The Core of Apple:
A Case study of GCC
(Global Commodity Chain)

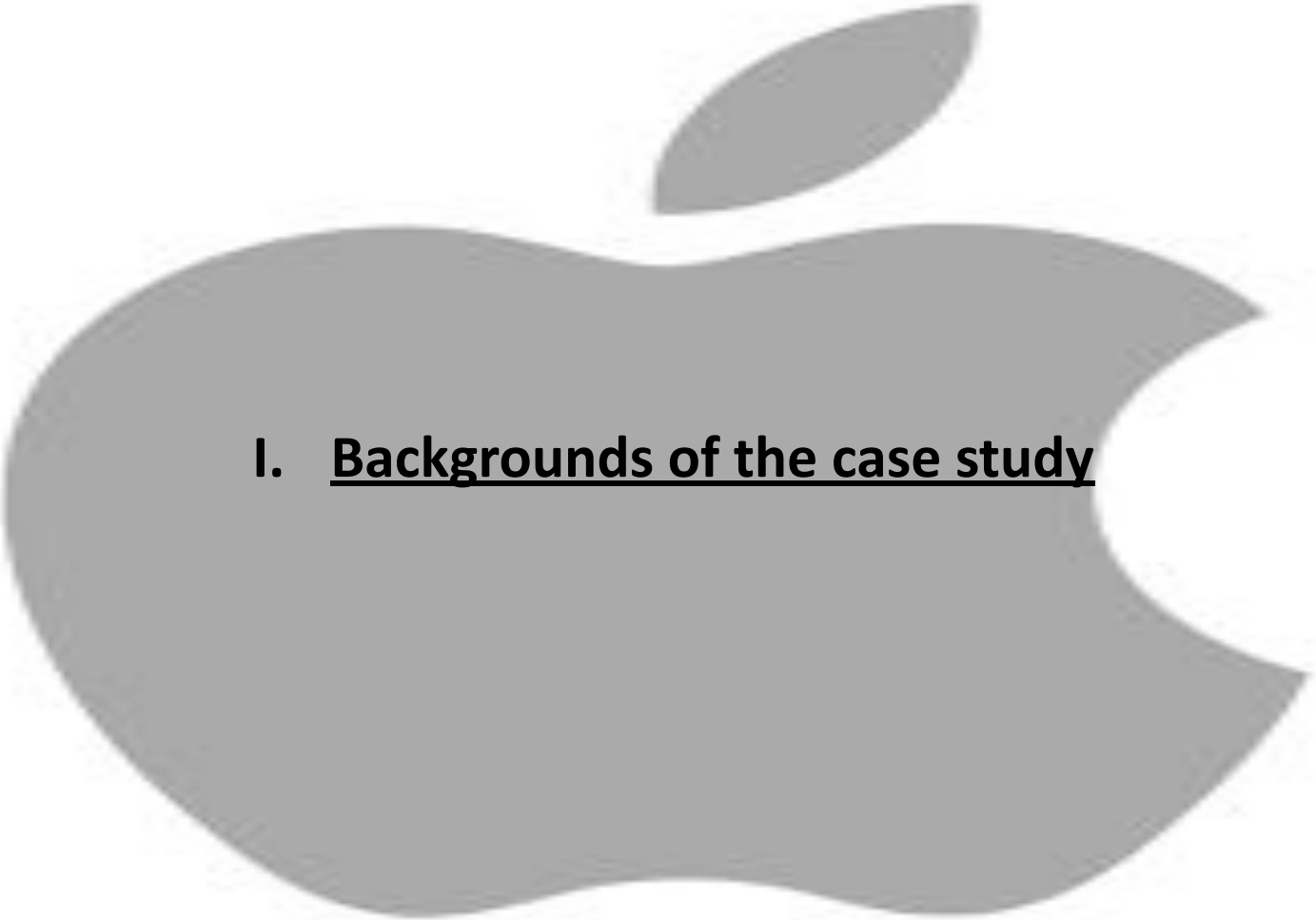
0717041 徐紹嘉

109511149 曾國全

Director: Mrs.Sharon Ku

Content of Presentation

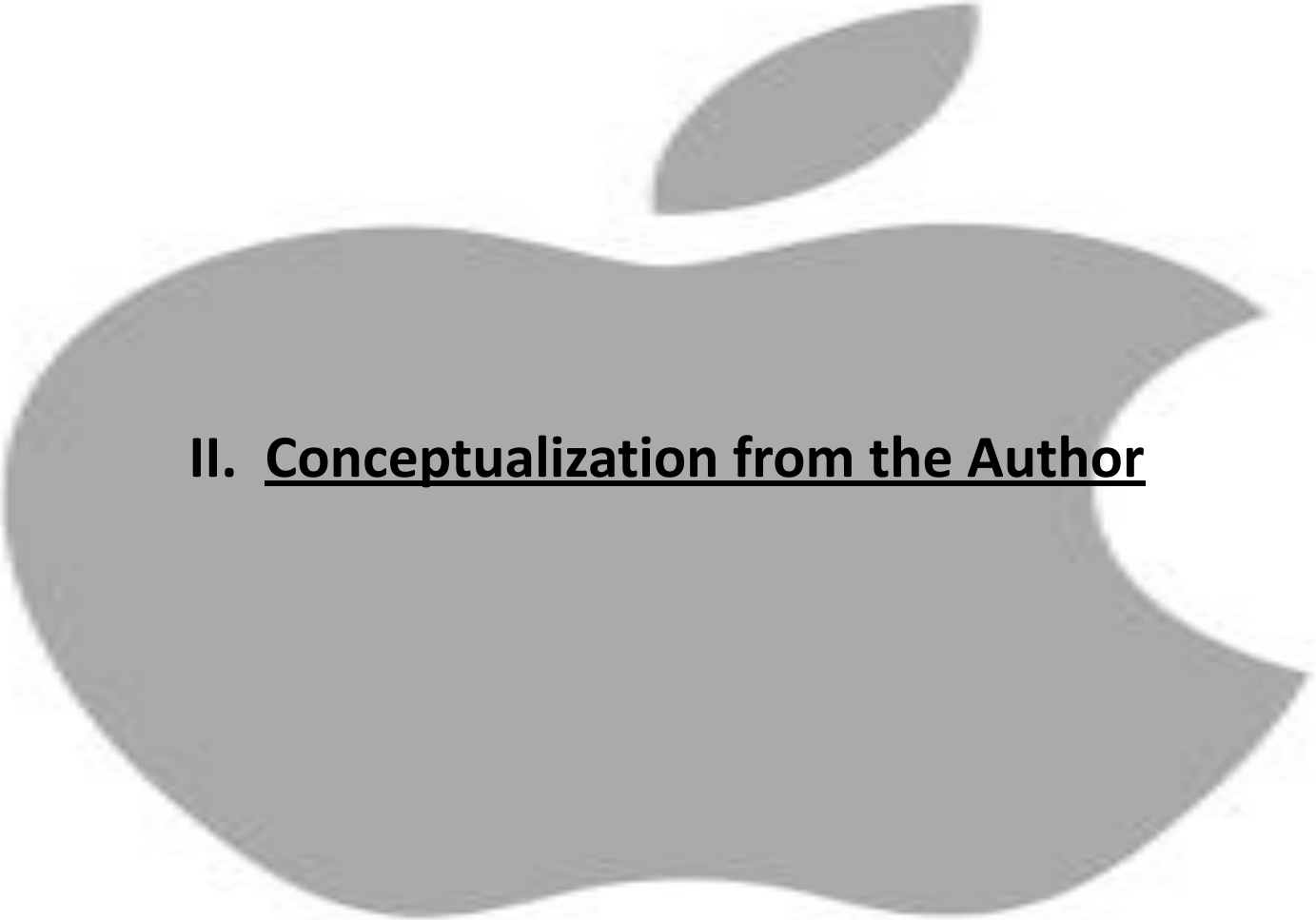
- Backgrounds of the case study
- Conceptualization
- Dark value hidden under the report of bright value
- Accumulation of bright values
- Accumulation of dark values
- Conlusions
- Extended topics after reading of article
- Related and recommended readings
- Questions we may discuss



I. Backgrounds of the case study

I. Backgrounds of the case study

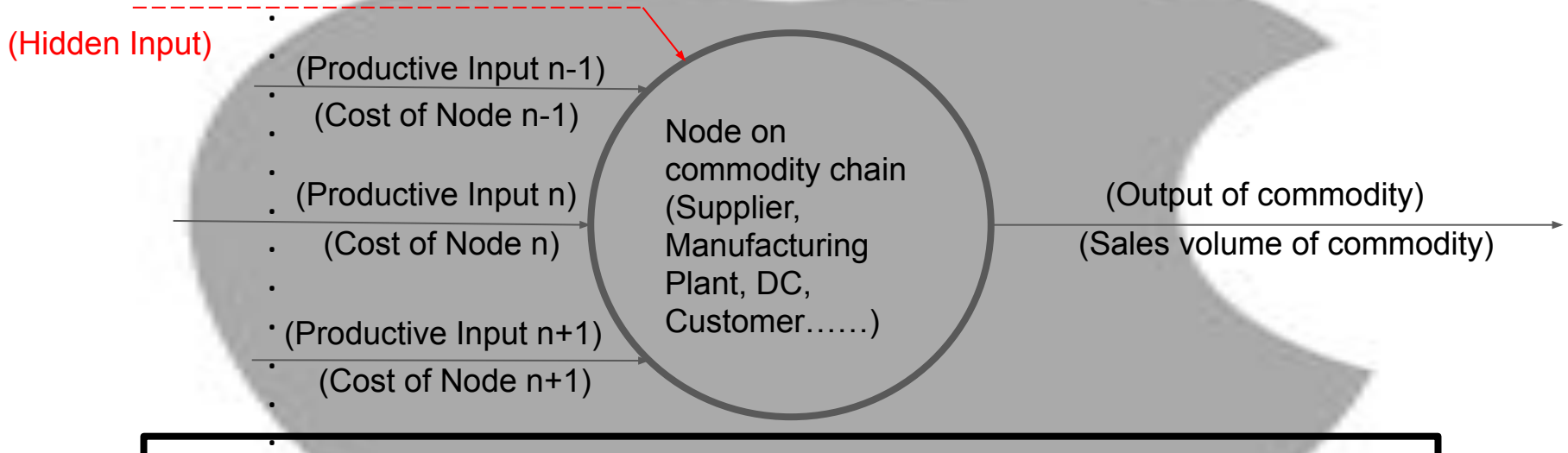
- Key to comprehension: “Pursuit of surplus value is the nature of human and power of capitalism”
- Key to comprehension: “Global Commodity chain was based on uneqaul exchange through transactions”
- Motivation: The gaps between the haves and have-nots: https://www.bbc.com/zhongwen/trad/business-42770869
- Motivation: To specify the role and hierarchical position of Taiwan in the current Global Commodity Chain



II. Conceptualization from the Author

II. Conceptualization from the Author

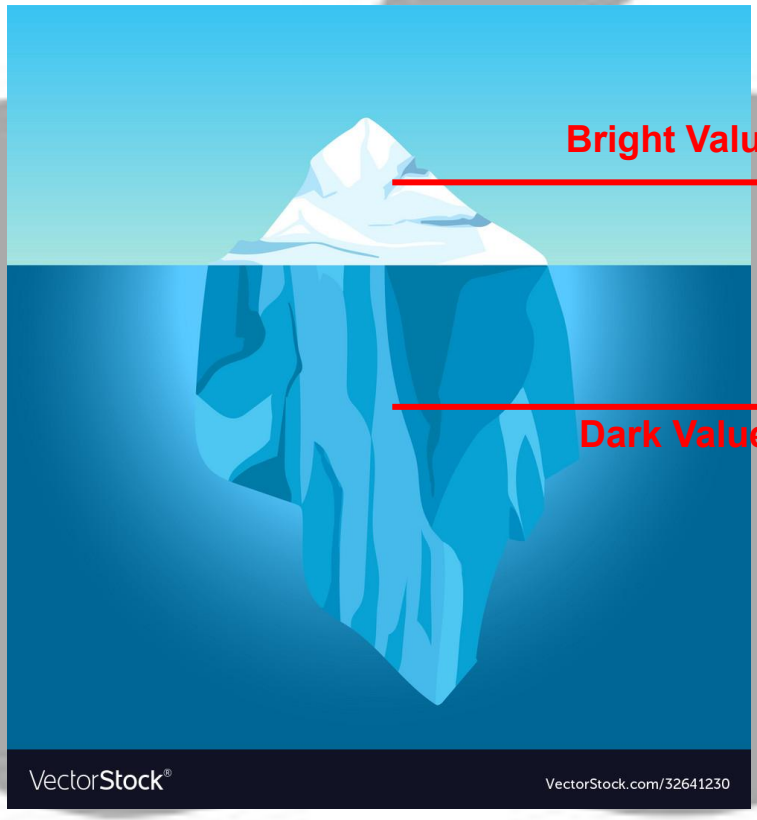
- "One person's spending is another person's income"



- ***Value-added of node*** = Total volume of the productive inputs
- ***Value-captured of node(Profit)*** = Truth value of total value-added - Payment of total real cost (or) = Sales price - Total value-added

II. Conceptualization from the Author

Total Volume of Iceberg = Total value captured by a node in Commodity Chain



(The cumulation of monetarized value, means that it is legistrated)

(Externalized costs that can't be monetarized, ex: Cut of price, underpayment to laborers)

II. Conceptualization from the Author

- Explaining the term “Externalized costs” by examples:
  - Cut of price
  - Lowering of wages
  - Raising the price

II. Conceptualization from the Author

- Easy examples explaining the terms “Externalized costs” and “Dark Value”:
  - Cut of price
  - Lowering of wages
  - Raising the price

A roadside booth selling salmons from Europe

Passes dark value to the salmon buyer through the form of price

Externallize the cost to self in order to outmaneuver competitors

II. Conceptualization from the Author

- Easy examples explaining the terms “Externalized costs” and “Dark Value”:
  - Cut of price
  - Lowering of wages
  - Raising the price

A roadside booth selling salmons from Europe

Externalize the cost to the laborers in the form of wage

Passes dark value to itself by a hidden input attributed by waged laborers

II. Conceptualization from the Author

- Easy examples explaining the terms “Externalized costs” and “Dark Value”:
  - Cut of price
  - Lowering of wages
  - Raising the price

A roadside booth selling salmons from Europe

Externalize the cost to the customers in the form of price

Passes dark value to itself by a hidden input attributed by the next node buyer

III. Dark value hidden under the report of bright value

III. Dark value hidden under the report of bright value

- **Wholesale Price (批發價格) = (Profit 1 + Profit 2) + (Cost 1 + Cost 2) = GPM + Total Cost**
- Labor costs are majorly distributed in China, yet the margin of participants in China accounts for the least highlighted in" Manufacturing GPM"

Table 1. Flow of Bright Value in the iPad Commodity Chain, 2010-2011

Activity	A Cost in US$	B % Factory Price
Retail Price	499	181.5
Wholesale Price	425	154.5
Factory Price	275	
Gross Profit Margin (GPM) (Total "value capture")	238	
Apple Gross Profit Margin (Design, Marketing, Chain Governance, Operating Profit)	150	54.5
Manufacturing GPM (Tiers 1 and 2)*	88	32.0
Taiwan	27	9.8
Korea	26	9.5
United States	23	8.4
European Union	5	1.8
Japan	4	1.4
China	3	1.1
Direct Labor to assemble iPads & to manufacture its major component parts (Tiers 1 and 2) **	33	12.0
China	25	9.1
Korea	4	1.5
Taiwan	2	0.7
Philippines	2	0.7
Material Inputs for Major Components	154	56.0

Sources and Notes: The model of the iPad examined is the 16GB Non-3G version (2010), the simplest, least expensive model. The starting point for the figures provided is a "teardown" by iSuppli Corporation (Rassweiler 2010) that identifies the major components, most suppliers, and the estimated costs. It is likely that these estimates are somewhat high, failing to take into account Apple's strong bargaining position (degree of monopoly) (EPT Newsletter 2010). Additional suppliers and component costs have been identified from teardowns, Wikipedia (2013) and internet searches. The gross margin of each supplier is available in annual reports and is reported by stock trader internet sites. The country shares of gross margin are the cumulative shares of the suppliers with headquarters located in that country. The country shares of direct labor are the cumulative shares allocated to actual production sites. Data in column A are derived from Kraemer, Linden and Dedrick (2010: Table 1) with adjustments for my revised list of iPad suppliers. Data in column B are calculated by dividing data in column A by the factory price ($275).

* Includes Singapore (less than 1%) represented in the rounded total. ** Includes Singapore (less than 1%). Numbers have been rounded.

III. Dark value hidden under the report of bright value

- 45 percent of the retail price is added after production, i.e., the $224 difference between factory price and retail price. Apple collects two-thirds of this difference. Note that:

2/3 = (425-275)/224 = (Wholesale Price – Factory Price) / (Retail Price – Factory Price)

Table 1. Flow of Bright Value in the iPad Commodity Chain, 2010-2011

Activity	A Cost in US$	B % Factory Price
Retail Price	499	181.5
Wholesale Price	425	154.5
Factory Price	275	
Gross Profit Margin (GPM) (Total "value capture")	238	
Apple Gross Profit Margin (Design, Marketing, Chain Governance, Operating Profit)	150	54.5
Manufacturing GPM (Tiers 1 and 2)*	88	32.0
Taiwan	27	9.8
Korea	26	9.5
United States	23	8.4
European Union	5	1.8
Japan	4	1.4
China	3	1.1
Direct Labor to assemble iPads & to manufacture its major component parts (Tiers 1 and 2) **	33	12.0
China	25	9.1
Korea	4	1.5
Taiwan	2	0.7
Philippines	2	0.7
Material Inputs for Major Components	154	56.0

Sources and Notes: The model of the iPad examined is the 16GB Non-3G version (2010), the simplest, least expensive model. The starting point for the figures provided is a "teardown" by iSuppli Corporation (Rassweiler 2010) that identifies the major components, most suppliers, and the estimated costs. It is likely that these estimates are somewhat high, failing to take into account Apple's strong bargaining position (degree of monopoly) (EPT Newsletter 2010). Additional suppliers and component costs have been identified from teardowns, Wikipedia (2013) and internet searches. The gross margin of each supplier is available in annual reports and is reported by stock trader internet sites. The country shares of gross margin are the cumulative shares of the suppliers with headquarters located in that country. The country shares of direct labor are the cumulative shares allocated to actual production sites. Data in column A are derived from Kraemer, Linden and Dedrick (2010: Table 1) with adjustments for my revised list of iPad suppliers. Data in column B are calculated by dividing data in column A by the factory price ($275).

* Includes Singapore (less than 1%) represented in the rounded total. ** Includes Singapore (less than 1%). Numbers have been rounded.

III. Dark value hidden under the report of bright value

- Total GPM = 238, the non-producer Apple (A great example of fabless semiconductor company) accounts for 150/238 = 63%
- Interpretation: **Apple might have passed dark values to themselves by externalizing costs to the laborers to assemble and manufacture in this commodity chain**

Table 1. Flow of Bright Value in the iPad Commodity Chain, 2010-2011

Activity	A Cost in US$	B % Factory Price
Retail Price	499	181.5
Wholesale Price	425	154.5
Factory Price	275	
Gross Profit Margin (GPM) (Total "value capture")	238	
Apple Gross Profit Margin (Design, Marketing, Chain Governance, Operating Profit)	150	54.5
Manufacturing GPM (Tiers 1 and 2)*	88	32.0
Taiwan	27	9.8
Korea	26	9.5
United States	23	8.4
European Union	5	1.8
Japan	4	1.4
China	3	1.1
Direct Labor to assemble iPads & to manufacture its major component parts (Tiers 1 and 2) **	33	12.0
China	25	9.1
Korea	4	1.5
Taiwan	2	0.7
Philippines	2	0.7
Material Inputs for Major Components	154	56.0

Sources and Notes: The model of the iPad examined is the 16GB Non-3G version (2010), the simplest, least expensive model. The starting point for the figures provided is a "teardown" by iSuppli Corporation (Rassweiler 2010) that identifies the major components, most suppliers, and the estimated costs. It is likely that these estimates are somewhat high, failing to take into account Apple's strong bargaining position (degree of monopoly) (EPT Newsletter 2010). Additional suppliers and component costs have been identified from teardowns, Wikipedia (2013) and internet searches. The gross margin of each supplier is available in annual reports and is reported by stock trader internet sites. The country shares of gross margin are the cumulative shares of the suppliers with headquarters located in that country. The country shares of direct labor are the cumulative shares allocated to actual production sites. Data in column A are derived from Kraemer, Linden and Dedrick (2010: Table 1) with adjustments for my revised list of iPad suppliers. Data in column B are calculated by dividing data in column A by the factory price ($275).

* Includes Singapore (less than 1%) represented in the rounded total. ** Includes Singapore (less than 1%). Numbers have been rounded.

III. Dark value hidden under the report of bright value

- OPM captures both the dark value and bright value better than GPM
- OPM distribution in three territories of Asia are ranked as the last-third proportion
- The total profit accruing to semi peripheral Asian firms is $21, of which only one dollar is retained in mainland China. For each iPad, the total OPM share for these firms is lower than direct labor costs of $33 (Table 1) and one-fifth of Apple's OPM share, a much worse ratio than for the GPMs (1 : 1.44).

Table 2. Corporate Degree of Monopoly as Represented by Gross Profit Margins and Operating Profit Margins of Apple and Its iPad Suppliers, 2010-2011

Corporations	A $US Share of Wholesale Price	B Corporate % Gross Profit Margin (GPM)	C GPM Share of iPad Unit Price $US	D Corporate % Operating Profit Margin (OPM)	E OPM Share of iPad Unit Price $US
Apple	150	35	150	25	106
Assembly by Foxconn	24	6	16	3	8
Suppliers headquartered in core countries (US, EU, Japan)	59	54	32	22	13
Suppliers headquartered in semi-peripheral countries (Korea, Taiwan, Singapore)	175	21	37	7	12
Suppliers headquartered in China	17	18	3	6	1
Totals			238		140

Sources and Notes: Column A shares are derived from analysis of iPad teardown data and extensive Internet searches for iPad component pricing. In Columns B and D, the 2010-2011 GPMs and OPMs of Apple and its core/semiperipheral iPad suppliers are derived from corporate and/or investment brokerage websites. The share of Chinese suppliers is an estimate derived from analysis of data in Dedrick et al. (2009: 81) and estimates of the costs of local uncounted inputs in the assembly of Nokia phones (Ali-Yokko et al. 2011). Grouped GPMs and OPMs for core and semiperiphery are averages of supplier headquarters weighted by the cost of the components supplied. Column C is calculated by multiplying Column A by Column B, with the exception of Apple (GPM is based on the wholesale price). Column E is calculated by multiplying Column A by Column D. Contact the author for a list of the iPad suppliers. Numbers are rounded.

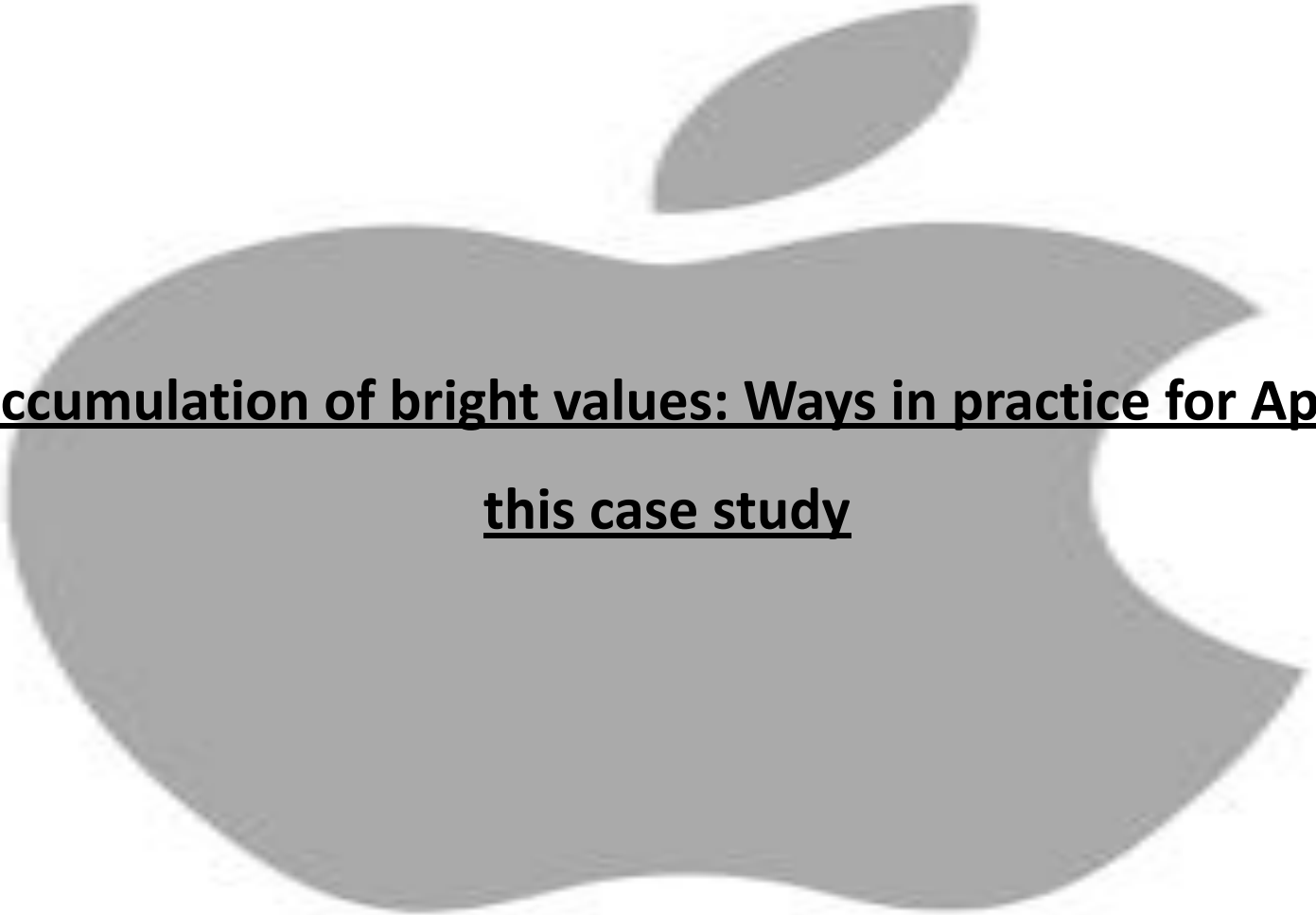
III. Dark value hidden under the report of bright value

- Interpretation (by the author): **Asian suppliers achieve such low profit shares because they suffer from their disadvantageous relationship with a monopsonistic core firm.**

Table 2. Corporate Degree of Monopoly as Represented by Gross Profit Margins and Operating Profit Margins of Apple and Its iPad Suppliers, 2010-2011

Corporations	A $US Share of Wholesale Price	B Corporate % Gross Profit Margin (GPM)	C GPM Share of iPad Unit Price $US	D Corporate % Operating Profit Margin (OPM)	E OPM Share of iPad Unit Price $US
Apple	150	35	150	25	106
Assembly by Foxconn	24	6	16	3	8
Suppliers headquartered in core countries (US, EU, Japan)	59	54	32	22	13
Suppliers headquartered in semi-peripheral countries (Korea, Taiwan, Singapore)	175	21	37	7	12
Suppliers headquartered in China	17	18	3	6	1
Totals			238		140

Sources and Notes: Column A shares are derived from analysis of iPad teardown data and extensive Internet searches for iPad component pricing. In Columns B and D, the 2010-2011 GPMs and OPMs of Apple and its core/semiperipheral iPad suppliers are derived from corporate and/or investment brokerage websites. The share of Chinese suppliers is an estimate derived from analysis of data in Dedrick et al. (2009: 81) and estimates of the costs of local uncounted inputs in the assembly of Nokia phones (Ali-Yokko et al. 2011). Grouped GPMs and OPMs for core and semiperiphery are averages of supplier headquarters weighted by the cost of the components supplied. Column C is calculated by multiplying Column A by Column B, with the exception of Apple (GPM is based on the wholesale price). Column E is calculated by multiplying Column A by Column D. Contact the author for a list of the iPad suppliers. Numbers are rounded.



IV. Accumulation of bright values: Ways in practice for Apple in this case study

IV. Accumulation of bright values: Ways in practice for Apple in this case

- “Degree of monopoly” gives the company power to make its orientation of rather dark value transfer or cost externalizing within a dominant position ("Power of Bargaining”)

IV. Accumulation of bright values: Ways in practice for Apple in this case

i. Apple's Degree of Monopoly through Product Innovation and Design

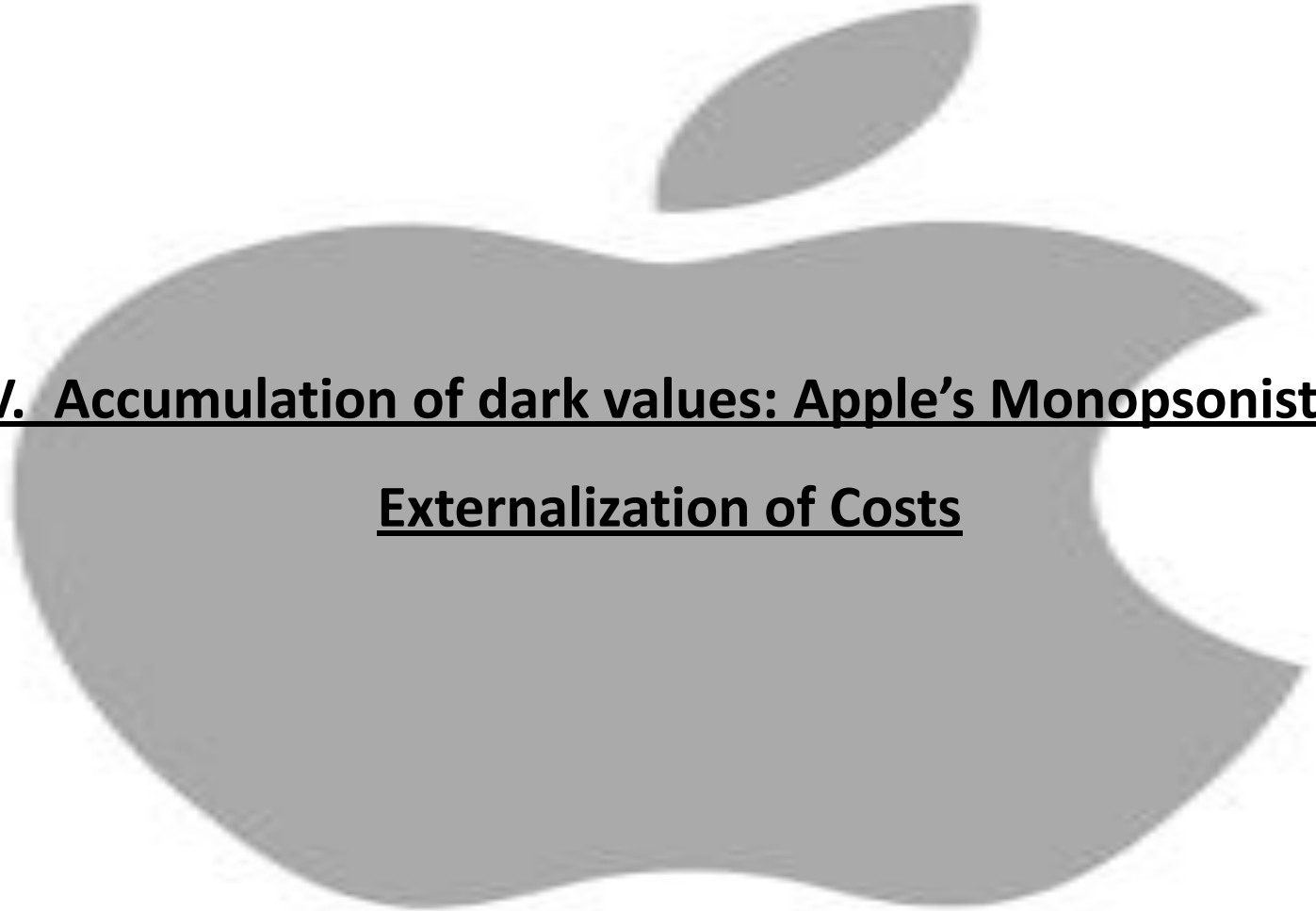
- Since 2005, Apple has been tied to 60 percent of all major electronics patent lawsuits (Wieland 2012).
- "Use the legal process to prevent others from innovating, by engaging in competition by litigation" (Wilcox 2011).

ii. Apple's Degree of Monopoly through Supply Chain Governance

- **A closed ecosystem: Exerts control over nearly every piece of the supply chain, from design to retail store.**
- Ex: Satariano and Burrows 2011
- Monopsony: Apple generates inter-firm competition among potential suppliers and leverages that situation to its advantage. => "It promotes competition among suppliers by contracting with several producers of the same components, by constantly searching for alternative subcontractors, and by threatening to terminate suppliers who do not comply."
- Financial advances place a producer in a dependent, exploitable position because it permits Apple (1) to obtain material inputs and labor at below market prices, (2) to shift more of the risks and costs to producers, and (3) to capture labor and outputs over a longer term.
- **什麼原因讓台灣自願接受這樣位於全球 產業鏈的地位(Exploitive position)?** Ex: "A contract with Apple can send a supplier's stock share soaring or even represent most of its revenue."

iii. Apple's Degrees of Monopoly in Marketing

- Brand recognition for its products
- Independent factors: Awards and rewards between 2008 and 2012
- Marketing moat: Stores that only sell Apple products
- **Its stores exhibit the highest retail sales per square foot among U.S. retailers, netting $12 profit per visitor per quarter and average annual revenue per store of $52 million (Dediu 2013).**
- Shaping the thrill and gratification as a user of Apple products
- Cumulative benefits of the serial monopsony power within the commodity chain it governs to enhance its degree of monopoly in its sales market.



V. Accumulation of dark values: Apple's Monopsonistic Externalization of Costs

V. Accumulation of dark values: Monopsonistic Externalization of Costs

- Apple Exploitation of Chinese Migratory Workers causes huge uncompensation towards chinese migratory laborers compared with U.S. workers
- The “split labor market”
- At a 2011 White House dinner for CEOs, President Obama asked Steve Jobs, “What would it take for Apple to bring its manufacturing home?” The Apple CEO replied: “Those jobs aren’t coming back”

Table 3. Partial Accounting of Dark Value in the First Generation iPad Supply Chain, January 2010 - March 2011

Basis	A $ Cost per Unit	B U.S. Multiplier	C $ Cost if produced in U.S.	D $ Dark Value
Part A. Dark Value Extractions from Waged Labor				
Tier 1: Assembly	8	14	112	104
Tier 2: Production of Major Components	25	Range: 2-12	246	221
Tier 3: Production of Subcomponents	12	Range: 2-12	84	72
Totals	45		442	397
Part B. Dark Value Extractions from Professional, Managerial, and Indirect Production Costs				
Tier 1: Assembly	5	8	40	35
Tier 2: Production of Major Components	20	Range: 3-8	123	103
Tier 3: Production of Subcomponents	10	Range: 3-8	47	37
Totals	35		210	175
Part C. Totals for Both categories of Workers				
All Workers	80		652	572

Sources and Notes: iSuppli estimates the direct labor cost of assembly in China at $9. Some experts (Lasky 2010; Dediu 2012) contend this is a serious under-estimation. I estimated the average 2010 Foxconn assembly worker’s wage as $1.50 per hour (zero benefits) or $3,000 per year (Economix Editor 2010). This estimate is high since it was based on the Foxconn Shenzen complex rather than to the inland Chengdu plant where most iPads are assembled at much lower labor costs. The U.S. rate is “the median expected salary for a typical Electronics Assembler I”: $29,000 basic wage plus $16,000 in benefits, thus $45,000 per year (Salary Wizard 2013). I adjusted this estimate downward to $42,000 to account for raises since 2010, thus $21 per hour, arriving at a multiple of 14. The salaries of managers and engineers involved in production are “indirect production compensation” that encompasses about 40 percent of gross profit margin (Miller and Vollman 1985). The indirect production compensation measure is based on the assumption of three-quarters Chinese engineers. The multipliers are derived from Linden et al. (2011: 229). Column D is calculated by subtracting Column A from Column C. For details about calculation and methods for Tiers 2 and 3, see Appendix, Table 6. Numbers are rounded.

V. Accumulation of dark values: Monopsonistic Externalization of Costs

- Problem: This "floating population" makes up 70 percent of manufacturing workers, is paid wages below national averages, works 50 percent longer hours than other urban laborers, and is concentrated in massive industrial compounds that usually deduct from wages the cost of housing, food and health services

Table 3. Partial Accounting of Dark Value in the First Generation iPad Supply Chain, January 2010 - March 2011

Basis	A $ Cost per Unit	B U.S. Multiplier	C $ Cost if produced in U.S.	D $ Dark Value
Part A. Dark Value Extractions from Waged Labor				
Tier 1: Assembly	8	14	112	104
Tier 2: Production of Major Components	25	Range: 2-12	246	221
Tier 3: Production of Subcomponents	12	Range: 2-12	84	72
Totals	45		442	397
Part B. Dark Value Extractions from Professional, Managerial, and Indirect Production Costs				
Tier 1: Assembly	5	8	40	35
Tier 2: Production of Major Components	20	Range: 3-8	123	103
Tier 3: Production of Subcomponents	10	Range: 3-8	47	37
Totals	35		210	175
Part C. Totals for Both categories of Workers				
All Workers	80		652	572

Sources and Notes: iSuppli estimates the direct labor cost of assembly in China at $9. Some experts (Lasky 2010; Dediu 2012) contend this is a serious under-estimation. I estimated the average 2010 Foxconn assembly worker's wage as $1.50 per hour (zero benefits) or $3,000 per year (Economix Editor 2010). This estimate is high since it was based on the Foxconn Shenzen complex rather than to the inland Chengdu plant where most iPads are assembled at much lower labor costs. The U.S. rate is "the median expected salary for a typical Electronics Assembler I": $29,000 basic wage plus $16,000 in benefits, thus $45,000 per year (Salary Wizard 2013). I adjusted this estimate downward to $42,000 to account for raises since 2010, thus $21 per hour, arriving at a multiple of 14. The salaries of managers and engineers involved in production are "indirect production compensation" that encompasses about 40 percent of gross profit margin (Miller and Vollman 1985). The indirect production compensation measure is based on the assumption of three-quarters Chinese engineers. The multipliers are derived from Linden et al. (2011: 229). Column D is calculated by subtracting Column A from Column C. For details about calculation and methods for Tiers 2 and 3, see Appendix, Table 6. Numbers are rounded.

V. Accumulation of dark values: Monopsonistic Externalization of Costs

Table 5. Summary of Dark Value Embedded in Each iPad Unit

Sources of Dark Value Extraction	US$ Dark Value	
Waged Labor	397	
Professional, Managerial, & Headquarters Office Labor	175	
Labor Subtotal		*572*
Household Labor Externalities	171	
Underpaid and Unpaid Informal Sector	144	
Unpaid Ecological Externalities	190	
Externalities Subtotal		*505*
Total		1,077

Sources: Tables 3 and 4

Related and recommended readings

Related and recommended readings

- 亞當. 斯密<國富論>(“The wealth of nation”, Adam Smith, 1776) : (Mandarin version) https://www.b111.net/novel/49/49356/index.html // (English version) Online Search: “The wealth of nation full text”
- 卡爾. 馬克思<資本論> (“Das Kapital”, Karl Marxian, 1867)
- 湯瑪斯. 皮凱提<21世紀資本論> (“Le Capital au XXle siecle”, Thomas Piketty,2013)
- 米哈爾. 卡列斯基著作(“Theory of Economic Dynamics”, Kalechi, 1954)
- 伊曼紐爾. 沃勒斯坦<現代世界體系> (“The modern world system”, Immanuel Wallerstein, 1974)
- 大衛. 李嘉圖<政治經濟學與稅收原理> (“On the principles of Political Economy and Taxation”, David Ricardo, 1817)
- 蓋瑞. 格里芬<全球價值鏈治理> (“The governance of global value chain”, David Gereffi, 2005) => 智庫搜尋: https://wiki.mbalib.com/zh-tw/%E5%85%A8%E7%90%83%E4%BB%B7%E5%80%BC%E9%93%BE // https://wiki.mbalib.com/zh-tw/%E5%85%A8%E7%90%83%E5%95%86%E5%93%81%E9%93%BE
- 無廠半導體公司(Fabless semiconductor companies): https://zh.m.wikipedia.org/zh-tw/%E7%84%A1%E5%BB%A0%E5%8D%8A%E5%B0%8E%E9%AB%94%E5%85%AC%E5%8F%B8

Question assignments to group discussion