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Telecommunication Statistics and Data Unit

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SOCIO-ECONOMIC ISSUES OF THE INFORMATION SOCIETY

Monitoring the Digital Divide

by George Sciadas

Presentation prepared for the
World Telecommunication/ICT Indicators

ITU meetings, Geneva

January 15-17, 2003

Monitoring the Digital Divide

**Links between ICTs and development
continue to be established...**

Development directly impacts on poverty...

ICTs represent an important instrument, but...

The issue of the Digital Divide is critical

Monitoring the Digital Divide

The Digital Divide represents a collection of many issues

It involves comparisons:

**across countries
within countries**

**among business
among people**

**by sector of application
(GOL, health, education...)**

**of hardware/software
of skills**

The Digital Divide

**Elevated interest nationally and internationally
for cross-country measurements, but...**

- no comprehensive framework**
- useful but ad-hoc groupings**
- narrow focus, exclusively on connectivity**

Monitoring the Digital Divide

Objectives of the Project

- Quantify the Digital Divide across countries
- Monitor its evolution over time

Terms of reference

- emphasis on developing countries
- policy relevance
- broader scope than pure connectivity

Monitoring the Digital Divide

Project carried out by **Orbicom**,
the UNESCO-sponsored Network
of Communications Chairs in many countries

Sponsors and contributing organisations

Canadian International Development Agency (CIDA)

InfoDev, World Bank

UNESCO (Information and Communications sector)

MIMOS (Malaysia)

ITU

UIS

...

The Digital Divide

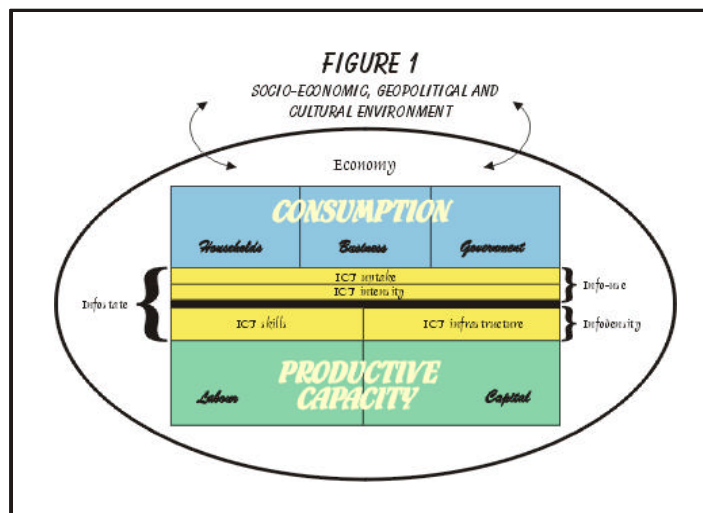
Pilot Phase (completed)

Development of conceptual framework and model
Demo application in 9 countries

Phase II (until the end of 2003)

Empirical application to more than 50 countries
Results to be presented at WSIS, Dec. 2003

Monitoring the Digital Divide



Monitoring the Digital Divide

Proposed new approach grounded on strong conceptual and theoretical underpinnings

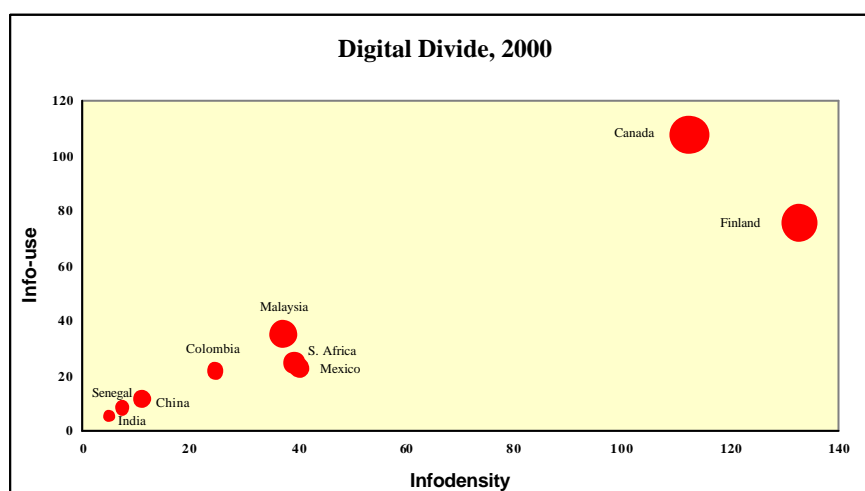
Infostate

Infodensity (productive capacity)

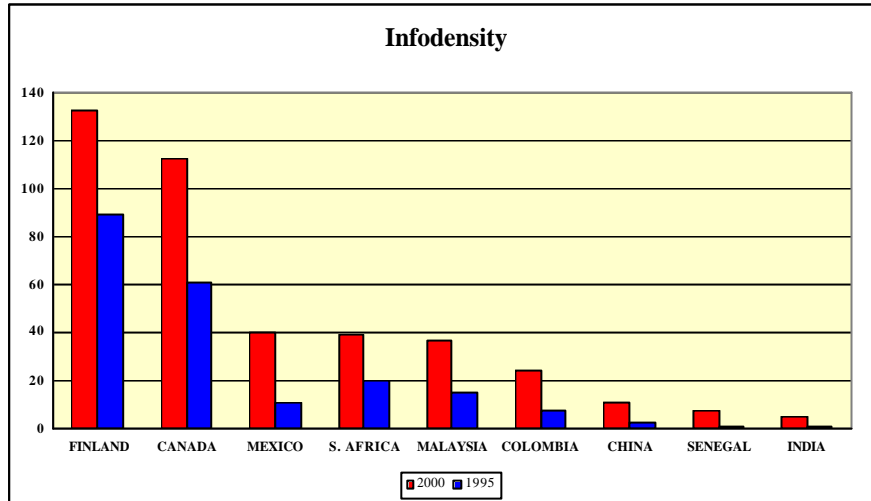
Info-use (consumption)

Internal divides and other detailed components can be accommodated (networks, skills, use and intensity-of use indicators)

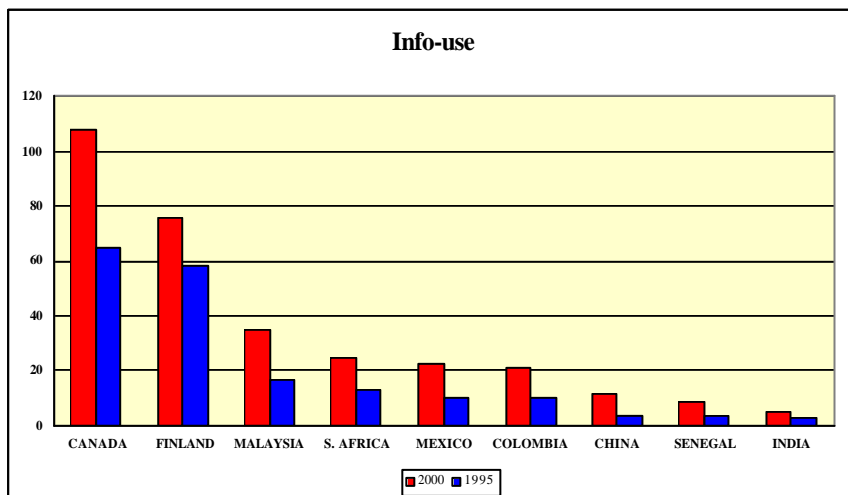
Monitoring the Digital Divide



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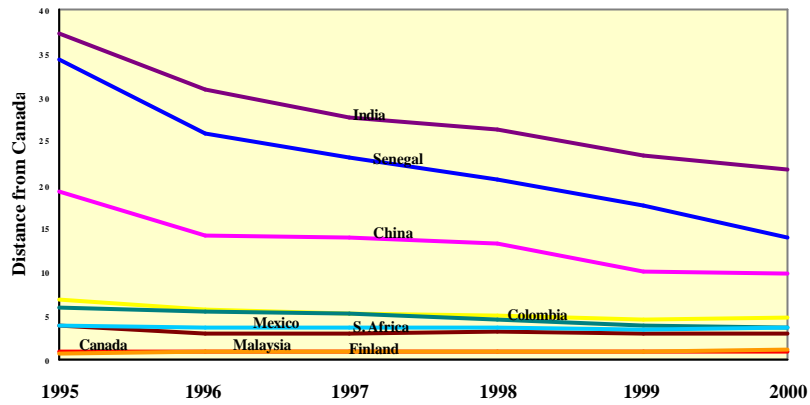


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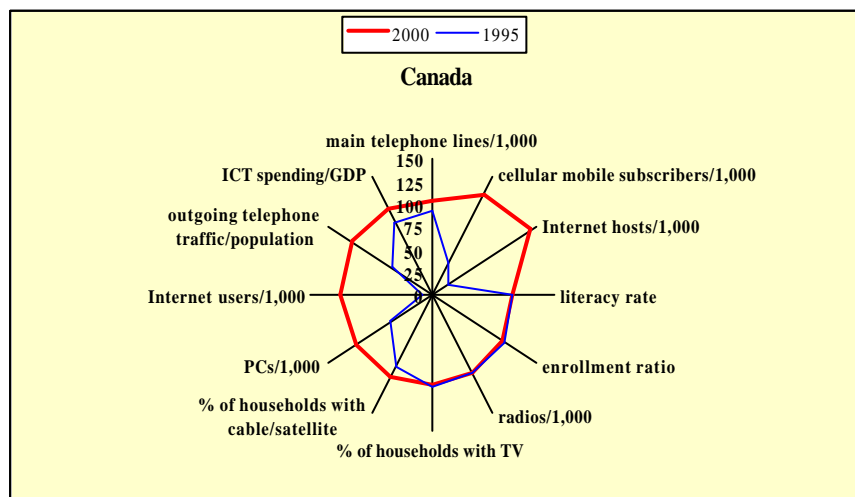


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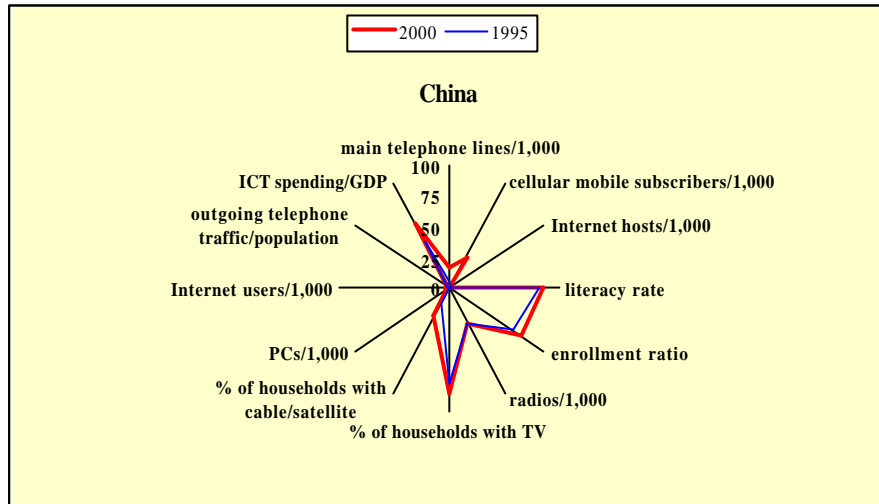
The evolution of the digital divide



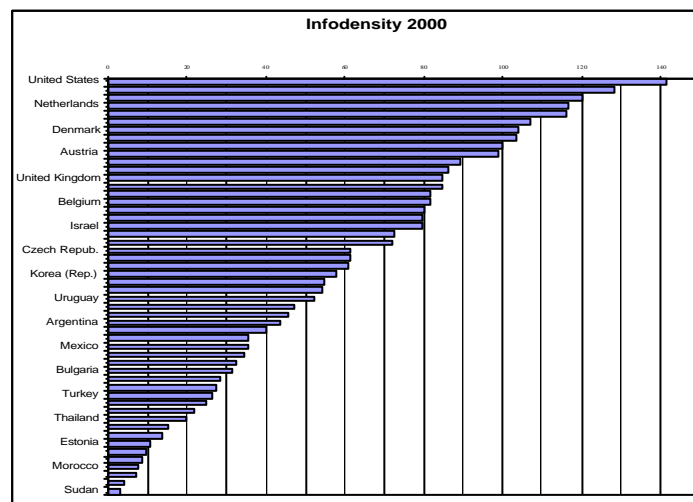
Monitoring the Digital Divide



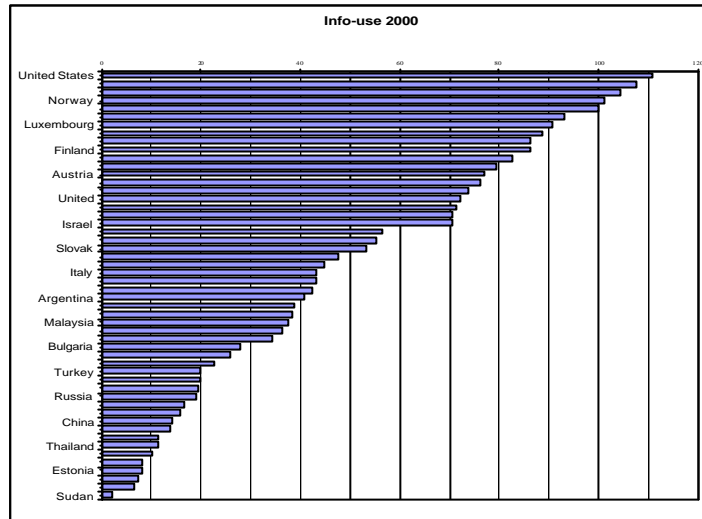
Monitoring the Digital Divide



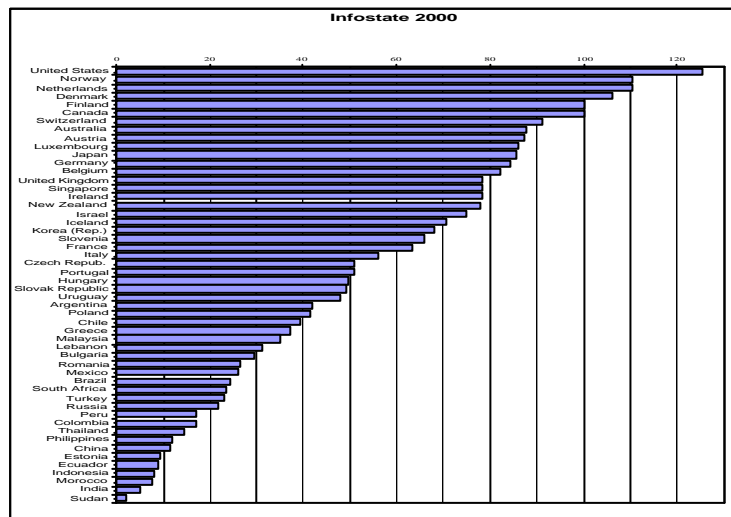
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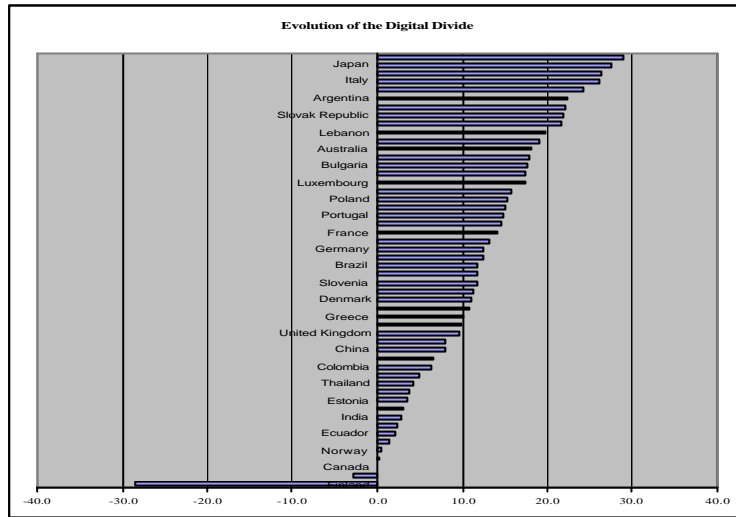
Monitoring the Digital Divide



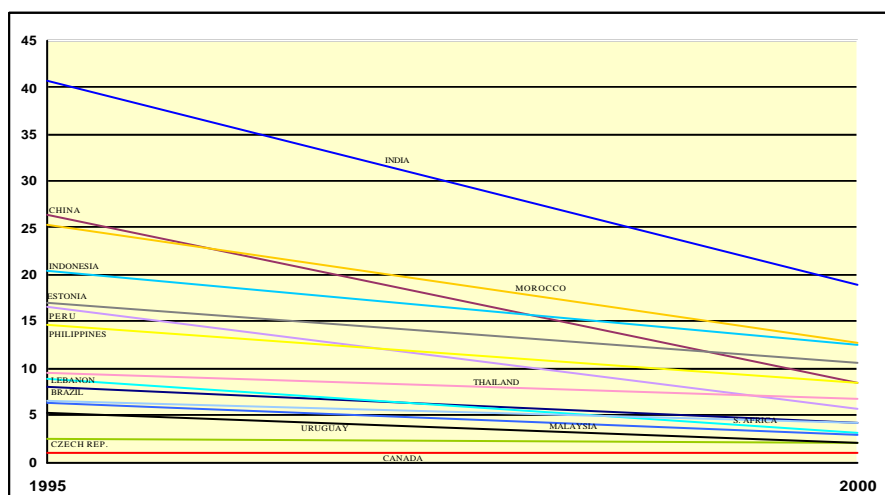
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Monitoring the Digital Divide



Monitoring the Digital Divide



Monitoring the Digital Divide

- Divide is huge, closing ever so slowly, decades needed
- Significant data gaps, echoes appeals for concerted international effort, particularly in the area of skills

Report available at:
www.orbicom.uqam.ca,
(under Projects)

Monitoring the Digital Divide

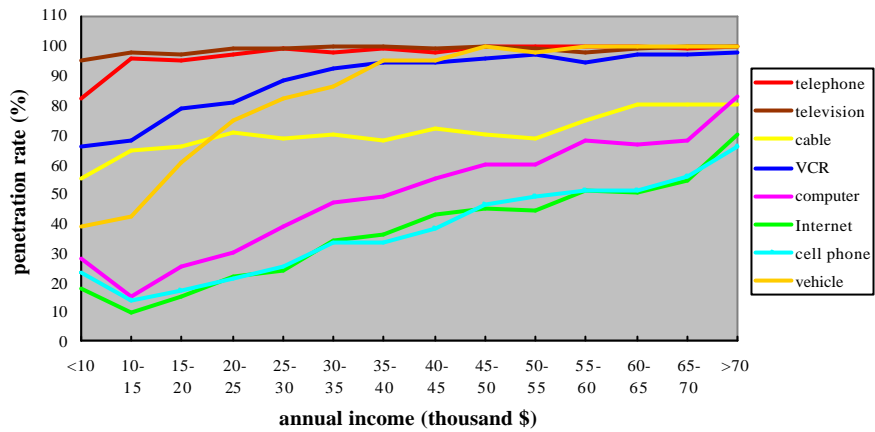
Internal country Digital Divides

Proper analysis requires explicit recognition of:

- individual ICTs (and the process of convergence), including timing of introduction
- specific variables delineating groups of interest (income, gender, age, urban/rural...)

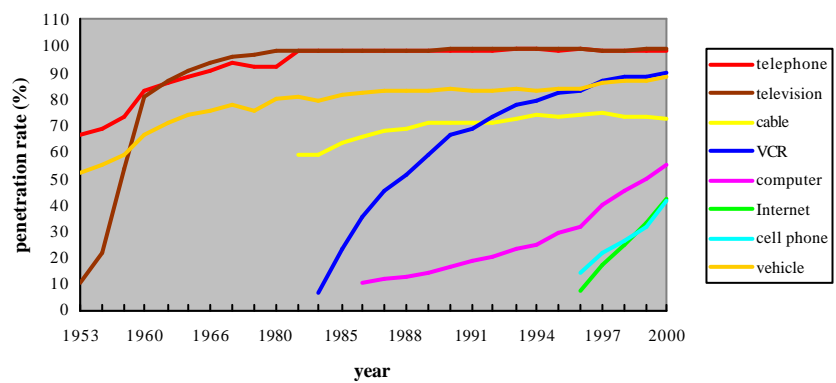
Monitoring the Digital Divide

Household penetration, by income, Canada 2000



Monitoring the Digital Divide

Penetration over time, Canada



Monitoring the Digital Divide

Internet divides, by income, 2000

	Regular use from home income quintiles					
	bottom	2nd	3rd	4th	top	all
	Education					
Less than high school	6.8	10.7	22.4	30.0	40.5	16.1
High school/college	22.5	28.4	42.9	51.0	66.5	42.8
University degree +	42.9	47.4	56.6	63.7	78.9	65.1
Total	16.5	24.4	41.2	50.3	68.2	40.1
	Family type					
Single family, children <18	32.6	41.9	50.7	62.4	76.4	57.0
Single family, no children <18	16.2	19.4	35.1	45.8	63.0	37.8
One-person families	8.9	15.9	33.7	25.0	44.6	19.0
Total	16.5	24.3	41.2	50.4	68.2	40.1
	Geographical location					
Urban (CMA)	18.0	25.9	43.2	51.4	70.1	42.5
Rural (non-CMA)	11.6	19.3	33.9	46.0	57.5	30.9
Total	16.5	24.3	41.2	50.4	68.2	40.1

Monitoring the Digital Divide

Use from any location income quintiles

	bottom	2nd	3rd	4th	top	all
	Education					
Less than high school	10.9	15.4	32.5	39.7	50.1	22.5
High school/college	32.2	40.9	56.7	63.9	80.1	55.4
University degree +	56.7	62.3	71.1	81.1	91.0	79.3
Total	23.9	34.5	54.4	63.6	80.9	51.5
	Family type					
Single family, children <18	48.0	59.3	67.0	76.6	87.4	71.4
Single family, no children <18	22.0	24.8	43.8	57.3	75.8	46.9
One-person families	13.2	25.4	49.3	58.3	60.2	28.0
Total	23.9	34.5	54.4	63.7	80.9	51.5
	Geographical location					
Urban (CMA)	25.9	36.4	56.2	64.4	82.7	54.0
Rural (non-CMA)	17.6	28.4	47.7	60.8	70.5	41.8
Total	23.9	34.5	54.4	63.7	80.9	51.5

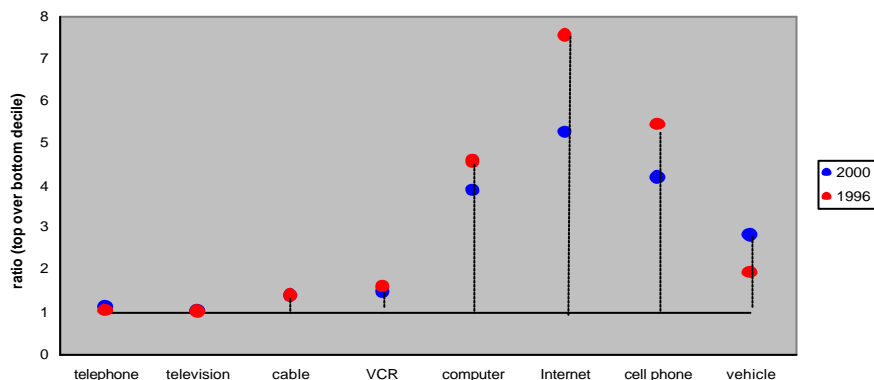
Monitoring the Digital Divide

Differences in penetration rates, top vs. bottom deciles

	1982	1986	1990	1996	2000
			%		
telephone	7.4	7.5	4.6	5.2	11.9
television	3.9	2.9	2.2	1.5	3.8
cable	-	-	-	24.6	23.2
VCR	-	47.1	54.3	36.4	33.4
computer	-	18.8	31.8	48.2	65.2
Internet	-	-	-	18.2	62.5
cell phone	-	-	-	24.8	55.9
vehicle	56.5	56.4	51.3	47.1	58.8

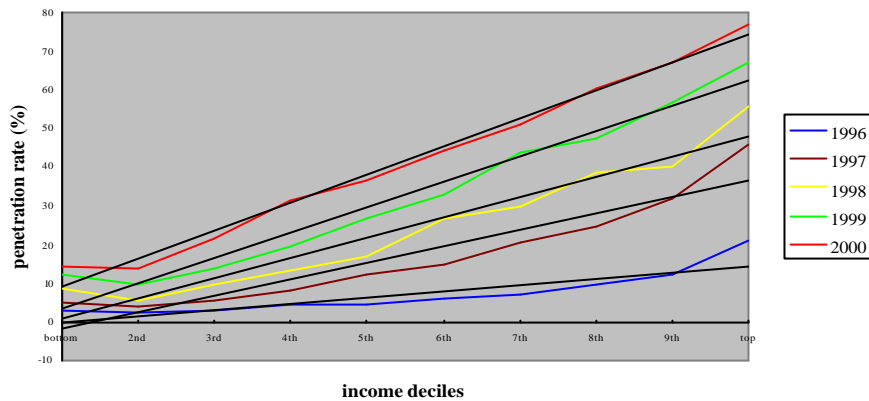
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Ratios of penetration rates, top vs. bottom deciles



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Trends of Internet penetration, by income



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Evolution of differences in Internet penetration rates

deciles	1997-1996	1998-1997	1999-1998	2000-1999	2000-1996	2000-1997
top-bottom	22.9	6.1	7.9	7.4	44.3	21.4
9th-2nd	18.5	6.1	13.6	5.5	43.7	25.2
8th-3rd	12.1	10.4	4.6	4.8	31.9	19.8
7th-4th	9.4	4.3	7.3	-4.1	16.9	7.5
6th-5th	1.3	7.0	-3.3	2.0	7.0	5.7
top-9th	5.1	1.9	-6.2	0.1	0.9	-4.2
top-8th	10.5	-4.3	2.1	-2.6	5.7	-4.8
9th-8th	5.4	-6.2	8.3	-2.7	4.8	-0.6
8th-7th	1.1	4.7	-4.6	5.3	6.5	5.4
6th-4th	4.8	6.7	-0.1	0.1	11.5	6.7
5th-4th	3.5	-0.3	3.2	-1.9	4.5	1.0
4th-3rd	1.6	1.4	1.9	3.6	8.5	6.9
top 5-bottom 5	12.8	6.8	6.0	2.8	28.5	15.6

Monitoring the Digital Divide

Evolution of differences in Internet penetration rates (income adjusted)

deciles	1997-1996	1998-1997	1999-1998	2000-1999	2000-1996	2000-1997
top-bottom	21.0	4.3	6.9	1.1	32.5	12.3
9th-2nd	17.1	5.0	11.9	3.7	36.1	20.7
8th-3rd	11.1	9.6	3.8	3.4	26.9	16.9
7th-4th	8.9	3.6	7.0	-4.7	14.6	6.0
6th-5th	1.1	6.6	-3.4	1.8	6.0	5.1
top-9th	4.4	1.1	-6.2	-1.6	-1.5	-6.7
top-8th	9.4	-5.2	1.9	-5.0	1.7	-8.3
9th-8th	4.9	-6.3	7.8	-3.1	3.4	-1.5
8th-7th	0.8	4.6	-4.7	4.9	5.0	4.7
6th-4th	4.4	6.1	-0.2	-0.1	9.9	5.7
5th-4th	3.4	-0.4	3.1	-2.1	3.9	0.6
4th-3rd	1.5	1.3	1.8	3.1	7.2	6.2
top5-bottom5*	12.8	6.8	6	2.8	28.5	15.6

* unadjusted

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Distribution of Internet users, by income

decile	%				
	1996	1997	1998	1999	2000
bottom	3.8	2.9	3.6	3.6	3.5
2nd	3.3	2.3	2.4	2.9	3.3
3rd	4.4	3.3	3.8	4.2	5.1
4th	6.0	4.9	5.5	6.0	7.4
5th	6.5	7.1	7.0	8.1	9.7
6th	8.3	8.7	10.9	10.0	10.5
7th	9.7	11.9	12.2	13.2	12.1
8th	13.4	14.1	15.6	14.4	14.2
9th	16.3	18.4	16.2	17.3	15.9
top	28.4	26.5	22.6	20.3	18.2
all	100.0	100.0	100.0	100.0	100.0

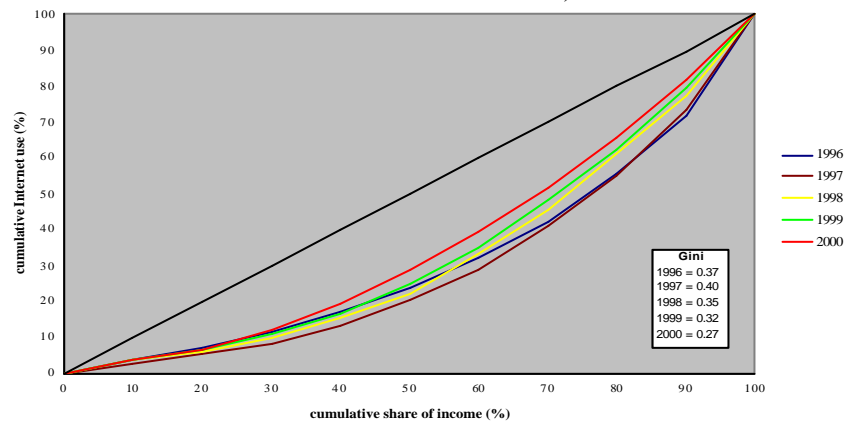
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New Internet users, by income

	1996-1997	1997-1998	1998-1999	1999-2000	1996-2000
decile	%				
bottom	2.2	5.2	3.8	2.9	3.4
2nd	1.5	2.6	4.3	4.7	3.3
3rd	2.5	5.0	5.2	8.4	5.3
4th	4.1	7.0	7.4	12.2	7.7
5th	7.5	6.9	11.0	15.1	10.3
6th	8.9	16.0	7.6	12.3	11.0
7th	13.5	13.1	16.0	8.3	12.6
8th	14.6	19.2	10.9	13.7	14.4
9th	20.1	11.2	20.2	11.2	15.8
top	25.0	13.9	13.7	11.3	16.1
all	100.0	100.0	100.0	100.0	100.0

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Evolution of the relative Internet divide, home use



Monitoring the Digital Divide

Considering the relative nature of the digital divide
“the devil is in the details”

Overall, in recent years it is closing but...

- does so due to middle and upper-middle incomes
- gap between highest and lowest incomes persists

Study can be obtained from:
www.statcan.ca
(search for Connectedness)