# **Errata: International Energy Markets**

# **Understanding Pricing, Policies, and Profits**

by

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Errata, second edition, first printing. Some of these errors may have been corrected in subsequent printings. See page 5 for some additional errors found since first printing.

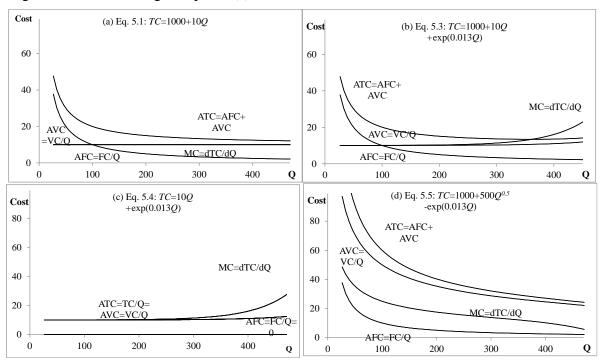
Page 34: change " $x = (I-A)^{-1d}$ " to " $x = (I-A)^{-1}d$ "

Page 67, last line change " $\varepsilon_d (\Delta Q_d / Q_d) / (\Delta P_d / P_d) \rightarrow (\Delta P_d / P_d) = (\Delta Q_d / Q_d) / \varepsilon_d$ " to  $\varepsilon_d = (\Delta Q_d / Q_d) / (\Delta P_d / P_d) \rightarrow (\Delta P_d / P_d) = (\Delta Q_d / Q_d) / \varepsilon_d$ 

Page 69: Qd = "1,2008Pd + 360Yd". to Qd = 1,200 - 8Pd + 360Yd.

Page 85 Under Table 4-3: The bottom of the table lists the conversion rate from liters to gallons as 1 liter=0.0264 US gallon. It should state 1 liter=0.264 US gallon.

Page 100: Corrected Fig 5–5 panel (c).



Page 181: Fig. 7-17, change label "high (a) and low (b) to "low (a) and high (b)

Page 181: 4 lines from bottom, change "P<sub>L</sub> at Q<sub>L</sub>' " to "Q<sub>L</sub>' and charge price P<sub>L</sub>' "

Page 189: change "go the America's" to "go to the America's"

Page 194: Table 8-2 should have italicizing as follows

Table 8-2 Rents and Quasi-rents

Short Run

 
$$0 < P < AVC$$
 shut down

  $AVC < P < ATC$  quasi-rent =  $P - AVC$ 
 $ATC < P$  total rent =  $P - AVC$ 

 Long Run

  $0 < P < ATC$  shut down

  $ATC < P$  total rent =  $P - AVC$ 

 Example

 Short Run

  $AVC = 0.05$   $ATC = 0.50$ 
 $0 < P < 0.05$  shut down

  $0.05 < P < 0.50$  quasi-rent =  $P - 0.05$ 

 Long Run

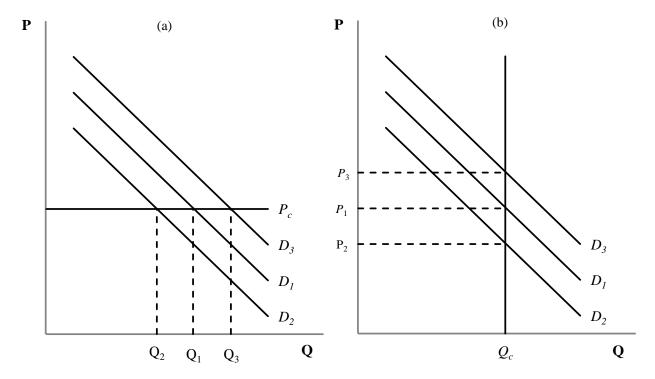
  $0 < P < 0.50$  shut down

  $0.50 < P$  total rent =  $P - 0.50$ 

Page 198: change "LDCs were obligated to take or pay" to "Local distribution companies (LDCs) were obligated to take or pay"

Page 204: line 6, change "largest pipelines" to "largest pipeline companies"

Page 207: In figure 8–5, the panel on the left needs label (a) and the one on the right needs label (b)



Page 316: change "if the reactor is overheated and things get warped, it may become impossible" to "if the reactor is overheated, warping may make it impossible"

# Page 318: change

"The most cataclysmic oil spill accident happened in 2010 in the Gulf of Mexico. BP was the operator of the deep water exploratory Macondo well being drilled by the *Deepwater Horizon* semisubmersible rig. The rig was owned and leased to BP by Transocean. BP and Transocean employees were conducting the operation with a subcontract to Halliburton through Sperry Rand to do the cement job and a subcontract to Cameron, who developed the blow—out preventers."

to

"The most cataclysmic oil spill accident happened in 2010 in the Gulf of Mexico at the deep water exploratory Macondo well. The well was being drilled by the *Deepwater Horizon* semisubmersible rig owned and leased to BP by Transocean. BP and Transocean employees were conducting the operation with a subcontract to Halliburton through Sperry Rand for the cement job and a subcontract to Cameron for the blow–out preventers."

Page 319: change "through a confined area as *chokepoints*" to "through confined areas known as *chokepoints*"

Page 300: "13% of total energy consumption" to "13% of total electricity consumption" 2nd printing

Page 320: changed "pass through the Straits of Hormuz" to "passed through the Straits of Hormuz"

Page 321 At end of last 4 lines "(1/2)(1/2)" to "1/4" 2nd printing

Page 383: Equation 15–1

$$Q_t = R_0 e^{-\alpha t}$$
 to  $Q_t = \alpha R_0 e^{-\alpha t}$ 

Page 389: equation 15.7, change

"
$$\int_{k=0}^{j-1} {\binom{K}{j}} e^{-rk}$$
" to " $\int_{0}^{j-1} {\binom{K}{j}} e^{-rk} dk$ "

Page 389: End of 4th equations

Page 389: equation 15.7, change "1-r" to "1+r)" so equation will read as:

$$Lc_{p} = \frac{\frac{K}{Q_{0}}}{\sum_{t=0}^{n} \left\{\frac{1-\alpha}{1+r}\right\}^{t}} = \frac{\frac{K}{Q_{0}}}{1-\left\{\frac{1-\alpha}{1+r}\right\}^{n+1}} = \frac{\frac{K}{Q_{0}}}{\left(1-\left\{\frac{(1-\alpha)}{1+r}\right\}^{n+1}\right)\frac{1+r}{r+\alpha}}$$

Page 389: 7 lines from the bottom "we have  $\alpha=1$ " to "we have  $\alpha=0$ "

Page 394: 3rd equation before the and, change i to t

$$PV = \sum_{i=0}^{n} \frac{P_{i}Q_{i}}{(1+r)^{i}}$$
 to  $PV = \sum_{t=0}^{n} \frac{P_{t}Q_{t}}{(1+r)^{t}}$ 

Page 394: last two equations should be (Note all t=o should be t=0)

Discrete

$$K = \sum_{t=0}^{n} \frac{Lc_{k}Q_{t}}{(1+r)^{t}} \to Lc_{k} = \frac{K}{\sum_{t=0}^{n} \frac{Q_{t}}{(1+r)^{t}}}$$

Continuous:

$$K = \int_{t=0}^{n} Lc_{k}Q_{t}e^{-r^{*}t}dt \to Lc_{k} = \frac{K}{\int_{t=0}^{n} Q_{t}e^{-r^{*}t}dt}$$

Page 395: equation line 3, change the (t+1) in

$$\text{Discrete: } Lc_k = \underbrace{\frac{K}{Q_o}} / \underbrace{1 - \left\{\frac{1-\alpha}{1+r}\right\}^{t+1}}_{\frac{\alpha+r}{1+r}} \quad \text{Continuous: } Lc_k = \underbrace{\frac{K}{Q_o}} / \underbrace{\left(\frac{1-e^{(-\alpha-r)^*n}}{\alpha+r}\right)}_{}$$

to n+1 as follows

$$\text{Discrete: } Lc_k = \underbrace{\frac{K}{Q_o}}_{ 1 - \left\{\frac{1 - \alpha}{1 + r}\right\}^{n+1}} \quad \text{Continuous: } Lc_k = \underbrace{\frac{K}{Q_o}}_{ 0 - \left(\frac{1 - e^{(-\alpha - r)^*n}}{\alpha + r}\right)}$$

Page 395: line 4, change "When  $\alpha=1$ " to "When  $\alpha=0$ "

Page 395: line, change formula's from

Discrete: 
$$Lc_k = \frac{\frac{K}{Q_o}}{\frac{1}{r+\alpha}} = \frac{K}{Q_o} \frac{1+r}{r+\alpha}$$
 and Continuous:  $Lc_k = \frac{\frac{K}{Q_o}}{\frac{1}{\alpha+r}} = \frac{K}{Q_o} (\alpha+r)$ 

to

Discrete: 
$$Lc_k = \frac{\frac{K}{Q_o}}{\frac{1}{\frac{\alpha+r}{1+r}}} = \frac{K}{Q_o} \frac{\alpha+r}{1+r}$$
 and Continuous:  $Lc_k = \frac{\frac{K}{Q_o}}{\frac{1}{\alpha+r}} = \frac{K}{Q_o} (\alpha+r)$ 

Page 610: 3 lines from the bottom: change

"Degrees Celsius (Centigrade) (°C) = 273.5 + Kelvin (K)."

to "Degrees Celsius (Centigrade) ( $^{\circ}$ C) = Kelvin (K) -273.15."

Page 611: 2 lines from the top, change

"
$$C = (9/5)^{\circ}F + 32$$
.

$$^{\circ}F = (5/9)(^{\circ}C - 32).$$

$$^{\circ}F = (5/9)(K + 273.15 - 32)."$$

to

$$^{\circ}C = (5/9)(^{\circ}F - 32).$$

$$^{\circ}F = (9/5)^{\circ}C + 32.$$

$$^{\circ}F = (9/5)(K - 273.15) + 32."$$

#### 2017-03-11

Page 102, line 13n change 410 to 401

$$TC(410) = 1000 + 10 * 401 + exp(0.013 * 401) = 5193.944$$

$$TC(401) = 1000 + 10 * 401 + exp(0.013 * 401) = 5193.944$$

### 2019-08-27

Page 3

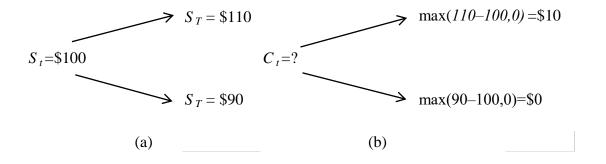
The metric system is used worldwide, with the exception of the United States, Myanmar, and

Burma Liberia.

## 2019-11-27

Page 497

Figure 19-3



Last updated: May 2, 2020