# 1 Introduction

(1995) (1997)

(2005) (2007)
(2007) (2008)
(2010)

( 1982 1990; 1991)

(2010)

(1)

(2)

(2009; 2012)

(2009; 2010)

(2012)

2003

(2008)

(1996)

# 2 Basic Facts in Colombian Data

**Fact one: within each industry some plants purchase imported inputs while others do not.**

Table 1: Number and Percentage of Importers: 1977-1989

| SIC | Industry Name | #Plants | #Importers | %Importers | Share imported |
|---|---|---|---|---|---|
| 3511 | Basic Ind Chemicals | 164 | 80 | 0.4878 | 0.1804 |
| 3522 | Pharmaceuticals | 232 | 179 | 0.7716 | 0.6216 |
| 3560 | Plastics | 747 | 291 | 0.3896 | 0.2788 |
| 3240 | Leather Shoes | 769 | 81 | 0.1053 | 0.0631 |
| 3420 | Printing&Publishing | 933 | 278 | 0.2980 | 0.3739 |
| 3220 | Clothing | 2613 | 121 | 0.0463 | 0.0410 |
| | All six Industries | 5458 | 1030 | 0.1887 | 0.2842 |

Notes: "Share imported" is defined as the value share of the imported material in the total value of material used.

**Fact two: turnover in importing status.**

t

t + 1

Table 2: Plants that Begin and Stop Importing Materials

| Year | #Importer | #Incumbent | #Begin | # Stop |
|---|---|---|---|---|
| 1977 | 341 | - | - | 63 |
| 1978 | 324 | 297 | 27 | 39 |
| 1979 | 332 | 294 | 38 | 45 |
| 1980 | 358 | 303 | 55 | 40 |
| 1981 | 369 | 328 | 41 | 57 |
| 1982 | 332 | 290 | 42 | 47 |
| 1983 | 329 | 296 | 33 | 50 |
| 1984 | 305 | 283 | 22 | 36 |
| 1985 | 313 | 282 | 31 | 36 |
| 1986 | 313 | 291 | 22 | 31 |
| 1987 | 314 | 291 | 23 | 28 |
| 1988 | 312 | 283 | 29 | 26 |
| 1989 | 315 | 292 | 23 | - |

**Fact three: strong persistence in plants' importing status over time.**

t

t + 1 t

t + 1

Table 3: Transition Probability of Importing Status

| Probability | | Date t+1 | |
|---|---|---|---|
| | | Import | Not Import |
| Date t | Import | 0.8737 | 0.1263 |
| | Not Import | 0.0247 | 0.9753 |

(2008)

(2008)

(2010)

**Fact four: importers have relatively higher value added per worker.**

Table 4: Mean of Value Added Per Worker: Importers and Non-importers
(1,000 Colombia Peso, 1977)

| SIC | Industry Name | Non-importers | Importers | All Firms |
|---|---|---|---|---|
| 3511 | Basic Ind Chemicals | 333.47 | 442.22 | 380.29 |
| 3522 | Pharmaceuticals | 86.25 | 210.10 | 174.46 |
| 3560 | Plastics | 88.81 | 142.21 | 107.55 |
| 3240 | Leather Shoes | 84.41 | 113.07 | 86.65 |
| 3420 | Printing&Publishing | 77.87 | 126.03 | 89.57 |
| 3220 | Clothing | 91.67 | 99.61 | 91.87 |
| | All six Industries | 115.37 | 177.30 | 126.01 |

# 3 The Model

## 3.1 Timing Story

$K_{jt}$

$!_{jt}$ $d_{jt}$

$t$

$s_{jt} = f K_{jt}; !_{jt}; d_{jt};\ _t g$ $j$ $t$:

$M_{jt}$:

$M_{jt}$

A

$A = 1$

$A > 1$

$A < 1$

j

$$\ln Q_{jt} = {}_{l} \ln L_{jt} + {}_{m} \frac{1}{} \ln \left[ M_{jdt}^{\frac{-1}{}} + (A M_{jft})^{\frac{-1}{}} \right] + {}_{k} \ln K_{jt} + !_{jt} + {}_{jt}$$

$$\ln Q_{jt} = {}_{l} \ln L_{jt} + {}_{m} \ln M_{jdt} + {}_{k} \ln K_{jt} + !_{jt} + {}_{jt}$$

$$Q_{jt}^{D} = \left( \frac{I_t}{P_t} \right) \left( \frac{P_{jt}}{P_t} \right) \quad {}_{t} P_{jt}$$

$P_{jt}$ $P_t$ $I_t$

t $\frac{I_t}{P_t^{1+}}$

## 3.3 Plants' Static Decision

---

$A$

$M$ $M$

$(A)$

$A = \frac{d}{f}$ (

$$s_{jt} = f K_{jt}; !_{jt}; d_{jt}; \ _{t} g$$

$d_{jt} = 1$ j

j

$L_{jt}; M_{jtd}$ $M_{jtf}$

$L_{jt}; M_{jtd}$

$M_{jtf}$

$d_{jt} = 0$ t

### 3.4 Dynamic Choice of Importing Status

$C^s_{jt}$ $C^f_{jt}$

$C^s_{jt}$ $F^s$

$C^f_{jt}$ $F^f$

$!_{jt}$

$$!_{jt} = E(!_{jt} \mid !_{jt-}; d_{jt-}) + "_{jt}$$
$$= g(!_{jt-}; d_{jt-}) + "_{jt}; \quad "_{jt} \quad N(0; \ ")$$

$"_{jt}$

$"$

$d_{jt-}$

$K_{jt}$ $i_{jt-}$

$$K_{jt} = (1 \quad _k)K_{jt-} + i_{jt-} \quad _k$$

$j$

$$V(s_{jt}) = \iint \left[ \ (s_{jt}) + \max_{d_{jt+1}} \left\{ V \ (s_{jt}) \quad d_{jt}C^f_{jt} \quad (1 \quad d_{jt})C^s_{jt}; V \ (s_{jt}) \right\} \right] dF^s dF^f$$

$V \ (s_{jt})$ $V \ (s_{jt})$

$d_{jt}$

$t$ $t$

$C^f_{jt}$ $t+1$

$t$ $C^s_{jt}$

$V(s_{jt})$ $V(s_{jt})$

$$V(s_{jt}) = E_t V(s_{jt} \mid s_{it}; d_{jt} = 1)$$
$$V(s_{jt}) = E_t V(s_{jt} \mid s_{it}; d_{jt} = 0)$$

$!_{jt}$

$t$

$$V(s_{jt}) = \max_{I_{jt}} \iint V(s_{jt}; d_{jt} = 1) dF(!_{jt} \mid !_{jt}; d_{jt}) dF(\ _t \mid \ _t)$$

$$V(s_{jt}) = \max_{I_{jt}} \iint V(s_{jt}; d_{jt} = 0) dF(!_{jt} \mid !_{jt}; d_{jt}) dF(\ _t \mid \ _t)$$

$$I_{jt} = I_t(!_{jt}; k_{jt}; d_{jt})$$

$s_{jt}$

# 4 Estimation Strategy

$_l; \ _m; \ _k; \ ; A; \ ; g(\ ;\ ); \ _{"}; F^s; F^f:$

$A;$

$;$ $g(\ ;\ )$ $A$

$g(\ ;\ )$

l; m; k

!jt−

g( ; )

A djt−

g( ; )

l; m; k

g( ; )

l m

l; m; k; A;

l m

## 4.1 Stage One: Production Parameters: $_l$; $_m$; $_k$; A; ; g; $^2_\varepsilon$

l; m; k

x = ln X djt

$$q_{jt} = {}_l l_{jt} + {}_m \frac{1}{} \ln\left[M_{jdt}^{\frac{-1}{}} + (AM_{jft})^{\frac{-1}{}} d_{jt}\right] + {}_k k_{jt} + !_{jt} + {}_{jt}$$

$!_{jt} + {}_{jt}$ $!_{jt}$

${}_{jt}$

$d_{jt}$ ${}_{jt}$

${}_{jt}$ $d_{jt}$:

$!_{jt}$

$d_{jt}$ $!_{jt}$

$!_{jt}$

$i_{jt} = i_t(!_{jt}; k_{jt}; d_{jt})$

$!_{jt}$ $!_{jt} = !_t(i_{jt}; k_{jt}; d_{jt})$;

$$\begin{aligned} q_{jt} &= {}_l l_{jt} + \frac{{}_m}{1} \ln\left[M_{jdt}^{\frac{-1}{}} + (AM_{jft})^{\frac{-1}{}} d_{jt}\right] + {}_k k_{jt} \\ &\quad + !_t(i_{jt}; k_{jt}; d_{jt}) + {}_{jt} \\ &= {}_l l_{jt} + {}_m \frac{}{1} \ln\left[M_{jdt}^{\frac{-1}{}} + (AM_{jft})^{\frac{-1}{}} d_{jt}\right] + (i_{jt}; k_{jt}; d_{jt}) + {}_{jt} \end{aligned}$$

$(i_{jt}; k_{jt}; d_{jt})$

$\widehat{}_l$ $\widehat{}_m$ $\widehat{A}$;

$\widehat{}$; ( )

$l_{jt}; M_{jdt}; M_{jft}; i_{jt}; k_{jt}$ $d_{jt}$

${}_{jt}$: $(i_{jt}; k_{jt}; d_{jt})$

$\widehat{}_{jt}$ $(i_{jt}; k_{jt}; d_{jt})$

$!_{jt} = \widehat{}_{jt}$ ${}_k k_{jt}$ $!_{jt}$

$!_{jt} = g(!_{jt-}; d_{jt-}) + "_{jt}$ $!_{jt-}$ $!_{jt-} = \widehat{}_{jt-}$ ${}_k k_{jt-}$

$$\widehat{}_{jt} = {}_k k_{jt} + g\left(\widehat{}_{jt-} {}_k k_{jt-}; d_{jt-}\right) + "_{jt} + {}_{jt}$$

k

---

$w$

$g(\ ;\ )$ $\hat{\ }_{jt}; \hat{\ }_{jt-}\ ; k_{jt-}\ ;\quad d_{jt-}$

$g(\ ;\ )$ $g(!_{jt-}\ ; d_{jt-}) = g\ + g_{!}\, !_{jt-}\ + g_d d_{jt-}$

$g_{!}$ $g_d$

$g_d$

$k$

$$\widehat{!_{jt}} = \widehat{\ }_{jt} \quad \widehat{\ }_k k_{jt}$$

## 4.2 Stage Two: Demand Elasticity and Profit Function

$$C_{jt} = \frac{1+}{\quad}(\ _{l} + \ _{m})\, R_{jt} + \ _{jt}$$

$_{jt}$

$l$ $m$

**Construct the profit function.**

$r_k; r_w;\quad r_d$

$$\widetilde{r}_{jt} = \log(R_{jt}) \quad (r_w \widehat{!_{jt}} + r_k k_{jt} + r_d d_{jt}):$$

$$\widetilde{r}_{jt} = \sum_{t} \ _{t} D_t + e_{jt}$$

$e_{jt}$

$$R_{jt} = \exp(\sum_t {}_t D_t + r_k k_{jt} + r_w !_{jt} + r_d d_{jt}):$$

$$( {}_t; w_{jt}; k_{jt}; d_{jt}) ;$$

$$_{jt} = \left[1 \quad \frac{1+}{} ( \quad + \quad )\right] \exp\left( \begin{array}{c} \sum_t {}_t D_t + r_k k_{jt} \\ + r_w !_{jt} + r_d d_{jt} \end{array} \right)$$

## 4.3 Stage Three: Sunk/Fixed Cost Parameters

$$_t$$

$$_t$$

$$_t$$

$$d_{jt} = 1$$

$$s_{jt} = f !_{jt}; k_{jt}; d_{jt}; {}_t g$$

$$\begin{aligned} L_{jt} &= \Pr f d_{jt} = 1 \, j \, s_{jt} g \\ &= \Pr \left\{ d_{jt} C^f_{jt} + (1 \quad d_{jt}) C^s_{jt} \quad V \ (s_{jt}) \quad V \ (s_{jt}) \, j \, s_{jt} \right\} \end{aligned}$$

$$d_{jt} = 0 \quad 1 \quad L_{jt}$$

$$d_{jt}$$

$$L_{jt} = d_{jt} \quad L_{jt} + (1 \quad d_{jt} \ )(1 \quad L_{jt})$$

$$L_j = \prod_{t \quad T} L_{jt}$$

$$L = \prod_{j \in N} L_j = \prod_{j \in N} \prod_{t \in T} L_{jt}$$

$F^s$

$F^f$

$C^s_{jt} \sim \exp(cs)$

$C^f_{jt} \sim \exp(cf)$ $(cs; cf)$

$V(s_{jt})$ $V(s_{jt})$

$V(s_{jt})$ $V(s_{jt})$

# 5 Estimation Results

$s_{jt}$

$d_{jt-}$ $d_{jt}$

## 5.1 Production and Productivity Evolution

Table 5: Parameters of Static Inputs in the Production Function (NLLS)

| Industry | B.I.Chemicals | Pharmaceuticals | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| $\alpha_l$ | 0.4260 | 0.3466 | 0.3034 | 0.4736 | 0.4956 | 0.5510 |
| | (0.0024) | (0.0026) | (0.0013) | (0.0012) | (0.0006) | (0.0003) |
| $\alpha_m$ | 0.3420 | 0.5774 | 0.6253 | 0.4015 | 0.4283 | 0.3666 |
| | (0.0011) | (0.0019) | (0.0006) | (0.0006) | (0.0003) | (0.0001) |
| A | 1.0006 | 0.9255 | 1.0903 | 1.0001 | 0.9317 | 0.9995 |
| | (0.4611) | (0.0828) | (0.0233) | (0.5430) | (0.0359) | (0.1013) |
| $\theta$ | 5.0069 | 9.6690 | 21.5337 | 2.7108 | 22.3194 | 9.2140 |
| | (0.1287) | (0.0897) | (0.0577) | (0.3821) | (0.0479) | (0.5232) |
| age | 0.0469 | 0.0361 | 0.0294 | 0.0077 | -0.0415 | 0.0129 |
| | (0.0031) | (0.0018) | (0.0010) | (0.0010) | (0.0003) | (0.0003) |
| ownership | 0.1514 | 0.0582 | 0.0133 | 0.1222 | 0.1507 | 0.1301 |
| | (0.0083) | (0.0081) | (0.0045) | (0.0257) | (0.0024) | (0.0061) |

Notes: The standard errors are in the parentheses.

l m

(A)

A

A

A

A

(A)

A < 1

A = 1

A

(2009; 2010)

A

Table 6: Parameters in Productivity Evolution and Capital Share (NLLS)

| Industry | Chemicals | Pharmaceuticals | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| Panel A: Basic Model | | | | | | |
| $\alpha_k$ | 0.1111 | 0.0992 | 0.0586 | 0.0917 | 0.1083 | 0.0580 |
| | (0.0065) | (0.0027) | (0.0013) | (0.0023) | (0.0002) | (0.0005) |
| $g_0$ | 0.3954 | 0.1282 | 0.2527 | 0.4600 | 0.6003 | 0.3501 |
| | (0.5068) | (0.4933) | (0.4217) | (1.0083) | (0.0302) | (0.2000) |
| $g_\omega$ | 0.9032 | 0.9224 | 0.8421 | 0.7259 | 0.3906 | 0.7753 |
| | (0.0324) | (0.1773) | (0.1754) | (0.2895) | (0.0153) | (0.0719) |
| $g_d$ | 0.0148 | 0.0092 | 0.0122 | 0.0213 | 0.0568 | 0.0050 |
| | (0.0061) | (0.0067) | (0.0036) | (0.0141) | (0.0012) | (0.0047) |
| $\sigma_\omega$ | 0.0762 | 0.0310 | 0.0329 | 0.0397 | 0.0682 | 0.0329 |
| Panel B: Control for Export | | | | | | |
| $\alpha_k$ | 0.1247 | 0.0723 | 0.0537 | 0.0854 | 0.0911 | 0.0545 |
| | (0.0096) | (0.0036) | (0.0014) | (0.0020) | (0.0002) | (0.0007) |
| $g_0$ | 0.5583 | 0.2743 | 0.3085 | 0.5481 | 0.6390 | 0.4593 |
| | (0.9385) | (0.9876) | (0.5828) | (0.9686) | (0.0320) | (0.3650) |
| $g_\omega$ | 0.8240 | 0.7719 | 0.7919 | 0.6954 | 0.3154 | 0.7202 |
| | (0.1169) | (0.5460) | (0.2666) | (0.2548) | (0.0128) | (0.1111) |
| $g_d$ | 0.0150 | 0.0213 | 0.0115 | 0.0205 | 0.0277 | 0.0026 |
| | (0.0072) | (0.0128) | (0.0035) | (0.0157) | (0.0012) | (0.0070) |
| $g_e$ | 0.0172 | -0.0005 | 0.0066 | 0.0262 | 0.0036 | 0.0012 |
| | (0.0085) | (0.0001) | (0.0040) | (0.0115) | (0.0000) | (0.0000) |
| $\sigma_\omega$ | 0.0994 | 0.0621 | 0.0402 | 0.0588 | 0.1307 | 0.0472 |

Notes: Standard errors in parentheses.

k

g $g_w$

$w_{jt}$ $w_{jt}$ $g_d$

$g_e$ w

$N(0; \ _w)$

0:0050

0:0568

0:0026

0:0277

$g_d$ 0:0026 0:0277

0:16% 2:92%

$g_d$

## 5.2 Demand and Revenue Function

Table 7: Demand Elasticity and Constructed Revenue Function

| Industry | B.I.Chemicals | Pharmaceuticals | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| Panel A: Revenue Function | | | | | | |
| $r_\omega$ | 0.7920 | 1.7661 | 2.0021 | 1.8300 | 1.6968 | 1.8764 |
| $r_k$ | 0.1286 | 0.1382 | 0.1157 | 0.1785 | 0.1673 | 0.1113 |
| $r_d$ | 0.0611 | 0.0526 | 0.1268 | 0.3402 | 0.0074 | 0.0630 |
| $r_0$ | 12.9609 | 12.9649 | 12.1032 | 10.0024 | 11.7837 | 11.1879 |
| Panel B: Implied Revenue Elasticity | | | | | | |
| productivity | 2.5328 | 2.2258 | 3.2128 | 3.6272 | 1.8669 | 3.4363 |
| capital | 0.1286 | 0.1382 | 0.1157 | 0.1785 | 0.1673 | 0.1113 |
| importing | 0.0630 | 0.0540 | 0.1352 | 0.4052 | 0.0074 | 0.0651 |
| Panel C: Demand Elasticity | | | | | | |
| $\eta$ | -2.3554 | -3.2365 | -3.5475 | -3.8308 | -3.1350 | -3.4588 |
| | (0.0127) | (0.0064) | (0.0024) | (0.0033) | (0.0029) | (0.0022) |

Notes: (1) the revenue parameters are constructed from parameters estimated in stage 1. Therefore I do not report the standard deviations for revenue parameters in this table. (2) The standard deviation for demand elascitity is reported in parentheses. (3) Revenue elasticity of productivity = (exp(0.01*productivity*$r_\omega$)-1)*100. Productivity is the chosen industry mean. (4) Revenue elasticity of capital = $r_{k.}$ (5) The third row in Panel B represents the percentage gain of revenue when a plant imports. It is defined as = exp(rd)-1. Strictly speaking, it is not a concept of elasticity. (6) Standard deviations for demand elasticity are in parentheses.

$r_0$

$r_!$

$r_! = 0{:}7920$

1% 2:53% $r_k$

$r_k = 0{:}1286$

1%

0:1286%

$r_d > 0$

$r_d$

0:74% 40:52%

## 5.3 Fixed and Sunk Cost

### 5.3.1 Distribution of the Sunk and Fixed Costs

$_s = \log(cs); \ _f = \log(cf)$ s s

cs cf s

s

s f

15

8:78% 63:70%

5:30%

$d$ $\exp(r\ ) \quad 1.$

21:73%

# 6 Robustness Check

0:0042 0:0322

0:1146 0:4012

# 7 Self Selection

$$s_{jt} = (w_{jt}; k_{jt}; d_{jt} = 0)$$

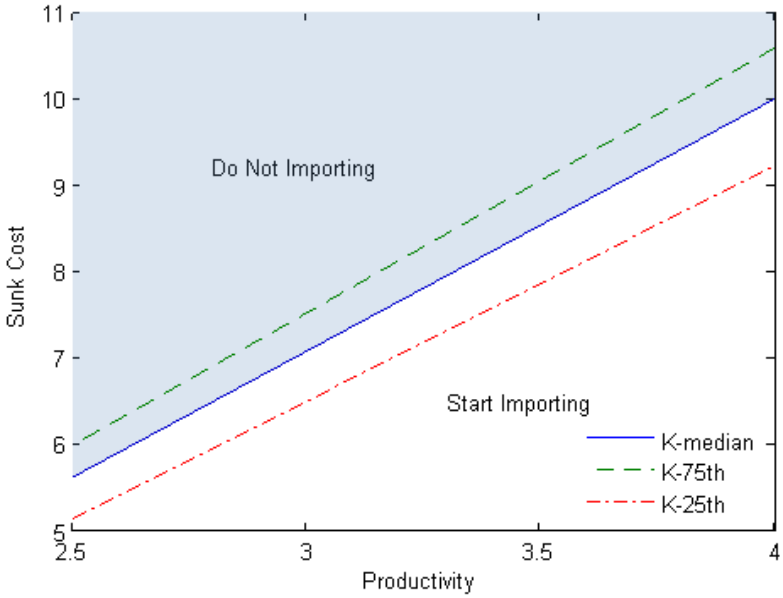
$$C^{s}_{jt} \quad V\ (s_{jt;} d_{jt} = 0) \quad V\ (s_{jt;} d_{jt} = 0)$$

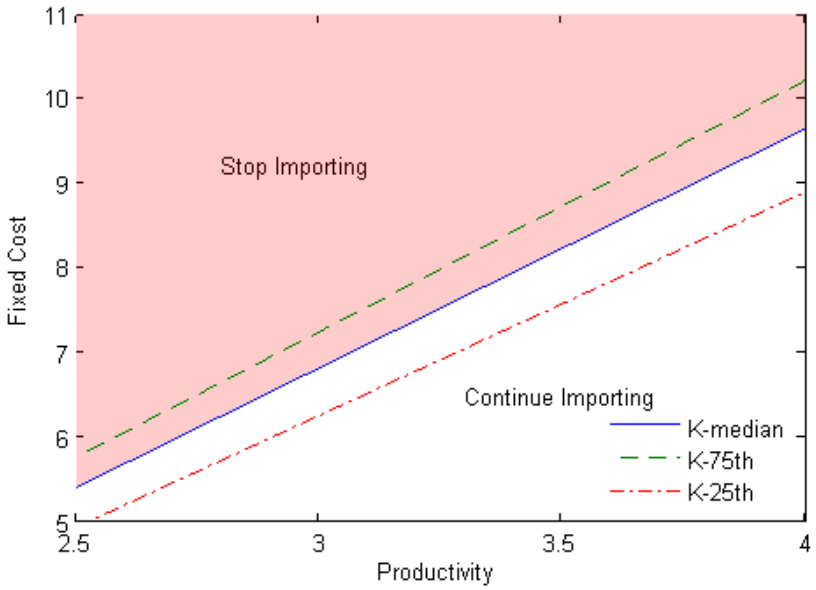
$V\ (s_{jt})$ $V\ (s_{jt})$ $s_{jt;}$
$V\ (s_{jt}) = V(s_{jt}; d_{jt} = 1)$ $V\ (s_{jt}) = V(s_{jt}; d_{jt} = 0)$

$$s_{jt} = (!_{jt}; k_{jt}; d_{jt} = 1)$$

$$C^{f}_{jt} \geqslant V\ (s_{jt;} d_{jt} = 1) \quad V\ (s_{jt;} d_{jt} = 1)$$

$V\ (s_{jt}) = V(s_{jt}; d_{jt} = 1)$
$V\ (s_{jt}) = V(s_{jt}; d_{jt} = 0)$ $V\ (s_{jt})$ $V\ (s_{jt})$
$V(s_{jt}; d_{jt})$ $V(s_{jt}; d_{jt})$
$(s_{jt}; d_{jt})$ :


11
10
9
8
7
6
5
Sunk Cost
Do Not Importing
Start Importing
K-median
K-75th
K-25th
2.5
3
3.5
4
Productivity


11
10
9
8
7
6
5
Fixed Cost
Stop Importing
Continue Importing
K-median
K-75th
K-25th
2.5
3
3.5
4
Productivity

# 8 Gains from Importing Intermediate Inputs

## 8.1 Gains from Importing

$$
\begin{aligned}
V(!_{jt}; K_{jt}) &= \quad_{s_{jt}} + \max_{i_{jt}} E_{!_{jt+1}} V(!_{jt} \quad ; K_{jt} \quad) \\
\text{s:t:}\ K_{jt} &= i_{jt} + (1 \quad_{k}) K_{jt-} \\
!_{jt} &= E(!_{jt} \mid !_{jt-} ; d_{jt-} = 0) + "_{jt}
\end{aligned}
$$

$$V(s_{jt}) \quad V(!_{jt}; K_{jt})$$

$(!_{jt}; k_{jt})$

0:87%  22:28%

Table 9: Total Gains From Importing (in millions of 1977 Pesos)

| Industry Name | V(sjt) | V(wjt,kjt) | Total Gain | Pctg. Gain |
|---|---|---|---|---|
| Basic Ind Chemicals | 423.1123 | 361.8917 | 61.2206 | 14.47% |
| Pharmaceuticals | 471.2608 | 366.2508 | 105.0101 | 22.28% |
| Plastics | 327.7048 | 274.4459 | 53.2589 | 16.25% |
| Leather Shoes | 94.6134 | 88.7746 | 5.8388 | 6.17% |
| Printing&Publishing | 96.1717 | 91.8480 | 4.3237 | 4.50% |
| Clothing | 91.1762 | 90.3861 | 0.7900 | 0.87% |

Notes: "Pctg. Gain" refers to the percentage gain from importing.

## 8.2 Static and Dynamic Gains from Importing

$g_d = 0$

$g_d = 0$

$V(s_{jt} \mid g_d = 0)$

$V(s_{jt} \mid g_d = 0)$

$= V(s_{jt})$  $V(s_{jt} \mid g_d = 0)$

$V(s_{jt} \mid g_d = 0)$

$V(!_{jt}; K_{jt})$

$= V(s_{jt} \mid g_d = 0) \quad V(!_{jt}; K_{jt})$

$V(s_{jt} \mid g_d = 0)$

$V(s_{jt} \mid g_d = 0)$

$V(s_{jt})$

$V(s_{jt} \mid A = 1)$

$V(s_{jt} \mid A = 1)$

$A = 1$

$= V(s_{jt}) \quad V(s_{jt} \mid A = 1)$

$V(\omega \ , K \ )$

Table 10: Dynamic and Static Effects from Importing (in millions of 1977 Pesos)

| Industry Name | Dynamic Effect | | Static Effect | | Total E. |
|---|---|---|---|---|---|
| | Value | Pctg. | Value | Pctg. | |
| Basic Ind Chemicals | 58.9987 | 96.37% | 61.2299 | 3.63% | 61.2206 |
| Pharmaceuticals | 102.8105 | 97.91% | 2.1996 | 2.09% | 105.0101 |
| Plastics | 51.6595 | 97.00% | 1.5993 | 3.00% | 53.2589 |
| Leather Shoes | 5.0599 | 86.66% | 0.7789 | 13.34% | 5.8388 |
| Printing&Publishing | 4.2915 | 99.26% | 0.0322 | 0.74% | 4.3237 |
| Clothing | 0.6800 | 86.07% | 0.1101 | 13.93% | 0.7900 |

Notes: "Pctg." refers to percentage, and defined as the share of gain from each effect in the total gain from importing.

=

0:02%

1:34%

A < 1

A

A > 1

Table 11: Components of Static Effect (in millions of 1977 Pesos)

| Industry Name | Static Effect (total) | | Quality Effect | | Variety Effect | |
|---|---|---|---|---|---|---|
| | Value | Pctg. | Value | Pctg. | Value | Pctg. |
| Basic Ind Chemicals | 61.2299 | 3.63% | 0.0093 | 0.02% | 61.2205 | 3.61% |
| Pharmaceuticals | 2.1996 | 2.09% | -3.2854 | -3.13% | 5.4849 | 5.22% |
| Plastics | 1.5993 | 3.00% | 0.7149 | 1.34% | 0.8844 | 1.66% |
| Leather Shoes | 0.7789 | 13.34% | 0.0003 | 0.10% | 0.7785 | 13.33% |
| Printing&Publishing | 0.0322 | 0.74% | -0.6404 | -14.81% | 0.6726 | 15.56% |
| Clothing | 0.1101 | 13.93% | -0.0008 | -0.10% | 0.1108 | 14.03% |

Notes: "Pctg." refers to percentage, and is defined as the share of gain from each effect in the total gain from importing.

# 9 Conclusion

0:87%  22:28%

90%

1:47%

# References

*NBER Working Paper*

*NBER Working Paper*

*Quarterly Journal of Economics*

*American Economic Review*

*NBER Working Paper*

*American Economic Review*

*CESIS Working Papers*

*Review of World Economics*

*American Economic Review*

*Working Paper*

*World Development*

*World Economy*

*The Economic Journal*

*European Economic Review*

*Econometrica*

*American Economic Review*

*working paper*

*Quarterly Journal of Economics*

*American Economic Review: Papers & Proceedings*

1991

*Journal of International Economics*

*Journal of Development Economics*

*Journal of Economic Literature*

*Review of Economic Studies*

*American Economic Review Papers and Proceedings*

*Econometrica*

*Econometrica*

*Review of Economic Studies*

*working paper*

*working paper*

*Journal of Political Economy*

*Review of World Economics*

# Appendix

## Appendix 1: Algorithm to Evaluate $V(s_{jt})$ and $V(s_{jt})$

2 ;

= ( s; f )

S S′ N

s 2 S′

s V (s)

V (s) s

V (s); s 2 S′;

V (s_jt) V (s_jt)

; F (w_jt j w_jt;d_jt)

jt

s_jt ; V (s_jt) V (s_jt) V (s);

j V_i (s) V_i(s) j

s

$C^f_{jt}$ $C^s_{jt}$

$L_{jt}(\ ); L_j(\ ); L(\ )$

$^* = \arg\max_{\in} L(\ )$

## Appendix 2: Self Selection to Import: A Numerical Example

$V(s_{jt}; d_{jt})$

$$V(s_{jt}; d_{jt}) = a + a_w !_{jt} + a_! !_{jt} + a_w !_{jt} + a_k k_{jt} + a_k k_{jt} + a_k k_{jt} + a_d d_{jt} + a_{!kdd'} !_{jt} k_{jt} d_{jt} + a_{d'} d_{jt} + a_{!kd'} !_{jt} k_{jt} d_{jt} + a_{!kdd'} !_{jt} k_{jt} d_{jt} d_{jt}$$

$$V = V(s_{jt}) \quad V(s_{jt}) = a_{d'} + a_{!kd'} !_{jt} k_{jt} + a_{!kdd'} !_{jt} k_{jt} d_{jt}$$

$V$ $!_{jt} k_{jt}$ $V(s\ j\ d')$

$V(s_{jt}; d_{jt})$

$$V = V(s_{jt}) \quad V(s_{jt}) = (1:6707 + 0:1837 !_{jt} k_{jt} \quad 0:0055 !_{jt} k_{jt} d_{jt}) \ 10$$

$!_{jt} k_{jt} d_{jt}$

$V$

$g_d > 0$

$d_{jt}$ $V$

$d_{jt}$

$d_{jt}$ $V$

$V \qquad (!_{jt})$

$$\frac{d\ V}{d(!_{jt})} = (0{:}1837 \quad 0{:}0055k_{jt}d_{jt})\ \ 10\ \ > 0$$

$$CS = \quad 1{:}6707 + 0{:}1837\,!_{jt}k_{jt}:$$

$$CF \ = \quad 1{:}6707 \ + \ 0{:}1782\,!_{jt}k_{jt}$$

Table A1: Smooth Regression of Choice-Specific Value Function V(d'|s):million

| Industry | B.I.Chemicals | Pharmaceutical | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| constant | 646.6014 | 65.0779 | 1374.1488 | -13.4515 | -61.8935 | 90.4614 |
| | (166.1887) | (39.8616) | (415.6380) | (163.0621) | (2.4290) | (43.2060) |
| w | -859.4062 | -424.2931 | -2491.2518 | -312.3677 | -2.1521 | -152.5948 |
| | (158.4182) | (96.6087) | (707.7880) | (252.5648) | (6.6079) | (72.4795) |
| $w^2$ | 294.3644 | 432.9022 | 1427.1816 | 155.7440 | 2.9648 | 82.3847 |
| | (50.3537) | (77.7823) | (400.9077) | (130.0813) | (6.1753) | (40.4049) |
| $w^3$ | -31.8498 | -132.4977 | -254.5626 | -24.3710 | -0.5258 | -12.6093 |
| | (5.3132) | (20.7937) | (75.4108) | (22.2649) | (1.8851) | (7.4771) |
| k | 55.7485 | 42.6903 | 25.5109 | 63.3869 | 22.3460 | 6.0324 |
| | (3.2190) | (0.3200) | (5.0015) | (1.3622) | (0.1783) | (0.4941) |
| $k^2$ | -4.0012 | -3.3426 | -2.0908 | -5.6228 | -1.9800 | -0.2827 |
| | (0.2158) | (0.0251) | (0.3395) | (0.1046) | (0.0134) | (0.0387) |
| $k^3$ | 0.1642 | 0.1842 | 0.1126 | 0.1907 | 0.0817 | 0.0218 |
| | (0.0047) | (0.0006) | (0.0075) | (0.0026) | (0.0003) | (0.0010) |
| wkd | 0.0744 | 0.0682 | 0.2639 | 0.0414 | 0.0281 | 0.0347 |
| | (0.0185) | (0.0094) | (0.0668) | (0.0189) | (0.0059) | (0.0082) |
| d | -3.4144 | -1.0454 | -6.6947 | -1.0198 | -0.3816 | -0.7716 |
| | (0.8876) | (0.1546) | (1.7855) | (0.4907) | (0.0895) | (0.1949) |
| d' | -9.2566 | -6.4835 | -38.8292 | -19.5905 | -1.6707 | -1.5471 |
| | (0.8876) | (0.1546) | (1.7855) | (0.4907) | (0.0895) | (0.1949) |
| wkd' | 0.2776 | 0.6978 | 2.1410 | 1.0238 | 0.1837 | 0.0961 |
| | (0.0185) | (0.0094) | (0.0668) | (0.0189) | (0.0059) | (0.0082) |
| wkdd' | -0.0062 | -0.0092 | -0.0261 | -0.0043 | -0.0055 | -0.0041 |
| | (0.0076) | (0.0049) | (0.0298) | (0.0087) | (0.0037) | (0.0040) |

Notes: Standard errors in parentheses.

# Appendix 3: Robustness Check

Table A2: Robustness Check: Parameters of Static Inputs in Production Function (Non-Exporters)

| Industry | B.I.Chemicals | Pharmaceuticals | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| $\alpha_l$ | 0.3508 | 0.3414 | 0.2913 | 0.4973 | 0.4801 | 0.5635 |
| | (0.0032) | (0.0030) | (0.0013) | (0.0011) | (0.0006) | (0.0002) |
| $\alpha_m$ | 0.3846 | 0.5839 | 0.6235 | 0.3567 | 0.4374 | 0.3569 |
| | (0.0014) | (0.0021) | (0.0006) | (0.0006) | (0.0003) | (0.0001) |
| A | 0.9696 | 0.9706 | 0.9828 | 0.9964 | 0.9997 | 0.9994 |
| | (0.4694) | (0.0911) | (0.0270) | (0.2164) | (0.0406) | (6.2074) |
| $\theta$ | 4.4014 | 24.9377 | 18.5874 | 1.7724 | 35.7143 | 5.9312 |
| | (0.0811) | (0.0856) | (0.0384) | (0.1674) | (0.0482) | (0.6933) |
| age | 0.0606 | 0.0113 | 0.0330 | -0.0002 | -0.0267 | 0.0055 |
| | (0.0032) | (0.0018) | (0.0010) | (0.0009) | (0.0003) | (0.0002) |
| ownership | 0.1926 | 0.0487 | 0.0479 | 0.1081 | 0.1248 | 0.1340 |
| | (0.0103) | (0.0098) | (0.0066) | (0.0587) | (0.0029) | (0.0092) |

Notes: The standard errors in parentheses.

Table A3: Robustness Check: Parameters in Productivity Evolution and Capital Share for Non-Exporters

| Industry | B.I.Chemicals | Pharmaceu. | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|
| $\alpha_k$ | 0.1424 | 0.0662 | 0.0444 | 0.0933 | 0.0928 | 0.0540 |
| | (0.0097) | (0.0031) | (0.0015) | (0.0016) | (0.0002) | (0.0006) |
| $g_0$ | 0.2452 | 0.2115 | 0.3137 | 0.7894 | 0.6763 | 0.3520 |
| | (1.2080) | (0.7623) | (0.7764) | (1.1252) | (0.0451) | (0.2156) |
| $g_\omega$ | 0.9355 | 0.8772 | 0.8075 | 0.6348 | 0.4224 | 0.7889 |
| | (0.0857) | (0.2622) | (0.3062) | (0.2023) | (0.0192) | (0.0670) |
| $g_d$ | 0.0052 | 0.0097 | 0.0042 | 0.0262 | 0.0322 | 0.0042 |
| | (0.0101) | (0.0099) | (0.0025) | (0.0152) | (0.0013) | (0.0080) |
| $\sigma_\omega$ | 0.0052 | 0.0410 | 0.0225 | 0.0425 | 0.0664 | 0.0349 |

Notes: The standard errors in parentheses.

| Industry | B.I. | Chemicals | harmaceutical | Plastics | L.Shoes | Print&Pub | Clothing |
|---|---|---|---|---|---|---|---|
| Revenue Function | | | | | | | |
| $r_\omega$ | | 0.8389 | 1.7225 | 3.2131 | 3.8280 | 1.1466 | 2.4272 |
| $r_k$ | | 0.1290 | 0.0454 | 0.1246 | 2.0700 | 0.0157 | 0.1908 |
| $r_d$ | | 0.1406 | 0.1236 | 0.1558 | 0.4012 | 0.1146 | 0.1274 |