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Factors associated with household Internet use

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HIGHLIGHTS

- Household Internet use is lower outside Canada's top 15 Census Metropolitan Areas (CMAs). This result holds even after we account for some major factors associated with rurality that are also associated with lower Internet use – such as an older population with lower educational attainment and lower incomes. Thus, *rurality* appears to be an independent constraint on household Internet use.

- Entrepreneurs outside the top 15 CMAs are not using the Internet to overcome distance – in fact, the self-employed in the top 15 CMAs are more likely to use the Internet.

- On the positive side, children outside the top 15 CMAs may be in a relatively advantageous position – households outside the top 15 CMAs with children under 18 years of age are more likely to access the Internet compared to similar households in the top 15 CMAs.

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Abstract

Household Internet use is lower outside Canada's top 15 Census Metropolitan Areas. This result holds even after we account for some major factors associated with rurality that are also associated with lower Internet use – such as an older population with lower educational attainment and lower incomes. Thus, *rurality* appears to be an independent constraint on household Internet use.

The use of the Internet has been perceived as a crucial medium for residents in rural and remote Canada to reduce the costs of distance, since they may face isolation because of their geographic location. Previous studies have shown that within

each age class, for each level of educational attainment and within each income group, members of rural households were less likely to use the Internet. However, no previous study had held these three factors constant to determine if rurality *per se* is an independent constraint on Internet use. This study documents that *rurality* is an independent factor in understanding Internet adoption in Canada.

There is a growing desire among policy makers to provide universal access to information highway services. The Canadian public has also indicated its desire for universal access to Internet services. Thus, it is important to understand the determinants of Internet use. This can help shape future public policies; it will help to monitor the adoption of "Information and Communication Technology" (ICT) across Canada; and it will help public and private organizations to develop the infrastructure to promote Internet use across Canada.

Introduction

The use of the Internet has been perceived as a crucial medium for residents in rural and remote Canada to reduce the costs of distance, since they may face isolation because of their geographic location (Thompson-James, 1999). The medium of "Information and Communication Technology" (ICT) has caught the attention of various levels of government because it can deliver information efficiently, accurately and with less cost than the traditional means of providing information services to the rural and remote areas in Canada[1]. Also, with the increasing emphasis on the part of the government to increase citizen participation in government decision-making, the use of the Internet has been perceived as an efficient medium in fulfilling this task (Government of Canada, 1996).

Because of the slow pace in the development of infrastructure for high speed Internet service, many rural regions in Canada have suffered from either a lack of Internet services or a slow Internet connection (Thompson-James, 1999). In recent years, various levels of government have made efforts to bridge the access gap with different initiatives such as the "Community Access Program" and "SchoolNet." But recent studies have shown that rural residents are less likely to use the Internet than urban Canadians (Thompson-James, 1999; M^{c}Laren, 2002). Thus one of the pressing concerns to the government decision-makers is the barrier to ICT in rural areas (IHAC, 1995; McNamara and O'Brien, 2000; Ottawa, 2003; Government of Canada, 1996; and OECD, 1997). The lack of access to modern technologies such as the Internet can lead to an 'information gap'[2], which may widen economic disparities and diminish economic growth. Thus, there is a growing desire among policy makers to provide universal access to information highway services. The Canadian public has also indicated its desire for universal access to Internet services across Canada (Dryburgh, 2001). Thus, it is important to understand the determinants of Internet use since this can help shape future public policies and also aid in monitoring the adoption of ICT across Canada. It can also help public and private organizations to develop the information infrastructure in order to promote Internet use across Canada.

In this bulletin, we present the results of a multivariate analysis of the factors associated with household Internet use. Previous studies (Thompson-James, 1999; M^{c}Laren, 2002) have shown that within each age class, for each level of educational attainment and within each income group, members of rural households were less

[1] The Canadian government has recently established a 'connectedness' agenda, which includes services such as Government Online (GOL), Canada Online, Canadian Content Online, Electronic Commerce and Promoting a Connected Canada to the World (Statistics Canada, 2001).

[2] Although this 'information gap' or 'digital divide' has decreased over the years (Dickinson and Sciades, 1999), it still is an issue which needs to be understood.

likely to use the Internet. However, no previous study has held these three factors constant to determine if rurality *per se* is an independent constraint on Internet use.

Data are drawn from the Statistics Canada "Household Internet Use Survey (HIUS)" for the years 1998, 1999 and 2000.[3] Details of the specification of the logit model and details of the empirical estimates are presented in Singh (January, 2004).

Our measure of household Internet use is whether one or more members of the household used the Internet from home in the month previous to the survey.

Many studies (e.g., Bertolini, 2001) have found that access to new technologies such as the Internet is directly related to various socioeconomic factors such as demographic distance (age), social distance (income), geographic distance (rurality), etc. We investigate these socioeconomic factors in the Canadian context.

[3] The **Household Internet Use Survey** has been conducted by Statistics Canada on an annual basis since 1997. The survey provides information on the use of computers for communication purposes and the households' access and use of the Internet from home. The objective of the survey is to measure the demand for telecommunications services by Canadian households. To assess the demand, we measure the frequency and intensity of use of what is commonly referred to as "the information highway" among other things. This is done by asking questions relating to the accessibility of the Internet to Canadian households both at home, the workplace and a number of other locations. In this study, we focus on the use of the Internet from home. Note that households on Indian Reserves and households in the Yukon, Northwest Territories and Nunavut are not included in the survey. Results from the survey are reported by Dickinson and Sciades (1997); April (2000); Ellison, Earl and Ogg (2001); Silver (2001); and Dryburgh (2001).

Box 1: Definitions

Census Metropolitan Area (CMA): A CMA has an urban core of 100,000 or over and includes all neighbouring municipalities where 50 percent or more of the work force commutes into the urban core. The top 15 CMAs are Halifax, Quebec, Montreal, Ottawa-Hull, Toronto, Kitchener, Hamilton, St. Catherines - Niagara, London, Windsor, Winnipeg, Calgary, Edmonton, Vancouver and Victoria.

Census Agglomeration (CA): A CA has an urban core of 10,000 to 99,999 and includes all neighboring municipalities where 50 percent or more of the work force commutes into the urban core.

Household: Any person or group of persons living in a dwelling. A household may consist of any combination of: one person living alone, one or more families, or a group of people who are not related but who share the same dwelling.

Head of household: The head of a household is determined as follows: in families consisting of married couples with or without children, the husband is considered the head; in lone-parent families with unmarried children, the parent is the head; in lone-parent families with married children, the member who is mainly responsible for the maintenance of the family becomes the head; in families where relationships are other than husband-wife or parent-child, normally the eldest in the family is considered the head; and in a one-person household, the individual is the head.

Internet: The Internet connects computers to the global network of networks for electronic mail services, file transfer, and information search and retrieval.

Results

Age of head of the household

Many studies (e.g., Thompson-James, 1999; M^{c}Laren, 2002; Dickinson and Sciades (1997, 1999); and Dryburgh, 2001) have found that the incidence of Internet use is higher for younger individuals. Our results confirm that households with a younger "head of the household" are more likely to use the Internet (Table 1, Lines 5 and 6 and 7).

According to Silver (2001), the reason for lower Internet use among older Canadians may be attributed to their general lack of interest in Internet use. Also, many may be resistant to computer technologies and may not recognize the possible usefulness of the Internet (Dickinson and Ellison, 1999b).

Household income

A strong relationship between computer use and household income has been documented in a number of studies such as the ones by Dickinson and Sciades (1996, 1999). Thompson-James (1999) stated that there was a positive relationship between the ability to use a computer and higher household income.[4] Higher income means greater affordability and higher consumption levels of services such as Internet and thus we would expect a positive association between higher income and higher Internet use. Our results

[4] It should be noted that although we can assume that higher computer use might lead to higher Internet use, some research, such as Dickinson and Sciades (1999), state that a significant number of Canadians with home computers were not connected to the Internet. Thus, it is not necessarily the case that computer ownership leads to Internet use.

confirm that households with higher incomes have a higher association with Internet use (Table 1, Lines 8 and 9 and 10).

Self-employment

Individuals who are self-employed may have a greater use of Internet for business purposes. Thus, it is hypothesized that a household with one person generating self-employment income would be more likely to have Internet access compared to other households with no self-employment income. Our results show that self-employment is positively associated with household Internet use (Table 1, Line 11).

Level of educational attainment of the head of the household

In recent years, Canada's educational system has undergone a big change. There is a greater reliance on ICT in imparting education and computer education has become an integral part of the Canadian educational system. There is also a greater reliance on computer and computer-based training in the work force. According to Dickinson and Sciades (1997, 1999), there is a strong link between education and the use of Internet services. Our results confirm earlier findings (e.g., Thompson-James, 1999; M^{c}Laren, 2002) that a higher level of educational attainment is associated with a higher level of household Internet use (Table 1, Lines 12 and 13).

Family type

Previous studies (Dickinson and Ellison, 1999; Dickinson and Sciades, 1999) have shown that Internet use was highest among households composed of single families with children. Our results confirm that households with a single family have a higher association with Internet use compared to one-person households (Table 1, Lines 14 and 15 and 16).

Year

Our results reported in Table 1 refer to all the households enumerated in the 1998 and 1999 and 2000 Household Internet Use Surveys. However, Internet adoption is increasing over time. Our results confirm that households enumerated in 1998 and 1999 had a lower association with Internet use, compared to households enumerated in 2000 (Table 1, Lines 17 and 18).

Geographic location of the household

Previous studies (Thompson-James, 1999; M^{c}Laren, 2002) have shown that within each age class, for each level of educational attainment and within each income group, members of rural households were less likely to use the Internet. However, no previous study had held these three factors constant to determine if rurality *per se* was an independent constraint on Internet use. One of the objectives of this study is to determine if the probability that a household has Internet access is a function of geographic location, after taking other variables into account. This is important because members of rural households tend to be older, have less income and have lower educational attainment than urban households and thus, at least part of the lower use of the Internet may be due to these factors. Here, we have held constant all the factors discussed above and we investigate whether *rurality* or distance has an independent association with household Internet use.

We investigated two measures of geographic location:

a) Is this household located outside one of the top 15 CMAs (Census Metropolitan Areas) in Canada? and

b) What is the distance from this household to the nearest CA (Census Agglomeration) or CMA?[5]

[5] This distance is proxied as the distance "as the crow flies" from the centre of the town or municipality in which the household is located to the nearest CMA or CA.

Our results indicate that, after all the previous variables are taken into account, residing outside the top 15 CMAs is a statistically significant constraint on household use of the Internet (Table 1, Line 1).

However, given this finding, distance from a CA or CMA does not matter. The distance the household is from a CA or CMA is not associated with a lower incidence of household Internet use, given that it is outside the top 15 CMAs (Table 1, Lines 2 and 3 and 4).

Interaction effects

The above analysis treats each variable independently. Here, we consider the additional impact of a combination of variables on the incidence of Internet use by households.

Age and place of residence

Above, we noted that households with a younger head of household were more likely to use the Internet from home. However, living outside one of the top 15 CMAs constrains this effect for households with a head less than 35 years of age (Table 1, Line 19). Thus, being outside one of the top 15 CMAs lowers the positive association between young household heads and Internet use – younger household heads are constrained by *rurality*, relative to young household heads in the top 15 CMAs.

Household income and place of residence

Above, we noted that households with lower income were less likely to use the Internet from home. Living outside one of the top 15 CMAs reduces household Internet use within each income group (Table 1, Lines 22 and 23 and 24). Thus, *rurality* constrains Internet use even among higher income households.

Self-employment and place of residence

Above, we noted that households with one person involved in self-employment activity were more likely to use the Internet from home. However, living outside the top 15 CMAs reduces the impact of self-employment income in household Internet use (Table 1, Line 25). Thus, self-employed entrepreneurs outside the top 15 CMAs are *less likely* to use the Internet, compared to self-employed entrepreneurs in the top 15 CMAs.

Education and place of residence

Above, we noted that a lower level of educational attainment for the household head was associated with a lower level of Internet use. *Rurality* emphasizes this finding – Internet use is even lower for such households outside the top 15 CMAs (Table 1, Line 26).

Household family type and place of residence

Above, we noted that households with children under 18 years of age were more likely to use the Internet from home. For this type of household living outside the top 15 CMAs, the likelihood of using the Internet from home was even higher (Table 1, Line 28). Thus, households outside the top 15 CMAs with children under 18 years of age are more likely to use the Internet, compared to the equivalent household type in the top 15 CMAs.

Other interaction findings

Households with lower income are more likely to use the Internet if they have a younger household head (Table 1, Lines 31 and 32).

Households with a younger head of household are less likely to use the Internet from home if they are in a “family household”, compared to younger individuals living on their own (in a one-person household) (Table 1, Lines 49 and 50). These

younger "household heads" who are living on their own may be students for whom Internet use may be an expected aspect of their educational programme.

Households with lower income are more likely to use the Internet if a household member reports self-employment income (Table 1, Line 58). Thus, self-employment and Internet use appears to be one strategy adopted by lower income households.

Regardless of income level, Internet use is lower if the head of the household did not complete high school (Table 1, Lines 61 and 63 and 65). Thus, household income does not appear to overcome the influence of lower educational attainment.

Above, we noted that households with self-employment earning were more likely to use the Internet from home. This relationship was lower in 1998 and 1999, compared to 2000 (Table 1, Lines 85 and 86). Thus, Internet use by self-employed individuals appears to be increasing.

Conclusion

New developments in ICT, such as the growth of Internet use, has been portrayed as an innovative medium of information that provides new opportunities to Canadians in rural and remote areas. However, recent studies have shown that fewer rural Canadians were using the Internet compared to urban Canadians. Our research indicates that although factors such as an older population with lower educational attainment and lower income tend to constrain Internet use by rural Canadians, *rurality* appears to be an independent constraint on Internet use.

There are some situations where being *rural* causes an additional constraint:

- Households outside the top 15 CMAs with a young head are behind their counterparts in the top 15 CMAs – although households with a young head are more likely to use the Internet, this influence is smaller outside the top 15 CMAs.
- Income does not overcome the negative influence of being outside the top 15 CMAs – even being outside the top 15 CMAs constrains households in the highest income class.
- Entrepreneurs outside the top 15 CMAs are not using the Internet to overcome distance – in fact, the self-employed in the top 15 CMAs are more likely to use the Internet.
- Households outside the top 15 CMAs with a head with lower educational attainment are not using the Internet to augment learning – in fact, if the head of the household has a lower educational attainment, we find that being outside the top 15 CMAs results in even a lower incidence of Internet use.
- On the positive side, children outside the top 15 CMAs may be in a relatively advantageous position – households outside the top 15 CMAs with children under 18 years of age are more likely to access the Internet compared to similar households in the top 15 CMAs.

It should be pointed out that we did not look at the cost and its impact on Internet use in Canada. Cost can be an important determinant as indicated by Dickinson and Sciades (1999) and Dryburgh (2001). Dryburgh (2001) found that cost of Internet use was a major reason among the individuals who did not live in a household with Internet access.

Table 1. Association of major variables with incidence of household Internet use, Canada, 1998 to 2000

Line no.	Variable expected to be associated with one person in the household using the Internet from home in a typical month			Is this variable associated with a higher or a lower incidence of Internet use?
	Main effects:			
	Place of residence			
1	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)			lower
	Distance (Each "distance" variable was tested independently (i.e., all three variables were not included in the same logit estimation))			
2	Distance to the nearest Census Metropolitan Area (CMA) or Census Agglomeration (CA)			n.s.
3	Distance to the nearest CMA			n.s.
4	Distance to the nearest CMA with a population over 500,000			n.s.
	Age of household head			
5	Less than 35 years (compared to 55 to 64 years)			higher
6	35 to 54 years (compared to 55 to 64 years)			higher
7	65 years and over (compared to 55 to 64 years)			lower
	Household income			
8	Less than $20,000 (compared to $36,000 to 59,999)			lower
9	$20,000 to 35,999 (compared to $36,000 to 59,999)			lower
10	$60,000 and over (compared to $36,000 to 59,999)			higher
	Self-employment income			
11	One or more persons in the household have self-employment income (compared to households with no self-employment income)			higher
	Educational attainment of household head			
12	Did not complete high school (compared to some post-secondary, but no university degree)			lower
13	Attained university degree (compared to some post-secondary, but no university degree)			higher
	Household family type			
14	Household with one family with children under 18 years (compared to a one person household)			higher
15	Household with one family with no children under 18 years (compared to a one person household)			higher
16	Multi-family household (compared to a one-person household)			n.s.
	Year			
17	1998 (compared to 2000)			lower
18	1999 (compared to 2000)			lower
	Interaction effects:			
	Age of household head		**Place of residence**	
19	Less than 35 years (compared to 55 to 64 years)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower
20	35 to 54 years (compared to 55 to 64 years)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	n.s.
21	65 years and over (compared to 55 to 64 years)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	n.s.
	Household income		**Place of residence**	
22	Less than $20,000 (compared to $36,000 to 59,999)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower
23	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower
24	$60,000 and over (compared to $36,000 to 59,999)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower

Table 1. Association of major variables with incidence of household Internet use, Canada, 1998 to 2000 (continued)

Line no.	Variable expected to be associated with one person in the household using the Internet from home in a typical month			Is this variable associated with a higher or a lower incidence of Internet use?
	Self-employment income		**Place of residence**	
25	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower
	Educational attainment of household head		**Place of residence**	
26	Did not complete high school (compared to some post-secondary, but no university degree)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	lower
27	Attained university degree (compared to some post-secondary, but no university degree)	*	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	n.s.
	Place of residence		**Household family type**	
28	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	*	Household with one family with children under 18 years (compared to a one person household)	higher
29	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	*	Household with one family with no children under 18 years (compared to a one person household)	n.s.
30	Not living in one of the top 15 CMAs (compared to living in one of the top 15 CMAs)	*	Multi-family household (compared to a one-person household)	n.s.
	Age of household head		**Household income**	
31	Less than 35 years (compared to 55 to 64 years)	*	Less than $20,000 (compared to $36,000 to 59,999)	higher
32	Less than 35 years (compared to 55 to 64 years)	*	$20,000 to 35,999 (compared to $36,000 to 59,999)	higher
33	Less than 35 years (compared to 55 to 64 years)	*	$60,000 and over (compared to $36,000 to 59,999)	n.s.
34	35 to 54 years (compared to 55 to 64 years)	*	Less than $20,000 (compared to $36,000 to 59,999)	n.s.
35	35 to 54 years (compared to 55 to 64 years)	*	$20,000 to 35,999 (compared to $36,000 to 59,999)	higher
36	35 to 54 years (compared to 55 to 64 years)	*	$60,000 and over (compared to $36,000 to 59,999)	n.s.
37	65 years and over (compared to 55 to 64 years)	*	Less than $20,000 (compared to $36,000 to 59,999)	lower
38	65 years and over (compared to 55 to 64 years)	*	$20,000 to 35,999 (compared to $36,000 to 59,999)	n.s.
39	65 years and over (compared to 55 to 64 years)	*	$60,000 and over (compared to $36,000 to 59,999)	lower
	Age of household head		**Self-employment income**	
40	Less than 35 years (compared to 55 to 64 years)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	n.s.
41	35 to 54 years (compared to 55 to 64 years)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	n.s.
42	65 years and over (compared to 55 to 64 years)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	higher
	Age of household head		**Educational attainment of household head**	
43	Less than 35 years (compared to 55 to 64 years)	*	Did not complete high school (compared to some post-secondary, but no university degree)	higher
44	Less than 35 years (compared to 55 to 64 years)	*	Attained university degree (compared to some post-secondary, but no university degree)	higher
45	35 to 54 years (compared to 55 to 64 years)	*	Did not complete high school (compared to some post-secondary, but no university degree)	n.s.
46	35 to 54 years (compared to 55 to 64 years)	*	Attained university degree (compared to some post-secondary, but no university degree)	n.s.
47	65 years and over (compared to 55 to 64 years)	*	Did not complete high school (compared to some post-secondary, but no university degree)	n.s.
48	65 years and over (compared to 55 to 64 years)	*	Attained university degree (compared to some post-secondary, but no university degree)	n.s.

Table 1. Association of major variables with incidence of household Internet use, Canada, 1998 to 2000 (continued)

Line no.	Variable expected to be associated with one person in the household using the Internet from home in a typical month			Is this variable associated with a higher or a lower incidence of Internet use?
	Age of household head		**Household family type**	
49	Less than 35 years (compared to 55 to 64 years)	*	Household with one family with children under 18 years (compared to a one person household)	lower
50	Less than 35 years (compared to 55 to 64 years)	*	Household with one family with no children under 18 years (compared to a one person household)	lower
51	Less than 35 years (compared to 55 to 64 years)	*	Multi-family household (compared to a one-person household)	n.s.
52	35 to 54 years (compared to 55 to 64 years)	*	Household with one family with children under 18 years (compared to a one person household)	lower
53	35 to 54 years (compared to 55 to 64 years)	*	Household with one family with no children under 18 years (compared to a one person household)	lower
54	35 to 54 years (compared to 55 to 64 years)	*	Multi-family household (compared to a one-person household)	n.s.
55	65 years and over (compared to 55 to 64 years)	*	Household with one family with children under 18 years (compared to a one person household)	higher
56	65 years and over (compared to 55 to 64 years)	*	Household with one family with no children under 18 years (compared to a one person household)	higher
57	65 years and over (compared to 55 to 64 years)	*	Multi-family household (compared to a one-person household)	higher
	Household income		**Self-employment income**	
58	Less than $20,000 (compared to $36,000 to 59,999)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	higher
59	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	n.s.
60	$60,000 and over (compared to $36,000 to 59,999)	*	One or more persons in the household have self-employment income (compared to households with no self-employment income)	lower
	Household income		**Educational attainment of household head**	
61	Less than $20,000 (compared to $36,000 to 59,999)	*	Did not complete high school (compared to some post-secondary, but no university degree)	lower
62	Less than $20,000 (compared to $36,000 to 59,999)	*	Attained university degree (compared to some post-secondary, but no university degree)	n.s.
63	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Did not complete high school (compared to some post-secondary, but no university degree)	lower
64	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Attained university degree (compared to some post-secondary, but no university degree)	n.s.
65	$60,000 and over (compared to $36,000 to 59,999)	*	Did not complete high school (compared to some post-secondary, but no university degree)	lower
66	$60,000 and over (compared to $36,000 to 59,999)	*	Attained university degree (compared to some post-secondary, but no university degree)	n.s.
	Household income		**Household family type**	
67	Less than $20,000 (compared to $36,000 to 59,999)	*	Household with one family with children under 18 years (compared to a one person household)	higher
68	Less than $20,000 (compared to $36,000 to 59,999)	*	Household with one family with no children under 18 years (compared to a one person household)	higher
69	Less than $20,000 (compared to $36,000 to 59,999)	*	Multi-family household (compared to a one-person household)	higher
70	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Household with one family with children under 18 years (compared to a one person household)	higher
71	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Household with one family with no children under 18 years (compared to a one person household)	n.s.
72	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	Multi-family household (compared to a one-person household)	higher
73	$60,000 and over (compared to $36,000 to 59,999)	*	Household with one family with children under 18 years (compared to a one person household)	higher
74	$60,000 and over (compared to $36,000 to 59,999)	*	Household with one family with no children under 18 years (compared to a one person household)	higher
75	$60,000 and over (compared to $36,000 to 59,999)	*	Multi-family household (compared to a one-person household)	higher

Table 1. Association of major variables with incidence of household Internet use, Canada, 1998 to 2000 (concluded)

Line no.	Variable expected to be associated with one person in the household using the Internet from home in a typical month			Is this variable associated with a higher or a lower incidence of Internet use?
	Household income		**Year**	
76	Less than $20,000 (compared to $36,000 to 59,999)	*	1998 (compared to 2000)	n.s.
77	Less than $20,000 (compared to $36,000 to 59,999)	*	1999 (compared to 2000)	higher
78	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	1998 (compared to 2000)	lower
79	$20,000 to 35,999 (compared to $36,000 to 59,999)	*	1999 (compared to 2000)	n.s.
80	$60,000 and over (compared to $36,000 to 59,999)	*	1998 (compared to 2000)	n.s.
81	$60,000 and over (compared to $36,000 to 59,999)	*	1999 (compared to 2000)	n.s.
	Self-employment income		**Household family type**	
82	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	Household with one family with children under 18 years (compared to a one person household)	higher
83	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	Household with one family with no children under 18 years (compared to a one person household)	n.s.
84	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	Multi-family household (compared to a one-person household)	n.s.
	Self-employment income		**Year**	
85	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	1998 (compared to 2000)	lower
86	One or more persons in the household have self-employment income (compared to households with no self-employment income)	*	1999 (compared to 2000)	lower
	Educational attainment of household head		**Household family type**	
87	Did not complete high school (compared to some post-secondary, but no university degree)	*	Household with one family with children under 18 years (compared to a one person household)	higher
88	Did not complete high school (compared to some post-secondary, but no university degree)	*	Household with one family with no children under 18 years (compared to a one person household)	higher
89	Did not complete high school (compared to some post-secondary, but no university degree)	*	Multi-family household (compared to a one-person household)	higher
90	Attained university degree (compared to some post-secondary, but no university degree)	*	Household with one family with children under 18 years (compared to a one person household)	lower
91	Attained university degree (compared to some post-secondary, but no university degree)	*	Household with one family with no children under 18 years (compared to a one person household)	n.s.
92	Attained university degree (compared to some post-secondary, but no university degree)	*	Multi-family household (compared to a one-person household)	n.s.
	Household family type		**Year**	
93	Household with one family with children under 18 years (compared to a one person household)	*	1998 (compared to 2000)	lower
94	Household with one family with children under 18 years (compared to a one person household)	*	1999 (compared to 2000)	lower
95	Household with one family with no children under 18 years (compared to a one person household)	*	1998 (compared to 2000)	n.s.
96	Household with one family with no children under 18 years (compared to a one person household)	*	1999 (compared to 2000)	n.s.
97	Multi-family household (compared to a one-person household)	*	1998 (compared to 2000)	n.s.
98	Multi-family household (compared to a one-person household)	*	1999 (compared to 2000)	n.s.

n.s. indicates not statistically significant at the 0.05 significance level

An asterisk '*' signifies that the two variables are interacted (i.e. multiplied together) to determine their joint association with the incidence of Internet use.

Source: Singh (forthcoming), Table 2.

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