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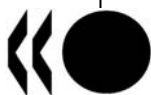**30-Nov-2011**

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DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
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Working Party on Indicators for the Information Society

THE DETERMINANTS OF ICT EXPENDITURE BY HOUSEHOLDS: A MICRO DATA ANALYSIS

JT03312547

FOREWORD

The Working Party on Indicators for the Information Society (WPIIS) discussed this paper at its meeting in June 2010. The Working Party agreed to recommend the paper for declassification to the Committee for Information, Computer and Communications Policy (ICCP). The ICCP Committee agreed to the declassification of the paper in March 2011.

The paper was drafted by Pierre Montagnier, OECD's Directorate for Science, Technology and Industry Secretariat, as part of the OECD work on the economic and social impacts of ICTs.

It is published under the responsibility of the Secretary-General of the OECD.

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MAIN FINDINGS

This study analyses the determinants of household expenditure on ICT goods and services in 18 OECD countries in 2006, based on micro data from the Household Budget Surveys. Unlike previous studies based on aggregate data, the analysis of micro data permits measuring the influence of one variable while controlling the others. In particular, age, gender, educational attainment, geographical location, household income and composition are used to explain the observed differences in ICT expenditures.

The mains results can be summarized as follows:

- *The income elasticity of ICT expenditure shows large variations among countries.* For instance, a 10% increase in household income increases expenditure on IT goods by 8.4% in Switzerland and 6.1% in Canada but only by 0.9% in Norway and 0.2% in Austria. This finding suggests that households' budgetary constraints are less binding in some countries than in others.

- *In most countries, the income elasticity is significantly higher for IT goods, e.g. computers, than for IT services, e.g. cable TV.* Therefore, budgetary constraints seem to matter more for expenditure on IT goods than on IT services.

- *The opposite is true for communication goods, e.g. mobile phone; and services, e.g. mobile subscription.* In most countries, the income elasticity of communication expenditure is higher for services than for goods.

- *Education is among the most important factors for household expenditures on IT goods.* In most countries, a university degree or above increases expenditures on IT goods by 27% as compared to primary education or below. The increase reaches 67% in Switzerland, 52% in the Czech Republic and 48% in Spain.

- *The effects of education on expenditure are less clear-cut for IT services and for communication goods and services.*

- *Households with children tend to have higher ICT expenditures, particularly in IT goods and communication services.* The increase ranges between 34% for IT goods in Greece and 1.6% for IT services in the Slovak Republic.

- *Age has a negative effect on all ICT expenditures but its importance varies among countries.* For instance, a 10-year older household spends 22% less in communication services in Ireland but only 6% less in Canada.

- *Households living in towns spend more on ICT than those in the countryside.* The difference ranges between 10 and 20% in most countries.

THE DETERMINANTS OF ICT EXPENDITURE BY HOUSEHOLDS: A MICRO DATA ANALYSIS

1.   Introduction

This paper analyses the determinants of household expenditure on ICT goods and services in 18 OECD countries in 2006, based on micro data from the Household Budget Surveys. The paper is a follow-up to the study discussed by the WPIIS at its 2009 meeting.

Over the last decade, there has been a clear increase in ICT expenditure by households, both in value and as a proportion of total expenditure. Such a trend, however, has not affected all households in the same way. Previous studies (*e.g.* OECD, 2007) have compared average ICT expenditures among population sub-groups, defined according to income, age, education, etc, and have shown that different groups tend to have different patterns of ICT expenditures.

Although illustrative, these studies fail to control for the joint effects of household characteristics. For example, as wealthier individuals tend to be also more educated, group averages are not useful to assess whether higher ICT expenditures are due to higher income or to better education.

The analysis of household-level (or micro) data can provide an answer to these questions. By controlling the joint effects of all characteristics in each household, micro data analysis permits to separate their effects on ICT expenditures.

The study is organised as follows. Section 2 discusses the research questions in the economic literature, the methodology and the data for the analysis. Section 3 presents the results of the analysis broken down by IT goods, IT services, communication goods and communication services. Finally, Section 4 summarises the main results and makes suggestions for further research.

2.   Research questions, methodology and data

2.1   Research questions

Most of the literature concerning the diffusion and use of ICT among households refers to determinants of equipment and use, and tends not to focus specifically on ICT expenditure.

Yin *et al.* (2005) provide one of the few analyses of the impact of the socio-economic factors on ICT expenditure. They use the US Bureau of Labour Statistics 2006 Consumer Expenditure Survey (CES) micro-data to analyse some of the determinants of household expenditure on computer hardware and software.

As most consumers buy computers for self-use, the authors assume that computer ownership can be regarded as equivalent to computer spending behaviour. For the household, it can be similarly assumed that most of them buy ICT goods and services for self-use. The main determinants on ICT expenditure, although not necessarily the same, should be closely related to those on equipment and use.

For ICT equipment and use, the literature usually focuses on income, age, education, occupation, gender (Bigot, 2006, McKeown *et al.*, 2007, OECD, 2007), marital status and children and, less frequently, on specific variables linked to literacy (Veenhof *et al.*, 2005), cultural capital or attitudes (CERI, 2010, Horrigan, 2007). Some of those determinants are clearly associated with the life cycle stage of the household. The age of the household's reference person, marital status, and presence of children have been frequently used to identify the life cycle stages.

Based on examination of the data on computer ownership, Yin *et al.* (2005) suggested four groups of households: married with children, married without children, single persons, and others (single parents and other types of households). They also suggested a negative quadratic relationship between age of the household's reference person (positive for age and negative for age-squared) and both the probability of spending and the amount spent.

Income is also one of the important determinants of the household expenditure as generally, the more income a household has, the more goods or services it can afford to purchase. The relationship between income and many types of expenditures has been found to be positive. Computer ownership and Internet access rates are positively related to income. Income is expected to positively influence expenditure on ICT goods and services.

Education may be another factor that affects ICT expenditure. Computer and Internet use are influenced by the level of education of the household's reference person (OECD, 2007). Differences in ICT use and familiarity according to education level have been also pointed out in many countries (Veenhof *et al.*, 2005). US studies (Yin *et al.*, 2005) have shown, for instance, that health and personal care expenditure is positively related to the level of education of the household's reference person. Reading material and occupational expenses are also positively related to the level of education of individuals. We can assume a positive relationship between education and spending on ICT goods and services.

Geographical area may be another factor that affects ICT expenditure. Several indices show that Internet access and use, and mobile access and use, are relatively heterogeneous according to where the household is living. A rural location remained one of the barriers to Internet use in Canada in 2005 (McKeown *et al.*, 2007). In France, in 2006, computer equipment and frequency of use, mobile equipment, use of SMS, Internet access and frequency of use all differed greatly according to the population density of the place of residence (CREDOC, 2007). We can assume a positive relationship between the level of the population density and spending on ICT goods and services.

Many factors impact women's access to and use of ICT, including ICT infrastructures, social norms, time-budget allocation, education, employment, and available content and cultural constraints. Many studies have found gender differences in patterns of computer and Internet use (Veenhof *et al.*, 2005, Montagnier and Van Welsum, 2006). Attitudes toward technology are also not the same according to gender. At the beginning of the 2000s, US female-headed households were found to be less confident about information technology than male-headed households (Yin *et al.*, 2005). It can be expected that gender will have a similar effect on ICT purchase and the amount spent.

From the above, we can formulate the following hypotheses:

Life cycle stage

Households whose reference person is married without children are less likely to spend on ICT than households whose reference person is married with children.
Of households that spend on ICT, households whose reference person is married with children are likely to spend more on ICT than households whose reference person is married without children.

Age

A positive relationship between the household reference person's age and the likelihood of spending on ICT is observed. There is a negative relationship between age-squared and the likelihood of spending on ICT.
Of households that spend on ICT, the effect of age on amount spent is positive and negative for age-squared.

Income

There is a positive relationship between household income and the likelihood of spending on ICT.
Of households that spend on ICT, the effect of income on amount spent is positive for income.

Education attainment

Households whose reference person has a low level of education are less likely to spend on ICT than households whose reference person has a high level of education.
Of households that spend on ICT, households whose reference person has a low education are likely to spend less on ICT than households whose reference person has a high level of education.

Density of population (or rural and urban)

Households whose reference person is resident in a rural – or low densely populated – region are less likely to spend on ICT than households whose reference person is resident in an urban – or highly densely populated – region.
Of households that spend on ICT, households whose reference person is resident in a rural – or lowly densely populated – region should spend less on ICT than households whose reference person is resident in an urban – or highly densely populated – region.

Gender

Households with a male reference person are more likely to spend on ICT than households with a female reference person.
Of households that spend on ICT, households with a male reference person are likely to spend more on ICT than households with a female reference person.

2.2 Methodology

In expenditure studies, and this is especially valid for durable goods, it is common for a large number of households not to have purchased anything in a particular category during the survey period. In this case, the dependent variable will be zero for a significant number of observations, and no conclusion can be drawn for the population as a whole. In econometrics, this is referred to as the limited dependent variable problem. In order to take this bias into account, Cragg (1971) proposed a double-hurdle model: it is made first of a probit model, which estimates whether a consumer will spend on a certain good or not, and second of a truncated regression model, in order to estimate how much to spend on that good. The regression model takes into account the selection bias and incorporates it into the regression, so that the results yield for the population as a whole. This correction is known as the Heckman correction, or two-stage method (Heckman, 1979). Due to the "truncated" nature of the dependent variable, the traditional estimation method of OLS (Ordinary Least Square) is not appropriate and the maximum likelihood estimation method is used instead.

Dependent variables

Probit and truncated regression models have been estimated for information and communication expenditure with various combinations of information technology and communication goods and services (see definitions below).

The dependent variable in the probit model is whether to spend on ICT goods and services (and various combinations). It is coded as 1 if the household spent on ICT, and coded as 0 otherwise.

The dependent variable in the truncated regression model is the logarithm of the amount spent on ICT goods and services (and various combinations). If there is no selection effect, the simple OLS model is used instead of the Heckman correction for the regression.

Independent variables

Following the approach from Yin *et.al* (2005)*,* a simple model has been developed and tested in order to see the influence of the main socio-economic factors of households on their ICT expenditure.

According to the research questions mentioned above, income, age, life-cycle stage, education level of the household's reference person, geographical location and gender of the household's reference person should have significant influence on both the probability of spending on ICT goods and services and the level of ICT expenditure.

2.3 Data sources

Data are from the household's budget surveys. For the European countries, data are from the Eurostat Database on Household Budget Survey, and refer to the latest collection round in the reference year 2005.

For European countries (except the Czech Republic), the Secretariat did not have direct access to the micro-data. Eurostat provided the OECD with an initial sample of data with the selected variables. This sample was used by the OECD to prepare a programme coded in SAS software. This programme was then implemented and applied to the micro-data by Eurostat[1] and the aggregated results provided to the OECD. It was therefore only possible to test the assumptions through a limited number of interactions.

For Canada, the data come from the Survey of Household Spending (SHS), and for the Czech Republic and Switzerland, the data come from the Household Budget Survey. For the United States, the data come from the Consumer Expenditure Survey (CES).

2.4 Data

Definition of ICT expenditure

Households' expenditure survey generally use classifications related to consumption functions. For instance, European countries use the United Nation Classification of Individual Consumption According to Purpose (COICOP) classification.

For comparison purposes, ICT goods and services expenditures have been defined using the United Nation Classification of Individual Consumption According to Purpose (COICOP).

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1.   The Secretariat thanks Peter-Paul Borg and Guillaume Osier from Eurostat (F-3 Living Conditions and Social Protection statistics) for their co-operation and support in providing the results of the programme prepared by the OECD and applied to Eurostat micro-data.

The most recent OECD definitions of ICT and content and media products (OECD, 2009) uses the Central Product Classification (CPC) rev.2.

There is no direct link between COICOP and the CPC rev.2. In addition, some of the CPC categories identified as ICT or content products cover items that are used only by businesses and not by households.

ICT components

ICT expenditures have been split according to information technology and communication on the one hand, and goods and services on the other, forming four groups: IT goods, IT services, communication goods and communication services. The detailed selected items are provided in the Annex.

In four countries (Austria, Greece, Hungary and Norway), the variable expenditure has been miscoded: both zero values (*i.e.* no expenditures) and missing values have been coded as "missing". In order to keep these countries in the analysis, we have decided to treat all missing codes as zero values (*i.e.* no expenditures). As a consequence of this choice, the effect of independent variables (*i.e.* their coefficients) is likely to be underestimated. Therefore, we will report the regression coefficients for these four countries but we will not compare them with those of other countries.

Definition of the independent variables

A first round of preliminary tests for the European countries with the four categories adopted by Yin *et al.* (2005) to define the life cycle stage of the household – married with children, married without children, single persons, and others (single parents and other types of households) – did not lead to significant results, due to strong interactions between the age of the household's reference person and the household life cycle. It was not possible to isolate the respective effects of age and different types of households. It can also be considered that married households without children include two different types of households: young households as yet without children, and more senior households whose children have already left. Similarly, a negative quadratic relationship between age and ICT expenditure could not be clearly established.

It was therefore decided to select the presence of children as independent variables related to life cycle of the household , and if the household's reference person was living in a couple or not.

For the same reason, we specified a linear relationship between ICT expenditure and age. Based on previous research (*e.g.*ARCEP, 2008) we expect both the probability to spend on ICT and the level of expenditure to decrease with age.

Therefore, the hypotheses regarding life cycle stage and age have been revised as follows:

Life cycle stage – Children

Households with children are more likely to spend on ICT than households without.
Of households that spend on ICT, households with children are likely to spend more on ICT than households without children.

Life cycle stage – Couples

Couples are more likely to spend on ICT than other households.
Of households that spend on ICT, couples are likely to spend more on ICT than other households.

Age

There will be a negative relationship between the household reference person's age and the likelihood of spending on ICT.
Of households that spend on ICT, the effect of age on the amount spent will be negative.

The independent (or explanatory) variables are therefore the following:

- *Income of the household*: the logarithm of the income will be selected. For European countries, the equivalent income has been selected (see the methodology).

- *Level of education of the household's reference person*: medium and high level will be compared to low level. This variable is not available for the United Kingdom.

- *Population density of the area where the household is living*: medium and highly densely populated area will be compared to lowly densely populated area. This variable is not available for Ireland and the Netherlands. For Canada, urban will be compared to rural areas.

- *Children*: presence of children (coded 1) will be compared with absence (coded 0). This variable is not available for the Netherlands. For Sweden and the United Kingdom, data could not be exploited properly.

- *Age*: age of the household's reference person. For Canada, age was provided using 5-year bracket intervals. A proxy for age value has been calculated, using the middle of the age interval (*i.e.* if the age was between 25 and 29, the age value has been put to 27 – see the methodology).

- *Couples*: households living in a couple (coded 1) will be compared with other households.

- *Gender*: households whose reference person is man (coded 1) will be compared with households whose reference person is a woman (coded 0).

Definition of the dependent variables

Preliminary tests, when using total ICT expenditure as a whole as dependent variable, could not lead to any coherent conclusion with respect to the independent variables. It was decided to focus specifically on each of the components of the ICT expenditure: information technology goods, information technology services, communication goods and communication services. The independent variables have specific effects on each of those ICT components which are not observable at a more aggregated level.

The dependent variables are therefore the following:

- Whether the household spends on information technology goods (coded 1) or not (coded 0) for the selection, and the logarithm of the amount of information goods expenditures, for the regression.

- Whether the household spends on information technology services (coded 1) or not (coded 0) for the selection, and the logarithm of the amount of information services expenditures, for the regression.

- Whether the household spends on communication goods (coded 1) or not (coded 0) for the selection, and the logarithm of the amount of communication goods expenditures, for the regression.

- Whether the household spends on communication services (coded 1) or not (coded 0) for the selection, and the logarithm of the amount of communication services expenditures, for the regression.

Descriptive statistics of the dependent and independent variables by country are provided in Annex Table 2.

The effects of the independent variables on each of the dependent variable, mirrored by the coefficients in the tables, are analysed and discussed in the next section. An empty cell indicates that the corresponding variable could not be included in the regression, either because of strong collinearity with other variables or due to a low quality of the data.

Differences observed between communication goods and communication services should also be interpreted bearing in mind that the supply of communication services, in many countries, may incorporate the supply of communication goods (provided as package), reflecting a blurring of the frontier between goods and services.

3. Results and discussion

3.1 IT goods and services

IT goods – selection

The probability of spending on IT goods increases with income in all the countries. The effect of income on the probability is particularly strong in Spain and the Slovak Republic, and weak in the Netherlands and the United States, and seems to be relatively similar in countries such as Canada, Finland and France.

The probability of spending on IT goods also increases – generally monotonically – with the level of education of the household's reference person: the higher the level of education of the household's reference person, the higher the probability of spending on IT goods. In Finland however, a household whose reference person has a medium level of education has the highest probability of spending on IT goods, followed by households whose reference person has a high level of education.

Living in a densely populated area generally increases the probability that the household will spend on IT goods, except in France, the United Kingdom and the United States. The effect of the population density is generally monotonic.

Households with children have a higher probability of spending on IT goods compared with households without children. This is in line with what has been generally observed concerning the adoption of ICT within households.

In all the countries, the probability of spending on IT goods decreases with the age of the household's reference person.

The effect of living in a couple is somewhat different among countries: households living in couples have a higher probability of spending on IT goods in six countries, but a lower probability in five others.

If the household's reference person is a man, it generally increases the probability of spending on IT goods, except in the Slovak Republic.

Table 1. IT goods – selection[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	-0.814	0.017	0.570	0.312	0.146	0.067	0.484			
	SE	0.0028	0.0002	0.0025	0.0018	0.0017	0.0019	0.0016			
Belgium	Coef.	-2.734	0.288	0.149	0.040	0.017	-0.101	0.088	-0.012	-0.051	0.168
	SE	0.0176	0.0017	0.0026	0.0027	0.0048	0.0049	0.0026	0.0001	0.0022	0.0022
Canada [2]	Coef.	-2.583	0.455	0.620	0.276	0.017		0.266	-0.030	0.165	0.046
	SE	0.0076	0.0007	0.0015	0.0013	0.0015		0.0017	0.00003	0.0012	0.0011
Czech Republic	Coef.	-3.946	0.327	0.2853 *	0.1669 *	0.261	0.1685 *	0.378	-0.021	0.733	0.1730 **
	SE	0.8722	0.0580	0.0953 *	0.0579 *	0.0626	0.0685 *	0.0586	0.00202	0.1023	0.1006 **
Denmark	Coef.	-2.842	0.278	0.388	0.303	0.248	0.132	0.294			
	SE	0.01092	0.00105	0.00260	0.00200	0.00217	0.00224	0.00230			
Finland	Coef.	-4.636	0.436	0.407	0.427	0.142	0.194	0.465			
	SE	0.01428	0.00142	0.00239	0.00207	0.00201	0.00247	0.00245			
France	Coef.	-3.625	0.427	0.221	0.174	-0.099	0.007	0.112	-0.020	-0.087	0.079
	SE	0.0046	0.0005	0.0008	0.0006	0.0006	0.0008	0.0007	0.0000	0.0006	0.0006
Greece	Coef.	-4.582	0.454	0.180	0.089	0.258	0.146	0.503	-0.017	-0.149	
	SE	0.0121	0.0012	0.0021	0.0017	0.0015	0.0039	0.0018	0.0001	0.0016	
Hungary	Coef.	-4.965	0.462	0.402	0.235	0.078	0.075	0.328			
	SE	0.0107	0.0012	0.0020	0.0017	0.0018	0.0018	0.0016			
Ireland	Coef.	-2.847	0.349	0.199	0.113	n.a.	n.a.	0.119	-0.015	-0.011	0.151
	SE	0.0179	0.0016	0.0030	0.0029	n.a.	n.a.	0.0027	0.0001	0.0025	0.0024
Netherlands	Coef.	-0.6336 †	0.179	0.535	0.3267 *	n.a.	n.a.	n.a.	-0.018	0.2565 *	0.367
	SE	0.4406 †	0.0416	0.1306	0.1134 *	n.a.	n.a.	n.a.	0.00264	0.0930 *	0.0923
Norway	Coef.	-0.4225 *	0.1144	0.303	0.1607 *	0.0829 *	0.0859 **	0.368	-0.0194		
	SE	0.1419 *	0.0124	0.0536	0.0491 *	0.0387 *	0.0503 **	0.0432	0.0013		
Slovak Republic	Coef.	-6.838	0.570	0.564	0.468	0.205	0.090	0.176	-0.003	0.083	-0.052
	SE	0.0259	0.0026	0.0067	0.0061	0.0033	0.0030	0.0029	0.0001	0.0026	0.0028
Spain	Coef.	-5.476	0.632	0.167	0.146	0.281	0.052	0.166	-0.017	-0.218	0.137
	SE	0.0079	0.0008	0.0011	0.0011	0.0009	0.0010	0.0010	0.00003	0.0008	0.0010
Sweden	Coef.	-2.179	0.292	0.324	0.024	0.024	0.015	n.a.	-0.019	0.235	0.126
	SE	0.0098	0.0010	0.0020	0.0019	0.0016	0.0020	n.a.	0.0016	0.0016	0.0014
Switzerland	Coef.	-3.612	0.389	0.530	0.454	n.a.	n.a.	0.292	-0.012	-0.069	0.074
	SE	0.0134	0.0015	0.0029	0.0027	n.a.	n.a.	0.0017	0.0000	0.0019	0.0019
United Kingdom	Coef.	-3.607	0.373	n.a.	n.a.	-0.0360 †	-0.0311 †	n.a.	-0.014		
	SE	0.1356	0.0118	n.a.	n.a.	0.0328 †	0.0383 †	n.a.	0.000547		
United States [2]	Coef.	-0.403	0.149	0.587	0.272	-0.127		0.122	-0.016	0.062	0.010
	SE	0.0040	0.0003	0.0015	0.0014	0.0012		0.0009	0.00002	0.0008	0.0007

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

IT goods – regression

The income elasticity varies from 0.02 in Austria to 0.83 in Switzerland.

In most of the countries, the higher the level of education of the household's reference person, the more the household spends on IT goods. In Denmark, by contrast, households whose reference person has a high level of education spend less on IT goods compared to households whose reference person has a lower level of education.

Overall, the more densely the area is populated, the more the household spends on IT goods. By contrast, this relation is the reverse in France. In Denmark and Finland, households living in medium densely populated areas spend more than those living in highly densely populated areas.

Households with children spend more on IT goods, compared with households without children, in all the countries except France and the United States.

IT goods expenditures decrease with the age of the household's reference person.

As for the probability of spending on IT goods, the impact of living in a couple on the level of IT goods expenditure is somewhat different between countries: households living in a couple spend more on IT goods in Canada, the Czech Republic, Sweden and the United States, but less in five other countries.

When the household's reference person is a man, it increases the expenditure on IT goods.

Table 2. IT goods – regression[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	6.231	0.015	0.254	0.129	0.073	-0.0029 †	0.048			
	SE	0.0152	0.0003	0.0052	0.0035	0.0024	0.0025 †	0.0039			
Belgium	Coef.	3.240	0.222	0.275	0.039	0.117	-0.157	0.152	-0.009	-0.065	0.304
	SE	0.0552	0.0043	0.0046	0.0046	0.0077	0.0080	0.0040	0.0002	0.0035	0.0041
Canada [2]	Coef.	0.053	0.614	0.271	0.089	0.151		0.178	-0.017	0.025	0.177
	SE	0.0065	0.0003	0.0013	0.0013	0.0012		0.0009	0.00003	0.0009	0.0008
Czech republic (ols)	Coef.	6.374	0.290	0.524	0.2473 *	0.2133 *	0.1187 †	0.279	-0.023	0.617	0.4253 *
	SE	1.1707	0.0775	0.1115	0.0771 *	0.0827 *	0.0911 †	0.0628	0.0029	0.1569	0.1621 *
Denmark	Coef.	0.682	0.455	-0.449	0.069	0.110	0.190	0.224			
	SE	0.0333	0.0027	0.0053	0.0045	0.0045	0.0046	0.0041			
Finland	Coef.	2.210	0.345	0.289	0.313	0.124	0.170	0.145			
	SE	0.0265	0.0021	0.0030	0.0029	0.0022	0.0026	0.0026			
France	Coef.	1.569	0.433	0.268	0.159	-0.138	-0.137	-0.250	-0.006	-0.092	0.045
	SE	0.0138	0.0013	0.0012	0.0011	0.0009	0.0012	0.0010	0.0001	0.0009	0.0009
Greece	Coef.	-0.406	0.550	0.208	0.161	0.025	-0.124	0.344	-0.017	-0.208	
	SE	0.0248	0.0022	0.0029	0.0025	0.0022	0.0056	0.0031	0.0001	0.0024	
Hungary	Coef.	1.165	0.365	0.224	0.100	0.022	-0.038	0.018			
	SE	0.0296	0.0025	0.0030	0.0025	0.0025	0.0025	0.0024			
Ireland (ols)	Coef.	3.320	0.278								
	SE	0.2909	0.02577								
Netherlands (ols)	Coef.	3.918	0.238	0.1916 †	-0.0009 †	n.a.	n.a.	n.a.	-0.011		
	SE	0.3946	0.0358	0.1250 †	0.1183 †	n.a.	n.a.	n.a.	0.0024		
Norway (ols)	Coef.	5.189	0.092	0.297	0.1344 **						
	SE	0.2207	0.0163	0.0820	0.0797 **						
Slovak Republic (ols)	Coef.	-0.7335 †	0.560								
	SE	1.2264 †	0.1305								
Spain	Coef.	-0.345	0.576	0.484	0.365	0.151	0.054	0.072	-0.026	-0.105	0.133
	SE	0.0190	0.0017	0.0017	0.0017	0.0016	0.0018	0.0015	0.0001	0.0015	0.0017
Sweden	Coef.	4.492	0.187	0.087	0.052	0.244	0.023	n.a.	-0.008	0.043	0.112
	SE	0.0176	0.0016	0.0025	0.0022	0.0017	0.0021	n.a.	0.0001	0.0018	0.0016
Switzerland	Coef.	-4.398	0.835	0.669	0.654	n.a.	n.a.	0.200	-0.021	-0.180	0.268
	SE	0.0280	0.0030	0.0062	0.0059	n.a.	n.a.	0.0032	0.0001	0.0036	0.0034
United Kingdom (ols)	Coef.	3.523	0.317	n.a.	n.a.	-0.1484 †	-0.0261 †	n.a.	-0.0052 *		
	SE	0.4356	0.0382	n.a.	n.a.	0.1068 †	0.1247 †	n.a.	0.0020 *		
United States [2]	Coef.	2.224	0.179	0.894	0.428	0.849		-0.046	-0.014	0.384	0.192
	SE	0.0062	0.0005	0.0026	0.0024	0.0016		0.0010	0.0000	0.0010	0.0009

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

IT services – selection

The probability of spending on IT services increases with income in all the countries, and the effect of income on the probability is particularly strong in France, Ireland and the Slovak Republic.

The education level of the household's reference person has a positive, either monotonic or inverse u-shaped, effect on the probability that this household will spend on IT services. In a significant number of countries, the strongest effect is provided by the medium level of education, followed by the highest level of education.

The household probability of spending on IT services generally increases with the population density of the area where the household lives. However, the relation is inverted in Sweden. In Sweden, the Slovak Republic and the United Kingdom, households living in a highly densely populated area have the lowest probability of spending on IT services compared with households living in other areas.

Households with children have a higher probability of spending on IT services, except in Hungary and Switzerland. The positive effect of a child's presence is the strongest in Ireland.

The effect of age on the probability of households spending on IT services varies according to the country, contrasting with its systematic negative orientation with respect to IT goods.

Households living in a couple have generally a higher probability of spending on IT services, except in the Slovak Republic and Spain.

The gender of the household's reference person does not have a similar effect in all the countries on the probability of the household spending on IT services. This contrasts with the positive effect on the probability of spending on IT goods when the household's reference person is a man.

Table 3. IT services – selection[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	-1.349	0.010	0.179	0.159	0.197	0.091	0.069	0.003	0.022	0.089
	SE	0.0047	0.0003	0.0029	0.0021	0.0019	0.0022	0.0020	0.0001	0.0018	0.0018
Belgium	Coef.	-1.124335	0.208099								
	SE	0.0141	0.0014								
Canada [2]	Coef.	-3.323	0.361	0.132	0.121	0.098		0.270	0.0062	0.424	-0.198
	SE	0.0071	0.0007	0.0014	0.0014	0.0015		0.0014	0.00003	0.0011	0.0010
Czech Republic	Coef.	-2.7465 *	0.1763 *	-0.0924 †	0.339	-0.1146 †	0.0148 †	0.0755 †	0.027	0.736	
	SE	1.1917 *	0.0798 *	0.1305 †	0.0940	0.0956 †	0.1099 †	0.0719 †	0.00307	0.0927	
Denmark	Coef.	-1.771	0.340								
	SE	0.0125	0.0012								
Finland	Coef.	-1.010	0.226								
	SE	0.0179	0.0017								
France	Coef.	-7.076	0.734								
	SE	0.0039	0.0004								
Greece	Coef.	0.588	0.192	0.161	0.284	0.749	3.3740 †	0.040	-0.001		
	SE	0.0582	0.0054	0.0128	0.0104	0.0113	9.4331 †	0.0093	0.0002		
Hungary	Coef.	-3.689	0.347	0.323	0.310	1.009	0.600	-0.090			
	SE	0.0100	0.0011	0.0020	0.0017	0.0018	0.0017	0.0017			
Ireland	Coef.	-5.411	0.580	0.320	0.257	n.a.	n.a.	0.523			
	SE	0.0186	0.0018	0.0041	0.0037	n.a.	n.a.	0.0039			
Netherlands	Coef.	-1.811	0.0858 **	0.1771 *							
	SE	0.4824	0.0473 **	0.0785 *							
Norway	Coef.	-1.536	0.0274 *	0.1531 *	0.1732 *	0.1179 *	0.207				
	SE	0.1633	0.0122 *	0.0606 *	0.0573 *	0.0436 *	0.0552				
Slovak Republic	Coef.	-4.366	0.527	0.428	0.464	-0.239	0.172	0.226	0.008	-0.112	-0.074
	SE	0.0228	0.0025	0.0048	0.0035	0.0032	0.0029	0.0032	0.0001	0.0028	0.0028
Spain	Coef.	-4.742	0.445	0.036	0.075	0.245	0.204	0.061	-0.008	-0.190	0.198
	SE	0.0077	0.0007	0.0010	0.0010	0.0008	0.0010	0.0009	0.00003	0.0008	0.0010
Sweden	Coef.	-1.685	0.151	0.031	0.314	-0.214	-0.081	n.a.	0.028	0.412	0.056
	SE	0.0102	0.0010	0.0031	0.0031	0.0022	0.0029	n.a.	0.0001	0.0023	0.0020
Switzerland	Coef.	-3.756	0.531	0.202	0.174	n.a.	n.a.	-0.028	0.011	0.375	-0.126
	SE	0.0214	0.0025	0.0043	0.0037	n.a.	n.a.	0.0034	0.00008	0.0034	0.0031
United Kingdom	Coef.	0.764	0.314	n.a.	n.a.	-0.1297 *	0.0216 †	n.a.	-0.046	0.132	
	SE	0.1698	0.0148	n.a.	n.a.	0.0452 *	0.0533 †	n.a.	0.0009	0.0285	
United States [2]	Coef.	-1.023	0.163	0.770	0.444	0.129		0.170	-0.003	0.459	-0.289
	SE	0.0046	0.0004	0.0018	0.0016	0.0015		0.0013	0.0000	0.0010	0.0010

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

IT services – regression

The income elasticity varies from 0.01 in Austria to 0.6 in France.

In a majority of countries, when the household's reference person has a high level of education, the household has a higher expenditure on IT services, compared to households whose reference person has a low level of education. The highest level of expenditures is reached by the medium level of education in more than half of the countries. By contrast, for households whose reference person has a high level of education, the level of expenditure is the lowest in Canada, Norway, Ireland and Switzerland.

Households living in densely populated areas generally spend more on IT services, except in Canada, Norway and Sweden.

Household expenditure on IT services decreases with age in three European countries, contrasting with Canada and Switzerland where they increase.

Households with children spend more on IT services compared with households without children. Similarly, households living in a couple also spend more on IT services.

The gender of the household's reference person does not have a homogenous effect on the level of IT services expenditure of that household.

Table 4. IT services – regression[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	6.840	0.0096 *								
(ols)	SE	0.0435	0.0044 *								
Belgium	Coef.	4.123	0.090								
	SE	0.0073	0.0007								
Canada[2]	Coef.	2.910	0.270	-0.066	0.016	-0.004		0.032	0.006	0.080	-0.045
	SE	0.0046	0.0004	0.0008	0.0008	0.0008		0.0006	0.00002	0.0007	0.0005
Czech Republic	Coef.	8.071	0.179	0.0605 †	0.0289 †	0.106	0.0930 *\	0.097	0.0007 †	0.208	
	SE	0.3752	0.0248	0.0377 †	0.0242 †	0.0260	0.0285 *\	0.0212	0.0009 †	0.0264	
Denmark	Coef.	4.621	0.129								
	SE	0.0049	0.0005								
Finland	Coef.	4.664	0.070								
	SE	0.0027	0.0003								
France	Coef.	-1.356	0.603								
	SE	0.0033	0.0003								
Greece	Coef.	0.679	0.316	0.183	0.082	0.064	0.0148 †	0.121			
(ols)	SE	0.1475	0.0147	0.0275	0.0216	0.0188	0.0494 †	0.0206			
Hungary	Coef.	3.429	0.151	0.092	0.104	0.233	0.125	0.036			
	SE	0.0101	0.0008	0.0011	0.0010	0.0020	0.0016	0.0009			
Ireland	Coef.	3.353	0.228	-0.0038 *	0.089	n.a.	n.a.	0.040			
	SE	0.0155	0.0013	0.0016 *	0.0017	n.a.	n.a.	0.0015			
Norway	Coef.	5.726	0.166	-0.985	-0.739	-0.3228 *					
(ols)	SE	0.3987	0.0306	0.1717	0.1621	0.1026 *					
Slovak Republic	Coef.	2.287	0.179	0.160	0.098	0.447	0.300	0.016	-0.007	0.0024 *	-0.013
	SE	0.0110	0.0011	0.0021	0.0017	0.0013	0.0011	0.0012	0.0000	0.0010 *	0.0011
Spain	Coef.	-0.8908 †	0.470								
(ols)	SE	0.7401 †	0.0713								
Sweden	Coef.	4.582	0.108	0.072	0.132	-0.042	-0.057	n.a.	-0.002	0.076	0.083
	SE	0.0043	0.0004	0.0009	0.0008	0.0007	0.0008	n.a.	0.0000	0.0007	0.0006
Switzerland	Coef.	2.511	0.125	-0.092	-0.053	n.a.	n.a.	0.022	0.003	0.045	0.034
	SE	0.0054	0.0006	0.0009	0.0008	n.a.	n.a.	0.0006	0.0000	0.0007	0.0006
United Kingdom	Coef.	3.563	0.227	n.a.	n.a.	0.0840 *	0.0409 †	n.a.	-0.003	0.0248 †	
(ols)	SE	0.1462	0.0127	n.a.	n.a.	0.0393 *	0.0459 †	n.a.	0.0007	0.0225 †	
United States[2]	Coef.	2.912	0.212	0.087	0.130	0.337		0.136	0.007	0.176	-0.053
	SE	0.0030	0.0002	0.0012	0.0012	0.0009		0.0006	0.0000	0.0006	0.0005

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

IT goods and services

Overall, the effects of the various explanatory variables seem to be more homogeneous, as far as both selection and regression are concerned, for IT goods compared with IT services. In addition, the effects between selection and regression seem to be less similar for IT services than for IT goods.

For IT goods, income, education, children, population density in the area where the household live and household's reference person being a man are all factors which generally increase both the probability of spending and the level of expenditure of the household. And both the probability and the level decrease with age. By contrast, the fact that the household lives in a couple does not lead to similar effects.

For IT services, income, children, and the fact that households live in a couple, are factors that have a positive effect on both probability and level of expenditures. Both population density and education have generally a positive effect on the probability of spending on IT services but a less homogeneous effect as regards the level of expenditure. Age and the household's reference person being a man are both factors which have a rather heterogeneous effect on both the probability of spending and on the level of expenditure.

3.2 *Communication goods and services*

Communication goods – selection

The probability of spending on communication goods increases with income in all the countries. The positive effect of income on the probability is relatively strong in Belgium and Spain, weaker in France and Denmark, and seems to be relatively similar among countries such as Canada and Finland, or the Czech Republic and Switzerland.

The probability of spending on communication goods also increases with the level of education of the household's reference person: the higher the level of education of the household's reference person, the higher generally is the probability of spending on communication goods. In Finland, Norway, and the Slovak Republic however, a household whose reference person has a medium level of education has the highest probability of spending on ICT, followed by households whose reference person has a high level of education. In Ireland, by contrast, for households whose reference person has a high level of education, the probability of spending in communication goods is the lowest.

Living in a densely populated area tends to have a more heterogeneous effect, depending on the country, on the probability that the household will spend on communication goods.

As observed for IT goods, households with children generally have a higher probability of spending on communication goods, compared with households without children. And in all the countries, the probability of spending on communication goods decreases with the age of the household's reference person.

The impact of living in a couple is generally positive, except in Ireland, Spain and the United States.

If the household's reference person is a man, the effect varies according to the country.

Table 5. Communication goods – selection[1]

		intercept	In income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	-2.236	0.008	0.182	0.125	-0.059	0.0013 †	0.289			
	SE	0.0061	0.0005	0.0055	0.0041	0.0036	0.0040 †	0.0032			
Belgium	Coef.	-5.521	0.408								
	SE	0.0208	0.0019								
Canada [2]	Coef.	-2.000	0.174	0.130	0.116	-0.007		0.079	-0.011	0.061	-0.046
	SE	0.0059	0.0006	0.0012	0.0012	0.0012		0.0009	0.00003	0.0009	0.0008
Czech republic	Coef.	-4.090	0.227	-0.0130 †	0.0504 †	0.1917 *	0.0359 †	0.274	-0.007	0.514	
	SE	0.8605	0.0567	0.0836 †	0.0550 †	0.0589 *	0.0657 †	0.0470	0.0019	0.0613	
Denmark	Coef.	-2.482	0.118	0.103	0.095	0.053	0.043	0.298			
	SE	0.0165	0.0016	0.0030	0.0024	0.0025	0.0026	0.0025			
Finland	Coef.	-2.376	0.163	0.077	0.211	0.051	0.032	0.590			
	SE	0.0141	0.0014	0.0024	0.0021	0.0020	0.0024	0.0022			
France	Coef.	-2.200	0.101	0.360	0.301	-0.094	0.052	0.280			
	SE	0.0048	0.0005	0.0008	0.0007	0.0006	0.0009	0.0007			
Greece	Coef.	-3.429	0.178	0.214	0.031	0.068	0.187	0.073	-0.007	0.040	-0.068
	SE	0.0219	0.0022	0.0036	0.0032	0.0026	0.0063	0.0032	0.0001	0.0029	0.0033
Hungary	Coef.	-3.202	0.282	0.093	0.049	-0.071	0.089	0.191	-0.013		
	SE	0.0146	0.0015	0.0024	0.0021	0.0023	0.0022	0.0020	0.0001		
Ireland	Coef.	-2.998	0.291	-0.088	0.045	n.a.	n.a.	0.421	-0.018	-0.243	0.177
	SE	0.0185	0.0017	0.0031	0.0030	n.a.	n.a.	0.0027	0.0001	0.0026	0.0026
Netherlands	Coef.	-2.150	0.163								
	SE	0.4240	0.0412								
Norway	Coef.	-0.766	0.0218 *								
	SE	0.1297	0.0101 *								
Slovak Republic	Coef.	-5.202	0.307	0.0258 *	0.050	0.093	-0.061	-0.074	-0.0004 **	0.103	0.108
	SE	0.0551	0.0057	0.0124 *	0.0106	0.0068	0.0065	0.0065	0.0002 **	0.0057	0.0064
Spain	Coef.	-4.921	0.429	0.173	0.068	0.070	-0.053	0.079	-0.011	-0.098	0.073
	SE	0.0092	0.0009	0.0011	0.0012	0.0010	0.0012	0.0010	0.0000	0.0009	0.0011
Sweden	Coef.	-1.290	0.138	0.087	0.047	-0.063	0.014	n.a.	-0.017	0.093	-0.026
	SE	0.0109	0.0011	0.0022	0.0021	0.0017	0.0020	n.a.	0.0001	0.0017	0.0015
Switzerland	Coef.	-3.473	0.229	0.182	0.174	n.a.	n.a.	0.028	-0.010	0.110	-0.037
	SE	0.0237	0.0027	0.0052	0.0049	n.a.	n.a.	0.0028	0.0001	0.0033	0.0031
United Kingdom	Coef.	-3.635	0.207	n.a.	n.a.	-0.0346 †	0.0615 †	n.a.	-0.007		
	SE	0.2593	0.0223	n.a.	n.a.	0.0617 †	0.0706 †	n.a.	0.0011		
United States [2]	Coef.	-2.386	0.145	0.270	0.140	-0.070		0.019	-0.005	-0.026	-0.046
	SE	0.0053	0.0005	0.0020	0.0019	0.0013		0.0009	0.00003	0.0009	0.0007

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Communication goods – regression

The income elasticity varies from 0.14 in Ireland to 0.52 in Denmark.

The level of education of the household's reference person has a very heterogeneous effect on the level of expenditure that a household devotes to communication goods.

Households living in a densely populated area spend less on communication goods in European countries but more in Canada and the United States.

Households with children spend more on communication goods, compared with households without children, in all the countries except Hungary.

As with IT goods expenditure, communication goods expenditure decreases with the age of the household's reference person, except in the United States.

Table 6. Communication goods – regression[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Belgium	Coef.	2.749	0.256								
	SE	0.1078	0.0071								
Canada[2]	Coef.	1.634	0.295	-0.030	0.035	0.133		0.089	-0.005	-0.101	0.016
	SE	0.0312	0.0018	0.0020	0.0020	0.0014		0.0013	0.0001	0.0012	0.0010
Denmark (ols)	Coef.	-1.6075 †	0.518								
	SE	1.5393 †	0.1418								
Finland	Coef.	2.325	0.239	-0.046	0.097	-0.021	0.075	0.160			
	SE	0.0351	0.0022	0.0030	0.0032	0.0024	0.0028	0.0054			
France	Coef.	2.199	0.210	0.085	-0.0235 *	-0.126	-0.021	0.0266 *			
	SE	0.1137	0.0037	0.0131	0.0111 *	0.0037	0.0027	0.0101 *			
Greece (ols)	Coef.	1.4471 **	0.315								
	SE	0.8526 **	0.0808								
Hungary	Coef.	2.350	0.209	0.104	0.069	-0.0066 *	0.037	-0.097	-0.004		
	SE	0.0334	0.0027	0.0032	0.0028	0.0031 *	0.0029	0.0029	0.0001		
Ireland (ols)	Coef.	3.510	0.136	-0.159	-0.139	n.a.	n.a.	0.133			
	SE	0.2259	0.0206	0.0397	0.0400	n.a.	n.a.	0.0330			
Netherlands	Coef.	0.9976 *	0.236								
	SE	0.4997 *	0.0460								
Spain (ols)	Coef.	1.2264 †	0.2635 *								
	SE	0.8771 †	0.0839 *								
Sweden (ols)	Coef.	4.269	0.147	-0.0973 †	0.0390 †	-0.0318 †	-0.1959 *	n.a.	-0.013		
	SE	0.3618	0.0349	0.0975 †	0.0954 †	0.0750 †	0.0890 *	n.a.	0.0024		
Switzerland (ols)	Coef.	-0.5026 †	0.513								
	SE	1.3844 †	0.1506								
United States[2]	Coef.	0.0794 *	0.308	0.348	0.311	0.342		0.254	0.001	0.015	0.145
	SE	0.0300 *	0.0014	0.0041	0.0036	0.0021		0.0013	0.0001	0.0013	0.0012

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Communication services – selection

The probability of spending on communication services increases with income in all the countries. The positive effect of income on the probability is particularly strong in Spain, contrasting with its weakness in Denmark.

The education level of the household's reference person always has a positive effect on the probability that this household will spend on communication services. In a majority of countries, the effect is growing monotonically with the level of education. But in a significant number of countries, the strongest effect is provided by the medium level of education, followed by the highest level of education.

The household probability of spending on communication services generally increases with the population density in the area where the household lives. In Denmark and Canada, households living in a densely populated area have the lowest probability of spending on IT services compared with households living in other areas.

Households with children have a higher probability of spending on communication services, except in Denmark, the Slovak Republic and Switzerland. The positive effect of a child's presence is the strongest in Canada.

The effect of age on the probability of households spending on communication services is generally positive, except in Austria, Czech Republic and Ireland. This overall positive effect contrasts with the generally negative effect observed as far as IT goods and communication goods are concerned.

The impact of living in a couple is positive on the probability of spending on communication services, except in Finland. The impact is the strongest in Ireland.

If the household's reference person is a man, it decreases the probability of spending on communication services in all the countries.

Table 7. Communication services – selection[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	-0.316	0.015	0.047	0.144	0.153	0.042	0.113	-0.004	0.057	
	SE	0.0040	0.0002	0.0026	0.0018	0.0017	0.0019	0.0018	0.0000	0.0015	
Belgium	Coef.	-1.124	0.153	0.375	0.278	0.215	0.114	0.137			
	SE	0.0169	0.0016	0.0028	0.0029	0.0053	0.0054	0.0028			
Canada [2]	Coef.	-2.854	0.440	0.714	0.316	-0.094		0.651	0.007	0.185	-0.231
	SE	0.0145	0.0014	0.0037	0.0027	0.0036		0.0055	0.0001	0.0029	0.0024
Czech Republic	Coef.	-2.8671 †	0.3896 *	0.1494 †	0.646	0.1138 †	0.0585 †	0.2436 †	-0.025	0.818	
	SE	1.9711 †	0.1343 *	0.2150 †	0.1584	0.1380 †	0.1494 †	0.1712 †	0.0048	0.1371	
Denmark	Coef.	1.731	0.010	0.348	0.182	-0.048	0.293	-0.032			
	SE	0.0245	0.0024	0.0059	0.0042	0.0043	0.0052	0.0047			
Finland	Coef.	-2.012	0.396	0.183	0.312	0.361	0.120	0.319	0.003	-0.029	-0.398
	SE	0.0409	0.0043	0.0066	0.0057	0.0062	0.0064	0.0087	0.0001	0.0061	0.0051
France	Coef.	-4.161	0.565	0.177	0.0024 *	0.173	0.043				
	SE	0.0068	0.0007	0.0015	0.0010 *	0.0010	0.0014				
Greece	Coef.	-8.141	1.054	5.3070 †	0.772	0.390	-0.195	0.677			
	SE	0.0484	0.0052	0.0000 †	0.0082	0.0065	0.0090	0.0086			
Hungary	Coef.	-5.537	0.790	0.555	0.650	0.158	0.031	0.055			
	SE	0.0157	0.0019	0.0052	0.0039	0.0031	0.0028	0.0034			
Ireland	Coef.	-0.117	0.252	0.292	0.207	n.a.	n.a.	0.285	-0.008	0.856	-0.356
	SE	0.0332	0.0030	0.0103	0.0086	n.a.	n.a.	0.0114	0.0002	0.0109	0.0063
Slovak Republic	Coef.	-3.554	0.470	0.299	0.379	0.029	0.157	-0.187			
	SE	0.0181	0.0021	0.0045	0.0032	0.0030	0.0026	0.0027			
Spain	Coef.	-6.956	0.901	0.072	-0.082	0.321	0.043	0.132			
	SE	0.0152	0.0016	0.0038	0.0030	0.0020	0.0023	0.0025			
Sweden	Coef.	0.106	0.123	0.102	0.075	0.331	0.0061 †	n.a.	0.011	0.521	-0.292
	SE	0.0148	0.0014	0.0046	0.0042	0.0040	0.0041 †	n.a.	0.0001	0.0037	0.0032
Switzerland	Coef.	1.651	0.033	0.203	0.309	n.a.	n.a.	-0.120	0.012	0.660	-0.417
	SE	0.0557	0.0066	0.0112	0.0102	n.a.	n.a.	0.0088	0.0002	0.0091	0.0084
United Kingdom	Coef.	-2.7957	0.4065	n.a.	n.a.	-0.0543 †	-0.0479 †	n.a.	0.0110	0.2949	-0.1993
	SE	0.1674	0.0149	n.a.	n.a.	0.0631 †	0.0735 †	n.a.	0.0009	0.0399	0.0327
United States [2]	Coef.	-1.186	0.170	0.232	-0.320	0.460		0.309	0.021	0.553	-0.012
	SE	0.0076	0.0006	0.0046	0.0040	0.0023		0.0021	0.0001	0.0019	0.0018

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Communication services – regression

The income elasticity varies from 0.01 in Denmark to 0.69 in the Slovak Republic.

In most of the countries, when the household's reference person has a high level of education, the household has a higher expenditure on communication services, compared with households whose reference person has a low level of education. In more than half the countries, the higher the level of education of the household's reference person, the more the household spends on communication services. By contrast, in Finland and Ireland, for households whose reference person has a high level of education, the level of expenditures is the lowest.

Households living in a densely populated area generally spend more on communication services, except in France.

Households with children spend more on communication services, compared with households without children.

Households' expenditure on communication services decrease with age.

The effect of living in a couple differs among countries: a household living in a couple have a higher probability of spending on IT services in four countries, but a lower one in four others.

Households whose reference person is a man generally have lower level of communication services expenditure, except in Sweden and Switzerland.

Table 8. Communication services –regression[1]

		intercept	ln income	d_edu_high	d_edu_med	d_geo_high	d_geo_med	d_child	age	d_cple	d_male
Austria	Coef.	6.837	0.0114 *	0.223	0.178	0.099					
(ols)	SE	0.0550	0.0047 *	0.0502	0.0357	0.0285					
Belgium	Coef.	3.558	0.265	0.237	0.142	0.107	0.046	0.061			
	SE	0.0127	0.0011	0.0020	0.0020	0.0035	0.0036	0.0016			
Canada [2]	Coef.	3.415	0.340	0.149	0.126	0.019		0.098	-0.006	0.084	-0.071
	SE	0.0028	0.0003	0.0006	0.0005	0.0005		0.0004	0.00001	0.0004	0.0004
Czech Republic	Coef.	8.894	0.222	0.1318 *	0.110	0.122	0.0086 †	0.183	-0.008	0.598	
	SE	0.4593	0.0304	0.0465 *	0.0302	0.0325	0.0358 †	0.0261	0.0011	0.0325	
Denmark	Coef.	5.199	0.089	0.033	0.134	0.135	0.071	0.313			
	SE	0.0076	0.0007	0.0017	0.0013	0.0014	0.0015	0.0014			
Finland	Coef.	1.542	0.504	-0.119	-0.0363 †	0.0140 †	0.0374 †	0.268	-0.009	-0.0728 *	
(ols)	SE	0.1922	0.0195	0.0299	0.0275 †	0.0238 †	0.0289 †	0.0282	0.0007	0.0252 *	
France	Coef.	3.163	0.397	0.096	0.058	-0.117	-0.0485 *	0.071	-0.014	-0.169	
(ols)	SE	0.1240	0.0125	0.0221	0.0174	0.0157	0.0223 *	0.0190	0.0005	0.0158	
Greece	Coef.	0.217	0.600	0.340	0.300	0.069	-0.030	0.176			
	SE	0.0050	0.0005	0.0009	0.0007	0.0006	0.0017	0.0007			
Hungary	Coef.	0.490	0.560	0.393	0.264	0.155	0.029	0.020			
	SE	0.0054	0.0006	0.0010	0.0009	0.0009	0.0009	0.0008			
Ireland	Coef.	2.156	0.541	-0.143	-0.0010 †	n.a.	n.a.	0.152	-0.022	-0.178	-0.008
	SE	0.0106	0.0009	0.0019	0.0018 †	n.a.	n.a.	0.0017	0.0001	0.0016	0.0015
Netherlands	Coef.	5.221	0.178	0.1197 *	0.1040 *	n.a.	n.a.	n.a.	-0.012		
(ols)	SE	0.1884	0.0175	0.0546 *	0.0502 *	n.a.	n.a.	n.a.	0.0010		
Norway	Coef.	6.239	0.095								
	SE	0.2092	0.0164								
Slovak Republic	Coef.	-1.181	0.693	0.305	0.251	0.184	0.145	0.020			
	SE	0.0144	0.0014	0.0024	0.0021	0.0014	0.0013	0.0012			
Spain	Coef.	-0.729	0.665	0.148	0.176	0.102	0.082	0.019			
	SE	0.0036	0.0004	0.0005	0.0005	0.0004	0.0005	0.0004			
Sweden	Coef.	5.313	0.165	0.106	0.119	0.109	0.061	n.a.	-0.014	0.059	0.040
	SE	0.0043	0.0004	0.0010	0.0009	0.0008	0.0009	n.a.	0.0000	0.0008	0.0007
Switzerland	Coef.	2.577	0.312	0.026	0.037	n.a.	n.a.	0.226	-0.015	0.068	0.012
	SE	0.0064	0.0007	0.0013	0.0011	n.a.	n.a.	0.0008	0.0000	0.0009	0.0009
United Kingdom	Coef.	4.127	0.308	n.a.	n.a.	0.0085 †	-0.0165 †	n.a.	-0.016	-0.068	-0.0184 **
	SE	0.0738	0.0064	n.a.	n.a.	0.0179 †	0.0209 †	n.a.	0.0003	0.0112	0.0109 **
United States [2]	Coef.	4.813	0.167	0.198	0.066	0.181		0.122	-0.007	0.333	-0.090
	SE	0.0019	0.0002	0.0007	0.0007	0.0006		0.0004	0.0000	0.0004	0.0003

1. The coefficients all have a p value < .001, except: * p<.05; **p<0.1; † p>=0.1.
2. Income instead of equivalent income. Urban instead of d_geo_high and d_geo_med. See methodology.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Communication goods and services

Overall, the various explanatory variables have diverging effects according to whether we are referring to communication goods or communication services:

- Concerning the probability of spending, the population density in the area where the household is living generally has a positive effect where services are concerned, whereas the effect is much more variable across countries where goods are concerned. Similarly, if the household's reference person is a man, this has a negative effect on services, whereas the effect is more variable across countries where goods are concerned.

- Concerning the level of expenditure, it is generally higher for households whose reference person has a high level of education, where services are concerned, whereas this is not so frequently the case where goods are concerned.

- Age has opposite effects on goods and services in the selection (negative for goods, more positive for services). Geographical densely populated area also has opposite effects in the regression (more positive for services, more negative for goods).

In addition, where both communication goods and communication services are concerned, the effects of variables are not always the same on the probability of spending and the amount spent.

- *For communication goods*, the education level of the household's reference person generally has a positive effect on the probability of spending. But this effect on the amount spent is much more heterogeneous, depending on the country.

- *For communication services*, the probability of spending increases with age, but the amount spent decreases with age.

3.3   *Main pattern of determinants*

Determinants could be classified according to the homogeneity of their effect on ICT expenditures.

- First, income and children have positive effects on the probability of spending and on the level of expenditures in all types of ICT expenditures.

- Second, education level has generally positive and monotonic effects on the probability of spending in all types of ICT expenditures, and on the level of expenditures for IT goods and communication services. But the effect is more variable across countries on the level of expenditures for communication goods and IT services.

- Third, geographical area has a positive effect - monotonic for the probability, but not for the amount spent - on IT goods and communication services. But the effect is more variable across countries for communication goods and IT services.

- Fourth, age decreases both the probability of spending and the amount spent on goods. The effect is more variable for services.

- Fifth, if the household's reference person is a man, it has an increasing effect for both the probability of spending and on the level of expenditures on IT goods, but a decreasing effect for communication services. For IT services and communication goods, the effect is more variable.

- Sixth, to live in a couple has an increasing effect on the probability of spending on communication goods and IT and communication services. The effect on the amount spent is positive for IT services and more variable for the remaining categories: IT and communication goods, and communication services.

Two main patterns of determinants of household's expenditures on ICT seem to emerge, both relatively similar across countries (Figure 1): one for IT goods, one for communication services. They distinguish from each other by age and gender effects. Age decreases the probability to spend on IT goods but increases the probability to spend on communication services. And if the household's reference person is a man, it has an increasing effect for both the probability to spend and on the level of expenditures on IT goods, but a decreasing effect for communication services.

Otherwise, both for IT goods and communication services, income, education level, geographical area and child have positive effects on the probability of spending and on the level of expenditures.

Communication goods could fall under the "communication" umbrella for a couple effect and under the "goods" umbrella for age and gender effect. IT services is compatible both with IT goods and communication services features.

Figure 1. The effects[1] of selected determinants on households ICT expenditure

(n= number of countries where results are available)

		Information Technology					Communication			
		probability	n	level	n		probability	n	level	n
Goods	income	+	18	+	18	income	+	18	+	13
	education level	+	17	+	15	education level	+	15	+ / -	7
	geographical area	+	15	+	13	geographical area	+ / -	13	-	6
	child	+	15	+	12	child	+	13	+	6
	age	-	14	-	11	age	-	11	-	4
	couple	+ / -	12	+ / -	9	couple	+	9	+ / -	2
	gender (male)	+	11	+	8	gender (male)	+ / -	8	+	2
		probability	n	level	n		probability	n	level	n
Services	income	+	18	+	17	income	+	16	+	18
	education level	+	13	+ / -	10	education level	+	15	+	16
	geographical area	+	11	+ / -	9	geographical area	+	14	+	14
	child	+	10	+	8	child	+	13	+	13
	age	+ / -	10	+ / -	7	age	+	9	-	10
	couple	+	9	+	6	couple	+	9	+ / -	9
	gender (male)	+ / -	7	+ / -	5	gender (male)	-	7	-	6

1. Main effect observed across countries. The sign "+ / -" mirrors no dominant trend across countries.

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

ICT goods and services and total consumption expenditures

How do the households behave in terms of ICT goods and services expenditures if there is a slight increase of their income? Do they increase or decrease their ICT goods and expenditures? And is the share of ICT goods and services in their total consumption expenditures increasing or decreasing?

Income elasticity of expenditures on ICT goods and services, as provided by the various regressions, could be compared to income elasticity of total consumption expenditures, calculated on the same micro-data sets, in the three following countries: Canada, Switzerland and the United States.

For each country, income elasticity for total consumption expenditures was calculated for households having spent on IT goods, in order to compare it with the IT goods income elasticity which was obtain in the regression part of the Heckman model. And similarly for other ICT categories (IT services, communication goods, and communication services).

Figure 2 shows that in Canada and Switzerland, the income elasticity for IT services and for communication goods and services expenditures is significantly lower than the income elasticity for the total consumption expenditures. This means that households, if their income increases, will increase their ICT expenditures but relatively less than their total consumption expenditures. This is a lower relative priority.

IT goods are not in the same case. In Canada, their income elasticity, though slightly lower than that for the total consumption expenditures, remains of the same order of magnitude. And in Switzerland, it is even higher. In that country, households expenditures devoted to IT goods would increase 1.7 times more than the total consumption expenditures, for a given unit of increase of income.

In the United States, income elasticity for both IT goods and IT services is relatively close to that of the total expenditures, contrasting with the situation in Canada and Switzerland. It remains to be confirmed if the pattern observed in those two countries for IT goods and in the United States for IT services holds in other countries.

Figure 2. Income elasticities of selected ICT goods and services and of total expenditures in Canada, Switzerland and the United States, 2006
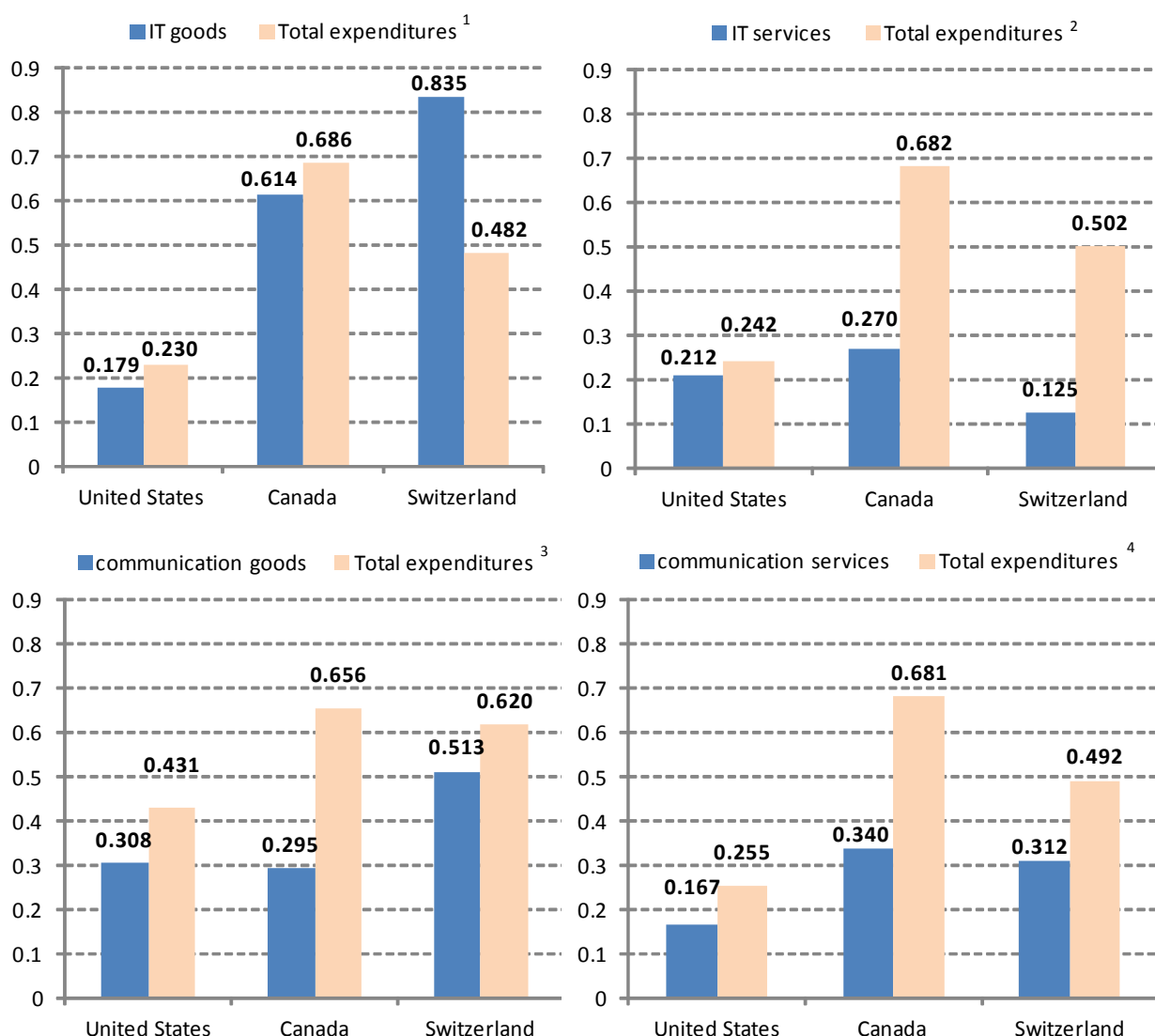
1. Calculated for households having spent on IT goods only.
2. Calculated for households having spent on IT services only.
3. Calculated for households having spent on communication goods only.
4. Calculated for households having spent on communication services only.

Source: OECD, based on data from Statistics Canada, the Swiss Federal Statistical Office and the US Bureau of Labor Statistics.

Conclusion

This analysis of determinants of household's ICT expenditures has shown that some determinants, at the level of more elementary expenditures components (IT goods, IT services, communication goods and communication services) have significant and relatively similar effects, as expected in the research questions. This is the case of income and the presence of children, which have generally a positive impact on both the probability to spend and the level of expenditures.

The effects of other determinants are less similar across countries or between goods and services, but do not invalidate the assumptions made in the initial questions.

The marked different effects between communication services and information technology goods also mirror the fact that ICT goods and services do not necessarily follow a uniform pattern of consumption. Looking at elementary components is certainly useful for a better understanding of the mechanisms at stake.

These findings may also call for revisiting the existing ICT expenditure categories in the consumption surveys in detail, especially for cases where the frontier between goods and services is blurring.

ANNEX: ICT EXPENDITURES DEFINITION AND COUNTRY DATA

1.   ICT expenditures: details and components

1.1   ICT expenditures: COICOP items.

COICOP categories for detailed ICT goods and services:

Communication expenditures:

08.2.0 Telephone and fax equipment:

- Purchases of telephones, radio-telephones, telefax machines, telephone-answering machines and telephone loudspeakers.
- Repair of such equipment.

Excludes: telefax and telephone-answering facilities provided by personal computers (09.1.3).

08.3.0 Telephone and telefax services:

- Installation and subscription costs of personal telephone equipment.
- Telephone calls from a private line or from a public line (public telephone box, post office cabin, etc.); telephone calls from hotels, cafés, restaurants and the like.
- Telegraphy, telex and telefax services.
- Information transmission services; Internet connection services.
- Hire of telephones, telefax machines, telephone-answering machines and telephone loudspeakers.

Includes: radio-telephony, radio-telegraphy and radiotelex services. Excludes: telefax and telephone answering facilities provided by personal computers (09.1.3).

Audio-visual, photographic and information processing equipment.

Definitions COICOP:
- 09.1   Audio-visual, photographic and information processing equipment
- 09.1.1   Equipment for the reception, recording and reproduction of sound and pictures
- 09.1.2   Photographic and cinematographic equipment and optical instruments
- 09.1.3   Information processing equipment
- 09.1.4   Recording media
- 09.1.5   Repair of audio-visual, photographic and information processing equipment

Information and communication technologies expenditures are made from the sum of communication expenditures and audio-visual, photographic and information processing equipment expenditures.

- 09.4.2 - Cultural services (*)

– Services provided by:
– Cinemas, theatres, opera houses, concert halls, music halls, circuses, sound and light shows.
– Museums, libraries, art galleries, exhibitions.
– Historic monuments, national parks, zoological and botanical gardens, aquaria.
– Hire of equipment and accessories for culture, such as television sets, video cassettes, etc.
– Television and radio broadcasting, in particular licence fees for television equipment and subscriptions to television networks.
– Services of photographers such as film developing, print processing, enlarging, portrait photography, wedding photography, etc.

Includes: services of musicians, clowns, performers for private entertainments.

(*) When available, the only part which will be included in the ICT expenditures will be "- hire of equipment and accessories for culture, such as television sets, video cassettes, etc." and "television and radio broadcasting, in particular licence fees for television equipment and subscriptions to television networks".

1.2 ICT expenditures items selected by countries

European countries (including Czech Republic)

For the European countries, according to the available detail level (Eurostat, 2006), the following items have been selected:

Telephone and telefax equipment (HE082)
Telephone and telefax services (HE083)
Audio-visual, photographic and information processing equipment (HE091)
Television and radio taxes and hire of equipment (HE09423)

The various ICT components are defined as follow:

IT goods include audio-visual, photographic and information processing equipment (HE091) less repair of audio-visual, photographic and information processing equipment (HE0915)

IT services include television and radio taxes and hire of equipment (HE09423) and repair of audio-visual, photographic and information processing equipment (HE0915).

Communication goods include telephone and telefax equipment (HE082).

Communication services include telephone and telefax services (HE083).

Canada

For Canada, according to the available detail level (Statistics Canada, 2008a), the ICT expenditures and their components are defined in the Annex Table 1.

Annex Table 1. ICT expenditures and their components in Canada.

Communication		IT	
goods	services	goods	services
Purchases of communications equipment H004	Telephone services H005 Cellular services H008 Internet services H009 On-line services H070	Computer equipment and supplies M110 Photographic goods (M116 - M119) Audio equipment M150 Pre-recorded media M151 Blank media M187 Televisions and other video equipment M186 Rental of DVDs, video tapes and video games M156 Rental of home entertainment equipment M157	Photographic services M119 Cablevision and satellite services M165

Source: OECD, based on Statistics Canada SHS Data Dictionary 2006 Data Model Entity (PUMF).

Switzerland

For Switerland, the most detailed level (level 5) of the classification used by the Household Budget Survey has been used. Consumptions expenditures are classified according to COICOP, as established by EUROSTAT. ICT expenditure items are in line with other European countries.

United States

Based on a draft provided by the BLS with a concordance between COICOP and the detailed classification used for the CES, the Universal Classification Code (UCC), UCC detailed items have been selected following the COICOP categories selected for the European countries and are listed in the Annex table 2.

Annex Table 2. ICT expenditures and their components in the United States.

Communication				IT			
goods		services		goods		services	
UCC Title	*code*	*UCC Title*	*code*	*UCC Title*	*code*	*UCC Title*	*code*
Telephones and accessories	320232	Residential telephones/pay phones	270101	Black and white tv	310110	Cable/satellite/com antenna serv.	270310
Telephone answering devices	690210	Cellular phone service	270102	Color tv - console	310120	Repair of tv/radio/sound equip.	340610
		Pager service	270103	Color tv - portable/table mod	310130	Rental of televisions	340902
		Phone cards	270104	Televisions	310140	Rental of vcr/radio/sound equip.	340905
		Computer information services	690114	Vcrs/video disc players	310210	Photographer fees	620320
		Internet services away from home	690116	Video cassettes/tapes/discs	310220	Film processing	620330
				Video game hardware/software	310230	Rntl video cass/tapes/discs/films	620912
				Streaming/downloading video	310240	Online entertainment and games	620930
				Radios	310311	Repair-cmptr,cmptr sys n-b	690113
				Tape recorders and players	310313		
				Digital audio players	310314		
				Components/component systems	310320		
				Accessories and other sound equip	310333		
				Satellite dishes	310334		
				Records,cds,audio tapes	310340		
				Rcrd/tape/cd/video mail ord club	310341		
				Records,cds,audio tapes	310342		
				Streaming/downloading audio	310350		
				Vehicle audio equipment	480214		
				Vehicle video equipment	480215		
				Vehicle audio eq. incl. labor	490502		
				Film	610210		
				Photographic equipment	610230		
				Compter/compter hrdwar n-bus use	690111		
				Compter sftwr/cmptr acc n-bus use	690112		
				Personal digital assistants	690115		
				Calculators	690220		
				Typwrits/oth off mach non-bus use	690230		

Source: OECD, based on BLS.

2.   Country data specificities

2.1   *European countries*

Data source

The source of the data is the Eurostat database on Household Budget Survey. The reference year is 2005 (Eurostat, 2006).

Income and equivalent income

Income refers to the net income (total income from all sources including non-monetary components minus income taxes).

Equivalent income of the household is used instead of income of the household.

Equivalent income of the household has been calculated by dividing the income of the household by the equivalent size of the household and multiplying the result by the household size:

Equivalent income = income / household equivalent size x household size

Household size refers to the sum of household members.

Household equivalent size is established by allocating weighting coefficients to the household's members according to their demographic characteristics. Given the existence of big differences in the sizes and structures of households, comparability can be improved by using expenditure or income by adult equivalent.

The OECD scale is used, which consists in allocating the following weightings to persons in the calculation of the "equivalent household's size".

- first adult in the household[1] = 1.0
- each adult thereafter (aged over 13) = 0.7
- each child (13 or under) = 0.5

Calculation rule:

Household equivalent size = 0.3 + (0.7*A) + (0.5*B)
A = Sum of household members where MB03 > 13
B = Sum of household members where MB03 < 14

1. The first adult of the household counts for 1 because of the addition of the constant term 0.3, assuming that each household must have at least one adult.

Education level of the reference person

The education level of the reference person corresponds to the level of studies completed by the reference person, using the ISCED (International Standard Classification of Education) nomenclature.

d_edu_high: higher education (ISCED = 5, 6)
d_edu_med: upper secondary education and post-secondary non-tertiary education (ISCED = 3, 4)
d_edu_low: none or primary education and lower secondary education (ISCED = 1, 2)

In selection and regression, d_edu_low is used as reference.

Geographical area

Geographical area refers to the population density domain. It has been divided into 3 categories:

d_geo_high: densely populated (at least 500 inhabitants/km2)
d_geo_med: intermediate (between 100 and 499 inhabitants/km2)
d_geo_low: sparsely populated (less than 100 inhabitants/km2)

In selection and regression, d_geo_low is used as reference.

Reference person

As stated in Eurostat (2006), "reference person" is a European concept, which usually differs from the national concept of "head of household". The reference person is the adult (16+) contributing most to the total income of the household. In that sense, the reference person can also be designated as "main income earner".

2.2 Czech Republic

The source of the data is the Czech Household Budget Survey (HBS), with 2006 as reference year. The variables are in line with the Eurostat definitions. The methodology of the Czech Household Budget Survey (HBS) is provided on the Czech Statistical Office website:
  www.czso.cz/eng/redakce.nsf/i/home.

2.3 Switzerland

The source of the data is the Household Budget Survey (HBS). The reference year is 2005. The geographical area (population density domain) is not available. Education level of the reference person has been aligned with the European countries, based on the education short classification (EWL) and using a mapping of national educational programmes with ISCED. Income refers to household income before taxes. It includes income for household from earnings, investment, and from transfer payments. Total consumption refers to "Consumption expenditures", which is the fifth category of the first level of the classification. It excludes insurances, subscriptions, gifts or grants, or taxes. The methodology of the Household Budget Survey (HBS) is provided on the Swiss Federal Statistical Office website:

www.bfs.admin.ch/bfs/portal/en/index/infothek/erhebungen__quellen/blank/blank/habe/02.html.

2.4 Canada

Data source

The source of the data is the *Survey of Household Spending PUMF 2006*, from Statistics Canada (Statistics Canada, 2008b and 2008c).

Age of the reference person

Age of the reference person is provided by groups. The variable has been modified as follow:

For age group of less than 25 year, the age value has been put to 22. For age group 25-29, the age value has been put to 27. For age group 30-34, the age value has been put to 32 (and similarly for other age groups). For age group of 85 and over, the age value has been put to 92.

Income

Income refers to household income before taxes. It includes income for household from earnings, investment, government transfer payments and other sources. It excludes personal income tax refunds (Statistics Canada, 2008a).

Education level of the reference person

Statistics Canada provided a concordance table between original codes used in the Canadian micro-data file and the 3 levels of ISCED used by Eurostat for the European countries, as follow:

Initial code	Description	ISCED	Education level
1	No degrees, certificates or diplomas	0,1,2	Low
2	Secondary (high) school diploma or equivalent	3	Medium
3	Trade/vocational certificate	4	Medium
4	Apprenticeship certificate	4	Medium
5	Community college, CEGEP or nursing school diploma	5B	High
6	University certificate or diploma below Bachelor's	5B	High
7	Bachelor's degree (B.A., B.Sc., B.Ed.)	5A	High
8	University degree, certificate or diploma above a Bachelor's	5A/6	High

Source: Statistics Canada, Culture, Tourism and the Centre for Education Statistics Division.

In selection and regression, d_edu_low is used as reference.

Urban-rural

Instead of the 3 different levels of population density provided for the European countries, the urban area indicator is used. Urban areas are defined as follow (Statistics Canada, 2008c):

For the Survey of Household Spending (based on the LFS sampling frame), urban areas include:

–   All large metropolitan areas (even though they do contain some rural areas).
–   Most small metropolitan areas (also called census agglomerations). In some cases, where a census agglomeration contains a large rural population, only the urban portion is considered urban.
–   Urban areas based on the census definition: "Urban areas have minimum Population concentrations of 1 000 and a population density of at least 400 per square kilometer based on the previous census population counts."

Rural area

All territory outside urban areas is considered rural. Taken together, urban and rural areas cover all of Canada.

In selection and regression, d_rural is used as reference.

Reference person

The household member being interviewed chooses which household member should be listed as the reference person after hearing the following definition. "The household reference person is the member of the household mainly responsible for its financial maintenance (*e.g.* pays the rent, mortgage, property taxes, and electricity). This person can be either male or female. When all members of the household share equally, any member may be shown as the reference person." This person must be a member of the household at the time of the interview (Statistics Canada, 2008c).

Total consumption

Total consumption refers to the expenditures included in "Current consumption" plus personal taxes, personal insurance payments and pension contributions, and gifts of money and contributions to persons outside the household.

2.5   *United States*

The source of the data is the 2006 Consumer Expenditure Survey (Public Use Microdata Files), from the US Bureau of Labor Statistics (US BLS, 2006).

Income

Income refers to income before taxes, which is the combined income earned by all Consumer Unit (CU) members 14 years old or over during the 12 months preceding the interview. The components of income are: wage and salary income, business income, farm income, Social Security income and Supplemental Security income, unemployment compensation, workmen's compensation, public assistance, welfare, interest, dividends, pension income, income from roomers or boarders, other rental income, income from regular contributions, other income, and food stamps.

A consumer unit (CU) comprises either: *i*) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangements; *ii*) a person living alone or sharing a household with others or living as a roomer in a private home or lodging house or in permanent living quarters in a hotel or motel, but who is financially independent; or *iii*) two or more persons living together who use their income to make joint expenditures. Financial independence is determined by the three major expense categories: housing, food, and other living expenses. To be considered financially independent, at least two of the three major expense categories have to be provided entirely or in part by the respondent.

Reference person

The first member mentioned by the respondent when asked to "Start with the name of the person or one of the persons who owns or rents the home." It is with respect to this person that the relationship of other CU members is determined.

Education level of the reference person

Based on the initial code provided in the CES, the education level has been assigned as follows:

Initial code	Description	Education level
00	Never attended school	Low
10	First through eighth grade	Low
11	Ninth through twelfth grade (no H.S. diploma)	Medium
12	High school graduate	Medium
13	Some college, less than college graduate	Medium
14	Associate's degree (occupational/vocational or academic)	High
15	Bachelor's degree	High
16	Master's degree	High
17	Professional/Doctorate degree	High

Source: OECD, based on US BLS (2006).

Urban-rural

Instead of the three different levels of population density provided for the European countries, the urban area indicator is used. Urban population is defined as all persons living in a Metropolitan Statistical Area (MSA's) and in urbanized areas and urban places of 2500 or more persons outside of MSA's. Urban, defined in this survey, includes the rural populations within MSA. The general concept of an MSA is one of a large population nucleus together with adjacent communities that have a high degree of economic and social integration with that nucleus. Rural population is defined as all persons living outside of an MSA and within an area with less than 2500 persons.

Total consumption

Total consumption refers to the expenditures included in "total expenditures". It includes expenditures on food, alcoholic beverages, tobacco and smoking supplies, housing, apparel and services, transport, health, entertainment, personal care, reading, education, cash contributions, personal insurance and pensions, and miscellaneous.

Sample and weights

Data originates from the CES Interview Survey, which is a panel rotating survey. Data are provided in quarterly files. Each Consumer Unit (CU) included in the CES represents a given number of CUs in the U.S. population, which is considered to be the universe. The weighting is performed at the CU level, and weight for a CU is different for each quarter. The amount of the annual expenditures (total expenditures and ICT expenditures) have been calculated for CU which are present in all of the quarterly files and relate to expenditures made during the year 2006. Therefore the total sample which has been used does not correspond to one of the quarterly sample – representative of the US population – but is smaller. Weights chosen were those from the 3rd quarter file, as the weighted results obtained for the socio-economic characteristics were the closest to those of the total US population. The weights used nevertheless introduce a bias and the results are not representative of the US population as a whole.

The weighting process is also leading to a greater variance of the various estimations in the selection and regression. The weights of the 3rd quarter are used, instead of using the iterative procedure of replicated weights.

Annex table 2. Variables by country

Austria

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	3830	6.584796	21.71636	10105606	-0.787144	10.59144
ln_IT_serv	1698	6.932033	11.08027	5036033.2	3.94019	9.47311
ln_com_goods	215	6.621269	22.91376	539090.79	3.07269	8.83054
ln_com_serv	3835	7.129901	16.79459	11075188	1.20683	9.64398
ln_eq_inc	8400	9.37619	63.47003	32722895	0	12.20797
d_edu_high	7719	0.13003	6.87484	419300	0	1
d_edu_med	7719	0.6377	9.825	2056398	0	1
d_geo_high	8400	0.39996	9.98614	1395870	0	1
d_geo_med	8400	0.2361	8.65699	824000	0	1
d_child	8400	0.28799	9.23066	1005102	0	1
age	8400	50.51617	346.3406	176301428	18	99
d_cple	8400	0.41706	10.05103	1455554	0	1
d_male	8400	0.64429	9.7586	2248572	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	4570	3830
d_IT_serv	6702	1698
d_com_goods	8185	215
d_com_serv	4565	3835

Belgium

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	1600	5.992606	30.68412	4702133.3	1.79176	10.03764
ln_IT_serv	3093	5.182435	13.84188	8058731.9	1.94018	11.90543
ln_com_goods	406	5.731046	15.1198	1159544	1.09861	7.83634
ln_com_serv	2926	6.616369	18.91293	9492543.4	1.79176	9.38568
ln_eq_inc	3550	10.46827	17.26379	18358154	0	12.91155
d_edu_high	3496	0.43405	11.02494	750622	0	1
d_edu_med	3496	0.28224	10.01189	488089	0	1
d_geo_high	3550	0.59753	10.90109	1047894	0	1
d_geo_med	3550	0.35734	10.6526	626667	0	1
d_child	3550	0.29713	10.15861	521074	0	1
age	3550	50.0539	346.871	87779294	19	86
d_cple	3550	0.45079	11.06065	790556	0	1
d_male	3550	0.65296	10.58171	1145101	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	1950	1600
d_IT_serv	457	3093
d_com_goods	3144	406
d_com_serv	624	2926

Canada

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	12359	6.418268	41.74477	69953797	0.693147	10.1973
ln_IT_serv	13090	6.186907	26.24218	69333771	0.693147	8.69951
ln_com_goods	4369	4.715292	26.9094	18014131	0.693147	8.16052
ln_com_serv	14454	6.982593	21.3782	88065291	0.693147	9.84591
ln_inc	14618	10.82036	24.92811	137807166	5.29832	15.03929
d_edu_high	14635	0.44691	14.67833	5700643	0	1
d_edu_med	14635	0.37537	14.2958	4787998	0	1
d_urban	14018	0.87686	9.88864	11131235	0	1
d_child	14635	0.2901	13.39799	3700353	0	1
agebis	14635	49.68506	487.5916	633761084	22	92
d_male	14635	0.50217	14.76163	6405452	0	1
d_comp	14635	0.75387	12.71747	9616002	0	1
d_mob	14635	0.67709	13.80488	8636660	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	2272	12346
d_IT_serv	1537	13081
d_com_goods	10254	4364
d_com_serv	179	14439

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Annex table 2. Variables by country (Cont'd)

Czech Republic

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	2222	10.64246	1.708236	22470.402	5.64706	15.00042
ln_IT_serv	2793	10.95368	0.594143	30670.105	3.34448	13.24215
ln_com_goods	899	10.1979	1.425241	8593.3948	3.34448	13.47027
ln_com_serv	2919	12.24717	0.817149	35493.589	8.21201	14.70736
ln_eq_inc	2967	14.41833	0.657123	42753.867	11.5511	17.6938
d_edu_high	2967	0.11234	0.31574	333.1058	0	1
d_edu_med	2967	0.37329	0.48362	1.11E+03	0	1
d_geo_high	2967	0.37649	0.48444	1116	0	1
d_geo_med	2967	0.24209	0.42829	717.8559	0	1
d_child	2967	0.46749	0.79371	1386	0	4
age	2967	52.09347	15.72286	154470	20	90
d_cple	2967	0.63774	0.48059	1891	0	1
d_male	2967	0.71147	0.45302	2110	0	1
d_comp	2967	0.43338	0.49548	1285	0	1
d_mob	2967	0.88273	0.3217	2618	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	745	2222
d_IT_serv	174	2793
d_com_goods	2068	899
d_com_serv	48	2919

Denmark

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	1785	5.753741	71.0789	10084188	-1.95099	10.10977
ln_IT_serv	2351	5.994927	19.14808	14681279	2.47211	9.1984
ln_com_goods	371	4.00167	61.20881	1495149.4	-2.0755	8.55514
ln_com_serv	2384	6.350907	28.75449	15805296	-1.5901	9.42035
ln_eq_inc	2449	10.59586	28.30042	27054646	0	12.84208
d_edu_high	2378	0.2077	12.88444	498046	0	1
d_edu_med	2378	0.47835	15.86597	1147051	0	1
d_geo_high	2449	0.41163	15.89372	1051019	0	1
d_geo_med	2449	0.31017	14.93886	791961	0	1
d_child	2449	0.26052	14.17517	665180	0	1
age	2449	49.80541	579.3737	127169329	17	92
d_cple	2449	0.46891	16.1167	1197284	0	1
d_male	2449	0.5937	15.86187	1515904	0	1
d_comp	2449	0.73027	14.33351	1864621	0	1
d_mob	2448	0.82725	12.21028	2111827	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	663	1785
d_IT_serv	98	2351
d_com_goods	2078	371
d_com_serv	55	2384

Finland

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	2729	6.267658	27.97483	9709463.4	1.63594	9.29198
ln_IT_serv	3864	5.407457	7.053823	12722005	3.93852	8.91027
ln_com_goods	1525	4.948021	22.77364	4284957.8	1.59672	8.17597
ln_com_serv	3961	6.341181	19.52697	15344423	2.28987	9.03745
ln_eq_inc	4007	10.40418	18.40887	25542269	7.68891	13.17957
d_edu_high	4007	0.29733	11.31529	729946	0	1
d_edu_med	4007	0.40441	12.14941	992829	0	1
d_geo_high	4007	0.28849	11.21565	708234	0	1
d_geo_med	4007	0.16509	9.19077	405299	0	1
d_child	4007	0.25497	10.7895	625949	0	1
age	4007	50.79765	436.5185	124708234	17	96
d_cple	4007	0.46375	12.34514	1138516	0	1
d_male	4007	0.6025	12.11484	1479135	0	1
d_comp	4007	0.63672	11.90597	1563152	0	1
d_mob	4007	0.91445	6.92388	2244986	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	1278	2729
d_IT_serv	143	3864
d_com_goods	2482	1525
d_com_serv	46	3961

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Annex table 2. Variables by country (Cont'd)

France

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	5031	5.840558	64.28783	67241312	-0.712067	9.87482
ln_IT_serv	7737	5.353989	39.42083	98541106	2.46599	9.21083
ln_com_goods	2071	4.393846	70.92405	20933334	-0.01892	9.34174
ln_com_serv	9816	6.5023	40.15891	154621466	2.28367	9.86203
ln_eq_inc	10240	10.42588	34.53472	259796116	7.33302	13.67631
d_edu_high	10240	0.19854	19.67877	4947349	0	1
d_edu_med	10240	0.37579	23.89291	9364069	0	1
d_geo_high	10240	0.40949	24.25862	10203785	0	1
d_geo_med	10240	0.13455	16.83441	3352842	0	1
d_child	10240	0.32009	23.01407	7976163	0	1
age	10240	52.13011	858.636	1.299E+09	16	98
d_cple	10240	0.4881	24.65915	12162626	0	1
d_male	10240	0.64746	23.56909	16133568	0	1
d_comp	10240	0.48981	24.66102	12205302	0	1
d_mob	10240	0.48553	24.65581	12098623	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	8169	2071
d_IT_serv	2503	7737
d_com_goods	8169	2071
d_com_serv	423	9816

Greece

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	2071	5.674945	26.40993	7370206.1	2.37993	9.70445
ln_IT_serv	6536	4.04175	19.12681	16088213	3.26588	7.73548
ln_com_goods	218	4.764439	21.12256	632675.59	2.33286	6.71894
ln_com_serv	6525	6.62191	19.61867	26333109	4.4651	9.53101
ln_eq_inc	6555	10.26827	17.03429	41000854	7.09008	12.36437
d_edu_high	6553	0.16618	9.18815	663371	0	1
d_edu_med	6553	0.29584	11.26594	1180960	0	1
d_geo_high	6555	0.4319	12.22638	1724545	0	1
d_geo_med	6555	0.03498	4.53481	139665	0	1
d_child	6555	0.31926	11.50685	1274783	0	1
age	6555	53.64969	424.4844	214221321	15	98
d_cple	6555	0.43096	12.2232	1720821	0	1
d_male	6555	0.74779	10.71924	2985909	0	1
d_comp	6555	0.29478	11.25396	1177043	0	1
d_mob	6555	0.7257	11.01244	2897714	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	4484	2071
d_IT_serv	19	6536
d_com_goods	6337	218
d_com_serv	30	6525

Hungary

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	3163	5.015369	20.75005	6220812.5	0.96026	8.34934
ln_IT_serv	5053	5.046696	10.93091	10519080	1.75877	7.91097
ln_com_goods	1348	4.300014	15.18046	2102298.6	-1.26514	6.3286
ln_com_serv	8590	5.818168	16.42602	20983572	1.34598	8.31933
ln_eq_inc	9058	9.03015	14.53043	34649456	0	12.00055
d_edu_high	9058	0.19443	8.1459	746033	0	1
d_edu_med	9058	0.26628	9.09798	1021752	0	1
d_geo_high	9058	0.36575	9.91359	1403415	0	1
d_geo_med	9058	0.3172	9.57907	1217136	0	1
d_child	9058	0.2787	9.22863	1069413	0	1
age	9058	52.42769	343.0227	201169615	18	98
d_cple	9058	0.32282	9.62366	1238679	0	1
d_male	9058	0.56784	10.19634	2178836	0	1
d_comp	9058	0.34606	9.79157	1327850	0	1
d_mob	9058	0.72994	9.13866	2800843	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	5895	3163
d_IT_serv	4005	5053
d_com_goods	7710	1348
d_com_serv	468	8590

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Annex table 2.Variables by country (Cont'd)

Ireland

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	3246	6.451593	16.57828	4208929	1.66988	11.3014
ln_IT_serv	5920	5.972163	10.0242	7241307.8	-0.632703	8.7395
ln_com_goods	2256	5.020137	10.90018	2255301.8	1.44674	8.59685
ln_com_serv	6786	6.860007	15.94687	9751452.3	0.753592	9.29548
ln_eq_inc	6884	10.90473	13.68633	15761852	0	14.13496
d_edu_high	6884	0.29089	6.58157	420461	0	1
d_edu_med	6884	0.24752	6.25404	357771	0	1
d_geo_high	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_geo_med	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_child	6884	0.34843	6.9047	503622	0	1
age	6884	50.5849	237.3892	73116119	15	93
d_cple	6884	0.43472	7.18364	628356	0	1
d_male	6884	0.61861	7.03883	894145	0	1
d_comp	6884	0.54379	7.21781	786003	0	1
d_mob	6884	0.84448	5.25169	1220618	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	3638	3246
d_IT_serv	964	5920
d_com_goods	4628	2256
d_com_serv	98	6786

Netherlands

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	1328	5.920931	1.227778	7694.7747	2.17478	9.26852
ln_IT_serv	318	4.807903	0.837918	1447.0479	2.72296	7.61367
ln_com_goods	513	4.566845	0.657363	2235.1614	3.23379	6.67969
ln_com_serv	1543	6.558276	0.658378	10115.449	3.00663	9.072
ln_eq_inc	1570	10.21465	0.92248	16037	0	12.25358
d_edu_high	1561	0.32204	0.46756	503.03033	0	1
d_edu_med	1561	0.55821	0.49692	871.94349	0	1
d_geo_high	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_geo_med	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_child	0	.	.	.	.	.
age	1570	48.51546	15.31503	76169	21	80
d_cple	1570	0.51737	0.49986	812.27593	0	1
d_male	1570	0.69975	0.45851	1099	0	1
d_comp	1570	0.75425	0.43067	1184	0	1
d_mob	0	.	.	.	.	.

	Non spending (=0)	Spending (=1)
d_IT_goods	242	1328
d_IT_serv	1251	318
d_com_goods	1049	513
d_com_serv	27	1543

Norway

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	2487	6.549071	1.611687	28559.78	-2.1749	11.0986
ln_IT_serv	633	6.933021	1.734797	7766.231	3.48009	10.04464
ln_com_goods	1239	4.541543	2.821	9212.8389	-2.16397	9.13012
ln_com_serv	1343	7.437454	1.28712	17640.6	2.52827	10.1428
ln_eq_inc	3376	12.68875	2.25626	82420	0	15.49446
d_edu_high	3331	0.34631	0.65925	2214	0	1
d_edu_med	3331	0.50447	0.69277	3225	0	1
d_geo_high	3376	0.51162	0.69346	3323	0	1
d_geo_med	3376	0.16995	0.52106	1104	0	1
d_child	3376	0.30364	0.63792	1972	0	1
age	3376	46.61104	21.54417	302762	18	87
d_cple	3376	0.33327	0.65395	2165	0	1
d_male	3376	0.6162	0.67466	4003	0	1
d_comp	3376	0.70814	0.63069	4600	0	1
d_mob	2245	0.93433	0.34404	4045	0	1

	Non spending (=0)	Spending (=1)
d_IT_goods	889	2487
d_IT_serv	2743	633
d_com_goods	2137	1239
d_com_serv	2033	1343

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Annex table 2. Variables by country (Cont'd)

Slovak Republic

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	622	4.516259	32.82151	1125671.5	1.30822	9.94398
ln_IT_serv	4111	3.925925	12.9247	6441508.8	1.82741	7.23481
ln_com_goods	55	5.730039	20.77354	122683.69	3.84232	7.81888
ln_com_serv	3958	5.480521	15.5466	8638517.9	1.0289	8.31205
ln_eq_inc	4710	9.00302	12.66753	17108745	6.1449	11.42473
d_edu_high	4710	0.14072	6.98538	267407	0	1
d_edu_med	4710	0.72977	8.92098	1386798	0	1
d_geo_high	4710	0.26469	8.86242	502991	0	1
d_geo_med	4710	0.42047	9.91643	799026	0	1
d_child	4710	0.38757	9.78709	736511	0	1
age	4710	49.5244	312.7075	94112899	17	96
d_cple	4710	0.39418	9.8168	749075	0	1
d_male	4710	0.60131	9.83596	1142697	0	1
d_comp	4710	0.35374	9.605	672231	0	1
d_mob	4710	0.79958	8.04185	1519460	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	4088	622
d_IT_serv	599	4111
d_com_goods	4655	55
d_com_serv	752	3958

Spain

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	5129	4.710215	76.08317	40263743	0.033247	8.6287
ln_IT_serv	3230	3.982957	83.91934	21169003	0.033247	7.81564
ln_com_goods	1401	3.977006	64.46388	9653785.5	0.033247	7.28884
ln_com_serv	8709	6.17726	31.91825	87337784	0.033247	8.45701
ln_eq_inc	8881	10.17436	23.58545	146736676	0	11.92429
d_edu_high	8881	0.18377	15.60828	2650402	0	1
d_edu_med	8881	0.14138	14.04117	2039005	0	1
d_geo_high	8881	0.50607	20.14872	7298682	0	1
d_geo_med	8881	0.20271	16.2015	2923529	0	1
d_child	8881	0.33994	19.08987	4902721	0	1
age	8881	55.21051	621.2254	796257577	18	98
d_cple	8881	0.4247	19.9204	6125150	0	1
d_male	8881	0.78003	16.69344	11249775	0	1
d_comp	8876	0.46253	20.09516	6668082	0	1
d_mob	0	.	.	.	.	.

	N Non spending (=0)	N Spending (=1)
d_IT_goods	3752	5129
d_IT_serv	5651	3230
d_com_goods	7480	1401
d_com_serv	172	8709

Sweden

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	1362	6.386833	43.9709	14349226	2.63944	9.32393
ln_IT_serv	1968	5.747559	24.09984	20367229	4.02573	8.75936
ln_com_goods	657	5.164362	33.10847	5476075.8	3.98651	9.62397
ln_com_serv	2049	6.508986	29.73851	24694220	3.62983	8.68225
ln_eq_inc	2079	10.31928	38.68247	40079169	0	12.80687
d_edu_high	2079	0.3513	20.63819	1364400	0	1
d_edu_med	2079	0.42152	21.34838	1637140	0	1
d_geo_high	2079	0.25444	18.82984	988228	0	1
d_geo_med	2079	0.14737	15.32482	572368	0	1
d_child	2079	1	0	3883911	1	1
age	2079	48.97739	687.4049	190223821	18	89
d_cple	2079	0.50594	21.6148	1965035	0	1
d_male	2079	0.61207	21.06637	2377216	0	1
d_comp	0	.	.	.	.	.
d_mob	2079	0.92045	11.69853	3574947	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	713	1362
d_IT_serv	111	1968
d_com_goods	1422	657
d_com_serv	30	2049

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

Annex table 2. Variables by country (Cont'd)

Switzerland

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	1350	4.284616	43.24036	5758717.4	0.405465	8.966726
ln_IT_serv	2960	3.799412	13.86245	11609170	1.07044	6.21936
ln_com_goods	157	4.200709	38.54364	645343.25	0	6.68324
ln_com_serv	3075	4.781397	24.02378	15263488	1.22009	7.58943
ln_inc	3087	8.92661	19.71894	28597926	4.83898	11.55437
d_edu_high	3087	0.32683	15.11291	1047044	0	1
d_edu_med	3087	0.5535	16.01755	1773219	0	1
d_geo_high	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_geo_med	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_child	3087	0.32632	15.10684	1045412	0	1
age	3087	50.65929	528.6359	162295713	18	96
d_cple	3087	0.6065	15.74035	1943016	0	1
d_male	3087	0.69342	14.85586	2221476	0	1
d_comp	3087	0.07717	8.59802	247211	0	1
d_mob	3087	0.18237	12.44185	584267	0	1

	N Non spending (=0)	N Spending (=1)
d_IT_goods	1737	1350
d_IT_serv	127	2960
d_com_goods	2930	157
d_com_serv	12	3075

United Kingdom

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	2083	6.505659	2.447323	50597.952	2.94504	11.1015
ln_IT_serv	5932	5.835121	1.512074	126124.13	2.02875	8.608
ln_com_goods	207	6.796258	2.672791	5147.1215	3.46383	9.73851
ln_com_serv	6480	6.437314	1.587668	152612.38	-0.273837	9.48103
ln_eq_inc	6785	10.22842	1.66001	253652	0	14.14603
d_edu_high	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_edu_med	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_geo_high	6245	0.77083	0.82617	18597	0	1
d_geo_med	6245	0.15109	0.70399	3645	0	1
d_child	6785	1	0	24799	1	1
age	6785	51.89904	32.99095	1287034	16	98
d_cple	6785	0.3261	0.89628	8087	0	1
d_male	6785	0.61472	0.93046	15244	0	1
d_comp	6785	0.64503	0.91486	15996	0	1
d_mob	0	.	.	.	.	.

	N Non spending (=0)	N Spending (=1)
d_IT_goods	4702	2083
d_IT_serv	853	5932
d_com_goods	6578	207
d_com_serv	305	6480

United States

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ln_IT_goods	738	5.214688	206.2665	65951469	0.693147	9.02136
ln_IT_serv	938	6.124799	127.1729	97689253	0.693197	9.10546
ln_com_goods	169	4.228889	129.0146	12286288	1.60944	6.41999
ln_com_serv	1008	6.771039	96.53697	116031766	3.09104	8.826
ln_inc	1024	10.56331	148.3014	184109480	0	13.38564
d_edu_high	1024	0.3752	63.1978	6539396	0	1
d_edu_med	1024	0.56864	64.64553	9910981	0	1
d_geo_high	1024	0.91619	36.16877	15968469	0	1
d_geo_med	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_child	1024	0.33461	61.58946	5831886	0	1
age	1024	51.6559	2125	900318487	17	86
d_cple	1024	0.65965	61.84718	11497142	0	1
d_male	1024	0.47839	65.20252	8337968	0	1
d_comp	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
d_mob	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

	N Non spending (=0)	N Spending (=1)
d_IT_goods	286	738
d_IT_serv	86	938
d_com_goods	855	169
d_com_serv	16	1008

Source: OECD, based on data from the Czech Statistical Office, Eurostat, Statistics Canada, the Swiss Federal Statistical Office, and the US Bureau of Labor Statistics.

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