and a much more affordable monitoring strategy. However, it is rare that outcome information is available through the routine collection of administration information which typically captures individual events just prior to and during a benefit period. Further, administration data are collected for program administration purposes and critical analytical information may not be significant considerations in this context. Tombstones such as educational attainment and household composition are notable gaps in HRDC data files.

Depending upon the analysis that is required, the available administrative data may provide core information to which surveys can supplement. In the case of self-employment assistance, sufficient administration information is available for an evaluation of program effectiveness in promoting self-sufficiency among participants. To the extent that the evaluation is successful in controlling for participant and comparison group heterogeneity, the study will provide a good estimate of net program impacts on earnings. A major limitation with such administration data-based evaluations is the inability to deal directly with the “deadweight” measurement issue related to incrementality, that is taking account of those individuals who would have started a business even in the absence of public assistance.

As Table 1 shows below, some 66,391 individuals participated in self-employment programming between 1987 and 1998. The self-employed treatment group represented about 2 percent of regular claimants over the period. Against this universe, an initial comparison group of 160,205 individuals was randomly selected from the UI, non-SE participant claimant population. As can be seen, this comparison group is evenly distributed across years as it is a random sample of one-half of one percent of the 32,041,000 regular benefit claims established during this period. Due to micro-computer memory limitations, only one-quarter of the initial sample was taken as the final comparison group.

Table 1. Participant and Comparison Group Sample Sizes

Start Year	Participant		Comparison	
	Number	Percent	Number	Percent
1987	288	0.43	3,436	8.59
1988	1,203	1.87	3,581	8.95
1989	2,285	3.47	3,509	8.77
1990	3,345	5.04	3,876	9.69
1991	3,359	4.99	4,002	10.01
1992	4,118	6.20	4,045	10.11
1993	6,942	10.45	3,819	9.55
1994	9,578	14.67	3,293	8.23
1995	10,992	16.30	3,428	8.57
1996	10,590	15.95	3,154	7.88
1997	9,192	13.84	2,913	7.28
1998*	4,499	6.78	944	2.36
Total	66,391	100.00	40,000	100.00

Source: UI Status Vector, CJS
Note: Participants identified by year of SE start, comparison by year of claim or CJS intervention
* Incomplete year data

The participant take-up reflected the different program orientations and generosity levels. The majority (close of 50 percent) of all participants started between 1994 and 1997. Relative to the SEI period, the SEA program enrolled significantly higher levels of participants, topping out at around 11,000 annual participants at the end of its period or three times the level of SEI final years. While post-EI SEA is still in its early years, the evidence to date suggests some decline from peak pre-EI SEA years.

III. Empirical Evidence

Descriptive statistics

Table 2 presents a list of selective descriptive characteristics used to examine the participant and comparison samples. These include age, gender, key features of benefit claims, and prior earnings. A statistical measure of significance for the difference for sample group differences. Appendix tables elaborate on annual group differences disaggregated by gender, age and province, and provides more details on the industry and occupation compositions of the last job prior to the start year of the SEA intervention of benefits claim. Mean annual earnings for three years prior to and after the end year of intervention or claim are also presented in the appendix, with total gross earnings decomposed to their paid employment and self-employment elements.

It can be seen that participant and comparison group samples differ significantly in terms of these selected, observable characteristics. The participant group is more concentrated in the prime ages of 25-54 with considerable fewer numbers in the youth and older worker categories. Men are more likely self-employment participants than women, at more than 8 percentage points higher than the 55 percent observed for men in the comparison group.

Table 2. Participant / Comparison Group Differences, Selected Characteristics

Variable	SE Participants	Comparison Group	t-Statistic on difference**
Demographics (percent)			
Youth	6.5	17.7	58.8
Prime Age	90.9	74.2	73.5
Older	2.7	8.1	38.0
Male	63.4	55.0	27.2
Income Benefits (weeks)			
Insurable	41.4	37.8	24.8
Entitlement	40.4	37.6	39.5
Elapsed*	46.2	32.3	121.2
Prior 2 year Earnings ($)			
Employment Earnings	20,300	16,236	40.6
Gross SE Earnings	5,082	1,201	1.9***

Source: T1 taxfile, Status Vector and CJS
Note: All differences are statistically significant at the one per cent level.
* Elapsed Weeks for SE refers to the length of time on SE. It does not include the time spent on claim before SE started. For the Comparison group, it is the length of time while on the claim. This include weeks where no benefits are paid.
** t-Statistics are based on regressing the dependent variable on a SE participation dummy.
*** This data is mostly zeros, with extremely high standard deviations for non-zero values. It is likely that the above test was inappropriate for this variable.

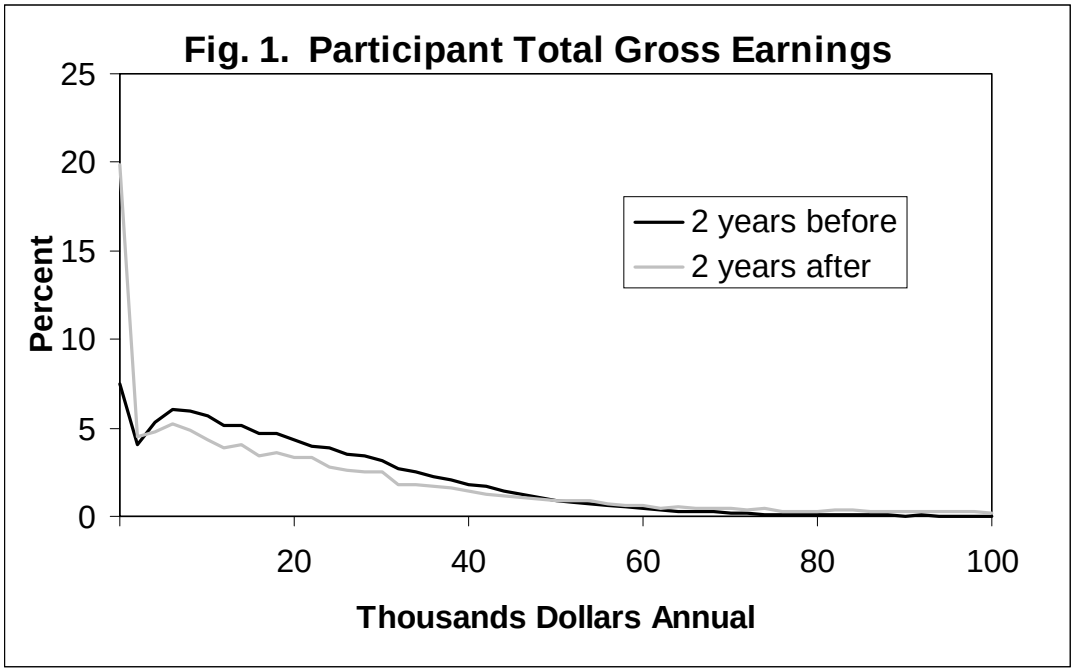
In all aspects of income benefits, the participant group had higher levels of benefits than the comparison sample. Higher weeks of insurable earnings and benefit entitlement suggest that self-employment participants have more stable paid employment histories than comparison group members. This characteristic may be indicative of self-selection bias, program selection bias or a combination of the two.

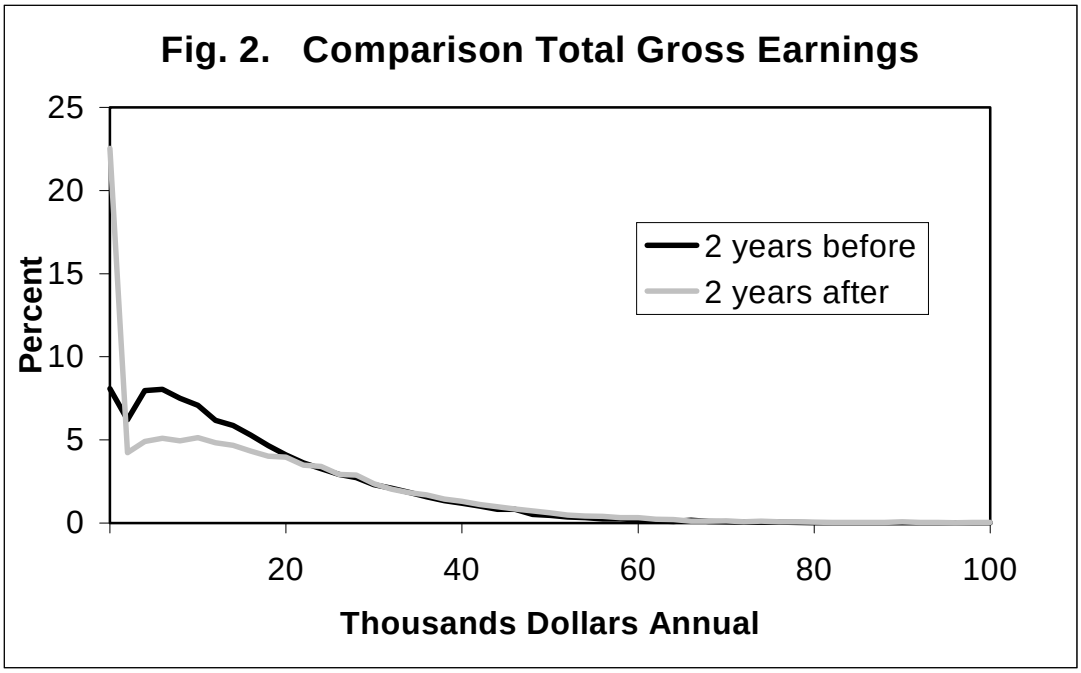
The difference in work history is further observed in a simple comparison of paid employment and self-employment earnings for the two groups two years prior to the start year of the intervention or claim. The employment earnings for participants averaged $4,000 per year more than comparison members.

Given the significant differences in treatment and comparison samples, it would not be surprising to observe different labour market outcomes across the two groups even in the absence of the self-employment intervention. The descriptive statistics on earnings bear this out. Figures 1 and 2 compares the total gross earnings from paid and self-employment for participants and comparison group members two years before and two years after the end year of self-employment assistance or benefit claim. Such a comparison requires careful treatment at the individual level as gross paid earnings are not economically equivalent to gross self-employment earnings. It would be correct to say that the disposable income arising from the two sources of earnings would be significantly different as self-employment earnings receive much more favourable taxation treatment that is commensurate with risk than paid employment. In this context, self-employment earnings can result in significantly higher disposable income as the accumulation of assets is realized through capital cost depreciation to minimize tax liabilities – a tax planning strategy that is not available to paid workers. Conceptually, this suggests that a dollar of self-employment earnings produces greater individual welfare than a dollar of paid employment earnings. With this in mind, gross earnings from paid and self-employment can be interpreted only as a proxy for economic self-sufficiency. In the absence of better data and analysis, the following observations can be made from Figures 1 and 2 below.

Figure 1 suggests that self-employment participation improves the earnings distribution with fewer people earning less than $45,000 annually two years after that observed two years before self-employment assistance. At the same time, a slightly larger percentage of participants are earning higher than $45,000 as compared to two years prior to participation.

The total earnings profile that emerges from Figure 2 is compellingly different. A significantly larger number of comparison workers are at the lower end of the earnings range two years before and after the end of their benefit claim. While the earnings distribution of the treatment group does not equalize until about $50,000, for the comparison group it is identical after about $20,000.





When we consider the gross earnings profile separately for paid and self –employment, the picture becomes clearer on the proportional

shift of those making no earnings as well as the earnings profiles of those with positive earnings. Figures 3 and 4 show the paid earnings of participant and comparison group members two years before and after the program participation period. To illustrate the changing shares of the sample populations earning either zero or positive income, these figures provide different scales at the left and right axes. Figure 3 shows that two years before self-employment assistance ended, 10 percent of participants had no paid employment; two years after, this had risen to 50 percent as might be expected if the program had the intended effect of moving people to self-employment on a full time basis. Figure 4 shows the rather alarming statistics that the comparison share of no employment earnings jumped from 10 percent two years prior to claim end to over 25 percent two years after. When the employment income distributions of the participant and comparison groups are examined, it is clear that a higher proportion of comparison workers are earning income at low paying jobs than participants. A major difference in the two year earnings cross-sections is the wider earnings spread observed for participant relative to comparison members. Indeed, the small percentage of participants making over $70,000 in paid work is the same after self-employment assistance. By contrast, the cross-over for the comparison group is $20,000 with earnings tracking closely thereafter in the earnings profiles two years before and after termination of benefits.

Figures 5 and 6 show the differences in gross self-employment earnings two years before and after for participant and comparison groups respectively. More than 90 percent of the participants had no self-employment earnings two years before self-employment assistance as compared to the 60 percent two years after. For those earning income from self-employment, however, more participants had higher level of self-employment income two afters. While most participants earned less than $20,000 two years prior to self-employment assistance, the earnings profile of those with positive income had shifted noticeably upwards and more evenly distributed. For the comparison sample, the share that is at zero self-employment earnings two years before is substantially higher at 96 percent than the treatment group, indicating some underlying group differences. Two years after, slightly more comparison members earned self-employment income with only 94 percent still showing no earnings from that source. For those with positive self-employment earnings, the pattern of earnings two years after showed some improvement, most noticeably up to the $25,000 income range. Relative to the treatment group, very small numbers of comparison members earned more.

Fig. 3. Participant Employment Earnings

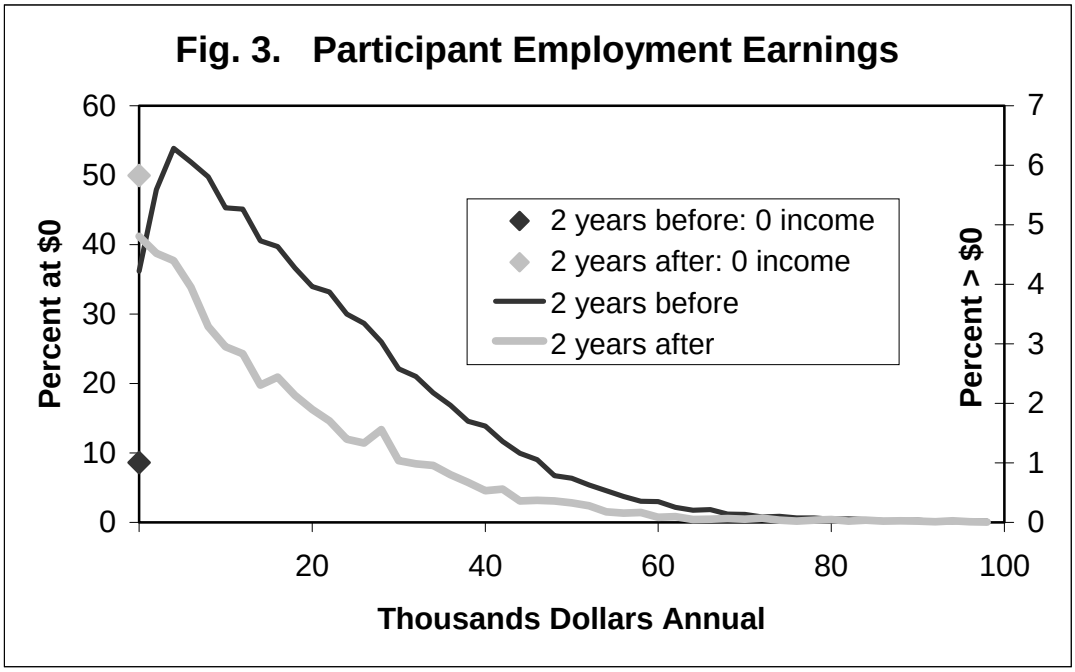
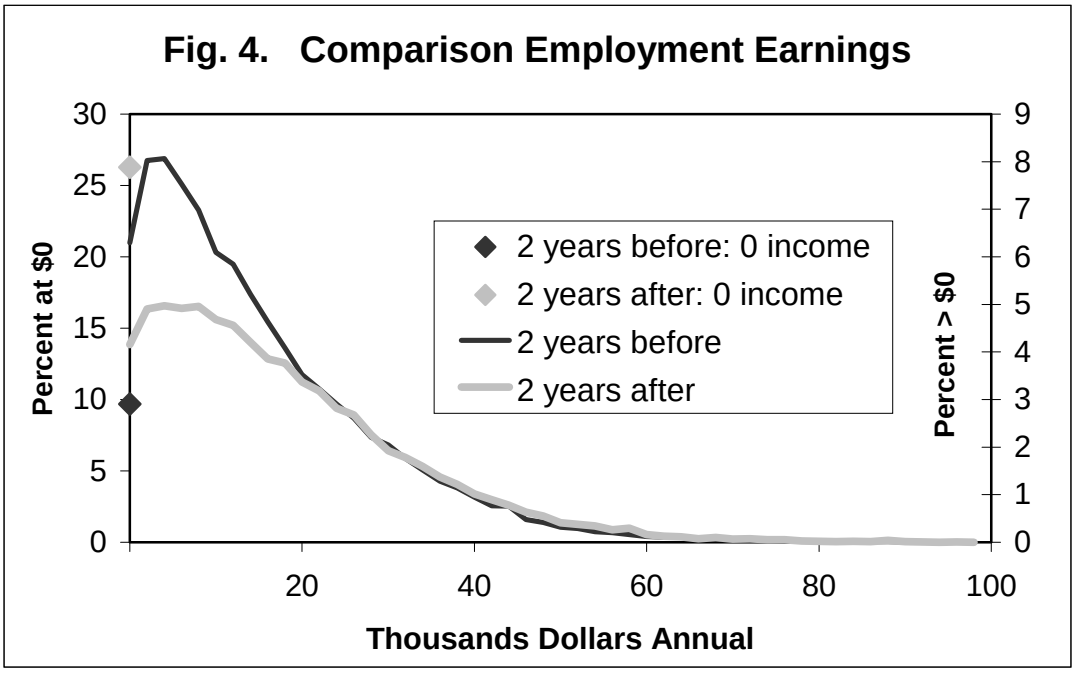


Fig. 4. Comparison Employment Earnings



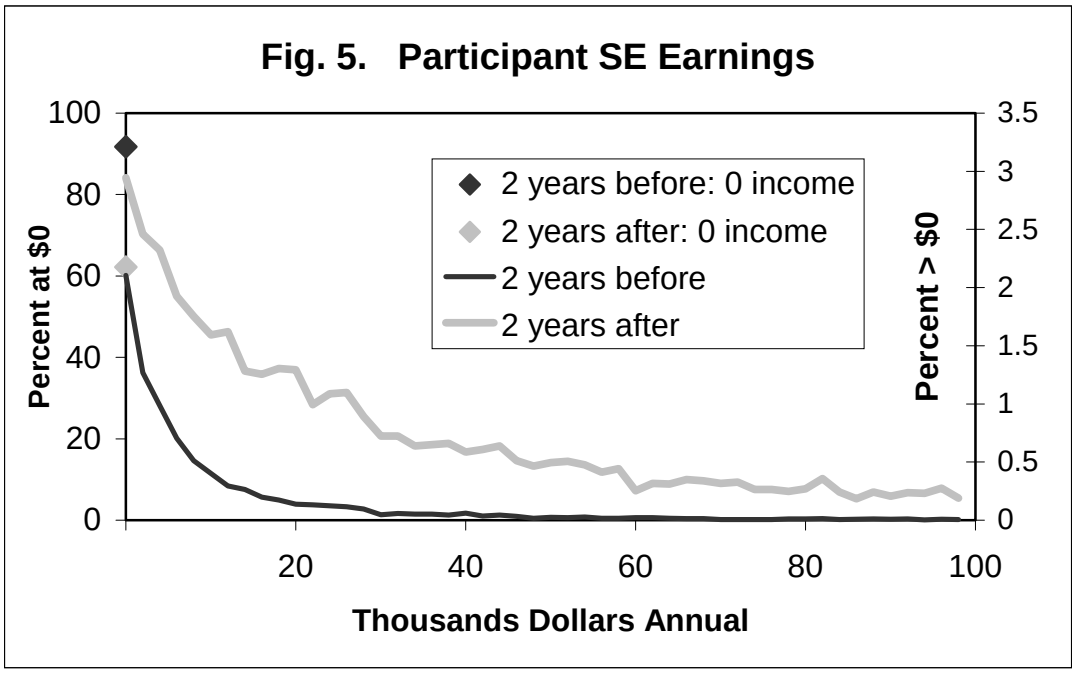


Fig. 5. Participant SE Earnings
100
80
60
40
20
0
Percent at $0
3.5
3
2.5
2
1.5
1
0.5
0
Percent > $0
2 years before: 0 income
2 years after: 0 income
2 years before
2 years after
20
40
60
80
100
Thousands Dollars Annual

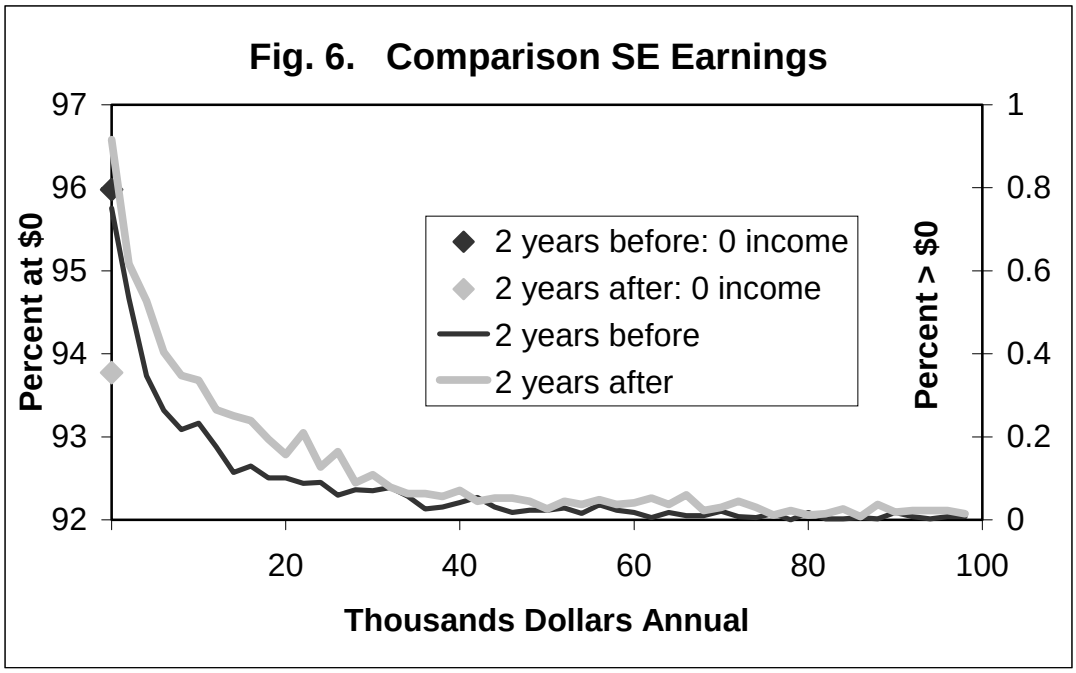


Fig. 6. Comparison SE Earnings
97
96
95
94
93
92
Percent at $0
1
0.8
0.6
0.4
0.2
0
Percent > $0
2 years before: 0 income
2 years after: 0 income
2 years before
2 years after
20
40
60
80
100
Thousands Dollars Annual

Regression Analysis

There is considerable evidence from the descriptive statistics on group means for selected characteristics and earnings outcome that special care must be taken to adequately deal with selection bias in order to evaluate the impacts of self-employment assistance on labour market success. For this purpose, longitudinal or fixed effect estimators are used to control for selection bias and other explanatory variables in order to estimate reliable net program impacts.[6] To compare the relative effectiveness of the SEI and SEA to improve earnings, separate fixed effect estimates are computed for participant and comparison cohorts in each year of the two policy regimes. The post-EI SEA program could not be examined as earnings information is not available past 1996.

Methodology

The primary hypothesis is to investigate whether the SEI and SEA programs produced value-added self-sufficiency benefits in the form of increased earnings for participants. We begin by using a simple difference-in-difference, or fixed-effect, longitudinal estimator of incremental program impact. We then add a set of explanatory variables to control for some of the observable characteristics that influence earnings. The hypothesis is that the SEI and SEA programs will have a positive impact on earnings. For a given cohort starting the program at time t and gross income Y, we calculate $Y_{t+1} - Y_{t-2}$, $Y_{t+2} - Y_{t-2}$ and $Y_{t+3} - Y_{t-2}$ for participants and non-participants.[7] We take the difference of this difference for a final impact. Two-year lagged earnings are used so as to account for the pre-program earnings dip in the manner discussed by Ashenfelter and Card (1985).

There is a methodological issue that needs to be emphasized, which is the unobserved "entrepreneurial" ability component of the error term that may bias results.[8] While the fixed effects estimator is often touted as a way of eliminating this unobserved heterogeneity, it only does so if this unobserved component that is correlated with earnings is constant over time. If this assumption does not hold, then we are likely no better off with this estimator than OLS. However, estimating our earnings equations with a number of pre-program earnings acts as a specification test. For example, for the 1990 cohort, we take the difference-in-difference using pre-program earnings in 1989, 1988 and 1987. If the three estimated earnings impacts are not within the appropriate number of standard errors of each other, then the specification test fails. That is, we reject the hypothesis that there is a permanent or fixed unobserved earnings component

[6] A common choice is the difference-in-difference estimator described in Ashenfelter and Card (1985) and Moffitt (1991), and used in a 1993 evaluation of the earnings impact of UI-sponsored training programs in Canada by Park, Power, Riddell and Wong (1996).
[7] Results are only presented for $Y_{t+1} - Y_{t-2}$ as little difference was found between the two.
[8] It should be pointed out that gross earnings tend to overstate true earnings of Self-Employment, see Vroman(1989).

over time. In this event, a more complicated difference-in-difference estimator can be used where the problematic unobserved component is assumed to be (linearly) positive rather than a constant (Moffitt, 1991).

In summary, two models are used to estimate impacts. The first is a simple fixed effects model that regressed earnings for the first, second and third year after self-employment assistance against a base year prior to program participation. The second multivariate fixed effects model regressed earnings in a similar fashion but included covariates that may explain the earnings results. In addition to a participation dummy, the explanatory variables of gender, age, experience (and experience squared) and regional labour market controls are added. Tables 3 - 5 below summarize the simple and multivariate results for each cohort from 1988 - 1995.

Table 3 contains the resulting parameter estimates for the incremental effect of SEI on earnings, using the time series of annual gross earnings from self-employment provided by the T1 administrative tax file on cohort years 1988 - 1991. Table 4 extends the same analysis to the 1992 – 1995 SEA cohorts while Table 5 shows the estimates of the control variables

Table 3. Estimates of SEI Effect on Gross Earnings by Cohort Year (std.err.)

Model	1988	1989	1990	1991
Simple				
Ydiff1	$23,922	$22354	$19,531	$21,757
	(1629)	(1623)	(1309)	(1443)
Ydiff2	$13,284	$15,221	$8,951	$15,960
	(1358)	(1475)	(1158)	(1300)
Ydiff3	$9,202	$6,884	$7,598	$11,058
	(1158)	(1233)	(1105)	(1212)
Multivariate				
Ydiff1	$28,569	$23,055	$19,907	$22,136
	(1850)	(1802)	(1379)	(1577)
Ydiff2	$14,643	$17,649	$9,072	$14,858
	(1554)	(1698)	(1241)	(1420)
Ydiff3	$11,158	$7,779	$8,434	$11,908
	(1329)	(1359)	(1227)	(1345)

Table 4. Estimates of SEA Effect on Gross Earnings by Cohort Year (std.err.)

Model	1992	1993	1994	1995
Simple				
Ydiff1	$24834	$23,692	$25,130	$24,888
	(1393)	(1428)	(1563)	(1487)
Ydiff2	$15,954	$12,006	$14,602	--
	(1193)	(1165)	(1375)	
Ydiff3	$12,653	$10,237	--	--
	(1194)	(1128)		
Multivariate				
Ydiff1	$24,116	$24,873	$26,351	$26,945
	(1452)	(1509)	(1657)	(1546)
Ydiff2	$16,555	$13,489	$14,440	--
	(1251)	(1236)	(1430)	
Ydiff3	$12,384	$11,155	--	--
	(1239)	(1210)		

The results for tables 3 and 4 only show the estimated effects of program participation. However for each of these regressions, controls were introduced to adjust for such factors as age, gender etc. While the effects of these controls are too numerous to reproduce for all regressions, the effects are shown for $Y_{t+1} - Y_{t-1}$, the row marked Ydiff1. We see that women had higher income from self-employment.[9] We also see that older individuals and residents of Quebec do not perform as well.

[9] It should be kept in mind, before any conclusions are drawn, that these results are only for self-employed who are not incorporated and who draw on employment insurance.

Table 5. Effects on Gross SE Earnings of Control Variables by Cohort Year (std.err.)

	SEI Cohorts				SEA Cohorts			
	1988	1989	1990	1991	1992	1993	1994	1995
Youth	119.7	851.9	554.2	-51.8	-64.6	-208.1	-3189.3	1124.2
	(1850.8)	(1224.5)	(1379.8)	(1326.9)	(1489.9)	(2088.7)	(2526.3)	(2399.9)
Older	-153.6	923.9	-2175.8*	104.2	987.2	-4494.8*	796.0	-1673.0
	(1371.0)	(1751.2)	(1757.2)	(1847.3)	(1932.1)	(2652.7)	(3360.1)	(3265.5)
Female	441.6	612.9	1085.0	1135.5	1751.7*	3616.6*	6956.2*	7422.3*
	(748.8)	(952.2)	(898.9)	(979.5)	(1062.6)	(1357.8)	(1594.6)	(1515.1)
Exper.	312.0*	716.2*	477.8*	-306.5	-198.1	47.1	-185.4	-341.8
	(175.7)	(218)	(231.0)	(237.4)	(250.0)	(311.1)	(390.5)	(400.6)
$Exper^2$	-3.83*	-10.8*	-6.3*	4.7	2.74	-1.5	2.05	4.1
	(2.54)	(3.17)	(3.3)	(3.4)	(3.61)	(4.5)	(5.6)	(5.7)
Atlantic	-48.6	-1037.8	1420.7	-321.2	692.1	94.2	-4086.2	-501.9
	(1217)	(1567.1)	(1504.7)	(1561.3)	(1746.8)	(2138.6)	(2610.9)	(2552.4)
Quebec	907.4	-736.8	-2274.2*	-280.6	-1588.4	-1653.3	-7420.8*	-7108.1*
	(990.5)	(1244.4)	(1179.2)	(1298.0)	(1402.9)	(1774.1)	(2048.3)	(1954.9)
Prairies	428.9	-411.2	381.7	160.0	1350	-2664.6	-1124.6	-2059.4
	(1276.2)	(1605)	(1524.8)	(1633.4)	(1718.3)	(2190.3)	(2654.2)	(2595.4)
BC	661.2	2158.1	2444.8	1674.5	1241.9	2301.4	-1689.8	3049.3
	(1245)	(1613.6)	(1491.1)	(1625.8)	(1873.2)	(2346.3)	(2741.1)	(2729.1)
N	2601	2784	3229	3307	3690	4089	4286	4817
R^2	0.087	0.065	0.071	0.062	0.078	0.068	0.064	0.066

* Significant at the 5% level
Source: Status Vector and T1
Note: Results presented for fixed-effects model using one-year post-program earnings only (Ydiff1).

The basic fixed effect estimates of the SEI effect on gross earnings from self-employment are large and positive, ranging from $19,000 to $27,000, depending upon the cohort. These estimates increase somewhat when we control for other factors. We also must keep in mind that 70 percent of SEI and SEA participants still earn a non-trivial amount of income from paid employment which, combined with self-employment earnings, improve the overall level of participant self-sufficiency.

There are a number of noteworthy findings to be discussed. First, the estimates suggest that it appears the SEI and SEA programs were a success in promoting self-sufficiency. The combination of our large, positive estimates for self-employment incomes with the paid employment incomes most participants earn implies a much stronger financial position than UI. Second, the SEI/SEA impact is much stronger in the first year after the program with self-employment earnings estimates tapering off in the second and third post-program years. On one hand this may suggest that participants are not able to maintain the venture's success.[10] However, given that we see continued earnings from paid employment, this finding may only be indicating that the self-employment venture is being used as a compliment to paid employment, not a substitute. In this event, the self-sufficiency objective may have been fulfilled. Our future work will provide more insights into the self-sufficiency objective.

[10] An alternative interpretation would be that successful self-employed businesses incorporate after a few years of success, thus reducing income observable on the T1.

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Appendix Tables

Table A1
Demographic Composition

	SE Participants			Comparison Group		
	% Young	%Older	%Male	%Young	%Older	%Male
1987	10.4	3.5	68.4	23.7	8.2	54.8
1988	12.6	2.8	61.3	23.3	7.8	54.8
1989	11.3	2.5	58.6	21.1	7.8	54.8
1990	10.4	3.1	61.0	19.4	7.5	55.9
1991	11.0	2.8	63.0	17.8	7.5	57.5
1992	7.5	2.8	64.5	17.1	7.6	55.6
1993	5.6	2.8	67.8	15.6	8.2	55.0
1994	4.9	2.6	66.0	15.2	7.6	53.9
1995	5.8	2.6	64.4	15.2	7.6	54.6
1996	5.7	2.5	60.9	14.1	7.9	54.2
1997	5.4	2.6	60.9	13.3	8.2	54.4
1998	5.1	3.3	64.1	14.1	6.8	54.8

Source: Status Vector and CJS File

Table A2
SE Program Participation

	Total	Males	Females	Youth	Prime Age	Older
1987	288	197	91	30	248	10
1988	1203	737	466	152	1017	34
1989	2286	1339	947	259	1971	56
1990	3349	2044	1305	349	2897	103
1991	3372	2126	1246	371	2900	102
1992	4118	2658	1460	308	3697	113
1993	6943	4707	2236	388	6362	193
1994	9580	6324	3256	469	8868	243
1995	10994	7085	3909	632	10080	282
1996	10594	6456	4138	610	9720	264
1997	9194	5600	3594	495	8464	235
1998	4501	2883	1618	231	4120	150

Source: CJS file and Status Vector
Note: Data is organized by start year

Table A3
Mean Earnings for SE vs. Comparison Group

	Comparison Group			SE Participants		
	Total Earnings	Paid Employ-ment Earnings	Self-Employment Earnings	Total Earnings	Employment Earnings	Self-Employment Earnings
1989 Cohort						
1987	17442	13880	1012	16608	10711	5897
1988	16976	14539	893	13765	3806	9959
1989	14698	12528	1262	31479	4012	27467
1990	17464	13957	2396	29065	6088	22977
1991	17778	13679	2848	28998	7146	21853
1990 Cohort						
1988	17136	16449	814	14363	12402	1961
1989	16842	15916	860	14597	4165	10432
1990	14936	12904	1182	29017	3802	25215
1991	17455	14235	2183	29319	5824	23495
1992	18300	14559	2809	29341	7032	22309
1991 Cohort						
1989	17496	17114	1081	14358	12468	1890
1990	17744	16048	1742	14584	3667	10917
1991	14844	12747	1361	34211	4069	30142
1992	17013	14764	2049	35901	6309	29593
1993	17895	15348	2799	58829	7596	51233
1992 Cohort						
1990	17036	17105	1293	49184	17183	32000
1991	16502	15763	1251	12972	6028	6944
1992	14159	12911	1326	29172	3799	25372
1993	16646	15530	1849	41530	7549	33981
1994	16988	15964	2034	45168	9628	35540
1993 Cohort						
1991	17501	17160	1123	21735	20354	1381
1992	17158	15986	1095	82068	5656	76412
1993	14839	13995	1533	30764	4645	26119
1994	16978	16458	1622	48575	9785	38789
1995	17241	16775	1808	40564	12115	28450
1994 Cohort						
1992	16997	16659	991	23439	20545	2894
1993	16433	16554	1001	13665	6126	7540
1994	14147	14454	1144	39446	5298	34147
1995	17101	16200	1834	42062	10215	31847
1996	17659	18227	2277	26355	16659	9695

Notes: Data is in current dollars.

It should be noted that there are some extremely large values on this database. As this is administrative data, it was felt that there would be no reason to edit this data. However, some of the outliers in this table are due to this.

Table A4
SE Participants by Province

Prov\Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
Nfld	3	25	70	84	133	225	292	340	300	337	221	84	2114
PEI	52	47	57	51	76	94	91	145	113	120	87	51	984
NS	91	204	230	328	369	350	407	556	614	579	424	240	4392
NB	0	51	177	238	182	188	376	411	388	422	281	140	2854
Que	0	103	432	740	727	916	1556	2765	3852	3259	2500	1173	18023
Ont	59	263	465	510	377	324	1725	2466	2572	2999	2734	1426	15920
Man	0	0	2	12	3	232	377	384	345	324	326	170	2175
Sask	1	21	31	63	83	116	329	305	283	273	250	89	1844
Alta	6	32	129	299	288	624	627	741	900	738	890	384	5658
BC	73	439	686	1006	1099	1016	1119	1441	1579	1490	1421	696	12065
NWT	3	8	6	14	9	17	21	7	25	32	52	33	227
Yukon	0	0	0	0	13	16	22	17	20	17	6	13	124
Outside	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	228	1203	2285	3345	3359	4118	6942	9578	10992	10590	9192	4499	66381

Source: Status Vector CJS File
Note: Data is by year of SE start

Table A5
Breakdown of Earnings Three Years Before and Three Years After

	SE Participants	Comparison Group
Prior 3 Year Earnings ($)		
Employment Earnings	21704	16014
Gross SE Earnings	2531	1328
After 3 Year Earnings ($)		
Employment Earnings	9141	16333
Gross SE Earnings	24629	3198

Source: T1 and Status Vector