Transfer Pricing by Multinational Firms: New Evidence from Foreign Firm Ownership

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Motivation

- Tax avoidance reduces government revenues, exacerbating the growing government deficits

- Multinational corporations (MNC) are the primary targets for scrutiny by tax authorities
  - Pay significantly less in taxes than domestic counterparts
  - With activity in multiple jurisdictions, MNCs can minimize their tax burden by shifting profits to affiliates in low corporate tax countries

- International taxation: issue of global concern
Main policy question:

What are the mechanisms through which MNC minimize tax burden?

Many methods to shift profits cross-border. Among them:

Transfer pricing of intra-firm sales

- MNCs have the incentive to set prices for internal transactions such that profits are accumulated in low tax countries
This Paper

- **Examine** the extent to which MNCs shift profits worldwide using **transfer pricing** of intra-firm sales
  - *Arm’s length principle of taxation*: intra-firm trade must be invoiced in the same way as third-party transactions

- **Show theoretically potential downward biases** with applying the arm’s length principle of taxation to detect profit shifting
  - when gains from profit shifting are significant, MNCs alter arm’s length transaction prices in the direction of intra-firm sale prices

- **New estimation strategy** to identify the deviation of transfer prices from counterfactual levels absent profit shifting motives
  - estimate before/after changes in export prices due to new foreign firm ownerships, and correlate them with foreign country tax rates
Export price pre/post change in foreign ownership

Time Line for Affiliate Ownership

MNC Export Price (Relative to Exporters)

Low Tax Country

Change Ownership
# Growth of Danish Multinationals

<table>
<thead>
<tr>
<th>Year</th>
<th>Number Firm-Country Pairs</th>
<th>Export Values</th>
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<td>2006</td>
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</table>

*Related-party exports are defined as the value of exports by MNCs to those countries where they own an affiliate.
Corporate Tax Rate in Denmark

Tax Rates: Denmark and Its Main Trade Partners

Tax wedge: $tax_{DK} - tax_j$
Literature Review

Large empirical literature on profit shifting by multinationals. Less evidence on particular mechanisms, such as transfer pricing.

- **Indirect evidence**: relate taxes to profit rates across countries
  - Grubert and Mutti (1991); Hines and Rice (1994); Bartelsman and Beetsma (2003); Egger, Eggert and Winner (2010)

- **Aggregate data**: related-party trade data at industry level
  - Swensen (2001)

- **Cross-sectional variation**: contemporaneous price difference between arm’s length and intra-firm transaction prices
  - Clausing (2003); Bernard, Jensen and Schott (2006)

- **U.S. Evidence**: data availability
Main Findings

- Direct evidence of transfer pricing by Danish multinationals.

A 10% increase in the absolute difference in tax rates:

- 6-10% lower export prices to low corporate tax rate countries
- no robust evidence of higher export prices to high corporate tax rate countries

- Transfer pricing is more prominent for:
  - trade in differentiated goods
  - countries with double taxation agreements
  - countries with poor judicial quality

- Back-of-envelope calculation for year 2006:

  Forgone tax revenues from underreported exports to low tax countries ≈ 3.2% of Danish MNCs tax returns
Outline

- Theory Framework
- Estimation Method + Identification Strategy
- Data Sources
- Results
- Conclusions
Theory Framework

Main goal:

- characterize the optimal **pricing decision** of a multinational
- for a product traded **intra-firm (TP)** and **arm’s length (AL)**
- in the presence of **tax rate differences** across locations, which give rise to **profit shifting** motives

Partial equilibrium model

- Focus on a multinational firm: parent + foreign affiliate
Theory Framework

Set-up (Bernard, Jensen, Schott (2006)):

- 2-country model + frictionless trade
- single product firm \((k)\)
- iso-elastic demand structure \((\sigma = \text{demand elasticity})\)
- corporate tax rates differ across countries:

\[
\tau = \text{corporate tax rate in the foreign country}
\]
\[
\tau + h, \forall h = \text{corporate tax rate in the home country}
\]

\(\Rightarrow \) \(h\) denotes the tax wedge
Taxation Problem of a Multinational Corporation

Simplifying assumptions:

- All production takes place at the parent firm
- Parent firm exports goods to affiliated and unaffiliated parties
- Foreign affiliates act as distribution centers, selling locally finished goods imported from the parent firm
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- All production takes place at the parent firm
- Parent firm exports goods to affiliated and unaffiliated parties
- Foreign affiliates act as distribution centers, selling locally finished goods imported from the parent firm

Each firm chooses price and quantity to maximize after-tax profits

Each firm acts as separate entity for taxation purposes
Foreign Affiliate’ Problem

$q_f = \text{quantity imported from parent firm}$
$c_f = \text{intra-firm ‘incentive’ price (≠ transfer price)}$
$p_f = \text{product re-sale price in the local market}$
$p_{tp} = \text{transfer price consistent with arm’s length taxation principle}$

After tax profits maximized by the foreign affiliate ($f$):

$$\pi_f = \tilde{\pi}_f - \text{tax}_f$$

$$= (p_f q_f - c_f q_f) - \tau(p_f q_f - p_{tp} q_f)$$
Foreign Affiliate’ Problem

\( q_f = \) quantity imported from parent firm
\( c_f = \) intra-firm ‘incentive’ price (\( \neq \) transfer price)
\( p_f = \) product re-sale price in the local market
\( p_{tp} = \) transfer price consistent with arm’s length taxation principle

After tax profits maximized by the foreign affiliate (\( f \)):

\[
\pi_f = \tilde{\pi}_f - \text{tax}_f
= (p_f q_f - c_f q_f) - \tau (p_f q_f - p_{tp} q_f)
\]

\( \Rightarrow \) Optimal sale price set by the foreign affiliate is:

\[
p_f = \frac{1}{1 - \tau \sigma - 1} (c_f - \tau p_{tp})
\]
Parent Firm’s Problem

- Produce final goods at a constant marginal cost $c$
- Earn revenue from trading intra-firm and arm’s length ($al$)
- After-tax profits for the parent firm ($p$):

$$\pi_p = \tilde{\pi}_p - tax_p$$
$$= [p_{al}q_{al} + c_f q_f - c(q_{al} + q_f)] - (\tau + h)[p_{al}q_{al} + p_{tp} q_f - c(q_{al} + q_f)]$$

$\Rightarrow$ choose $\{c_f, p_{tp}, p_{al}\}$ to maximize global profits $\pi_p + \pi_f$
Parent Firm’s Problem

- Produce final goods at a constant marginal cost $c$
- Earn revenue from trading intra-firm and arm’s length ($al$)
- After-tax profits for the parent firm ($p$):

\[ \pi_p = \tilde{\pi}_p - tax_p \]
\[ = [p_{al}q_{al} + c_f q_f - c(q_{al} + q_f)] - (\tau + h)[p_{al}q_{al} + p_{tp} q_f - c(q_{al} + q_f)] \]

\[ \Rightarrow \text{choose } \{c_f, p_{tp}, p_{al}\} \text{ to maximize global profits } \pi_p + \pi_f \]

- Penalty function for deviations from arm’s length pricing rule:

\[ \frac{\lambda}{2} [(p_{al} - p_{tp}) q_f]^2 \]
Maximizing global corporate profits subject to penalty leads to:

\[ p_{al} - p_{tp} = \frac{h}{\lambda q_f} \]

- \( h > 0 \) (low foreign tax) \( \Rightarrow p_{al} > p_{tp} \) (underprice intra-firm exports)
- \( h < 0 \) (high foreign tax) \( \Rightarrow p_{al} < p_{tp} \) (overprice intra-firm exports)
- \( h = 0 \) (same tax rate) \( \Rightarrow p_{al} = p_{tp} \).
Transfer Pricing

Maximizing global corporate profits subject to penalty leads to:

\[ p_{al} - p_{tp} = \frac{h}{\lambda q_f} \]

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- \( h < 0 \) (high foreign tax) \( \Rightarrow p_{al} < p_{pt} \) (overprice intra-firm exports)
- \( h = 0 \) (same tax rate) \( \Rightarrow p_{al} = p_{pt} \).

This is the prediction existing empirical studies take to the data. In what follows, we show \( p_{al} - p_{tp} \) may be downward biased.
Transfer Pricing

- Optimal arm’s length export price:
  \[ p_{al} = \left( \frac{\sigma}{\sigma - 1} c \right) \cdot \frac{1}{1 + \kappa(h, \frac{q_{al}}{q_f})}, \quad \kappa'(h, \frac{q_{al}}{q_f}) > 0 \]

- Optimal transfer price:
  \[ p_{tp} = \left( \frac{\sigma}{\sigma - 1} c \right) \cdot \frac{1}{1 + \kappa(h, \frac{q_{al}}{q_f})} - \frac{h}{\lambda q_f} \]

- Transfer price absent profit shifting motives (i.e., \( h = 0 \)):
  \[ p_0 \equiv p_{tp}|_{h=0} = \frac{\sigma}{\sigma - 1} c \]

- Note also: \( p_{al}|_{h=0} = p_{tp}|_{h=0} = p_0 \).
Numerical Solutions \( \left( \frac{p_{al}}{p_0}, \frac{p_{tp}}{p_0} \right) \)
Transfer Pricing

\( p_{tp} - p_0 \) measures the true effect of foreign taxes on transfer pricing

\( p_{al} - p_0 \) measures the bias from the deviation in arm’s length prices to conceal transfer pricing

**Prediction 1:**

i. If \( h > 0 \) (low foreign tax) ⇒ \( p_0 > p_{al} > p_{tp} \)

ii. If \( h < 0 \) (high foreign tax) ⇒ \( p_0 < p_{al} < p_{tp} \)

iii. If \( h = 0 \) (same tax rate) ⇒ \( p_0 = p_{al} = p_{tp} \).

iv. \( \frac{d(p_{tp} - p_0)}{dh} < 0 \).
Transfer Pricing

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i. If \( h > 0 \) (low foreign tax) ⇒ \( p_0 > p_{al} > p_{tp} \)

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Transfer Pricing

\( p_{tp} - p_0 \) measures the true effect of foreign taxes on transfer pricing.

\( p_{al} - p_0 \) measures the bias from the deviation in arm’s length prices to conceal TP manipulations.

**Prediction 1:**

1. If \( h > 0 \) (low foreign tax) \( \Rightarrow p_0 > p_{al} \geq p_{MNC} \geq p_{tp} \)
2. If \( h < 0 \) (high foreign tax) \( \Rightarrow p_0 < p_{al} \leq p_{MNC} \leq p_{tp} \)
3. If \( h = 0 \) (same tax rate) \( \Rightarrow p_0 = p_{al} = p_{MNC} = p_{tp} \)
4. \( \frac{d(p_{tp} - p_0)}{dh} < 0 \).

where \( p_{MNC} \equiv s_{al} \cdot p_{al} + (1 - s_{al}) \cdot p_{tp} \).

**Empirical challenge:** \( p_0 \) not observable (counterfactual reference p)
Estimation Strategy

- **Difference-in-Difference-in-Differences (DDD) estimation** method to measure $\bar{p}_{MNC} - p_0$
  - Treatment #1: establishment of new foreign affiliates
  - Treatment #2: variation in foreign corporate tax rates

- Estimate the effect of owning an affiliate in a foreign market on the price of a product exported to that market, differentiating between countries of various corporate tax rates
Identification Strategy (DDD method)

\[\begin{align*}
\text{x} &= \text{exporter in } t=1, 2 \\
\text{MNC} &= \text{exporter in } t=1, \text{MNC in } t=2 \\
\delta_j &= \text{DD estim.} \\
\end{align*}\]

\[p_{j2}^{*\text{MNC}} = p_{j1}^{\text{MNC}} + (p_{j2}^X - p_{j1}^X)\]

Treatment #1: ownership
\[\delta_j = p_{j2}^{\text{MNC}} - p_{j2}^{*\text{MNC}}\]
Export price pre/post change in foreign ownership

![Graph showing the change in export price relative to exporters over time. The y-axis represents the MNC export price, and the x-axis represents the time line for affiliate ownership. The graph includes a line indicating low tax country and a shaded area representing the change in ownership.](image)

**Time Line for Affiliate Ownership**

-5 -4 -3 -2 -1 0 1 2 3 4 5

**MNC Export Price (Relative to Exporters)**

-0.18 -0.15 -0.12 -0.09 -0.06 -0.03 0.03 0.06 0.09

-5 -4 -3 -2 -1 0 1 2 3 4 5

**Low Tax Country**

**Change Ownership**
Identification Strategy (DDD method)

\[ x = \text{exporter in } t=1, 2 \]
\[ \text{MNC} = \text{exporter in } t=1, \text{MNC in } t=2 \]

\[ p_{j2}^* = p_{j1}^{MNC} + (p_{j2}^X - p_{j1}^X) \]

Treatment #1: ownership
\[ \delta_j = p_{j2}^{MNC} - p_{j2}^* \] (DD estim.)

Treatment #2: \( \Delta \) tax rate (h)
\[ \delta_j = \beta_1 + \beta_2 \cdot h_j \]
\[ \Rightarrow \beta_2 = \frac{\delta_j - \delta_{j'}}{h_j - h_{j'}} \]
Difference-in-Difference-in-Differences (DDD) estimation model:

\[
\ln P_{ijkt} = \beta_1 D\text{Aff}_{ijt} + \left[ \beta_2 I^{Low Tax} + \beta_3 (1 - I^{Low Tax}) \right] \times |\Delta T_{jt}| \times D\text{Aff}_{ijt} + \\
+ X_{jt} \delta + X_{it} \gamma + \alpha_{ijk} + \alpha_t + \alpha_{t,Low Tax} + \alpha_{t,High Tax} + \epsilon_{ijkt}
\]

- \( i = \) firm; \( j = \) foreign market; \( k = \) product (HS 8); \( t = \) year
- \( D\text{Aff} = 1/0 \) if a firm owns an affiliate in country \( j \) at time \( t \)
- \( I^{Low Tax} = 1/0 \) if \( \text{tax}_j < \text{tax}_{DK} \)
- \( X_i = \{Sales, Employment\} \)
- \( X_j = \{Pop, GDP, ExRate, TaxRate\} \)
Data Sources

1. **Firm** level data:
   – administrative records maintained by Statistics Denmark

2. **Customs transaction** level data:
   – export flows by firm, product and destination, provided by Statistics Denmark

3. **Ownership** data:
   – annual firm reports submitted to the National Bank of Denmark and provided by Experian

4. **Statutory corporate tax rate** data:
   – University of Michigan + OECD

Sample coverage:

▶ manufacturing firms observed over 1999-2006
Data Limitations

- No information about the type of trade transaction: related party vs. arm’s length

- Observed average unit export price is a weighted average of intra-firm \((tp)\) and arm’s length \((al)\) export prices:

\[
P_{ijkt} = (1 - s_{al}) \cdot P_{ijkt}^{tp} + s_{al} \cdot P_{ijkt}^{al}
\]

- If share of arm’s length trade \(s_{al} > 0\) ⇒ estimates are a low bound of actual transfer price manipulations
Baseline Estimates

<table>
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<tr>
<th>Dependent Variable: Log $UnitVal_{ijkt}$</th>
<th>Basic</th>
<th>Foreign Owned</th>
<th>Pre-MNC Control</th>
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<td>yes</td>
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<td>{$I^{LowTax}, I^{HighTax}$} $\times$ Year FE</td>
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<td>Obs.</td>
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<td>$R^2$</td>
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<td>.898</td>
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</table>

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Standard errors clustered at country-year level in parentheses.
## Continuous Affiliates vs. New Establishments

<table>
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<td>Affiliate (\times</td>
<td>\Delta \tau_{jt}) (\times I_{LowTax})</td>
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<tr>
<td>Affiliate (\times</td>
<td>\Delta \tau_{jt}) (\times I_{HighTax})</td>
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<tr>
<td>Firm (\times) Country (\times) Product FE</td>
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<td>{I_{LowTax}, I_{HighTax}} (\times) Year FE</td>
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<td>Obs.</td>
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<td>(R^2)</td>
<td>.901</td>
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*** \(p < 0.01\), ** \(p < 0.05\), * \(p < 0.1\).

Standard errors clustered by country-year in parentheses.
## Differentiated Goods Only

<table>
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<td>Affiliate ×</td>
<td>Δτ_{jt}</td>
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<tr>
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<td></td>
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<tr>
<td>Firm × Country × Product FE</td>
<td>yes</td>
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<tr>
<td>{ILowTax, IHighTax} × Year FE</td>
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<td>Obs.</td>
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<td>R^2</td>
<td>.885</td>
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*** p < 0.01, ** p < 0.05, * p < 0.1.

Standard errors clustered by country-year in parentheses.
## Robustness: Sensitivity Analyses

<table>
<thead>
<tr>
<th>Dependent Variable: Log $UnitVal_{ijkt}$</th>
<th>Baseline</th>
<th>Double Tax Agreement</th>
<th>Poor Judicial Quality</th>
<th>Intra-firm Q Increase</th>
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</thead>
<tbody>
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<td>Affiliate</td>
<td>0.019</td>
<td>0.024</td>
<td>0.017</td>
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<tr>
<td></td>
<td>(0.021)</td>
<td>(0.027)</td>
<td>(0.047)</td>
<td>(0.032)**</td>
</tr>
<tr>
<td>Affiliate $\times</td>
<td>\Delta \tau_{jt}</td>
<td>\times I^{LowTax}$</td>
<td>-0.570</td>
<td>-0.634</td>
</tr>
<tr>
<td></td>
<td>(0.272)**</td>
<td>(0.291)**</td>
<td>(0.356)**</td>
<td>(0.622)*</td>
</tr>
<tr>
<td>Affiliate $\times</td>
<td>\Delta \tau_{jt}</td>
<td>\times I^{HighTax}$</td>
<td>0.275</td>
<td>0.304</td>
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<tr>
<td></td>
<td>(0.274)</td>
<td>(0.867)</td>
<td>(0.698)*</td>
<td>(0.277)</td>
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</table>

Firm $\times$ Country $\times$ Product FE: yes yes yes yes

Firm $\times$ Country $\times$ Product $\times$ Year FE: yes yes yes yes

<table>
<thead>
<tr>
<th>Obs.</th>
<th>1,203,111</th>
<th>871,457</th>
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<td>$R^2$</td>
<td>0.898</td>
<td>0.896</td>
<td>0.900</td>
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</table>

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Standard errors clustered by country-year in parentheses.
Summary of Results

1. Relative to exporters, Danish multinational firms set:

   ▶ 6-10 % lower export prices to low tax rate countries as a result of 10 % increase in the absolute tax rate difference.

   ▶ no robust evidence of higher export prices to high corporate tax rate countries

2. Transfer price manipulations are larger in the case of:

   ▶ differentiated goods
   ▶ double taxation agreement countries
   ▶ countries with poor judicial systems
Back-of-Envelope Calculations

- Tax revenue lost due to the profit shifting activities of multinational firms via transfer price manipulations:

\[
\text{Lost Export Revenue} = \sum_{j \in \text{LowTax}} \left( \hat{\beta}_3 (tax_{Dk} - tax_j) \cdot X_{\text{MNC},j} \right)
\]

- Using export data for year 2006, we find:

  - $141 million underreported export revenues from lower than arm’s length transfer prices to affiliates in low tax countries
  - $40 million in forgone corporate tax revenues $\approx 3.24\%$ of total tax receipts from MNCs
Conclusions

- Multinational firms can minimize their global tax burden by shifting profits to low tax countries via transfer pricing.

- Firm level panel data and a triple difference estimation strategy to identify the extent of transfer price manipulations.

- Exploit variation in export prices in response to acquisitions of new affiliates in countries of different corporate tax rates.

- Find that multinationals underreport exports to low tax countries, leading to economically important losses in tax revenues.
Thank You!
Endogeneity of FDI Investments

- MNCs locate affiliates to take advantage of transfer pricing
  - \( D_{aff} = 1 \Leftrightarrow \text{gain from transfer pricing } |p_{tp} - p_0| \text{ is large} \)
  - \( D_{aff} = 0 \Leftrightarrow \text{gain from transfer pricing } |p_{tp} - p_0| \text{ is small} \)

- Main determinants of transfer price manipulations \( |p_{tp} - p_0| \):
  - foreign tax rate
  - quality of institutions (enforcement of tax avoidance penalty)
  - share of intra-firm trade \(\leftrightarrow\) vertical/distribution FDI

Regression controls and fixed effects already account for these.
Examples of Well-Known Danish Multinationals

VESTAS Wind Turbine

Carlsberg

Shoes for Life

MAERSK Liner Shipping Company

novo nordisk

changing diabetes
Statutory vs. Effective Corporate Tax Rates

- Studies investigating the impact of taxation on location of investments typically use *effective corporate tax rates*

- Concerns about *effective corporate tax rates*:
  - Measured with error, especially when calculated at firm level
  - Endogenous to the investment decision and to profit shifting
  - Possibly correlated with country characteristics (inflation, business cycle, domestic reforms)

⇒ This paper uses data on *statutory corporate tax rates*
  - drawback: do not reflect all the tax benefits a firm qualifies to at the time of investment
# Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean (1)</th>
<th>St. Dev. (2)</th>
<th>Min (3)</th>
<th>Max (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firm Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log Price</td>
<td>4.982</td>
<td>1.783</td>
<td>.397</td>
<td>9.552</td>
</tr>
<tr>
<td>Log Quantity</td>
<td>4.500</td>
<td>2.918</td>
<td>.000</td>
<td>18.572</td>
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<tr>
<td>Log Employment</td>
<td>4.556</td>
<td>1.654</td>
<td>-4.605</td>
<td>9.440</td>
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<tr>
<td>Log Sales</td>
<td>11.886</td>
<td>1.715</td>
<td>.693</td>
<td>17.045</td>
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<tr>
<td><strong>Firm Level Indicator Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-MNC Exporters</td>
<td>.483</td>
<td>.500</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>Majority-owned Affiliate (Daff50)</td>
<td>.114</td>
<td>.317</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>Acquired Affiliates (during sample)</td>
<td>.027</td>
<td>.163</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>Sold Affiliates (during sample)</td>
<td>.011</td>
<td>.106</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>Foreign owned</td>
<td>.178</td>
<td>.382</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td><strong>Country Characteristics</strong></td>
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<td></td>
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<tr>
<td>Statutory Corporate Tax Rate</td>
<td>.283</td>
<td>.069</td>
<td>.085</td>
<td>.450</td>
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<tr>
<td>Low Corporate Tax Rate Dummy</td>
<td>.544</td>
<td>.498</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>High Corporate Tax Rate Dummy</td>
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<td>.477</td>
<td>.000</td>
<td>1.000</td>
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<tr>
<td>Low Tax Wedge (CorpTax_{DK} - CorpTax_{j})</td>
<td>.061</td>
<td>.056</td>
<td>.008</td>
<td>.235</td>
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<tr>
<td>High Tax Wedge (CorpTax_{j} - CorpTax_{DK})</td>
<td>.049</td>
<td>.024</td>
<td>.010</td>
<td>.150</td>
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</tbody>
</table>
## Robustness: Level Changes and Marginal Effects

<table>
<thead>
<tr>
<th></th>
<th>Dependent Variable: Log $UnitVal_{ijkt}$</th>
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<tbody>
<tr>
<td></td>
<td>(1)</td>
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<tr>
<td>Affiliate</td>
<td>.019</td>
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<tr>
<td></td>
<td>(.021)</td>
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<tr>
<td>Affiliate $\times I^{LowTax}$</td>
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</tr>
<tr>
<td></td>
<td>(.025)</td>
</tr>
<tr>
<td>Affiliate $\times</td>
<td>\Delta \tau_{jt}</td>
</tr>
<tr>
<td></td>
<td>(.272)**</td>
</tr>
<tr>
<td>Affiliate $\times I^{HighTax}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.031)**</td>
</tr>
<tr>
<td>Affiliate $\times</td>
<td>\Delta \tau_{jt}</td>
</tr>
<tr>
<td></td>
<td>(.274)</td>
</tr>
<tr>
<td>Firm x Country x Product FE</td>
<td>yes</td>
</tr>
<tr>
<td>${I^{LowTax}, I^{HighTax}} x Year FE$</td>
<td>yes</td>
</tr>
<tr>
<td>Obs.</td>
<td>1,203,111</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.898</td>
</tr>
</tbody>
</table>

### Marginal Effects:
- Low Tax Country: $-0.025 \quad (0.015)^*$
- High Tax Country: $0.045 \quad (0.016)^{***}$

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Standard errors clustered by country-year in parentheses.
This Paper: Evidence from Denmark

- Firm-level dataset on the export transactions of Danish firms
- Multinationals play a large role in Denmark’s foreign trade:
  30-40 % of trade flows
- Denmark operates a territorial tax system:
  – foreign income is exempt from taxation in Denmark
- Priority of tax authorities to uncover profit shifting mechanisms
  - 28% of Danish and 30% of foreign multinationals paid zero corporate taxes during the period 2006-2008