

# Appendix

- The higher the productivity of a firm, the lower its costs
- Prices levied by firms consist of costs plus a markup
- A firm with higher productivity
  - lower production costs and prices
  - higher demand for their output
  - higher optimal size and profits
- We model productivities as Pareto distributed
  - in the Intermediate sector  $i \sim G_i(\cdot, \underline{i}, i_{shape})$
  - in the Final sector  $f \sim G_f(\cdot, \underline{f}, f_{shape})$

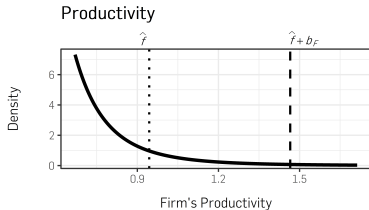
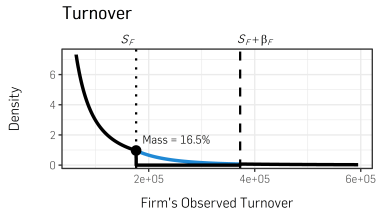
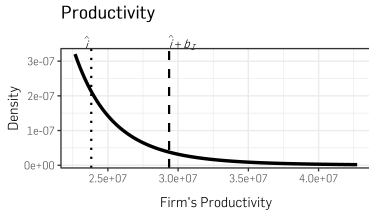
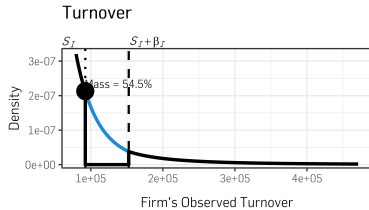
- **Intermediate sector**

- Consists of (a continuum) of firms selling to a continuum of Final firms (**B2B**)
- Buys inputs (labor and capital) from the Competitive sector
- Produces a differentiated good used as an input in the Final sector

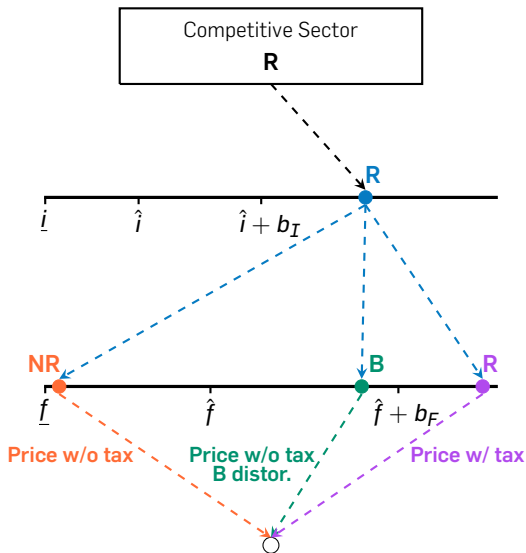
- **Final sector**

- Combines inputs from all Intermediate firms ('preference' for input variety)
- Produces a differentiated good sold to a representative consumer (**B2C**), who has preferences for variety (Dixit-Stiglitz)

# Intermediate and Final goods sectors



# Distortions - Intermediate Registered



**R:**  
No input distortion

**Output distortion:**  
VAT in price affects Final firms (Reg. status) and consumers

**NR:**  
**Input distortion:**  
Cascading + VAT not credited

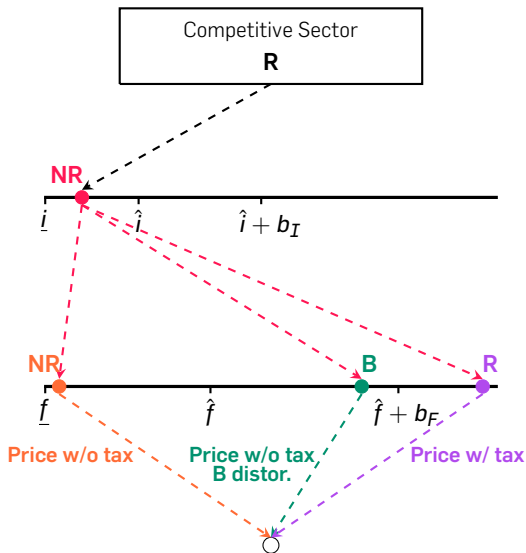
**Output distortion:**  
Indirect VAT effect (goods are complements)

**B:**  
**Input distortion:**  
Cascading + VAT not credited

**Output distortion:**  
Bunching + Indirect VAT effect (goods are complements)

**R:**  
**Input distortion:**  
Cascading  
**Output distortion:**  
Direct effect of VAT on price

# Distortions - Intermediate Non-Registered



**NR:**

**Input distortion:**

VAT not credited

**Output distortion:**

Indirect VAT effect (goods are complements)

**NR:**

**Input distortion:**

Cascading

**Output distortion:**

Indirect VAT effect (goods are complements)

**B:**

**Input distortion:**

Cascading

**Output distortion:**

Bunching + Indirect VAT effect (goods are complements)

**R:**

**Input distortion:**

Cascading

**Output distortion:**

Direct effect of VAT on price

# Optimal Thresholds - Net Revenues Maximization

	Corner	Keen and Mintz Ext.	$s_I = s_F$	$s_I \neq s_F$
Intermed. Sect. - threshold turnover	32070	176308	92331	86918
Final Sect. - threshold turnover	42973	176308	92331	118634
Intermed. Sect. - % Nonreg.	0.000	80.316	30.195	0.002
Intermed. Sect. - % Bunch.	0.000	15.511	54.509	79.903
Intermed. Sect. - % Reg.	100.000	4.173	15.296	20.095
Final Sect. - % Nonreg.	0.000	81.389	50.011	69.023
Final Sect. - % Bunch.	0.000	16.459	42.704	25.844
Final Sect. - % Reg.	100.000	2.152	7.285	5.133
Total Gross Revenues	$3.26 \times 10^{10}$	$4.05 \times 10^{10}$	$4.11 \times 10^{10}$	$4.15 \times 10^{10}$
Total Admin. Costs	$3.80 \times 10^9$	$1.20 \times 10^8$	$4.29 \times 10^8$	$4.79 \times 10^8$
Total Net Revenues	$2.88 \times 10^{10}$	$4.04 \times 10^{10}$	$4.06 \times 10^{10}$	$4.10 \times 10^{10}$