The testing of product life cycle using Korean manufactured goods*

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Many Korean top managements (marketing and production) know the concept of the product life cycle very well. However the theory has been remarkably unemployed in strategic marketing and production planning.

The concept of the product life cycle is today at about the stage that the Copernican view of the universe was 300 years ago; a lot of people know about it but hardly anybody seemed to use it in any effective or productive way.[1]

The product life cycle has had great popularity in marketing literature in recent years. The concept has been used extensively as a framework for product management, strategic planning, cost and financial aspects, retailing, purchasing, international trade, for linking manufacturing to manketing and forecasting.

The purpose of this paper is to test the validity of PLC using Korean manufactured goods, suggest some ways of using the concept effectively and of turning the knowledge of its existence into a managerial instrument for planning the strategy of profitable product exploitation.

Since PLC concept has been explanined somewhat differently by different scholars, it is

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* This paper was presented at the Pan Pacific Conference, Seoul, Korea, May 12+15, 1985.

1) Theodore Levitt, "Exploit the product life cycle." *Harvard Business Review*, November-December, 1965, pp. 94~107.

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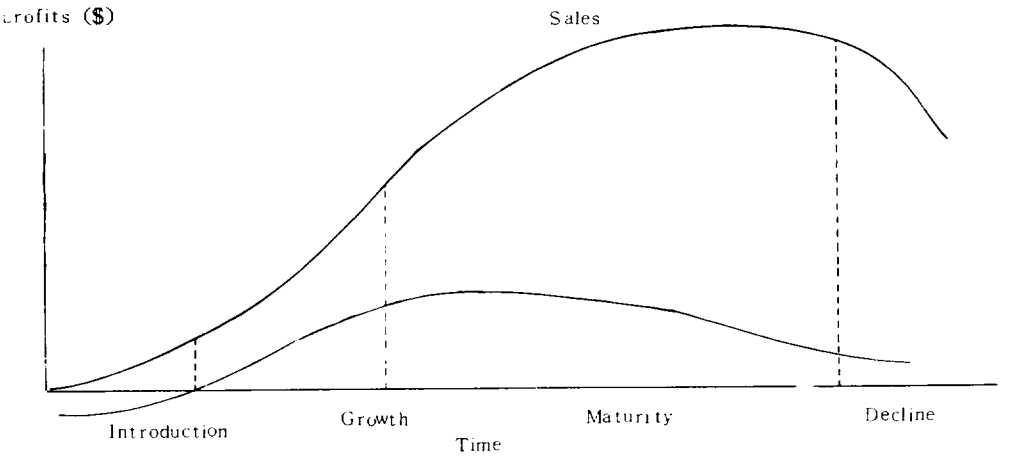
useful to review it briefly here.

THE LIFE CYCLE CONCEPT

The life cycle of a product has much similarities with biological life: the product is born, grows, gets a dynamic maturity, they goes into its declining stages as the biological life is born, become old, sick and die.[2]

The cycle has been described as an S-shaped curve as illustrated in Figure 1. This curve is typically divided into four phases: introduction, growth, maturity, and decline.[3]

Sales and Profit Life Cycles



The following discussion examines the overall strategy that should be followed for the product during each of four phases.

2) This concept was intensively developed by Raymond Pearl in The Biology of Population Growth (New York: Alfred A. Knopf, 1925)

3) George C. Michael distinguished additional phases: Maturity is a stage of sales growth slowdown. Saturation is a stage of flat sales after sales have peaked. A phase of petrification follows decline if sales again stabilize at some low but positive level. "Product Petrification: A New Stagein the Life Cycle Theory", California Management Review, fall 1971, pp.88~91.
Rolando Polli and Victor Cook identified 5 phases in the Product Life Cycle; market development, rapid growth, turbulence, maturity and decline. "Validity of the Product Life Cycle," *Journal of Business* (October, 1969), pp.385~400.

The Introduction phase

When a product is newly appeared in market, it has little, if any, direct competition. Therefore, the primary objective of the company at this phase is to attract a sufficient number of purchasers to justify continued expenditures for product research and development and for the creation of a long-term distribution structure.

The company concentrates its communication expenditures on persuading the public that it should purchase the type of product in question, it is not especially concerned whether customers actually buy its product.

This strategy, called primary demand stimulation, is well illustrated in RCA's early advertismeents for color television, which stressed the benifits of color television in general with only minor mention of the manufacturer. During introduction, the firm must monitor its financial position closely. Although prices maybe very high during this phase, marketing and production costs will also be elevated, so the product will probably lose money.

The profit curve, Figure 1 shows profits as almost nonexistent in this phase because of the heavy expenses of product introduction.

Many good products have failed to reach the market because the manufacturer was not able to raise the required short-term capital to successfully launch and maintain the product.[4]

Buzzell identified four causes for slow growth of many processed-food products in his article.

1. Delays in the expansion of production capacity
2. Technical problems (working out the buys)
3. Delays in making the product available to customers, especially in obtaining adequate distribution through retail outlets
4. Customer reluctance to change established behaviour pattens.[5]

Kotler put two additional factors for retarding sales growth in the case of expensive new products.

1. Small number of buyers who are attuned to innovations

4) William H. Cunningham and Isabella C. M. Cunningham "Marketing a managerial approach" 1981 by South-Western Publishing Company, Cincinnati, Ohio p.234.

5) Robert D. Buzzell, "Competitive Behaiour and Product Life Cycles," in New Ideas for Successful Marketing, ed. John S. Wright and Jae. L. Godstrucker (Chicago; American Marketing Association, 1966) p.51.

2. High cost of the product inhibits purchase.[6]

The growth phase

If the product have survived the introductory phase, sales volume will go climbing on the curve of PLC. The early innovators will continue their purchasing and a large number of conventional consumers will begin to follow their lead, if there is favorable word of mouth.

During this second stge, many new firms enter the market and many products have died because engineering or research tinkered with product design so long that competitors pre-empted the market by the time production got under way.

Demand is so strong that volume is more important than product quality at this phase. Because the industry can't supply all of the products that are needed, prices remain high. This is a period of high and sharply rising profits for manufacturer, distributor, and retailer.

Marketing decisions of great future importance are made in this phase. During this phase, it is critical for the firms long-term prosperity that it establish a strong dealer structure to help support the product when prices fall in the future. During this phase, the firm tries to sustain rapid market growth as long as possible by several ways:

1. The firm undertakes to improve product quality and add new features and models.
2. It vigorously searches outnew market segments to enter.
3. It keep its eyes open to new distribution channels to gain additional product exposure.
4. It shifts some advertising copy from building product awareness to trying to bring about product acceptance and purchase.
5. It decides when the time is right to lower prices to attract the next layer of price-sensitive buyers into the market.[7]

The Maturity phase

In the third phase, the product is mature, dependable in performance, reasonably priced, and does not change much from year to year. Sales volume may even fall off because everybody now owns one so sales are largely dependent on replacements or on population gains. B/W TV sets and radios have gone through these stages.

Industries based on important innovations seem to take up to 30 years to reach maturity

6) Philip Kotler, *Marketing Management*. 4th edition. 1980 Prentice-Hall, Inc. Englewood Clifs, New Jersey 07632 p. 294.

7) same reference as footnote 6, p. 296.

although the pace is sometimes quicker, as has recently occurred in the case of semiconductors and microcomputers.

As volume rises, the market becomes increasingly saturated, a product's rate of salesgrowth will slow down, the product will enter a stage of relative maturity. Generally speaking, at this point all competitive products are reliable and there is less and less to choose between them. Improvements in the product tent to be small, with selling features or style changes dominat. Profit margins begin to slip during this phase, despite rising vloume.

The maturity phase can be devided into three phases. The first phase is called growth maturity.

Here, the rate of sales growth starts to decline because of distribution saturation.

The second phase is stable maturity, when sales become level on a per capita basis because of market saturation.

Most potential consumers have tried the product, and future sales are governed by the rate of population growth and replacement demand.

The third phase is decaying maturity. The absolute level of sales now starts to decline as some of the customers move toward other products and substitutes.[8]

The Decline phase

Finally, most products come to a fourth phase, the decline in demand. The decline may be slow or rapid.

Sales decline for a several reasons: technical advances, changes in fashion or tastes and the lower costs of imported products.

As sales and profits decline, the firms want to withdraw from the market to invest their resources in more-profitable areas. The firms should identify the weak products and eliminate at the proper time. Carrying a weak product is very costly to the firm:

Theweak product tends to consume a disproportionate amount of management's time.

It often requires frequent price and inventory adjustment.

It geneally involves short production runs in spite of expensive setup times.

It requires both advertising and sales-force attention that might better be diverted to making the "healthy" products more profitable.

Its very unfitness can cause customer misgivings and cast a shadow on the company's image.[9]

8) same reference as footnote 7.

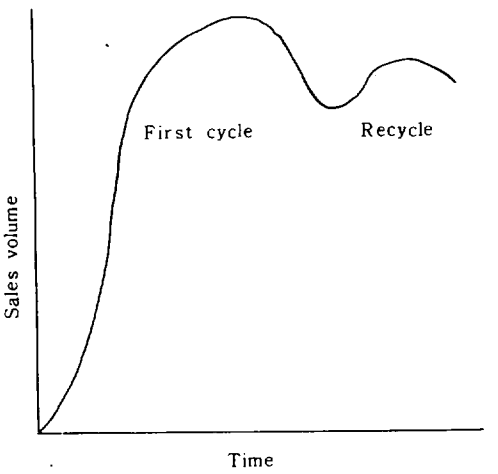
9) Philip Kotler, " Phase out weak products," *Harvard Business Review*, March-April 1965 p. 109.

To identify the weak products, Kotler proposed to establish a system involving six steps:

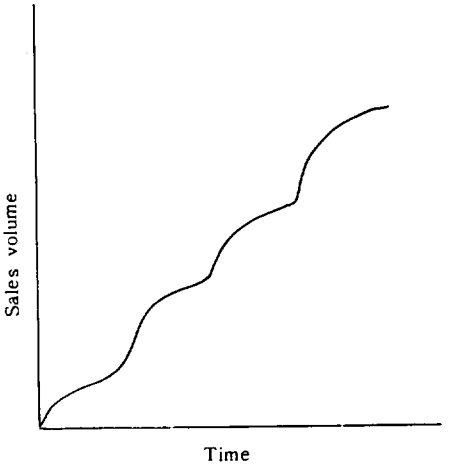
1. A product-review committee is appointed with the responsibility for developing a system for periodically reviewing weak products in the company's mix. This committee includes representatives from marketing, manufacturing, and the controller's office.
2. This committee meets and develops a set of objectives and procedures for reviewing weak products.
3. The controller's ofice supplies data for each product showing trend sin market size, maketshare, prices, costs, and profits.
4. This information is run against a computer program that identifies the most dubious products. The criteria include the number of years of salesdecline, market-share trends, gross profit margin, and return on investment.
5. Products put on the dubious list are then reported to those managers responsible for them. The managers fill out diagnostic and prognostic rating forms showing where they think sales and profits on dubious products will go with no change in the current marketing program and with their recommended changes in the current program.
6. The product-review committee examines the product-rating form for each dubious product and makes a recommendation (a) to leave it alone, (b) to modify its marketing strategy, or (c) to drop it.[10]

Types of Product Life Cycles

As mentioned earlier in this paper, PLC has been described as an S-shaped curves illustrated in Figure 1. However, there are several other life cycles.



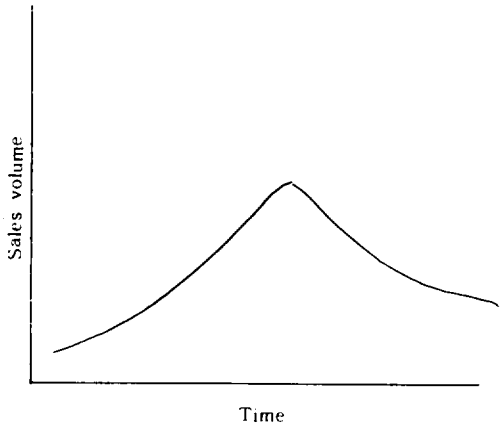
Cycle-recycle pattern



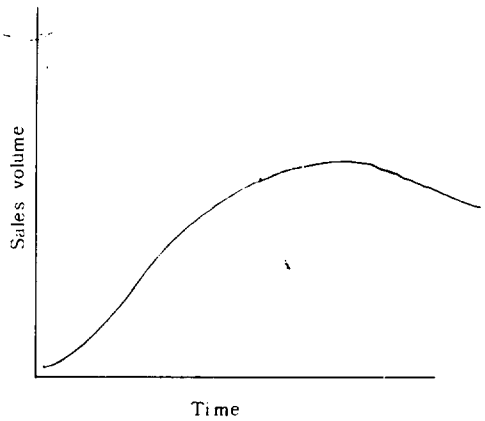
Scalloped pattern

10) same reference as footnote 9, pp. 107-18.

Source: P. Kotler. Principles of Marketing. 1980. by Prentice-Hall. Inc., Englewood Cliffs. N. J. 07632, p. 347.



Source: Chester R. Wasson, "How Predictable are Fashion and other Product Life Cycle." Journal of Marketing. Vol. 32. No. 3 (July. 1968). p.38.



Source: E. Douglas. Economics of Marketing. Harper & Row. 1975, p. 442.

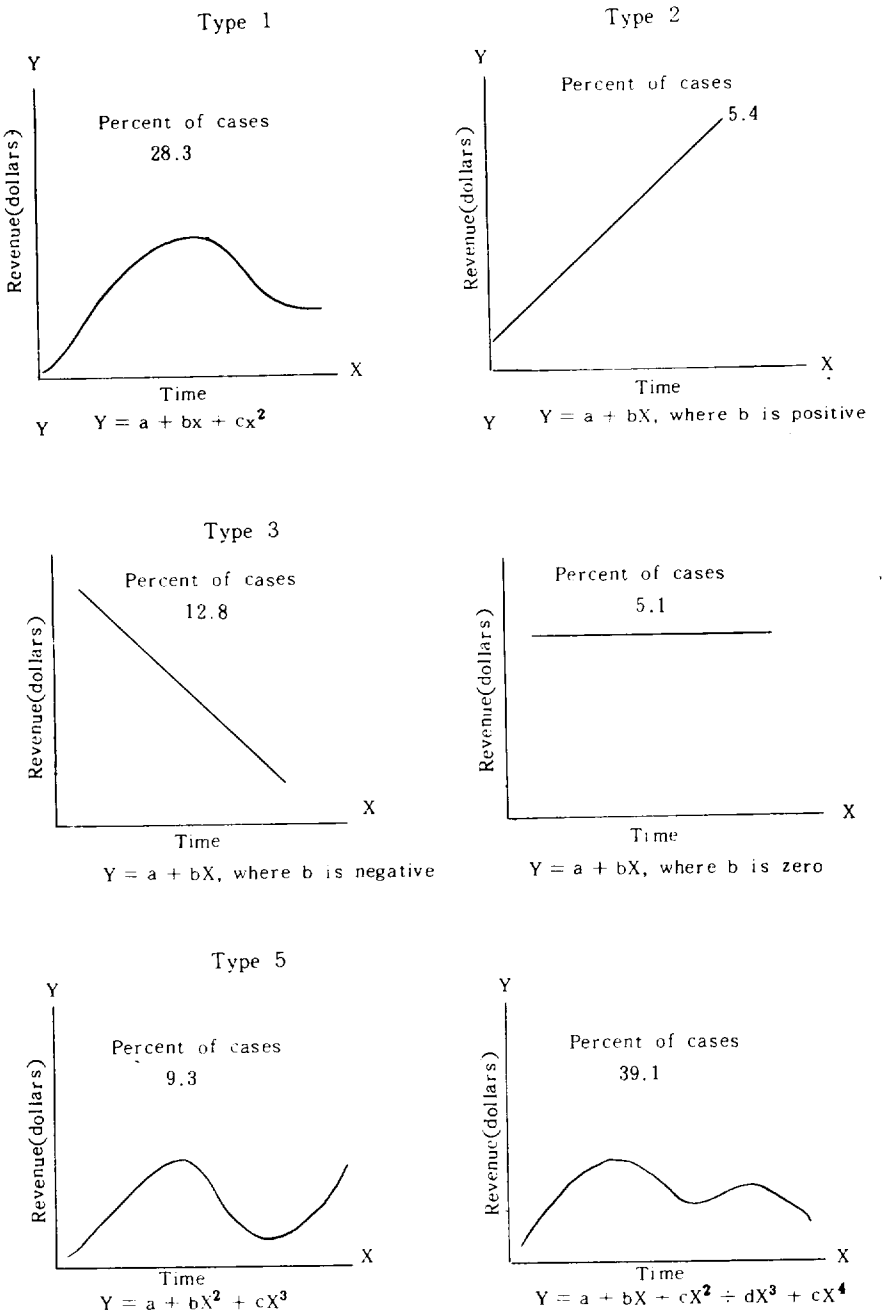
With Cox studying 258 ethical-drug products from 1950 to 1960 in the U.S.A. he provided 6 descriptive curves,mathematical equations for each curves and the percentage of the total products described by each curves.

These are shown in Figure 2[11]

The concept of a PLC is useful because it appears to bring a neatness to strategic planning. Figure 3 shows implications of the PLC for marketing decision making.

11) William E. Cox, Jr., "Product Life Cycles as Marketing Models," *Journal of Business*, vol. 40. no. 4 (October 1976), pp. 375~84.

Figure 3. Types of Product Life Curves for Ethical Drug Products



Source: William E. Cox., Jr., "Product Life Cycles as Marketing Models," Journal of Business, vol. 40, no. 4 (October 1967), p.382.

Figure 4. Suggested Implications of the Product Life Cycle for Marketing Strategy

Effects and Responses	Stages of the PLC			
	Introduction	Growth	Maturity	Decline
Competition	None of importance	Some emulators	Many rivals competing for a small piece of the pie	Few in number with a rapid shakeout of weak members
Overall Strategy	Market establishment ;persuade early adopters to try the product	Market penetration ; persuade mass market to prefer the brand	Defense of brand position; check the in roads of competition	Preparations for removal; milk the brand dry of all possible benefits
Profits	Negligible because of high production and marketing costs	Reach peak levels as a result of high prices and growing demand	Increasing competition cuts into profit margins and ultimately into total profits	Declining volume pushes costs up to levels that eliminate profits entirely
Retail prices	High, to recover some of the excessive costs of launching	High, to take advantage of heavy consumer demand	What the traffic will bear; need to avoid price wars	Low enough to permit quick liquidation of inventory
Distribution	Selective, as distribution is slowly built up	Intensive; employ small trade discounts since dealers are eager to store	Intensive; heavy trade allowances to retain shelf space	Selective; unprofitable outlets slowly phased out
Advertising strategy	Aim at the needs of early adopters	Make the mass market aware of brand benefits	Use advertising as a vehicle for differentiation among otherwise similar brands	Emphasize low price to reduce stock
Advertising emphasis	High, to generate awareness and interest among early adopters and persuade dealers to stock the brand	Moderate, to let sales rise on the sheer momentum of word-of-mouth recommendations	Moderate, since most buyers are aware of brand characteristics	Minimum expenditures required to phase out the product

Consumer sales and promotion expenditures	Heavy, to entice target groups with samples, coupons, and other inducements to try the brand	Moderate, to create brand preference (advertiaing is better suited to do this job)	Heavy, to encourage brand switching, hoping to convert some buyers into loyal users	Minimal, to let the brand coast by itself
Sales	Low	Fast growth	Slow growth	Decline
Cash flow	Negative	Moderate	High	Low
Customers	Innovative	Mass market	Mass market	Laggards
Mktg. expenditures	High	High(declining %)	Falling	Low
Product Design	Limited number of models: frequent product modifications	Expanded number of models; frequent product modification.	Large number of models; design change only at times of annual model introduction.	Constant pruning unprofitable models.
Communications	Primary demand Stimulation, publicity and personal selling important.	Selective demand stimulation; large amount of mass promotion.	Selective demand; large amount of mall promotion and dealer promotions.	Reduced Communication expenditures; no sales or dealer promotions

Source: Nariman K. Dhalla and Sonia Yuspeh. "Forget the Product Life Cycle Concept!" Harvard Business Review. vol.54. no. 1 (january–February 1976). p.104.
: Peter Doyle. "The Realities of the Product Life Cycle." Quarterly Review of Marketing. summer 1976. pp.1–6.
: Adapted from Chester R. Wasson. Dynamic Competitive Strategy and Product Life Cycles (Austin. Texas: Austin Press. 1978). pp.256–257.

Modeling the product life cycle using Korean manufactured goods

The PLC is a quantitative expression of unit sales volume of a specific product from introduction to decline.

Kotler pointed out that the PLC concept should be defined with respect to whether the product is a product class (cigarettes), a product form (plainfilter cigarettes), or a brand (Philip Morris regular nonfilter).[12]

12) same reference as footnote 10. p.292.

I used the data for a number of products having the most diverse life cycle pattern to construct a mode.

I developed the PLC to provide a tool for evaluating potential success (or failure) of new product. In a business where the risk of failure on new product introductions has historically been about 50–60% depending upon how one defines failure, any tool for decreasing the probability of failure would be most welcome. Perhaps equally important was need to be able to predict the timing and magnitude of turning points of a successful product introduction. The PLC model was used to determine when and at what levels a relatively recent new product introduction would peak.

I'd like to trace the life cycle of several product with which we are familiar; TV, tobacco, soju (liquor), electricfan, sugar, oil, ramyeon (food), ginseng, refrigerator, tape recoreder, piano.chewing gum, dried milk, mixer, monosodium glutamate.

Only 10,000 B/W TV sets were first produced by Gold Str company in Korea, in 1966. However, 1,450,000 B/W TV sets were produced in 1974. 29,000 Color TV sets were produced by A–nam company and all of the color TV sets were exported in 1974.

Korea Survey (Gallop) polls Ltd. showed that 94.8% of Koreanhouseholds have TV set. and 5.3% of Korean households do not TV set till July, 1984. 55.2% of Korean households have Color TV 93.8% of Color TV household have a Color TV set, 5.7% of Color TV households have two Color TV sets, 0.5% of them have three Color TV sets.

Figure 5 and 6. show the percentage of Color and B/W TV in Korea

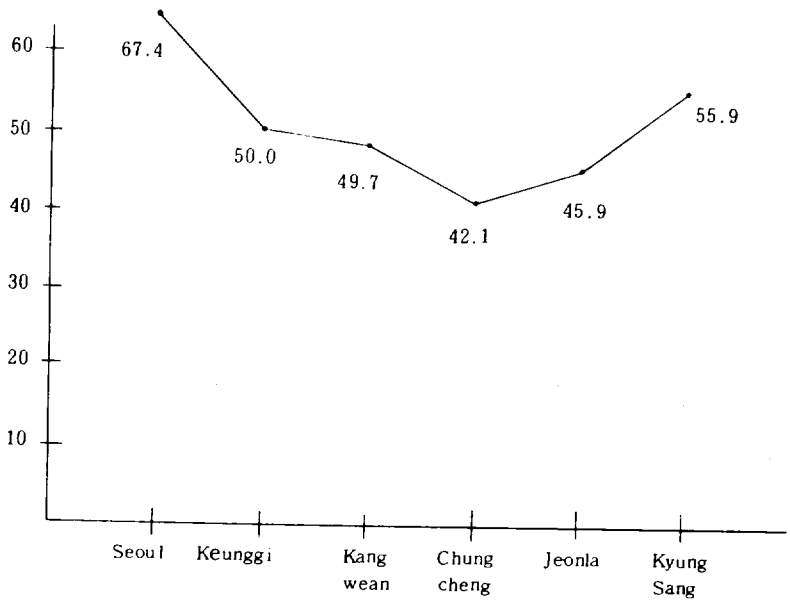


Figure 6.

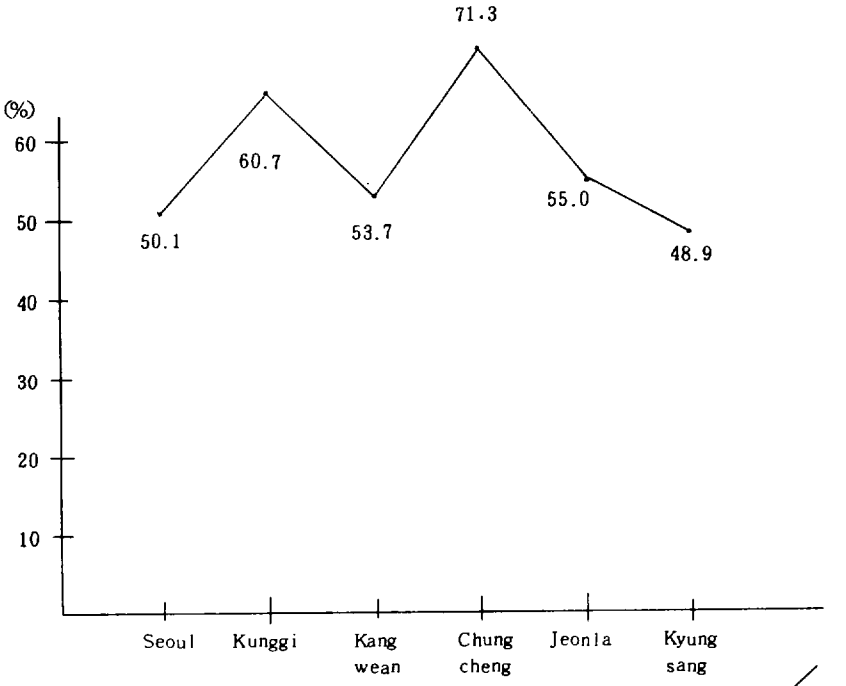


Figure 7.

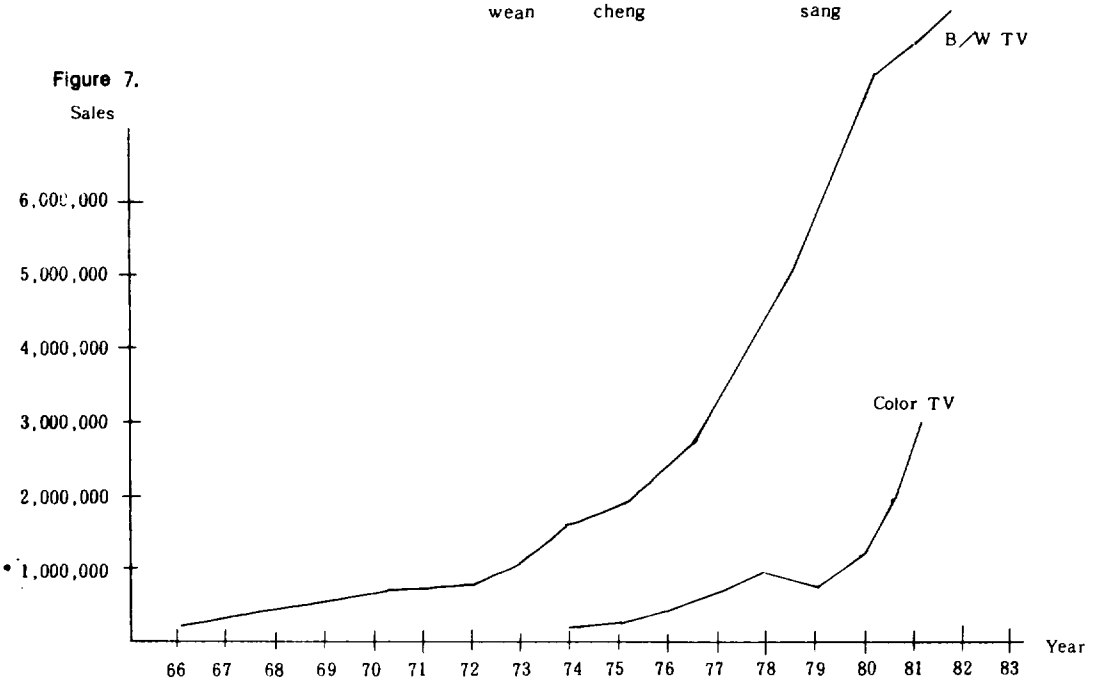


Figure 8. Diffusion rate of B/W TV in Korea

Year	NO. of household (unit: 1,000)	NO. of B/W TV diffused (set)	% of diffused B/W TV per household (%)
1969	5.475	220,000	4.0
1972	6.208	905,000	14.6
1976	6.833	2,810,000	41.1
1977	7.008	3,800,000	54.2
1978	7.256	5,135,000	70.8

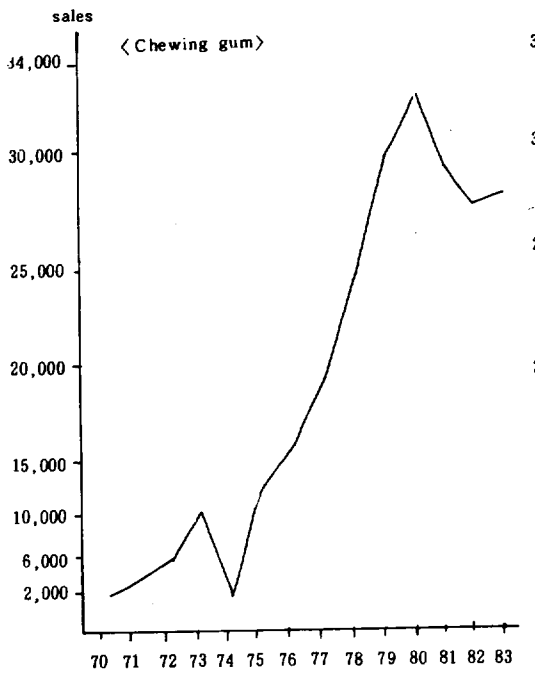
Source: Electronic Industries Association of Korea, 1980

As Figure 8 shows us that 70.8% of Korean households have B/W TV. B/W TV industries are in the phase of maturity in the domestic market. Korean TV companies invested enormously in the technical development of semiconductor and color Brown conduct. Korean TV companies asked Korean government authorities to permit to sell color TV set in domestic market. All the color TV sets Korean companies produced were exported to foreign countries till August, 1980.

Korean color TV companies could sell color TV set in domestic market from August, 1980. As Korea Gallop Poll Survey indicates 55.2% of Korean households have Color TV set. Therefore, Color TV set is in the phase of growth.

Korean Color TV companies have invested enormous money in development of technique for TV and developed bilinual digital TV in 1985.

Figure 9



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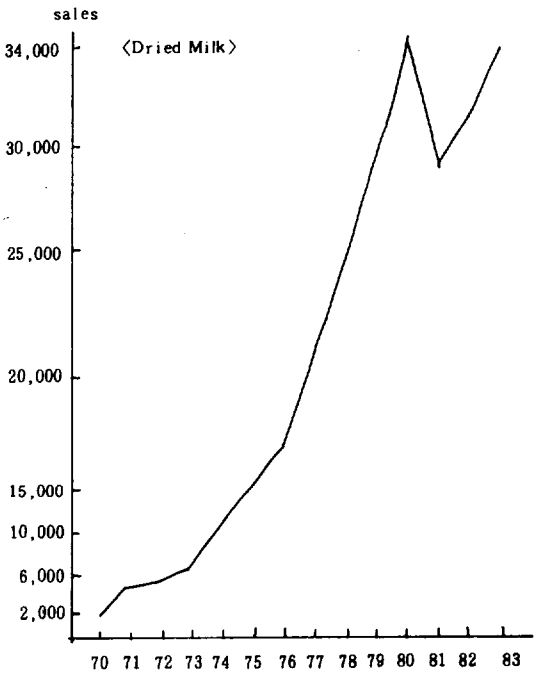

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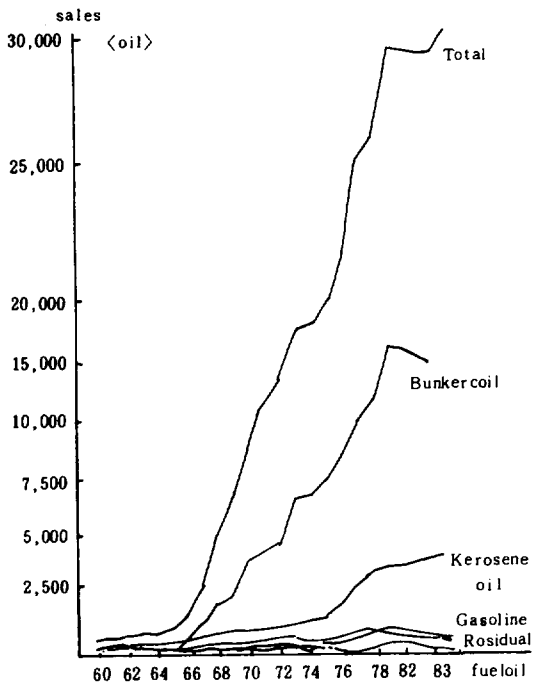

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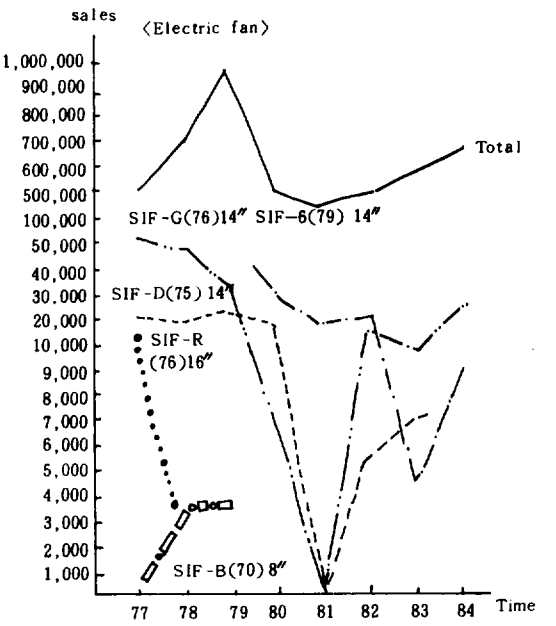

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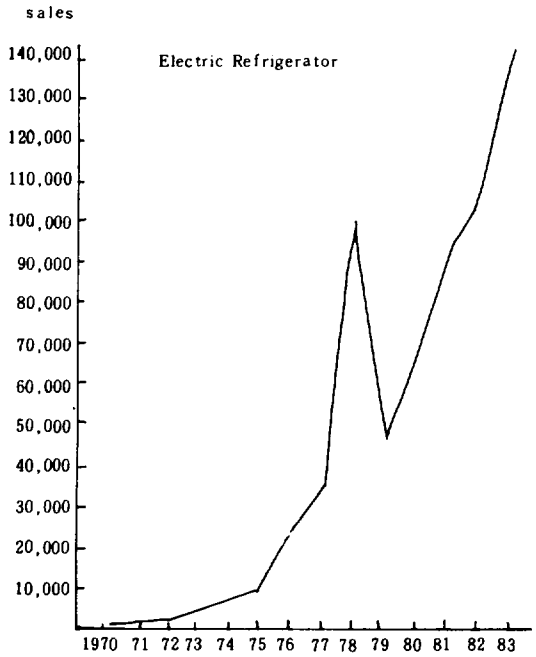

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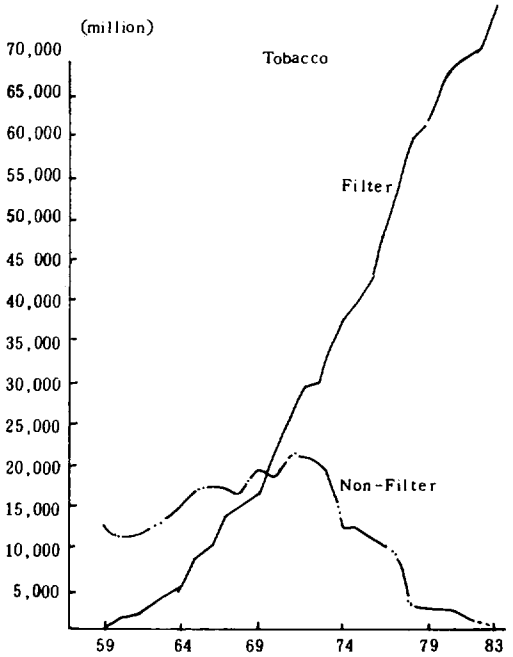

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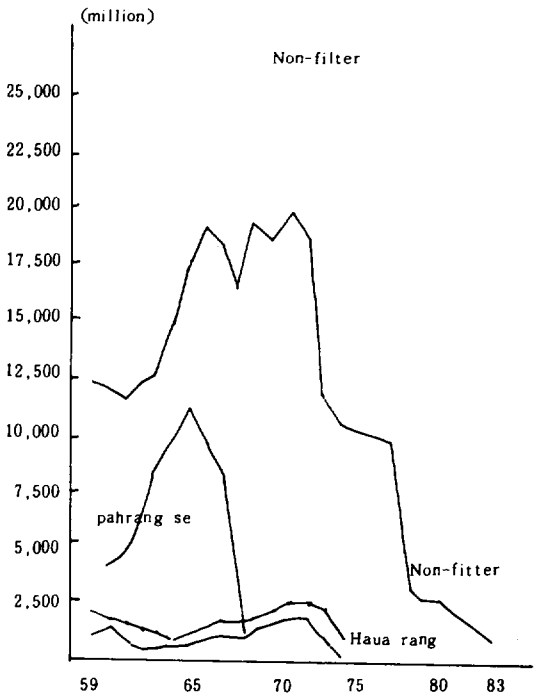

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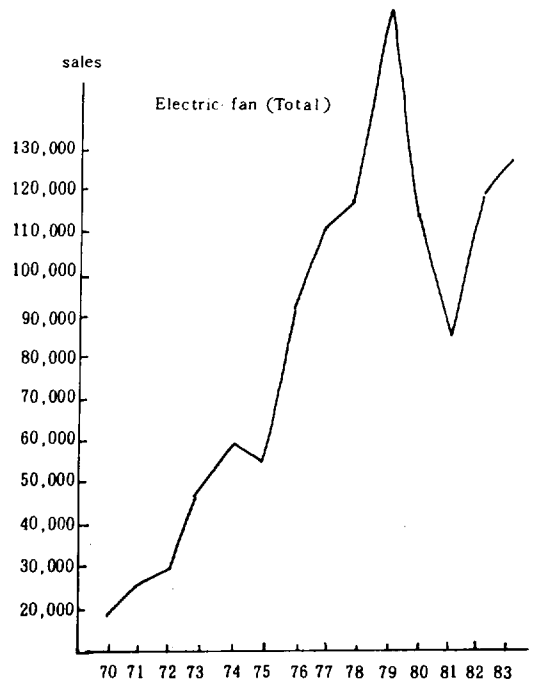

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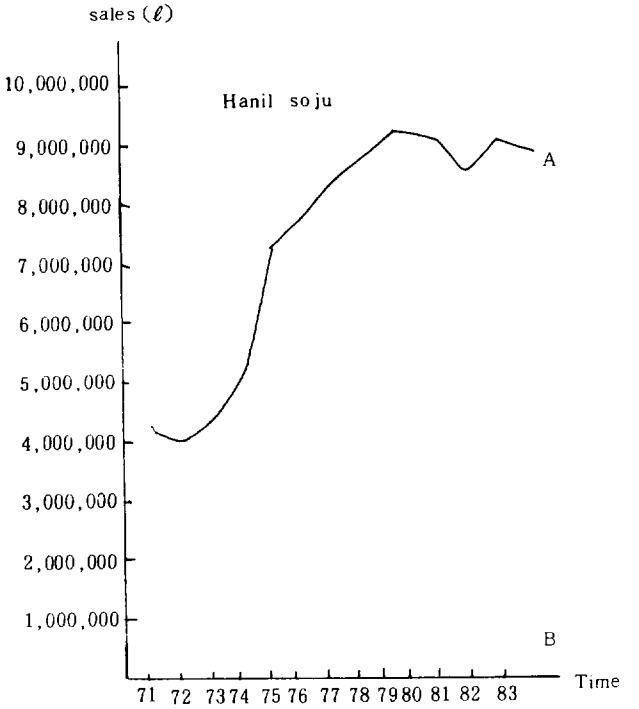

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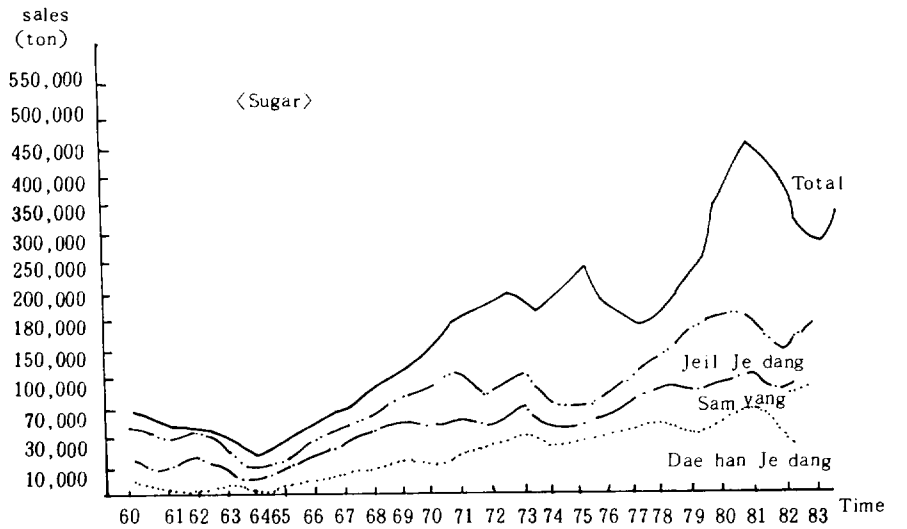

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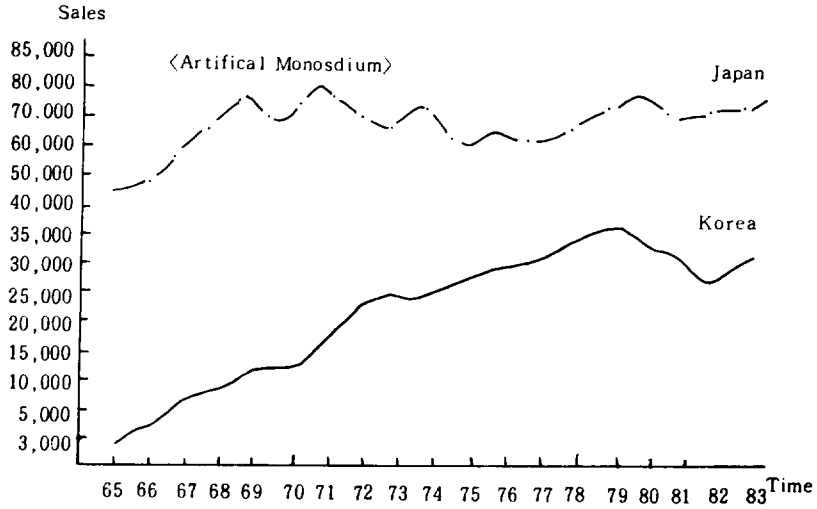

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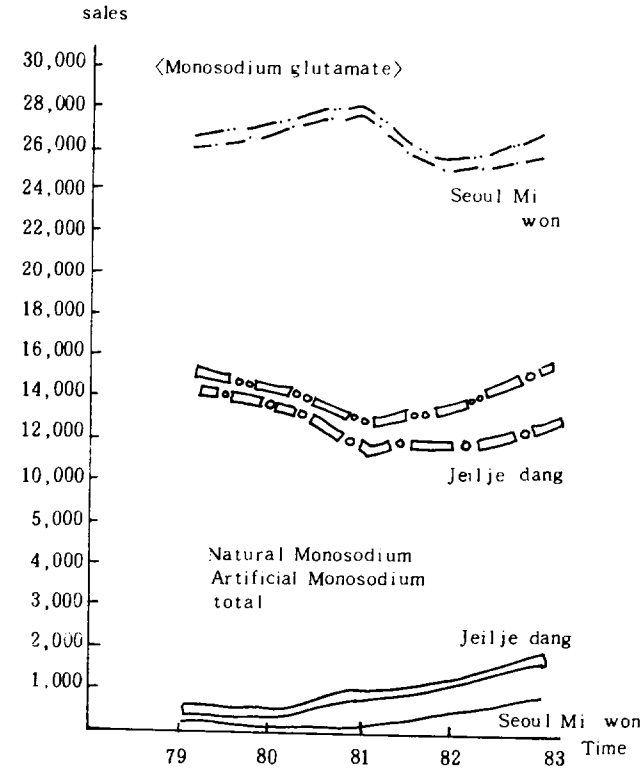

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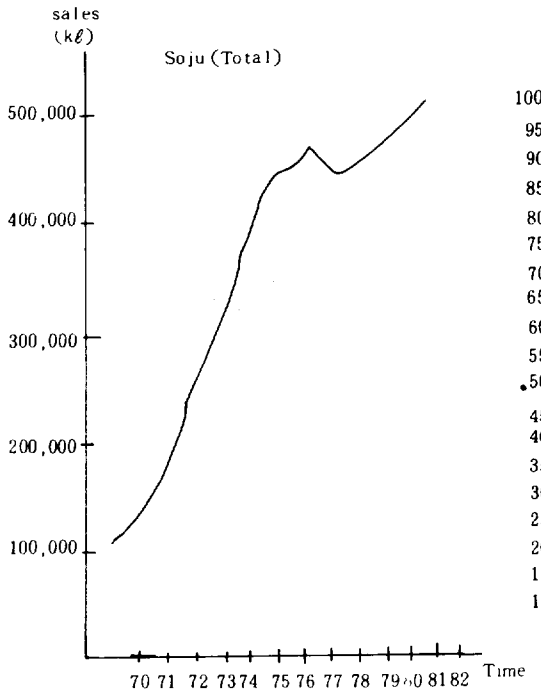

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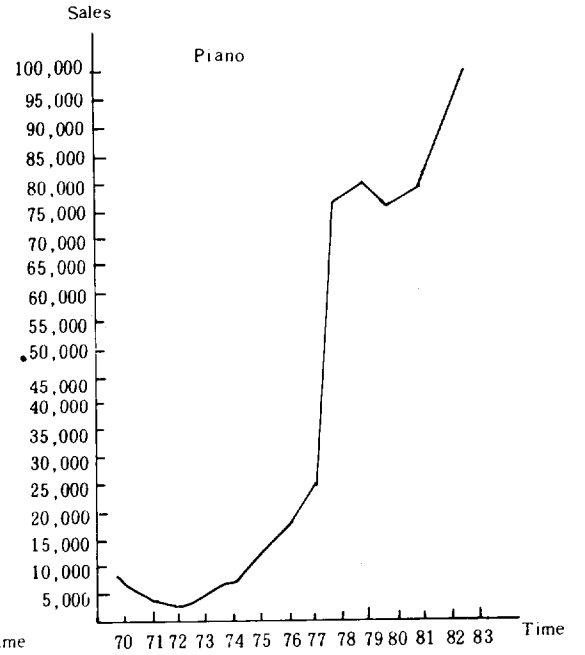

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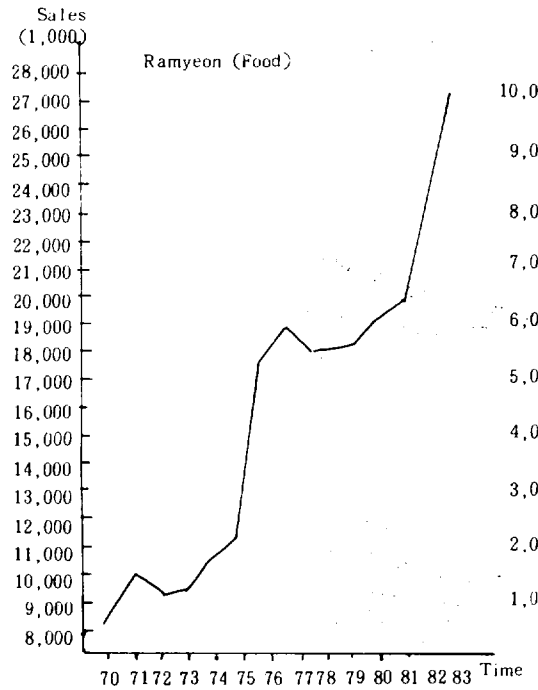

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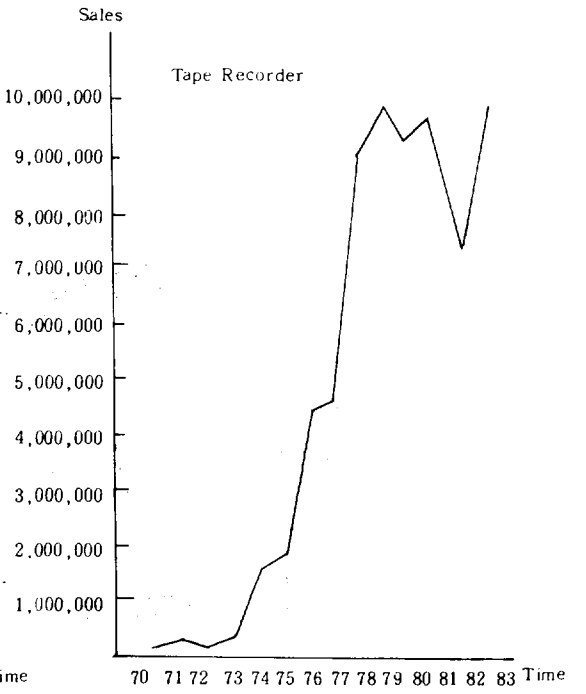

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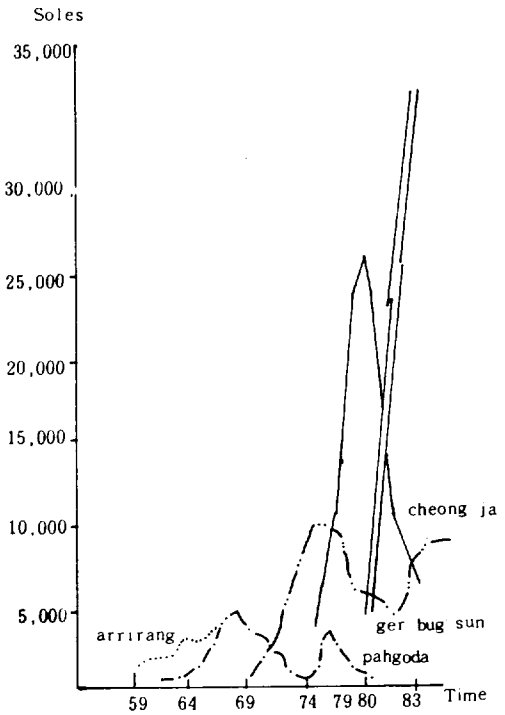

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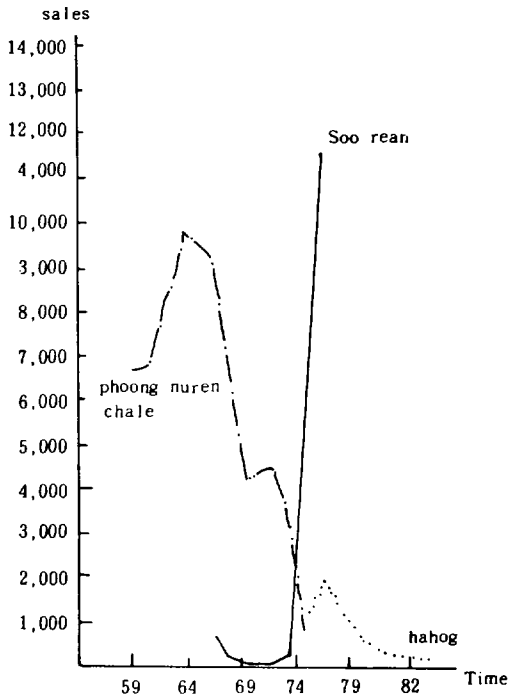

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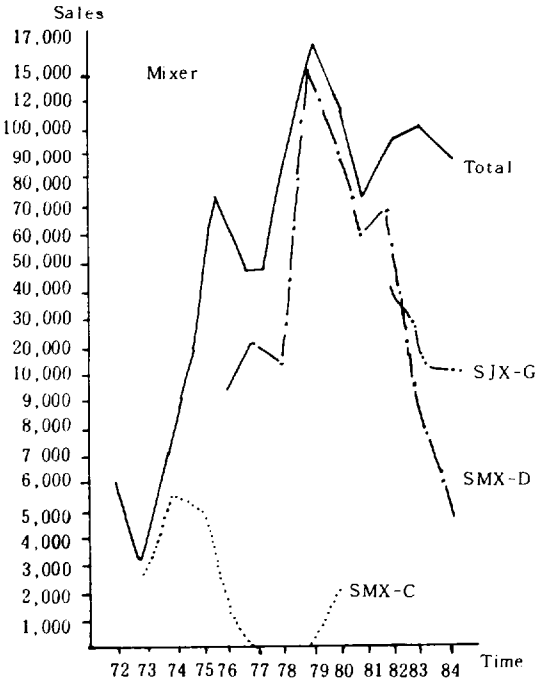

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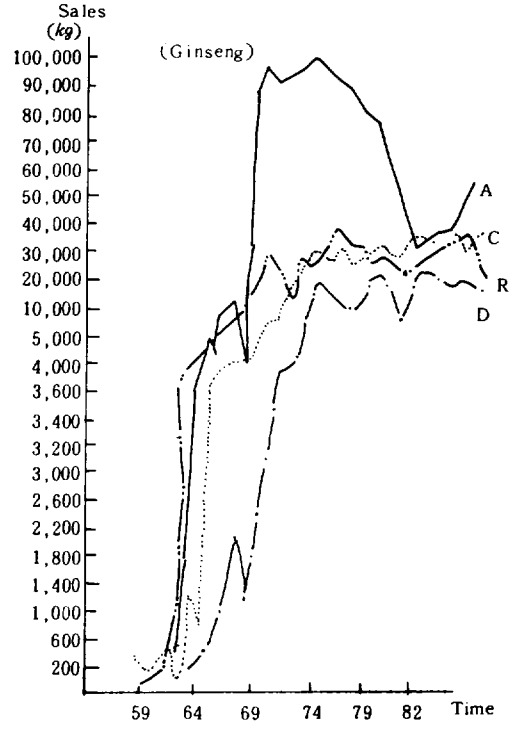
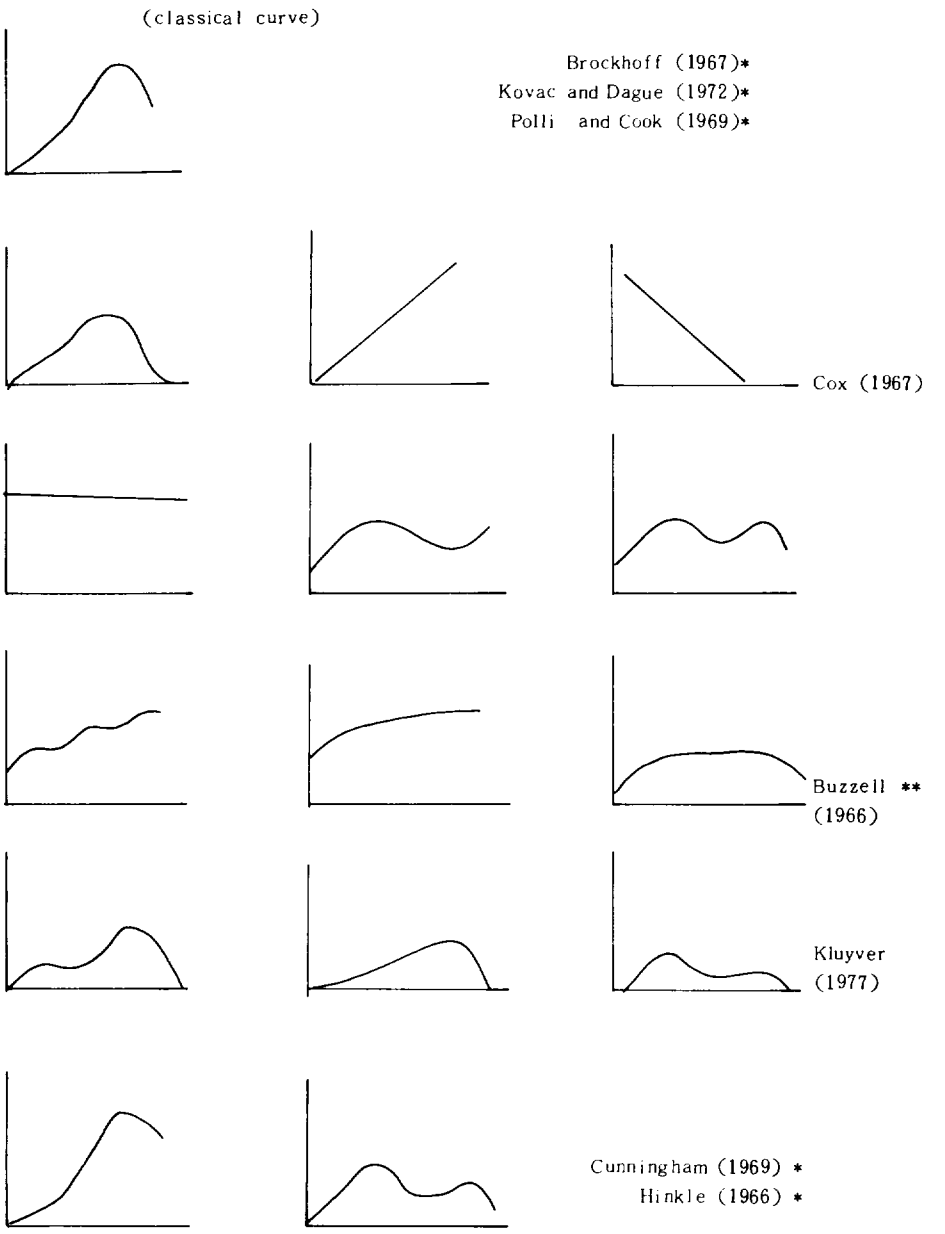


Figure 29.

Empirically Tested PLC Curves[13)]



*Adapted

**Maturity stage only

Note: Vertical axis represents sales, horizontal axis represents time.

13) Gerard J. Tellis & C. Merle Crawford, "An evolutionary approach to product growth theory," *Journal of Marketing*, vol. 45 (Fall 1981), pp. 126.

Figure 30.

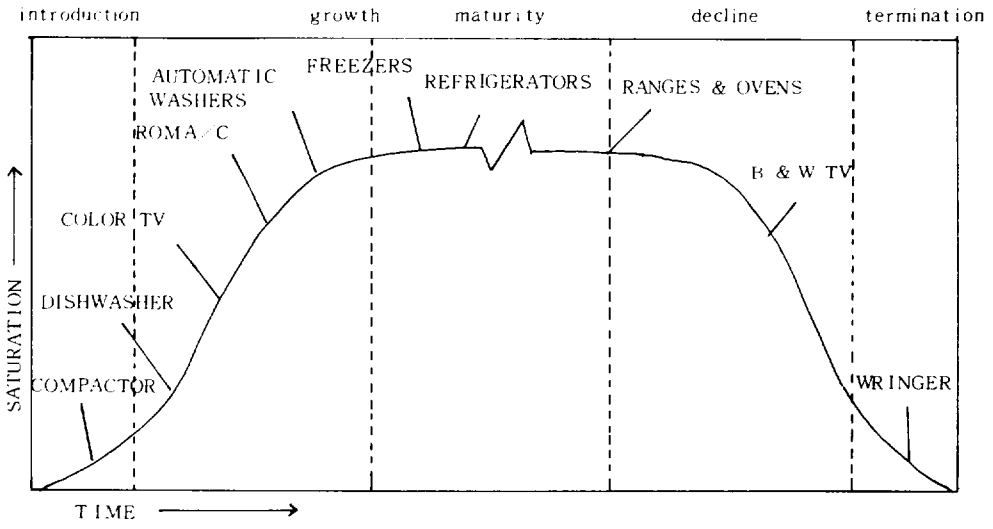
Forecasts of PLC for Korean manufactured products.[14]

Product	Regressional linear equation		Regressional quadratic equation		Phase
Color TV	$y = -842.6 + 309.3t$	(0.813)	$y = 359.9 - 291.9t + 54.7t^2$	(0.998)	introduction
B/W TV	$y = -771.1 + 306.4t$	(0.819)	$y = 347.4 - 247.6t + 50.7t^2$	(0.962)	maturity
Radio	$y = 506.3 + 664.4t$	(0.878)	$y = 531.7 + 145.4t + 47.2t^2$	(0.906)	maturity
Electric Refrigerator	$y = -72.1 + 69.4t$	(0.938)	$y = 37.7 - 13.0t - 11.8t^2$	(0.908)	growth
Tape Recorder	$y = -1,461.9 + 877.9t$	(0.892)	$y = -341.6 + 205.8t + 74.7t^2$	(0.917)	growth
Stereo	$y = -222.7 + 75.4t$	(0.803)	$y = 85.9 - 79t + 14t^2$	(0.980)	growth
Washing Mechine	$y = -38.5 + 23.3t$	(0.918)	$y = -3.5 - 3t - 3.7t^2$	(0.970)	growth
Electric fan	$y = 126.3 + 157.4t$	(0.918)	$y = 346.4 - 7.7t - 23.6t^2$	(0.960)	decline

The value in the parenthesis is coefficient of determination

In order to compare Korean products to American products, it is useful to see what phase the American products are in.[15]

Figure 31



14) Paik Bang Seon; Ph. D dissertation, Kyunghi University, Seul, Korea.

15) John E. Smallwood, "The product life cycle: A key to strategic marketing planning," MSU Business Topics, winter p.30.

Figure 32

Product	PLC Phase	Strategy
Piano	introduction	expand market
Mixer	introduction	expand market
Electric refrigerator	growth	improve technology market penetration
Electric Fan	maturity	technology innovation defend share
Ramyeon	maturity	defend market share
Sugar	maturity	defend share new product
Radio	maturity	defend share
Tape recorder	growth	market penetration improve technology
Washing machine	introduction	invest for technology innovation expand market
B/W TV	decline	phase out
Color TV	growth (maturity)	invest for technology innovation, market penetration

I tested Korean manufactured products to know which phases the products are in. The actual classification of products by appropriate stages, however, is more art than science. The whole process is quite imprecise; but unsatisfactory as this may be, a useful classification can be achieved with management benefits that are clearly of value.[16]

Cox's findings, mentioned earlier, and testing PLC using Korean manufactured products shows that there is no generalized curve. The overall length of a PLC becomes shorter over time. Young found that the average time to reach the year of peaksales for three groups of household appliances was, respectively, 34 years (those introduced before (1920), 22 years (1920–1939), and eight years (1939–1959). Similar results were reported for 15 other products, both consumer and industrial (e.g., drugs, industrial equipment). Young's results are based on production data.[17]

The PLC is very attractive and useful for planning and forecasting tool. However, PLC theory has been criticized. Dhalla and Yuspeh have suggested that decision making on the PLC is actually harmful in many cases:

Suppose a brand is acceptable to consumers but has a few bad years because of other factors–for instance, poor advertising delisting by a major chain, or entry of a "me–too"

16) same reference as footnote 15, p. 32.

17) William qualls, Richard W. Olshavsky & Ronald E. Michaels, "Shortening of the PLC–An Empirical Test" *Journal of Marketing*, vol.45 (Fall 1981) pp.76–80.

competitive product backed by massive sampling. Instead of thinking in terms of corrective measures, management begins to feel that its brand has entered a declining stage. It therefore withdraws funds from promotion budget to finance R & D on new items. The next year the brand does even worse, panic increases…… Clearly, the PLC is a dependent varialbe whichis determined by marketing action; it is not an independent variable to which companies should adapt their marketing programs.[18]

Day also pointed out the simplicity of the product life cycle concept is vulnerable to criticism, especially when it is used as a predictive model for anticipating when changes will occur and one stage will succeed another, or as a normative model which attempts to prescribe what alternative strategies should be considered at each stage. Underlying these criticism are five basic issues that must be faced in any meaningful application of the concept:[19]

- How should the product-market be defined for the purpose of life cycle analysis?
- What are the factor that determine the progress of the product through the stages of the life cycle?
- Can the present life cycle position of the product be unambiguously established?
- What is the potentical for forecasting the key parameters,including the magnitude of sales, the duration of the stages, and the shape of the curve?
- What role should the product life cycle concept play in the formulation of competitive strategy?
- The PLC considers product growth to be a self-limiting activity, which will at some time cease. In contrast, because the PEC assumes that managerial creativity is one of the three motivating forces of change, the process is conceived to occur well within the realm of managerial influence. In effect, growth is limitted only by management's ability to harness market dynamics and the efforts of mediative agencies.
- Based on the PLC, most marketing authors propose that strategies be tailored to fit the particular stage of the PLC. But the PEC holds that strategic changes in response to market dynamics determine the pattern of growth, just as it is response of a species to environmental change that will determine whether it will grow, proliferate, stagnate, or die.

Tellis and Crawford introduced the concept of product evolution; divergence (like cladogenesis), development (live anagenesis), differentiation (live adaptive radiation), stabilization (like stasigenesis) and demise. They also pointed out four essential differences between

18) Nariman K. Dhalla and Sonia Yuspeh, "Forget the Product Life CycleConcept!" *Harvard Business Review*, January-February 1976, pp. 102-12.

19) George S. Day, "The product life cycle: analysis and applications issues," *Journal of Marketing*, vol.45 (Fall 1981), 60-67.

the PLC and the PEC that need to be highlighted: determinism, time dependence, role of management, and place of strategy.[20]

- The PLC is a deterministic model in that the stages follow each other in a predetermined sequence. The PEC is a dynamic, basically open-ended phenomenon in which the patterns do not follow any fixed sequence except for the first and the last ones.
- The PLC assumes that each stage lasts for a predictable length of time, or to put it differently, that sales are primarily a function of time. The PEC assumes that sales are a function of three motivating forces. It makes the crucial distinction that while evolution proceeds within the dimension of time, it is not a time-dependent proces.
- Based on the PLC, mose marketing authors propose that strategies be tailored to fit the particular stage of the PLC. But the PEC holds that strategic changes in response to market dynamic determine the pattern of growth, just as it is the response of a species to enviromental change that will determine whether it will grow, proliferate, or die.

Kotler suggest that firms need a way to understand not only market statics but also market dynamics. Market statics asks the question: What are the nature, size and operations of a particular market? Market dynamics asks the question: How do markets evolve through time? Firms needs, competitors, technology, channels, and other developments. He viewed a market as evolving through stages of market crystallization, expansion, fragmentation, reconsolidation, and termination. Market evolution was driven by the forces of innovation and competition. Competition in a market produces a succession of product attributes.[21]

Conclusion

The PLC concept has merits and demerits. Firms need to make use of the merits and eliminate the demerits of the PLC concept. Firms should analyze developments such as inflation, shortages, environmentalism, consumerism, international market situation, new life styles, and technological forecasting.

Communication with consumer is a necessary condition for successful marketing. Without persuasive communication, no marketing take place. For this reason, firms need to examine the role of mass communication in marketing strategy. Therefore, firms should analyze the five major communication variables that influence the brand image which are the product itself, the package, the name, the price, and advertising and promotion. Firms can use marketing communication models which measure quantitatively the influence of different elements on

20) same reference as footnote 13, p. 129.
21) same reference as footnote 6, pp. 302~308.

sales, permit the evaluation of different options, and provide advance warning signals so that remedial action can be taken before a crisis occurs.[22] Firms also should formulate the effective model for mass communication, investigate variables influencing persuasive communication for their specific product.

22) same reference as footnote 18. pp. 117－118.

한국제품에 대한 PLC 개념의 타당성 검증*

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한국의 마케팅과 생산 담당 톱 메니지먼트들은 제품수명주기(PLC)에 대한 개념을 매우 잘 알고 있으나, 실제로 마케팅 전략과 생산계획을 수립할 때 이 PLC개념을 잘 활용하지 않는다.

이 논문의 목적은 한국제품에 대한 PLC개념의 타당성을 검증하고 한국기업들이 신제품에 대한 예측(forecasting), 개발(development), 생산(production) 하는데 도움이 되고자 하는 데 있다.

* 이 논문은 제2차 범태평양경영학회(1985.5.12~15. 서울)에서 발표되었음.

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