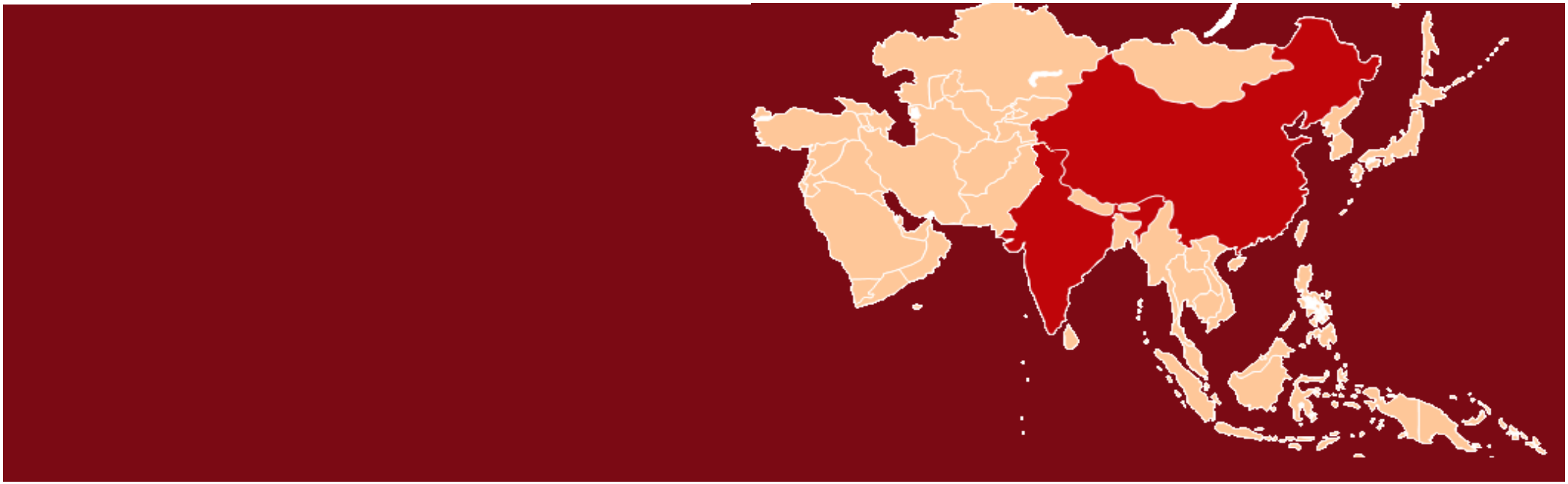
Assessment of the Comparative Advantage of Various Consumer Goods Produced in India Vis-à-Vis Their Chinese Counterparts

Sponsored by

National Manufacturing Competitiveness Council (NMCC)



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Transaction Services - Strategy

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National Manufacturing Competitiveness Council



FOREWORD

The growth in developed western markets has slowed down; consequently a large number of global players are increasingly looking towards developing markets like India and China for their future growth. Countries like India and China not only offer a huge untapped domestic market but also have the advantage of keeping the manufacturing costs much lower.

Consumer durables constitute an important segment of the manufacturing sector. Prior to liberalization of the economy, consumer durables sector in India was restricted to a handful of domestic players who had a combined market share of 90%. With liberalization a spate of foreign players has come to operate in India. Most of them are strengthening their presence in India, expanding their reach to Tier 2 markets with some of them setting up production facilities in India as well.

However, for most players China remains the global sourcing and manufacturing hub for consumer durables. For instance, China accounts for 72% of the global air conditioner production, 47% of refrigerator production, 45% of television production, 35% of washing machine production and over 52% of mobile phone production. If India wants to play a larger role it has a vast scope for improving its share in the world market.

Keeping this back drop in view, the National Manufacturing Competitiveness Council (NMCC) commissioned a study through PricewaterhouseCoopers Pvt. Ltd. (PwC) and the Federation of Indian Chambers of Commerce and Industry (FICCI) to assess the comparative advantage of manufacturing consumer durables across six product categories in India and China.

The study encompasses analysis of macroeconomic and production specific factors that impact consumer durable manufacturing sector in India and China. The various aspects covered in the study market dynamics, FDI inflows, development of infrastructure, SEZs, Government incentives, cost structure, duties and tax rates. The PwC and FICCI analysis is based on comprehensive review of secondary literature as well as extensive primary research including interviews with a number of consumer durable manufacturers and industry representatives in both the regions.

It is hoped that the study report will provide an understanding of the true competitiveness of the consumer durable manufacturing sector in India vis-à-vis China and help the industry and the Government to chalk out a roadmap for India's emergence as a major global player in this field.

V. Krishnamurthy

4th August, 2009

V.Krishnamurthy
Chairman, NMCC

Table of Contents

		Page
1	Executive Summary	7
2	Introduction	13
3	Consumer Durables – Market Overview	19
3.1	Demand Drivers in China and India	27
3.2	Industry Players	35
3.3	Mobile Phones Growth Story in India	39
4	Analyzing China's Growth	45
4.1	Macroeconomic Factors	47
	FDI Inflows	53
	Special Economic Zones	57
	Infrastructure and Utilities	63
	Technological Development	67
	Low Cost Environment	75
	Export Competitiveness	85
4.2	Production Specific Factors	89
	Representative Value Chain Analysis	111
5	Recommendations	115

Table of Contents

		Page
	Appendices	
1	Chinese Policies and WTO	139
2	Electronics Industry in Other Countries	147
3	Tax	155
4	Haier Case Study	165
5	Key Chinese Player's Profiles	175
6	SEZs in China: Additional Details	183
7	Trends in Consumer Durables	189
8	Others	197
9	Bibliography	205
10	Glossary	213



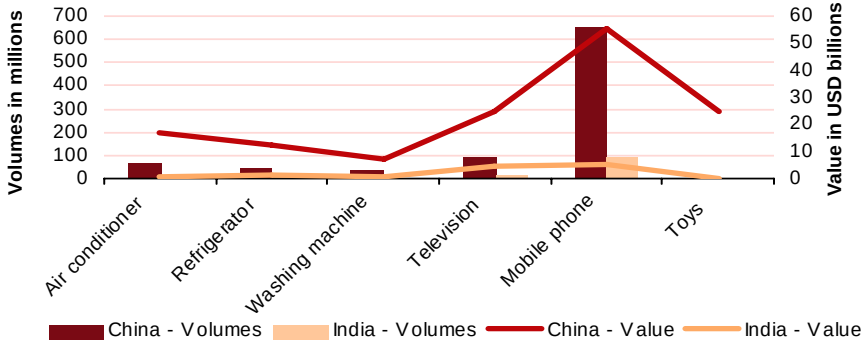
Executive Summary

Section 1

Executive Summary

China has emerged as a low cost manufacturing destination for consumer durables, catering to both domestic and export markets. 54% of the production in China (for the six categories under consideration) caters to the export market. Domestic sales in India are a miniscule proportion of that in China and export volumes are not even 1% of that in China

Production snapshot



- A large number of global players are targeting emerging markets to fuel growth. Due to increasing price competitiveness, outsourcing manufacturing to low cost destinations has gained momentum
- China has emerged as one of the most popular low-cost manufacturing destinations ; It accounts for 72% of the global air conditioner production, 47% of refrigerator production, 45% of television production, 35% of washing machine production and over 52% of mobile phone production
- Most major global players in the consumer durables segment have set up their manufacturing operations in China

- China has also emerged as an export hub with many domestic and foreign players using the low-cost facilities in China to cater to global markets. 54% of the total production in China for the six categories under consideration are exported. The undervalued currency has aided China's growth as an export base
- In comparison, export volumes in India are not even 1% of that in China across these six categories. Domestic sales in India are a small proportion of that in China in many categories
- While for some product categories like televisions, India has a cost advantage in low end segments, consumer prices in China are at minimum 15 – 25% cheaper when compared to prices in India (for similar features), leading to a higher demand base in China [1]
- Also, the Indian consumer durable market is mostly dominated by MNCs while China has a large number of home grown domestic players

Key reasons for Chinese dominance in the global consumer durable market are two-fold:

- Macroeconomic factors and policy initiatives that have provided impetus to overall manufacturing in China
- Production specific factors which have provided China with a cost advantage that has aided its growth as a export base for consumer durables

[1] Prices have not been adjusted for PPP

Macroeconomic Factors

Starting from almost similar levels of GDP in early 1970s, China's GDP is currently three times that of India. This growth has been primarily driven by manufacturing. FDI inflows, SEZ policy and its effective implementation, infrastructure investments and Government incentives focussed on manufacturing have been the key growth drivers

Factors	China	India
FDI inflows	▪ China attracted huge FDI inflows with net FDI inflows in 2006-07 amounting to USD 69.5 billion. This has aided technology transfer, vendor base development and adoption of best practices by domestic Chinese firms ▪ FDI in China is mostly for targeting the export market	▪ India opened up its economy much later than China during 1990s and has lagged behind China in attracting FDI. Net FDI inflows in 2006-07 amounted to USD 16.8 billion ▪ FDI in India mostly caters to the burgeoning domestic demand
SEZs	▪ China has 54 SEZs which have been successful in attracting FDI investments, serving as export hubs and generating employment ▪ Flexible labour laws, strategic locations and a well formulated policy along with its effective implementation are the key reasons for their success	▪ In India, SEZs are yet to take off with a critical mass. Though India has about 250 small SEZs, they have not been as successful as the Chinese SEZs in increasing manufacturing related exports. Many others have been notified/approved but yet to be set-up
Infrastructure	▪ Infrastructure is not yet on par with developed countries. However, there have been large focussed investments on improving ports, railways and roadway infrastructure ▪ China 's spend on infrastructure development is pegged at 10% of its GDP	▪ India spends 5% of its GDP on infrastructure ▪ It is estimated that the infrastructure sector will require USD 500 billion investments between 2007 and 2012 to sustain India's growth
Government incentives	▪ Government incentives to develop manufacturing sector in China include favourable tax policies, grants and subsidies specifically aimed at boosting exports. For instance, Chinese the Government is estimated to have provided subsidies totaling USD 79.1 billion to the steel industry, which led to the Chinese steel industry become a net exporter from being a net importer of steel	▪ India does have incentives like export financing and other incentives at SEZs, but Government incentives have not been sharply focussed on manufacturing (like it has been in China)
Capital costs	▪ Low interest rate environment in China has spurred investments. State owned banks have been funding investment to industry through loans, which in large parts are not repaid	▪ India has historically had higher borrowing costs than China
Technological Development	▪ China is known to have the second largest R&D investment in the world. Having R&D centers in China helps multinationals build relationships with local and national Government, which in turn facilitates business	▪ High end technology exports in India are 1/60th of that in China

Production Specific Factors

Demand for consumer durables is highly price elastic; China's distinct cost advantage leading to lower prices have led to higher domestic demand and boosted export sales. Some of the factors that can be attributed to Chinese cost advantage are lower raw material costs, higher labour productivity, lower level of indirect taxes and import duties

- Raw material/Component sourcing costs: Raw material costs are lower in China with 55 – 90% of the components being sourced domestically. In India, most components are imported
- Also steel prices (which is a key raw material) in India are 30 – 35% higher than China while aluminium prices are about 7% higher on an average (Discussed in detail in the later sections of the report)
- Lack of economies of scale, absence of an eco system of suppliers and infrastructure bottlenecks have constrained the growth of component manufacturing in India
- Labour costs: Labour costs have been on a rise in China and is currently 1.5 times that of India at lower levels. China is also recording a wage inflation of 15 - 20% per annum [1]
- Although average wage rates seem to be lower in India, China's labour productivity on an average is 1.8 times that of India and has consistently shown an uptrend
- Logistics and transport costs: While most manufacturing locations in India are spread out due to location specific tax benefits, manufacturing locations in China along with their vendor base is clustered (most located near the east coast), reducing logistics costs and aiding exports
- Average freight cost in China is USD 0.013 per tonne per km compared to USD 0.2 in India
- Indirect taxes: Effective indirect taxes in China are lower than that in India. China has a single indirect tax comprising of 17% VAT while India has multiple indirect taxes like excise, VAT and education cess which lead to an effective rate of 28.7% for consumer durables and 19% for mobiles and toys
- Import duties: For most critical components (in consumer durables and toys) import duty in India is higher in comparison to China. Further, since India does not have a well developed component manufacturing base, most components are imported
- Effective import duties in India are in the range of 4 – 31.7% while Chinese effective duty rates are in the range of 0 – 6%
- Utility costs: Power costs vary across regions in India and China, Indicative power cost per 1000 kwH in China is around USD 73 compared to USD 97 for India. Moreover quality of power in terms of power outages is poorer in India than in China [2]
- Water costs for industrial use in China are in the range USD 0.19 – 0.9/ kl compared to USD 0.175 – 1.5 /kl in India

[1] YoY inflation as calculated for hourly wage rates over last 5 years

[2] Indicative power cost calculated as an average across usage bands

Recommendations

Decreasing attractiveness of China as a manufacturing destination in recent years is an opportunity for India. In order to leverage this opportunity it is critical to develop a conducive manufacturing environment with focus on component manufacturing in India

DECREASING ATTRACTIVENESS OF CHINA

- The Chinese Government has started to shift its focus from export driven growth to growth led by domestic consumption - A number of export subsidies and tax rebates have been removed. Preferential tax rate for foreign companies has been abolished
- Domestic market in China is saturated with high penetration levels
- Currency appreciation, shortage of skilled labour, rising wage inflation and increasing real estate costs are eroding Chinese cost competitiveness and hence export competitiveness

+

OPPORTUNITY IN INDIA

- Rising demand from Indian consumers fuelled by growing population, increasing incomes and changing lifestyles
- There exists a huge untapped domestic market in India along with the potential to cater to export markets
- Large availability of skilled manpower that can be employed for high-end research and development activities

LEVERAGE BY PROVIDING IMPETUS IN FORM OF CONDUCIVE POLICIES

SUGGESTED RECOMMENDATIONS

- **Further technology development** by providing tax exemptions for R&D centers and VC funding, promote tie-ups between industry and technology institutes and encourage technology transfer through FDI
- **Develop SMEs** by promoting cluster development and creation of common service centers for use by SMEs. Change incentives for SSIs to be time bound rather than turnover based and create technology acquisition funds for SMEs
- **Rationalize tax policy** through removal of tax for interstate movement of goods and removal of location based incentives
- **Incentivize domestic value addition** by promoting local sourcing. **Increase the demand base** by incentivizing exports
- **Develop vendor base and raw material supply** by providing priority sector treatment to component manufacturing; Provide support for capital intensive component manufacturing facilities (Rent-to-own facilities etc)
- **Develop SEZs** by promoting large multi-product SEZs, enacting flexible labour laws and tax exemption for sale in DTA
- **Other recommendations** include lowering financing rates, reducing turnaround time by ensuring round the clock customs clearance and implementing automated cargo processing

Each of these are discussed in detail in the later sections of the report



Introduction

Section 2

Scope of Study

This study focuses on six consumer durable product categories - Television, Refrigerator, Washing machine, Room air conditioner, Toys and Mobile phones

The study covers the following broad aspects:

- Overview and assessment of identified consumer durables sectors in India and China :
  - Key trends, major players and market dynamics
- Analysis of production environments in India and China
- Analysis of essential conditions and policy inputs in India and China which result in competitive advantage
- Key enablers and barriers for manufacturing consumer durables in India vis-à-vis China
- Guidelines for sustainable competitive advantage of Indian companies

The scope of work involves the following six product categories:

- Television
  - Excluding Black and White televisions
- Refrigerator, Washing machine and Air conditioners
- Toys
  - This includes only traditional toys [1]
- Mobile phones

[1] Traditional toys are defined as objects of play, typically for children, which does not involve a video game component

Approach and Methodology

Project Initiation	Research	Analysis	Conclusions / Presentation
• Project Initiation	• Market assessment and review in India and China • Information from independent external sources & Interviews with sector experts • Trade press and trade organizations • Information from market players & key Interviews in India and China	• Main analyses covering both markets • Market demands and trends • Production environment • Various policy aspects • Cost base and pricing structures • Key market players and their assessment of the production landscape • Financial viability, incentives,concessions, tax payable & others	• Preparation of the final report • Presentation of report with analysis and conclusions to NMCC • Update the report based on inputs from NMCC and issue final report

1 All analysis in this report are based on data / information gathered before July 2008 unless otherwise explicitly stated

Report Structure

The report includes a comparative analysis of India vis-à-vis China in the six product categories under consideration

GLOBAL SCENARIO FOR CONSUMER DURABLE

- Analysis of global trends in the consumer durable industry

CONSUMER DURABLE INDUSTRY IN INDIA AND CHINA

- Comparison of the market across all six categories in India and China

ANALYZING CHINA'S GROWTH

- Analysis of the growth of manufacturing in China including both macroeconomic and production specific factors

WHAT CAN WE LEARN FROM CHINA?

CONCLUSIONS AND GUIDELINES

- Key policy guidelines for India

ELECTRONIC CASE STUDY

- Key learning for India from other countries in the electronics component manufacturing space

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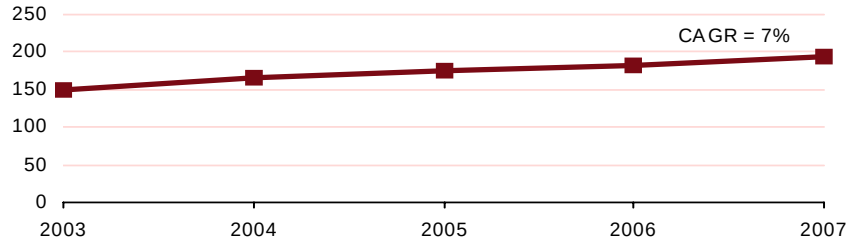
Consumer Durables – Market Overview

Section 3

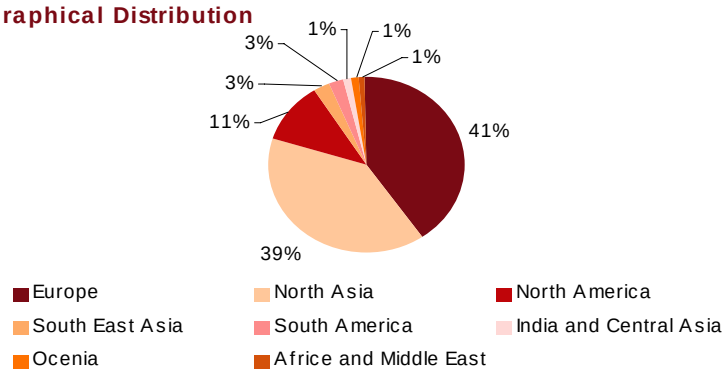
Global Home Appliances

The global home appliance market is estimated at USD 195 billion; It is mainly concentrated in Europe and North Asia

Global Industry Revenues [In USD Billions]



Geographical Distribution



Source: Ibisworld

KEY FACTS

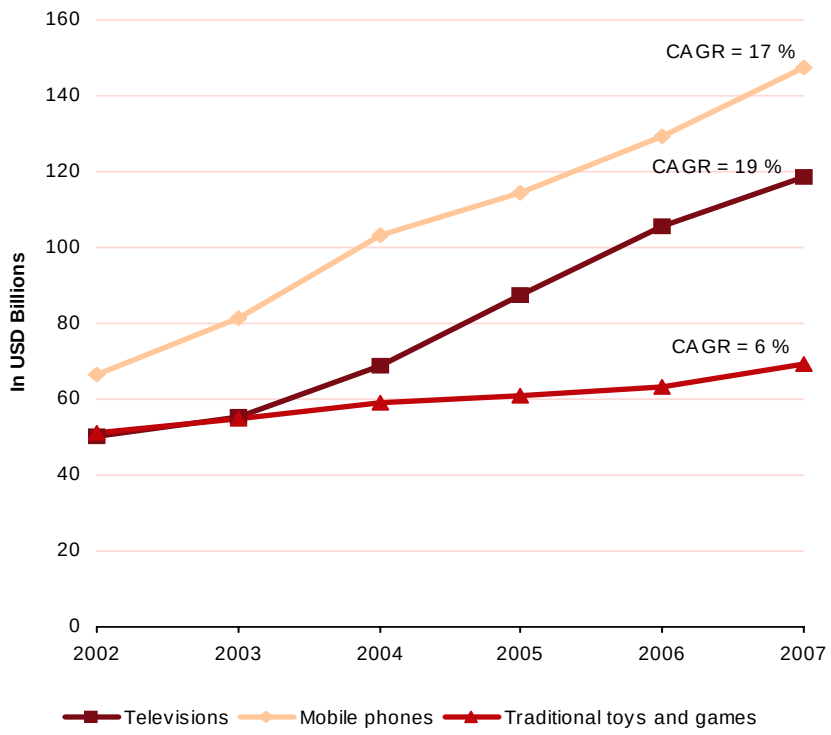
- In all there are over 10,200 enterprises in the home appliances industry
- The home appliances industry employs over 0.8 million people globally
- Employee wages and salaries totalled over USD 24 billion (value expressed in constant 2007 prices)

- The household appliance industry which includes air conditioners, refrigerators and washing machines is one of the largest segments in the consumer durable industry; It is valued at USD 195 billion
- Close to 80% of the market is concentrated in Europe and North Asia

Global Scenario for Television, Mobile and Toys

Rapid technological advancements and continuous introduction of newer models have led to growth in mobile and television industry

Global Revenues



Source: Euromonitor, Bureau of Statistics (China)

KEY FACTS

TOYS

- Global toys and games market grew by 7.2% in 2007 to reach a value of USD 106.1 billion. Sales of traditional toys account for 58.2% of the global toys and games by market value
- The market is increasingly moving away from traditional toys to video games and other electronic toys

TELEVISION

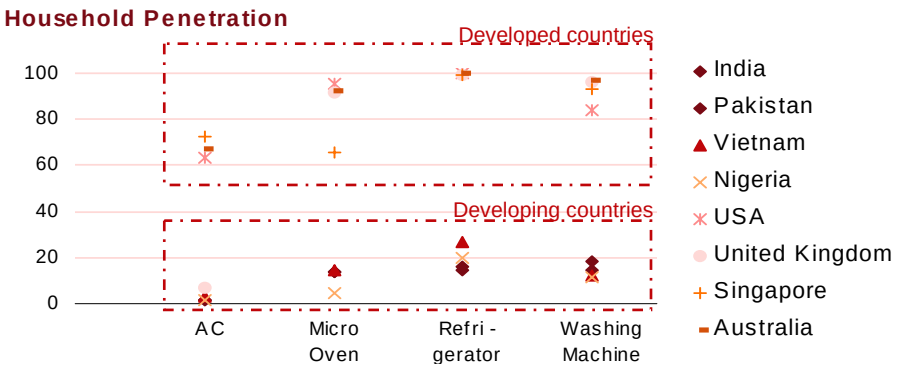
- Global television market is estimated at 187.4 million units in volume terms and USD 119 billion in value terms
- Technology changes from CRT to plasma and LCD have fuelled the growth of televisions in the recent past

MOBILE PHONES

- Global market for mobile phones (in 2007) is estimated at 1.05 billion units in volume terms and USD 147 billion in value terms
- Technology convergence is increasing demand for mobile phones

Trends in the Global Market

Large number of global players are targeting emerging markets to fuel their growth. Outsourcing manufacturing to low cost destinations has gained momentum on account of severe pricing pressures



Country	Large Players in Domestic Market
US	Top 4 appliance manufacturers are estimated to account for 80% of the domestic market
Europe	Top 4 manufacturers account for a large share of production in western Europe
China	Haier and Nokia have a major share
Turkey	Arcelik controls over 60% of the market
France	Group SEB is estimated to have a market share of 63% for mixers
India	LG and Samsung have a major share in the market

- Rising per capita incomes, low penetration levels and saturated markets in developed countries have led to a shift in focus towards emerging markets
- Product quality improvements in recent years have also lead to longer product lives, thereby reducing the replacement demand in developed markets
- Also in case of toys, developed economies which were traditionally strong markets for toys and games, are experiencing falling birth rates leading to an inevitable shrinking of the target segment
- Many existing manufacturers have rationalized the number of plants and outsourced production to third party manufacturers in low-cost countries like China
- Other trends covering all 6 categories include:
  - Fall in unit prices in real terms
  - Industry characterized by moderate technological advancements. Exception includes televisions where demand has risen due to introduction of the radical technology like LCD
  - **Few large players occupy dominant positions in the market mainly due to the scale driven nature of the industry.** Manufacturers with scale are typically in a better position to negotiate with suppliers on price and also be in a better position to reduce transport and logistics cost per unit sold

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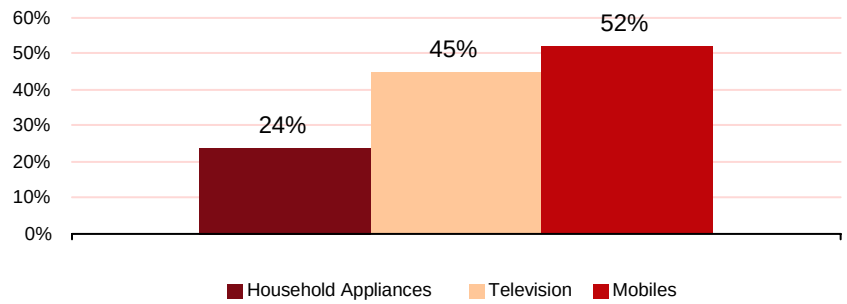
Production in China

China has emerged as a major beneficiary of the outsourcing trend; It accounted for over 24% of global production of household appliances by value, 45% of television manufacturing and 52% of mobile phone output

OEM PLAYERS WITH A MANUFACTURING BASE IN CHINA	
Player	Country
Panasonic	Japan
Indesit	Italy
Samsung	South Korea
Philips	Netherlands
Mattel	US
Daikin	Japan
Siemens	Germany
Sanyo	Japan
Samsung	Korea
LG	Korea
Electrolux	Sweden
Sony	Japan
Nokia	Finland

EXPORT ORIENTED PLAYERS FROM CHINA
Galanz
BenQ
AU Optronics
Haier
Compal Communications
Quanta
Pantech
Arima
TPV Technology
Konka group
TCL
Sharp
Chi Mei Optoelectronics
Hannstar Display Corp

Chinese production as a percentage of total global production



Source: Ibisworld, PwC Analysis

- A number of manufacturers set up operations in China in order to take advantage of its low cost environment (to develop it as an export base) and tap into its large domestic market
- The table alongside shows a representative sample of global manufacturers who leverage China as a manufacturing base and manufacturers from China who serve as OEM vendors
- The following slides discuss the difference in production volumes in India and China and an analysis of the key demand drivers
- We also specifically cover the mobile phones industry in India. Contrary to other product categories, mobile phones grew at a phenomenal rate in India and hence makes for an interesting case study from an Indian perspective

Production Snapshot

Domestic sales in India are a miniscule proportion of that in China and export volumes are not even 1% of that in China

Product	Domestic sales (In Million Units, 2007)		CAGR (over past 5 years)		Export Volumes (In Million Units, 2007)	
	India	China	India	China	India	China
Air Conditioner	1.8	32.1	19	11	0.07	36.7
Refrigerators	4.3	26.8	6	13	0.41	16.3
Washing Machine	1.9	21.2	11	10	0.05	13.3
Televisions	14.6	40.6	11	4	0.7	47.9
Mobiles	88.6	168.0	85	26	2.24	483

China accounts for 72% share of world's RAC manufacturing, 47% of refrigerator manufacturing, 45% of television manufacturing, 35% of washing machine manufacturing and 52% of mobile output

Source: DGFT, Euromonitor, National Bureau of Statistics of China, ChinaCCM, GfK Research, Ministry of Information Industry of PRC, China Customs, Sino Market Research, Ministry of Commerce of PRC, White book of China's Refrigerator Industry (2006), CrisInfac, PwC Analysis

Import Content

While China barely imports CBUs across these product categories, India imports 1/3rd of Air-conditioners and 1/4th of washing machines as CBUs

Imports of CBUs across product categories		
Product Categories	India	China
Air Conditioners	31%	<1%
Refrigerators	2%	<1%
Washing machines	23%	<1%
Colour Televisions	10%	<1%
Mobiles	N.A	<1%
Toys	38%	<1%

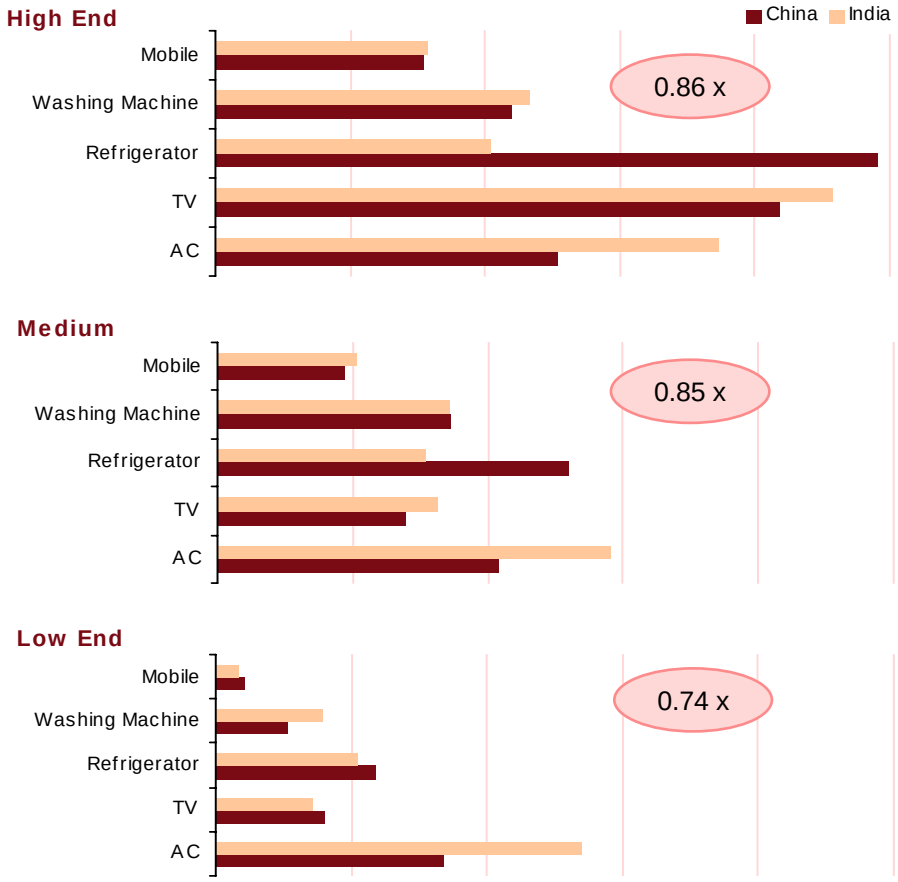
Source: DGFT, National Bureau of Statistics of China, ChinaCCM, GfK Research, Ministry of Information Industry of PRC, China Customs, Sino Market Research, Ministry of Commerce of PRC, White book of China's Refrigerator Industry (2006), CrisInfac, PwC Analysis

- The imports of CBU across the chosen product categories by China is considered negligible

Section 3.1
Demand Drivers in China and India

Consumer Price Level

Consumer prices[1] in China are at minimum 15 - 25%[2] lower compared to prices in India which has led to higher domestic demand. For high end LCD TV, India does not have the capability to produce LCD panels and most of the panel requirement is met through imports



Source: Interviews, PwC Analysis

Representative Product Explanation

TELEVISION

- India is cost-competitive with China in the low end, especially CRT TV segment because most of domestic demand in India originates from this segment ; Hence manufacturers are able to achieve scale benefits
- Continued price cuts in the CRT TV segment and margin pressures has led players to increasingly shift focus towards high-end televisions
- For high-end LCD TVs, India does not produce LCD panels and most of the panel requirements is met through imports. LCD TV sales are still low in India to achieve significant scale economies

MOBILES

- Consumer price levels in China and India are almost the same with China faring better in a few cases. This is mainly because mobile component imports do not attract customs duty in India and freight costs as a percentage of consumer price (per product) is low
- In the low-end category of phones, India is competitive due to economies of scale on account of a large demand base
- A number of players are developing low end phones with sub USD 30 prices, (specifically for emerging markets like India) leading to a downward trend in mobile phone prices

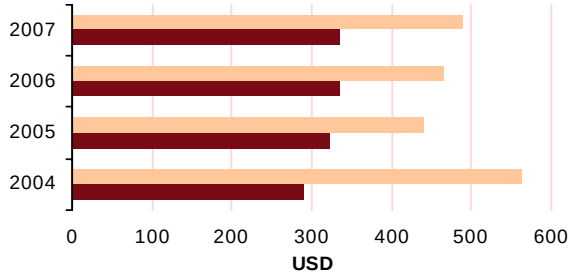
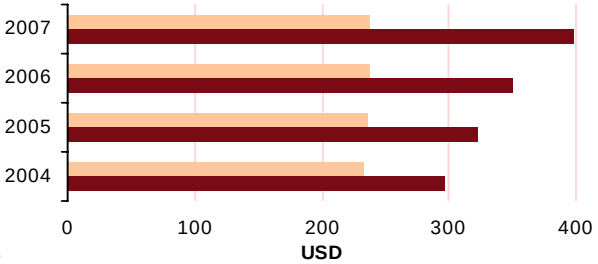
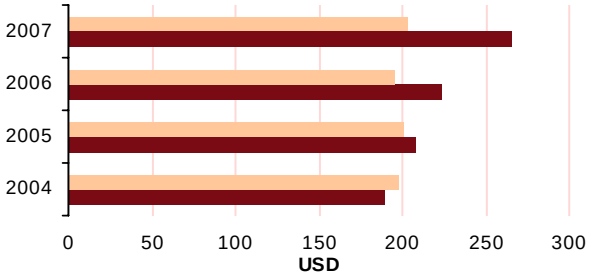
1 Price levels are not PPP adjusted

2 Refrigerator is not included in the average rate comparison. The comparison was done solely based on the litre capacity as a specification. A similar capacity refrigerator in China would have a host of value added features such as LCD touch screen, higher freezer to refrigerator ratio etc and hence be priced higher than in India

Trends in Average Price Levels

While average price levels for Air conditioners are lower in China, price levels are higher for refrigerators and washing machines due to consumer preferences for high end models; Overall, this industry is characterized by high pricing pressures and hence the need to minimize costs

China India

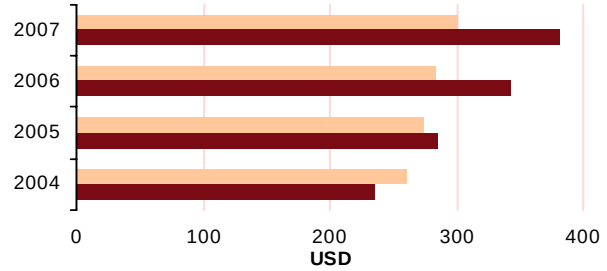
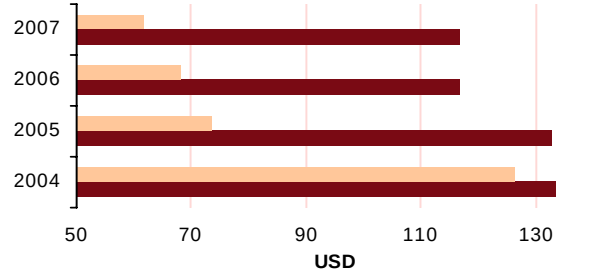
Product	Trends	Details
Air Conditioner		While 1.5 ton ACs are the most popular variant being sold in India, 1 ton ACs remain the most popular variant in China, leading to lower average prices in China (due to cooler climatic conditions in China) Prices of Room Air Conditioners (RAC) in India dropped in 2005 due to FTA with Thailand (duty rates were reduced by 75%) Change in consumer preferences (during the period 2005-07) towards split AC with better price realizations (compared to conventional window AC) has led to an increase in average prices
Refrigerator		Average refrigerator prices in India during 2002-07 have remained stagnant ; Growth has been mainly driven by increasing volumes A shift in consumer preferences towards high end refrigerators in China has led to increase in average price levels
Washing Machine		Consumer preferences have changed across both India and China. The product mix has shifted towards fully automatic and higher capacity washing machines Average unit price in both India and China has been rising over the last few years on account of consumer preference for newer features

Source: PwC Analysis, CRISIL, CrisInfac

Trends in Average Price Levels

Average price levels in televisions are rising due to consumer preference for high end models in both countries. Due to lower tax rates and large players like Nokia setting up manufacturing units (both for serving domestic market and exports) prices of entry level models have reduced significantly in India

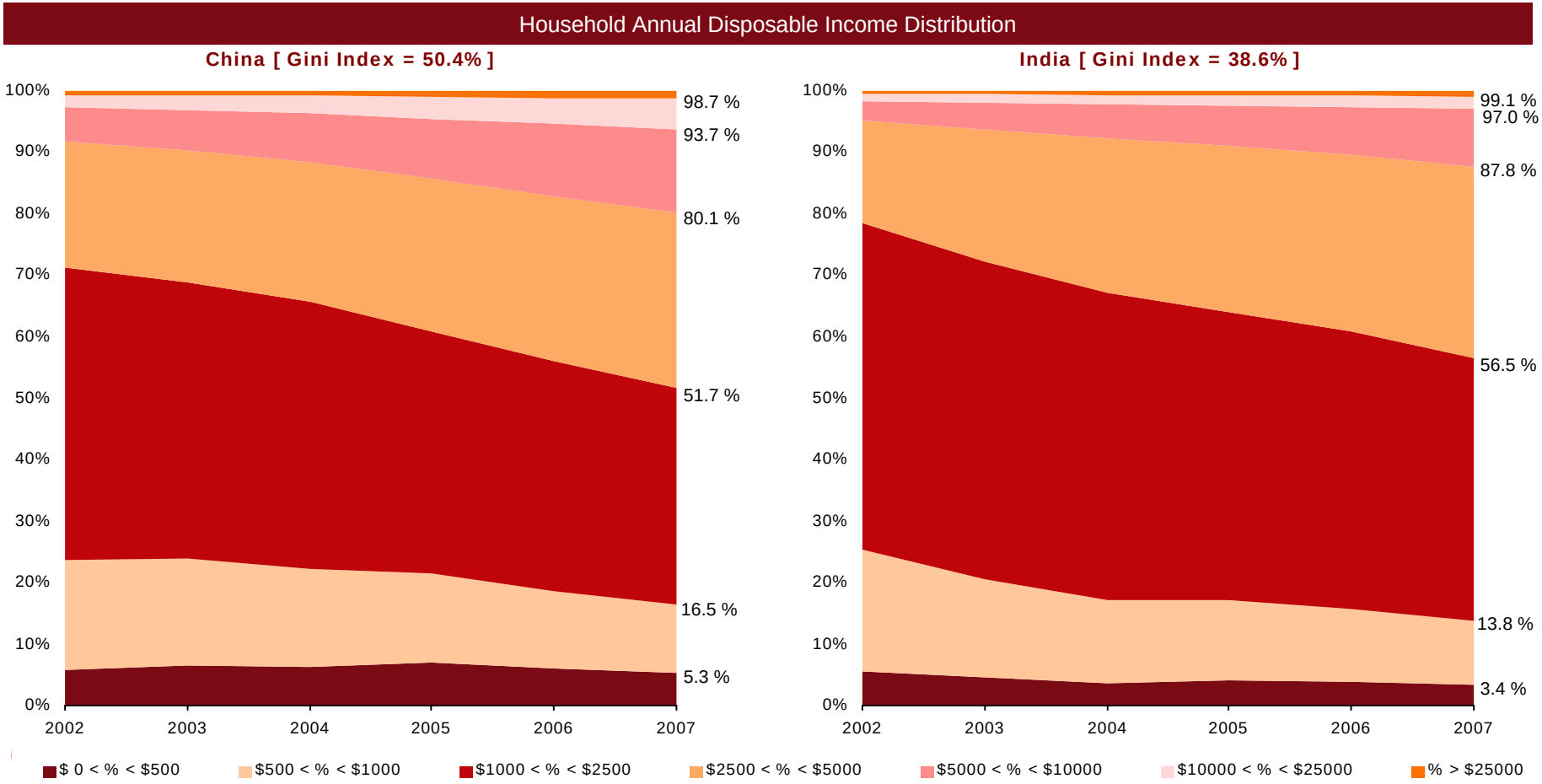
China India

Product	Trend	Reasons
Television		Consumer preference has changed for both India and China. Product mix has shifted towards high-end models such as plasma display panels (PDP), liquid crystal displays (LCD), digital light processing (DLP), high-definition television (HDTV) and flat-panel TVs On account of this, average unit price in both India and China has been rising since the last few years
Mobile		Fall in prices across both India and China has led to volume growth. Prices have fallen by over 21% in India during the period 2004-07 compared to 4% fall in prices in China Sales volume in India is dominated by low end phones. Due to lower tax rates and large players like Nokia setting up manufacturing units, both for serving domestic market and exports, prices of low end phones have reduced

Source : Crisinfac, Sino Market research, PwC Analysis

Household Income

Annual disposable income levels in China are higher than India leading to higher domestic demand for durables in the Chinese market

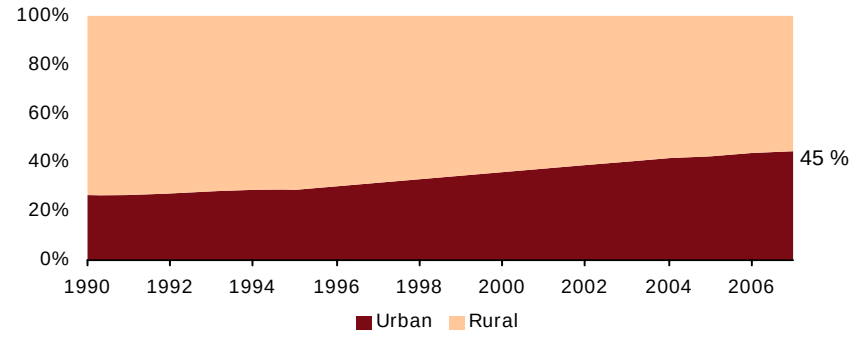


Source: Euromonitor, China Bureau of Statistics

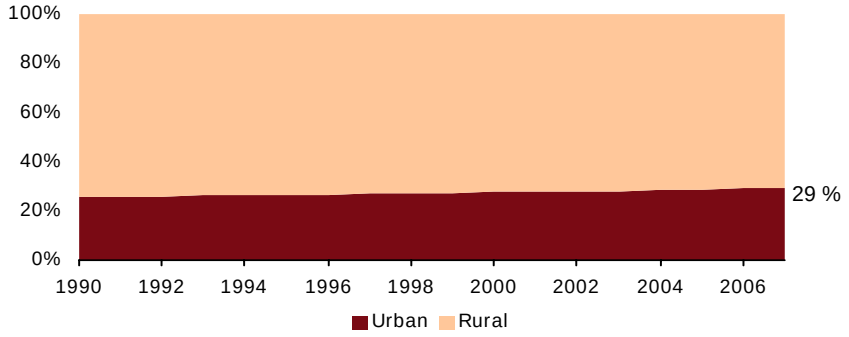
Population Growth

Higher urban to rural ratio has generated significant demand for durables in China

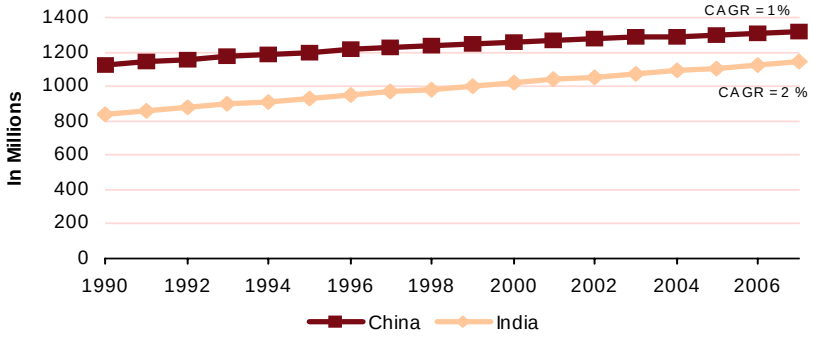
Urban Rural Split - China



Urban Rural Split - India



Population Growth



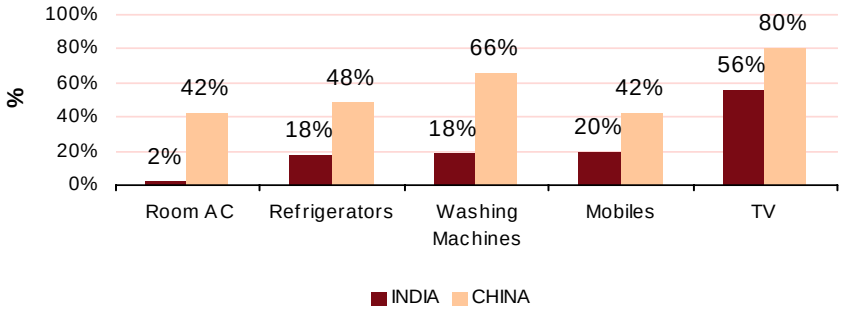
- China has had a larger population than India since the past 18 years. However, Indian population has been growing at double the rate of China
- China has aggressively moved towards urbanization and has improved its urbanization ratio from 26% in 1990 to 45% in 2007. India reached a level of 29% in 2007 (25% in 1990)
- Since demand for consumer durables has historically been an urban phenomenon , China has generated higher domestic demand for such products

Source: Euromonitor, China Bureau of Statistics

Penetration Levels

Penetration levels in India are significantly lower compared to China. To generate rural demand, the Chinese Government (starting December 2007) has been providing farmers a subsidy of 13% for purchasing household appliances such as refrigerators

Penetration in India and China [1]



Source: CRISIL. PwC Analysis, China CCM

[1] Penetration for all product except mobiles is at household level. Mobile penetration is at individual level

- In TVs and washing machines, urban penetration in China is close to 100%. Urban demand is expected to see an uptrend due to consumer shift to high end variants like LCD TV and fully automatic washing machines
- To generate demand in rural sector, the Chinese Government (starting from December 2007) has started providing farmers a subsidy of 13% for purchasing household appliances such as refrigerators
- Demand for TV in the Indian rural market is growing faster than urban market. This is on account of low level of penetration in rural market and falling operational costs (cable expenses)
- Chinese players are exploring the rural market through a low-cost brand “Combine”, while players in India (like LG) have introduced lower priced products to tap into the rural opportunity in India. Indian players like Godrej are innovating to design refrigerator models, priced as low as 60 - 70 USD to cater to the rural market

Section 3.2
Industry Players

Industry Players

Indian market is dominated by multinationals whereas Chinese market has large home grown companies

Product	No. of major Players		Key Players ❷		No. of major Multinationals ❶		Remarks
	China	India	China	India	China	India	
Air Conditioner	5	6	▪ Gree ▪ Midea ▪ Haier	▪ LG ▪ Voltas ▪ Samsung	0	4	Indian domestic market is dominated by MNC players like LG and Samsung. This is different from China where local players dominate the market
Refrigerator	10	5	▪ Haier ▪ Siemens ▪ Frestech	▪ LG ▪ Whirlpool ▪ Godrej	6	3	Greater demand for high end features in China is leading to players with access to high end technology gaining market share
Washing Machine	8	5	▪ Haier ▪ Little Swan ▪ LG	▪ LG ▪ Whirlpool ▪ Samsung	4	3	Chinese washing machine market is fragmented with a domestic firm being the market leader; Indian market is dominated by large MNCs
Television	5	6	▪ TCL ▪ Hisense ▪ Skyworth	▪ LG ▪ Samsung ▪ Onida	4	4	Key players in India are mostly MNCs while the Chinese television industry is highly fragmented and dominated by domestic Chinese players
Mobiles	8	5	▪ Nokia ▪ Motorola ▪ Samsung	▪ Nokia ▪ Sony Ericsson ▪ Samsung	6	5	While MNCs dominate both countries, domestic players are losing their market share in China
Toys	11	12	▪ Bandai ▪ Mattel ▪ Lung Cheong	▪ Funskool ▪ Mattel ▪ Hanung	3	3	Highly fragmented markets characterize both countries with Indian players focusing on domestic market while Chinese players focus on the export market

❶ Includes MNCs with a significant market share

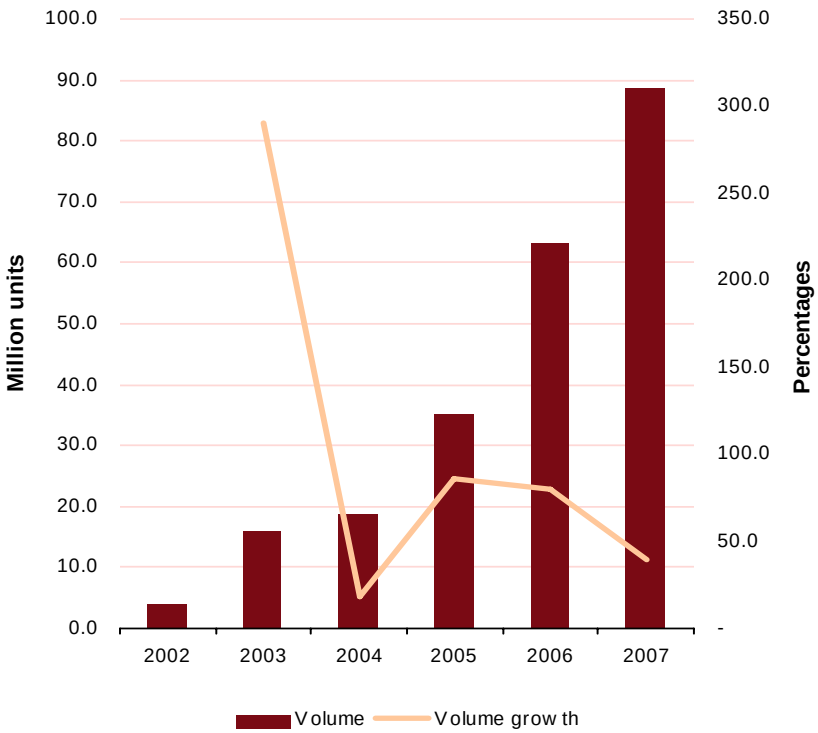
❷ Profiles of some of the key players in China are provided in the Appendix

Section 3.3
Mobile Phones Growth Story in India

Growth of Mobile Phones in India

Mobile phones in India have followed a different growth trajectory in comparison to other product categories ; Falling usage costs has led to explosive growth rates in the mobile phone industry

India mobile phones sales



- India is the world's second largest market accounting for 8.4% of the world market in mobile phones
- Despite high growth in mobile phones, tele-density in India is 56.93% in urban areas and 7.3% in rural areas indicating huge untapped potential
- India clocked a volume growth rate of 290% during 2003 - Incoming mobile calls were made free of charge in January 2003 - As a result usage costs reduced and hence volumes increased
- High growth in mobile phones in India is mainly led by low end phones

Source: Ministry of Commerce of PRC, TRAI

Key Processes in Mobile Manufacturing

Component manufacturing is largely capital intensive and has a high level of automation whereas mobile assembly is relatively more labour intensive. Component manufacturing is yet to gain momentum in India

1 Component sourcing

CHINA

- Most components in China are sourced domestically. Some components for high end models are imported
- Target low/mid end market only
- All processes rely on timely delivery of components and hence this is crucial
- There are 2000+ component suppliers

INDIA

- Components are mostly imported. Only recently, component manufacturers like Perlos and Aspocomp have set up operations in India

2 Component assembly

CHINA

- Capacity is estimated at 1 billion sets per annum
- 70 organized players and 500+ unorganized players

INDIA

- Capacity is estimated at 35 million sets per annum
- Major players like Nokia, Motorola, Samsung and LG have set up operations in India during the last 3 years

ADVANTAGE CHINA

3 Software loading

CHINA

- Process is typically not a bottleneck
- China has shortage of technical talent in this area

INDIA

- India has abundant technical talent in the software domain
- A large number of players like Nokia, Kyocera, Motorola etc have their software development centres in India
- For instance, 40% of the software in Motorola mobile handsets globally is developed in India

4 Final testing

CHINA

- Capacity is estimated at 1.5 billion sets per annum. Normally not a bottleneck

INDIA

- Capabilities of Indian technicians in testing services results in high yield

ADVANTAGE INDIA

Mobile Handset Manufacturing - Key Players and Stakeholders

OEMs, ODMs and EMS firms are the key decision makers for setting up manufacturing base in a country. Component manufacturers usually follow suit. Currently all the major OEM and EMS players have begun their operations in India

Decision to set up operations in a location depends on multiple criteria:

- Proximity to handset vendors, EMS players and ODMs - generally 'pulled' close to the handset manufacturing facilities
- Scale of investment required and potential for building economies of scale
- Labour arbitrage potential – For plastic parts and final assembly India has a high labour arbitrage while for LCD we have none
- Also depends on demand for component from other electronic applications

At present a number of major EMS firms like Elcoteq, Flextronics, Jabil, Solectron manufacture out of India

Critical stakeholders in terms of handset manufacturing location decisions

All the major handset vendors like Nokia, Motorola, Samsung and LG have set up base in India

Outsource PCB fabrication, assembly and testing

EMS

- Firms like Flextronics and Elcoteq that design, test and manufacture
- Contract manufacturers for OEMs

Component manufacturers

- These firms manufacture the different components like PCBs, ICs, plastic parts, battery, LCD display

OEM/ Handset Vendor

- Firms like Nokia, Motorola, Samsung who are the brand owners and coordinate the end-to end value chain

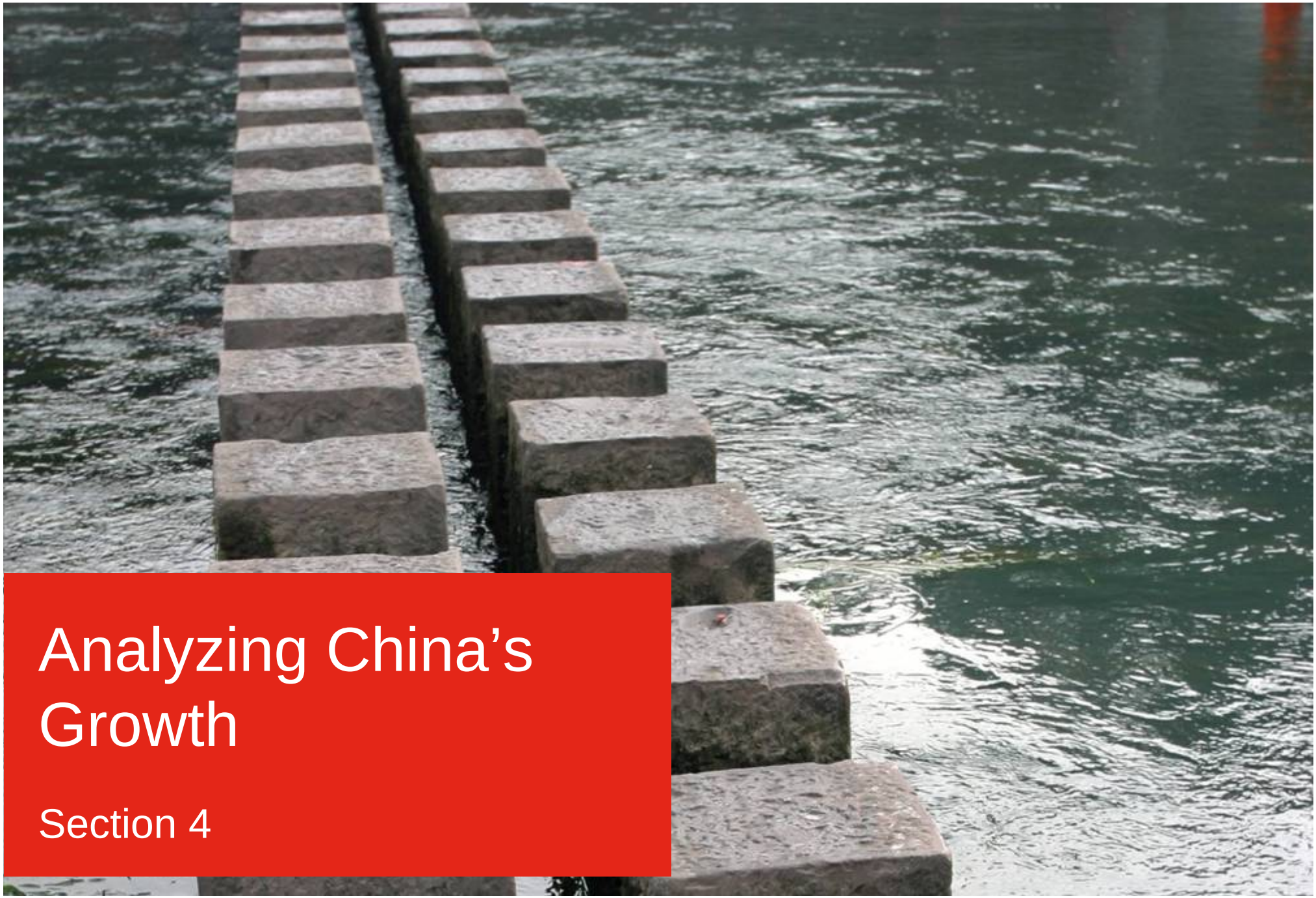
ODM

- Rapid pace of new model introductions has led to emergence of ODMs
- ODMs design and contract manufacture for OEMs
- For example Nokia used BenQ to design some of its handset models for the Chinese market

Use ODM vendors to carry out handset reference design and manufacturing, in order to plug in gaps in R&D and design

Some of the component manufacturers like AT&S (PCB), Molex, Hical (magnetics), Tyco (Connectors), Perlos, Aspocomp have set up operations in India

Manufacturing | Component Manufacture | Design | Sales and Marketing



Analyzing China's Growth

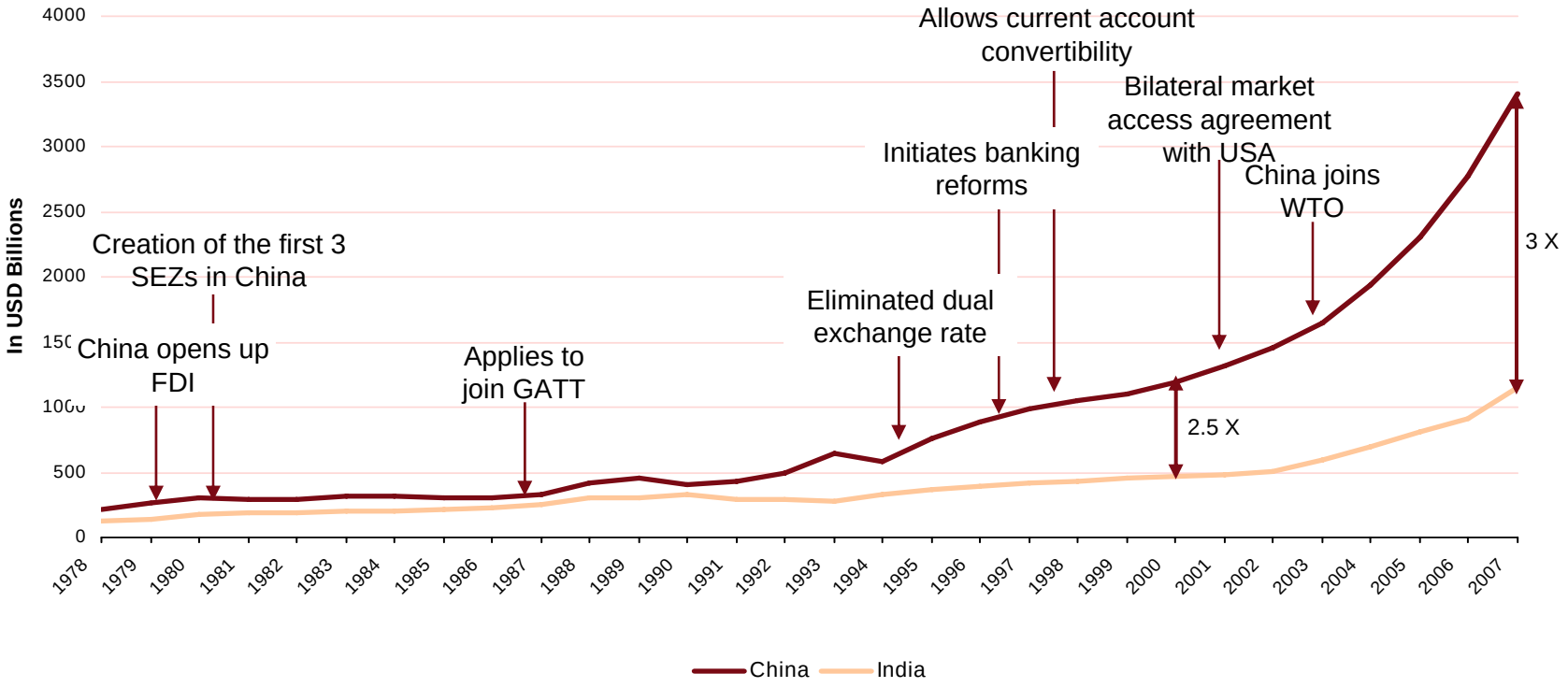
Section 4

Section 4.1
Macroeconomic Factors

China's Growth Story

Starting with economic reforms in 1978, China has doubled its GDP every 6 years on an average

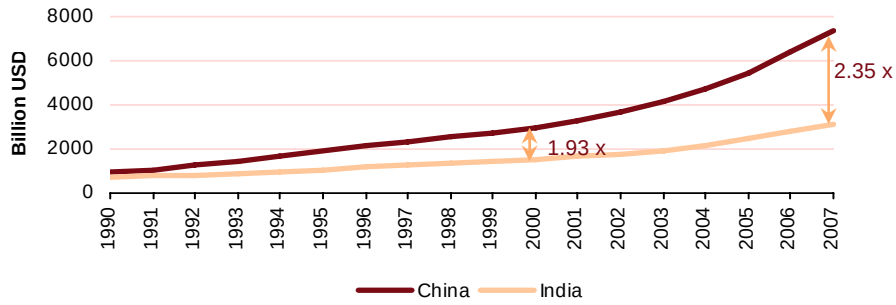
China : GDP growth



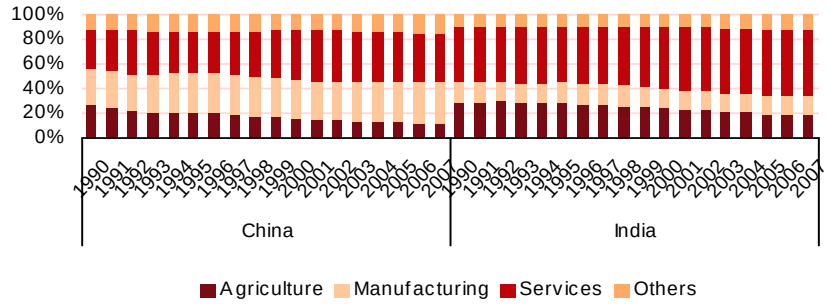
GDP Growth

Over the last 18 years, China has outperformed India significantly in its GDP growth. While growth in India has been led by services sector, growth in China has been manufacturing led

GDP (PPP adjusted)



GDP percentage split

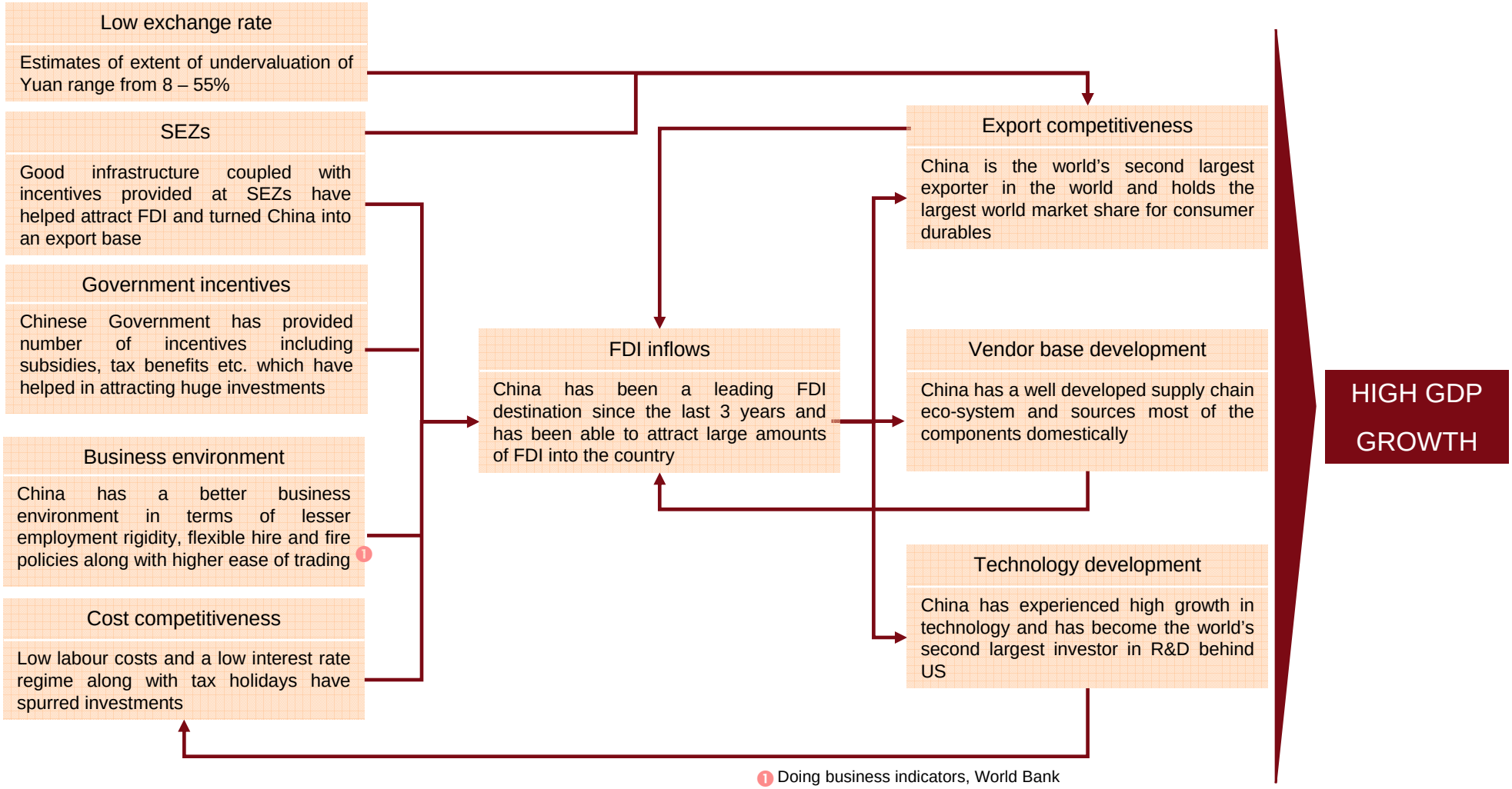


- China has outperformed India in its growth during the last 18 years. This can be mainly attributed to economic reforms initiated by China in late 1970s compared to India which started its reforms in early 1990s
- Since early 90s, the gap between Indian and Chinese GDP has been widening. However, both countries have shown growth rates significantly higher than the international average
- While share of manufacturing in China's GDP has increased from 28.86% in1990 to 34.12% in 2007, in India it has been stagnant at 15 – 16% (16.3% in 2007) ; Hence, while China's growth can be attributed mainly to its manufacturing sector, services has been the key growth driver for India (accounted for 52.37% of the GDP in 2007 in contrast to 38.8% for China)
- To understand the manufacturing led growth in China and its competitiveness in comparison to India, it is important to analyze various factors which have driven the manufacturing eco system in China. The following slides attempt to uncover the impact of these factors both in India and China

Source: Euromonitor

Inter-linkages between Different Factors for Growth of GDP

FDI inflows in China have played a key role in transfer of best practices and technology development. FDI together with Government policies spurred vendor base development and export competitiveness - in turn attracting more FDI inflows



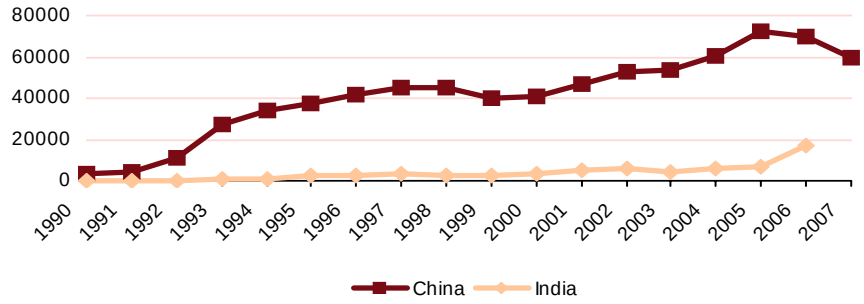
1 Doing business indicators, World Bank

Section 4.1.1
FDI Inflows

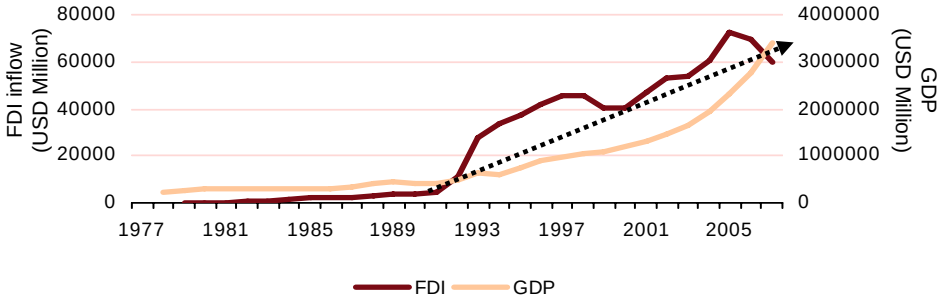
FDI Inflow

FDI inflows into manufacturing in China has led to technology transfer, vendor base development and adoption of best practices by Chinese firms

Net FDI inflow (USD Million)



Correlation between FDI and GDP in China



- FDI has been one of the major growth drivers in China. Examining trends in FDI growth and GDP growth shows that the two are positively correlated
- FDI in China is concentrated in the manufacturing sector. In 2006 63.59% of total FDI inflow was in the manufacturing sector, with 12.96% being in the electronics sector . Other key benefits from FDI include:
  - FDI brought technology transfers which led to development of the Chinese industry. For instance, China's semiconductor industry was almost non-existent a decade back. However, China has been able to successfully develop the industry through technology transfers (mostly from Taiwanese FDI)
  - Government policies requiring foreign entities to source a certain proportion of their raw material supplies from domestic vendors led to development of domestic supply chain. For instance, with regard to mobile phone manufacturing, Government policy necessitated OEMs to source 10% of their components domestically
  - Transfer of best practices and management know-how from foreign entities to domestic players
- However, FDI inflows in China has seen a downward trend since 2005 due to strict control over land supply and stringent Government regulations. Also, since most of the FDI is export oriented, declining export competitiveness of China is a dampener for FDI inflows

Source: Euromonitor, PwC Analysis, China Bureau of Statistics

China - Top FDI Destination

China has consistently been a top destination for FDI and has been hugely successful in attracting Chinese diaspora to invest in China

- China has been ranked as a leading investment destination since the last three years. Key reasons for the high attractiveness of China as an FDI destination are:
- TAX INCENTIVES: China provided differential tax incentives to FIEs (Foreign Invested Enterprises) over domestic companies as listed below:

Incentives for Foreign Invested Enterprises	
Description	Incentive
Corporate tax rate	▪ Effective corporate tax rate of 15% compared to domestic companies which pay 33%
Tax holiday	▪ Two year tax holiday from the year of profit generation and 50% tax concession for 3 years thereafter
Incentive for advanced technology transfer	▪ 50% tax concession for a period of three years ▪ Indirect tax sops by way of exemption from value-added tax

- In contrast, effective corporate tax rate in India is 33.99% for domestic companies and 42.23% for branches of foreign companies

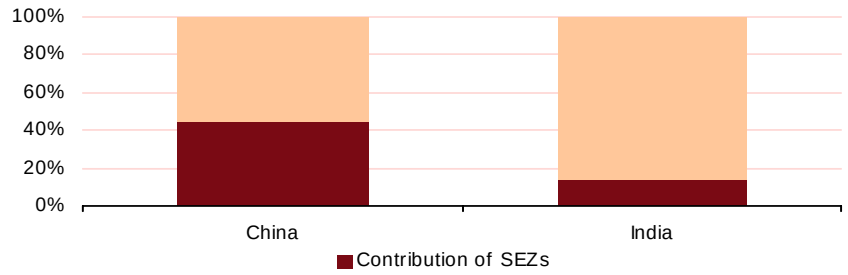
- SUCCESS IN ATTRACTING DIASPORA: Another reason for high FDI inflows in China has been its success in attracting Chinese diaspora to invest in China. Chinese diaspora accounted for 70 per cent of FDI flows into China, mainly from Hong Kong and Taiwan
- For instance, Hopewell Holdings Ltd. a Hong Kong based infrastructure firm led by a Chinese expat has invested in a number of infrastructure projects including toll roads and superhighway projects in China in the form of co-operative joint ventures between Hopewell and Chinese partners

Section 4.1.2
Special Economic Zones

SEZ as a Dominant Policy Instrument to Promote Manufacturing

SEZs in China have attracted huge FDI investments, propelled export led growth, generated employment opportunities and contributed significantly to GDP growth

Contribution of SEZs to total exports



Source: PwC Analysis, China Bureau of Statistics

- Special Economic Zones (SEZ) were introduced in China in 1979-80 with an objective much wider than trade and investment promotion. The SEZ framework was chosen as a dominant policy instrument to experiment with foreign investment
- The basic state policy was focused on formulation and implementation of overall reform and opening up the economy. This was first tested in a few SEZ “pilot areas” before being introduced elsewhere
- The total area of the five major SEZs in China is less than 1% of the whole country, but their GDP accounts for over 7% of China’s GDP, a fifth of the country’s trade, and one-fifth of FDI inflows; The rate of growth in these zones has been double the national average
- SEZs have been helpful for small and mid-sized entities which cannot afford to set up captive infrastructure facilities. They can house their units in SEZs and share costs
- SEZs have still not been very popular in attracting manufacturing related investments in India
  - 62% of the total formal approvals for SEZs are in the IT/ITES sector

Key Reasons for Success of SEZs in China

Flexible labour laws along with strategic locations are the key reasons for success of SEZs in China; India hasn't been able to replicate this success so far

- Apart from common incentives such as waiver of import duty, better infrastructure and good business environment through single window clearances which are offered at SEZs in both China and India, SEZs in China differ from those in India in many aspects
- FLEXIBLE LABOUR LAWS: China has enabled flexible labour laws in SEZs like hire and fire policies and use of employees on subcontract. Also foreign investors are allowed to negotiate wages each time they receive a new export order. On the other hand, prevalence of outdated labour laws and employee protection measures is an obstacle in India
- STRATEGIC LOCATIONS: Most of the Chinese SEZs are located in strategic locations close to the port and in close proximity to neighbouring countries like Taiwan and Hong Kong. This reduces transportation costs and enables quicker response time in major markets
- DECENTRALIZATION OF POWER: Decentralization of power is another key reason for success of SEZs in China. Provincial and local authorities were made partners and stakeholders, by delegating to them powers to approve foreign investment for projects involving capital under USD 30 million. This allowed faster approvals without involving too many procedures

  In India, SEZs are approved by the State Government while the powers for foreign investment approvals are vested with the Development Commissioners, who are representatives of the Central Government
- ACQUISITION OF LAND: In China, land is owned and developed by Government and private enterprises are invited to set up units. In India, private entities are responsible for acquiring necessary land. Acquisition of land to establish SEZs is still a large issue in India
  - Lack of clear land titles and fragmented holdings in India pose difficulties in acquiring large tracts of land
  - Most of the land identified for development of SEZs is perceived to be fertile, cultivated land. Hence, there is huge resistance at the time of land acquisition
  - Multiple legislations dealing with property rights and lack of judicial intervention on acquisition procedure and compensation complicates the process

  A combination of all the above factors have resulted in development of numerous small SEZs all over the country
- SIZE OF SEZ: Size is another important factor for SEZ success in China. Each SEZ is well over 1,000 hectares, the minimum recommended area
- In India, most SEZs are located in small areas where the requisite infrastructure and services cannot be created nor multiple economic activities undertaken. From a manufacturing perspective, small sized SEZs stunt the growth of proper vendor base and act as a barrier to achieve economies of scale . However, SEZs also take a long time to become operational in China - SEZs approved in 1980's were fully operational only in the 1990s

Tax Benefits at SEZs

China is withdrawing most of its tax incentives from 2008

Summary of tax benefits of operating in an SEZ

Particulars	India	China
Tax holiday	Exemption u/s 10AA of the Income Tax Act, 1961 on profits derived from export of goods or services - 100% in the first 5 years 50% in the next 5 years Up to 50% for further 5 years (on creation of specified reserve for reutilization)	Exemption available for up to 5 years : 100% in the first 2 years; 50% in the next 3 years **No exemptions available from 2008 onwards**
Corporate tax	Domestic -33.99% Foreign - 42.23%	w.e.f 1 January 2008 General rate - 25% High technology Cos. - 15% Thin profit Cos. - 20%
Minimum alternate tax	Exempt	
Customs duty	Exempt	Waiver / reduced duty on certain raw material, capital goods
Excise duty	Exempt	
Service tax	Exempt	
Central sales tax	Exempt	
Local taxes	Exemption based on the respective State Government Policy	VAT refund available. However decreases from 2008 onwards to <10%.
Stamp duty	Exemption as per State Government Policy	

Source: SEZ act of India, SEZ act of PRC, The state administration of taxation of PRC

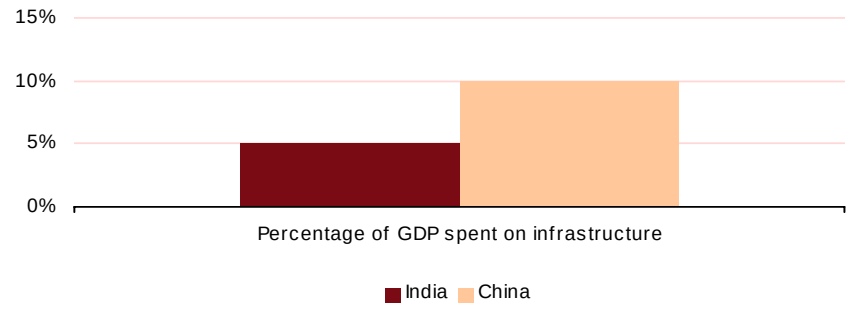
- In China, incentives offered to companies differ from zone to zone and are based on criteria like:
  - Number of years of operation
  - Use of advanced technologies
  - Extent of exports
  - Type of industry etc
- Having achieved a high export competitiveness, the Chinese Government is now trying to realign the Chinese economy from being export-driven to domestic market-driven. Hence, fiscal benefits offered are being gradually withdrawn from 2008
- For instance, enterprises in Chinese SEZs were eligible for VAT refunds up to 17% on export sales until 2008. After 2008 the rate of refund has dropped to a maximum of 10%
- Tax laws to promote SEZs in India were made very attractive and were directed mostly towards encouraging exports. Tax holidays offered in Indian SEZs are for up to a maximum period of 15 years as against 5 years in China
- In addition to exports, units operating in Indian SEZs are permitted to make sales to the Domestic Tariff Area (DTA) without payment of Special Additional Duty (SAD), provided net foreign exchange earnings are positive. However, goods sold from SEZ to DTA are considered as “import” by DTA, and full import duty is levied on such sale

Section 4.1.3
Infrastructure and Utilities

Infrastructure

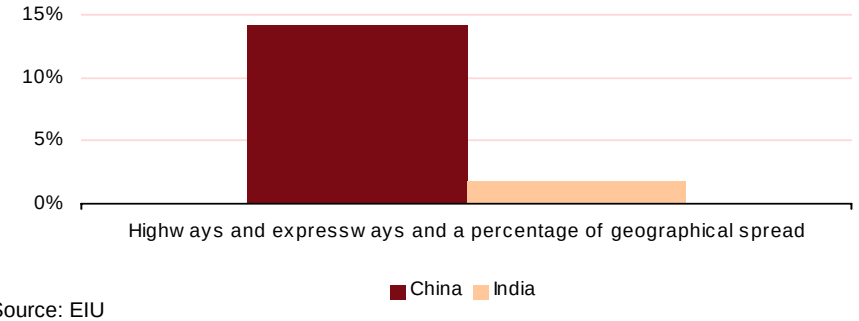
Well developed infrastructure adds to the attractiveness of China as an investment destination. China currently spends about 10% of its GDP on infrastructure development, while India spends 5% of its GDP on infrastructure

Infrastructure spending



- Relatively well developed infrastructure in China is one of the reasons for higher attractiveness of China than India
- Lack of good infrastructure is considered to be a major impediment to the growth of manufacturing sector in India. Gains made through low labour costs are often lost through bottlenecks in power supply and transportation. Each of these factors increases cost of business in India
- Estimates suggest that the infrastructure sector will require investment of USD 500 billion between 2007 and 2012 in India.[1] China currently spends about 10% of its GDP on infrastructure development, while India spends 5% of its GDP on infrastructure[2]

Road and highways



Source: EIU

Inrastructure statistics - Railways

Particulars	Year	India	China
Length of track	2006	63,028 km	77,100 km
Railways density per sq km	2003	0.02 km	0.08 km
Average freight cost/tonne/km		USD 0.2	USD 0.013
Investment in government owned railways	1992 - 2002	USD 17.3 bn	USD 85 bn

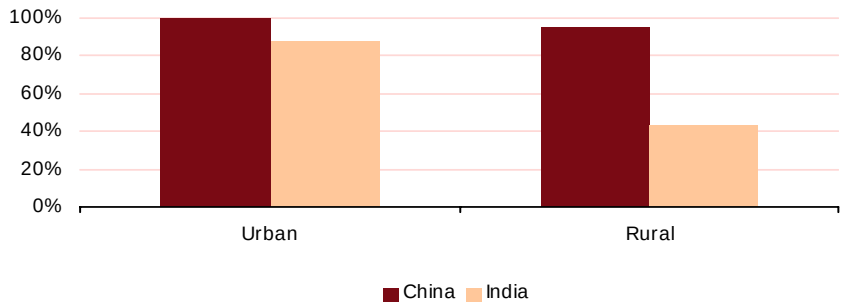
[1] Indian planning commission estimates

[2] EIU reports

Utilities

In terms of cost of utilities, China is marginally better than India; However, cost of utilities varies from region to region across both countries

Electric coverage



Source: China Bureau of Statistics, PwC Analysis

Infrastructure statistics - Power

Particulars	Year	India	China
Power outages per month	2007	17	5
Power cost per 1000 kWh	2007	97 USD	73 USD
Electricity production (Trillion kWh)	2005	0.7	2.5
Electricity consumption per capita	2005	480 kWh	1781 kWh

Source: World Bank reports, Shanghai Foreign Economic Relations & Trade Commission

Other key indicators (2007)

Particulars	India	China
Mobile phone subscribers	97 mn	375 mn
% of people with internet access	23%	73%
Water costs per kilo liter	USD 0.175 - 1.5	USD 0.19 - 0.9

Source: World Bank reports, Press Release

POWER

- Power costs vary across regions in India (67 – 132 USD per 1000 kwh) and China (40 -100 USD per 1000 kwh). On an average power costs in China are lower than that of India. Indicative power cost in China is around 73 USD compared to 97 USD per 1000 kwh for India
- Value lost due to electrical outages as a percentage of sales was 1% in China compared to 7% in India. Also, power transmission and distribution losses amounted to 7% of output in China and 25% of output in India

WATER

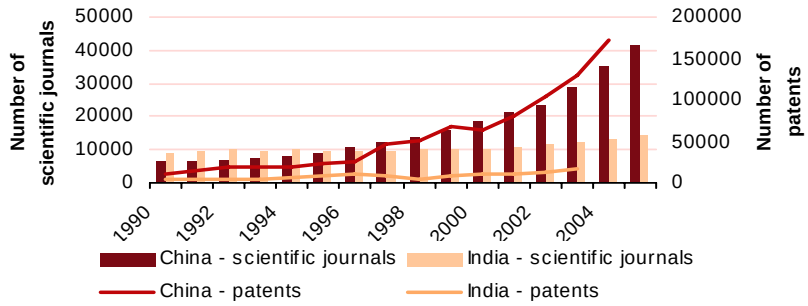
- Water supply coverage in China is almost 100% in urban areas and around 50% in rural areas. Typically water is abundantly available in southern and eastern areas while the western and northern regions of China are water starved
- While water costs in China for industrial use range from USD 0.19 to 0.9 per Kilo Litre , in India it ranges from USD 0.175 to 1.5 per Kilo Litre

Section 4.1.4
Technological Development

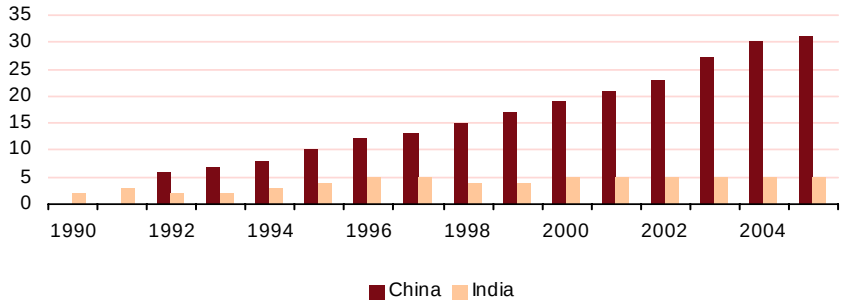
Technological Development

China is ahead of India in terms of technology and R&D efforts; High end technology exports in China are over 60 times that of India

Technological developments



High technology exports (% of total exports)



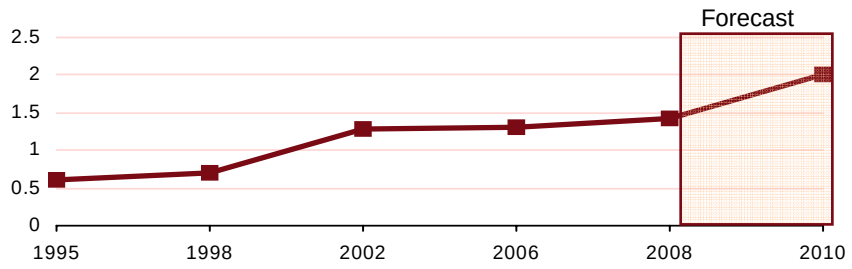
- Some of the parameters on which a country's technological capability can be judged are the number of patents and the number of publications in scientific journals
- In early 1990s, India was ahead of China in terms of publication of scientific journals and high-technology exports but China has now overtaken India. Currently China is far ahead of India on both these parameters
- China is the third most prolific patent filing country. The total number of patents filed in 2005 in China were 130384 of which about 50% were filed by domestic applicants. The number of patents filed in India were 17466 with domestic applicants accounting for about 39%
- China's technological dominance over India is evident from the fact that while Chinese high-technology exports amounted to USD 214 billion accounting for 30% of total exports in 2005, India's high technology exports amounted to USD 3.5 billion for 2005, accounting for 5% of total exports

Source: WDI, World Bank

R&D Spend

China has the second largest R&D investment in the world; Having R&D centres in China helped multinationals build relationships with local and provincial Governments which in turn facilitates business

China : R&D expenditure as a percentage of GDP



Source: PwC Analysis, Government press releases

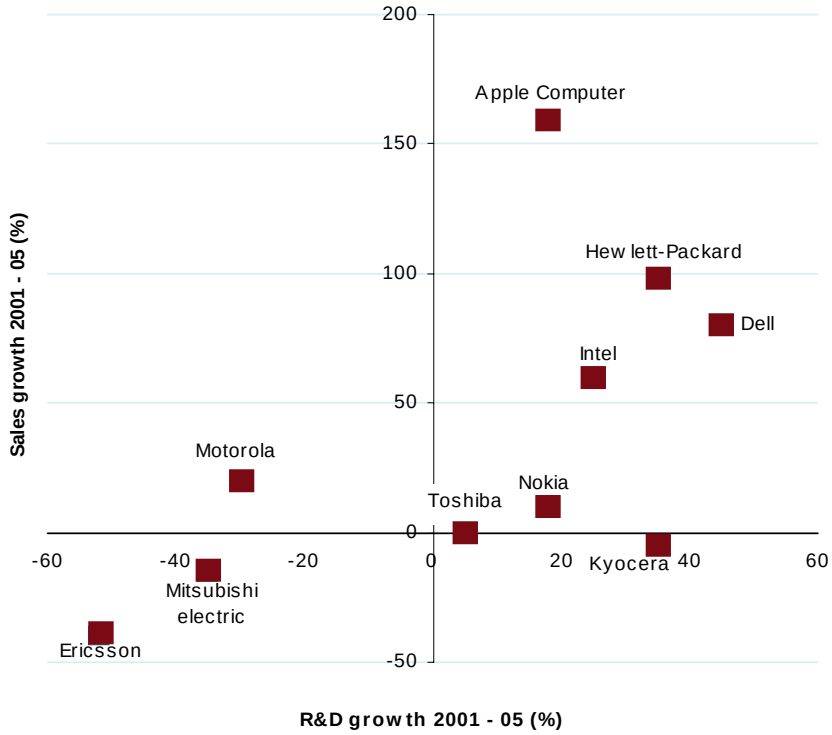
- Growth in domestic market along with Government incentives for high end technology development led to a surge in the R&D activities of multi-nationals present in China. This also encouraged R&D efforts to customize products for the local market
  - For instance, in 1999 Nokia set up a Product Creation Centre that designed models specifically for the developing markets. All other major manufacturing companies in China also have R&D centres in China
- Another reason for most players having R&D centres in China is that it helped them build relationships with local and provincial Governments which in turn facilitates business. Companies with R&D presence in China are known to get preferential treatment
- By the end of 2006, China overtook Japan and became the world's second largest investor in R&D after the US.[1] In 2007 , two Chinese companies made it onto the list of the 1,000 biggest innovation spenders: PetroChina and China Petroleum & Chemical
- China is estimated to have over 1500 foreign invested R&D centres. Majority of these R&D programmes are today wholly foreign-owned enterprises. In comparison it is estimated that there are over 250 R&D labs operated by MNCs in India
- Still most of the R&D activities in China is termed incremental and mostly dependent on technology transfer from foreign countries
- Chinese firms are also learning from their foreign counterparts the importance of R&D spending and some Chinese companies like Huawei, Lenovo, ZTE (Zhongxing Telecommunication Equipment) and others have begun to reinvest a higher percentage of their corporate profits into R&D
- A similar trend is being observed in India with major players setting up R&D centres in India (once domestic demand has reached a critical threshold) For instance Nokia has 3 R&D centres in India – Bangalore, Mumbai and Hyderabad. Motorola also has two R&D centres in India – where the sub-USD 40 phone of Motorola was designed.
- Most of the Chinese R&D is targeted at creating products which are suitable for the Chinese markets

[1] OECD estimates

R&D Spend in Durables

Growth in sales revenue is positively correlated to growth in R&D expense. American and European companies have higher R&D expenditure as a percentage of net sales when compared to their Asian counterparts

Link between R&D spend and sales growth



Country	Region	Company	R&D spend as a % of Net sales
Finland	Europe	Nokia	11.04%
Germany	Europe	Siemens	4.89%
USA	America	Motorola	12.09%
USA	America	Hewlett Packard	3.46%
South Korea	Asia	Samsung	3.5%
Japan	Asia	Sony	5.87%
China	Asia	Gree	N.A.
China	Asia	TCL	N.A.
India	Asia	Videocon	0.01%
India	Asia	Onida	0.54%

Source: Company Reports, PwC Analysis

Government Incentives in China

Chinese Government has taken up numerous policy initiatives to develop technological capability of Chinese companies, resulting in higher technological advancement

INCENTIVES FOR TECHNOLOGY TRANSFER FROM FOREIGN FIRMS

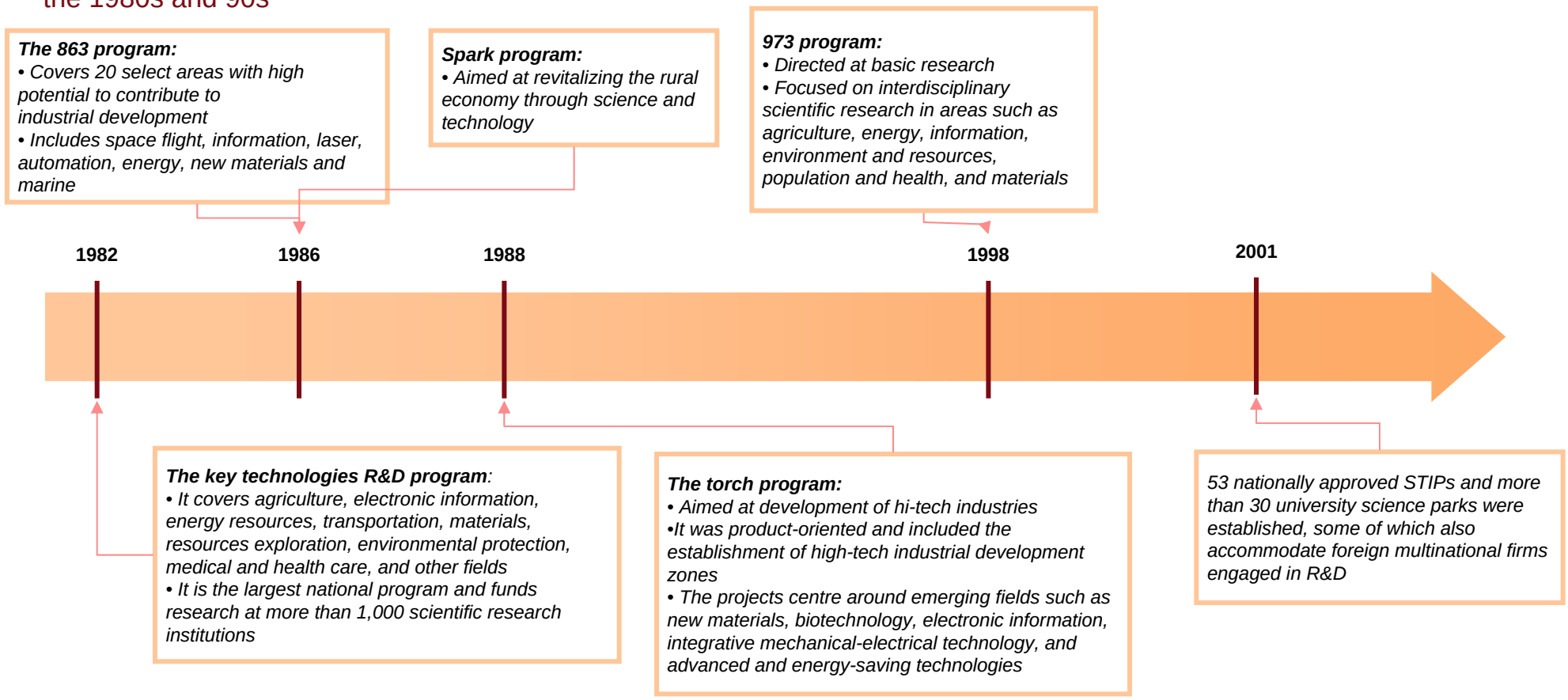
- One of the major policy initiatives taken by the Chinese Government was to enact a joint venture law that gave priority to technology-intensive investments and necessitated the participation of a Chinese partner. This enabled the Chinese companies to learn best practices and allowed rapid technology transfer
- The Government also provides specific tax incentives in order to encourage technology transfers. For instance, 50% tax concession is given for a period of three years for transfer of advanced technology. Also, indirect tax sops include exemption from value-added tax for transferring advanced technology
- Further, equipment and technology imports and software fees payable for importing technology listed in the “State catalogue of New Technology Products” are exempt from customs duty and import VAT
- One reason for high technology transfer in China is poor Intellectual Property (IP) system which enables dissemination of technology. On the other hand, poor IP system also hinders radical R&D activities as foreign companies are much more cautious in China

INCENTIVES FOR DOMESTIC R&D DEVELOPMENT

- Chinese Government used preferential tax policies in order to encourage technology development. For instance, special tax incentives were given to Technologically Advanced Enterprises (TAE) and High/New Tech Enterprises (HNTE)
- TAE status is granted to those enterprises that utilise international advanced know-how, technologies and equipment and play a leading role in improving product quality and technical capability in the domestic market
- HNTE status is granted based on a prescribed set of criteria, including academic qualifications of the enterprise's personnel, the size of its high-tech sales and R&D expenditure and its location in one of the new-and-high tech zones
- The Corporate Income Tax Law provides a preferential 15% tax rate for high and new-technology enterprises, regardless of whether they are foreign or domestic
- Apart from tax holidays and reduced tax rates, Chinese Government also allows profit-making enterprises to deduct up to 150 per cent of actually incurred R&D costs for tax purposes
- Chinese Government also provides income tax incentives for venture-capital firms that invest in unlisted high and new-technology enterprises. Following two years of investment, the venture capital firm can offset 70% of the invested amount against its taxable income

Government R&D Programs

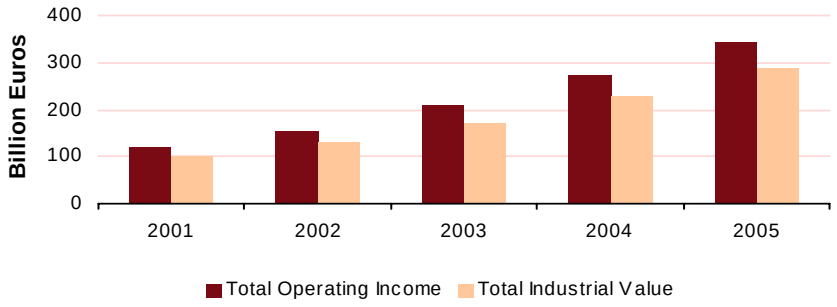
Chinese Government instituted a number of strategic initiatives and incentives to stimulate science and technology in the 1980s and 90s



Science and Technology Industry Parks (STIPs)

STIPs have been successful in China and have been showing high growth in terms of both industrial value addition and net profits

STIPs : Operating income and industrial value



STIPs : Value added and net profit



Source: Ctibo

- As a result of STIPs, a generation of well-known high-tech group companies has come into being with Legend (Lenovo), Founder, Haier, Changhong, Huawei and Broad being the well known examples
- The technology innovation system at STIPs consists of:
  - Human resources: The STIPs have attracted 560,000 technological people, 52,103 master graduates, 9,358 PHDs, 5,615 returned overseas scholars and over a million college graduates
  - More than 250 Technology Business incubators and batches of postdoctoral working station have been sep up
- R&D strength at STIPs is higher than industry averages in the country:
  - R&D investment: 8 times higher than national average
  - R&D investment per capita: 6 times higher than national average

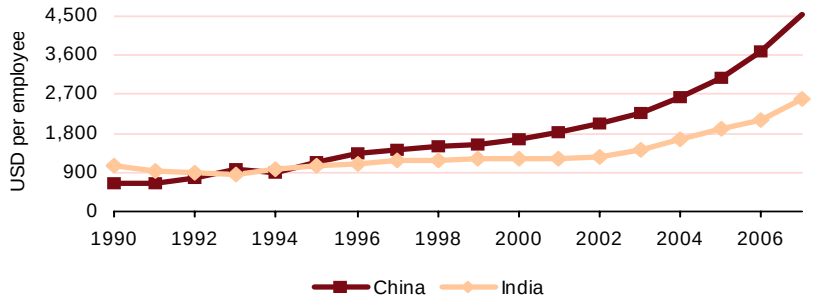
One of the most prominent example of technological growth in China is Lenovo, the PC maker that bought IBM's personal computing division. It was formed by a group of researchers from the Chinese Academy of Sciences, which provided start-up funding

Section 4.1.5
Low Cost Environment

Labour

Though wage rates are lower in India than in China, China has an advantage due to higher labour productivity

Labour productivity



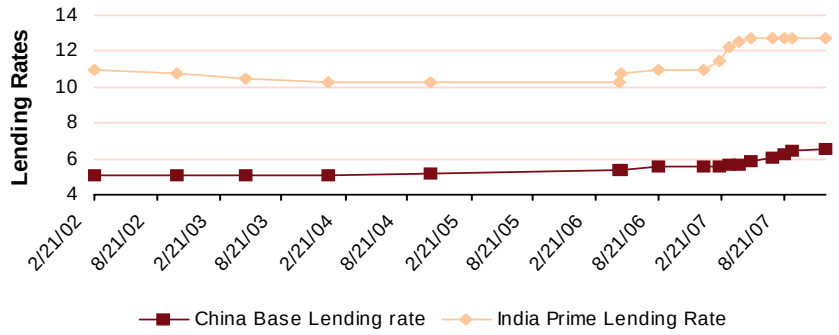
Source: Euromonitor

- While both India and China have the advantage of a large working population, labour productivity is higher and has shown a consistent uptrend in China
- Though wage rates are lower in India, China scores over India in terms of higher productivity (some attributed to longer working hours and uncompensated overtime)
  - For instance, Chinese workers have 10 hour shifts and may also be required to work on weekends in order to fill an order
  - Lax health insurance and other requirements also lead to lower costs in China
- Technological advancement coupled with transfer of knowledge on best practices is another reason for higher productivity in China
- India's multiple labour regulations have constrained the growth of manufacturing sector. Some include:
  - Stipulation of minimum wages and bonus and payment of social security benefits like PF
  - Offering protection and privileges to members of trade unions
  - Mandatory requirement for companies to obtain Government permission for the retrenchment of staff in establishments employing 100 or more people
- The prevalence of such labour laws are construed to protect idle workforce by many investors. Also, while labour laws in India require mandatory compliance, labour laws in Chinese SEZs are considerably relaxed. Foreign investors are allowed to negotiate wages on receipt of every new order and also use hire and fire policies in these zones

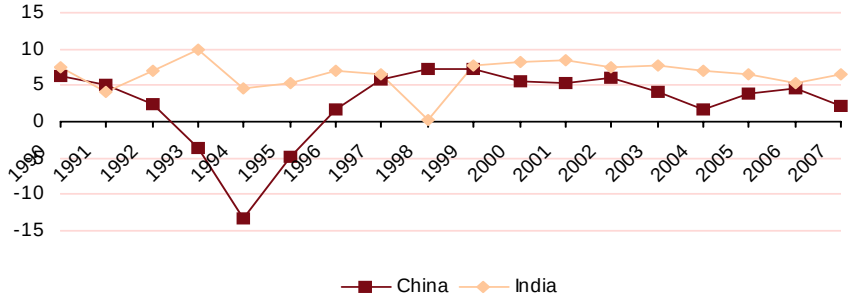
Capital and Borrowing Costs

China has maintained a low interest rate regime which has spurred investments; State owned banks have been funding investments through loans which in large parts are not repaid

Minimum Lending Rates



Real interest rates



Source: RBI, PBOC

- Lending rates in China have always been lower compared to India, though the rates have been rising since the last few years (on account of higher inflation)
- Lower cost of borrowings helps Chinese manufacturers to raise easy capital whereas higher cost of borrowing in India affect the profitability of Indian manufacturers
- Low interest rates boosts the manufacturing sector not only through direct lowering of capital costs, but also because of its multiplier effect which increases aggregate demand
- Chinese banks have also had a history of high Non Performing Loans (NPLs). China's banking system is dominated by the "Big Four" state owned banks. As of 2007, the ratio of NPLs in State owned banks was 6.2%
  - For instance, the ICBC bank which is the largest of China's Big Four state owned banks reported that 19.1% of its portfolio consists of NPLs as of 2004. After a series of capital injections and Government subsidized bad loan disposals, the proportion of NPLs were lowered to 4.69% [1] (2.4% for Indian scheduled commercial banks in 2007)
- Thus in many instances State owned banks have been funding investments through loans which in large parts are not repaid
- In 1998, the Government injected RMB 270 billion into the banking system. In 1999, about 20% of the existing NPLs were written off the bank's books and transferred to four asset management companies

[1] People's Bank of China, Reserve Bank of India, Press Release

Government Incentives to Manufacturing Sector

Government incentives to develop manufacturing sector in China include favourable tax policies, grants and subsidies

- A number of tax benefits and subsidies are provided to Chinese manufacturers focussed on the export market. These subsidies are provided in numerous ways including:
  - Cash grants, equity infusions, conversion of unpaid debt into equity, state mandated mergers
- For instance, Chinese Government exempted up to 30% of the VAT on import of copper and brass scrap which aided in reducing the input cost for Copper manufacturers. This spurred the growth of Chinese exports of copper and brass
- In the past, Chinese Government released very little information about these subsidy programs and only due to its recent entry into the WTO, has the Chinese Government begun releasing more information on this
- China provides subsidies to almost all sectors with special focus on strategically important sectors like steel, manufacturing, energy, textiles, resource extraction, computing, software, research and development (R&D), and automobiles. Most of these subsidies have a strong export focus
- Export oriented incentives: China provided export incentives to boost exports. For instance, any foreign invested enterprise exporting more than 70% of its production was eligible for 50% reduction in income tax
- Industry based incentives: China moved from a geography based tax incentive policy to an industry based tax incentive policy in early 2000s . Geography based incentives typically leads to sub-optimal supply chain decisions by companies
- Rent-to-own: In order to attract capital intensive industries such as chip manufacturing, Chinese Government followed a rent-to-own policy where companies were invited to operate in Government built fabrication units (“Fabs”)
  - For instance, in 2007 two companies – SMIC and ProMOS technologies moved their operation to Government built facilities. This allows the companies to free up capital which can be invested into business
- Government funds a large part of investment for such projects and leases it to these companies, who eventually buy the facility after a few years
- Incentives to increase demand: The Chinese Government is providing subsidies to farmers for purchasing household appliances
  - A pilot program is being launched initially in three major agricultural provinces of Shandong, Henan and Sichuan, where farmers who buy colour TV sets, refrigerators and mobile phones obtain subsidies at 13% of the retail price
  - Government has signed co-operative agreements with 15 household appliance makers including Haier, Hisense, Changhong and 21 dealers for this program

Special Support to SOEs

Special benefits given to State Owned Enterprises (SOEs) have aided their growth; There have been numerous instances of Chinese Government aiding SOEs in inorganic growth and diversification into different business sectors, provinces and even foreign countries

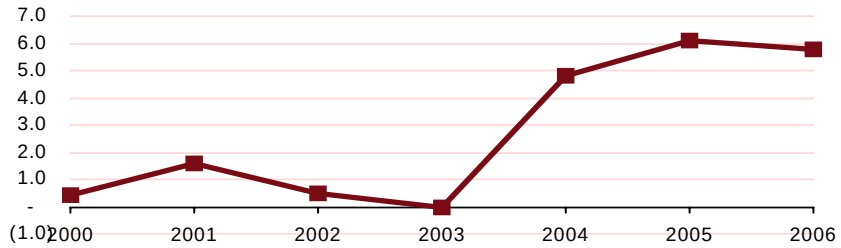
- Chinese Government has instituted a number of favourable policies to support development of large SOEs. This is done in numerous ways:
  - Some firms currently enjoy tax benefits and some receive Government financial support in the form of loans and direct investment
- Government also encourages and aids SOEs in acquisitions, diversification into different business sectors, provinces, and even foreign countries. For instance:
  - in February 2008 Chinalco, the state-owned aluminium producer teamed up with Alcoa (US) to buy 12% of the mining company Rio Tinto (UK)
  - China Mobile, a cellular-phone operator acquired 89% stake in Paktel, a Pakistani operator
- SOEs have been traditionally following the SEZ model with a strong export focus. They also have better access to capital. In the past, about 75% of bank loans in China were provided to SOEs
- Since 2007, Chinese Government has decided to gradually reduce the number of enterprises owned by the central Government, mostly through mergers; In the process Government intends to privatize or close down unprofitable SOEs focusing on creation of 30-50 globally competitive SOEs by 2010
- The intention is to create a few large conglomerates which would allow the Government to maintain control over what is perceived to be industries of strategic importance

Government Incentives to the Steel Industry (1/2)

Chinese Government is estimated to have provided subsidies totalling USD 79.1 billion to the steel industry; This has catapulted China as one of the top manufacturers of steel in the world and has transformed China from being a net importer till 2005 to being the world's largest exporter of steel

Incentive	Amount (USD Billion)
Preferential loans and directed credit	16-18
Equity infusions	17-20
Land use discounts	4-6
Government mandated mergers	1-2
Direct cash grants	0.1-0.5
Energy subsidies	25-28

Energy subsidies in China (In USD Billion)



Source: Subsidies and the China price, HBR

- The Chinese steel industry has seen a four fold increase in steel capacity between 2000 and 2006. This has catapulted China as one of the top manufacturers of steel in the world and has transformed China from being a net importer till 2005 to being the world's largest exporter of steel
- Reduction in steel prices has helped China become cost competitive in consumer durables. Steel constitutes 25 – 40% of raw material cost many consumer durable players
- This was mainly done through directed subsidies worth RMB 598 billion (USD 79.1 billion) between 2000 and 2007. Subsidies were in the form of direct cash transfer from the Government, tax concessions, tax refunds including VAT refunds, loan guarantees etc. Subsidies were provided through central as well as provincial Governments
- Details of subsidies are not officially available and can only be estimated through price-gap analysis as pure state controlled enterprises in China have no disclosure requirements and Government holds a majority stake in most of the large steel companies either directly or through subsidiaries. Different forms of subsidies include:
- Preferential loans and directed credit (RMB 130.9 billion / USD 17.3 billion): Chinese Government provided subsidized loan grants to steel producers. Leading Chinese steel producers have received between 60% to 100% of their loans from state owned banks

Government Incentives to the Steel Industry (2/2)

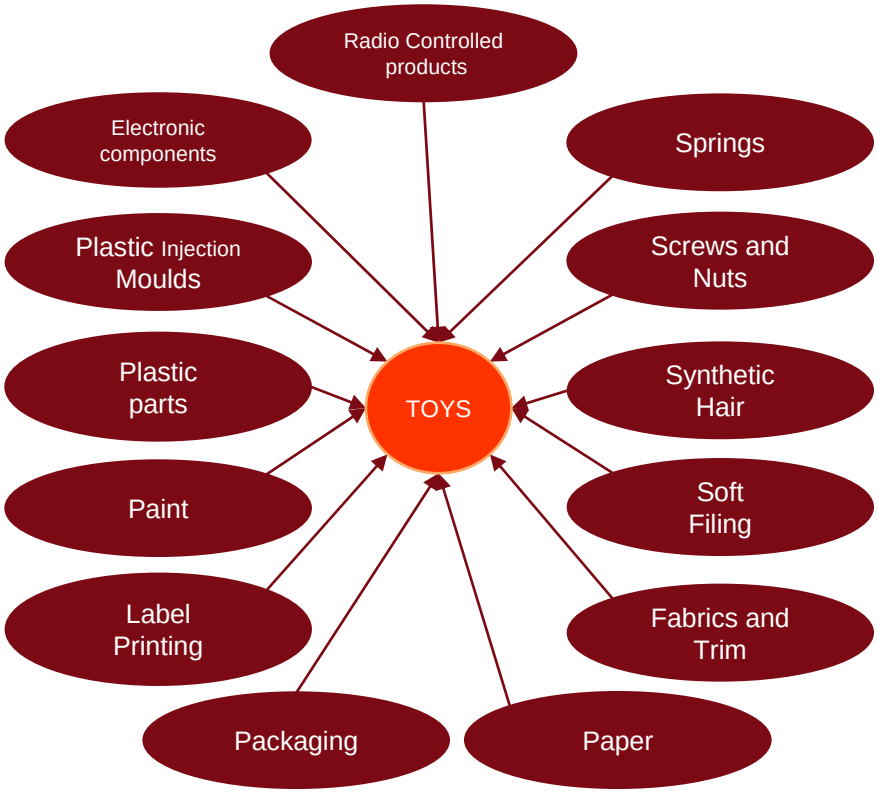
Incentives to steel industry were provided through cash grants, land use discounts, equity infusions etc

- Equity infusions and/or debt-to-equity swaps (RMB 141 billion / USD 18.6 billion): China regularly injects substantial cash subsidies into steel producer acquiring additional equity shares in return. At least 37 different Chinese steel companies have benefited including all of the major producers
- Land-use discounts (RMB 38.9 billion / USD 5.1 billion): Chinese Government provides lease agreements and then transfers land-use rights to companies at little or no cost. Steel producers enjoy these land-use rights for no charge or for as little as USD 0.02 per square foot
- Government mandated mergers (RMB 9.5 billion / USD 1.3 billion): Chinese Government owns most steel companies and hence it can subsidize companies by transferring ownership of shares or facilities from one company to another at below-market or even at no cost. For example:
  - In January 2005, Government of Hubei Province transferred 51% stake in Ercheng Iron & Steel, a local steel producer with a production capacity of 3 million tons per year, to another state-owned producer, Wuhan Iron and Steel at no cost (though Ercheng had been profitable)
  - In another instance, in May 2007, Baosteel, China's second largest steel producer acquired 48.5% stake in Xinjiang, worth more than RMB 6 million, at no cost
- Direct cash grants (RMB 2 billion / USD 258.6 million): Chinese steel producers continue to report outright cash grants as well as grants for specific steel construction projects on their balance sheets
- Energy subsidies (RMB 275.5 / USD 27 billion): Most of these subsidies were given in the form of coal. Subsidies for coal and electricity were provided by means of a two-tiered pricing system - A different price level is applicable for select industries and companies (lower than the market determined price level)

Industrial Network Clustering

Chinese manufacturers use network clustering to reduce supply chain costs. India has a scattered Industrial set up due to differential tax incentives provided by State Governments

The Toy Cluster of Guangdong Province, China



- Network Clustering generates significant production and distribution benefits as it speeds both physical and information flows. This also extends “just in time” principles to the entire supply chain
- Firms cluster to take advantage of strong local demand, particularly those deriving from related industries. Clustering brings out :
  - Significant direct cost reductions in transportation, inventory, infrastructure and line down time costs caused by broken links in the supply chain
- Indirectly, network clustering generates significant positive information externalities. These could be in the form of technology spill-over, experience sharing to solve problems etc
- China has significant advantage in network clustering compared to India. Most of its manufacturing facilities and SEZs are located near the east coastal region which also reduces the logistics cost. This was planned in advance by Chinese Government
- India on the other hand has manufacturing facilities scattered around the country, due to differential tax treatments provided by various state Governments

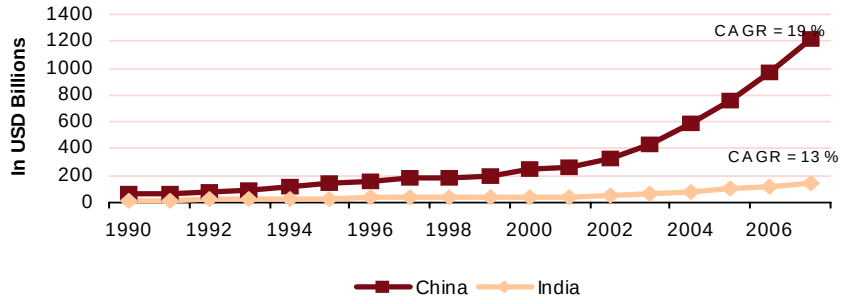
Source: The China Price Project, Peter Navarro

Section 4.1.6
Export Competitiveness

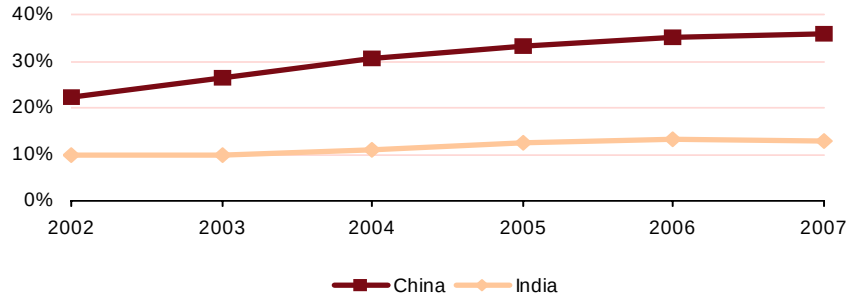
Export Competitiveness

Chinese manufacturers (including those of consumer durables) have significantly benefited from its emergence as a low cost hub for global manufacturing

Exports Value



Exports as percentage of GDP



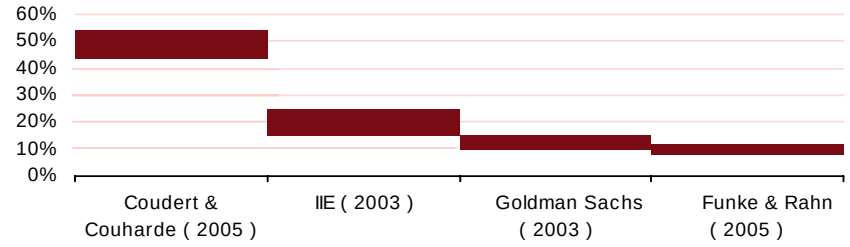
- During the last 5 years, exports as a percentage of GDP has increased significantly in China. This clearly indicates the role of exports in China's economic growth
- Between 2000 and 2006, China's share in world exports increased from 4.7% to 10.8%, making it the number two exporter in the world
- Export-processing trade (the practice of assembling duty-free intermediate inputs) , which accounted for 51% in 2007, continues to be the major form of external trade for China while export of Information technology services has been credited with much of India's economic growth in the past few years
- China adopted an aggressive pro-export strategy through:
  - Attracting export oriented FDI through specific incentives (like 50% reduction in corporate tax for foreign entities which export more than 70% of their production etc)
  - Building SEZs and other export oriented units
  - Maintaining a low exchange rate (which acts as an export subsidy)

Source: Euromonitor

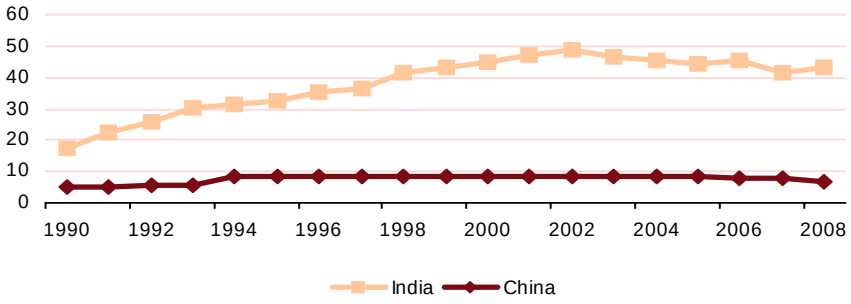
Currency Valuation

Undervaluation of Yuan has provided Chinese exporters with significant competitive advantage

Yuan Undervaluation Estimates



Exchange Rates



- Chinese Yuan is one of the most undervalued currencies, which provides Chinese exporters with an edge over exporters from other countries. Estimates of the extent of the undervaluation of Yuan range from 8-55%
- Since 1994, China maintained a policy of pegging its currency (Renminbi or Yuan) to U.S. dollar at an exchange rate of 8.28 Yuan to the dollar
- Since July 2005, China has allowed Yuan to appreciate steadily due to international pressures. This has partly reduced the export competitiveness of China
- While China has had a managed float exchange rate regime post 2005, significant undervaluation of Chinese Yuan(in the last decade) has been one of the key reasons for Chinese exporters enjoying a competitive advantage

Section 4.2
Production Specific Factors

Cost of Production

Analysis of comparative cost advantage includes both direct and indirect cost elements

Direct Costs
Elements
• Raw material cost • Labour Costs • Indirect taxes • Import duties

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Indirect Costs
Elements
• Infrastructure and Utility cost • Selling and admin expense • Environment regulations • Transportation and logistics costs

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COST OF PRODUCTION

Overall Cost Snapshot (Consumer Durables and Toys)

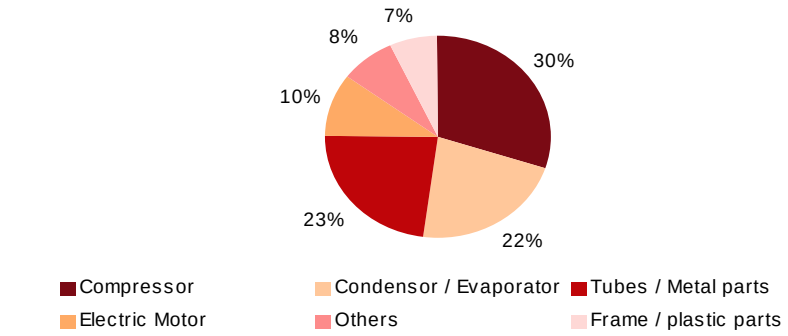
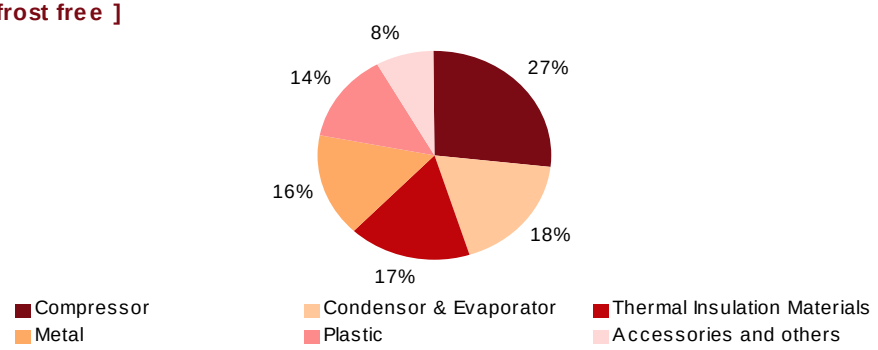
Significant manufacturing cost differences exist between India and China in the durable product segments

	Cost Parameter	Impact		Details
DIRECT COSTS	Raw material	High	55 - 80 % of COP	Cost of basic raw materials and components vary in India and China
	Labour	Medium	5 - 12 % of COP in India	China is slightly more cost competitive than India in labour costs. This advantage is driven more by labor productivity than by the wage rates
			15 -17% of COP in China	
	Indirect taxes	Medium	19 - 29 %over COP in India	Indirect taxes in India are significantly higher than China leading to a comparative cost disadvantage for India
			17 % over COP in China	
	Import duties	High	0 – 31.7 % in India	For majority of critical components, import duty in India is higher in comparison to China
			0 - 6 % in China	
INDIRECT COSTS	Utility and infrastructure Cost	Low	1 - 2 % of COP	China fares marginally better than India in utility and infrastructure related factors of production
	Selling and Administration	Medium	7 - 19 % of COP in India	Saturation of urban market and intense price competition has resulted in higher selling and administrative expenses for China than India
			12 -17 % of COP in China	

Source: PwC Analysis

BOM Break-up [Air Conditioner and Refrigerator]

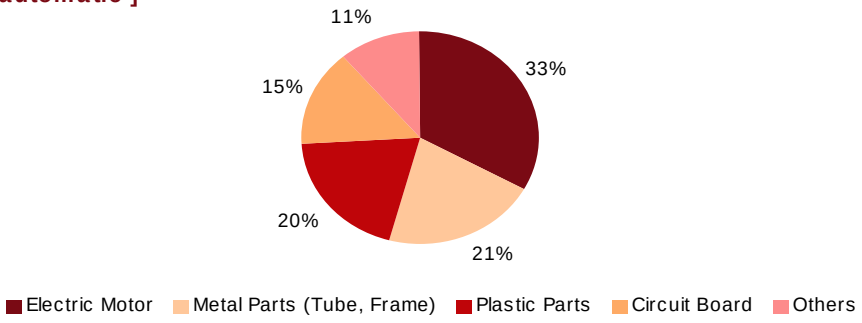
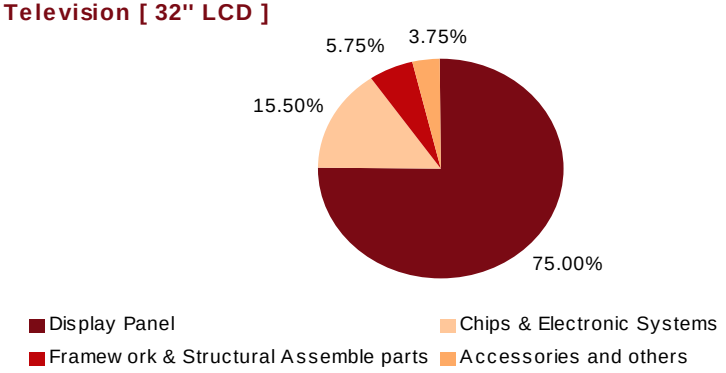
Compressor, condenser and metal parts are key raw material components in air conditioners and refrigerators

Product	Details
Air Conditioner [One Ton] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 20%; Semi-auto 30%; Full-auto 50% Manufacturer (Finished Goods): Manual 20%; Semi-auto 40%; Full-auto 40% Representative Margins [China] Suppliers (0 – 5%) , Manufacturer (2 – 6%) Foreign Trading Partner (10 – 20%), Local distributor (5 -10%)
Refrigerator [Median Range, 200 lt, Double door, No frost free] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 20%; Semi-auto 30%; Full-auto 50% Manufacturer (Finished Goods): Manual 20%; Semi-auto 40%; Full-auto 40% Representative Margins [China] Suppliers (0 – 5%) , Manufacturer (2 – 6%) Foreign Trading Partner (10 – 20%), Local distributor (5 -10%)

Source: Annual Reports, White book of China's Refrigerator Industry (2006), Interviews, PwC Analysis

BOM Break-up [Washing Machine and Television]

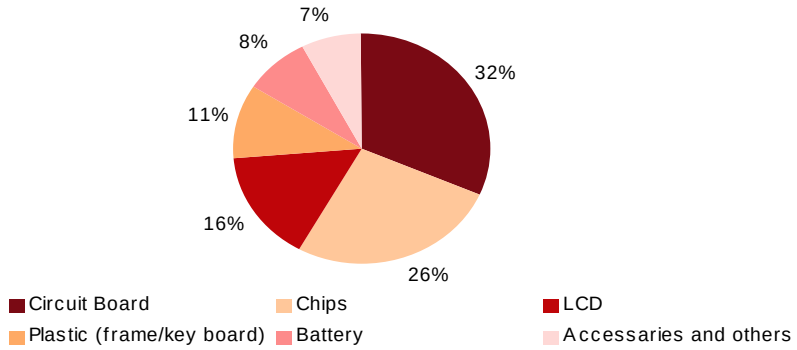
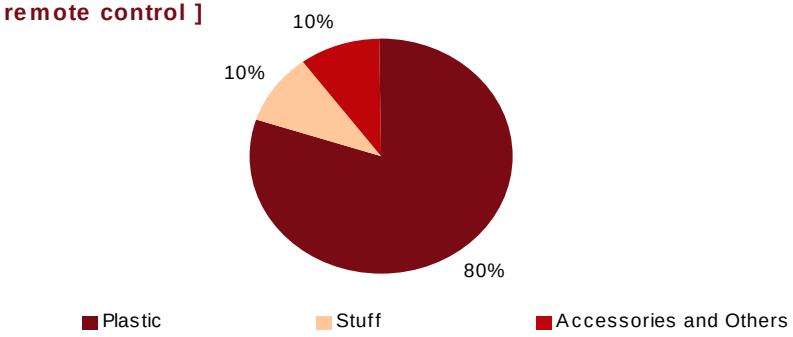
While electric motor, metals and plastic parts account for key raw materials in washing machine, LCD panel and circuitry board are the critical components in LCD television

Product	Details
Washing Machine [Median range, Top loading , Fully automatic] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 20%, Semi-auto 30%, Full-auto 50% Manufacturer (Finished Goods): Manual 20%, Semi-auto 40%, Full-auto 40% Representative Margins [China] Suppliers (0 – 5%) , Manufacturer (2 – 6%) Foreign Trading Partner (10 – 20%), Local distributor (5 -10%)
Television [32'' LCD] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 10%, Semi-auto 20%, Full-auto 70% Manufacturer (Finished Goods): Manual 20%, Semi-auto 40%, Full-auto 40% Representative Margins [China] Suppliers (2 – 15%) , Manufacturer (3 – 10%) Foreign Trading Partner (10 – 30%), Local distributor (5 -15%)

Source: Interviews, PwC Analysis

BOM Break-up [Mobile and Toys]

Circuit board, chips and LCD account for key components in a mobile ; Plastic is the key component of a plastic toy. Margins and process automation are high in mobiles and considerably low in Toys

Product	Details
Mobile [Median range, Color screen, FM] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 10%; Semi-auto 60%; Full-auto 30% Manufacturer (Finished Goods): Manual 30%; Semi-auto 40%; Full-auto 30% Representative Margins [China] Suppliers (5 – 10%) , Manufacturer (6 – 15%) Foreign Trading Partner (15 – 30%), Local distributor (5 -10%)
Toy [Standard plastic toy without electric motors and remote control] 	Level of Technology Suppliers (House Hold Appliance Raw Material): Manual 80%; Semi-auto 20%; Full-auto 0% Manufacturer (Finished Goods): Manual 60%; Semi-auto 30%; Full-auto 10% Representative Margins [China] Suppliers (0 – 5%) , Manufacturer (0 – 5%) Foreign Trading Partner (5 – 10%), Local distributor (5 -10%)

Source: Interviews, Indian Toy Industry [Study by TAI, Mahesh C Purohit], PwC Analysis

Critical Components

China sources 50% of its compressors domestically unlike India which imports most of its requirements

COMPONENT	PRODUCTS	MANUFACTURING ASPECTS	INDIA	CHINA
Compressor for air conditioners	▪ Compressor is a critical component used in Air Conditioners ; Accounts for 30-32% of cost of AC raw material	▪ Manufacturing setup needs significant capital investments ▪ Manufacturing compressors requires technical competence and high R&D expenses ▪ Global leaders in Compressor manufacturing include USA, Japan, Korea, and Germany	▪ Indian manufacturers mostly import their requirement of compressors. 1 ton compressors are almost completely imported ▪ Tecumseh which started production in 2005 is the first company in India to manufacture rotary compressors. 75-80% of the compressor used in India is of rotary type ▪ Domestic manufacturing prices is around 100 – 110 USD for a 1.5 ton AC compressor	▪ China manufactures up to 55% of compressors. Rest are imported, mainly for high end models from Japan, Korea and US ▪ Over 50 million compressors were produced in 2007 ▪ Compressors are mainly produced by large companies like Haier, Gree, whirlpool etc. There are around 30 domestic manufacturers ▪ Domestic manufacturing prices is around 60 – 80 USD for a 1.5 ton AC compressor
Compressor for refrigerators	▪ Even for Refrigerators, compressor is a critical component	▪ Manufacturing setup needs significant capital investments ▪ Manufacturing compressors calls for technical competence and high R & D expense	▪ Indian manufacturers mostly import their compressors ▪ Multinational companies are known to source from their manufacturing facility in Korea and China ▪ Prices are around 65 -70 USD for a 200l frost free refrigerator	▪ China manufactures up to 50 - 55% of compressors. Rest are imported ▪ Compressors are mainly produced by large companies like Haier. There are around 30-40 domestic manufacturers ▪ Domestic prices are around 45 – 50 USD used for a 200l frost free refrigerator

Source: Interviews, PwC Analysis

Critical Components

China meets most of its component demand from domestic sources unlike India which heavily relies on imports

COMPONENT	PRODUCTS	MANUFACTURING ASPECTS	INDIA	CHINA
Condenser and Evaporator	▪ Condensers and Evaporators are used both in Air Conditioners and Refrigerators	▪ Manufacturing process is mostly automated	▪ Domestic capabilities exist for manufacturing condensers and evaporators. However, India imports a significant part of its demand for condenser and evaporators	▪ China manufactures up to 70-75% of its condenser and evaporator requirement ▪ A strong base of over 200 suppliers exist. Many large players manufacture condensers and evaporators by themselves. Over 70 million sets were produced in 2007
Display Panel/ LCD	▪ Display Panel/LCD is used in mobile phones, LCD Televisions and Computers ▪ LCD is the most critical component of a LCD Television	▪ High capital investments are needed to manufacture the LCD panels	▪ India imports most of its LCD requirements for televisions and mobile phones	▪ 70% of the LCD for mobile phones is sourced domestically. There are over 80 LCD manufacturing plants which can supply mobile phone LCDs ▪ Around 40% of the TV Display panel are manufactured domestically. LCD are mainly produced by large joint ventures like SVA (with Taiwanese companies) There are around 20 large players in total
Electric Motor	▪ Electric Motor is the most critical part for a washing machine and it is also used in Air Conditioners	▪ The manufacturing process is both capital and labour intensive	▪ India imports a large proportion of its electric motors	▪ 80% of the electric motor demand is met by domestic players and joint ventures. Over 50 million sets were produced in 2007 ▪ There are over 150 suppliers available domestically. However their quality varies and the most of the large players, like Siemens, Midea, Littleswan manufacture electric motor by themselves

Source: Interviews, PwC Analysis

Critical Components

Currently India's competence lies in chip design and R&D unlike China which has become a manufacturing hub for circuit boards and chips

COMPONENT	PRODUCTS	MANUFACTURING ASPECTS	INDIA	CHINA
Circuit Board	▪ Circuit board is used both in washing machines and mobiles	▪ Manufacturing process requires availability of talent and basic raw material (PCB) ▪ SMT Lines with BGA capability required	▪ Partial demand for mobile circuit board is being met domestically and the rest is imported	▪ Around 90% of the circuit board demand is supported domestically. There are around 1500 circuit board suppliers with over 800 million sets of mobile phone circuit boards being produced in 2007
Chips and Electronic Panel	▪ Chips and Electronic panels are needed for TV, Mobile phones and other electronic products	▪ Chip design requires low investment while chip manufacturing and testing requires high investment and abundant technical talent ▪ Wafer fabs sub micron capability required [2]	▪ Partial demand for chips is being met domestically and the rest is imported	▪ China manufacturers up to 60 - 70% of chips and electronic panels. Rest are imported ▪ There are over 50 semiconductor foundries which can supply chips for TV and mobiles (over 1 billion were produced in 2007)

Component Manufacturing in India

Lack of economies of scale, absence of a supplier eco-system and infrastructure bottlenecks have constrained the growth of component manufacturing in India

- Manufacturing components such as LCD panel and AC compressors involve significant capital investments and technical knowledge. Only a large domestic and export market demand can justify these high investment levels
- Lack of large volumes and hence lack of scale economies have been disincentives for significant capital investments in the component manufacturing space in India
- Component manufacturing also requires presence of an ecosystem of finished products manufacturers. For components involving significant investments, component manufacturers typically establish their presence in regions where the end product manufacturers are located
  - India had very few component manufacturers for mobiles before Nokia set up its operations in India. Only after Nokia set up its operations in Chennai, its key suppliers like Aspocomp also set up operations in India
- One of the Chinese Government initiatives in the mobile sector was to stipulate that every MNC establishing its manufacturing base in China should source 10% of its components locally. This aided the development of local vendor base and thus improve the quality of domestic vendors
- Import duties in India are not rationalized for component manufacturers. For example, customs duties on compressor raw materials were higher than the import duties on the compressor itself
- For Colour television, while chips and electronic systems are mainly manufactured in China, R&D and chip design is normally taken up in other countries. In case of India, while R&D and chip design is carried out in India, actual manufacturing is undertaken in foundries in other countries; Components are imported due to limited wafer fabrication facilities in India
- India also faces infrastructure bottlenecks that deter component manufacturing. For example, manufacturing circuit boards require uninterrupted power, water supply and planned provision for waste disposal ,which is still developing in India

Raw Material Costs

Raw material costs constitute a significant proportion of cost of production for consumer durables and toys

Product	Raw materials as a % of COP
AC	70 – 80 %
Refrigerator	65 – 70 %
Washing Machine	60 – 70 %
Television	58 – 80 %
Mobile	70 – 80 %
Toys	60 – 65 %

Source: PwC Interviews

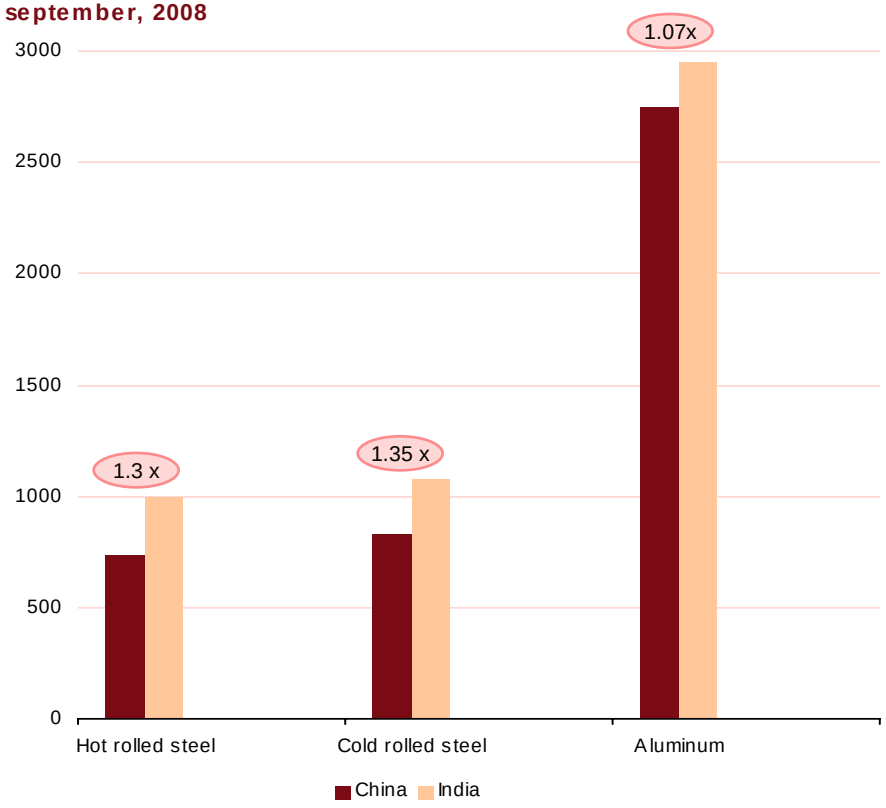
- Raw materials constitute 55 - 80 % of the overall cost of production for different products; As a percentage of revenue, cost of materials tends to be higher for manufacturing operations located in low-cost countries (relative to manufacturing operations in high cost countries)
- This is partly because manufacturing operations in high cost countries tend to produce and sell products incorporating higher technology and/or quality (i.e. adding more value to the product)
- Key raw materials used in home appliances are summarized in the table below:

Product	Key Raw Materials
AC	Compressor, Condenser, Motor, Plastics, Metal parts
Refrigerator	Compressor, Condenser, Thermal Insulation materials, Plastics, Metal parts
Washing Machine	Motor, Metal parts, Plastics, Circuit board
Television	LCD Panel, CRT tube, Chips & Electronic Systems
Mobile	LCD, Chips, Circuit board, Plastics, Battery
Toys	Plastics, Motor, Stuffing

Metal Prices

Chinese companies have a cost advantage in sourcing basic raw materials like steel and aluminium compared to India

Average Steel and Aluminium prices per tonne as on september, 2008



Source: PwC Analysis

STEEL

- In Steel, India is a net importer whereas China is a net exporter of steel. Steel prices in India are higher when compared to China.
- Prices of flat rolled steel in India are around 30 – 35 % more than the steel prices in China (as on September,2008) China has been able to achieve lower steel prices partly due to subsidies provided by the Government (as discussed in earlier slides)

COPPER

- Indian prices are pegged to the London Metal exchange (LME), while the prices in China are pegged to the Shanghai Metal Exchange (SHME). Copper prices vary between LME and SHME but the variation is both positive as well as negative. The cost incurred by the manufacturers is driven by the long term contracts they enter into with copper suppliers

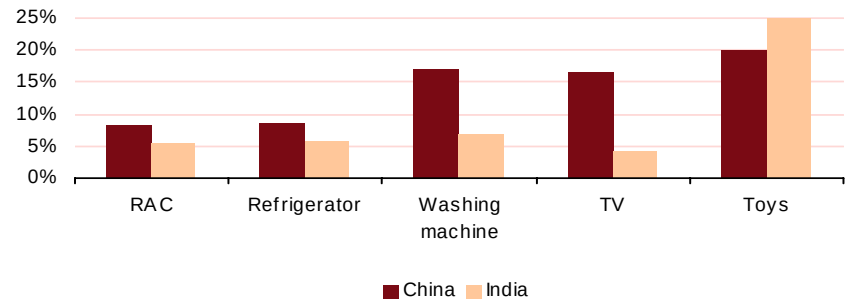
ALUMINIUM

- Aluminium prices in India were on an average 7% higher than China (as of September 2008)

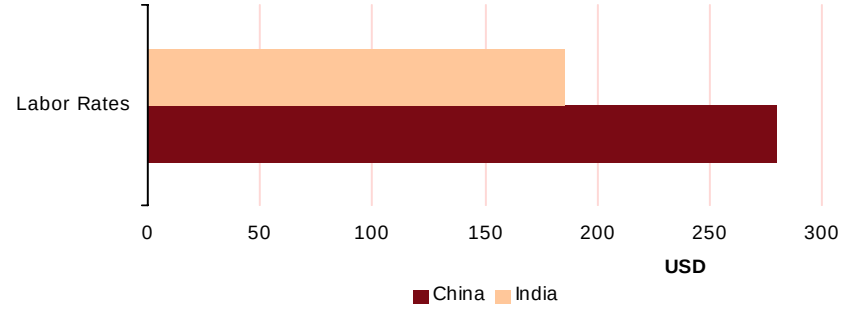
Labour Costs

In absolute terms, labour costs in India are cheaper than China. Due to labour productivity differences, China is more cost competitive than India

Labour cost as % of COP



Representative blue collar worker rates per month



- Labour costs represent a higher percentage of revenue for contract manufacturers (relative to brand-owners) and lower percentage of revenue for manufacturers in low wage countries (relative to manufacturers in developed countries)
- Labour cost as a % of cost of production is significant for toy industry. This is on account of numerous small players with limited automation for manufacturing toys. Labour cost in toy manufacturing constitutes up to 25% of cost of production in India compared to around 20% for China
- However, man power cost in China are on a lower base compared to India as the overall cost of production is lower in China
- Labour productivity in China has grown from USD 641 in 1990 to USD 4520 in 2007, a seven fold increase. Indian productivity during the same period grew from USD 1052 to USD 2582. [1] Thus India has lost the initial advantage that it had in terms of higher labour productivity

Source: PwC Analysis , Interviews

[1] Output of goods and services in the economy per employed person. Calculated as gross domestic product divided by employed population

Indirect Taxes

Indirect taxes in India are significantly higher than China leading to a comparative cost disadvantage for India; This leads to higher consumer retail prices and hence lower demand

Product	Effective Tax Rate	
	China	India
Air Conditioners	17%	28.7%
Refrigerator		
Washing Machine		
Television		
Mobile Phones	17%	19%
Toys		

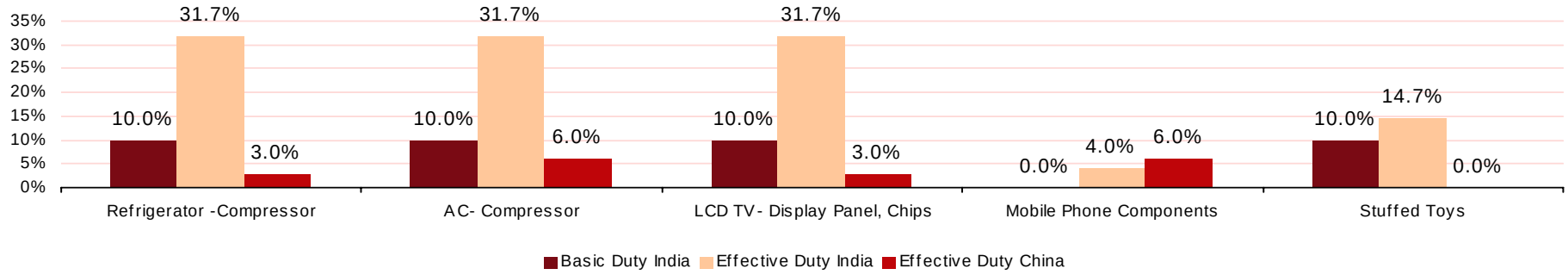
Source: PwC Analysis

- Indirect taxes in China comprise a VAT rate of 17 % on transaction value. Indirect taxes in India includes excise duties, VAT and education cess. The excise rate on consumer durables, mobiles and toys in India is 14% of the transaction value
- VAT rate on air conditioners, refrigerators, colour televisions, washing machines and other consumer durable products is 12.5% VAT rate on mobiles and toys in India is 4%
- After accounting for excise duties, VAT and other indirect taxes the effective duty for air conditioners, refrigerators, colour televisions and washing machines in India is around 28.7% of the transaction value
- For mobiles and toys it is effectively 19% of the transaction value
- A detailed description of tax implications in both countries is provided in the annexure

Import Duties

For majority of critical components (in consumer durable and toys) import duty in India is higher in comparison to China. This adversely impacts the competitiveness of Indian manufacturing

Import Duty on Components



Source: PwC Analysis

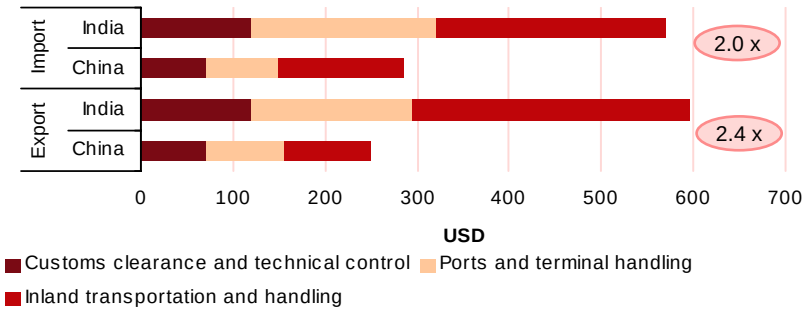
- Iimport of mobile phone components is free of any duty charges in India. The same is the scenario for import of stuffed toys in China
- Indian tax laws allow setting off import duties against CENVAT in a scenario where the final product is sold in India (except for the basic duty) However, comparison of even basic duty rates in India with effective duty rates in China shows that Indian importers pay a higher duty compared to their Chinese counterparts

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Infrastructure Costs

China fares marginally better on infrastructure related factors of production

Cost incurred in Imports and Exports



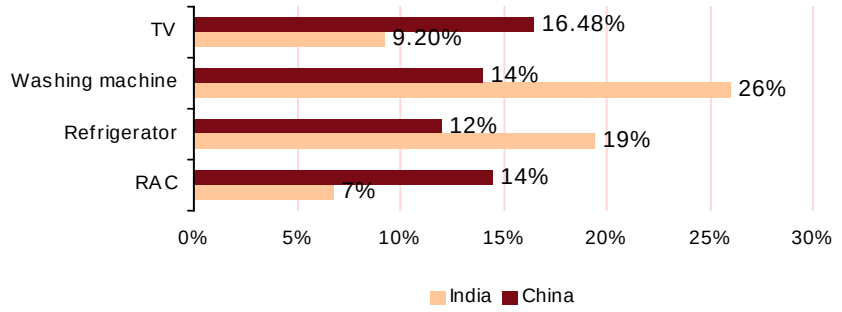
Source: Doing Business Indicators, World bank

- Road transportation costs are similar across both India and China. However China is more competitive in terms of rail freight. Average railway freight cost in China is .013 USD compared to .2 USD in India per tonne per km
- Companies incur charges on custom clearances, port handling and inland transportation during import and exports of goods. On an average these costs in India are approximately twice that of China

Selling and Administrative Expenses

Saturation in urban market and intense price competition has resulted in higher selling and administrative expenses in China than India

Average selling and admin expense as % of total cost



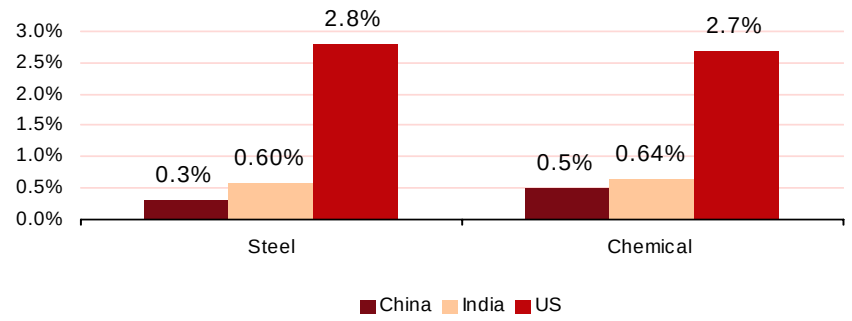
Source: Capitalline, PwC Analysis

- Selling and administrative expenses typically constitute around 14 -17% of cost of production in China. This is on account of intense price competition in saturated urban market and substantial efforts needed to increase penetration in rural markets
- For India, selling and administrative expenses are highest for washing machines. For AC and televisions, selling expenses are in the range 7-9% of Cost of Production
- Selling and administrative expenses are higher for washing machines in India since many of them are undifferentiated in terms of features. Thus sales are mostly driven by advertising. Non availability of continuous running water supply and availability of domestic help are key barriers for purchase of washing machines

Environment Regulations

Enforcement of environment regulations is not stringent in both countries; Indian companies on an average seem to be spending more on environment related issues

Environment Expense [as a percentage of Sales] [1]



Source: Company Reports, PwC Analysis

[1] Indicative estimates

- Rough estimates of the impact on cost structure due to environment regulations can be obtained by examining the environment related expenses incurred by industries such as steel and chemicals
- Expenditure in both India and China are significantly lower when compared to developed countries like USA
- Though environment safety regulations in India can be dated back to the Water Act of 1974, country-wise average compliance ratio for monitored industries is estimated to be 50%. Disclosures regarding sustainability and environment initiatives taken up by the company is still voluntary
- While China has some strict environment laws on books, fines that may be levied to enforce regulations are so insignificant that they are seen merely as cost of doing business
- China is increasing its commitment to sustainability by drafting policies directed towards this aspect. For instance, according to 2007 guidelines on FDI, projects with adverse effects on environment and energy conservation are placed under the restricted category
- In November 2007, Chinese Government published new rules barring foreign enterprises from investing in sectors that would cause pollution, consume considerable energy or would lead to exploitation of non-renewable mineral resources

Logistics Costs

China's well-developed vendor base setup provides significant cost advantage in terms of reduced logistics and search costs compared to India

Vendor Base [1]		Air Conditioners	Refrigerators	Washing Machine	Television	Mobile	Toys
Component Suppliers	China	> 900	> 2500	N.A	N.A	> 1700	>140000
	India	< 10	> 60	N.A	N.A	> 14	> 250
Manufacturer	China	> 8000	> 1400	> 6500	> 6200	> 11000	> 150000
	India	> 60	> 300	> 70	> 600	> 650	> 500
Distributors	China	> 1300	> 500	> 4900	> 21000	> 1900	> 9000
	India	> 50	> 300	> 900	> 200	> 120	> 160
Trading companies	China	> 3300	> 5000	> 6500	> 36000	> 6700	> 85000
	India	> 125	> 90	> 950	>200	> 250	> 230

Source: Alibaba.com

[1] The above figures are only a representative sample and does not provide comprehensive industry statistics

Manufacturing Locations

While manufacturing locations in India are spread out due to tax benefits, they are clustered near the East coast in China thereby reducing logistics costs

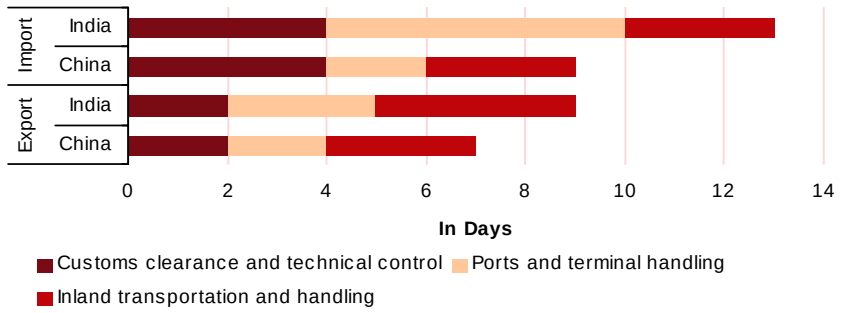




Reaching Global Customers

India and China being located close to each other, the relative geographical advantage for reaching global consumer market on the whole is not very significant

Time required for Exports and Imports



Source: Doing Business Indicators, World bank



- China is better positioned geographically to serve developing markets like Russia and South east Asia while India is better positioned to serve the middle eastern markets
- India and China being located close to each other, the relative geographical advantage for reaching global consumer market on the whole is not very significant
- There exists a significant difference though in terms of time required to import and export goods from India and China which is depicted in the graph alongside. This could be attributed to better Infrastructure facilities in China

Section 4.2.1
Representative Value Chain Analysis

Key Inputs and Assumptions – RAC Manufacturing

Total Cost Break-up [China]	
COGS	83.5%
Selling Expense	10.3%
Admin Expense	4.1%
Financial Expense	1%
Others	1%

Source: Interviews, PwC Analysis

COGS Break-up	
Raw material	80%
Labour	10%
Other	10%

Source: Interviews, PwC Analysis

Raw material Break-up	
Compressor	32%
Copper	16%
Others	16%
Steel	15%
Fan Motors	12%
Aluminium	8%
Paints	1%

Source: CrisInfac

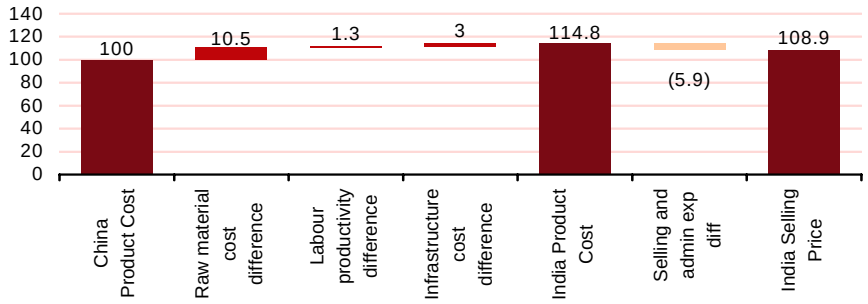
Raw materials	
Total import duty for Compressor(%)	31%
Cost differential in Copper base prices	0
Cost differential in Steel base prices	35%
Cost differential in Aluminium	7%
Infrastructure	
Freight differential as % of Manufacturing Cost	3%

Source: Interviews, PwC Analysis

Labour	
Man power productivity in China (USD)	4520
Man power productivity in India (USD)	2582
Per Employee cost in China per month (USD)	280
Per Employee cost in India per month (USD)	185
Selling and Admin Expense	
India average for RAC [% of COP]	7%
China average for RAC [% of COP]	14%

Value Chain Analysis for RAC Manufacturing in India

Cost differential analysis of RAC manufacturing in India and China indicate that total manufacturing costs in India are at minimum 15% higher than China



Source: PwC Analysis

- This illustration considers cost structure in China as the base and adds/subtracts cost of production differential for manufacturing in India. The example considers raw material costs, import duties, labour costs and freight and infrastructure differential (which has been pegged at + 3% for manufacturing in India)
- To account for raw material cost differential four key raw materials- compressor, steel, copper and aluminium accounting for 70% of raw material costs have been considered
- Based on this analysis, manufacturing costs in India are at minimum 15% higher than China
- The competitive advantage would further tilt in favour of China on including the effect of indirect taxes
- However, Selling and administrative expenses provide India with an effective advantage of 5.9% over China



Recommendations

Section 5

Decreasing Attractiveness of China as a Investment Destination

Abolition of preferential tax rates for foreign companies, appreciating currency and product recalls have lowered the attractiveness of China as an investment destination

	Tax regulations before 2008	Tax regulations after Jan, 2008
Income Tax	Preferential tax rate regime under which the FIE's pay only 15% tax on income, while local companies face a 33% tax rate	Unified 25% tax rate for both FIEs and domestic companies
Tax Holidays	Standard concessions for FIE include top income tax rates of 15% and 24% (depending on factors such as location, industries etc). These rates may only come into effect after a 2-year tax holiday and 3 year at half-rate tax. Domestic enterprises pay a standard enterprise rate of 33% which may be reduced depending on regions and sectors.	Two-year tax holiday and three-year half tax policies for manufacturing and exported oriented FIEs are abolished. However, FIEs established before March 2007 can still avail the benefit of this tax holiday.
Vat Refunds	In case 0% rate is applicable on the exported good, the exporter may apply to the tax authorities for refund of input tax on goods exported. The refund rates range from 5% - 17%.	Refund rates have been reduced. For example, refund rates for household appliances have come down from 13% to 9%

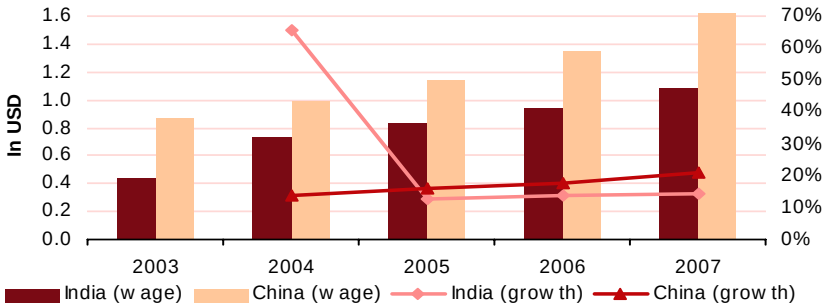
Source: Press Release,EIU China Report

- Chinese Government has started to shift its focus from export led growth to increasing consumption in the domestic market
- The new corporate income tax law which was introduced in January, 2008 reflects this sentiment and has thereby fundamentally changed the taxation regime under which foreign-invested enterprises (FIEs) operate in China. Some of the tax changes are listed alongside. Following these changes, some FIEs could face as high as a 15% increase in income tax
- Penetration of certain consumer products like TV, refrigerator and washing machine are 100%, 90% and 93% respectively in urban China. China's urban market is saturated and opportunities for further growth in this segment seem restricted. Indian market on the other hand is still relatively unexplored and hence there exists a huge untapped potential for growth
- Chinese currency is expected to further appreciate in future. Appreciating currency has made China less attractive for export oriented manufacturing
- Product recalls have also tainted the image of 'Made in China' brand. For example, Mattel recalled close to 21 million toys in 3 stages in 2007

Other Challenges in China

Labour, real estate, infrastructure and logistics are key bottlenecks for continued future growth of manufacturing in China

Hourly wage rate comparison



Source: EIU

LABOUR:

- There Is shortage of talent at higher management levels especially with respect to English speaking skills and relevant experience in China
- While labour productivity is higher in China, wage rates have also been increasing steadily. Average increase in labour costs per hour in 2007 with respect to 2006 was 21% in China as against 15% in India. Also, it is estimated that labour cost will further increase by 30% - 50% over the next 3 years in China. This will reduce the cost competitiveness of China vis-à-vis India
- The new labour law makes it more difficult to make employees redundant than earlier regulations, which permitted FIEs to lay-off employees on account of technical and production specific changes. Now, only imminent bankruptcy and major production problems can justify redundancy

REAL ESTATE:

- Real estate in areas with good infrastructure is scarce in China
- Land is often allocated on the basis of size of potential investment and reputation of the investor. Small sized investors may find it difficult to acquire land
- As per the latest tax reform, land usage tax is applicable in both urban and rural areas

INFRASTRUCTURE AND UTILITIES:

- China's utility infrastructure is unevenly developed through different zones. For instance, coastal areas are very well developed whereas the eastern regions are relatively less developed

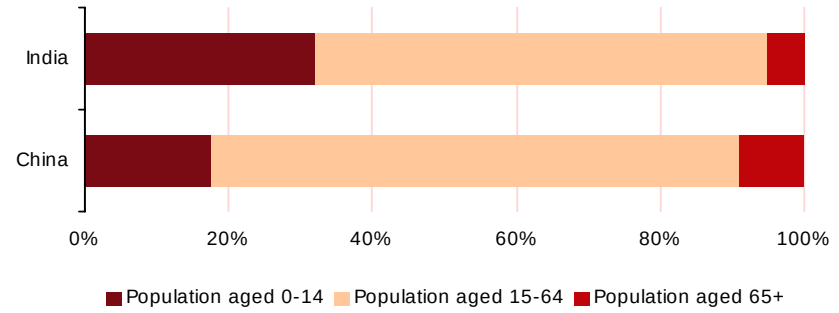
LOGISTICS:

- Logistics in China has not grown at a pace in tandem with its growth in trade. The logistics industry in China is fragmented in terms of number of operators and their geographical reach, creating huge bottlenecks for movement of goods

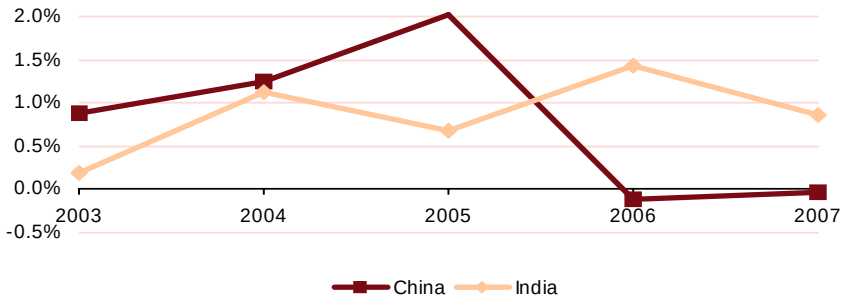
Growing Demand in India

Led by favourable demographics, India is emerging as an important market for multinationals and many are setting up manufacturing operations in India

Population Split by Age



Female Employment Growth Rate



Source: Euromonitor

- In recent years, a large number of consumer durable players have set up operations in India. They have been attracted by growing domestic demand and abundant supply of cheap skilled labour
- Setting up operations in India have helped these companies better respond to the needs of the market and cater to localized consumer needs. For instance, players like Samsung, Nokia, LG etc have set up their manufacturing operations in India
- One of the key demand drivers for consumer durables is the number of working women. It has been observed that the number of working women has been declining in China over the last 2 years while it has been growing in India; Further India also has a large proportion of population under the age of 14 years, who will form a large consumer base in the next decade
- Decreasing attractiveness of Chinese market together with favourable demographics and demand patterns in India, makes India attractive as a manufacturing hub for consumer durables
- However specific reforms and policy initiatives (focussed on consumer durable sector) are needed to provide further impetus and propel the growth of this sector in India. Some of these are discussed in the following slides

Recommendation 1: Promote Technology Development

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

FDI AS A TOOL FOR TECHNOLOGY TRANSFER

- FDI should be effectively employed as a tool for technology transfer as has been done by China (refer 2). Government should encourage FDI in projects involving new technology and provide tax incentives for high-end technology transfer
- List of areas where FDI should be incentivized for high-end technology transfer (like electronic component manufacturing) should be drawn up in consultation with industry bodies and representatives and reviewed at periodic intervals (as newer technologies are introduced)
- Partnership with local companies involving high-end technology transfer should be incentivized

INITIATIVES IN OTHER COUNTRIES

(1) NECESSITATING PARTICIPATION OF A CHINESE PARTNER:

- Chinese Government enacted a joint venture law that gave priority to technology-intensive investments and necessitated participation of a Chinese partner through more generous tax incentives
- For instance, earlier Chinese Government required auto companies to enter into JVs with Chinese partners for manufacturing car engines. This led to international players like Fiat, Daimler, Cummins etc. entering into a JV with Chinese players. Currently this is applicable only for few industries like OEM manufacturing and media

(2) TAX CONCESSIONS:

- 50% tax concession is given for a period of 3 years for transfer of advanced technology in China. Also indirect tax sops are given by way of exemption from VAT
- Income derived from technology transfers is exempted from income tax in China, if such income is less than RMB5,000,000 in one assessment year and 50% of the amount in instances where it exceeds the amount

Recommendation 1: Promote Technology Development

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

TAX REBATES FOR R&D CENTERS:

- Government could consider providing tax rebates for high end technology companies or companies that set up R&D centres in India in order to enable technology development and dissemination
- Tax incentives for R&D could include exemption of customs duty on any imports, exemption of excise duty and VAT on any inputs required for setting up R&D centre. If the services of the R&D centre are utilized by other companies, such services rendered could be exempt from service tax

TIE-UPS BETWEEN INDUSTRY AND TECHNOLOGY INSTITUTES:

- Government should incentivize tie-ups between industry and academic institutions/technology institutes in India. Incentives could be in the form of tax exemption on any such expenditures incurred by the companies. Such programs have been very successful in China (refer 10, 11)

VENTURE CAPITAL FUNDING:

- Incentives could be in the form of tax breaks for venture capital firms to invest in new and high technology firms and also tax incentives for reinvestment of profit as is available in China

INITIATIVES IN OTHER COUNTRIES

(3) DISINCENTIZING FDI FOR TECHNOLOGY ALREADY PRESENT:

- Under the Chinese FDI policy, FDI is classified into four categories – prohibited, restricted, permitted and encouraged. FDI is prohibited for projects that use manufacturing techniques unique to China. In instances where technologies have already been developed in China or for which technology has already been imported or where capacity can meet market demand, FDI is restricted

(4) INCENTIVES TO PROMOTE INVESTMENTS:

- The Chinese Government provides income tax incentives for venture capital firms that invest in unlisted high- and new-technology enterprises. Following two years of investment, venture capital firm can offset 70% of invested amount against its taxable income
- An FIE in China with technological development expenses at least 10% over previous year is entitled to 50% concession in its total technological development expenses in the current year's corporate income tax . This is subject to approval by tax authorities
- In Taiwan, Investments made in automation equipment is eligible for income tax deductions in the range of 5-20% of investment for a period of 5 years

Recommendation 1: Promote Technology Development

Withdrawn In vogue as of March 2008

INITIATIVES IN OTHER COUNTRIES

- Some of the other incentives to promote R&D in Taiwan include:
  - 10-20% income tax credit for R&D investments
  - 50% funding or loans for major targeted investments
  - Up to 60% matching grants for training programs

(5) TAX EXEMPTIONS

- Equipment and technology imports and software fees payable for importing technology listed in “State catalogue of New Technology Products” are exempt from customs duty and import VAT in China
- Science-based industry – Beginning in January 2002, a Taiwanese company importing equipment for its own use may be exempt from business tax and tariffs for the item. This is subject to the condition that there is no domestic manufacturer of the same equipment and the Ministry of Economic Affairs endorses the import

(6) “SUPER DEDUCTION” FOR R&D:

- "Super deduction“ of upto 150% is allowed for R&D expenses for new technology for tax purposes in China
- Accelerated depreciation in Taiwan – Equipment and facilities for R&D, quality control, power saving or clean energy is allowed to have a two-year accelerated depreciation. The company is allowed to depreciate

INITIATIVES IN OTHER COUNTRIES

the asset for an additional year, if it has not yet been fully depreciated after 2 years

(7) TAX SUBSIDIES:

- Taiwanese Government subsidized 30% of expense needed for development of products of strategically important emerging industries, core technological products which are more advanced than current technological levels in the country and products which have high market potential and hence will support and stimulation other related industries

(8) TAX REBATES:

- A major incentive scheme in Taiwan was the “Statute for Upgrading Industries”. Some of the key terms are
  - Companies are awarded a rebate against tax of up to 20% of their investment in factory automation and environmental control, to be claimed over five years; for investments in R&D and employee education, the amount is up to 35%
  - Companies categorized as "upgrade" industries can enjoy a sales tax rebate of up to 20% of the invested amount over 5 years
  - With the permission of the board, the invested company will enjoy tax free revenues resulting from new investment for 5 years

Recommendation 1: Promote Technology Development

Withdrawn In vogue as of March 2008

INITIATIVES IN OTHER COUNTRIES

(9) GOVERNMENT R&D PROGRAMS

- Chinese Government introduced a number of R&D programs to fund and promote R&D domestically as well as to improve linkages between industry and research institutions. Some of these included the 863 program, the Torch program, the Spark program etc. For additional details refer to Section 4.1.4 of the report

(10) INCENTIVES AT STIPs

- Chinese Government established a number of Science and Technology Industry Parks (STIPs). Policy incentives for firms operating in STIPs include:
  - Income tax exemption for first 2 years of profit-making and a reduced tax rate at 15% from the 3rd year onwards
  - Exemptions of operation, income, property and land use taxes within a certain period for ratified Technology Business Incubators and National University Science Parks
  - STIP firms also receive favorable rent concessions

INITIATIVES IN OTHER COUNTRIES

(11) MANDATORY TECHNOLOGY TRANSFER THROUGH DESIGN INSTITUTES

- For many projects, in particular manufacture of machinery and equipment, wide ranging reviews of industrial drawings and designs by Chinese design institutes are mandatory
- These drawings and know how may later be used by other Chinese projects which wish to duplicate and use the design in other locations
- In addition to transferring detailed technical documentation, foreign companies often have to train Chinese staff so that, in future, they can design the machinery/equipment independently

(12) PREFERENTIAL TAX RATES:

- Chinese Government provides preferential tax rate of 15% for Technologically Advanced Enterprises (TAE) and High and new technology enterprises (HNTE). Refer to the next slide for criteria for qualifying as a HNTE

Criteria for Qualifying as HNTE in China

1 Proprietary IP right of core technology

- The enterprise should have obtained the Intellectual Property (IP) right of the core technology in the past 3 years through self-R&D activities, transfer/purchase, donation, merger, etc; or
- The enterprise should secure an exclusive right to use the IP right for a period of at least 5 years; and the IP right should be associated with the main products (services) of the enterprise.

2 Products/services of the enterprise within the scope of the Catalogue

- The products or services of the company should be one of the domains specified in the catalogue. The catalogue has 8 domains supported by the state as listed below, under which further details are specified for the scope covered:
    - Electronic information technology; biological and medical technology; aviation and space technology; new materials technology; high-tech services; new energy and energy conservation technology; resources and environmental technology; transformation of traditional sectors through high-new tech

3 Headcount of scientific technology staff

- Scientific technology staff with university degree and above should account for at least 30% of total headcount of the enterprise, amongst which at least 10% engaged in R&D activities

4 Income from high/new-tech products (services)

- Income from high/new-tech products (services) should be more than 60% of the total annual income of the enterprise

5 R&D expenditure

- R&D expenditure should reach a prescribed percentage of total revenue for the past 3 years as listed below:

Total revenue in preceding year	% of R&D expenditure over total revenue
Below RMB 50 million	Not less than 6%
Between RMB 50 and 200 million	Not less than 4%
Above RMB 200 million	Not less than 3%

6 Working Guidelines for Assessment of HNTEs

- The enterprise should meet the requirements of the Assessment Guidelines in respect of the rating in R&D management; capability for converting R&D outcome; number of IP rights; and growth of sales and total assets

Recommendation 2: Develop Small and Medium Scale Enterprises

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

PROMOTE CLUSTER DEVELOPMENT:

- Cluster development among SMEs (especially component manufacturers and toy manufacturers) has to be promoted by earmarking suitable locations and creating sustainable common service centers
- Common service centers could provide members access to market knowledge, managerial skills and technology

TIME BOUND TAX INCENTIVES INSTEAD OF TURNOVER BASED:

- Currently incentives are provided to SMEs which have turnover of less than Rs. 1.5 crore. These incentives could be made time bound rather than turnover bound as the current system discourages SMEs from growing larger in size to reap scale benefits

TECHNOLOGY ACQUISITION FUND

- Government should consider setting up a technology acquisition fund for use by Small and Medium Enterprises. SMEs which typically cannot afford to acquire expensive technology can make use of this fund for technology acquisition and modernization
- For instance, the Gujarat Government has announced a 10 year close ended USD 22 million SME fund. This could be implemented at a national level to benefit SMEs in other states also

INITIATIVES IN OTHER COUNTRIES

(1) PREFERENTIAL TAX RATES FOR SMEs:

- A preferential 20% tax rate applies for small enterprises with modest profits in China (thin profit companies), as long as they do not engage in economic activity prohibited or restricted by authorities. Industrial enterprises qualify for this category if they have annual income of less than RMB 300,000, total assets of no more than RMB 30m and fewer than 100 employees

(2) SME INCUBATOR CENTRES:

- The Department of Industrial Technology (DOIT) in Taiwan has set up incubating centers to help SMEs to start a business, develop high technology and promote product innovation.
- DOIT also provides support through subsidies, for projects that pass the review process based on the following criteria
  - Feasibility study projects - Each project is subsidized up to 50% of the total budget, with a ceiling of NT$ 1 million
  - New technology or product development - Each project is subsidized up to 50% of the total budget, with a ceiling of NT$ 10 million subject to a maximum term of 3 yrs

Recommendation 3: Rationalize the Tax Policy

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

REVIEW OF TAX HOLIDAYS

- Under the Indian law, tax holidays are not linked to the life of the unit and hence there is a possibility of misuse of tax holidays as companies can operate during the period of the tax holiday and exit afterwards
- Government could consider following an approach similar to that of China to incentivize Indian players to continue operations for a longer term. The policy through which the Chinese Government ensures this is provided alongside (refer 1)

INITIATIVES IN OTHER COUNTRIES

(1) TAX HOLIDAYS IN CHINA

- The Chinese Government has incentivized longer period of operation for companies through the following initiatives:
  - Units are required to give an undertaking as to how long they will operate (with tax refund provisions for violating this undertaking)
  - Units are incentivized to operate for longer term as tax breaks are better for units with longer operating lives
- Through these initiatives, Government is able to collect full tax for half the life and for longer lived ones, for at least one third of its life

Recommendation 3: Rationalize the Tax Policy

OUR RECOMMENDATIONS

ENABLE FREE MOVEMENT OF GOODS BETWEEN STATES

- Currently tax paid on interstate sale of goods is not available as credit/ refund in the state of sale. This discourages easy movement of goods between different states
- The Government could consider making the tax paid on interstate sale of goods cenvatable against output liability (set-off of input tax)

REMOVE LOCATION BASED INCENTIVES

- A number of incentives given in India are location based. For instance, Himachal Pradesh and Uttarakhand are excise free zones
- Location based incentives lead to manufacturers making supply chain decisions that may not be optimal and hence increase overall costs and prices
- Hence, Government could encourage industry specific incentives rather than location specific incentives to promote development of large industrial clusters

OUR RECOMMENDATIONS

PREVENT CASCADING EFFECT OF TAX

- Currently tax structure in India has a cascading effect due to taxes levied on previously paid taxes. For instance, for calculation of sales tax, the excise duty paid is also taken into account in the assessable value
- Hence the assessment mechanism for taxes could be fine-tuned to avoid this cascading effect. However, introduction of the Goods and Services Tax (GST) - which is expected to be in force by 2010 - would solve this issue and hence the Government should consider speeding up the process of introducing GST

REDUCE OVERALL TAX LEVELS:

- Tax rates in India have been higher than that in China. For instance, while the customs duty rates in China are at 6% for consumer durables under consideration (0% for mobile phones and toys), the customs duty rates in India are at 31.7% (except for mobile phones for which effective customs duty is 19.45%)
- The corporate income tax in India is at 33.99% while the same in China is 25%. The Government should consider bringing down the overall tax levels to that in other countries (like China)

Recommendation 3: Rationalize the Tax Policy

OUR RECOMMENDATIONS

SIMPLIFY TAX STRUCTURE

- India has a multitude of taxes including excise, VAT, service tax etc. whereas China only has VAT at 17%. Even for import of goods, in India we have multiple taxes levied including customs, cess, CVD, SAD etc. some of which are refundable
- The Indian tax structure needs to be simplified so that it is easier for businesses – especially foreign enterprises – to understand the tax implications and for Government to execute the same

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Recommendation 4: Incentivize Domestic Value Addition

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

INCENTIVISE LOCAL SOURCING

- Local sourcing by foreign companies promote development of domestic vendor base. Hence for industries such as electronics component manufacturing where vendor base is not very well developed in India, incentives in the form of preferential tax rates could be provided
- The percentage of local sourcing would vary across industries and would need further discussion with key stakeholders
- Higher level of domestic sourcing could be encouraged by providing tax incentives proportional to the percentage of local sourcing. However, overall implications of this will have to be discussed and probed further for each industry under consideration

INITIATIVES IN OTHER COUNTRIES

(1) DIFFERENTIAL TAX RATES FOR DOMESTIC MANUFACTURING:

- Imported semiconductors are charged at 17% VAT whereas domestically manufactured semiconductors are charged an effective rate of 3%, thus giving an edge to the domestic manufacturers in China
- Due to pressure from USA and other countries through WTO, China agreed to stop providing VAT rebates to domestic producers since April, 2005

(2) MANDATORY LOCAL SOURCING:

- Chinese Government implemented a policy that a certain proportion of the components used by FIEs for manufacturing in China should be sourced locally. For instance, in case of mobile manufacturing, 10% of the components have to be sourced locally
- Though China obliged to abandon all local content requirements as required by the WTO in 2001, there have been regular attempts to circumvent the rules across industries. There have been reports that Chinese joint venture partners have required special clauses in JV contracts giving preferences to Chinese suppliers

Recommendation 4: Incentivize Domestic Value Addition

Withdrawn In vogue as of March 2008

INITIATIVES IN OTHER COUNTRIES

(3) INCENTIVES FOR REINVESTMENT OF PROFITS

- Reinvestment of profit in export oriented or technologically advanced enterprises in China was eligible for a full refund of the tax paid on the reinvested profit. The general rate of refund was 40 percent. In certain special cases, the rate was raised to 100 per cent. In SEZs, refund for reinvestment was 100% as opposed to 40%

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Recommendation 5: Develop Vendor Base and Raw Material Supply

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

RAW MATERIAL SUPPLY

- Government could incentivize acquisition of strategically important raw material assets outside India, thereby improving the supply of raw material in the country. Incentives could be in the form of providing interest free capital funding

PRIORITY SECTOR TREATMENT FOR COMPONENT MANUFACTURING:

- Government should consider providing priority sector treatment to electronics hardware and component manufacturing sectors. India's presence in electronics manufacturing is currently negligible in the global production scenario and Government policy and initiatives would be crucial to achieve critical mass
- Incentives provided to the priority sector could include tax holidays/ concessions, inclusion in the priority sector lending for banks, making financing available at lower costs, allowing accelerated depreciation, tax refunds for reinvested profits etc.

INITIATIVES IN OTHER COUNTRIES

(1) TAX EXEMPTIONS ON RAW MATERIAL IMPORTS:

- Chinese Government exempts up to 30% of VAT on import of copper and brass scrap which helps reduce the input cost for copper manufacturers
- Taiwanese companies which have been granted the status of 'bonded' goods manufacturers do not have to pay tariffs and for imported raw material

(2) SUBSIDIES FOR CRITICAL RAW MATERIALS:

- Government has provided subsidies totaling USD 79.1 billion to the steel industry between 2000 and 2007. This was done through preferential loans, equity infusions, land use discounts, Government mandated mergers, direct cash grants and energy subsidies

(3) LAND AVAILABILITY AT A FEE

- Foreign entities in China can obtain land from local authorities by periodically paying a land-use fees. The fees widely varies according to the location specific factors. Overall this reduces the investment needed by a foreign entity to set up its business in China and thereby fostering vendor base development

Recommendation 5: Develop Vendor Base and Raw Material Supply

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

SUPPORT FOR CAPITAL INTENSIVE COMPONENT MANUFACTURING FACILITIES

- Industries like semiconductor manufacturing are highly capital intensive with the cost of setting up a new IC Fabrication unit being as high as USD 3 billion
- In order to develop such capital intensive industries , Government may consider setting up a rent-to-own policy where the Government incurs initial capital expenditure and invites private players to operate facilities on a rent basis ,which they can later buy
- Alternatively, Government could consider taking up minority equity stake and thus provide requisite capital. For instance, Taiwan Government has provided equity investment of upto 49% in strategic companies
- Chinese Government also makes substantial direct investments in domestic component manufacturing companies. For instance, Beijing Government owns 62% of Advanced Semiconductor manufacturing Corp

INITIATIVES IN OTHER COUNTRIES

(4) TAX INCENTIVES FOR COMPONENT MANUFACTURERS:

- Local chip manufacturing operations enjoy the advantage of 100% corporate tax exemptions for the first five years, followed by a 50% rate for the next five years
- IC production companies which meet certain criteria are eligible for a reduced income tax rate of 15% and also tax holidays of upto 10 years from first year of profit
- Investors reinvesting their after tax profit to set up or increase capital in an IC production company are eligible for reinvestment tax refund of 40% of income tax paid on the reinvested profits

Recommendation 6: Increase the Demand Base

OUR RECOMMENDATIONS

INCENTIVIZE EXPORT ORIENTED COMPANIES IN DTA

- Schemes like Project Imports (exemption from import duties on raw materials) could be implemented for export of specified categories of consumer goods, with a condition that finished goods have to cost less than similar goods produced or manufactured in China and other competing countries. This would reduce import of CBUs and promote domestic manufacturing
- The benefit of the above scheme should percolate to all required capital goods, raw materials, inputs and consumables required to manufacture finished goods, including setting up of the unit / factory and extend the scheme to indigenous procurement also

SAFETY STANDARDS FOR TOYS

- Confirming to the safety standards for toys in India is voluntary and is currently limited only to companies in the organised sector. Going forward India may consider formulating a policy which mandates adequate safety standards for toys and other products under consideration

Withdrawn In vogue as of March 2008

INITIATIVES IN OTHER COUNTRIES

(1) INCENTIVES FOR EXPORTS:

- Any foreign invested enterprise exporting more than 70% of its production was eligible for 50% reduction in income tax

(2) SUBSIDIES TO BOOST DEMAND:

- A pilot program has been launched initially in three major agricultural provinces of Shandong, Henan and Sichuan, where farmers who buy color TV sets, refrigerators and mobile phones can obtain subsidies at 13% of the prices

Recommendation 7: Develop larger multi-product SEZ

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

DEVELOP LARGER MULTI-PRODUCT SEZs

- The advantages of industrial network clustering is lost due to fragmented nature of the SEZ s in India. Hence larger SEZs, similar to China (refer 1), with good infrastructure could be developed, especially near coastal areas with good port facilities
- Larger SEZs could be developed by public private partnership, with Government providing suitable land in select locations as opposed to the current scenario where land required for an SEZ needs to be acquired by an industry player or a private developer
- Procurement of large parcels of land at one location might always not be possible. In such cases, suitable infrastructure needs to be provided to interconnect these smaller chunks to the key markets within and outside the country and sourcing bases by improving connectivity to ports and airports

FLEXIBLE LABOUR LAWS IN SPECIAL ZONES:

- The Indian labour law is rigid with respect to rationalization of labour force with laws like section 5B of the Industrial Disputes Act which mandates that companies with more than 100 workers should obtain state Government approval to rationalize their workforces
- The Indian Government like that of China (refer 2), should consider implementing hire and fire policy at least within SEZs by relaxing section 5B of the Industrial Disputes Act

INITIATIVES IN OTHER COUNTRIES

(1) LARGE MULTI-PRODUCT SEZs:

- Chinese SEZs are large in size, with each SEZ being over 1000 hectares which is the minimum recommended area. Further, most of Chinese SEZs are located in strategic locations close to the port in order to reduce transportation costs

(2) FLEXIBLE LABOUR LAWS IN SPECIAL ZONES:

- Chinese companies are allowed to negotiate wages on receipt of every new order and also use hire and fire policies in zones like SEZs. Use of employees on sub-contract is also allowed

Recommendation 7: Develop larger multi-product SEZ

OUR RECOMMENDATIONS

TAX EXEMPTION FOR SEZ UNITS FOR SALE IN DTA

- Since goods sold from SEZ to DTA are considered imported goods, full import duty is levied on such sale. Instead of import duty, duty foregone could be levied to make SEZ units more competitive against DTA. By levying full import duty on such sale, value addition done by unit in the SEZ is also charged to import duty
- Further, in the long term, taxes levied on sales to DTA from SEZ units could be exempted for initial 2 – 3 years to encourage more manufacturers to set up base in SEZ
- Alternatively an approach similar to that in an EOU could be adopted, where the manufacturing units pay a concessional basic duty (i.e. 50% of customs duty) plus applicable local taxes

FINANCING OF SEZ DEVELOPMENT:

- RBI classification of SEZ as real estate for the purposes of prudential norms has adverse effect on the cost and availability of finance; Such norms which adversely effect the ease of setting up operations in SEZs could be suitably amended

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Recommendation 8: Others Recommendations

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

AVAILABILITY OF FINANCE AT COMPETITIVE RATES

- As analysed earlier, financing rates (around 12%) in India have always been higher (refer 2) compared to China. Government could consider undertaking suitable measures to improve access to competitively priced finance

REDUCE LOGISTICS COSTS:

- According to Doing Business indicators released by World Bank, time required for customs clearance and ports and terminal handling in India is 10 days for imports and 5 days for exports compared to 6 days for import and 4 days for export in China. This is much higher when compared to developed countries where the process is completed in a few hours
- In order to reduce this clearance time, the Government could consider the following:
  - Ensure efficient customs clearance with round the clock operations including weekends and holidays
  - Automated electronic cargo processing at all ports to enable faster clearances. This is not implemented at all Indian ports.

INITIATIVES IN OTHER COUNTRIES

(1) UNDERVALUATION OF CURRENCY:

- Chinese Yuan is one of the most undervalued currencies which gives Chinese exporters an edge over exporters from other countries

(2) LOW INTEREST RATES:

- Lending rates in China have been maintained at low (around 6%) levels as it helps Chinese manufacturers to raise easy capital

(3) TAX HOLIDAYS FOR INFRASTRUCTURE PROJECTS:

- Infrastructure projects scheduled to operate for 15 years or more were eligible for a 10-year tax holiday in China (a 5-year exemption followed by a 5-year 50% reduction in tax). Withholding tax on distributions of profits and local income tax was waived

(4) SKILL DEVELOPMENT OF EMPLOYEES:

- In order to improve the quality of human resources in Taiwan, the Industrial Development Bureau (IDB) together with various academic organizations provide in-service and pre-service training aimed at equipping workers with skills to succeed in emerging industrial sectors

Recommendation 8: Other Recommendations

Withdrawn In vogue as of March 2008

OUR RECOMMENDATIONS

EXPEDITE THE GOVERNMENT APPROVAL PROCESS

- Time taken for approvals in India have sometimes been a deterring factor for companies intending to establish their presence in India. For instance, even though several states are keen to attract investments in their state, approvals do not come through in a timely manner

INITIATIVES IN OTHER COUNTRIES

(5) INCENTIVES TO ATTRACT SKILLED PROFESSIONALS

- Chinese Government is providing tax incentives to attract skilled professional talent into industries that are to be developed in the country
- For instance, Company stock options given to imported chip-making recruits are not taxed at market value but they can be sold without paying any capital-gains taxes

(6) FINANCING VENTURES WITH FOREIGN ENTITIES

- To improve funding channels for Chinese JV partners and help them maintain control over their businesses, the People's bank of China issued measures for lending by Chinese commercial banks to creditworthy Chinese JV partners planning to add to their registered capital
- The loans have a limit of ten years and may not exceed 50% of the total amount of capital that the Chinese JV partner pays to add to the registered capital. The measure allows the Chinese partner to start drawing down loan only after it has paid the amount raised on its own and only after the foreign partner has paid its part of the capital in full



Chinese Policies and WTO

Appendix 1

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
IMPORT SUBSTITUTION SUBSIDIES	**Refunds:** ▪ Income tax refunds available to companies that purchase Chinese-made equipment and accessories (instead of imports) ▪ VAT refunds available to companies that purchase Chinese-made equipment and accessories (instead of imports)	In vogue	▪ The policy of income tax and VAT refunds exists across a number of industries
	Discourage imports: ▪ Provisions discouraging import of components and encouraging use of domestic technology, leading to discrimination against foreign producers and imported goods. This is done through a number of ways including Government financial support for projects utilizing domestic equipment ▪ This is in contravention of the commitment in China's accession agreement not to condition the right of investment or importation on whether competing domestic suppliers exist	Information not available	▪ The New Automobile industrial policy issued in 2004 and the "Measures on the Importation of Parts for Entire Automobiles", which was issued in 2005 impose charges that discriminate against imported auto parts: – If the number or value of imported parts in an assembled vehicle exceeds specified thresholds, the regulations require the vehicle manufacturer to pay a charge on each of the imported parts ▪ The policy of providing Government financial support to projects utilizing domestic equipment is widely prevalent in the steel industry (The Steel and Iron Industry Development Policy)
	Mandatory local sourcing: ▪ Chinese Government implemented a policy that a certain proportion of the components used by FIEs for manufacturing in China should be sourced locally'	In vogue	▪ In case of mobile manufacturing, 10% of the components have to be sourced locally

* Debated to be WTO non-compliant; Final decision is not known in many cases

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
IMPORT SUBSTITUTION SUBSIDIES	**Required investment in R&D:** ▪ Certain regulations require foreign players wanting to set up plants in China to make substantial investment in research and development facilities, even though China expressly committed in its WTO accession agreement not to condition the right of investment on the conduct of research and development		▪ Chinese policy requires new automobile and automobile engine plants to include substantial investment in research and development facilities
	Discriminatory VAT rates** ▪ Discriminatory VAT rates applicable to domestic products vis-à-vis imported products		▪ Imported semiconductors are charged at 17% VAT whereas the domestically manufactured semiconductors are charged an effective rate of 3%, thus providing an edge to the domestic manufacturers in China
	Discriminatory consumption tax rates: ▪ As per China's consumption tax regulations, China uses different tax bases to compute consumption taxes for domestic and imported products, with the apparent result that the effective consumption tax rate for imported products is substantially higher than for domestic products		▪ China's consumption tax applies to a number of consumer products including spirits and alcoholic beverages, tobacco, cosmetics and skin and hair care preparations, jewelry, fireworks, rubber, motorcycles and automobiles

* Debated to be WTO non-compliant; Final decision is not known in many cases
**Often, Chinese producers are also able to avoid payment of VAT - either as a result of poor collection procedures, special deals etc, while full VAT must be paid on competing imports

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
EXPORT SUBSIDIES	**Tax exemptions:** ▪ Income tax reductions and refunds available to companies that satisfy certain export performance requirements ▪ Value-added tax (VAT) exemptions available to companies that satisfy certain export performance requirements		▪ Any foreign invested enterprise exporting more than 70% of its production was eligible for 50% reduction in income tax
	Other incentives: ▪ Tariff exemptions available to companies that satisfy certain export performance requirements ▪ Discounted lending rates available to companies that satisfy certain export performance requirements ▪ Exemptions from mandatory worker benefit contributions available to companies that satisfy certain export performance requirements		▪ Subsidies appear to be provided by provincial and local governments through programs like “World top brand” and “Famous export brand” through which significant payments and other benefits are provided to Chinese companies based on their export performance

* Debated to be WTO non-compliant; Final decision is not known in many cases

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
RESTRICTIVE USE OF EXPORT QUOTAS	**Restrictions on export of raw materials**: ▪ China is increasingly becoming more restrictive in use of export quotas and export duties on a number of raw materials where it is the world's leading producer ▪ Through these export restrictions, China is able to drive up world prices while lowering domestic prices, thereby providing substantial artificial advantages to a wide range of downstream producers in China when they compete against foreign downstream producers in other countries		▪ China maintains export quotas and sometimes export duties on antimony, coke, fluorspar, indium, magnesium carbonate, molybdenum, rare earths, silicon, talc, tin, tungsten and zinc ▪ In case of coking coal China limits exports of coke to 14 million metric tons (MT) per year and additionally imposes 15 percent duties on coke exports. With these export restrictions in place and no comparable restrictions on the domestic front, China produced 298 million MT of coking coal in 2006, and all but 14 million MT of this production was sold in the domestic market ▪ Chinese Government exempts up to 30% of the VAT on import of copper and brass scrap which helps reduce the input cost for copper manufacturers
	Subsidies on critical raw materials: ▪ Chinese Government provides a number of subsidies to critical raw material industries thus lowering the input costs for a number of industries		▪ Government has provided subsidies totaling USD 79.1 billion to the steel industry between 2000 and 2007. This was done through preferential loans, equity infusions, land use discounts, Government mandated mergers, direct cash grants and energy subsidies

* Debated to be WTO non-compliant; Final decision is not known in many cases

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
DISCRIMINATORY TREATMENT OF FOREIGN PLAYERS	**Restrictions on foreign players**: ▪ Import and distribution restrictions exist on certain products in apparent contravention of China's trading rights and distribution services commitments ▪ Dual-pricing schemes by SOEs working with domestic and foreign enterprises put the foreign players at a huge disadvantage when compared to domestic firms		▪ China places import and distribution restrictions on copyright-intensive products such as theatrical films, DVDs, music, books and journals ▪ Significant restrictions in the pharmaceuticals sector still prevent foreign companies from fully realizing their potential in China ▪ Despite commitments to permit foreign wholesale distribution of crude oil and petrol in China, China has issued regulations resulting in significant impediments to the profitable wholesale of crude and petrol by foreign companies within China
	Branching restrictions: ▪ The Chinese Government places restrictions on the expansion of branches for a number of industries		▪ Foreign automobile dealerships face restrictions that may not be applicable to domestic dealerships ▪ Branching restrictions exist to a large extent for foreign retail firms

* Debated to be WTO non-compliant; Final decision is not known in many cases

Chinese Policies and WTO

Withdrawn | In vogue as of March 2007 | Information not available

	Policy*	In vogue/ withdrawn	Instances
TRANSFER OF TECHNOLOGY	**Requirement of transfer of technology**: ▪ Chinese regulatory policy requires foreign players to transfer technology and know-how to domestic players, in conflict with the commitment in China's accession agreement not to condition investment on the transfer of technology		▪ The Steel and Iron Industry Development Policy (2005) requires that foreign investors possess proprietary technology or intellectual property in processing of steel. Given that foreign investors are not allowed to have a controlling share in steel and iron enterprises in China, this requirement would seem to constitute a de facto technology transfer requirement ▪ 50% tax concession is given for a period of 3 years for transfer of advanced technology in China. Also indirect tax sops are given by way of exemption from VAT ▪ For many projects, in particular manufacture of machinery and equipment, wide ranging review of industrial drawings and designs by Chinese design institutes are mandatory; These drawings and know how may later be used by other Chinese projects which wish to duplicate and use the design in other locations of China

* Debated to be WTO non-compliant; Final decision is not known in many cases



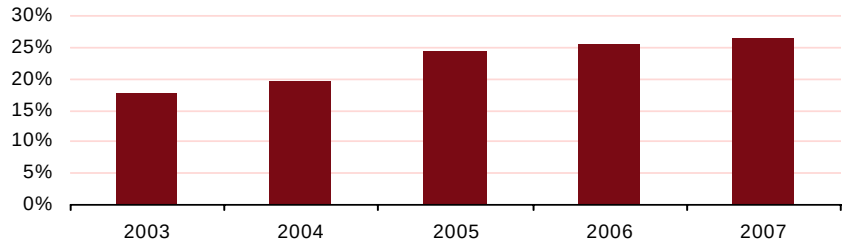
Electronics Industry in Other Countries

Appendix 2

Chinese Electronics Industry

China followed the Taiwanese model of incentivizing semiconductor manufacturers and provided incentives which were higher than those in Taiwan

China's share in the world semiconductor market



- China's electronic industry has been experiencing high growth rates. For instance, during 2000 to 2004, Chinese IC industry grew at a CAGR of 31% from USD 2.2 billion to USD 6.7 billion. Chinese IC industry recorded sales revenue of USD 18.3 billion in 2007 posting a growth of 24.3% over 2006
- In 2005, China became the largest single semiconductor market in the world accounting for about 24.5% of the worldwide share (In 2003, it accounted for 17.7% of world share, and in 2004 19.6%)
- China followed the Taiwanese model of incentivizing semiconductor manufacturers and provided incentives which were higher than those in Taiwan. For instance, 50% tax concession was given for a period of three years for transfer of advanced technology

KEY REASONS FOR HIGH GROWTH

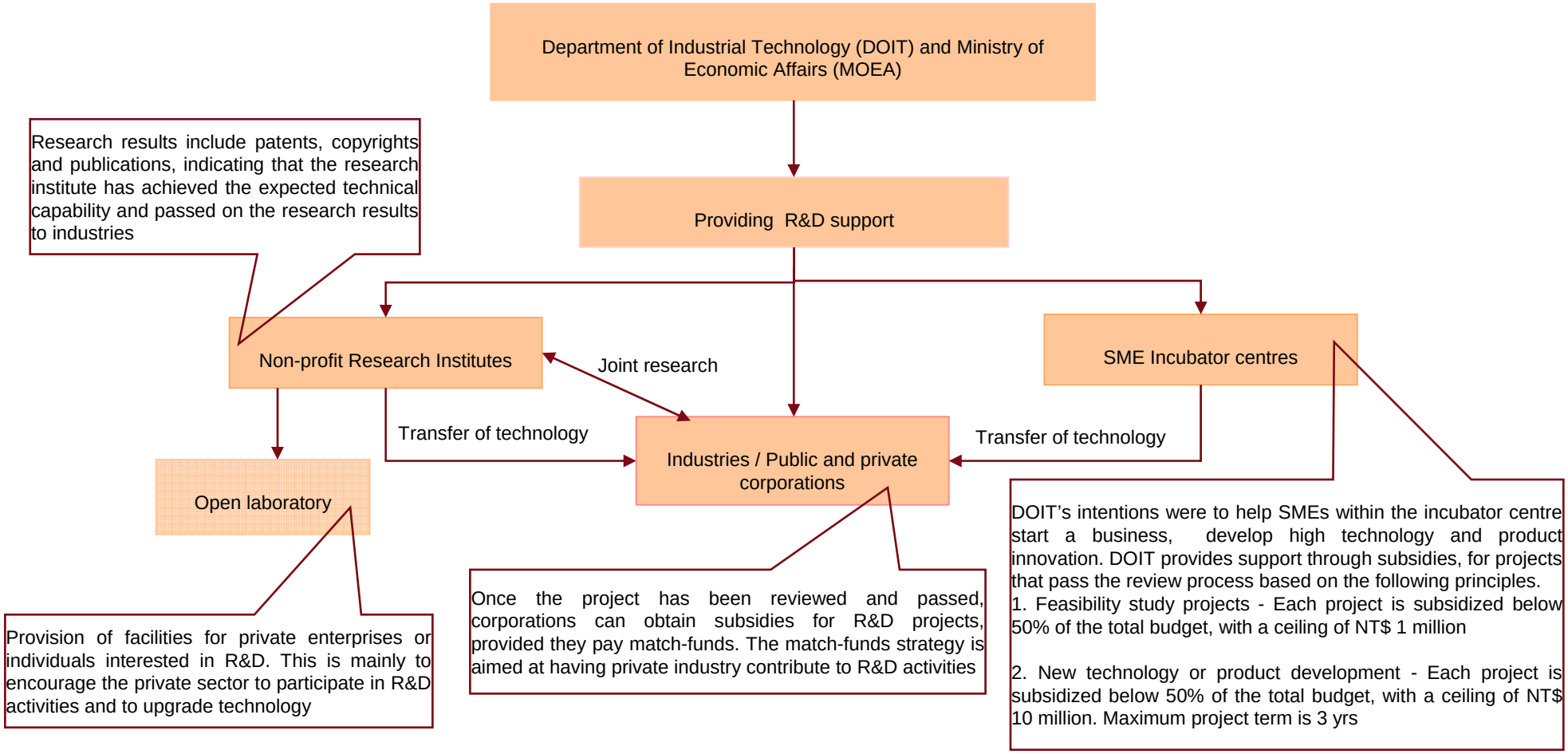
- Need for the component manufacturers to be close to OEMs, ODMs and EMS firms was a major reason for high growth in component manufacturing in China
- The demand for electronic components from Chinese mobile, PC, television and other electronic OEMs had gone up substantially to attract investments by component manufacturers
- Government incentives: China started offering a number of incentives for the chip manufacturing industry since 1999. For example local chip operations enjoy the advantage of 100% corporate tax exemptions for the first five years followed by a 50% rate for the next five years
- Another key Government incentive that aided the sudden growth in investments in the semiconductor industry in China after 2000 was the differential VAT system used by the Chinese Government
- Imported semiconductors were charged at 17% VAT whereas the domestically manufactured semiconductors were charged an effective rate of 3%
- Due to this a large number of Taiwanese players who were so far exporting semiconductors to China decided to set up operations in China
- In order to draw in talent from abroad, Chinese firms provided stock options which were not taxed at market value and on which no capital gains taxes were levied

Electronics Industry in Taiwan

Taiwanese electronics industry has grown over rapidly during the last five decades - Government support through tax incentives, infrastructure developments and international technology transfers are the key drivers

- Given the limitations of availability of natural resources and size of domestic market in the 1970s, Government of Taiwan recognized the need to formulate an export-oriented strategy along with the development of high technology industries, in order to maintain high economic growth
- Technological development hence became a critical factor in domestic industrial development. Technology-intensive industries have since grown from almost being non-existent in 1976 to over 34% of the manufacturing base in 1995
- There are many factors behind the success of Taiwan's industry upgrading toward high technology industries. Government's development strategies were based on four factors:
  - development of technology through subsidized R&D, promoting international cooperation and strategic alliances
  - development of human resource development through training, promotion of cooperative work / study, exchange programs and recruitment of talent from overseas
  - financial means such as tax incentives, venture capital investment, Government investment and low interest loans
  - development of necessary infrastructure like industrial and science based parks and incubator centres
- International technology transfers and foreign investment have also contributed significantly to the development of Taiwan's industry
- The centerpiece of Taiwan's industrial upgrading efforts since 1991 is the 'Statute for Industrial Upgrading and Promotion' , which serves as the legal basis for a number of incentive measures aimed at encouraging investment and technology transfers in newly emerging, important and strategic industries that can benefit economic development
- **Promotion of research and development:** Government of Taiwan subsidized about quarter of the R&D expenditure for industrial technology from its annual budget. The Ministry of Economic Affairs (MOEA) was made responsible for promoting competitiveness of domestic industry. It evaluates and provides strategies in its efforts to anticipate the current and future needs of the industry
- In the past, the method of Government support was to entrust non-profit research institutes to perform R&D projects and then distribute the results to industry for commercialization
- As domestic technology advanced, MOEA induced the private sector to participate more in R&D projects, both in terms of performance and funding. As a result, a number of policy measures aimed at promoting R&D expenditure amongst firms, such as R&D tax credits, exemption from tariffs, technical support and venture capital were subsequently adopted. This resulted in a shift of technology development to the private sector
- Currently, the Government has adopted a supporting role in the development of technology. The strategies taken towards technology development has been presented in the following pages

Government Strategy for Up-gradation of Technology in Taiwan



Tax Incentives Provided by Taiwan Government

Government provided a number of tax incentives to help Taiwan become a world leader in electronics. Tax incentives included income tax credits, grants, loans etc.

- Development programs implemented by Taiwanese Government were specifically targeted on the integrated circuit and computer related components and products. Some of the **incentives to promote R&D** were:
  - 10-20% income tax credit for R&D investments
  - 50% funding or loans for major targeted investments
  - up to 60% matching grants for training programs
- Government subsidized 30% of the expense needed for product development of the following eligible product types:
  - products of strategically important emerging industries.
  - core technological products which are more advanced than the current technological levels in the country
  - products which have high market potentials and will provide support and stimulate other related industries
- A major incentive scheme in Taiwan was the “Statute for Upgrading Industries”. Some of the key terms are
  - companies are awarded rebates against tax of up to 20% of their investment in factory automation and environmental control, to be claimed over five years; for investments in R&D and employee education, the amount is up to 35%
  - companies categorized as "upgrade" industries can enjoy a sales tax rebate of up to 20% of the invested amount over 5 years
  - with the permission of the board, the invested company will enjoy tax free revenues resulting from new investment for 5 years
- Some of the **preferential tax policies** in Taiwan are as follows:
- Accelerated depreciation – Equipment and facilities for R&D, quality control, power saving or clean energy is allowed to have a two-year accelerated depreciation. The company is allowed to depreciate the asset for an additional year, if it has not yet been fully depreciated after 2 years
- Investments made in automation equipment is eligible for income tax deductions in the range of 5-20% of the investments for a period of 5 years
- Science-based industry – Beginning in January 2002, a company importing equipment for its own use may be exempt from business tax and tariffs for the item. This is subject to the condition that there is no domestic manufacturer of the same equipment and the Ministry of Economic Affairs endorses the import
- If the equipment is resold or used for other purposes other than its original use, within five years of being imported, the company will have to pay back the exempted tariffs and business taxes. However, if the equipment is resold to other companies in science parks, export processing zones, or to any other companies that fall in the science-based industry category, then the seller of the equipment will still enjoy the tariffs and business tax exemption
- Companies granted the status of ‘bonded’ goods manufacturers do not have to pay tariffs and business taxes for imported raw material. However, if their bonded goods are shipped outside the bonded areas, the companies will have to pay back the tariffs and taxes

Other Government Measures

The Government also took other measures in order to develop the human resources and R&D capability of country

- **Human resource measures:** In order to improve the quality of human resources in Taiwan, the Bureau of Employment and Vocational Training together with the Industrial Development Bureau (IDB) and various academic organizations decided to provide in-service and pre-service training aimed at providing workers with skills to succeed in emerging industrial sectors
- Between 1991 and 1995, 120,000 professional engineers received such training; and between 1996 and 2003, nearly 40,000 engineers underwent industrial technical training
- Other measures aimed at enhancing the human resource pool in Taiwan include,
  - increasing the maximum period of stay of qualified Chinese technicians in Taiwan to 6years
  - increasing the ceiling for employment of technical personnel at innovative R&D centres to 20% of the total workforce
  - assisting manufacturers with investment plans valued at NT$ 200 million or more in recruiting foreign workers; and establishing institutes to foster talent in semiconductor and digital content industries
- **Utilization of land for industrial purposes:** In order to meet requirement of land for industrial use, provisions were included in the Statute for Encouragement of Investment,1960 and Statute for Upgrading Industries, 1991 to assist Government and private sectors in obtaining, planning and developing land for industrial use
- In addition, Government of Taiwan established 3 science based industrial parks a 1,058 hectare park in Hsinchu, a 1,609 hectare park in southern Taiwan, and a 402 hectare park in central Taiwan, to facilitate the development high technology industries. Export oriented industries were also given similar benefits with the creation of export processing zones in Kaohsiung, Taichung, Pingtung and Yunlin
- Further, programs which enabled companies to pay subsidized rent were provided. The schemes provide a 2 year land rent exemption in industrial zones followed by two years of 40% rent discounts, and two years of 20% discounts
- The IDB also played a leading role in establishment of the Mailiao Industrial Harbour, which was developed and managed entirely by the private sector. Inaugurated in 2001, freight traffic through the harbour grew rapidly exceeding 43 million metric tons in 2003, up 30% from the year before



Tax

Appendix 3

Direct Taxes (1/2)

Overall tax rates in China are lower than India

	India	China
Corporate tax rate	Domestic companies - 33.99% Foreign companies - 42.23%	Domestic companies and Foreign companies - 25% (Earlier Domestic companies were taxed at 33% while FIEs were taxed at 15%) A transitional period is allowed wherein tax incentives already approved will be allowed till 2012 High technology companies - 15% Small & thin profit companies - 20%
Minimum Alternate Tax (MAT)	If a firm's tax liability is less than 10% of book profits, the book profits are deemed to be total income and are levied tax at 10%. The effective MAT rate is 11.33%, including 10% surcharge and 3% education cess. MAT credit for the amount of MAT in excess of regular taxes can be carried forward for up to 7 years	
Fringe Benefit Tax	33.99% on the defined value of fringe benefit provided	
Dividend tax	16.995%	Withholding tax of 10%
Capital taxes	In addition to income tax, all companies must pay a 1% wealth tax on the aggregate value of specified assets net of debt secured on, or incurred in relation to those assets. This tax applies to amounts that exceed INR 1.5 million of specified assets.	None
Taxes on interest income	Taxed at same rates applicable to companies. However, tax to be deducted at source at 20%(plus applicable surcharge and cess)	Reduced from 20% to 5%. Interest earned on certain loans given to the Government or state banks is exempt.

Direct Taxes (2/2)

Real asset capital gains are taxed according at differential rates according to the gains made in China while in India it is at the same rate irrespective of the overall amount of gain

	India	China
Capital gains	<table><tr><th></th><th>Stocks sold on a recognised stock exchange</th><th>Stocks not sold on a recognised stock exchange</th><th>Other assets</th></tr><tr><td>Long term capital gains</td><td>-</td><td>22.66%</td><td>22.66%</td></tr><tr><td>Short term capital gains</td><td>16.995%</td><td>33.99%</td><td>33.99%</td></tr></table> Long-term capital gains of foreign institutional investors on assets acquired in foreign currency and sold on stock exchanges are now exempt from tax provided they have been subject to Securities Transaction Tax (STT); their short-term capital gains are now taxed at 15% (plus applicable surcharge and cess) Gains from the sale of a long-term capital asset are exempt from capital gains tax if they are reinvested in certain securities within six months and locked in for 3 years. The 2007-08 budget placed a ceiling of INR 5 million in a financial year on the capital gains eligible for such investment and relief, applicable from April 1st 2007 The only eligible securities at present are bonds issued by the Rural Electrification Corp issued on or after April 1st 2006 The 1999-2000 budget relaxed the conditions for carrying forward the accumulated loss and unabsorbed depreciation in mergers. For a merger between two foreign companies, one of which holds shares in an Indian company, there is no liability for capital gains on the transfer of shares if 25% of the shareholders of the amalgamating foreign company remain shareholders of the resulting foreign company	Withholding tax of 10% on capitals gains on income sourced in China However, qualified foreign institutional investors (QFIIs) are exempt from taxes on the capital gains of their securities holdings to encourage more international demand equity and debt. A provisional exemption from withholding tax applies to net gains from a transfer by an FIE or foreign national of B-shares or shares in a Chinese enterprise listed overseas Real-Property Gains Tax (RPGT) Provisional Regulation, introduced the following tax rates: 0% for gains up to 20% of the original purchase price; 30% for gains equaling up to 50%; 40% for gains equaling 51-100%; 50% for gains equaling 101-200%; and 60% for gains exceeding 200%. <u>Exceptions:</u> Agreements entered into before 1January 1994 - exempt Owner-occupied residential unit where the resident has occupied for > 5 years – fully exempt occupied > 3 years – 50% exempt Occupied for < 3 years – subject to full tax

Excise Rates

Excise duty rates have been reducing over the years in India. China does not have an excise tax

Excise duty rates

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Air conditioners	32%	24%	24.48%	24.48%	24.48%	16.48%	14.42%
Television	16%	16%	16.32%	16.32%	16.32%	16.48%	14.42%
Washing machine	16%	16%	16.32%	16.32%	16.32%	16.48%	14.42%
Refrigerator	16%	16%	16.32%	16.32%	16.32%	16.48%	14.42%
Mobile phones	16%	16%	16.32%	16.32%	16.32%	16.48%	14.42%
Toys	16%	16%	16.32%	16.32%	16.32%	16.48%	14.42%

* The rates of excise duty have been presently reduced to 8.24% for most of the items noted above. This is a temporary excise sop provided by the GoI in order to arrest economic slow down

Excise duty rates for inputs

	2006	2008
Plastic	16.48%	14.42%
Aluminium	16.48%	14.42%
Copper	16.48%	14.42%
Zinc	16.48%	14.42%

* The rates of excise duty have been presently reduced to 8.24% for most of the items noted above. This is a temporary excise sop provided by the GoI in order to arrest economic slow down

- Excise duty is levied by central Government on manufacture of movable and marketable goods in India
- The manufacturer is allowed to take credit of excise duty paid on locally sourced goods and the Additional Duty of customs on imported goods. Excise duty on raw material and packing material is eligible for setoff. Government has been steadily reducing excise duty rates, with a view to encourage indigenous manufacture of goods
- Education cess of 2% and secondary higher education cess of 1% are also leviable on excise duty payable on the transaction
- On procurement of raw material from outside the State, sales tax was at 4% against form C in the year 2002. At present, central sales tax (CST) rate is 2%. CST paid on the procurement is not available for setoff and is a cost. In addition, some States have entry tax in the range of 1% to 5% on raw material
- Under the VAT regime, VAT paid on purchases within the State is eligible for VAT credit. The present VAT rates are 4 and 12.5%

Manufacture in Special Zones

Manufacturing in special zones like SEZs, EOUs or excise free zones in India entitles the manufacturers to tax exemptions and holidays thus reducing the overall tax burden

Area	Explanation
Manufacture in SEZs	For manufacture in SEZ for sale in domestic tariff area, the rate would equal to custom duty rate plus applicable excise rate. However, SAD of 4% is exempt. The duty differential duty works out to 5% compared to import & sale. However, the raw material and packing material required for manufacture are exempt from excise, customs, CST and VAT However, imports vis-à-vis SEZ supplies fall on par. There is no duty differential.
Manufacture in Excise Free Zones	In case, unit is set up in the duty free zones like HP and North eastern States, excise duty is either exempt or refunded to the manufacturer. The manufacturer, however, has to pay excise duties on raw material and packing material. In effect, manufacture in excise free zone is comparatively advantageous than other location. The distribution of the goods attracts VAT/CST as well as entry tax in some States
Manufacture in EOUs	Goods cleared from 100% EOU unit for sale in domestic tariff area attracts concessional basic duty (i.e. 50% of customs duty) plus applicable local taxes EOU unit can clear the goods into domestic tariff area up to 50% of the FOB value of the exports. The procedure for clearance is not easy to manage and the requirement of having a positive Net Foreign Exchange (NFE) to sell in DTA are hindrances for DTA sale

Indirect Taxes (1/4)

Import duties on all the product categories have been reducing over the years. With the exemption of mobile phones which are taxed at 19.49%, all the other products under consideration are taxed at 31.71%

Customs duty rates

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Air conditioners	85.33%	67.65%	60.35%	53.59%	41.00%	34.13%	31.77%
Television	56.83%	56.83%	40.37%	36.74%	37.25%	34.13%	31.70%
Washing machine	56.83%	50.83%	40.37%	34.44%	36.73%	34.13%	31.70%
Refrigerator	56.83%	50.80%	40.37%	34.43%	36.74%	34.13%	31.70%
Mobile phones	38.74%	38.74%	34.44%	16.65%	21.31%	21.65%	19.45%
Toys	56.83%	56.83%	40.38%	34.44%	36.74%	37.25%	31.70%

Note: The rates above include basic customs duty, CVD, Education cess and Special additional duty.

* Rates of customs duty have been presently reduced to 12.83% for mobile phones and 24.42% for all the other items noted above. The reduction in customs duty is consequent to reduction in CVD which is linked to the excise duty. This is a temporary measure to arrest economic slowdown

- **India:** Customs or import duties are levied by the Central Government on goods imported into India
- 2007-08 budget reduced the peak rate of basic duty from 12.5% to 10%. CVD paid on imported inputs is available for set off
- The 2006-07 budget imposed additional customs duty of 4% on all products, with few exceptions (such as most petroleum products, precious metals, rough diamonds and fertilisers). In addition to the above duties, sales tax or VAT is levied on local sale which is as high as 12.5%
- For TVs, refrigerators and washing machines the trader can claim a refund of additional customs duty which is 4% on imports. In view of the refund, the effective duty incidence on the importer-trader is 26.64%. The effective tax incidence on consumer is, therefore, 40% to 45% at present
- For air conditioners traders are not allowed to take CENVAT or VAT credit as it has been classified as a luxury item instead of necessity. The effective tax incidence on consumer is, therefore, 40% to 50% at present

Indirect Taxes (2/4)

Import duties in China are also reducing ; Mobile phones and toys are exempt from import duties

Customs duty rates - China

Category	Before 1 June, 2007	After 1 June, 2007
Air conditioners	10%	6%
Refrigerator	10%	6%
Washing machine	10%	6%
Television	15%	6%

Customs duty rates - China

Category	2002	2003	2004	After 2005
Mobile phones	7%	-	-	-
Toys	10.5%	7.0%	3.5%	-

- **China:** Government has lowered the tariff rate of consumer durables by 40-50%
  - To aid production, provisional tariffs for 209 types of imported products were lowered to duty rates of 2-6% from 1 June 2007, including key parts and components such as compressors and parts for air-conditioning machines and refrigerators, parts for engineering machines, parts for television sets, etc
  - Certain products for daily use, including household appliances, would also enjoy lower provisional import tariff rates of 6-17%
  - Tariff rate of certain key components is even lower than 6%, e.g. the import custom duty is 3% for LCD Screen and 5% for PDP
- Since 2003, mobile phone (completed set) is exempted from customs duty. In recent years, China Customs and Ministry of Information Industry turned down the tariff rate of mobile phone components
  - Components of mobile phones enjoy lower custom duty rates at 6% since 1 June 2007
  - Toy imports been exempted from custom duty in China since 2005

Indirect Taxes (3/4)

While India has two VAT rates of 4% and 12.5%, China has a standard rate of 17% and a reduced rate of 13%

	India	China
Value added tax (VAT)	VAT paid on purchases within the State is eligible for VAT credit. The present VAT rates are 4 and 12.5% Input VAT credit can be utilized against VAT / CST payable on sale of goods. There would be no VAT on imports into the country. Exports are zero rated. This would mean that while the exports do not attract levy of VAT, inputs purchased and used in manufacture of export goods will be refunded	VAT is charged at a standard rate of 17%.Sale of certain necessity goods and the import of certain special equipment may be exempt from VAT or be subject to VAT at a reduced rate of 13%, as specified in the VAT regulations Except for commodities listed in the “Catalogue for Prohibited Commodities for Processing Trade” and those whose export VAT refund entitlement have been withdrawn, most types of goods that are manufactured and exported by foreign investment enterprises are effectively tax exempt under the “exempt, credit, refund” mechanism.

Indirect Taxes (4/4)

In addition to the other taxes, China has business and consumption tax

	India	China
Service tax	Service Tax is levied on specified taxable services rendered. The current applicable rate of service tax is 10% of the gross value of services rendered. In addition education cess and secondary and higher education cess of 3% is also leviable. This tax collectively sums up to 10.33% While in a vast majority of the cases, the liability to discharge the service tax liability is on the service provider, in certain types of services as in the case of Goods Transport Agency services or with respect to import of services where the service provider does not discharge the liability, the responsibility is on the service recipient Likewise, when any taxable services are availed from service provider abroad, the service recipient in India is liable to pay Service Tax	NA
Business Tax	NA	Business taxes are a tax category within the scope of turnover tax and taxes are levied on the basis of volume of business (sales volume) handled by taxpayer who engages in business activities. Currently applicable to only 9 project industries
Consumption tax	NA	Consumption tax is a new category of turnover tax. On the basis of a general VAT levy on commodities, consumption tax is further levied on a small number of select consumer goods mainly for the purpose of adjusting the consumption pattern, providing guidance to consumers and guaranteeing the country's financial revenue taxable items and tax rates Consumption is currently imposed on 14 categories of goods, including cigarettes, alcoholic beverages, certain luxury and environmental unfriendly items. It is not recoverable but is deductible as expenses for income tax purposes



Haier Case Study

Appendix 4

Haier History

Haier has grown from a nearly bankrupt producer of poor-quality refrigerators into China's number one domestic appliance manufacturer.

- Haier has grown from a nearly bankrupt producer of poor-quality refrigerators into China's number one domestic appliance manufacturer. Haier has attracted a great deal of attention both nationally and internationally
- Haier was officially established in 1984, although the history of the company dates back to 1955.The original plant involved a small collective commune group of artisans engaged in manual production under the governance of the local Government. In 1959, the commune was transformed into a corporative factory called the Qingdao Electrical Motor Plant
- After undergoing further transformations, Haier was founded as Qingdao Refrigerator Co. in 1984. The company then suffered from poor infrastructure, weak management, and lack of quality controls
- Zhang Ruimin, a former bureaucrat was appointed to run the factory and has been instrumental ever since in bringing about changes in Haier
- With the Chinese economy opening up, foreign corporations began searching for partnerships in China. One of these, Germany's Liebherr Group, entered into an agreement with Qingdao Refrigerator Co., offering technology and equipment to its Chinese counterpart to turn out quality refrigerators of its own brand
- Haier has thereafter invested heavily in brand building, diversification , export led growth and setting up of factories abroad to become a global player in the consumer durable Industry
- Haier's innovative management principles, such as Haier's OEC management model, "market-chain" management and "individual goal combination" – a system of assigning incentives-based responsibility to staff to ensure that high quality of products is delivered to customers have gained recognition among international management institutes
- Haier is now the world's 4th largest white goods manufacturer and one of China's Top 100 IT Companies. Haier has 240 subsidiary companies and 30 design centres, plants and trade companies and more than 50,000 employees throughout the world

Key Stages in Haier Development

Haier's established a leadership position in the domestic market before venturing into global markets

DEVELOPING A DOMESTIC QUALITY REPUTATION

After Haier was incorporated in 1984, it began to develop a reputation for its refrigerators. The company used a Total Quality Management system and rigorous standards to develop a strong brand name in China. Implementation of these new quality standards helped Haier to show profits only a year after facing the possibility of bankruptcy

DIVERSIFICATION

Haier then began to diversify its portfolio and expand its product offerings. It had already developed a brand name for its refrigerators in China and it started exploring for other products where it could leverage this brand name. Other appliances such as freezers, dishwashers, and microwaves were the first set of expansions

INTERNATIONALIZATION

Haier realized that to continue its growth, it needed to expand globally. It sought out opportunities to leverage its brand name and reputation for quality in both developed and developing countries

BRAND LOCALIZATION

Post 2006, Haier has started to localize its brand in each market

Domestic Quality Reputation

Quality and Innovation have been the key guiding principle of the Company

- Zhang Ruimin realised early in his career that the enterprise wont last long if it fails to focus on quality. In 1985, 76 faulty refrigerators were smashed to pieces (the hammer used is still displayed in Haier's exhibition hall. In those times, price of a refrigerator was equivalent to a worker's two year wage) This exercise drove the importance of quality amongst the company workers
- Zhang Ruimin helped the company achieve the status of top national branded refrigerator manufacturer within seven years. Some major achievements of Haier during this time were:
  - In 1988, the company won a gold medal for quality from the Chinese Quality Management Association
  - In 1990, it won the top Golden house Award for quality and the National Quality management Award
  - In 1991, its refrigerator was awarded the prized National Famous Brand Product
  - In 1992, it obtained ISO 9001 Certification and the American Underwriters laboratories Certification
- This strategy paid off during the price war caused by production overcapacity in the late 1980's and built a solid foundation for its later development
- As of June 2008, the company has been awarded 8333 patents, with 1996 for Haier design team inventions

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Diversification

Starting as a company which only manufactured refrigerators in 1984, Haier has not only became a leader in consumer durable industry but also diversified itself into other areas



* Indicative and not Comprehensive

- Starting as a company which only manufactured refrigerators in 1984, Haier has not only became a leader in consumer durable industry but also diversified itself into other areas like Pharmacy, Services, Software, Real estate, Communication and IT products
- Some part of the company's diversification was through a series of acquisitions of struggling Chinese companies, often at the request of local Governments. In 1997 Haier took over the failing Huangshan Electronics Group, manufacturing televisions to enter into the CTV market

Haier Internationalization

Haier's objective is to produce and sell one third of its total output in China, produce one third of its total output in China but export it to international markets, and manufacture and sell one third in foreign countries

INTERNAL DRIVING FORCES

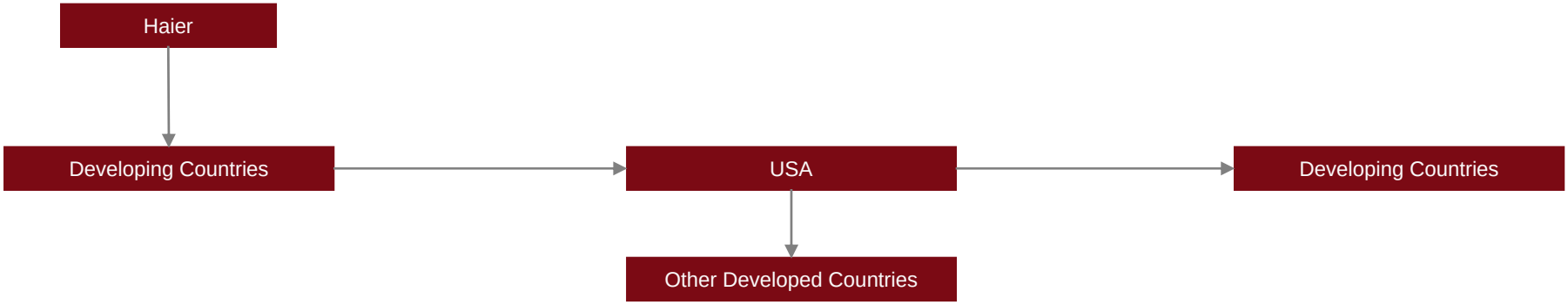
- Haier's objective to enlist itself in the Global 500 made them realise that trans-regional transactions of white home appliances would continue to decrease in the future due to high shipping cost. Hence having a regional manufacturing presence was important
- 3 × 1/3 International strategic objective.
  - Haier's objective is to produce and sell one third of its total output in China, produce one third of its total output in China but export it to international markets, and manufacture and sell one third in foreign countries (therefore, '3×1/3'). Haier has set a target of 25–30 per cent of the domestic market share for all types of home appliances
- Develop Haier's marketing networks internationally, particularly in USA, to build and develop Haier's brand reputation globally
- Access to technology and Quality
  - Set up research and development centres in developed countries such as USA and Germany

EXTERNAL DRIVING FORCES

- Haier's initiatives were encouraged and supported by the Chinese Government. Being an international player helped Haier gain favours that were not available to other Chinese companies. For instance, Haier obtained approvals to establish a finance company, to be the majority shareholder of a regional commercial bank and to form joint venture with an American insurance company
- Entry of global home appliance manufacturers into the Chinese market forced Haier to seek international expansion. In particular, since China joined the WTO, almost all international players have invested in China
- During the end of 2000, Haier's market shares in refrigerators, freezers, air conditioners and washing machines had reached 33, 42, 31 and 31 % respectively. Potential for further growth in domestic market was therefore limited and it started looking at the overseas market to drive its future growth

Haier Internationalization Path

Haier started out as a OEM Vendor and later entered various markets with its own brand



- Haier's strategy was to enter and tackle tougher markets (those in developed countries such as the USA and Germany) first before focusing on others. Once Haier had a strong foothold in developed Western markets and built its brand reputation, it started expanding into other markets from a strategically advantageous position
- Although Haier, as a Government-controlled organization, was barred from listing on the stock exchange, it found its way to Shanghai Stock Exchange by listing its subsidiary Qingdao Haier Refrigerator. The company raised nearly RMB 370 million in the offering, which it invested to increase its production capacity to cater to global markets
- Unlike traditional Chinese approach of setting up own marketing channels in every country, Haier used local distributors
- Upon entering a new market, Haier focuses on marketing one chosen product. Once this product is established, other products are launched to leverage on the brand reputation and recall

Key Success Factors

Haier was focussed on building its brand reputation globally

Haier international expansion strategy differs from those followed by majority of Chinese firms.Haier's CEO, Zhang Ruimin said, "The objective of most Chinese enterprises is to export products and earn foreign currency. This is their only purpose. Our purpose in exporting is to establish a brand reputation overseas"

CUSTOMER SATISFACTION

Haier places great emphasis on understanding what its customers want and quickly meeting their needs. Its large competitors were often slow in developing new ideas and meeting customer needs. Haier saw an opportunity to compete against them by gaining a better understanding of its customers and meeting their needs. When Home Depot requested Haier to equip its refrigerators with locks for cubicle and dorm room security, Haier responded immediately by developing a new model

SPEED TO MARKET

Access plus freezer is a typical example of quick response to meet consumer needs. The prototype of this model was developed the day after the idea was generated and the model was released into the market within ten months

LOCALIZATION

Haier understood that products that sell well in China need not necessarily succeed in United States. In order to understand what customers want and how to differentiate, Haier encourages its R&D personnel to directly talk to customers. R&D personnel also interview salespeople in chain stores to find out their specific needs. Its products for United States are produced locally in its South Carolina manufacturing plant and all design and development is done locally

DISRUPTIVE INNOVATION

Since competition was much more established and intense in developed countries, Haier scouted out segments that the market leaders had vacated or were not interested in serving because of thin profit margins or low volumes. For example, Haier realized that most of the customers who buy its compact refrigerators are college students. These students generally have very small rooms and apartments and have a need to conserve space. Haier designed a refrigerator with wooden flaps on the sides that can be folded to make a computer table

Key Implications for Indian Companies

Key learning for Indian companies from Haier are summarized below:

Key learnings from Haier for Indian companies include:

QUALITY FOCUS

- Continuous focus on quality and initiatives to consistently improve quality is key

INNOVATION

- Invest in R &D to innovate to stay competitive in the market. Innovation in product categories has been one of the key reasons for Haier to remain competitive against incumbents in the market. The Innovation capability of Haier can be best represented by the washing machine category where Haier produces washing machines of 5,000 different specifications under 18 categories

TARGET NICHE AREAS

- Haier did not compete head on with incumbent players in developed markets. It chose to enter into segments that other players did not cater to, thus establishing a market presence and building its brand. They leveraged this brand recognition later to compete with incumbent players

OEM TO BRANDED PLAYER

- Haier first understood the needs of consumers outside its home market by becoming an OEM for industry players in developed markets and later entering into these markets with its own brand

LOCALIZATION

- Firms keen on Internalization also need to understand that products that serve well in their home country need not be acceptable in other countries. They need to understand the importance of localizing products to suit the needs of customers in various regions



Key Chinese Player's Profiles

Appendix 5

Key Players Profile in China

Player	Business Area	Profile
Midea	RAC Refrigerator Washing Machine	▪ Headquartered in Shunde, Midea currently has around 70000 employees, with a dozen brands. It has ten major production bases in Guangzhou, Zhongshan , Wuhu , Wuhan , Huai'an , Kunming , Changsha , Hefei , Chongqing , and Suzhou covering a total area of seven million square meters ▪ Its marketing network covers all over China and has branches in United States, Germany, Japan, Hong Kong, South Korea, Canada and Russia
Haier	Refrigerator Washing Machine Room Air Conditioner TV Mobile Phone	▪ Haier has 240 subsidiary companies and 30 design centers, plants and trade companies and more than 50,000 employees throughout the world ▪ In China, Haier's 4 leading product categories - refrigerators, refrigerating cabinets, air conditioners and washing machines - have over 30% market share ▪ Haier has set up production facilities and plants in the USA, Italy, Pakistan, Jordan and Nigeria
Hisense	TV (Hisense) RAC (Kelon, Hisense) Refrigerator (Rongshen)	▪ Sales revenue of Hisense in 2007 increased to USD 6.7 billion (RMB46.9 billion), ranking Hisense among the top 10 electronics manufacturers in China ▪ In 2001, Hisense Electric Co., Ltd was granted the first "National Quality Management Award". All Hisense products, including TVs, air-conditioners, computers and mobile phones, are famous brands in China. Hisense TVs, air-conditioners and refrigerators are commodities exempt from inspection due to the high quality level recognized by the Chinese Government. ▪ Around the world, Hisense has production bases in South Africa, Hungary, France, and sales offices in the USA, Europe, Australia, North Africa and Japan. Hisense products are exported to over 100 countries and regions throughout the world

Key Players Profile in China

Player	Business Area	Profile
Nokia	Mobile phones	▪ China is Nokia’s second largest market next only to the US. In 2007 Nokia's sales volume in China amounted to 4.5 billion Euros ▪ Nokia has now invested USD 2.3 billion in eight joint ventures employing 5,000 workers on the Chinese mainland ▪ It has also built the largest cell phone production base in Beijing, calling it Xingwang (International) Industrial Park
Motorola	Mobile phones	▪ Motorola has a large GSM market share in China, and has also managed to obtain a share of China's rising CDMA (Code Division Multiple Access) market ▪ In the next five years its annual production value will reach USD 10 billion. Its accumulated investments will touch USD 10 billion and its accumulated procurement value USD 10 billion in China. The Motorola Research and Development Company will at the same time spend USD 500 million on research, development and new equipments in China ▪ The largest customers for Motorola are China Mobile in mainland China
Changhong	Television, Air conditioner, refrigerator	▪ Established in 1958, Changhong is one of the largest Chinese consumer electronics player specializing in R&D, manufacturing and marketing of consumer electronics products ▪ Changhohng has four R&D and manufacturing bases located in Mianyang, Zhongshan, Nantong, and Changchun in China

Key Players Profile in China

Player	Business Area	Profile
Mattel	Toys	▪ Mattel utilizes mainland China as the manufacturing base for its wide range of products. Mattel mainly source from Guangdong province.
Hasbro	Toys	▪ Hasbro utilizes Guangdong province as the manufacturing base in China for its wide range of products
RC2 corporation	Toys	▪ RC2 Corporation utilizes Dongguan City, Guangdong province as the manufacturing base in China for its wide range of products

Key Players Profile in China

Player	Business Area	Profile
Gree	RAC	▪ The Group's principal activities are manufacturing and selling air-conditioners and related components ▪ Domestically Gree has manufacturing locations in Zhuhai, Chongqing, Hefei ▪ Around 75% of Gree's annual production are supplied to domestic market
Little Swan	Washing machines, refrigerator	▪ The Group's principal activities are manufacturing and selling washing machines, air conditioners, refrigerators, air conditioner and other household appliances ▪ The Group operates solely in China
TCL	TV, Mobile phone	▪ TCL Corporation was founded in 1981, and today is one of China's largest consumer electronics corporations operating on an international scale ▪ With 2007 global sales of USD 5.8 billion, and serving more than 100 million consumers worldwide, TCL Corporation is comprised of four business units -- Multimedia, Communications, Home Appliances and Techne Electronics

Key Players Profile in China

Player	Business Area	Profile
Skyworth	Televisions	▪ Skyworth has 8 TV production lines currently in Shenzhen, with total annual TV output of 3 million sets and more than 2,000 workers ▪ Skyworth produces nearly 50 different models of TV, mainly including CRT TV, Flat Screen Colour TV, Super Slim CRT TV, Plasma TV, Rear Projection TV, and LCD TV, all of which are exported to over 85 countries and regions around the world every year. Skyworth has been China's top OEM and ODM TV exporter since 1995 ▪ Skyworth has 3 R&D centers in Shenzhen, Hong Kong and Beijing
Konka	Television, mobile phones	▪ Established in 1980, The Konka Group is China ' s first Sino-foreign joint consumer electronics enterprise manufacturing and distributing its own brand of prime quality products ▪ It has five major manufacturing plants in the North-East, North-West, South, East and South-West of China, and has established production bases in India, Indonesia, Mexico and recently in Turkey

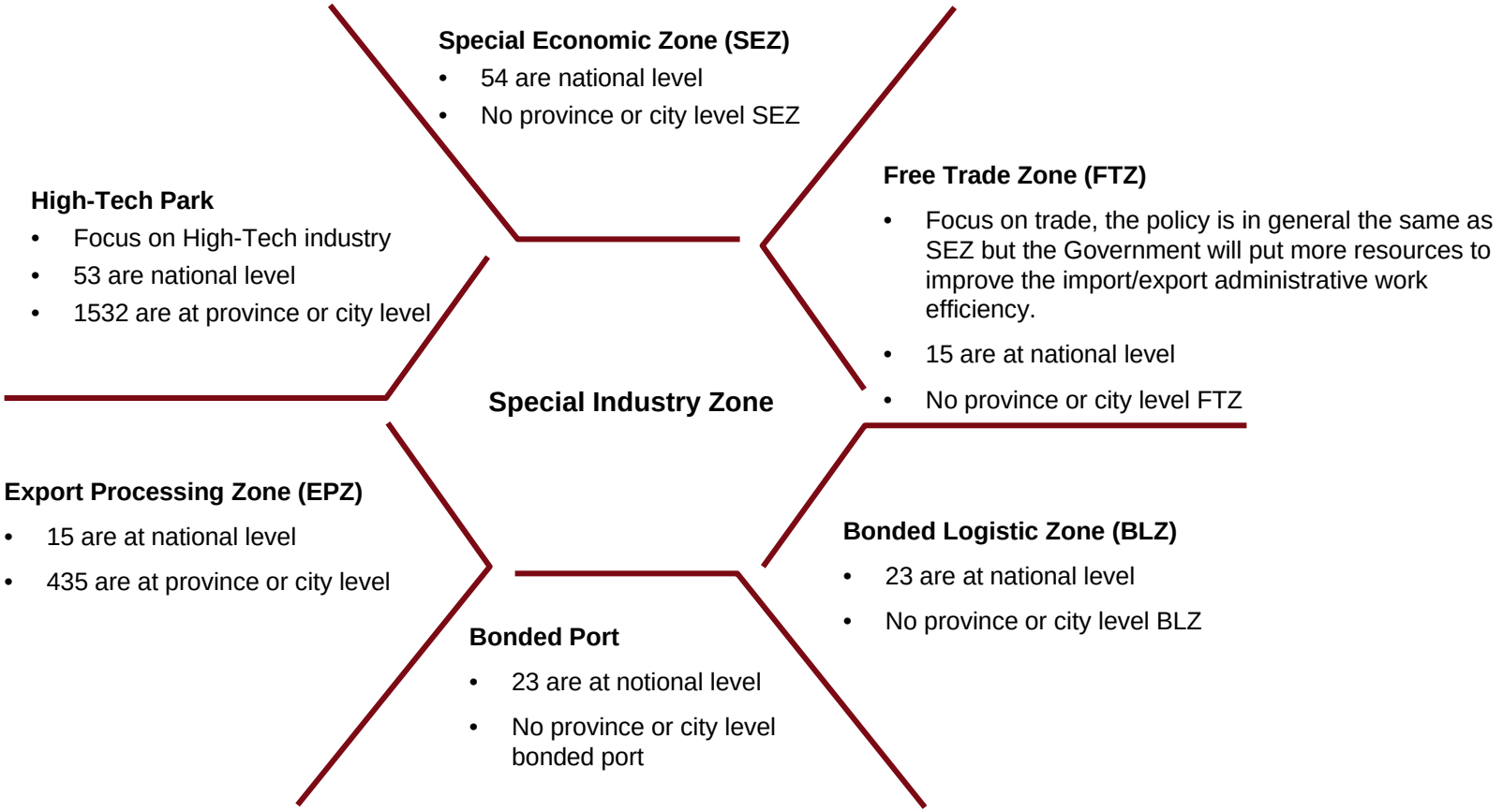


SEZs in China: Additional Details

Appendix 6

SEZs in China

Besides 54 national level SEZs, there are also a number of industry zones spread in various cities of China. Though They are not called SEZs, they have some similar benefits like SEZs



Appendix 6 - SEZs in China: Additional details

Special Economic Zones –Snapshot for Key Features

SEC Engines	Year of Establishment	Advantage	Export (2007, Million USD)	Pilot Industry	FDI (2007, Million USD)	Access Policy to domestic market
Pearl River Delta (Shenzhen as the pilot)	1980th	Near Hong Kong First SEC, mature environment	51,150	Telecommunication; apparel and footwear; consumer goods; house hold appliance	1,986	
Hainan island	1988	Island with natural scene Near South East Asia	263	Travel; apparel and footwear,	161	
Yangzi River Delta (Shanghai Pudong as the pilot)	1990th	Shanghai is the finance center in China High quality talents	62,638	High-tech, industrial machining, shipping, consumer goods, house hold appliance	4,318	Products can be sold into domestic markets, but no tax benefit
Bohai Rim (Tianjin, Beijing, as the pilot, etc)	2000th	Beijing is the politics center in China High quality talents	19,549	Consumer Goods, house hold appliance, chemical products	2,932	
Chongqing & Chengdu	2007	The hub in the southwest part of China	1,560	Agriculture products, consumer goods,	348	

Special Economic Zones – Snapshot for Consumer Durable Sectors

SEC Engines	HP	Toy	TV	Room Air Conditioner	Refrigerator	Wash Machine	Remarks
Pearl River Delta (Shenzhen, Guangzhou, etc)	Base for Domestic Brand like Konka	The toy manufacturing hub in China	Base for Domestic Brand like Konka	Base for Domestic Brand like Midea	Base for Domestic Brand like Midea	Base for Domestic Brand like Midea	Covers 6 industry sectors, base for domestic players and NMCs
Hainan island	None	Minority	None	None	None	None	Not a manufacturing hub
Yangzi River Delta (Shanghai Pudong as the pilot)	Base for International brand like Nokia	The second largest toy manufacturing hub in China	Base for International Brand like Panasonic	Base for International Brand like Fedders	Base for International Brand like Siemens	Base for International Brand like Panasonic	Covers 6 industry sectors, base for domestic players and MNCs
Bohai Rim (Tianjin, Beijing, Shandong Peninsula, etc)	Base for International brand like Motorola	Minority	Base for Domestic Brand like Haier and Hisense	Base for Domestic Brand like Haier and Hisense	Base for Domestic Brand like Haier and Hisense	Base for Domestic Brand like Haier and Hisense	Covers 5 industry sectors except toys, base for domestic players
Chongqing & Chengdu	Not well developed yet	Low end products, mainly not for export	Base for Domestic Brand like Changhong	Base for Domestic Brand like Changhong	Base for Domestic Brand like Changhong	Base for Domestic Brand like Changhong and Haier	Covers 5 industry sectors, base for domestic players as Changhong

Shenzhen SEZ

Shenzhen, which was the first SEZ to be set up in China, has been very successful and accounts for one-seventh of China's total exports; It houses 1/4th of global fortune 500 companies

SHENZHEN SEZ:

- Shenzhen was the first SEZ set up in China in 1979. In 1979, Shenzhen had only 26 factories with an industrial output of less than USD 10000
- By 1999, Shenzhen had a GDP of approximately USD 14 billion growing at an annual rate of 32%. As of 2005, Shenzhen accounted for one-seventh of China's total exports. Shenzhen currently houses operations of over 120 Global Fortune 500 companies
- Shenzhen was successfully able to attract FDI on account of its good infrastructure and Government incentives. For instance, output from foreign invested firms accounted for more than 40% of Shenzhen's GDP
- In terms of infrastructure development, Shenzhen Port is the 4th largest container terminal in the world with a volume of 16.2 million TEUs in 2005

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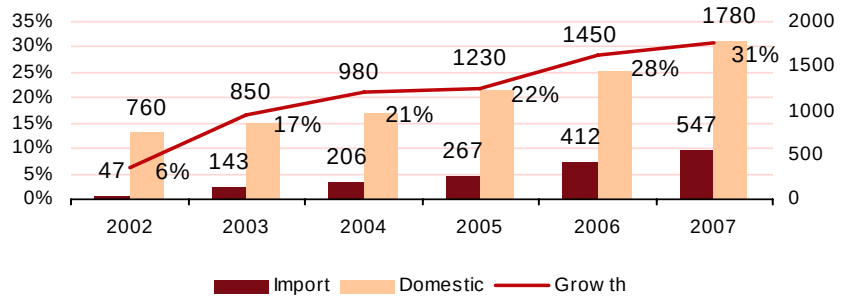
Trends in Consumer Durables

Appendix 7

Air Conditioners - India

Imports of RACs have increased from 6% of the domestic market in 2002 to 31% in 2007; India's RAC imports from China increased by over 230% during 2005-06

India - Import vs Domestic



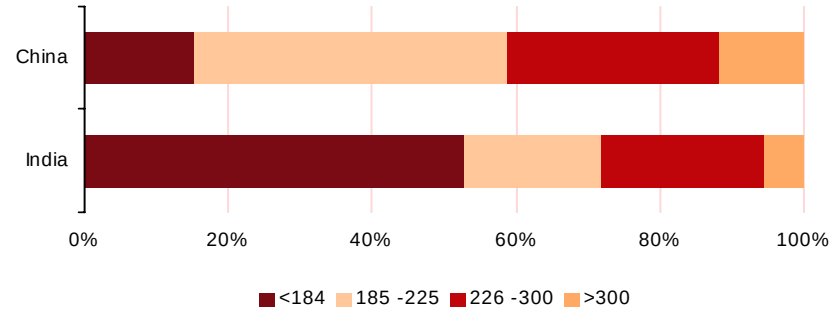
Source: DGFT, PwC Analysis

- Growth in imports in Indian RAC market in recent years has been led by growing demand for split RACs. While window RACs form 46% of the domestic market in India, Window AC's have almost been withdrawn from the Chinese market and its production is mainly for exports
- High capital cost along with traditionally low volumes have led to insufficient manufacturing capacity in India. Hence almost 40% of the split RAC requirements were imported in 2005-06
- Split RAC being higher in value terms overtook Window AC's in overall volumes sold in 2007. This has led to a higher growth in value terms for the overall RAC market in India
- The imports of RACs have increased from 6% in 2002 to 31% of the domestic market in 2007; Since 2004, stringent European norms forced China to build up huge inventories. This coupled with growth demand in India saw a 230% growth in import of Split Ac's from China during 2005-06

Refrigerators Market Trends in India and China

Consumers preferences are moving towards frost free segment and high end categories in both India and China

Segment wise break-up [By Capacity]



CHINA

- The high value frost free segment is gaining popularity in China with 48% being frost-free in 2006 compared to 35% in 2001
- 70% of the refrigerators sales in China were of double-door top freezer model
- Energy savings influence consumer choice when buying refrigerators as refrigerators consume over 1/5th of total household power consumption

INDIA

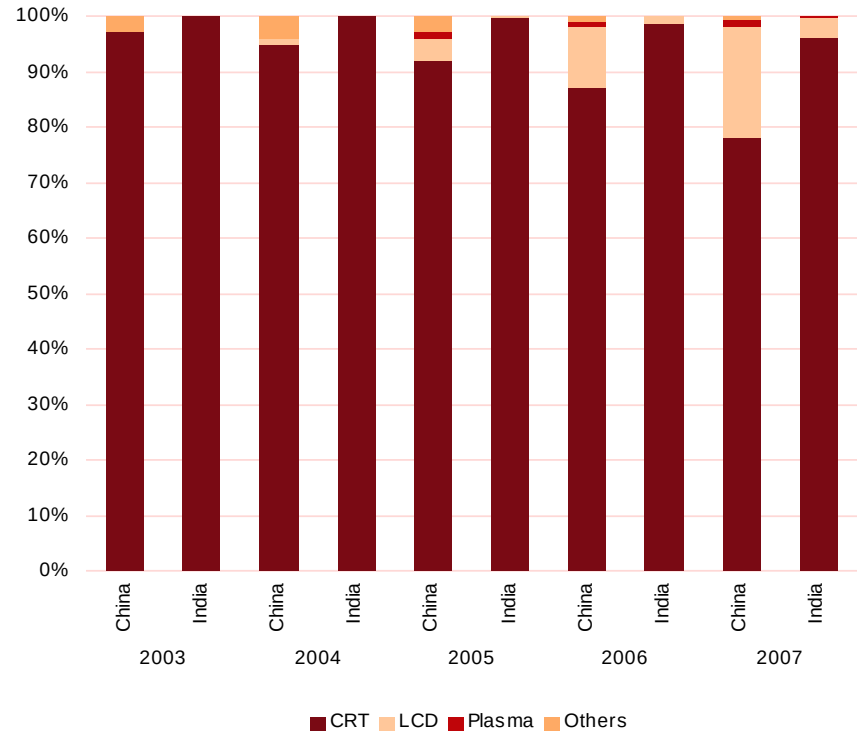
- There has been a gradual consumer preference shift towards frost free segment with its market share doubling from 14 to 28% over the past five years. In rural areas, where power cuts are frequent, consumers still prefer direct cool refrigerators

Source: White book of China's Refrigerator Industry (2006), CRISIL , PwC Analysis

Television Market Trends in India and China

There is an increasing shift towards LCD and high end technology television in both India and China

Break-up by type of television



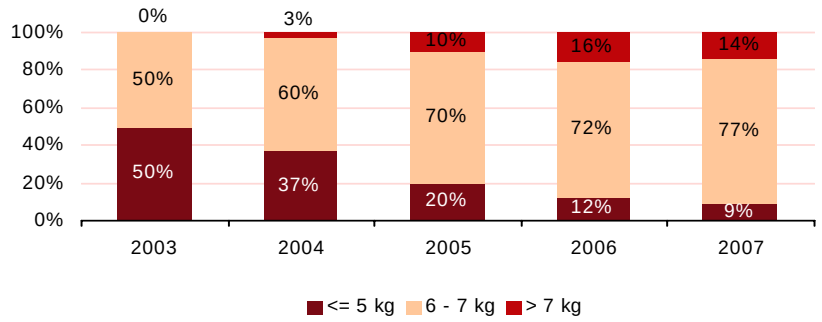
- Indian television market has been witnessing a trend in terms of migration to flat screen televisions with sales of flat screen televisions witnessing a growth of 15%
- Another trend that has been observed in the Indian market is the high growth of LCD screen television. LCD TVs have scored over plasma screen models in popularity in the Indian retail market, mainly on account of their competitive prices
- It has been observed that most of the first time buyers of TVs prefer conventional CRT TVs while replacement buyers and second set buyers prefer to buy LCD and Plasma TVs
- In China, transition from conventional CRT TVs to more technologically advanced TVs like LCD screen TVs is happening fast with non-CRT TVs accounting for 22% of the market in 2007
- A major trend that has been observed in China is that manufacturers of LCD TVs are trying to backward integrate by setting up LCD panel plants. Currently 2/3rd of LCD panels is imported

Source: Sino Market research

Washing Machine Trends in India

Consumer preferences are increasingly shifting in favour of higher capacity washing machines and also towards fully automatic washing machines. A large proportion of the demand is from replacements buyers in urban areas

India : Break-up by capacity of washing machine



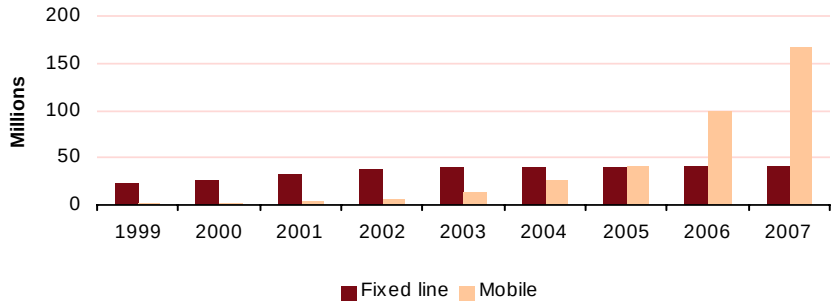
Source: CrisInfac

- There is an increasing consumer preference for higher capacity washing machines both in India and China. Another trend being noticed is for fully automatic washing machines
- In India, there has been a gradual increase in the share of fully automatic washing machines and currently they account for 50% of the washing machine sales while semi-automatic account for the rest
- Another trend that has been noticed is consumer preference in favour of higher capacity washing machines. The share of 6-7 kg capacity washing machines and over 7 kg washing machines are rising in the product mix
- This shows that while overall demand is increasing, a large proportion of this demand is arising from replacement buyers in urban areas

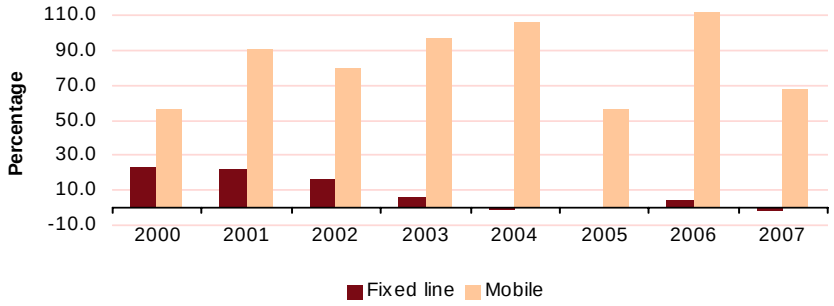
Mobile Phone Trends in India

Demand for mobile phones has experienced a huge growth during the last few years. This is at the expense of stagnant and negative growth in fixed line phones

Fixed and mobile phone subscribers



Growth in fixed and mobile phones



Source: Indiastat, TRAI, PwC Analysis

Shift from landline to mobiles

- India's mobile phone subscribers surpassed fixed telephone subscribers in 2005. The mobile subscription base grew at a CAGR of 85.26% between 2000 to 2005 while the fixed landline base grew at a CAGR of 8.5% over the same period
- The main reasons for this shift from landlines to mobile phones are as follows:
  - Delays and waiting time required for a fixed land line and the ease of getting a mobile connection have prompted many first-time phone users to go for a mobile phone rather than the land line
  - As individual members of the household get mobile connections for themselves, the landline connection becomes obsolete prompting many consumers to surrender existing landline connections
  - Pre-paid mobile connections offer low-income households with a high degree of control over their telephone expenses which is not possible with landlines
  - Increasing number of small businessmen using a mobile connection as their office contact number rather than a landline as it provides greater accessibility



Others

Appendix 8

Primary Research

We interviewed the following companies/associations as part of the study

OEM'S		INDUSTRY ASSOCIATIONS
INDIA		INDIA
Philips Electronics India Ltd.	Samsung India Private Ltd.	CEAMA - Consumer Electronics and Appliances Manufacturers Association
Mattel Inc.	Carrier India Ltd.	
Kyocera Wireless (India) Pvt. Ltd.)	Funskool India Ltd.	ICA – Indian Cellular Association
CHINA		TAI – Toy Association of India
Whirlpool (China) Investment Co., Ltd.		
Inventec Appliance Corporation (IAC)		
Haier Electronics Group Co., Ltd		
MANUFACTURERS		**DISTRIBUTORS**
INDIA		INDIA
Polygenta Technologies Ltd.	Tecumseh India Pvt. Ltd.	MobileNxt Teleservices Pvt. Ltd.
FoxConn India Pvt. Ltd.		United Tele Links Bangalore Ltd.
CHINA		Lifestyle International Pvt. Ltd.
Ningbo Hicon International Group Co., Ltd		Reliance Retail Limited
ITM Toy (H.K.) Co. Ltd		
Shanghai Haixin Toys Co., Ltd		
Haixin Toy Group Co Ltd		

Manufacturing Process – For a Typical Stuffed Toy[1]

Manufacturing process for a typical stuffed toy can be broken down into seven key processes

1 Selection of Design

- The first step involves selection of design along with shape and size. If possible a close looking prototype is chosen
- A shell made out of knitted pile fabric is selected

2 Cutting of Patterns

- The shell is cut into different patterns
- Latter different pieces are cut out from the pile fabric roll which match the pattern obtained by the shell and basically make the shape of the toy

3 Stitching of Patterns

- The patterns are stitched together using sewing machines

4 Fixation of Eyes, nose etc

- The stitched pattern is then turned inside-out and eyes, nose etc are fixed

5 Stuffing

- Polyester staple fibre is stuffed into the stitched pattern and closed
- Voice chips can optionally be placed before closing

6 Cleaning

- The stuffed toy is then brushed and cleaned

7 Packaging

- Suitable packaging is outsourced or done in house if required

[1] Adapted from Indian Toy Industry [Study by TAI, Mahesh C Purohit]

Manufacturing Process – Small Scale vs. Large Scale[1]

Large Scale units employ better quality machines and more sophisticated testing equipments to provide a comparatively better finish and meet the stringent requirements of International standards.

1 Selection of Design

- Research and Design are the key strength of the LSI units. They are able to make an investment due to the economies of scale involved, while SSI units cannot afford to do so

2 Cutting of Patterns

- While cutting of the shell is done by fire cutting method in a SSI set up, the LSI players use brake press with the help of cutting/dies to obtain a uniform shape, multiple cuts on a single stroke, and a better finish

3 Stitching of Patterns

- Majority of the LSI players use sewing machines imported from Japan / Korea which are much faster and smoother than the indigenous sewing machines used by SSI players

4 Fixation of Eyes, nose etc

- The Eyes and Nose buttons are fixed with hydraulic / pneumatically operated machines by LSI players in contrast to the manual fixing methods adopted by the SSI units

5 Stuffing

- The Ginning of Polyester fibre is done manually in a SSI setup
- The stuffing of toys which are manually done in SSI units are done by pneumatic machines in LSI players

6 Cleaning

- Similar function is carried out by both SSI and LSI players

7 Packaging

- Similar functions are carried out by both SSI and LSI players

[1] Adapted from Indian Toy Industry [Study by TAI, Mahesh C Purohit]

Cost of Ownership and Substitutes

Cost of ownership and substitutes in India and China follow similar patterns

Consumer durable	Price	Recurring costs	Dependence on power	Perceived utility	Availability of alternatives
Mobile phones	Low - Medium	Medium	Low	High	Landlines
Air conditioners	High	High	High	Moderate	Air coolers Fans
Washing Machines	High	Medium	Moderate	Low	Cheap domestic help
Refrigerators	Medium	Medium	High	China: High India: Moderate	No
Televisions	Medium	Low	Medium	High	Printed Media
Toys	Low	Low	N.A.	Low	No

Toy Manufacturing in China

There are more than 8000 manufacturers to supply raw materials and finished goods in China

Major Toy bases in China

Guangdong Province
Total manufacturers : more than 5000
Main export category: plush toy, electronic toy, plastic toy
Export value in 2005: USD 11.934 billion
Jiangsu Province
Total manufacturers : more than 700
Main export category: plush toy
Export value in 2005: USD 850 million
Zhejiang Province
Total manufacturers: more than 1000
Main export category: wooden toy, baby bicycle
Export value in 2005: USD 871 million
Shanghai
Total manufacturers: more than 700
Main export category: baby bicycle, stroller
Export value in 2005: USD 549 million
Shandong Province
Total manufacturers: more than 550
Main export category: plush toy
Export value in 2005: USD 367 million

Export destination, 2006

Rank	Destination	Export value (million USD)
Top 1	USA	6,553
Top 2	Germany	1,469
Top 3	Holland	1,055
Top 4	England	1,040
Top 5	Japan	718
Top 6	France	230
Top 7	Russia	216
Top 8	Australia	213
Top 9	Spain	175
Top 10	Union of East	139

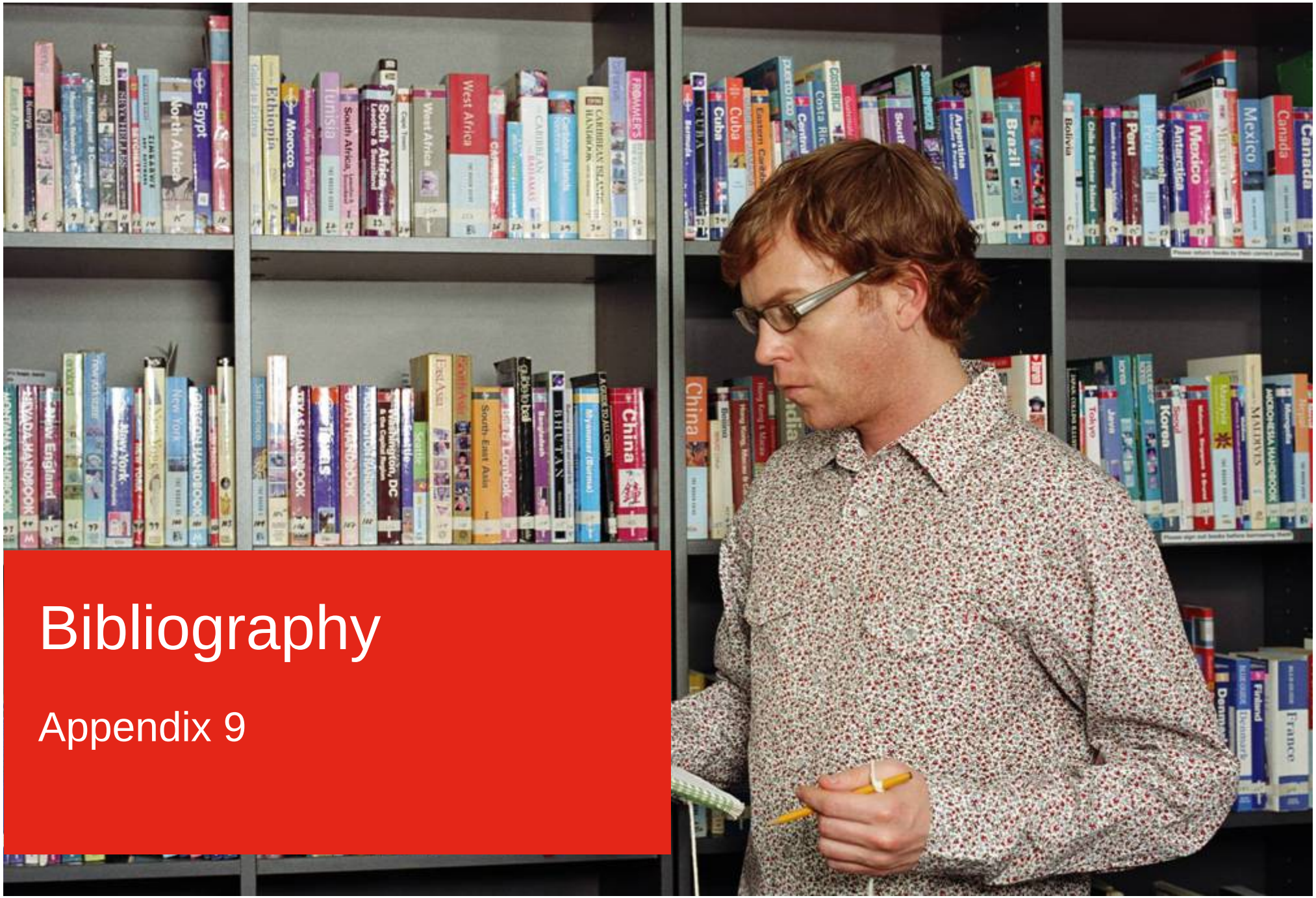
Source: China Toy Association

- By the end of 2007, the total export value reached 20 billion USD for toys 'made in China' and the rank is 1st in the world
- There are over 8,000 manufacturers in toy sector
- The top foreign trade partners are respectively USA, Europe, Japan, Australia and ASEAN

Trends in Demand Drivers

Similar trends in demand drivers are noticed in both India and China – lowering consumer price levels, low cost of ownership, reducing attractiveness of substitutes, increasing household income, rising interest rates, population and social trends that favour consumption of consumer durables

Drivers	Comments		
Consumer price levels	Manufacturers produce products of varying quality and price points to address different target consumers and increase overall demand. High competitive intensity between manufacturers has kept appliance prices at lower levels. This has also increased product penetration and product replacement demand	↓	↓
Cost of ownership	Costs of ownership, such as running costs and product-life, impact original and replacement demand. The cost of ownership is going down due to companies concentrating on increasing energy efficiency and also improving product quality which has further extended the product-life	↓	↓
Substitutes	Substitutes for products such as washing machine are less attractive now to reduced availability of low cost labourers in cities where it is most often used	↓	↓
Household income	Households earning higher incomes tend to spend more on durables. The household incomes are showing a strong positive upward trend due to high economic growth witnessed in both the countries	↑	↑
Interest rates	The level of interest rates impact consumer spending in this industry. The interest rates are going up in both the countries as discussed earlier	↑	↑
Population growth	Higher population growth and urban rural split typically generate greater demand for consumer durables. While India has a higher population growth compared to China, the urban rural split is increasing at a faster rate in China	↑	↑
Social trends	For example, increase in the average number of working women with children in both countries has improved demand for time-saving appliances. Overall social trends in both countries have increased the demand for consumer durables and toys	↑	↑



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Appendix 9

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Glossary

Appendix 10

Terms and Abbreviation Explanation

Term	Definition
3C	Chinese Compulsory Certification
BOM	Bill of Material
CAGR	Compound Annual Growth Rate
CBU	Completely Built Units
CDMA	Code division Multiple Access (One of the commonly used mobile phone communication standard)
CENVAT	Central Value Added Tax
CKD	Completely Knocked Down
COP	Cost of Production
CRT	Cathode Rode Tube
CVD	Countervailing Duty
DOIT	Department of Industrial Technology
DTA	Domestic Tariff Area

Terms and Abbreviation Explanation

Term	Definition
EER	Energy Efficiency Ratio
EHTP	Electronics Hardware Technology Parks
EMS	Electronic manufacturing services
EOU	Export Oriented Units
FDI	Foreign Direct Investment
FIE	Foreign Invested Enterprise
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GSM	Global System for Mobile communications (Most commonly used mobile phone communication standard)
HDTV	High Definition Television
IDB	Industrial development Bureau
Industrial network clustering	Industrial clusters are defined as groups of related firms located in one geographical region or centred within one of a nation's science-based parks

Terms and Abbreviation Explanation

Term	Definition
INR	Indian Rupees (Currency of India)
IP	Intellectual Property
LCD	Liquid Crystal Display
LME	London Metal Exchange
M & A	Merger and Acquisition
MNC	Multi National Companies
MOEA	Ministry of Economic Affairs (China)
MOST	Ministry of Science and Technology (China)
MP3	A digital audio encoding format used for consumer audio storage, as well as a de facto standard encoding for the transfer and playback of music on digital audio players.
NFE	Net Foreign Exchange Earnings
NHTDE	New and High technology development enterprise
NPL	Non Performing Loans

Terms and Abbreviation Explanation

Term	Definition
ODM	original design manufacturing
OEC	Overall Every Control and Clear, indicating that overall control and supervision of every employee every day. A management technique used in Haier
OEM	Original Equipment Manufacturer
PCB	Printed Circuited Board
PDP	Plasma Display Panel
PF	Provident Fund
PPP	Purchasing Power Parity
R & D	Research and Development
RAC	Room Air Conditioners
RBI	Reserve bank of India
RMB	Renminbi (Currency in China)
RPGT	Real Property Gains Tax

Terms and Abbreviation Explanation

Term	Definition
SAD	Special Additional Duty
SEZ	Special Economic Zones
SHME	Shangai Metal Exchange
SKD	Semi Knocked Down
SOE	State owned Enterprise
STIP	Science and technology industry parks
TAE	Technologically Advanced Enterprises
TWTM	Taiwan Technology Marketplace
USD	US Dollars (Currency of USA)
VAT	Value Added Tax
WTO	World Trade Organization
YoY	Year on Year

About NMCC

The National Manufacturing Competitiveness Council (NMCC) has been set up by the Government of India to provide a continuing forum for policy dialogue to energize and sustain the growth of manufacturing industries in India. NMCC suggests various ways and means for enhancing the competitiveness of manufacturing sector including identification of manufacturing sectors which have potential for global competitiveness; current strengths and constraints of identified sectors, and recommend National level industry/sector specific policy initiatives as may be required for augmenting the growth of manufacturing sector

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PricewaterhouseCoopers Pvt. Ltd. (www.pwc.com/india) provides industry - focused tax and advisory services to build public trust and enhance value for its clients and their stakeholders. PwC professionals work collaboratively using connected thinking to develop fresh perspectives and practical advice. Complementing our depth of industry expertise and breadth of skills is our sound knowledge of the local business environment in India.

PricewaterhouseCoopers is committed to working with our clients to deliver the solutions that help them take on the challenges of the ever-changing business environment.

PwC has offices in Ahmedabad, Bangalore, Bhubaneshwar, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai and Pune.

About FICCI

FICCI (www.ficci.com) is an association of business organizations in India, headquartered in the national capital New Delhi. With a nationwide membership of over 1500 corporates and over 500 chambers of commerce and business associations, FICCI espouses the shared vision of Indian businesses and speaks directly and indirectly for over 2,50,000 business units.

FICCI positions itself as the proactive business solution provider through research, interactions at the highest political level and global networking.