

Carbon Pricing in Input and Export Markets:
Multinational Firms and Carbon Leakage using Bernard
et al's Model of Global Firms

x

x

x

x

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x

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x

x

x

x

II.A.

$$\hat{Y}_5 = L \frac{\% \hat{U}}{\% \hat{Y}_5}$$

$$\hat{U} = L \frac{C}{\% \hat{Y}_5} \quad \hat{Y}_6 = \hat{a} \quad \hat{Y}_{AE9} = \hat{g} \hat{U} \frac{\% \hat{N}}{\% \hat{a}} \quad \hat{O} = L \quad \hat{Y}_{-p} = \hat{p} \frac{\% \hat{U}}{\% \hat{Y}}$$

III. Policy experiments within given set of countries

$$\exists \gamma_5 : H \perp \frac{\alpha_{\hat{O}} \hat{U} \times \beta_{\hat{O}}}{\hat{O} : \mathbb{R}} > \alpha_{\hat{O}};$$

$$\hat{U}_{\gamma_5} \perp \hat{U}'_{\gamma_5} \hat{a}$$

$$\frac{! \cdot \partial \partial \partial}{! \cdot x \partial} \quad \frac{! \cdot \partial \partial \partial \cdot \hat{E} \partial \partial \partial}{! \cdot \hat{E} \partial \partial \partial \cdot ! \cdot x \partial} \quad L \ r \ \hat{U}: E; L \ r$$

$$\hat{U} \hat{U} \hat{U} \ L \ \frac{\partial \partial \hat{N}^? 5}{\partial \partial \hat{N}} \ p \ \hat{a} \ \hat{U} \ \hat{P} \ F \ S \hat{U} \ (\hat{a} \ \hat{U} \ \hat{P} \ F \ S \hat{U} \ (\hat{a} \ \hat{U} \ F \ \hat{\wedge} \ \hat{Y} \ \hat{P} \ \hat{O} \ \hat{N} \ S \hat{U} \ (\hat{Y} \ \hat{P} \ F \ S \hat{U} \ (\hat{U} \ \hat{a} \ \hat{a}$$

$$\frac{! \cdot \partial \partial \partial}{\partial \partial \hat{F}_S} \ L \ r$$

$$\frac{! \cdot \partial \partial \hat{N}}{\partial \partial \hat{F}_S} \ L \ r$$

$$\frac{! \cdot \hat{\partial}}{! \cdot \hat{F}_S} \ L \ \frac{! \cdot \hat{\partial}}{! \cdot \hat{F}_S} \ d \frac{\partial \partial \partial}{\partial \partial \hat{N}} \ h E \frac{! \cdot \hat{H} \partial \partial \partial}{\partial \partial \hat{N}} \ \hat{F}_S \ L$$

! ~ o

$$2_{\hat{a}} \ddot{U} \mathbb{P} L \ddot{a}_{\hat{a}} \ddot{U} \ddot{U} \frac{:\overset{a}{x} \overset{\circ}{\circ} > \overset{\circ}{\circ} : \overset{\circ}{\circ} : \overset{-7}{\circ} B \ddot{N} \overset{\circ}{\circ} @ \overset{p}{\ddot{N}} AC \frac{7-7}{\overset{\circ}{\circ}}}{\ddot{N}}$$

$$\mathbb{P}_{\hat{a}} \ddot{U} L > \hat{U}' \ddot{U}$$

$$\frac{! \overset{\circ}{\circ} \overset{\circ}{\circ} \overset{\circ}{\circ}}{! \overset{3}{\ddot{N}}} L \frac{! \overset{\circ}{\circ} \overset{\circ}{\circ} \overset{\circ}{\circ} ! \overset{a}{x} \overset{\circ}{\circ} ! \overset{\circ}{\circ}}{! \overset{a}{x} \overset{\circ}{\circ} ! \overset{\circ}{\circ} ! \overset{3}{\ddot{N}}} L \frac{\overset{\circ}{\circ} \overset{\circ}{\circ} \overset{\circ}{\circ} : \overset{-7}{\circ} B \ddot{N} \overset{\circ}{\circ} @ \overset{p}{\ddot{N}} AC \frac{7-7}{\overset{\circ}{\circ}}}{\ddot{N}} \hat{U} >$$

Proposition 1.

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$$< \overset{5}{\ddot{Y}} \overset{6}{\ddot{E}} \overset{7}{\ddot{Y}} \overset{7}{\ddot{E}} = ' \ddot{U} L \overset{5}{\%} / \overset{5}{\ddot{Y}} E \overset{6}{\%} / \overset{6}{\ddot{Y}} E \overset{7}{\%} / \overset{7}{\ddot{Y}}$$

$$< \overset{5}{\ddot{Y}} \overset{6}{\ddot{E}} \overset{7}{\ddot{Y}} = ' \ddot{U} L \frac{\overset{\circ}{\circ} \overset{\circ}{\circ}}{\overset{\circ}{\circ} \overset{\circ}{\circ}} h c \overset{5}{\%} \overset{\circ}{\circ} E \overset{6}{\%} \overset{\circ}{\circ} E \overset{7}{\%} \overset{\circ}{\circ} g$$



Deriving (38):

$\mathbb{C}^p \times \mathbb{C}^p \times s$

$$2_{\mathbb{A}^1} \times \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s$$

$$\frac{! \times \mathbb{C}^p \times \mathbb{C}^p \times s}{! \times \mathbb{C}^p \times \mathbb{C}^p \times s} \quad \frac{! \times \mathbb{C}^p \times \mathbb{C}^p \times s}{! \times \mathbb{C}^p \times \mathbb{C}^p \times s} \quad \frac{! \times \mathbb{C}^p \times \mathbb{C}^p \times s}{! \times \mathbb{C}^p \times \mathbb{C}^p \times s}$$

$$L \times \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s \xrightarrow{\text{É} \times \mathbb{C}^p \times \mathbb{C}^p \times s} \mathbb{C}^p \times \mathbb{C}^p \times s$$

Deriving comparative statics for (51):

$$\frac{\partial Q_s}{\partial \bar{Q}_s} = \frac{\partial Q_s}{\partial Q_s} + \frac{\partial Q_s}{\partial Q_t} \frac{\partial Q_t}{\partial \bar{Q}_s} + \frac{\partial Q_s}{\partial Q_u} \frac{\partial Q_u}{\partial \bar{Q}_s}$$

$$\frac{\partial Q_s}{\partial \bar{Q}_s} = \frac{\partial Q_s}{\partial Q_s} + \frac{\partial Q_s}{\partial Q_t} \frac{\partial Q_t}{\partial \bar{Q}_s} + \frac{\partial Q_s}{\partial Q_u} \frac{\partial Q_u}{\partial \bar{Q}_s}$$

$$\frac{\partial Q_s}{\partial \bar{Q}_s} = \frac{\partial Q_s}{\partial Q_s} + \frac{\partial Q_s}{\partial Q_t} \frac{\partial Q_t}{\partial \bar{Q}_s} + \frac{\partial Q_s}{\partial Q_u} \frac{\partial Q_u}{\partial \bar{Q}_s}$$

$$\frac{\partial Q_s}{\partial \bar{Q}_s} = \frac{\partial Q_s}{\partial Q_s} + \frac{\partial Q_s}{\partial Q_t} \frac{\partial Q_t}{\partial \bar{Q}_s} + \frac{\partial Q_s}{\partial Q_u} \frac{\partial Q_u}{\partial \bar{Q}_s}$$

$$\begin{array}{l}
 F @ \frac{\partial Q_R}{\partial Q_S} @ \frac{\partial Q_U}{\partial Q_S} @ \frac{\partial Q_R}{\partial Q_S} @ \frac{\partial Q_U}{\partial Q_S} \\
 D \quad F @ \frac{\partial Q_S}{\partial Q_R} @ \frac{\partial Q_U}{\partial Q_R} @ \frac{\partial Q_S}{\partial Q_R} @ \frac{\partial Q_U}{\partial Q_R} \\
 p \quad F @ \frac{\partial Q_S}{\partial Q_U} @ \frac{\partial Q_R}{\partial Q_U} @ \frac{\partial Q_S}{\partial Q_U} @ \frac{\partial Q_R}{\partial Q_U}
 \end{array}$$

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