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A LONGITUDINAL ANALYSIS OF YOUNG ENTREPRENEURS IN CANADA

Introduction

It has long been the belief that small business is the engine of economic expansion. The recent increases in self-employment in many developed countries have further reinforced this belief. Canada, in particular, has experienced an unprecedented growth of job creation in the self-employment sector over the last decade. In the 1990s, year-to-year self-employment growth averaged 4.1% versus only 0.2% for paid-employment (Lin *et al*., 1998). This amounts to a net increase of 599,000 jobs from 1990 to 1997 in the self-employment sector and only 177,000 jobs in the paid-employment sector. Thus, politicians' and economists' increasing interest in small business and self-employment is fundamentally based on the recognition that entrepreneurial activity is an important source of economic expansion and job creation.

The popular sentiment appears to be that the natural flow of individuals into self-employment is insufficient, and therefore requires stimulation. In particular, several countries have turned to self-employment support programmes as a possible means of alleviating persistently high unemployment rates. Because high levels of youth unemployment are a particular concern for many of these countries, self-employment support programmes geared specifically to this group are a possible means of addressing this. Such programmes can provide more than just immediate relief for the unemployed. Labour market perceptions formed early in one's career can have lasting impact. Individuals who experience self-employment early in their career may be more inclined to consider self-employment as a realistic alternative at an older age.

The role of support programmes focussed on new self-employment initiatives is to identify potentially successful entrepreneurs and to encourage these individuals to become self-employed by providing assistance of various forms. To design such programmes effectively requires a thorough understanding of the key factors influencing the decision to become self-employed. In particular, it is important to understand the role of personal and family characteristics versus the impact of labour market factors. Is self-employment a viable alternative for everyone, and in particular is it a realistic alternative when unemployment rates are high? Some of the characteristics that have been considered as possibly having an important bearing on an individual's predisposition to self-employment are risk preferences and other personality traits, the influence of parental role models, early life experiences in school and work, and financial resources. Researchers have also considered various aspects

of the labour market such as the unemployment rate (push versus pull theories), government policies (*e.g*. average and marginal income tax rates), and structural changes in the economy (*e.g*. changes in the composition of the economy and the trend of contracting out).

Many studies on the self-employment decision use cross-sectional data (Rees and Shah, 1986; Bernhardt, 1994; Taylor, 1996). To better address the issue, longitudinal data is required. Longitudinal micro data provides a better opportunity for researching the self-employment decision because it provides information on the changes in employment status. Longitudinal analysis makes it possible to model the transition to self-employment and identify the personal and labour market characteristics important to the transition. Similarly, longitudinal analysis of the transition out of self-employment can provide insight into the characteristics that compel an individual to exit self-employment. In this paper we use the Longitudinal Administrative Databank (LAD) for the years 1985-1988 and 1992-1995 to model the transition from paid-employment to self-employment of young adults aged 20-29. We also look at the transition from self-employment to paid-employment of individuals in this age group.

In the first part of this paper we present a cross-sectional overview of self-employment trends in Canada. Subsequently, we focus on the principal part of the analysis-- modelling the transition from employment to self-employment of individuals aged 20-29 in Canada. This focus was chosen because the employed represent the largest contingent of individuals entering self-employment.

Self-Employment Trends in Canada

Trends in Self-employment over the Last Two Decades

Over the last 20 years, self-employment has been increasing in importance in terms of job creation and prevalence relative to paid-employment. Below we present highlights of the trends in self-employment over the last two decades. Note that the self-employment definition in this summary includes incorporated self-employed, unincorporated self-employed, and unpaid family help.

- In 1997, 16.2% of the labour force was self-employed compared to 11.5% in 1976.
- From 1976 to 1997, total employment increased by 4.2 million jobs, 1.3 million of which were in self-employment. This represents 30.8% of the new jobs created over this time period.
- For the period 1976 to 1997, the growth of self-employment outpaced paid-employment evaluated in terms of:
    1. full-period growth-- self-employment doubled, increasing from 1.2 to 2.5 million, whereas paid-employment rose by only 1/3, from 8.6 to 11.5 million,
    2. the year-to-year rate growth rate-- self-employment grew by an average of 3.5% compared to 1.4% for paid-employment, and

3. the proportion of the total labour force-- self-employment increased from 11.5% to 16.2%, an increase of 40.9%, whereas paid-employment decreased from 81.4% to 74.6%, a drop of 8%.

- In the 1990s, the importance of self-employment is even more pronounced than it has been in the past. Self-employment growth continued to outpace paid-employment growth over the 1989 to 1996 time period in terms of:

  1. the proportion of net new job creation-- 3/4 of net new job growth,

  2. the total number of new jobs created-- 460,000 versus 133,000,

  3. full period growth-- self-employment counts increased by 25% versus 1% in the paid-employment sector, and

  4. the average year-to-year growth rate-- 3.3% versus 0.2%.

- Though self-employment is more prevalent amongst men than women, it has increased in terms of numbers and percentages for both sexes. In fact, it has increased more rapidly for women than for men.

- The likelihood of self-employment increases with age. Of those who were self-employed in 1996, 25% were under 35 years of age, whereas this group represented 45% of all employees. The incidence of self-employment is highest for the 55+ age group.[1] The incidence of self-employment increases with age for women, but the increase is not as great as for men.

- The nature of self-employment growth is different in the 1990s than in the 1980s. Most of the recent increases in self-employment has been in the own-account category, self-employed without paid help, rather than self-employed with paid help.[2]

Trends in Unincorporated Self-employment from 1982-1995

Chart 1 below, and Tables 1 and 2 in Appendix provide detailed information on the trends in unincorporated self-employment for the time period 1982-1995. Three points warrant mention:

- From 1982 to 1995, the total number of paid-employed decreased for the 20-29 age group, whereas it increased for the 30-59 group. If disaggregated by sex, it is self-employed men aged 20-29 that are the source of this decrease. The number of self-employed women in this age-bracket has increased. The total number of self-employed increased for both men and women in the 30-59 age group. Overall, these results are largely influenced by the changing age structure of the population.

- The proportion of individuals that are self-employed is more than twice as large for the older age group as for the younger age group for both men and women.

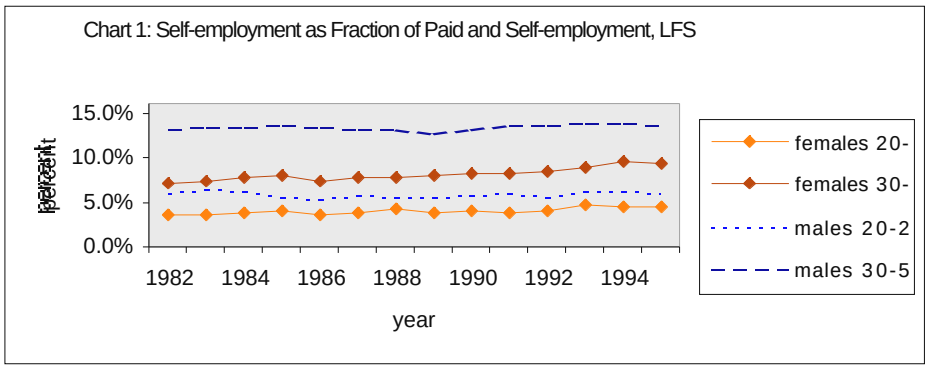
- The average year-to-year growth rate in the proportion of self-employed is negative during the 1980s and positive in the 1990s for men in both age

[1] Self-employment may be used as a transition out of the labour force. The increased prevalence with age may also reflect the time required to build up experience, resources, and skills.

[2] This trend is attributed to factors such as the shift to services, increased use of contracting out, and technological advances.

groups. In contrast, the average is positive in both the 1980s and 1990s for women in both age groups. Furthermore, the average year-to-year growth rate is quite large for both groups of women in the 90s—more than twice that of their male counterparts.

- Noteworthy is the increasing importance of self-employment relative to paid-employment in recent years. The 1990s have seen a growth trend in self-employment for both younger and older age groups of both sexes, but it has been most remarkable for women.



Theoretical and Statistical Framework

Literature Review

The literature on entrepreneurship can be classified into two broad categories of theories, namely, classical theory and neoclassical theory.[3] The former is identified with the older literature on the topic. The principal characteristic of this theory is its focus on innovation. The latter, identified with the newer literature, focuses on risk preferences.[4]

The principal characteristics of an entrepreneur, identified in the classical writings, can be summarized as follows (Blanchflower and Meyer, 1991):

1. An entrepreneur is an expected utility maximizer. S/he receives higher utility by employing her/his productive resources in self-employment than in paid-employment.

2. An entrepreneur is an innovator. S/he is alert to new opportunities that are not perceived by others.

3. Risk preferences are not central to the theory. In fact, the theory postulates that there is no objective measure of the probability distribution of business risk.

The neoclassical writings differ from the earlier literature. In a model proposed by Kihlstrom and Laffont (1979) individuals are assumed to have a choice between operating a risky firm or working for a riskless wage. Individuals differ only by their willingness to assume risk. Unlike the classical models, this and other neoclassical models assume that there is an objective probability governing business outcomes. Thus, there is no market failure in

[3] Self-employment is viewed as the simplest for of entrepreneurship.
[4] Blanchflower and Meyer (1991) provide an excellent overview of this literature.

insurance markets and so, entrepreneurs do not require special abilities in raising capital. The key assumptions of the neoclassical theory are as follows (Blanchflower and Meyer, 1991):

1. An entrepreneur is an expected utility maximizer, and receives the same expected utility as her/his workers.

2. All individuals observe and have the ability to take advantage of new business opportunities.

3. The probability distribution of business risk can be objectively measured and is known to everyone. Entrepreneurs have particularly high levels of risk tolerance.

The two schools of thought reviewed above give rise to contrasting views of entrepreneurship and self-employment. The first assumes that entrepreneurs have special characteristics, and that knowledge of these characteristics drives them to engage entrepreneurial ventures. This school of thought falls into the general category of the opportunity-pull hypothesis. Opportunity pull theories propose that individuals are drawn to self-employment due to its positive benefits. The second school does not differentiate entrepreneurs from the paid-employed other than on the level of risk preferences, but holds that they are merely responding to environmental circumstances in which they find themselves. The recession/unemployment push hypothesis falls into this theoretic. This hypothesis postulates that individuals are pushed into self-employment because they cannot find suitable paid-employment. If it is true, one would expect to see a larger number of individuals entering self-employment during economic downturns.

In our modelling of the transition from paid-employment to self-employment we include explanatory variables that are drawn from the theoretical and empirical work on the subject. We include sociodemographic and economic characteristics of the individual as well as macroeconomic, geographic and temporal variables that likely have a bearing on the decision to enter self-employment. These explanatory variables are taken from the years prior to becoming self-employed. By using past values we can be more confident that the characteristics are the factors influencing the decision to become self-employed rather than the outcome of self-employment.

Statistical Model

We model the transition from paid-employment to self-employment in terms of a logit specification. The logit model assumes that the underlying tendency to become self-employed is a linear function of the explanatory variables. If we let y* represent this tendency, and x represent the explanatory variables, then the expression can be written as follows:

$$y_i^* = x_i'\beta + \varepsilon_i,$$

where β represents the coefficients associated with the characteristics, and εi an error term that has a binomial distribution. We do not observe yi*, an individual's tendency, but only whether or not the individual becomes self-employed. We define this observed zero/one dichotomy as follows:

$$y_i = 1 \text{ if } y_i^* > 0, \text{ and}$$
$$y_i = 0 \text{ if } y_i^* \# 0,$$

where yi=1 if the individual moves from paid-employment to self-employment, and yi=0 if the individual remains in paid-employment

We consider a number of covariates in our model. These variables can be classified into five broad categories, namely demographic, financial, labour-market, geographic, and temporal characteristics. Following is a categorical list of specific characteristics employed in the first stage of the modelling:

1. demographic: sex, age, marital status, family size
2. financial:[5] return on assets, own paid-employment income, spouse's paid-employment income
3. labour-market: spouse's self-employment status, union/professional dues payment, past self-employment experience
4. geographic: provincial unemployment rate, population size in area of residence, province of residence
5. temporal: calendar year.

Empirical Results

Transition from Paid-employment to Self-employment

The proportion of self-employed individuals in any year who have entered self-employment in that year exceeds 30% , while the proportion of self-employed exiting self-employment exceeds 20%. Movements in and out of other categories are also quite large. In total, between 14%-21% of the population is represented in each matrix change category within the six two-year periods. This percentage grows larger with time, an indication of possibly greater labour-market instability for this age group in more recent years.

The largest flow of individuals entering into self-employment do so from the paid-employment category. This group represents more than 70% of the individuals entering self-employment.

Charts 2 and 3 in Appendix provide information on self-employment entry rates for the 1982-1995 time frame mapped against the yearly unemployment rate for several age brackets. The object of these graphs is to provide a first level evaluation of the relationship between entry and job prospects through time. The cyclical pattern of the unemployment rate is evident, though a related pattern in the self-employment entry data is not. Rather, the self-employment data reflect a relatively steady increase over the 1982-95 time period.

[5] All income data employed in the models are in thousands of dollars.

Chart 2: Female Entry and Unemployment Rates

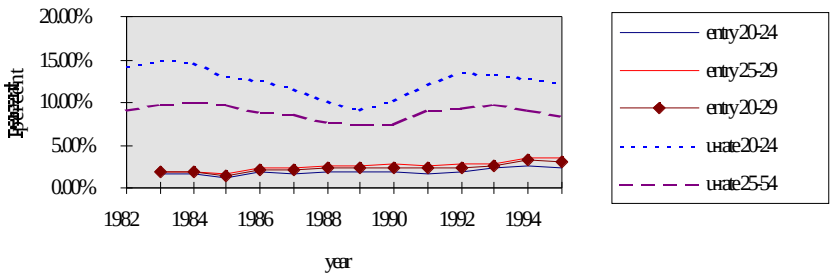
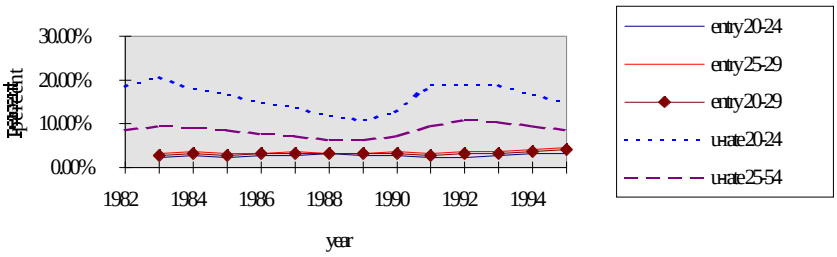


Chart 3: Male Entry and Unemployment Rates



Self-employment Model Estimates

We employ a probit specification, outlined in an earlier section, to model the transition from paid-employment to self-employment (see Appendix). In summary, several characteristics stand out as being important determinants of the decision to become self-employed for men and women according to the final model estimates:

- The effect of age is positive and appears to be non-linear. This likely reflects the experience that comes with age-- experience in the form of formal education,[6] on-the-job training, or simply time spent searching for and identifying business opportunities.

- Individuals with lower paid-employment income are more likely to become self-employed. This is consistent with the comparative advantage theory which postulates that individuals whose skills are better suited for self-employment will have lower expected earnings with paid-employment than self-employment, and so will choose to become self-employed.

- Though the union/professional dues payment variable is significant only for men, it reinforces the significance of the paid-employment variable. The wage and salaried opportunities are quite good for men who are members of a union or professional organization.

- Own investment income is not significant for women and significant only in the log-linear model for men. Parents' average investment income is

[6] The LAD does not include data on the level of education and therefore the effects of this characteristic could not be tested.

significant only in some specifications as well. Thus, the proposition that liquidity constraints are a factor in the decision is only weakly supported. Our measure of resources available to fund an entrepreneurial venture is not a comprehensive measure. In particular, we only have information on flows, not on stocks.

- The unemployment rate is not significant in any specification. Thus, the push hypothesis is not supported by this result, suggesting that other factors play a more important role in the decision to become self-employed.

- Individuals whose spouses or parents are self-employed are more likely to become self-employed themselves. Women are more likely to enter self-employment if their parents are self-employed in a farming, professional or business ventures. For men, having parents involved in farming, fishing, commission or business self-employment increases their likelihood of entering self-employment. It appears that the role models provided by family members are important influences in the self-employment decision. The notion that family background and past experiences are important is further supported by the fact that own past self-employment experience greatly increases to probability of entering self-employed again. The importance of family background in self-employment could also be driven by business succession from parents to children, or a partnership with a spouse.

- A number of the geographic variables are significant—size of area of residence for men, and several regions for both men and women. This is likely a reflection of variations in self-employment and paid-employment opportunities that exist in the different urban/rural settings, and different regions of the country due to differences in the economic base and economic performance.

- The significance of the year dummies in the models of women reinforces findings in the earlier analysis of time trends—in recent years, women are more likely to become self-employed than in the past. A number of suggestions have been proposed, such as technological changes, structural changes, increased contracting out, and government tax policy.

Predicted Probabilities

Using both the linear and log-linear probit estimates, we calculate the impact of the different characteristics on the probability of an individual becoming self-employed This exercise provides insight into the characteristics that are quantitatively important rather than just statistically significant. Each characteristic is evaluated at different levels while holding the other characteristics constant (the linear probability estimates are included in the Appendix).

Several observations warrant mention. For individuals in the 20-29 age-bracket, the probability of becoming self-employed increases as one ages. The relationship between entry into self-employment and a spouse's or parents' self-employment is remarkable. Parents in farming or fishing appear to have a very large influence on men, whereas parents in professional or business areas appear to be the predominant influence on women. Own past self-employment experience has a substantial impact on the probability of yet another entry. Also noteworthy are the large variations by region for both women and men. Size of area of residence has large correlation with entry into self-employment only for men. Finally, women with children, and men who are not payers of union or professional dues are more likely to become self-employed than their counterparts.

Transition from Self-employment to Paid-employment

We have estimated a model of the probability of exiting self-employment to paid-employment over a two-year transition period.

Fewer characteristics are significant at the 1% level in the exit models than in the entry models. We review only those variables that are significant at this level, and in both the linear and log-linear specifications. Both women and men are less likely to exit self-employment as they get older. This is could be a reflection of decreased job mobility with age. Own paid-employment income is significant and positive. Higher paid-employment income individuals are likely less attached financially to their entrepreneurial ventures and in many cases may only be undertaking them part-time. Also, both sexes are less likely to exit the higher the net self-employment income and the longer their tenure in self-employment. Clearly, success, measured financially and/or by tenure, is an incentive to continue with the entrepreneurial venture. Both women and men in farming self-employment are less likely to exit than in other categories of self-employment. In addition, the profession and business categories are negative and significant for men. Thus men in fishing and commission self-employment are most likely to exit. One factor that could be driving this result is the recent collapse of the fishing industry. Only one temporal variable is significant at the 1% for men, and none are for women.

Discussion

The cross-sectional data that we presented in our descriptive analysis provide a breakdown by age group of Canadian self-employment trends from 1982 to 1995. The growth in self-employment in the 1990s appears to be driven largely by an increasing incidence of females in both the younger (20-29-year-old) and older (30-59-year-old) age groups choosing self-employment over paid-employment. Growth in self-employment was less remarkable for males in the younger age group, though self-employed males in this group still represented a larger fraction of the total employed males aged 20-29 than their female counterparts. The longitudinal data revealed significant movements into and out of self-employment for the 20-29-year-old age group. The largest contingent of individuals entering self-employment in this group does so from paid-employment—it is this transition that was the focus of our study.

Our analysis provides some interesting insights into the theoretical literature and earlier empirical work on the subject. More specifically, our model of the transition from paid-employment to self-employment identified a number of sociodemographic and economic characteristics that proved to be significant determinants of this transition. In some cases our results provide support to the theories presented in the literature, whereas in others they do not.

Individuals with lower paid-employment income are more likely to become self-employed. This finding alone could potentially support several hypotheses. It might be that the lack of paid-employment prospects is an incentive to enter self-employment. The fact that the provincial unemployment rate is not significant suggests that this push hypothesis is not the case. Rather, this result appears to support the pull hypothesis. This proposition is further reinforced by the significant negative coefficient for men of the union/professional dues payment variable. Paid-employees who pay union or professional dues may have good income opportunities in their current employment. Further analysis is required before one can make firm conclusions on these theories. In particular, a more precise measure of paid-employment prospects than the provincial unemployment rate would better capture the impact of this characteristic.[7]

[7] In our model the area size of residence variables may be picking up some of the impact of job prospects.

The self-employment status of family members appears to be an important determinant. Individuals with self-employed parents or spouses are more likely to become self-employed. This could be the result of role models provided by parents, or succession of a business from parents to children. Own past self-employment experience is also significant across all specifications.

There is only weak support for the liquidity constraint hypothesis. We constructed an aggregate variable consisting of returns on financial assets and rental income as a marker of financial resources available to invest in an entrepreneurial venture. We find that own investment income and parents' investment income is significant in only some specifications. Not all types of self-employment require significant financial outlays. In particular, services provided by own-account holders often depend more on the human capital resources of the individual than on large financial capital investments. The current trend of self-employment in the own-account category might dominate for the 20-29-year-old age group, and may be the reason behind the weak support of the liquidity constraints hypothesis.

Though women and men have some significant characteristics in common, others differed by sex. Being attached and having children is significant only for women. It could be that women are inclined to choose self-employment over paid-employment when child-rearing because of its greater flexibility. There are also some differences between men and women in parents' self-employment categories and across size of area of residence and regions. The impact of calendar years also differed, though for both, individuals were more likely to enter self-employment in more recent years. This is likely a reflection of the growth in self-employment in the 1990s and is exogenous to the characteristics we have investigated.

Fewer variables were significant in the exit models. The predominant characteristics were age, the level of self-employment income, tenure in self-employment, and particular self-employment categories.

Several issues warrant further investigation. Information on educational attainment would certainly enrich the model. Details on employment history could provide insight into the types of work experience that are better suited to self-employment. Markers of risk preferences would allow for the testing of theoretical propositions of the neoclassical model. And, as noted earlier, more precise paid-employment prospects could better substantiate the push/pull hypotheses.

APPENDIX

Unincorporated Self-employment Trends

Table 1*[29]: Female Paid-employment and Self-employment Trends (in thousands), LFS

Year	Paid-emp		Self-emp		% chg Paid-emp		% chg Self-emp		SE as prop of TE		% chg in prop SE	
	20-29	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**
1982	1,414	2,138	51	162					3.5%	7.0%		
1983	1,447	2,204	54	175	2.31%	3.09%	6.05%	8.35%	3.6%	7.4%	3.53%	4.73%
1984	1,470	2,308	59	197	1.58%	4.70%	8.29%	12.39%	3.8%	7.9%	6.35%	6.77%
1985	1,504	2,436	64	209	2.32%	5.54%	8.33%	6.00%	4.1%	7.9%	5.64%	0.40%
1986	1,551	2,587	56	207	3.10%	6.22%	-12.72%	-0.67%	3.5%	7.4%	-14.81%	-6.00%
1987	1,548	2,727	60	227	-0.20%	5.40%	7.55%	9.46%	3.7%	7.7%	7.48%	3.56%
1988	1,538	2,905	66	247	-0.63%	6.54%	10.70%	9.08%	4.1%	7.8%	10.93%	2.20%
1989	1,551	3,042	62	263	0.83%	4.72%	-6.80%	6.39%	3.8%	8.0%	-7.28%	1.47%
1990	1,518	3,166	64	283	-2.09%	4.07%	3.89%	7.60%	4.1%	8.2%	5.86%	3.11%
1991	1,456	3,231	58	288	-4.11%	2.08%	-8.89%	1.62%	3.9%	8.2%	-4.79%	-0.41%
1992	1,402	3,304	60	304	-3.72%	2.24%	2.05%	5.59%	4.1%	8.4%	5.76%	3.00%
1993	1,350	3,394	66	331	-3.68%	2.74%	11.24%	9.05%	4.7%	8.9%	14.77%	5.60%
1994	1,335	3,488	62	372	-1.10%	2.77%	-5.88%	12.19%	4.5%	9.6%	-4.62%	8.28%
1995	1,313	3,610	61	376	-1.63%	3.50%	-2.72%	1.05%	4.4%	9.4%	-1.06%	-2.15%
average 1983-1995					-0.54%	4.12%	1.62%	6.78%			2.13%	2.35%
average 1983-1989					1.33%	5.17%	3.06%	7.29%			1.69%	1.88%
average 1990-1995					-2.72%	2.90%	-0.05%	6.18%			2.65%	2.91%

Statistics Canada: Labour Force Survey

Table 2*[29]: Male Paid-employment and Self-employment Trends (in thousands), LFS

Year	Paid-emp		Self-emp		% chg Paid-emp		% chg Self-emp		SE as prop of TE		% chg in prop SE	
	20-29	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**	**20-29**	**30-59**
1982	1,636	3,053	106	461					6.1%	13.1%		
1983	1,614	3,065	110	470	-1.31%	0.40%	3.97%	1.97%	6.4%	13.3%	5.01%	1.36%
1984	1,671	3,139	111	483	3.49%	2.39%	0.64%	2.68%	6.2%	13.3%	-2.58%	0.24%
1985	1,732	3,226	103	501	3.65%	2.79%	-6.78%	3.87%	5.6%	13.5%	-9.49%	0.91%
1986	1,757	3,322	101	510	1.46%	2.95%	-2.13%	1.62%	5.4%	13.3%	-3.35%	-1.12%
1987	1,763	3,421	109	515	0.31%	3.00%	8.02%	1.16%	5.8%	13.1%	7.23%	-1.56%
1988	1,767	3,527	104	528	0.28%	3.10%	-4.77%	2.48%	5.6%	13.0%	-4.75%	-0.52%
1989	1,748	3,648	103	531	-1.13%	3.41%	-0.96%	0.53%	5.6%	12.7%	0.16%	-2.43%
1990	1,659	3,671	102	549	-5.05%	0.63%	-0.49%	3.43%	5.8%	13.0%	4.52%	2.42%
1991	1,510	3,637	97	569	-8.99%	-0.92%	-5.27%	3.57%	6.0%	13.5%	3.83%	3.92%
1992	1,471	3,650	88	571	-2.61%	0.35%	-9.38%	0.46%	5.6%	13.5%	-6.56%	0.09%
1993	1,437	3,740	95	601	-2.30%	2.49%	8.42%	5.09%	6.2%	13.8%	10.29%	2.19%
1994	1,440	3,874	97	619	0.19%	3.59%	1.47%	3.05%	6.3%	13.8%	1.20%	-0.45%
1995	1,429	3,989	90	631	-0.77%	2.95%	-6.72%	1.89%	5.9%	13.6%	-5.64%	-0.89%
average 1983-1995					-0.98%	2.09%	-1.08%	2.45%			-0.01%	0.32%
average 1983-1989					0.97%	2.58%	-0.29%	2.05%			-1.11%	-0.45%
average 1990-1995					-3.25%	1.51%	-2.00%	2.91%			1.27%	1.21%

****Statistics Canada: Labour Force Survey***

Table 3: Transition from Paid-employment to Self-employment of Female Child Tax Filers

	LINEAR		LOG-LINEAR		QUADRATIC	
number entering	970		970		970	
number not entering	38,880		38,880		38,880	
-2 LOG L	9,150		9,150		9,150	
-2 LOG L model	8,710		8,700		8,690	
Description	Coeff		Coeff		Coeff	
INTERCEPT	-4.490	**	-5.407	**	-14.660	**
AGE (LOG)	0.035	*	1.784	^	0.907	**
AGE SQUARED					-0.018	**
ATTACHED	0.226	**	0.352	**	0.182	^
NUMBER OF CHILDREN (LOG)	0.142	**	1.029	**	0.068	
NUMBER OF CHILDREN SQUARED					0.032	
RETURNS ON ASSETS (LOG)	0.013		-0.062		0.029	
RETURNS ON ASSETS SQUARED					0.000	
OWN PAID-EMPLOYMENT INCOME (LOG)	-0.016	**	-0.444	**	-0.030	**
OWN PAID-EMPLOYMEN T INCOME SQUARED					0.000	*
SPOUSE'S PAID-EMPLOYMENT INCOME (LOG)	0.000		-0.079		0.001	
SPOUSE'S PAID-EMPLOYMENT INCOME SQUARED					0.000	
SPOUSE'S SELF-EMPLOYMENT DUMMY	0.684	**	0.627	**	0.695	**
UNION/PROFESSIONAL DUES PAYMENT DUMMY	-0.039		-0.064		-0.041	
SELF-EMPLOYMENT EXPERIENCE DUMMY	1.013	**	1.010	**	1.018	**
PARENTS' AVERAGE RETURN ON ASSETS (LOG)	0.001		0.123	**	0.008	
PARENTS' AVERAGE RETURN ON ASSETS SQUARED					0.000	
PARENTS' FARMING INCOME DUMMY	0.320	**	0.288	**	0.304	**
PARENTS' FISHING INCOME DUMMY	-0.320		-0.355		-0.359	
PARENTS' PROFESSIONAL INCOME DUMMY	0.514	**	0.497	**	0.514	**
PARENTS' COMMISSION INCOME DUMMY	0.319	^	0.297	^	0.307	^
PARENTS' BUSINESS INCOME DUMMY	0.375	**	0.368	**	0.371	**
UNEMPLOYMEN RATE (LOG)	-0.027		-0.780		-0.088	
UNEMPLOYMENT RATE SQUARED					0.002	
URBAN POP 15,000-99,999 DUMMY	-0.016		0.004		-0.011	
URBAN POP 1-14,999 DUMMY	0.142		0.157	^	0.142	
ATLANTIC DUMMY	-0.200		-0.180		-0.225	
QUEBEC DUMMY	-0.208	*	-0.173		-0.171	
PRAIRIE DUMMY	-0.153		-0.147		-0.159	
ALBERTA DUMMY	0.302	**	0.318	**	0.313	**
BRITISH-COLUMBIA DUMMY	0.330	**	0.339	**	0.341	**
YEAR 1986 DUMMY	-0.250		-0.250		-0.262	^
YEAR 1987 DUMMY	-0.008		-0.015		-0.038	
YEAR 1992 DUMMY	-0.010		-0.010		0.011	
YEAR 1993 DUMMY	0.261	*	0.266	*	0.287	*
YEAR 1994 DUMMY	0.234	^	0.242	^	0.256	^

***** significant at 1%, * significant at 5%, ^ significant at 10%***

Table 4, Transition from Paid-employment to Self-employment of Male Child Tax Filers

	LINEAR		LOG-LINEAR		QUADRATIC	
number entering	1,630		1,630		1,630	
number not entering	48,550		48,550		48,550	
-2 LOG L	14,410		14,410		14,410	
-2 LOG L model	13,850		13,810		13,810	
Description	Coeff		Coeff		Coeff	
INTERCEPT	-4.449	**	-6.574	**	-12.559	**
AGE (LOG)	0.041	**	2.410	**	0.707	**
AGE SQUARED					-0.014	**
ATTACHED	0.177	*	0.140		0.027	
NUMBER OF CHILDREN (LOG)	-0.002		-0.171		0.186	
NUMBER OF CHILDREN SQUARED					-0.060	
RETURNS ON ASSETS (LOG)	0.006		-0.115	*	0.004	
RETURNS ON ASSETS SQUARED					0.000	
OWN PAID-EMPLOYMENT INCOME (LOG)	-0.009	**	-0.418	**	-0.014	**
OWN PAID-EMPLOYMEN T INCOME SQUARED					0.000	**
SPOUSE'S PAID-EMPLOYMENT INCOME (LOG)	0.003		0.100		0.021	*
SPOUSE'S PAID-EMPLOYMENT INCOME SQUARED					0.000	*
SPOUSE'S SELF-EMPLOYMENT DUMMY	0.564	**	0.583	**	0.609	**
UNION/PROFESSIONAL DUES PAYMENT DUMMY	-0.173	**	-0.165	**	-0.155	*
SELF-EMPLOYMENT EXPERIENCE DUMMY	1.003	**	0.997	**	0.984	**
PARENTS' AVERAGE RETURN ON ASSETS (LOG)	0.000		0.125	**	0.009	**
PARENTS' AVERAGE RETURN ON ASSETS SQUARED					0.000	
PARENTS' FARMING INCOME DUMMY	0.619	**	0.607	**	0.605	**
PARENTS' FISHING INCOME DUMMY	0.839	**	0.839	**	0.842	**
PARENTS' PROFESSIONAL INCOME DUMMY	0.263	*	0.215		0.251	^
PARENTS' COMMISSION INCOME DUMMY	0.330	*	0.323	*	0.315	*
PARENTS' BUSINESS INCOME DUMMY	0.184	**	0.178	**	0.179	**
UNEMPLOYMEN RATE (LOG)	0.000		0.028		-0.004	
UNEMPLOYMENT RATE SQUARED					0.000	
URBAN POP 15,000-99,999 DUMMY	-0.238	**	-0.227	**	-0.236	**
URBAN POP 1-14,999 DUMMY	0.152	*	0.171	**	0.156	*
ATLANTIC DUMMY	-0.277	*	-0.269	*	-0.294	*
QUEBEC DUMMY	-0.311	**	-0.310	**	-0.318	**
PRAIRIE DUMMY	0.134		0.149		0.135	
ALBERTA DUMMY	0.106		0.107		0.106	
BRITISH-COLUMBIA DUMMY	0.264	**	0.264	**	0.270	**
YEAR 1986 DUMMY	0.080		0.087		0.078	
YEAR 1987 DUMMY	0.028		0.040		0.026	
YEAR 1992 DUMMY	-0.129		-0.131		-0.112	
YEAR 1993 DUMMY	0.024		0.025		0.043	
YEAR 1994 DUMMY	0.144		0.154		0.169	^

***** significant at 1%, * significant at 5%, ^ significant at 10%***

Table 5: Linear Probability Estimates of Entry for 20-29

1. age

	beta	women	beta	men
20	0.035 *	1.56%	0.041 **	2.51%
21	0.035 *	1.61%	0.041 **	2.61%
22	0.035 *	1.67%	0.041 **	2.71%
23	0.035 *	1.73%	0.041 **	2.82%
24	0.035 *	1.79%	0.041 **	2.93%
25	0.035 *	1.85%	0.041 **	3.05%
26	0.035 *	1.92%	0.041 **	3.17%
27	0.035 *	1.99%	0.041 **	3.30%
28	0.035 *	2.06%	0.041 **	3.43%
29	0.035 *	2.13%	0.041 **	3.57%

2. marital status

	beta	women	beta	men
attached	0.226 **	1.79%	0.177 *	2.93%
single		1.43%		2.47%

3. number of children

	beta	women	beta	men
0		1.79%		2.93%
1	0.142 **	2.06%	-0.002	2.93%
2	0.142 **	2.37%	-0.002	2.92%
3	0.142 **	2.72%	-0.002	2.92%

4. spouse's self-employment status

	beta	women	beta	men
not se		1.79%		2.93%
se	0.684 **	3.49%	0.564 **	5.04%

5. union/professional dues payment

	beta	women	beta	men
not a payer		1.79%		2.93%
payer	-0.039	1.72%	-0.173 **	2.48%

6. past self-employment experience

	beta	women	beta	men
no		1.79%		2.93%
yes	1.013 **	4.78%	1.003 **	7.61%

7. parents' past self-employment experience

	beta	women	beta	men
not s-e		1.79%		2.93%
farming	0.320 **	2.45%	0.619 **	5.31%
fishing	-0.320	1.31%	0.839 **	6.54%
professional	0.514 **	2.96%	0.263 *	3.78%
commission	0.319 ^	2.45%	0.330 *	4.04%
business	0.375 **	2.59%	0.184 **	3.50%

8. size of area of residence

	beta	women	beta	men
100,000+		1.79%		2.93%
15,000-99,000	-0.016	1.76%	-0.238 **	2.33%
1-14,999	0.142	2.06%	0.152 *	3.40%

9. regions

	beta	women	beta	men
Atlantic	-0.200	1.47%	-0.277 *	2.24%
Quebec	-0.208 *	1.46%	-0.311 **	2.17%
Ontario		1.79%		2.93%
Prairie	-0.153	1.54%	0.134	3.34%
Alberta	0.302 **	2.41%	0.106	3.25%
B. Columbia	0.330 **	2.48%	0.264 **	3.79%

10. calendar year

	beta	women	beta	men
1985		1.79%		2.93%
1986	-0.250	1.40%	0.080	3.17%
1987	-0.008	1.78%	0.028	3.01%
1992	-0.010	1.77%	-0.129	2.59%
1993	0.261 *	2.31%	0.024	3.00%
1994	0.234 ^	2.25%	0.144	3.37%

Estimates of the Probability of Exiting Self-employment

Table 8: Linear Probability Model Estimates of Exit for 20-29

1. age

	beta		women	beta		men
20	-0.056	**	34.07%	-0.061	**	29.16%
21	-0.056	**	32.81%	-0.061	**	27.92%
22	-0.056	**	31.58%	-0.061	**	26.70%
23	-0.056	**	30.38%	-0.061	**	25.52%
24	-0.056	**	29.20%	-0.061	**	24.38%
25	-0.056	**	28.05%	-0.061	**	23.27%
26	-0.056	**	26.93%	-0.061	**	22.20%
27	-0.056	**	25.83%	-0.061	**	21.16%
28	-0.056	**	24.77%	-0.061	**	20.16%
29	-0.056	**	23.73%	-0.061	**	19.19%

2. marital status

	beta		women	beta		men
attached	-0.256	*	29.20%	-0.043		24.38%
single			34.75%			25.17%

3. number of children

	beta		women	beta		men
0			29.20%			24.38%
1	0.062		30.50%			25.23%
2	0.062		31.84%	0.046		26.11%
3	0.062		33.20%	0.046		27.00%

4. spouse's self-employment status

	beta		women	beta		men
not se			29.20%			24.38%
se	-0.099		27.20%	-0.366	**	18.27%

5. union/professional dues payment

	beta		women	beta		men
not a payer			29.20%			24.38%
payer	0.316	**	36.12%	0.213	**	28.51%

6. years self-employed

	beta		women	beta		men
1	-0.225	**	29.20%			24.38%
2	-0.225	**	24.77%	-0.274	**	19.68%
3	-0.225	**	20.82%	-0.274	**	15.70%
4	-0.225	**	17.35%	-0.274	**	12.41%
5	-0.225	**	14.35%	-0.274	**	9.72%

7. type of self-employment exited

	beta		women	beta		men
farming	-1.703	**	10.67%	-2.599	**	7.29%
fishing	-0.276		33.23%	-0.833	*	31.48%
professional	-0.816	*	22.49%	-1.551	**	18.31%
commission	0.366		48.62%	-0.423		49.04%
business	-0.464		29.20%	-1.187	**	24.38%

8. size of area of residence

	beta		women	beta		men
100,000+			29.20%			24.38%
15,000-99,000	-0.121		26.77%	-0.031		23.81%
1-14,999	-0.171	^	25.79%	-0.075		23.03%

9. regions

	beta		women	beta		men
Atlantic	0.212		33.76%	0.168		27.60%
Quebec	-0.155		26.10%	0.114		26.54%
Ontario			29.20%			24.38%
Prairie	0.060		30.46%	0.005		24.46%
Alberta	0.187		33.21%	0.185	^	27.94%
B. Columbia	0.117		31.68%	0.228	*	28.82%

10. calendar year

	beta		women	beta		men
1985			29.20%			24.38%
1986	-0.025		28.69%	0.123		26.71%
1987	0.038		29.98%	0.341	**	31.20%
1992	-0.349	*	22.54%	0.087		26.02%
1993	-0.155		26.10%	-0.065		23.20%
1994	-0.194		25.35%	0.156		27.37%

Base Characteristics

1. age 24
2. attached
3. no children
4. average income in all categories
5. spouse not self-employed
6. not a payer
7. one year in self-employment
8. in business self-employment
9. average unemployment rate
10. largest urban size
11. living in Ontario
12. 1985

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