

Returns to Education: Results from the 1991-2006 Canadian Analytic Censuses files

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Objectives

- Measure returns on education for young Canadians (21-35) from 1991 to 2006, with the 4 censuses (1991-1996-2001-2006)
- Use the detailed categories appearing in the census to better appreciate finer distinctions in the education levels
- Reveal the heterogeneity in returns, by gender and province

Method

- OLS regressions
- Log of weekly wages on education dummy variables (the reference is high school or equivalency certificate) with the 2006 census by gender
- Log of weekly wages on regression with interacted education-province dummy variables (the reference is a Canadian with a high school degree) with the 1991, 1996, 2001 and 2006 censuses, by gender.

DATA

- The analysis is based on Statistics Canada's Analytical Census Files restricted-access Micro Data Files. One in five households (20%) received the [long census questionnaire](#), which contained the eight questions from the short form plus 53 additional questions on topics such as education, ethnicity, mobility, income, employment and dwelling. The files sample one out of five respondents to the long questionnaire.
- We first selected youth aged 21 to 35 years in censuses 1991, 1996, 2001 and 2006 and secondly selected only males or females according to criteria presented in Table A1 (restrictions 3): aged more than 20, not attending school, non-aboriginal, non-permanent resident, lives in a province, wages and salaries >\$75 and <\$1,000,000, work experience greater than 0, working full-time and weeks worked greater than 0 weeks, weekly wages and salary more than \$54 and less than \$10,000, and language English, French or both.

Variables

- Dependent : weekly earnings of full-time workers
- Independent: set of 11 education dummies (high school is the base case) and a quadratic in potential experience. We use the standard procedure to compute years of potential experience, defined as age minus years of schooling minus six. The Census asks detailed questions about years of schooling completed, and we use this information to compute potential experience
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- Hence, besides the eleven education dummies variables, the independent variables are potential experience measured by age minus estimated number of years of education minus six; four dummy variables for age at immigration if not born in Canada; provinces (when required), and two dummy variables for language (English, French).

Educational status of regression
sample

SSGRAD Education: High school graduation certificate or equivalent

- 1 No high school certificate or equivalency certificate without further schooling
- 2 No high school certificate or equivalency certificate with registered apprenticeship or other trade certificate
- 3 No high school certificate or equivalency certificate with college, CEGEP or other non-university certificate
- 4 With high school certificate or equivalency certificate without further schooling
- 5 With high school certificate or equivalency certificate with registered apprenticeship or other trade certificate
- 6 With high school certificate or equivalency certificate with college/ CEGEP/other non-university certificate
- 7 With high school certificate or equivalency certificate with certificate below bachelor
- 8 With high school certificate or equivalency certificate with bachelor's degree
- 9 With high school certificate or equivalency certificate with certificate above bachelor
- 10 With high school certificate or equivalency certificate with degree in medicine, dentistry, veterinary medicine, optometry
- 11 With high school certificate or equivalency certificate with master's degree
- 12 With high school certificate or equivalency certificate with earned doctorate degree
- 13 Not applicable (Institutional residents)

SECGRADR Schooling : Secondary school graduation

- 1 No secondary graduation without further training + 2 No secondary graduation with further training - no certificate
- 2 No secondary graduation with trades certificate
- 3 No secondary graduation with non-university certificate
- 4 Secondary graduation without further training +6 Secondary graduation with further training - no certificate
- 5 Secondary graduation with trades certificate
- 6 Secondary graduation with non-university certificate
- 7 Secondary graduation with certificate below bachelor's degree
- 8 Secondary graduation with bachelor's degree 0 10
- 9 Secondary graduation with certificate above bachelor's degree
- 10 Secondary graduation with Medical degree
- 11 Secondary graduation with Master's degree
- 12 Secondary graduation with Earned Doctorate
- 13 Not applicable (institutional residents or less that 15 years)

Table A3: Education levels by gender and by year, youth aged 21 to 35 years, all provinces¹

	Women							
	1991		1996		2001		2006	
1. No high school graduation	51,010	17.5	30,355	12.2		10.1		6.5
2. No high school with trade certificate	17,345	5.96		4.9		4.5		0.8
3. No high school with non university certificate	13,230	4.54		5.4		5.4		0.8
4. High school graduation without/with further training and no certificate	58,055	19.94		15.8		12.1		21.6
5. High school graduation with trades certificate	50,300	17.28		16.8		16.9		7.1
6. High school graduation with non-university certificate (college/CEGEP)	50,445	17.33		21.0		21.3		27.3
7. High school graduation with certificate below bachelor's degree	4,625	1.59		2.0		2.3		4.1
8. High school graduation with bachelor's degree	36,610	12.57		17.3		21.4		24.2
9. High school graduation with certificate above bachelor's degree	4,390	1.51		2.0		2.6		3.1
10. High school graduation with medical degree or master's degree or earned doctorate	5,130	1.76		2.5		3.5		4.6
Total	291,140	100	247,900	100	240,900	100	239,245	100
	Men							
2. No high school graduation	101,445	25.20		20.5		17.6		12.6
2. No high school with trade certificate	38,895	9.66		8.2		7.4		2.4
3. No high school with non university certificate	11,925	2.96		3.6		3.7		0.5
4. High school graduation without/with further training and no certificate	71,615	17.79		17.2		16.1		28.5
5. High school graduation with trades certificate	77,330	19.21		19.8		20.7		11.8
6. High school graduation with non-university certificate (college/CEGEP)	43,980	10.93		13.4		14.3		20.7
7. High school graduation with certificate below bachelor's degree	4,125	1.02		1.4		1.6		3.1
8. High school graduation with bachelor's degree	41,465	10.30		12.4		14.3		15.4
9. High school graduation with certificate above bachelor's degree	3,780	0.94		1.1		1.4		1.6
10. High school graduation with medical degree or master's degree or earned doctorate	8,000	1.99		2.4		3.0		3.4
Total	402,560	100	347,945	100	316,850	100	300,125	100

Education status full sample

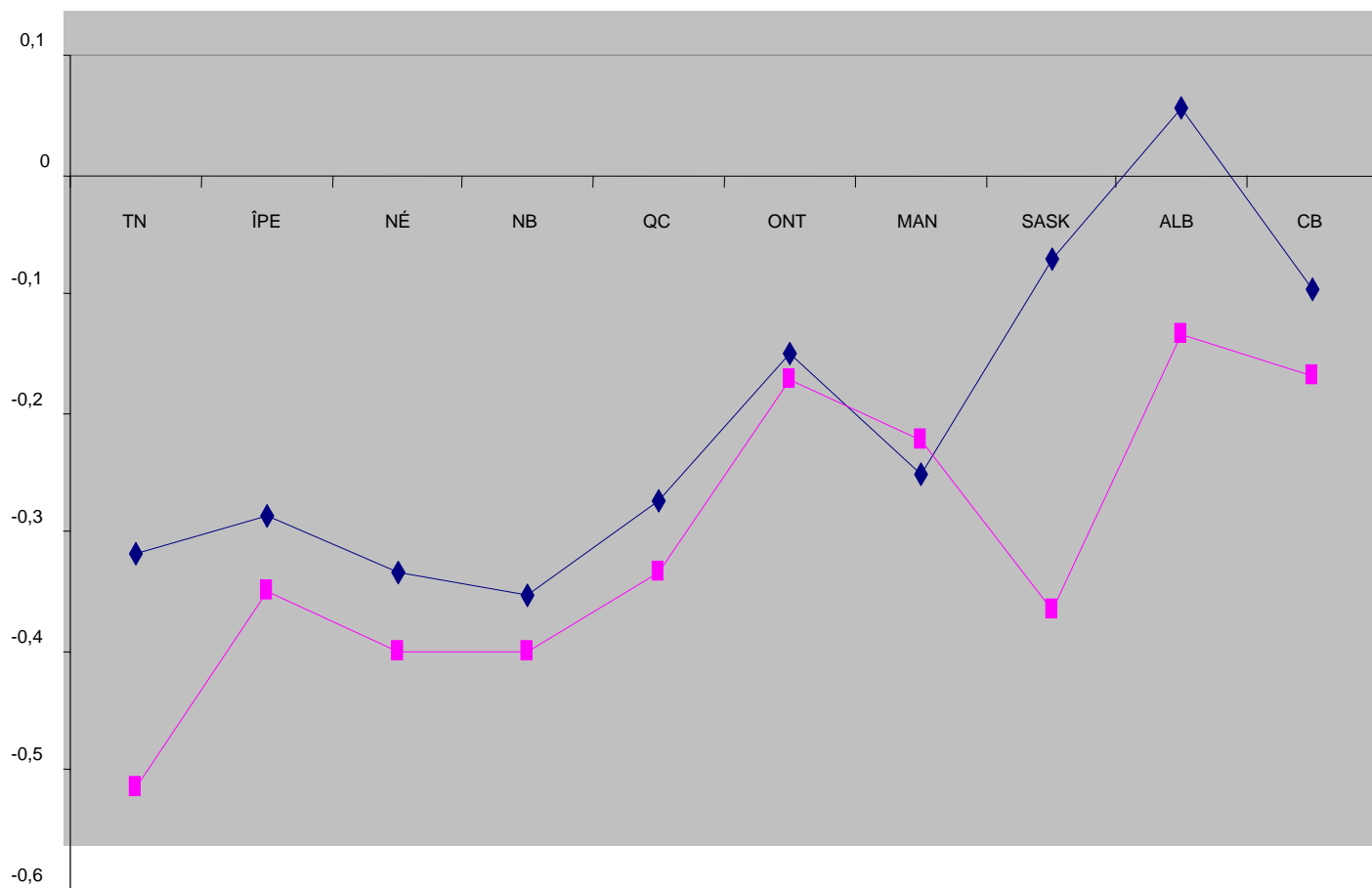
Table A3.2: Education levels by gender and census - youth aged 21 to 35 years, all provinces¹

Education levels	Women all							
	1991		1996		2001		2006	
1. No high school graduation	148,469	20.8	116,024	16.8	82,022	13.4	61,246	9.7
2. Trade	89,365	12.4	79,010	11.4	67,937	11.1	47,449	7.5
3. High school	211,498	29.7	188,129	27.2	151,935	24.7	154,190	24.4
4. College/CEGEP	141,853	19.9	158,119	22.9	144,731	23.6	153,832	24.3
5. Below Bachelor	14,271	2.0	16,382	2.4	17,290	2.8	31,021	4.9
6. Bachelor's degree	83,834	11.8	104,032	15.1	115,131	18.7	136,221	21.5
7. Certificate above Bachelor	10,034	1.4	11,834	1.7	13,820	2.3	17,812	2.8
8. Medical degree	2,571	0.4	2,852	0.4	3,455	0.6	3,915	0.6
9. Master's degree	10,413	1.5	13,762	2.0	17,059	2.8	24,867	3.9
10. Earned Doctorate	738	0.1	953	0.1	1,249	0.2	2,219	0.4
Total	713,046	100	691,097	100	614,629	100	632,774	100
	Women selected samples							
1. No high school graduation	51,013	17.5	30,353	12.2	24,374	10.1	15,560	6.5
2. Trade	27,388	12.9	28,300	11.4	27,066	11.2	18,928	7.9
3. High school	88,300	30.3	64,774	26.1	53,626	22.3	51,657	21.6
4. College/CEGEP	63,672	21.9	65,307	26.4	64,389	26.7	67,098	28.1
5. Below Bachelor	4,630	1.6	5,022	2.0	5,507	2.3	9,830	4.1
6. Bachelor's degree	36,611	12.6	42,978	17.3	51,448	21.4	57,846	28.2
7. Certificate above Bachelor	4,394	1.5	4,887	2.0	6,172	2.6	7,343	3.1
8. Medical degree	537	0.2	646	0.3	843	0.4	671	0.3
9. Master's degree	4,273	1.5	5,284	2.1	6,990	2.9	9,658	4.0
10. Earned Doctorate	917	0.1	337	0.1	476	0.2	630	0.3
Total	291,131	100	247,887	100	240,893	100	239,220	100

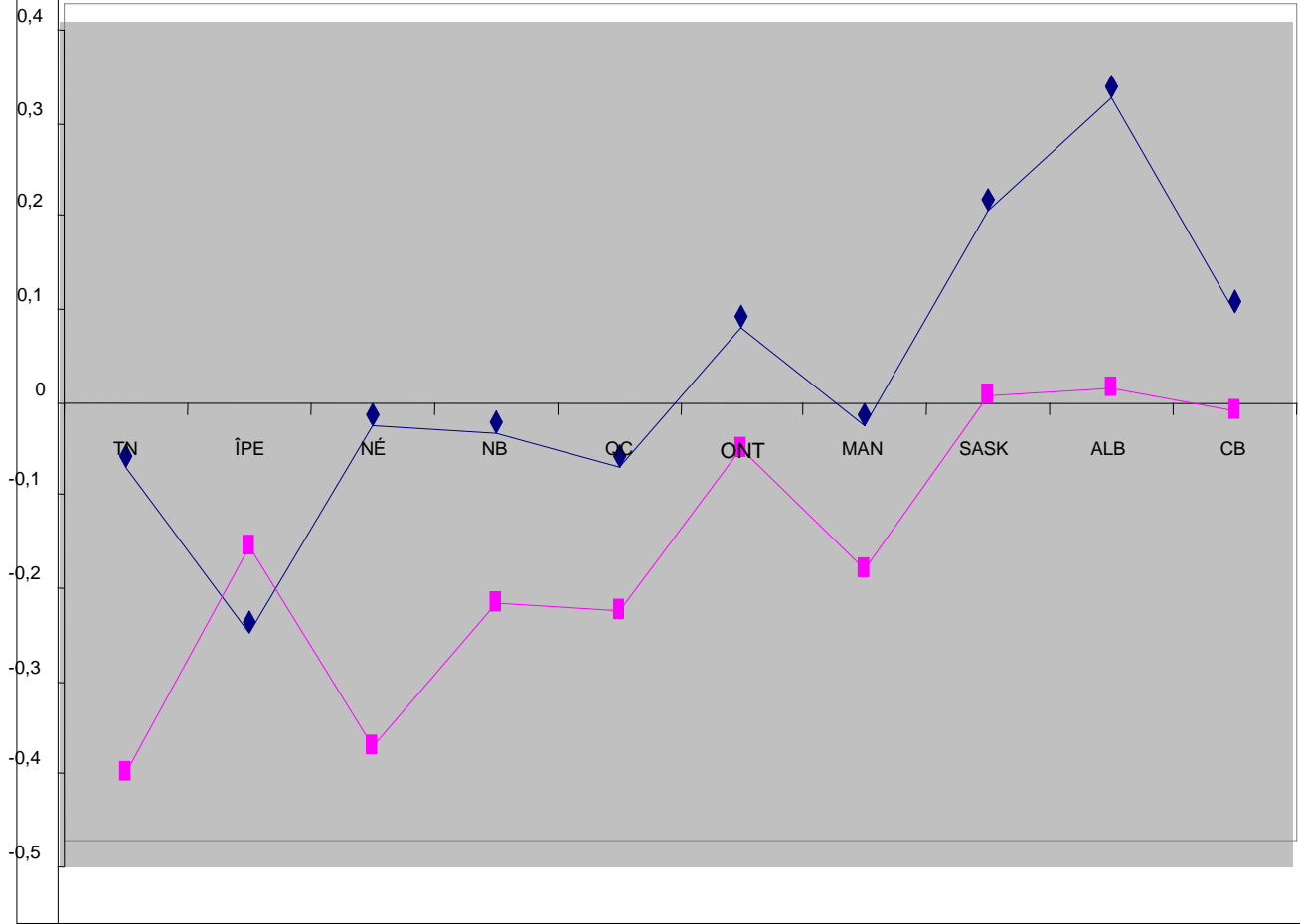
Results 2006 sample

By Gender and Province

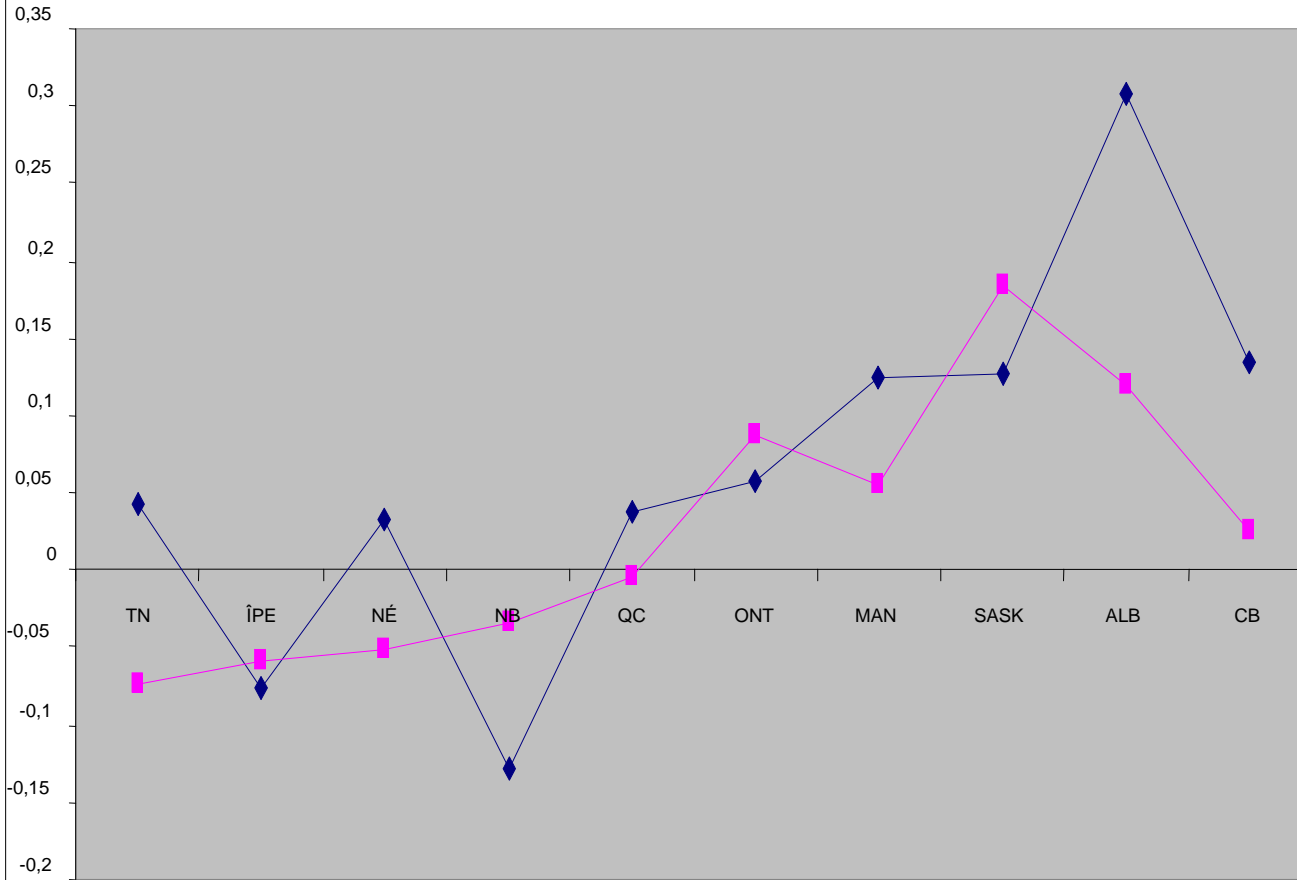
No high school certificate or equivalency certificate without further schooling



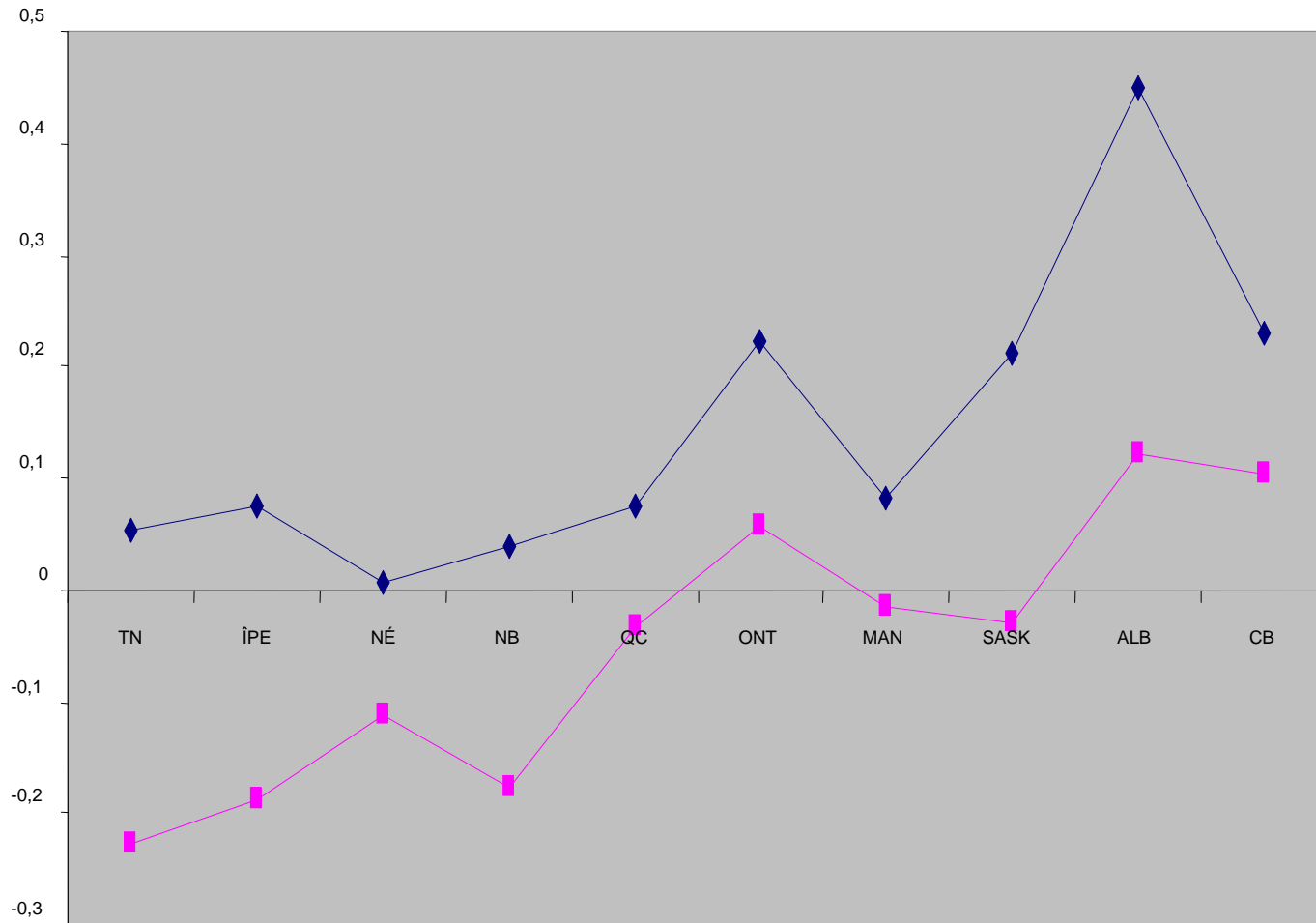
No High school with registered apprenticeship or other trade certificate



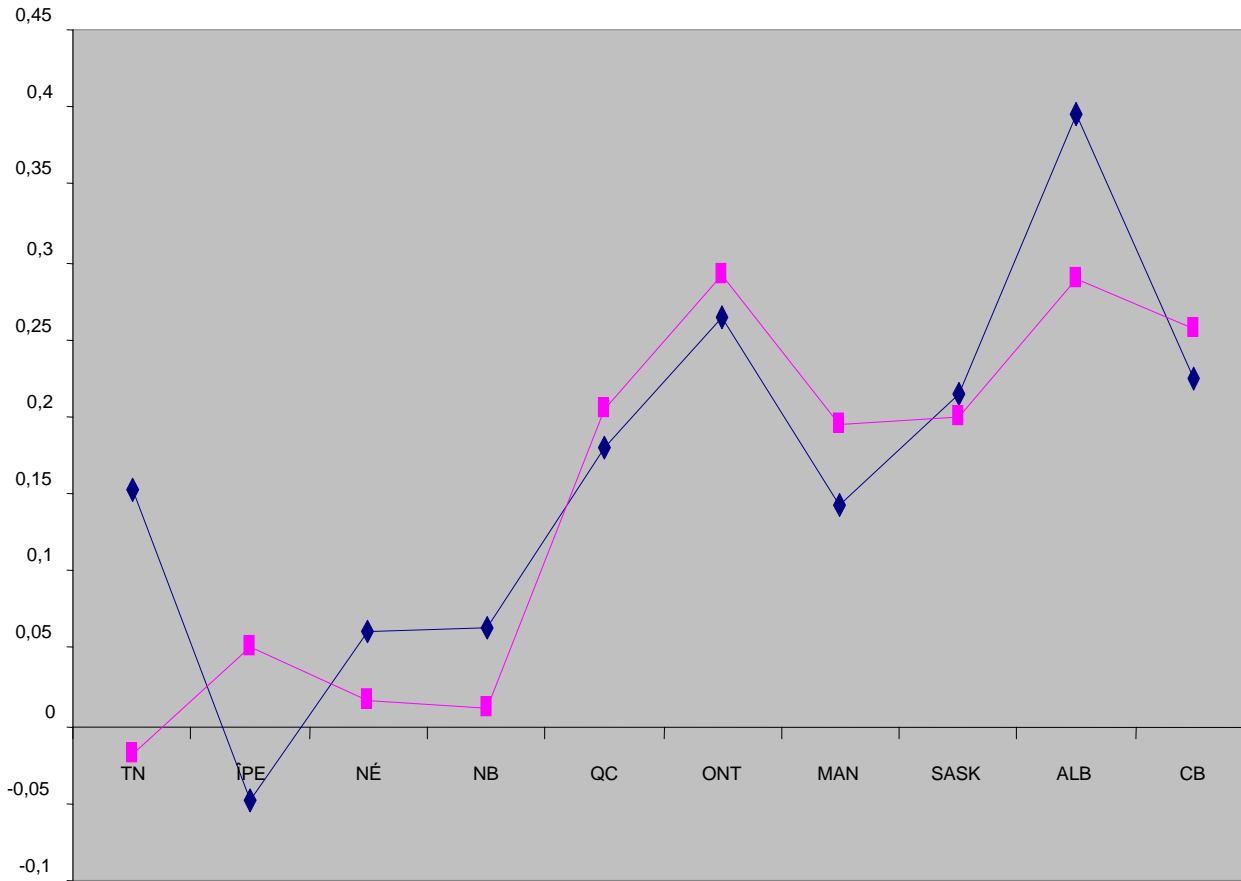
No high school with college, CEGEP or other non-university certificate



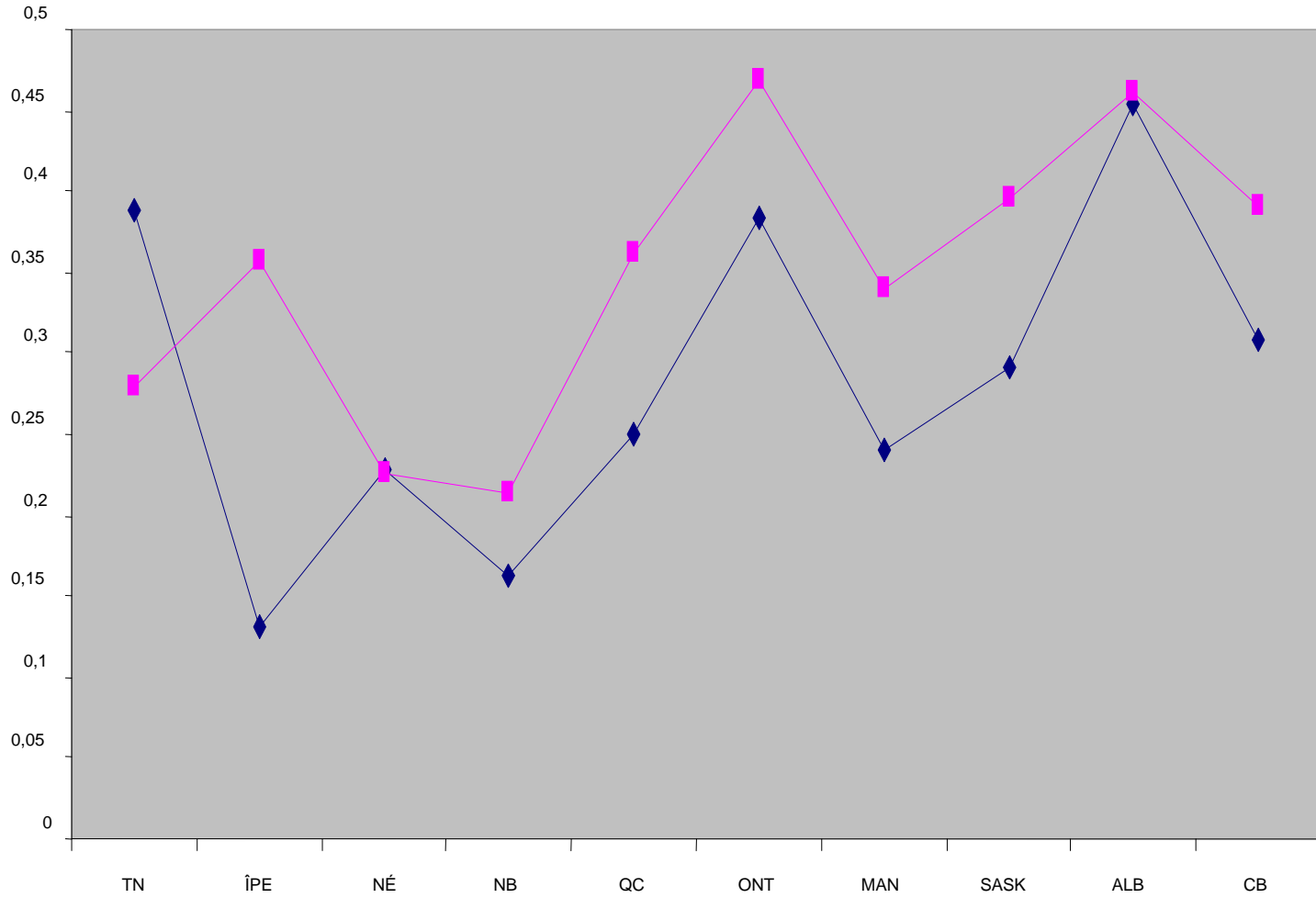
High school with registered apprenticeship or other trade certificate



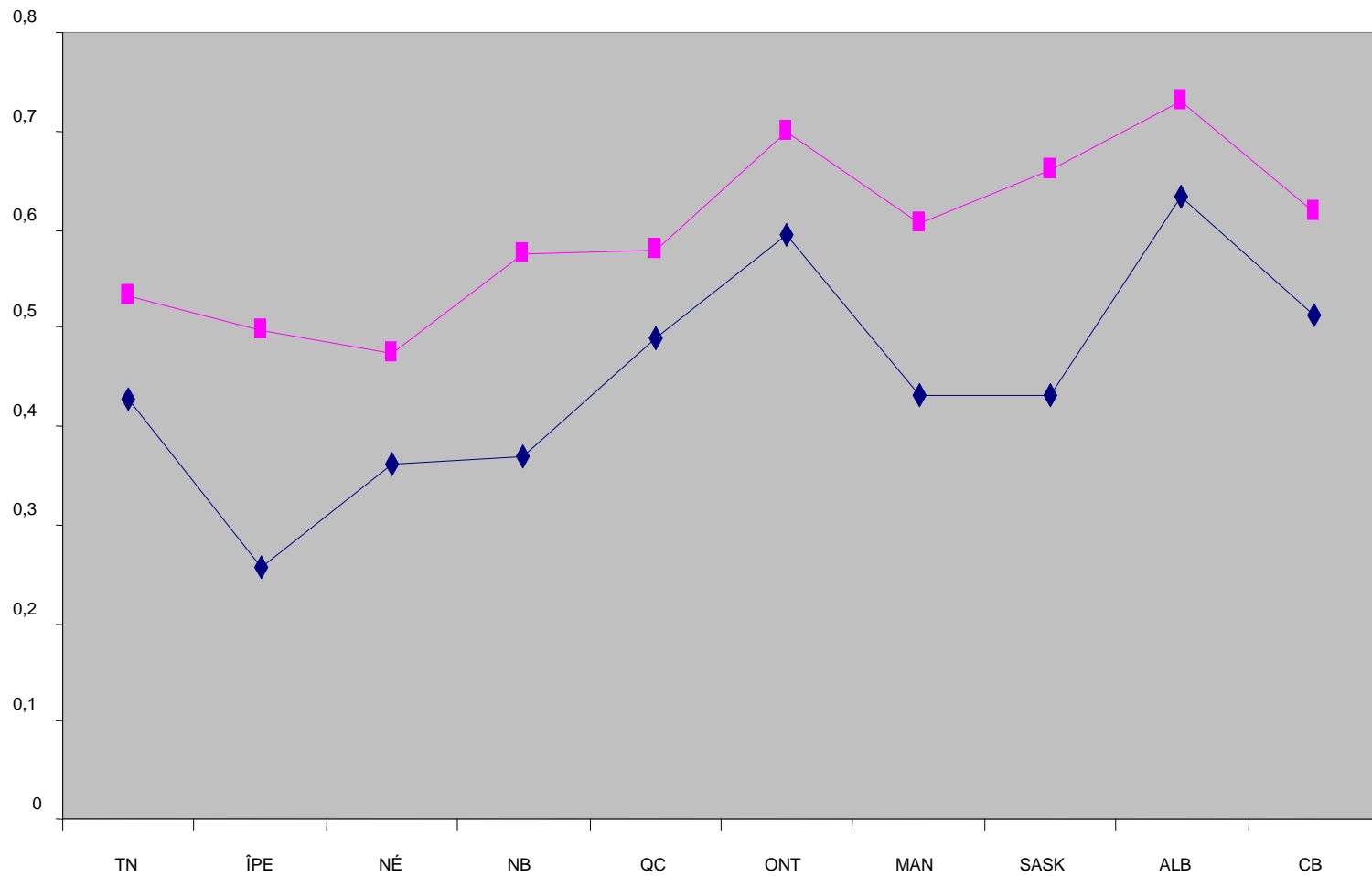
High school with college/CEGEP/other non-university certificate



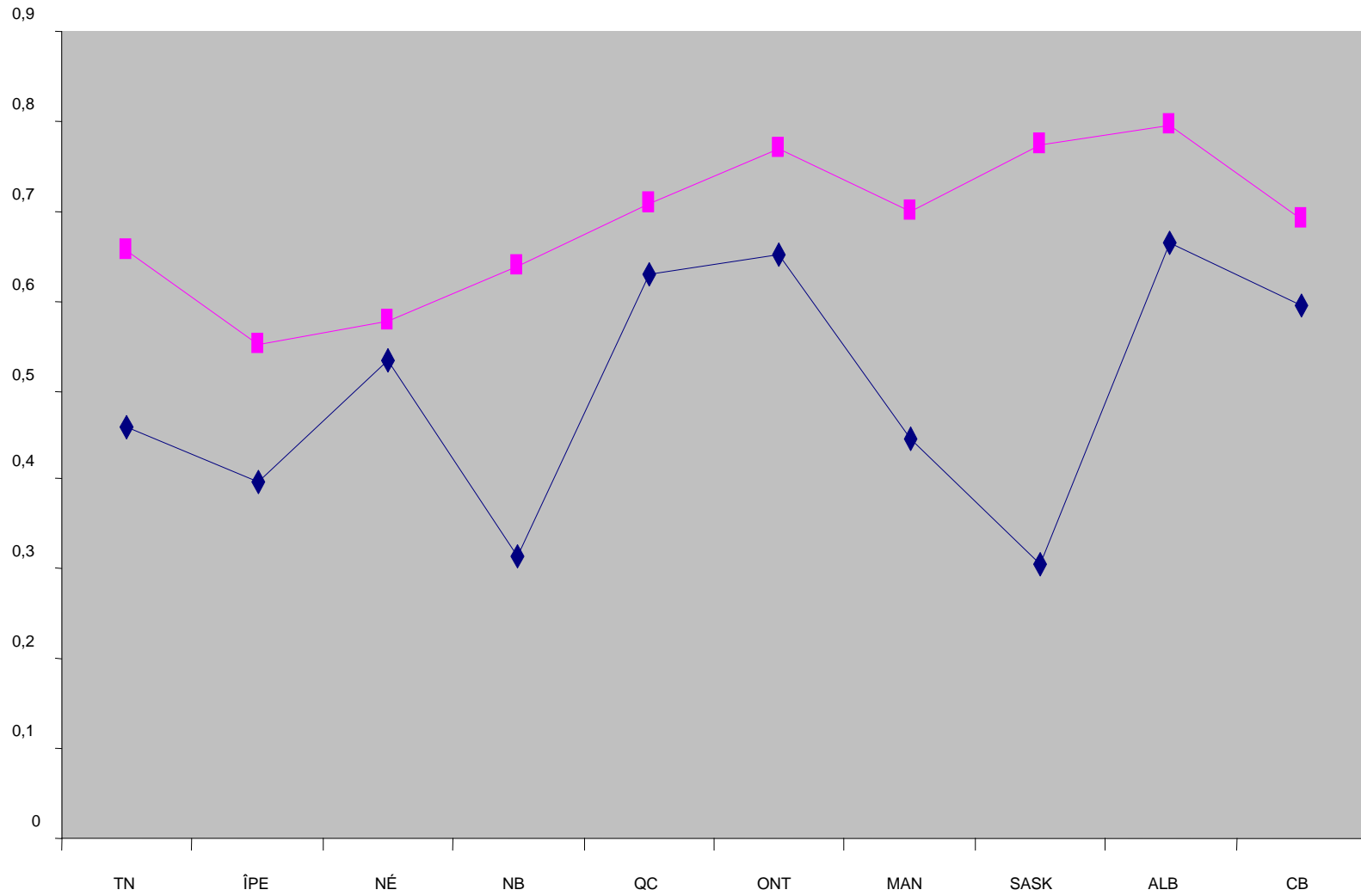
High school with certificate below bachelor



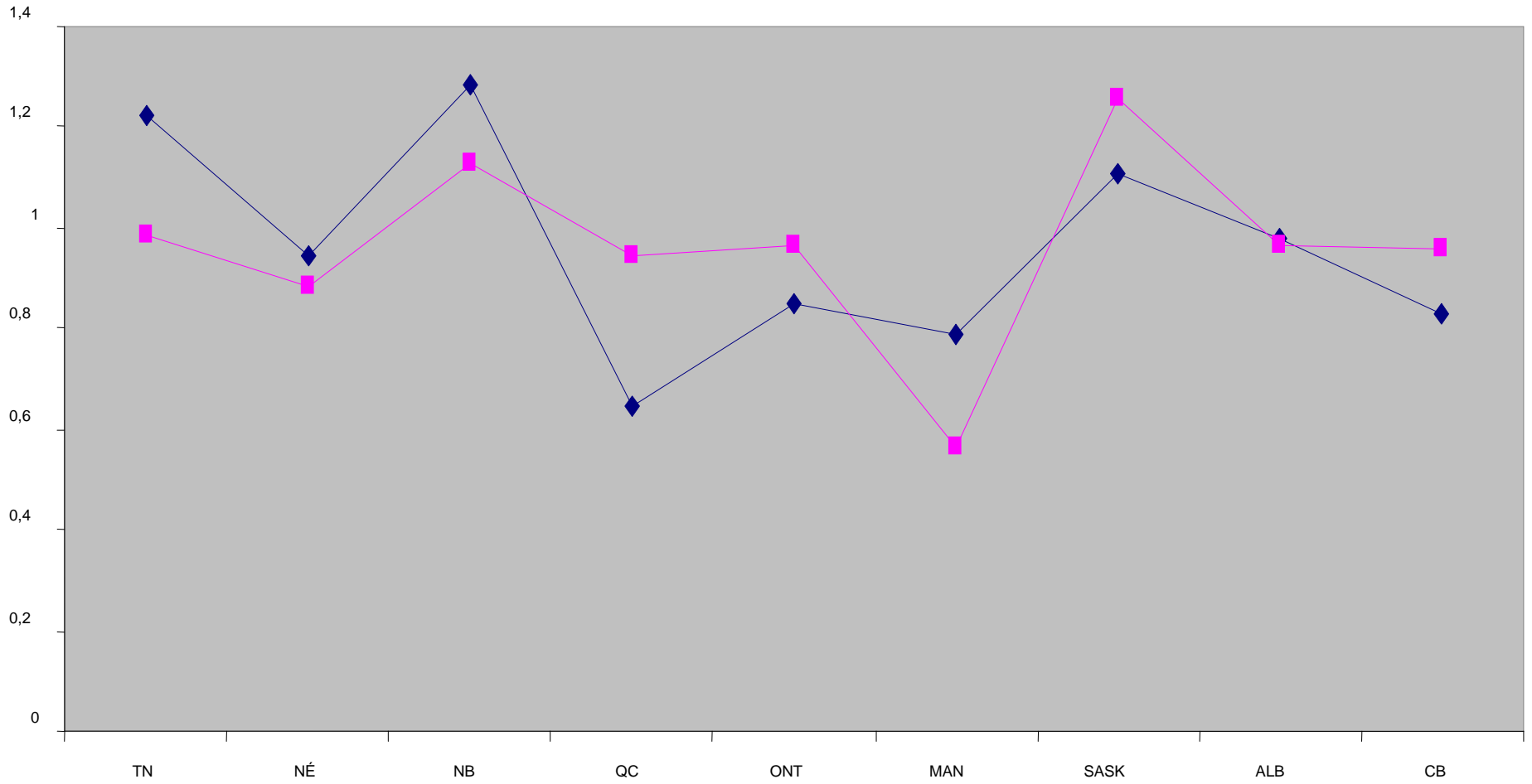
High school with bachelor's degree



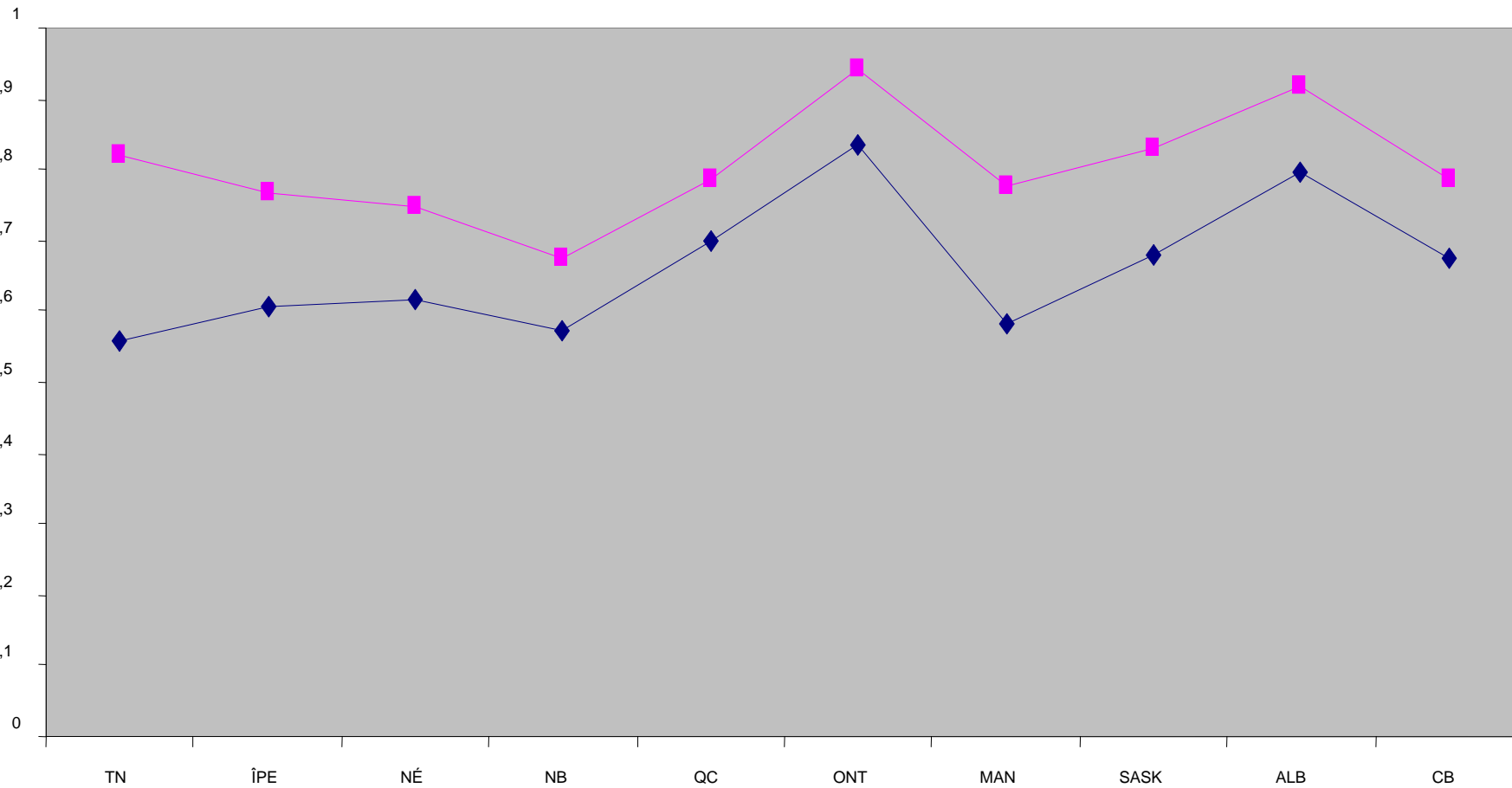
High school with certificate above bachelor's degree



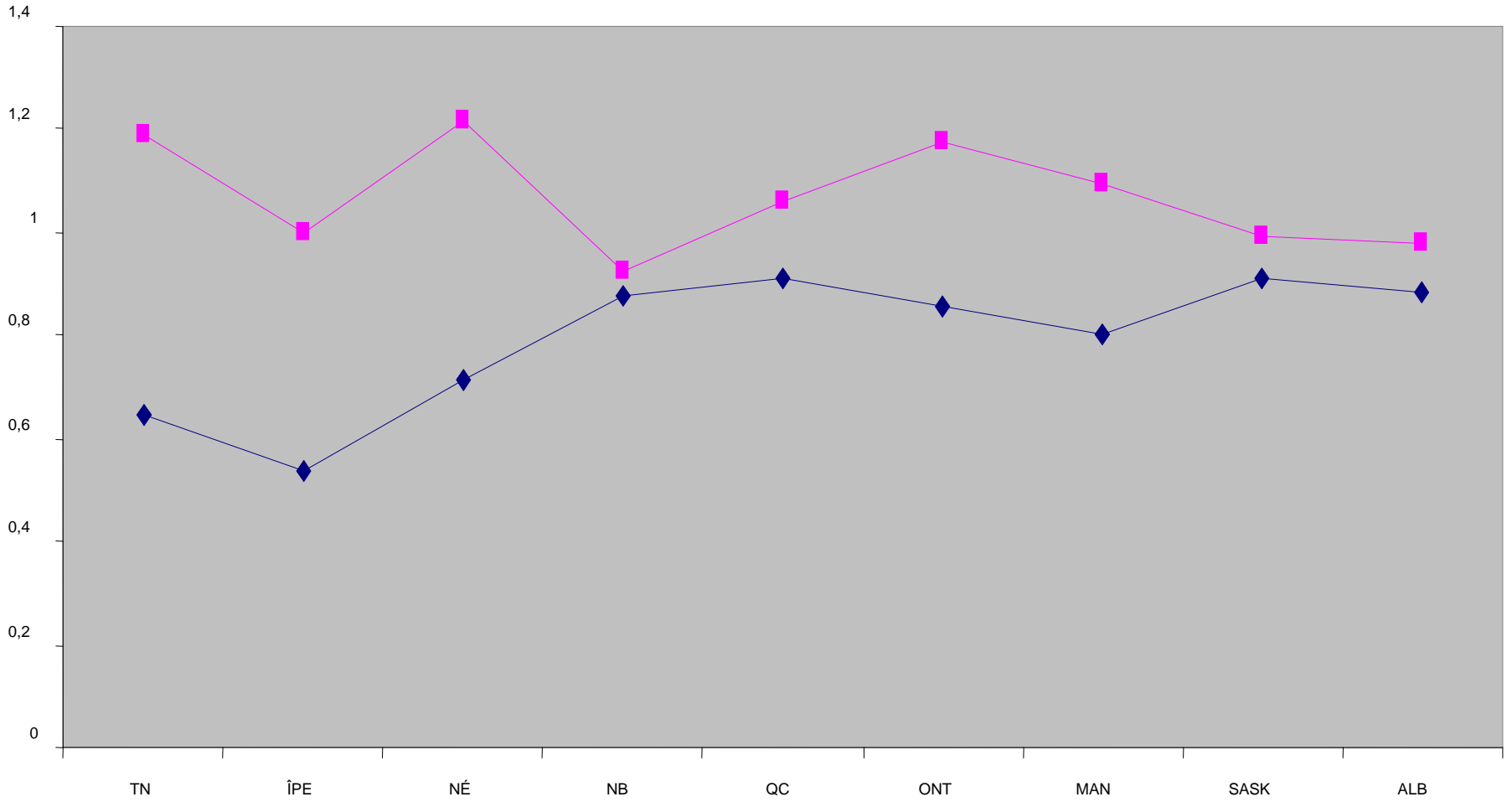
High school with medical degree without PEI



Master degree



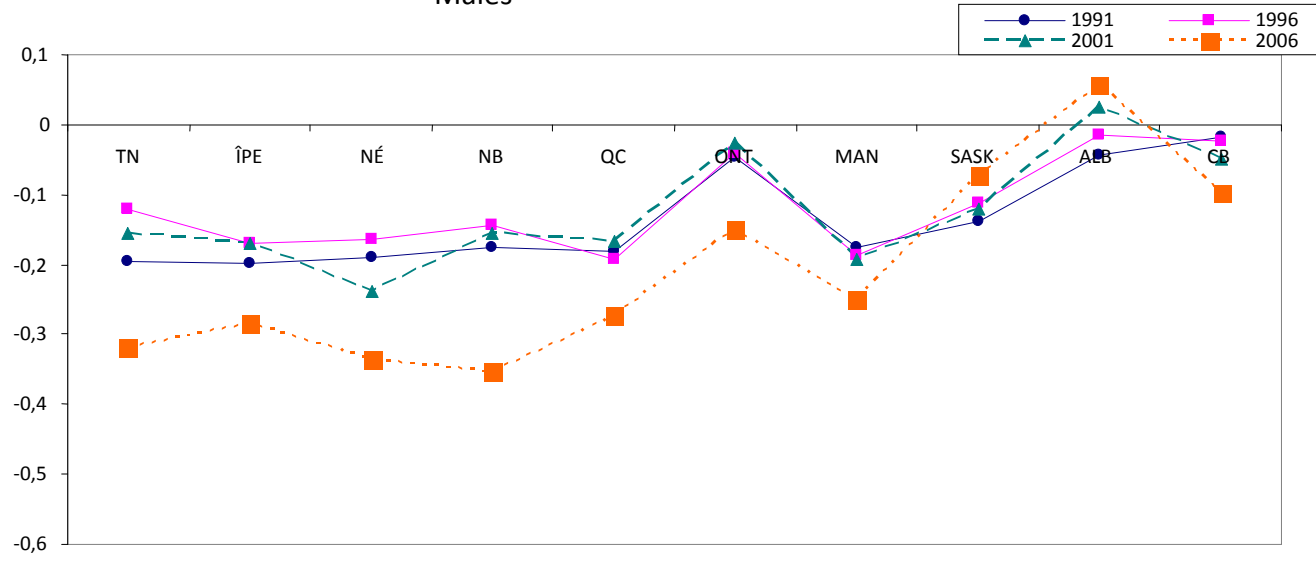
Earned doctorate without PEI



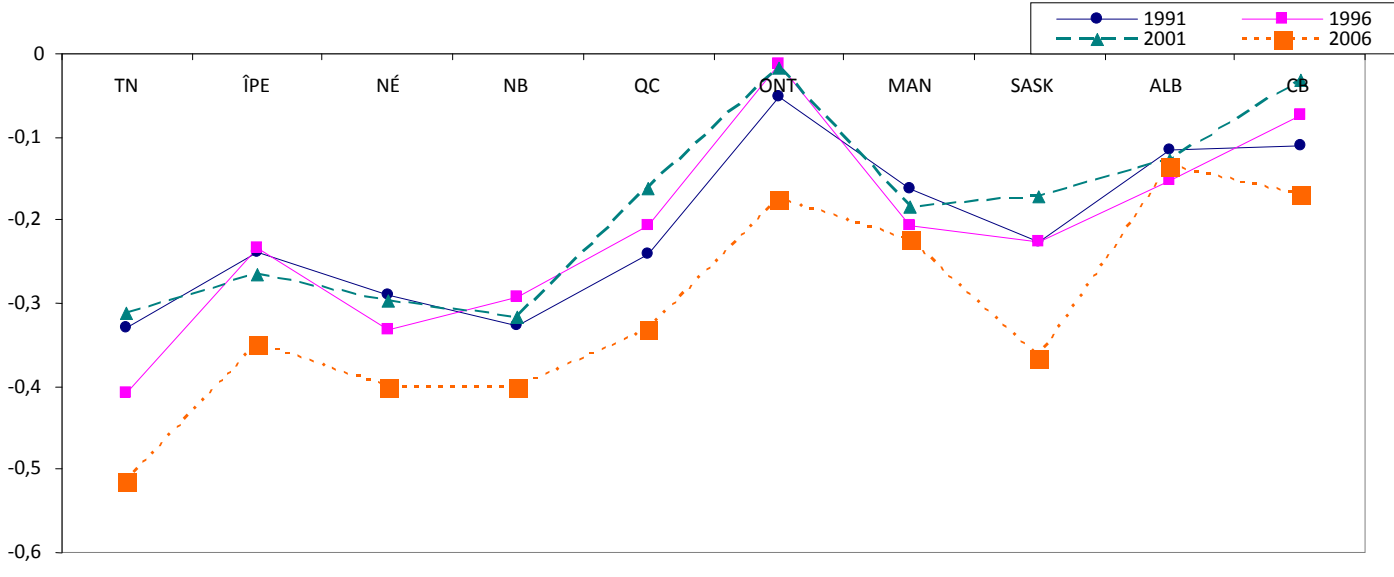
Trends

- No high school certificate or equivalency certificate without further schooling

Males

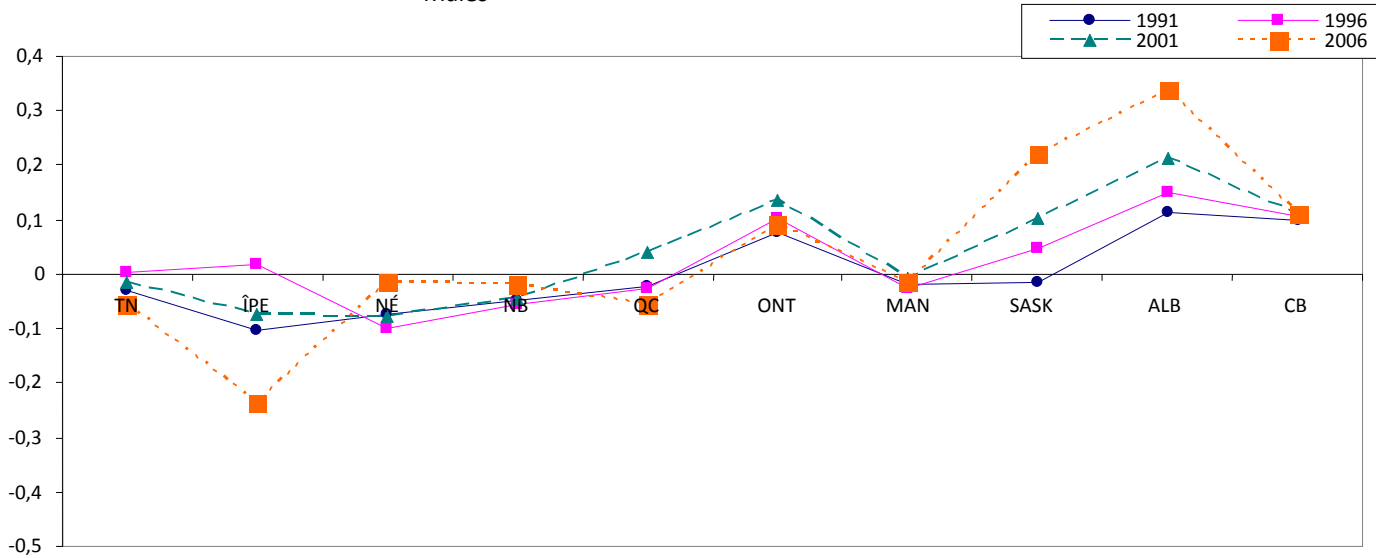


Females

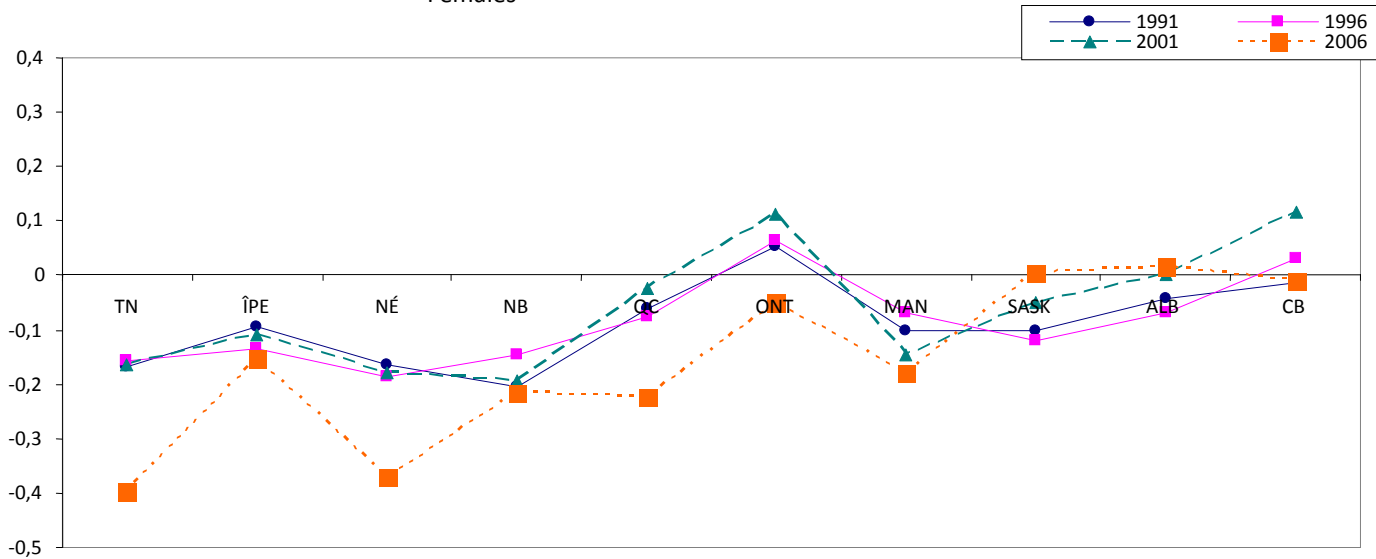


•No high school certificate or equivalency certificate with registered apprenticeship or other trade certificate

Males

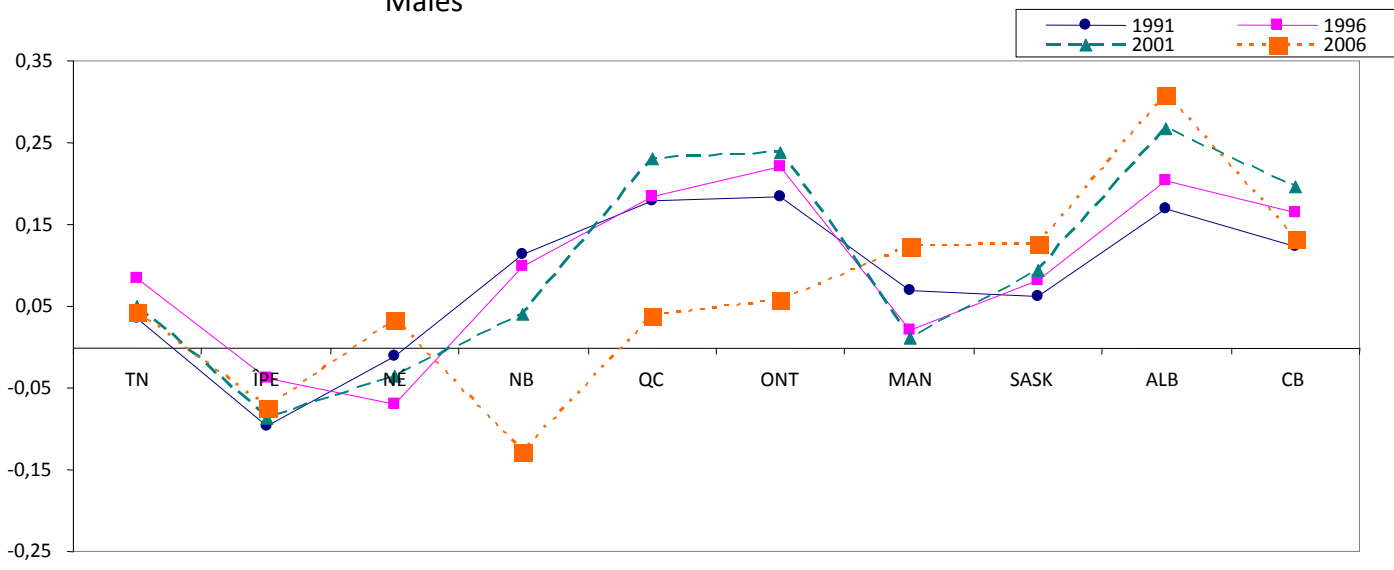


Females

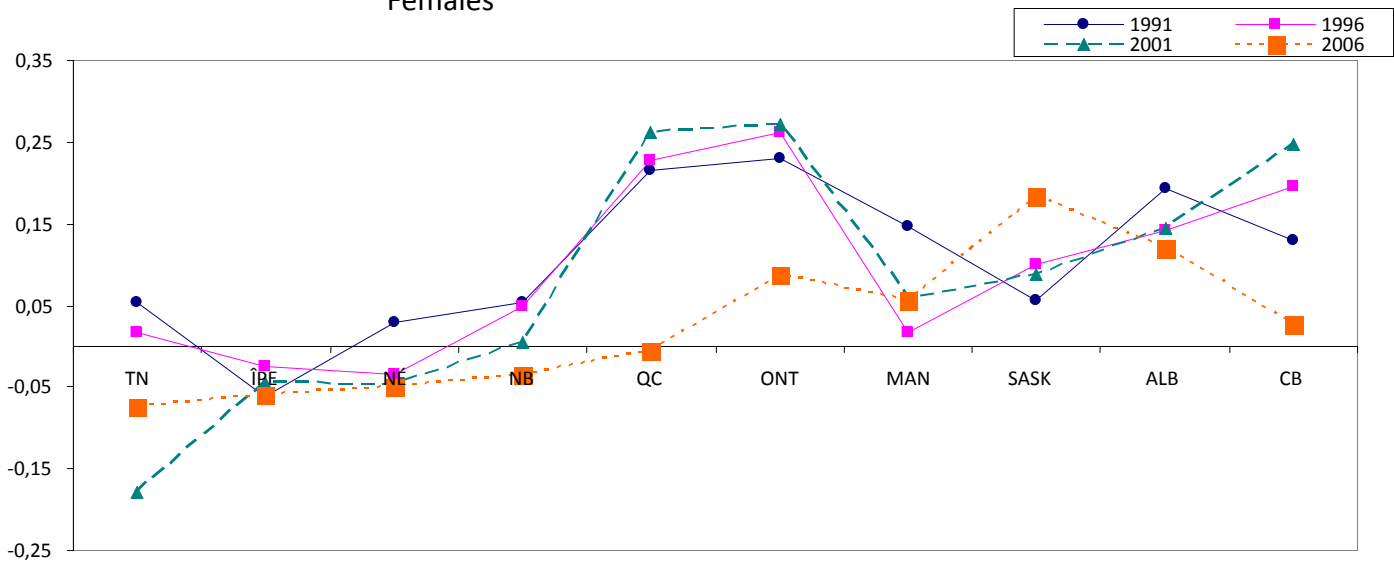


• No high school certificate or equivalency certificate, CEGEP or other non-university certificate

Males

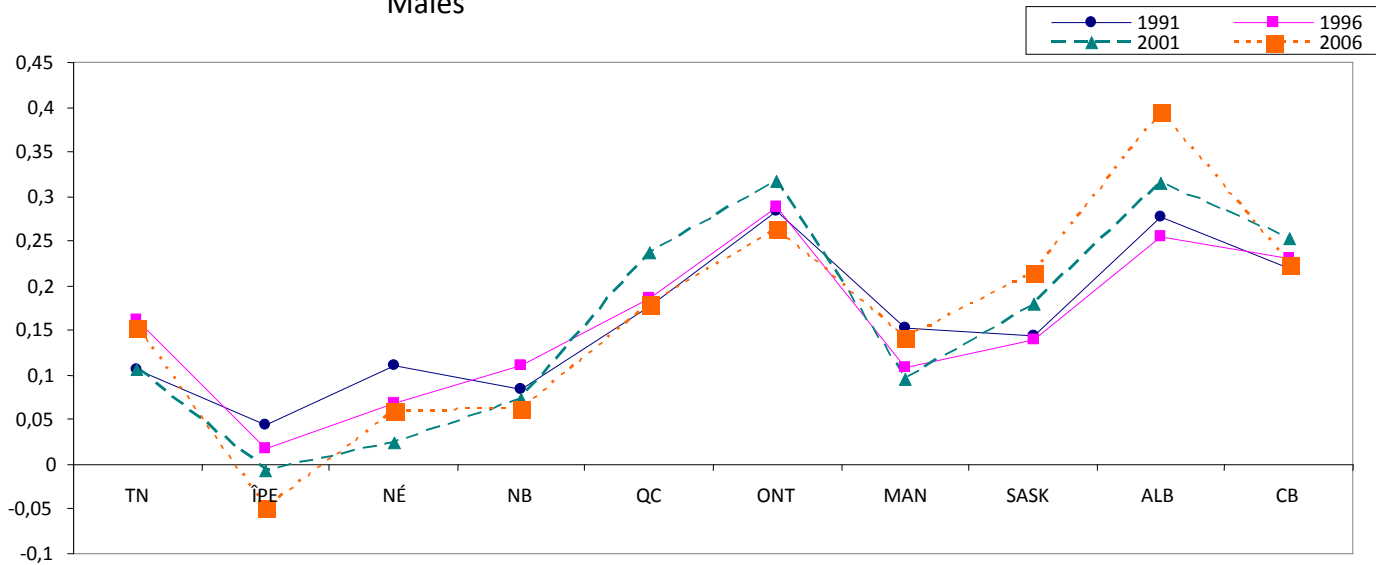


Females

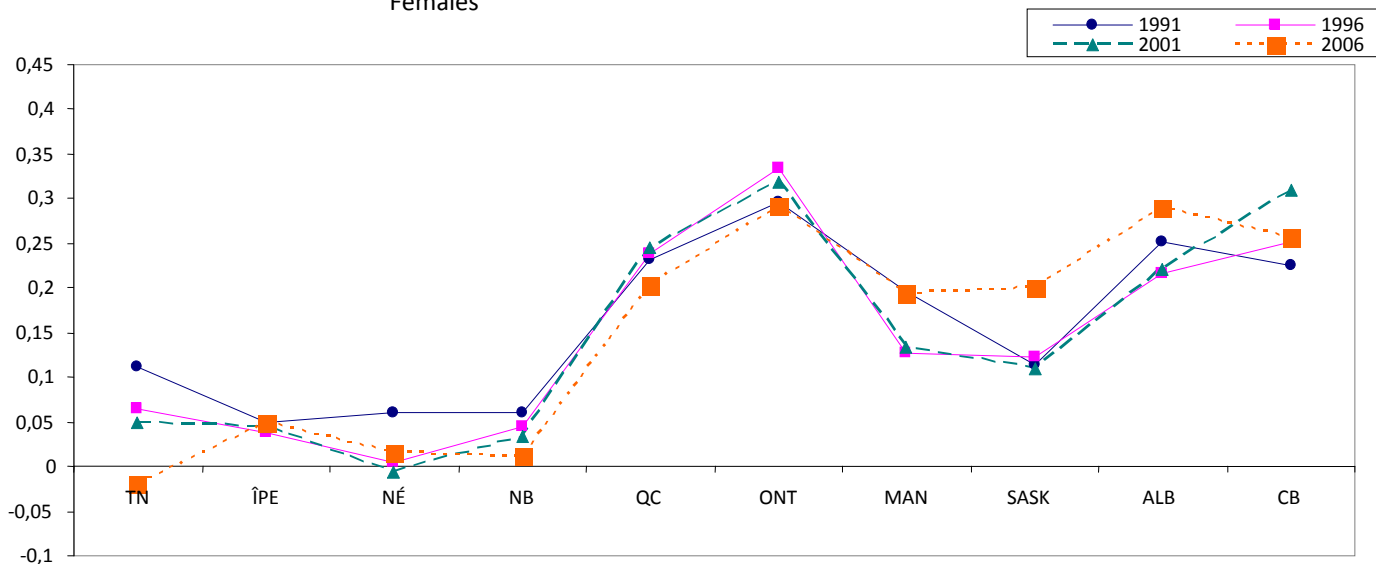


...with high school certificate or equivalency certificate with college/CEGEP/other non-university certificate

Males

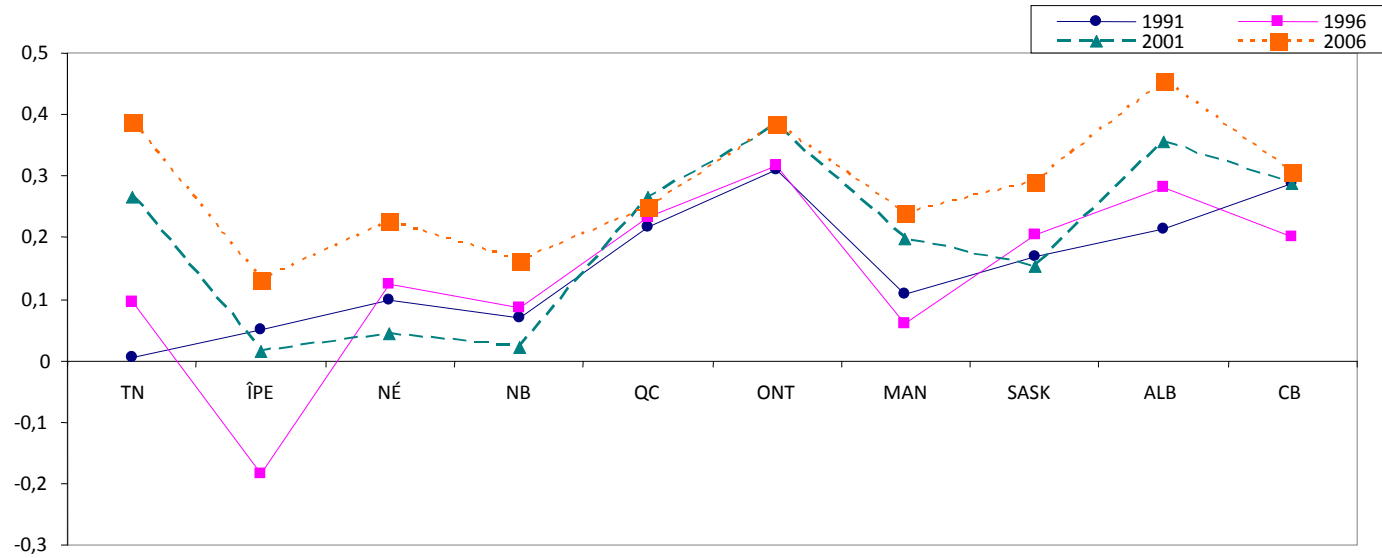


Females

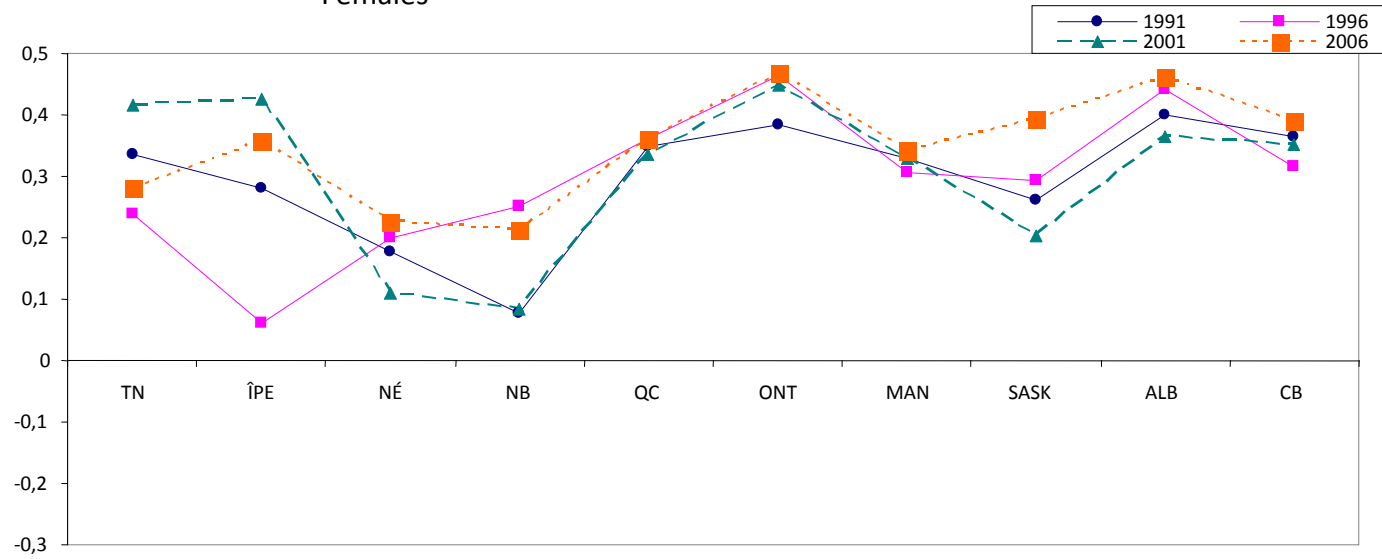


t. with high school certificate or equivalency certificate with certificate below bachelor

Males

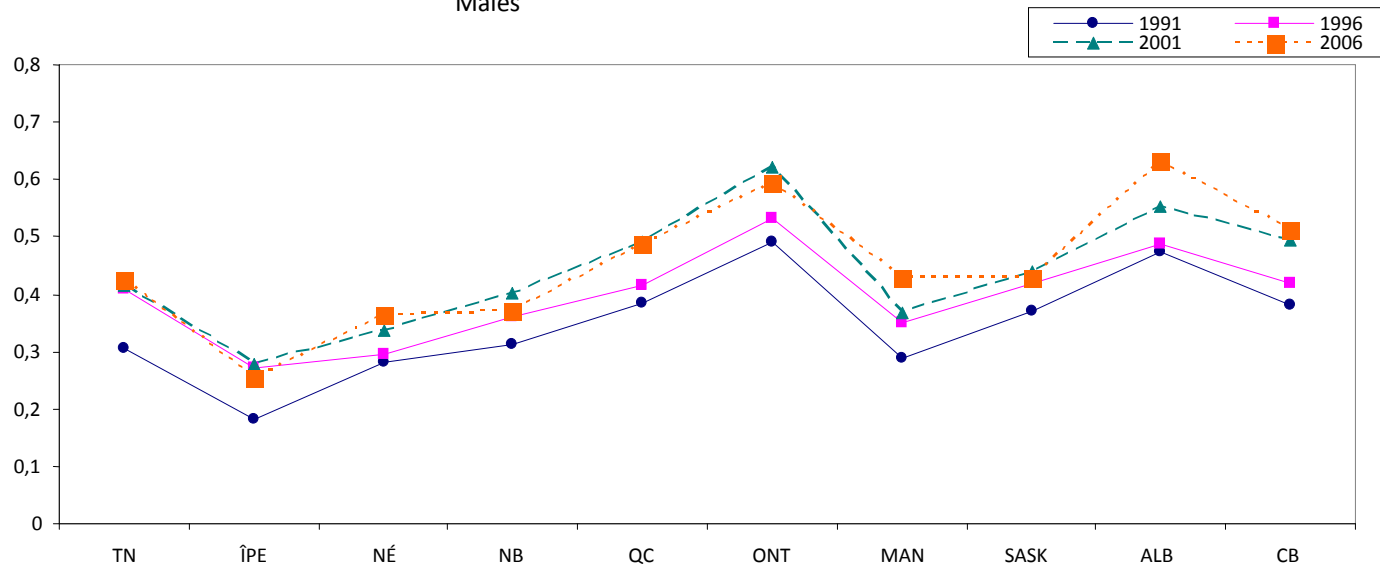


Females

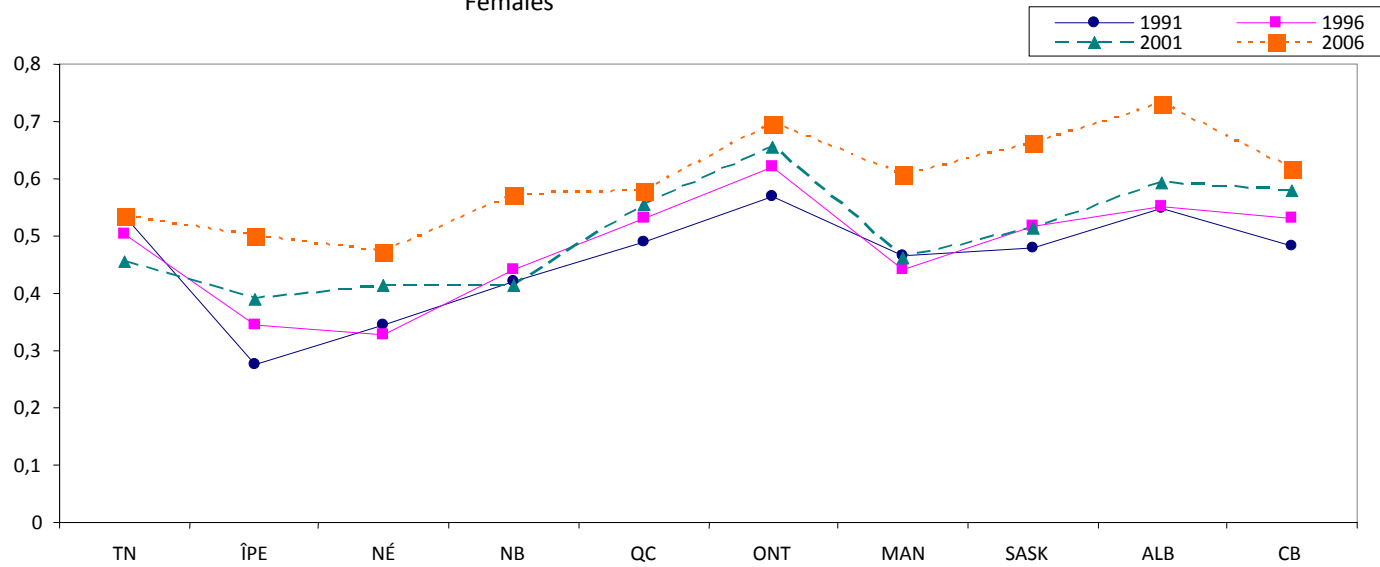


t. with high school certificate or equivalency certificate with bachelor's degree

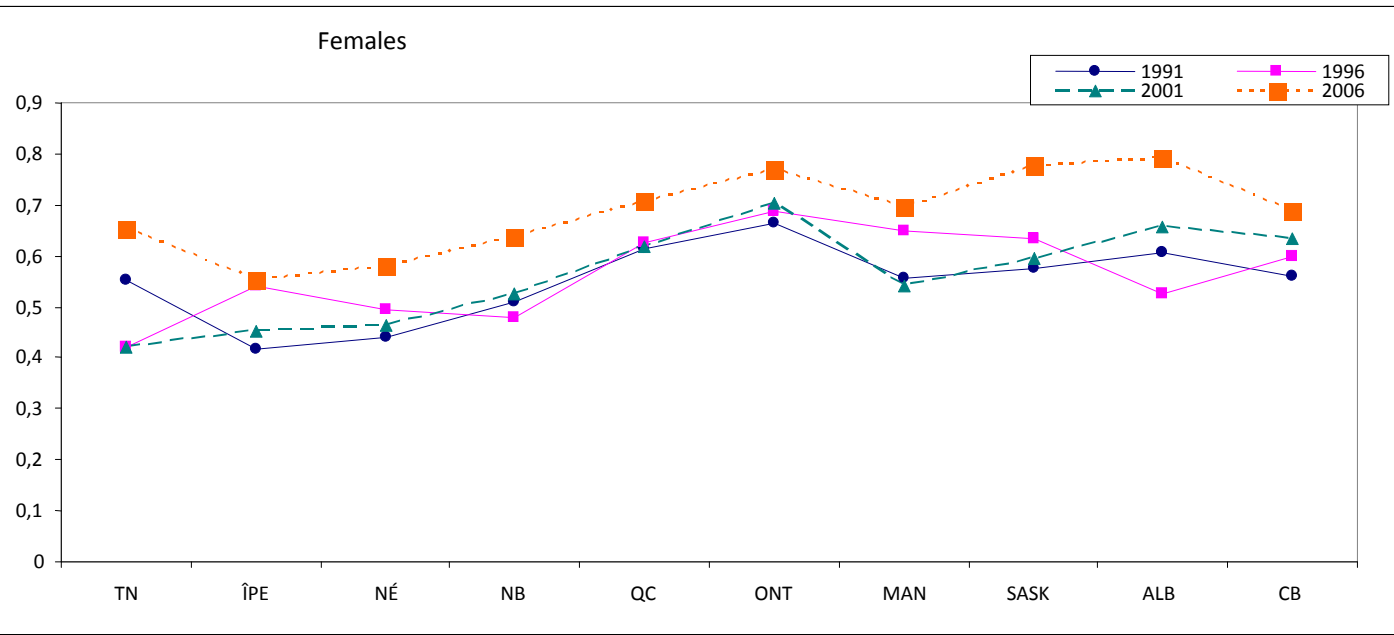
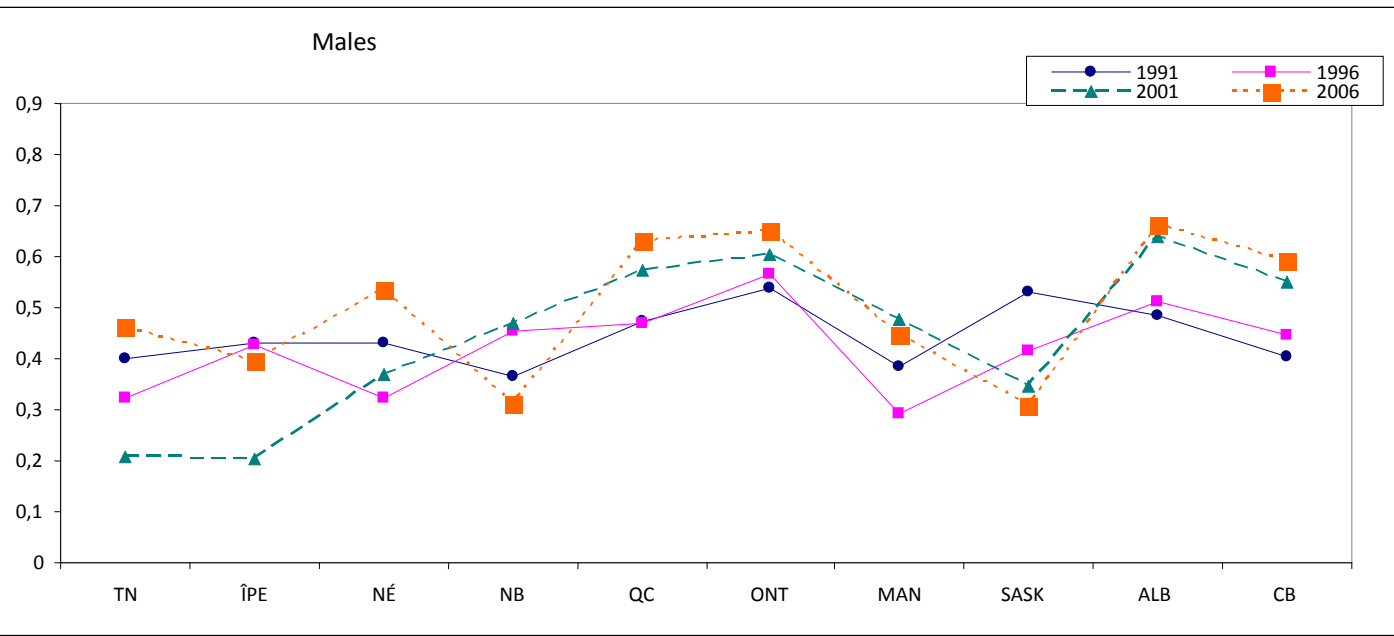
Males



Females

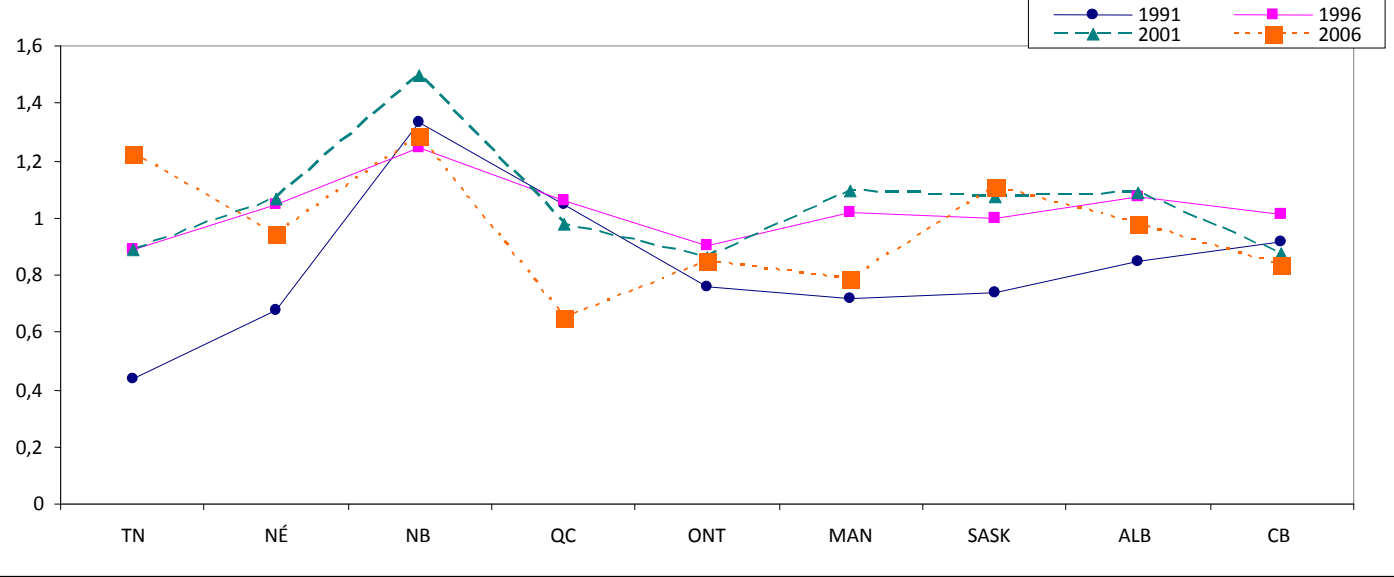


9. With high school certificate or equivalency certificate with certificate above bachelor

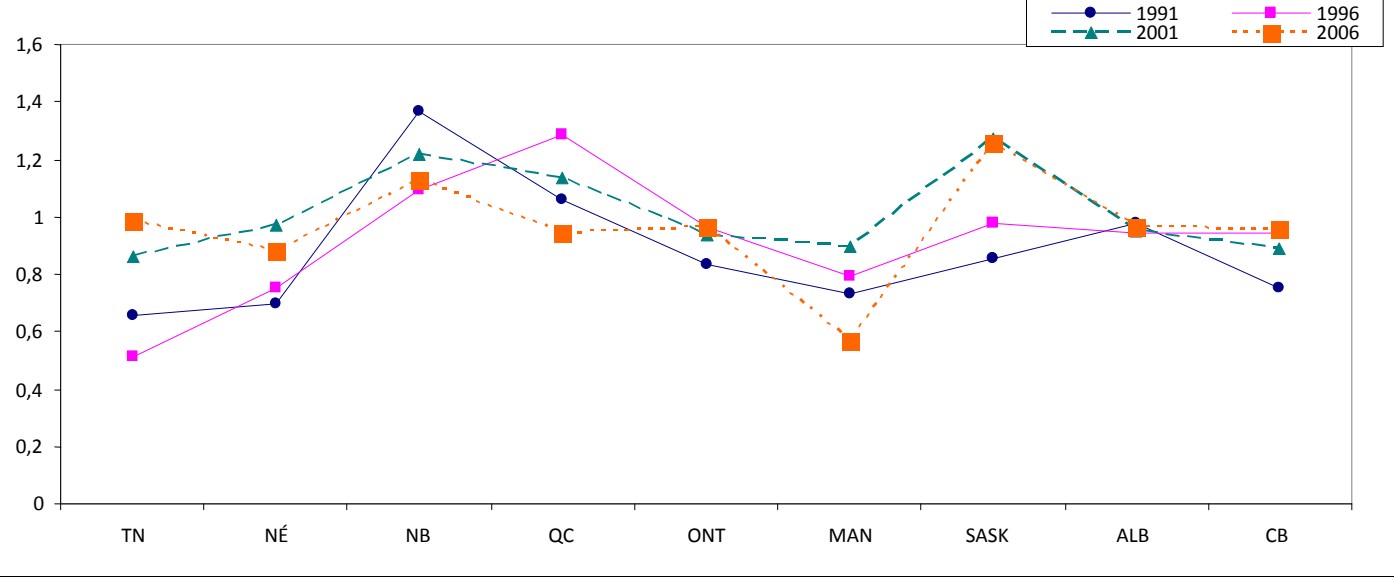


•With high school certificate or equivalency certificate with degree in medicine, dentistry, veterinary medicine, optometry

Males (excluding PEI)

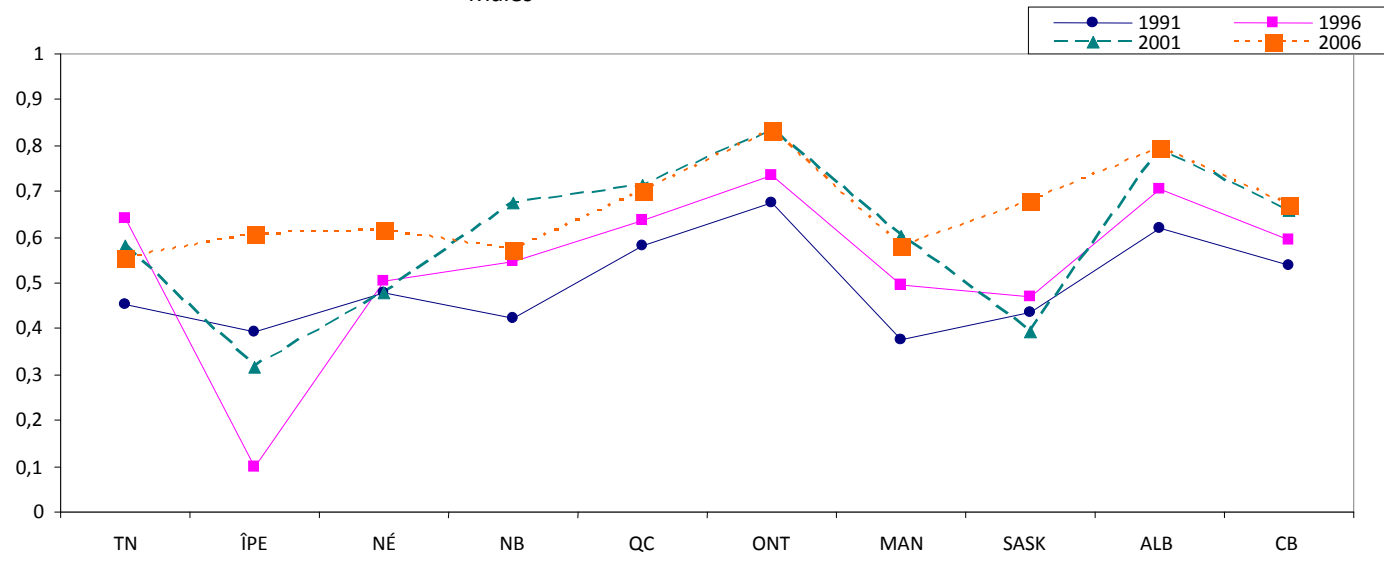


Females (excluding PEI)

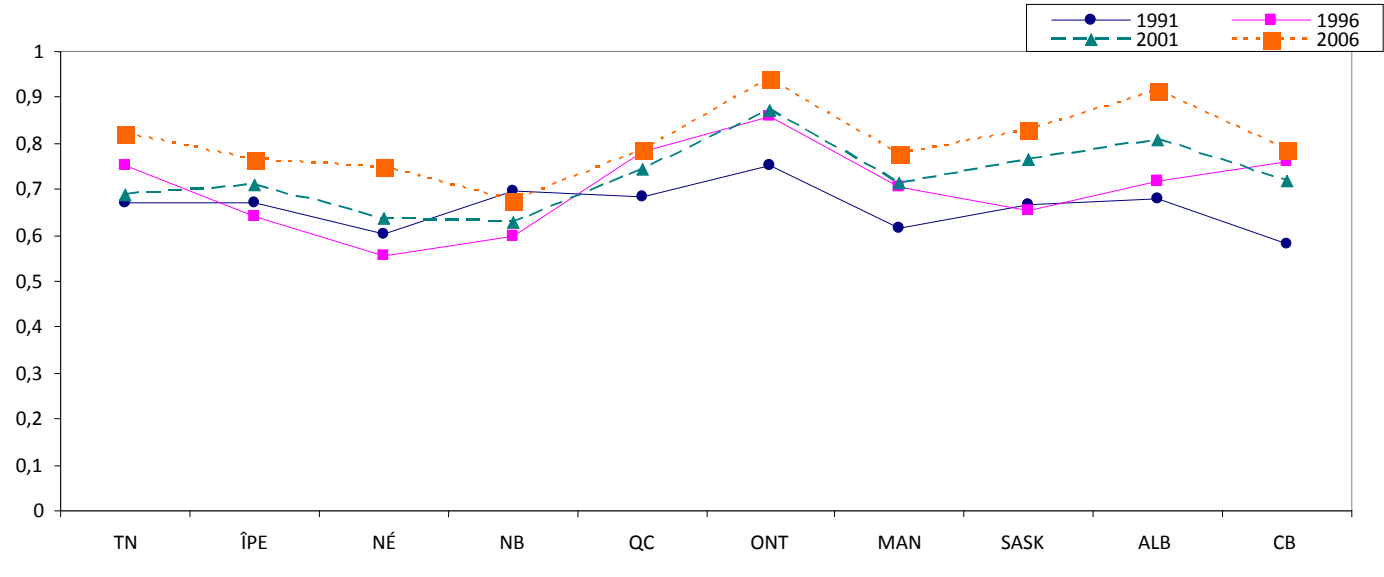


•With high school certificate or equivalency certificate with master's degree

Males

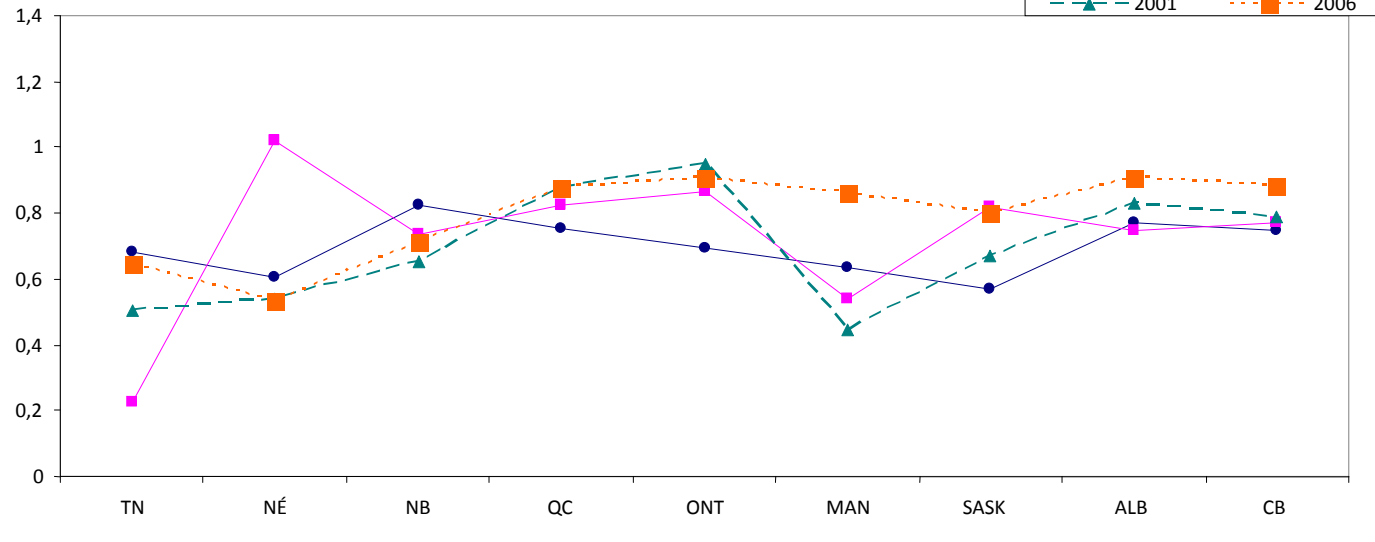


Females

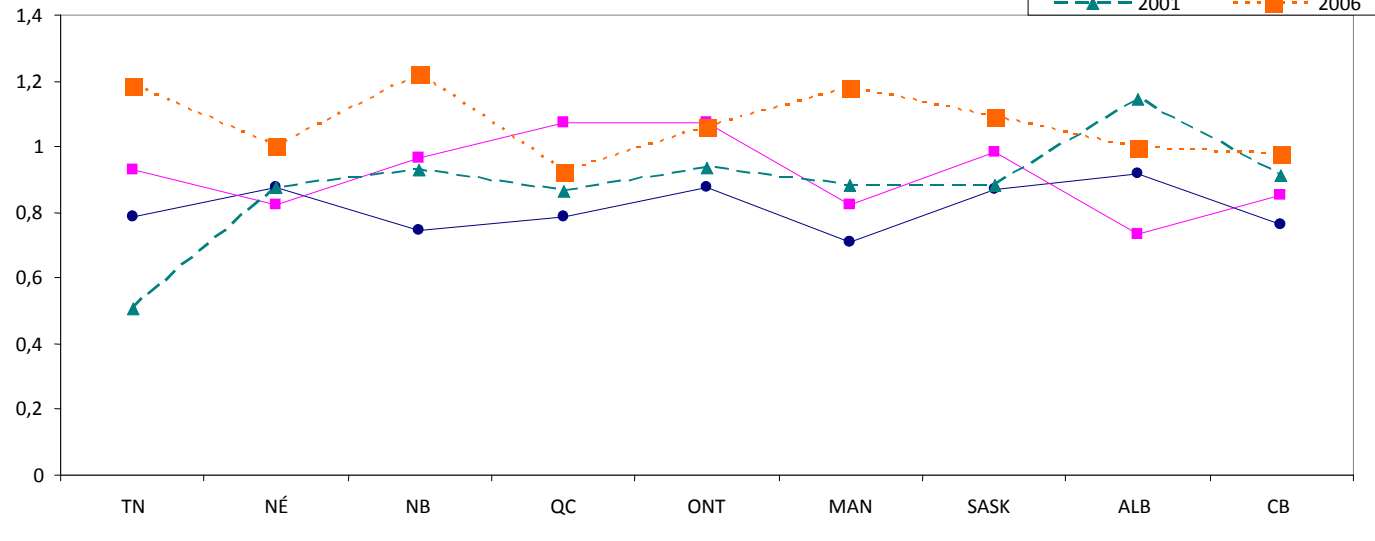


12 With high school certificate or equivalency certificate with earned doctorate degree (PEI excluded)

Males



Females



Conclusions

- Strong heterogeneity of returns across provinces
- Large male-female gap at the university level (increasing since 2006)
- Despite large increase in female supply of university graduates, returns are stable and could be increasing in 2006.
- Males more attracted to College or Trade diplomas (could be inefficient for economy)