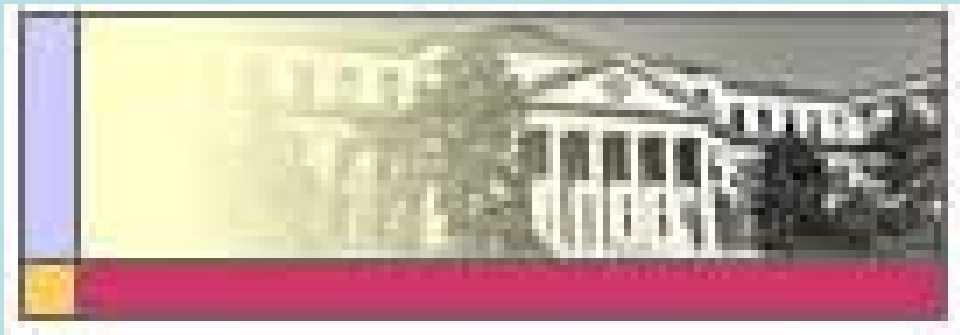
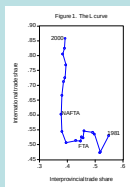
scoulomb@uottawa.ca



La clé de la croissance économique des provinces canadiennes : commerce interprovincial ou commerce international?

Sans oublier : la courbe en



La courbe en L décrit l'évolution des parts du commerce interprovincial et international entre 1980 et 2000

- Premier thème de l'étude : les deux types de commerce sont-ils des substituts ou des compléments?
- Diversion du commerce, effet frontière (McCallum *AER* 1995), Anderson et van Wincoop (*AER*, 2003)
- Second thème du papier : les axes commerciaux et la croissance économique
- Comparaison des effets relatifs des deux types de commerce sur le PIB par habitant, l'emploi et la productivité (extension de Coulombe *RS* 2000)

Figure 1. The L curve

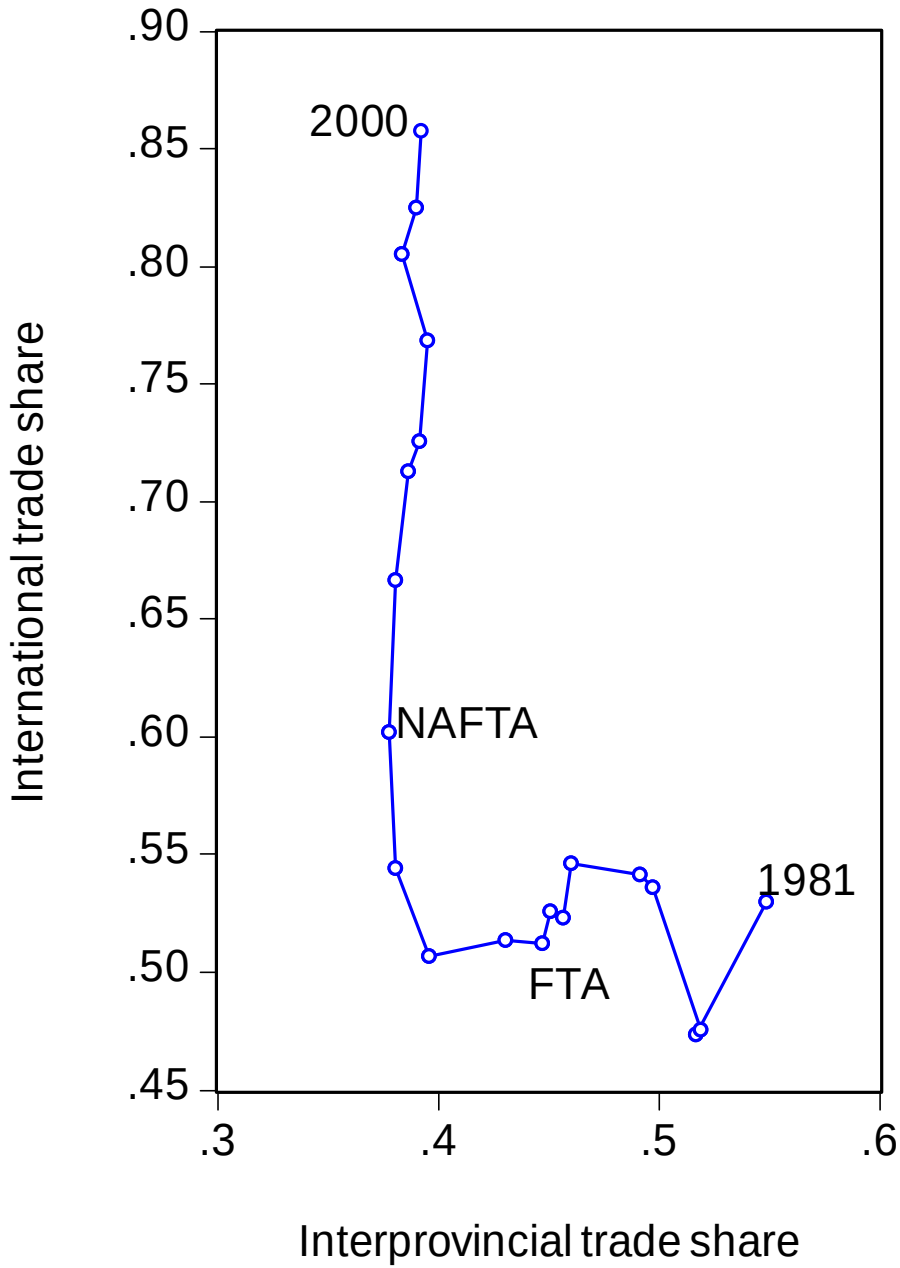
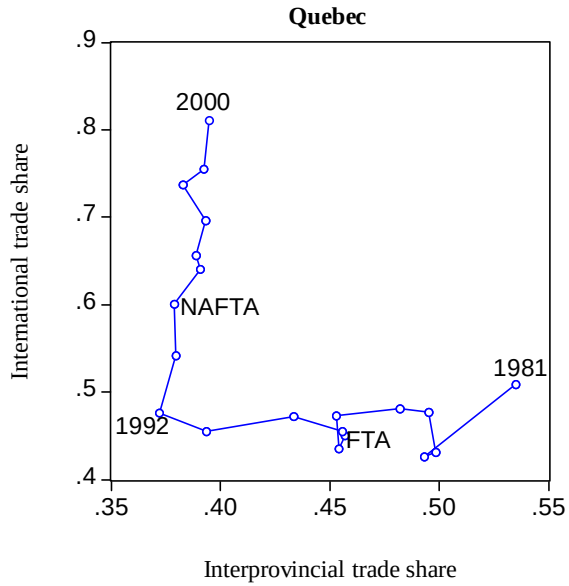


Figure 3. Trade of goods and services -- Central Canada



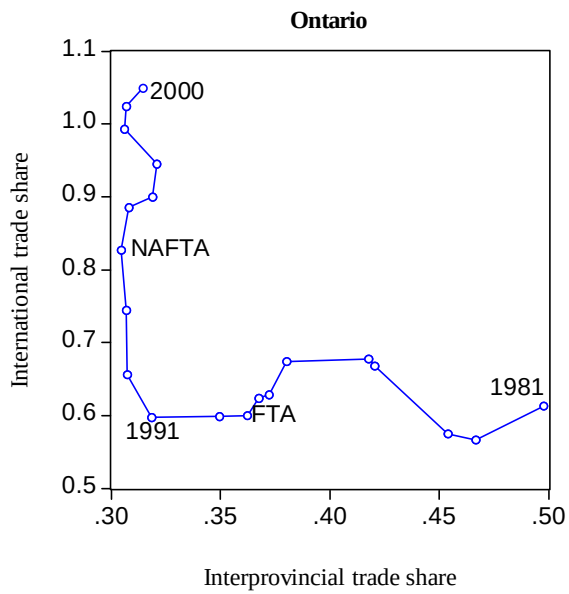


Figure 2. Trade of goods and services -- Atlantic

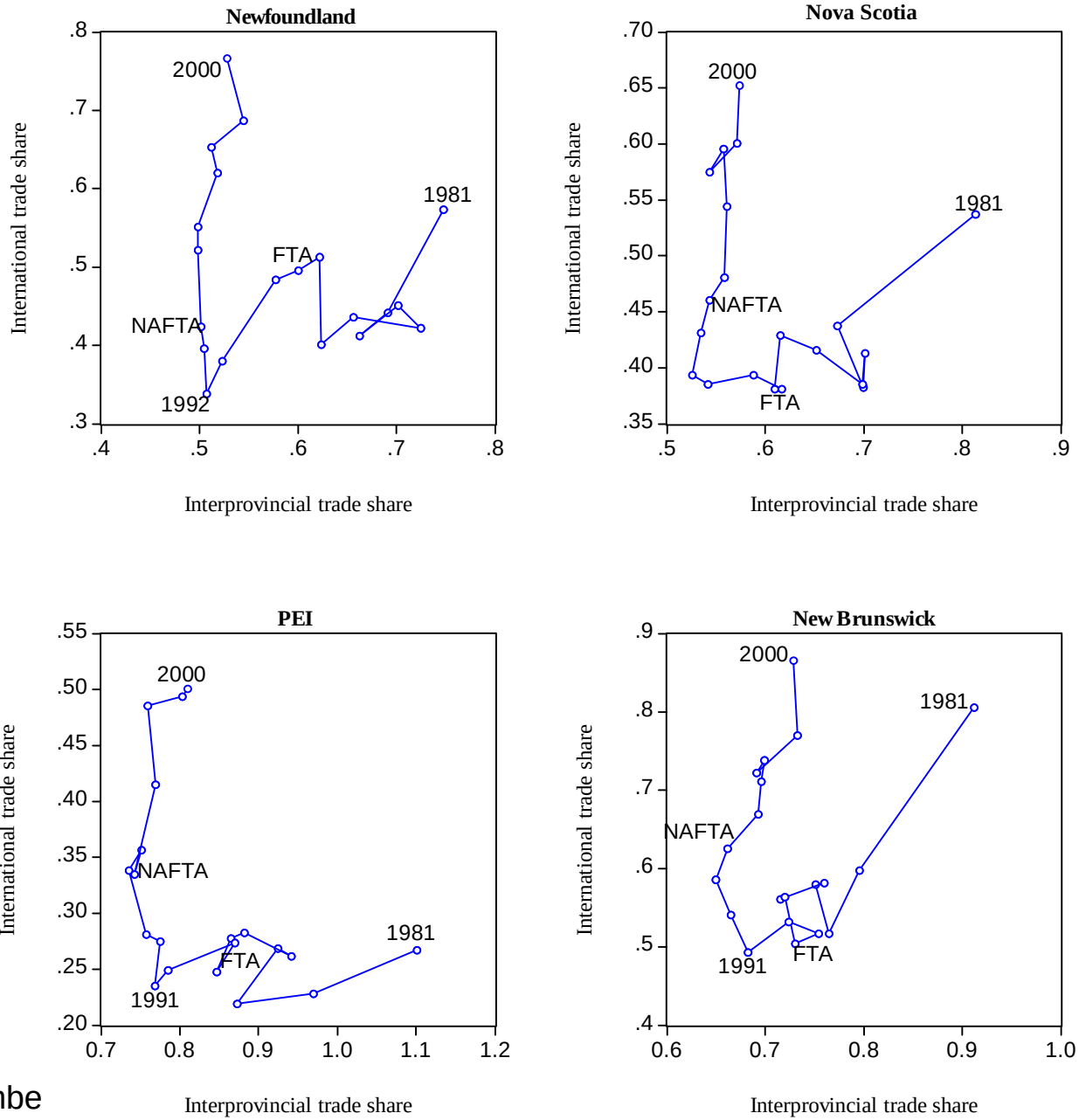


Figure 4. Trade of goods and services -- Western Canada

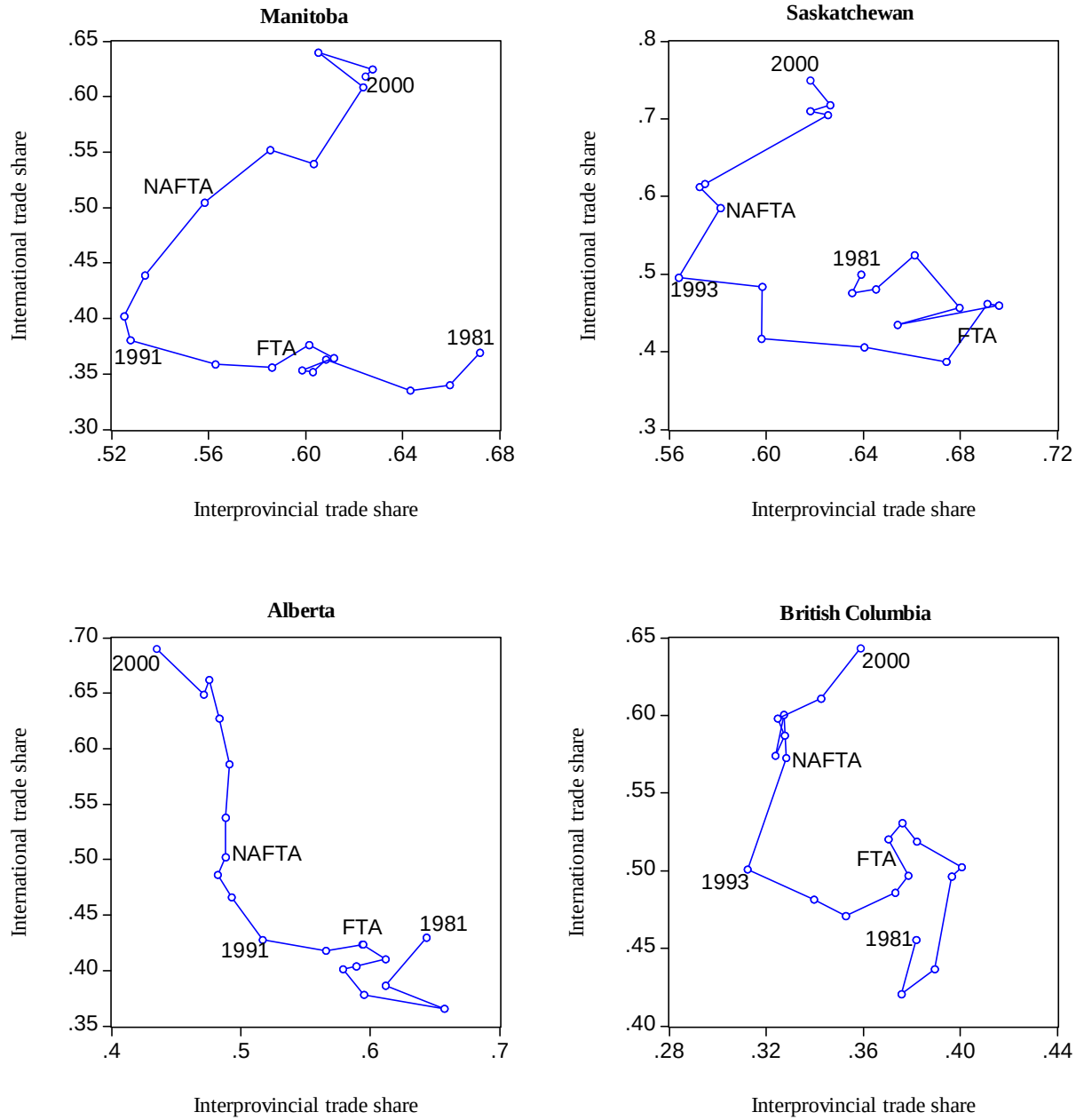
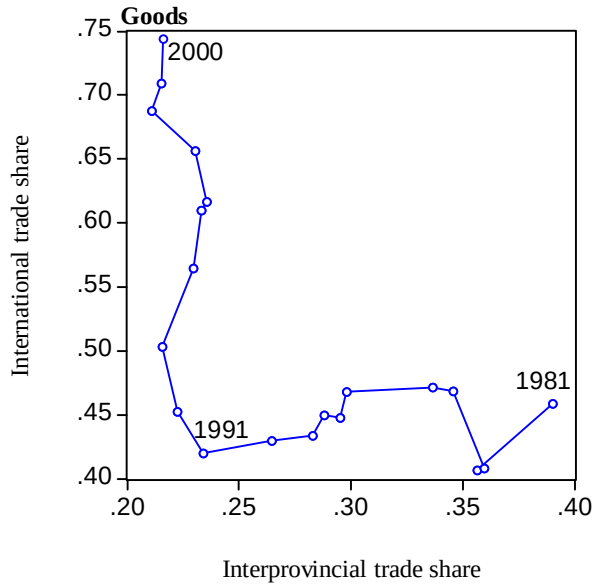
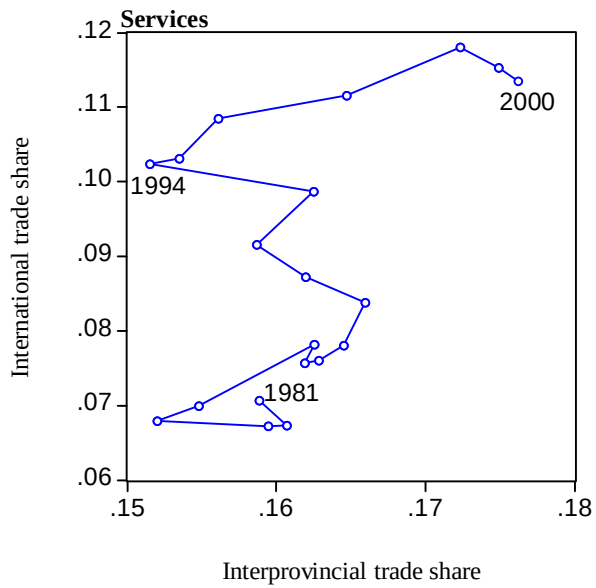


Figure 5. Goods vs services -- Canada





Regressions (1) (2)

$$IPTS_{i,t} = \beta_1 \times INTS_{i,t} \left[+ \beta_2 \times BR91 \right] + \beta_{3,i} \times FE_i + \varepsilon_{i,t}.$$

(3), (4), (5)

$$d(IPTS)_{i,t} = \beta_4 \times d(INTS)_{i,t} + \beta_{5,i} \times FE_i + \varepsilon_{i.t}.$$

(6) et (7)

$$IPTS_{i,t} = \beta_6 \times USTS_{i,t} + \beta_{7,i} \times FE_i + \varepsilon_{i,t};$$

$$d(IPTS)_{i,t} = \beta_8 \times d(USTS)_{i,t} + \beta_{9,i} \times FE_i + \varepsilon_{i,t}.$$

Table 1. Estimation results for the diversion hypothesis

Dependent variable SAMPLE |	(1) *IPTS* 1981–2000	(2) *IPTS* 1981–2000	(3) *d(IPTS)* 1981–2000	(4) *d(IPTS)* 1981–1991	(5) *d(IPTS)* 1991–2000	(6) *IPTS* 1990–2000	(7) *d(IPTS)* 1990–2000
Estimation	SUR	SUR	SUR	IFGLS	IFGLS	IFGLS	IFGLS
INTS (1, 2) (*USTS*) (6)	-0.187*** (0.011)	0.052** (0.024)				0.137*** (0.029)	
d(INTS) (3, 4, 5) *d(USTS)* (7)			0.223*** (0.027)	0.175*** (0.060)	0.264*** (0.050)		0.231*** (0.075)
BR91		-0.036*** (0.008)					
AL-FE	0.63***	0.51***	-0.015**	-0.012	-0.020***	0.40***	-0.019***
BC-FE	0.46***	0.35***	-0.003	-0.003**	-0.005*	0.29***	-0.005
MA-FE	0.68***	0.59***	-0.005	-0.015***	-0.001	0.53***	-0.000
NB-FE	0.84***	0.69***	-0.010*	-0.017*	-0.008	0.63***	-0.007
NF-FE	0.68***	0.55***	-0.014**	-0.019**	-0.012**	0.48***	-0.008
NS-FE	0.70***	0.57***	-0.014*	-0.024	-0.008	0.51***	-0.005
ON-FE	0.50***	0.31***	-0.015***	-0.018***	-0.016***	0.20***	-0.012***
PE-FE	0.90***	0.80***	-0.018*	-0.033	-0.004	0.73***	-0.004
QU-FE	0.53***	0.40***	-0.011***	-0.013***	-0.013***	0.32***	-0.010***
SA-FE	0.72***	0.62***	-0.004	-0.002	-0.011	0.54***	-0.009
AR-correction	NO	YES	NO	NO	NO	YES	NO
S.E. of regression	0.059	0.022	0.026	0.031	0.018	0.015	0.019
R-squared	0.87	0.98	0.21	0.16	0.26	0.99	0.16

Figure 7. The negative correlation between interprovincial and international trade -- Canada

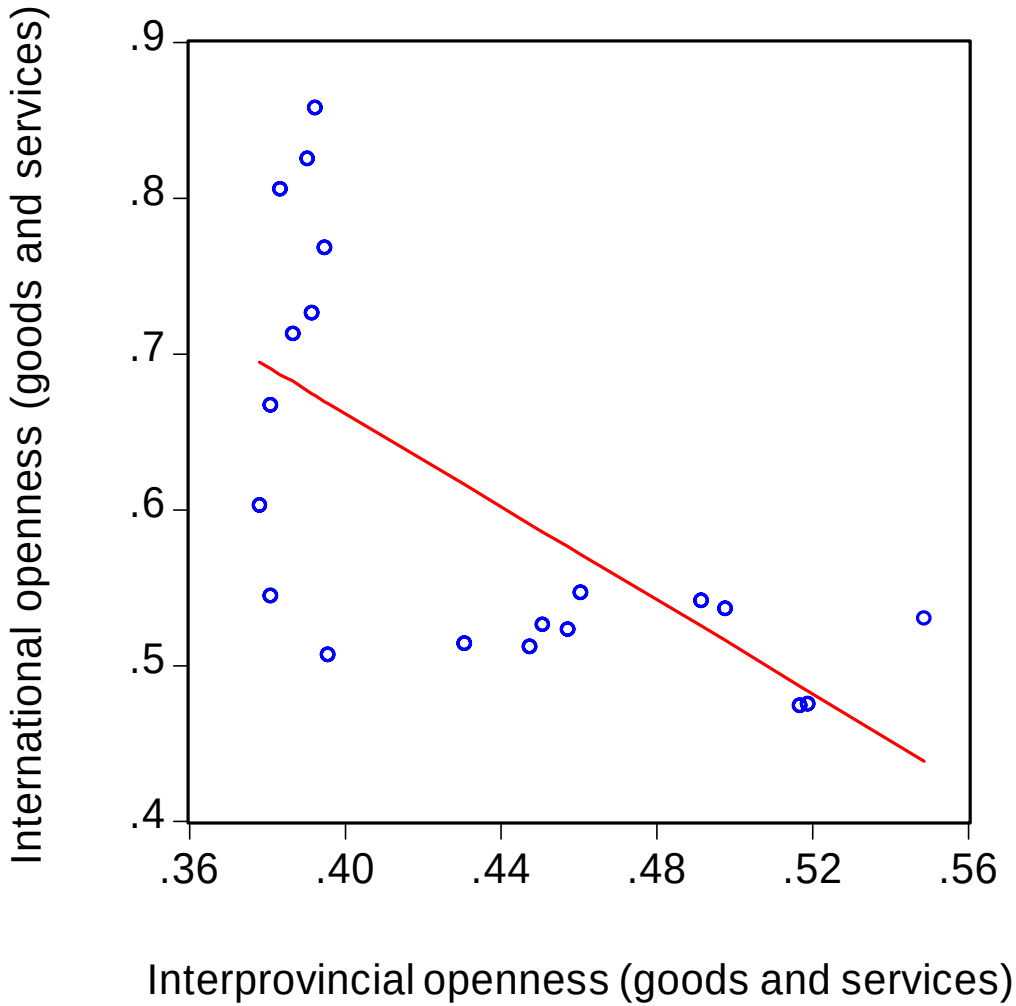


Table 3. Estimation results for the diversion hypothesis using real trade and GDP database

Dependent variable SAMPLE |	(1) *IPTS* 1981–2000	(2) *IPTS* 1981–2000	(3) *d(IPTS)* 1981–2000	(4) *d(IPTS)* 1981–1991	(5) *d(IPTS)* 1991–2000
Estimation	SUR	SUR	SUR	IFGLS	IFGLS
INTS	-0.157*** (0.04)	0.097*** (0.012)			
d(INTS)			0.236*** (0.026)	0.201*** (0.057)	0.190*** (0.049)
BR91		-0.0056** (0.003)			
AL-FE	0.62***	0.48***	-0.016**	-0.018	-0.015*
BC-FE	0.42***	0.29***	-0.003	-0.002	-0.005**
MA-FE	0.65***	0.55***	-0.003	-0.008*	0.001
NB-FE	0.80***	0.65***	-0.008	-0.006	-0.010**
NF-FE	0.67***	0.53***	-0.013***	-0.015**	-0.010*
NS-FE	0.67***	0.54***	-0.011	-0.012	-0.009***
ON-FE	0.45***	0.27***	-0.014***	-0.012***	-0.015***
PE-FE	0.87***	0.78***	-0.013	-0.015	-0.009
QU-FE	0.51***	0.36***	-0.010***	-0.007***	-0.013***
SA-FE	0.70***	0.56***	-0.006	-0.008	-0.007***
AR-correction	NO	YES	NO	NO	NO
S.E. of regression	0.038	0.027	0.024	0.031	0.017
R-squared	0.94	0.97	0.13	0.12	0.19

Table 2. Pairwise Granger causality tests: interprovincial and international openness

Null hypothesis	F-Statistic	P-Value
INTS (Canada) does not Granger cause *IPTS* (Canada)	6.8	0.035
IPTS (Canada) does not Granger cause *INTS* (Canada)	14.02	0.007
INTS (Quebec) does not Granger cause *IPTS* (Quebec)	7.08	0.032
IPTS (Quebec) does not Granger cause *INTS* (Quebec)	11.57	0.011
INTS (Ontario) does not Granger cause *IPTS* (Ontario)	1.3	0.292
IPTS (Ontario) does not Granger cause *INTS* (Ontario)	8.82	0.021

Note for Table 2: Sample 1991–2000; 10 time-series observations, one lag.

Première conclusion : rejet de l'hypothèse de diversion du commerce (substituabilité entre commerce intranational et international)

- Le modèle théorique sous-jacent de Anderson et van Wincoop 2003 est rejeté par les faits.

- Explication possible de la complémentarité : spécialisation régionale et nature cœur/périphérie de l'économie canadienne

$$y_{i,t} = e^{-\beta} y_{i,t-1} + (1 - e^{-\beta}) y^*_i + \varepsilon_{i,t}. \quad (1)$$

$$x_{i,t} = \log\left(X_{i,t} \Big/ \sum_{i=1}^{N} \tfrac{1}{N} X_{i,t} \right),$$

$$y_{i,t} = \gamma_1 y_{i,t-1} + \gamma_2 RU_i + \gamma_3 DA_{i,t} + \gamma_4 DQ_{i,t} + \varepsilon_{i,t}.$$

$$y_{i,t} = \gamma_1 y_{i,t-1} + \gamma_2 RU_i + \gamma_3 INTS_{i,t-1} + \gamma_4 IPTS_{i,t-1} + \varepsilon_{i,t}. \quad (2)$$

Table 1. Estimation results for per capita GDP and labour productivity convergence regression (equation 2 with IFGLS)

Dependent variable *y* |	GDP per capita (1)	GDP per capita (2)	Labour productivity (3)	Labour productivity (4)
y(-1)	0.953*** (0.013)	0.960*** (0.013)	0.960*** (0.020)	0.964*** (0.019)
Convergence speed (p value)	0.047 (0.0005)	0.040 (0.003)	0.040 (0.040)	0.035 (0.068)
RU	0.032* (0.018)	0.022 (0.018)	0.000 (0.009)	0.002 (0.008)
INTS (-1) (nom)	0.031*** (0.009)		0.021*** (0.008)	
IPTS (-1) (nom)	0.026** (0.010)		0.003 (0.007)	
INTS (-1) (real)		0.024** (0.009)		0.018** (0.008)
IPTS (-1) (real)		0.019* (0.01)		0.004 (0.007)
S.E. of regression R-squared	0.022 0.989	0.022 0.989	0.019 0.975	0.019 0.975

Table 2. Long-run elasticity of environmental variables

Dependent variable y |	GDP per capita	Labour productivity
RU	0.67	–
INTS (nominal)	0.65	0.51
IPTS (nominal)	0.55	–
INTS (real)	0.59	0.52
IPTS (real)	0.47	–

Deuxième conclusion

- Des résultats anti-anti-mondialisation : le commerce international augmente la productivité et ne fait pas perdre d'emploi
- Grossman and Helpman (1991) knowledge spillover
- L'expansion du commerce international : la clé de l'explication de la bonne performance relative de l'économie du Québec depuis 1995?