

On Import Substitution, Quality Uncertainty and Development Policy*

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This paper relates the consumer bias towards foreign goods in the developing countries to the quality reputation of locally produced goods. It argues that consumers may be perceived to be discriminating if there is uncertainty about the quality of the locally produced goods. Such consumer uncertainty frustrates investment in high quality production. Given the uncertainty about quality, protection is not effective for promoting the production of high quality goods. However, interest and credit policies may be used to encourage investment in high quality production. Also it is argued that given quality uncertainty, export-oriented industrialization has advantages over import-substitution strategies.

I. Introduction

The "craze for foreign goods" (Bardham and Kletzer) or "snob value" appeal of foreign goods (Robinson) has been a major problem for industrialists and policy makers in the developing countries. This craze is shown by the consumer tendency to choose expensive imported goods over cheaper local varieties of comparable quality. This behaviour is attributed to the demonstration effect of foreign consumption patterns, the colonized mentality of developing country consumers (Smithies; Freedman; Mannoni;

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Fanon; Ysen-Boras), and consumer irrationality (Lange; Heisler; Myrdal). Colonial rule, it is argued, creates a dependency syndrome which makes people reject things produced by their own environment in favour of those from foreign sources. The irrationality view asserts that economic behaviour in developing countries is guided by tradition rather than a search for maximum gain based on reasoned analyses.

These explanations have tended to encourage the use of patriotic appeals for influencing consumer behaviour. Despite the widespread nature of this consumer attitude problem and its direct bearing on the demand for manufactured import-substitution goods, its consequences for economic policy have, but for a few exceptions (e.g. Bardham and Kletzer), remained largely unexplored.

Given that import-substitution has remained a popular industrial strategy in most developing countries, this paper is relevant for various reasons. It brings into focus the quality problem as it relates to the demand for locally manufactured goods. It discusses the issue of protection and other policies in the context of the quality problem, and it links the quality problem to export promotion which is an important element of adjustment programs.

The paper relates the consumer craze for foreign goods to the quality reputation of new manufacturing industries in the developing countries. It is argued that the foreign influence and the irrationality theses are not necessary for explaining discriminatory consumer attitudes. Consumers may be perceived to be biased in their choices if there is uncertainty about quality of locally produced goods. This uncertainty frustrates high quality production. Given this uncertainty, and the asymmetric distribution of information on quality between consumers on one hand, and sellers on the other, protection is not effective for promoting the production of high quality goods.

Though government intervention in the form of quality certification and subsidies to high quality producers may be desirable, the implementation of such intervention may not be feasible because of the requirements of technical expertise, administrative capacity and probity necessary to enlist consumer confidence in the government's quality standard. It is argued,

however, that export-oriented industrialization has advantages over import-substitution industrial strategies. This is consistent with emerging views on export-oriented development strategies which have been more successful in achieving industrial expansion and competition in world markets (Balassa; Evans and Alizadeh; Krueger).

II. Analytical Framework

A. *The Market*

Examples of quality uncertainty have been noted in many developing countries (Akerlof; Bardham and Kletzer; Robinson). Consider, for illustration, the textile market (mainly cotton) in African countries comprising locally produced and imported textiles mainly from Java, India, Taiwan, China, Indonesia, United Kingdom and Holland. Consumers value quality which includes, among other things, fast colours and resistance to shrink and wrinkle, and they can distinguish between locally made and imported textiles.

Locally made textiles vary widely in quality because of the inexperience of the local manufacturers, though some of the local textiles are of the same high quality as the imported ones. Consumers cannot distinguish the high quality local textiles because the local manufactures are new in the market. Quality information can be learned only from purchase experience. All sellers, on the other hand, are fully informed about quality. Warranties do not exist, or are ineffective because of rural-urban population movement, and the costs in time and transportation of making claims.

In symbolic terms, the imported textile is T_m , the high quality local textile is T_h , the low quality textile is T_b , and T_d is all locally made textiles ($T_b + T_h$). The respective prices are P^m , P^h , P^b and P^d , where P^d is the average price of T_d . If q is a quality index¹, and $q^d(P)$ is the average quality of T_d (equation 8), then in

¹ We assume one quality grade for T_m and two quality grades for T_d for simplicity. It makes no difference to assume that some imported textiles are of low quality as long as consumers can identify such low quality before purchase.

reality, $q^m = q^h > q^d(P) \leq q^b$. But this reality is known to sellers only. Since Td is new in the market, buyers only know that $q^m > q^d(P)$.

The textile market is competitive (in terms of large numbers of transactors, free entry etc.) though it does not fit neatly in a specific neo-classical paradigm because of (a) consumer uncertainty about the quality of locally made goods, and (b) asymmetric distribution of information between consumers on the one hand, and sellers on the other. Because of this absence of full and costless information, Th and Tm which have the same quality do not compete as perfect substitutes. The information problem leads to one buyer-seller interaction for Td, and a different interaction for Tm. The problem does not depend on product differentiation or market structure (Leland 1977; Abel). It is the effect of the absence of full and costless information that is the central issue in this paper.

Consumers value quality, and the consumer taste for quality is represented by R distributed over the interval [a, W] with the positive density function f(R) where $a > 0$, and W is the maximum valuation of quality. Consumers are not biased so that the same taste variable applies to all local and imported goods. Then at price p^m , the net benefit (EV) to a consumer from buying a unit of the imported good is:

$$(1) \text{EV}(Tm) = R \cdot q^m - P^m$$

In the case of the local good, the expected net benefit is:

$$(2) \text{EV}(Td) = R \cdot q^d(P) - P^d$$

If the consumer expects maximum net benefits, then Tm would sell at a higher price than Th even with $q^h = q^m$:

$$(3) P^m \geq P^d + R(q^m - q^d(P))$$

If consumers are persuaded by patriotism to prefer domestic goods, then imported goods would be discounted by a factor t ($0 < t < 1$):

$$(4) \text{EV}(T_m) = t \cdot R \cdot q^m - P^m$$

Depending on the initial gap between $q^d(P)$ and q^m , imported goods would still sell at a premium above locally produced high quality goods.

A consumer willing to buy T_d must shift from T_m . From (3) such a shift would require:

$$(5) R(q^d(P) - q^m) \geq (P^d - P^m)$$

Each side of (5) is a negative value so that the price gain from the consumer shift to T_d , $(P^m - P^d)$, outweighs the value of utility loss from the shift, $R(q^m - q^d(P))$. From (5), $R \geq (P^d - P^m)/(q^d(P) - q^m)$. From the integral $F(R)$ of the density function $f(R)$, we derive the demand function $D(P^d)$ for T_d with the relevant portion:

$$(6a) D(P^d) = (F(W) - F((P^d - P^m)/(q^d(P) - q^m)))$$

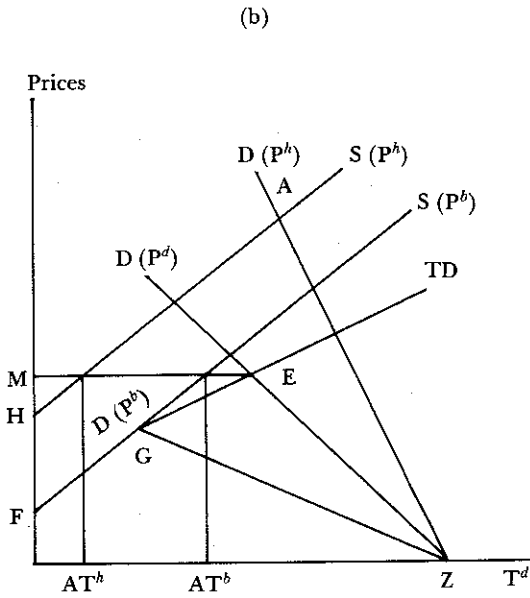
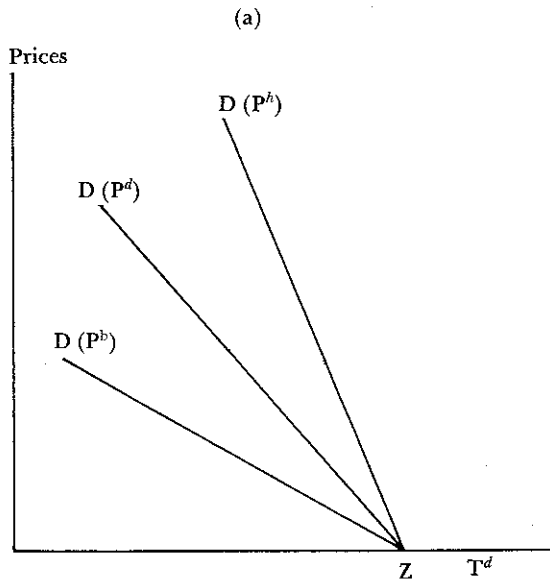
If for mathematical simplicity, $f(R)$ assumes a uniform distribution $f(R) = Q$, then from (6a):

$$(6b) D(P^d) = (W - ((P^d - P^m)/(q^d(P) - q^m)))Q$$

Variations of (6b) have been used by Leland (1979), Hey and McKenna, and Bond.

In (6a) and (6b) the demand for T_d has a negative slope, and depends on supply through the effect of average quality ($q^d(P)$ in equation (8)). Increases in $P^d(P^m)$ will be accompanied by a decrease (increase) in the demand for T_d . Any increases in average quality $q^d(P)$ will also lead to an increase in the average price P^d . Equation (6b) is illustrated in figure 1, and $D(P^h)$ and $D(P^b)$ based on the form of equation 6b are also shown for comparison. The curves $S(P^h)$ and $S(P^b)$ in Figure 1 represent potential supply at fixed quality with $S(P^h)$ above $S(P^b)$ to represent higher production costs.

Figure 1



B. Equilibrium

In the conventional perfectly competitive sense, there would be one market equilibrium for Th (and Tm) at the price A, and another equilibrium for Tb at a lower price G in Figure 1. But this conventional solution is not feasible in the absence of full and costless information. Since (a) consumers cannot differentiate Tb from Th before purchase, and (b) low quality producers stand to gain from misrepresenting quality, we have heterogeneous supply S(P) for Td comprising low quality and high quality goods as shown by FGTD in figure 1b.

$$(7a) \quad S(P) = S(P^h) + S(P^b) \quad P \geq P^h$$

$$(7b) \quad S(P) = S(P^b) \quad P^b \leq P < P^h$$

If K ($0 \leq K < 1$) is the ratio $S(P^h)/S(P)$ then average quality $q^d(P)$ is:

$$(8a) \quad q^d(P) = (K q^h + (1-K) q^b) \quad P \geq P^h$$

$$(8b) \quad q^d(P) = q^b \quad P^b \leq P < P^h$$

Differentiating $K = S(P^h)/S(P)$ totally and substituting from (7a):

$$(8c) \quad dK/dP = (S_{P^h} \cdot S(P^b) - S_{P^b} \cdot S(P^h)) / (S(P))^2$$

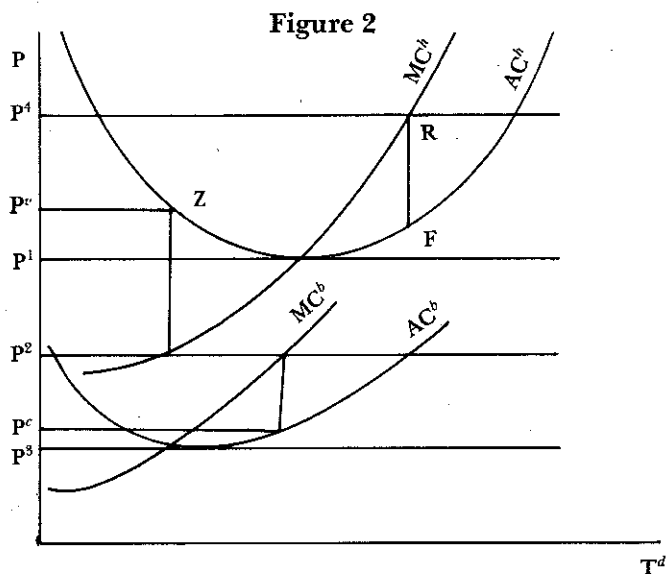
Since q^h and q^b are fixed, average quality increases with K. Also since Th is more expensive to produce, then at the same prices ($P > 0$) for Th and Tb, $S(P^h)$ is below $S(P^b)$. With the slopes $S_{P^h} > 0$, $S_{P^b} > 0$, average quality will vary directly with price if $S_{P^h} \geq S_{P^b}$ so that $dK/dP > 0$.

The initial equilibrium resulting from quality uncertainty is shown by the intersection of the heterogeneous supply curve FGTD and market demand $D(P^d)$ at E and price M. The price M will not be sustained in the long run because at E, the quality of Th exceeds the average quality of Td, and the Th producer would want a higher price. But a higher price for Td would turn consumers towards Tm. Without a higher price than M, the production of

Th would tend to fall. As Th falls, average quality of Td will fall and the average price (P^d) will also fall². Therefore the tendency is for Tb to dominate the market as the production of high quality domestic goods is frustrated.

C. High Quality Production

It is relevant to consider in some detail the factors that may frustrate the production of high quality goods despite consumer willingness to pay a premium price for quality. Following Shapiro, and Klein and Lefler, we postulate a "perfectly competitive" market *without full consumer information*. As argued before, the information problem do not depend on market structure. We assume a market exists where the high quality firm can sell its assets. In the developing countries such sales are accomplished by inviting foreign participation, or foreign management control. The firm, therefore, has no "nonsalvageable" capital costs. In the perfectly competitive full information framework, the long-run values for P^b and P^h are P^3 and P^1 in Figure 2. Under quality uncertainty, P^4 is the value for the premium price P^m , and P^2 is the value for P^d .



² There may be different kinds of equilibria depending on behavioural assumptions and market structure (Wilson). But the basic issue of decline in average quality due to quality uncertainty does not depend on market structure (Leland 1977; Abel).

Short-run equilibrium for Td under quality uncertainty occurs at $P^2 = MC^h = MC^b$ in Figure 2 where the Th firm loses ($P^v - P^2$) and the Tb firm makes a windfall ($P^2 - P^c$). Since $q^h = q^m$, the high quality producer's expected price is $P^m (= P^4)$. Without the expectation of a premium price, there is no incentive to produce the more costly Th. But this expectation will not be realized unless the consumers can identify the quality of Th before purchase³. Supposing consumer learning about quality takes one year after which the Th firm earns the premium price P^4 , then if r is the interest rate, and $C(\text{Th})$ is the total cost, the present value of net expected earnings from high quality production is:

$$(9) L_h = (P^d \cdot \text{Th} - C(\text{Th})) + (P^m \cdot \text{Th} - C(\text{Th}))/r$$

In (9) the first term on the right hand side is the initial loss, and the last term is the discounted valued of the premium earnings following consumer knowledge about the quality of Th. similarly for the Th producer:

$$(10) L_b = (P^d \cdot \text{Tb} - C(\text{Tb})) + (P^b \cdot \text{Tb} - C(\text{Tb}))/r$$

In the case of equation (10), where low quality attracts no premium, the last term on the right hand side is zero once consumers are able to distinguish between Th and Tb, leading to the equilibrium price P^3 .

Defining $L = L_h - L_b$, the viability of investment in high quality production depends on $L > 0$. In turn, $L > 0$ depends on $L_h > 0$, and $L_h > L_b$ where $L_b > 0$ from the initial windfall ($P^2 - P^c$). From (9) $L_h > 0$ requires a premium price (e.g. P^4) higher than the average cost of Th^4 . Such a premium price would persist in the long-run for firms which (a) produce high quality goods, and (b) are able to inform consumers to identify the quality (Shapiro).

Also L and L_h depend on the length of the consumer learning period and the interest rate r . Consumer learning about the quali-

³ If consumer learning is ruled out than Th will not be produced (Akerlof).

⁴ If $P^m = AC^b$, Th (and Tm for that matter) will not be produced, since consumers do not attach a premium to quality (Shapiro). Government intervention to sustain the production of Th in this case will have to be permanent.

ty of locally produced goods in this case must be distinguished from consumer uncertainty about the quality of imports (Bond) and the Arrow concept of producer "Learning by Doing." If repeat purchase is infrequent and consumer learning period is longer for a product, then the initial loss (windfall) for the Th(Tb) producer will be larger, and a higher r will frustrate investment in quality production.

III. Policy Issues

The direct policy issue is lack of consumer information about quality. Since low quality producers stand to gain from such uncertainty, all sellers cannot be depended upon to provide accurate information about quality. Also independently published consumer reports have limited value since most countries have high illiteracy rates. In the long-run, consumers would learn the information from repeat purchase experience. But the learning period may be long, depending on the nature of the product and consumer incomes, and the high quality firm could fail.

One solution used in many developing countries is quality certification. Since sellers know quality, the sellers of the imported good can buy Th for sale under their own quality labels which are already known to consumers. With certification, Th and Tm would sell at the same price. Consumers would perceive Th as imported; but they would not be deceived because $q^h = q^m$. If the certification is used to avert any initial losses, and C^m is the certification cost, then certification of high quality is feasible if $(P^m - C^m) \geq P^l$. Examples of this kind of certification include licensing, franchises, joint foreign-local productions, and other management arrangements that allow the use of the quality labels of the established foreign counterpart (Contractor). This form of certification, however, tends to limit industrial growth since it often restricts the export of such certified goods.

Quality certification is provided in some developing countries through a public institution typically a "Standards" Board which gives quality information to the public through the issue of quality labels. Often the government combines certification with subsidies which allow production to be sustained for consumers to learn of the quality. In this case, using Figure 2, the minimum subsidy

would be $(P^1 - P^2)$. The subsidy and certification costs constitute public investment in information about quality. From (9) since the firm is not bearing the initial losses, then a premium price is not necessary for sustaining the production of Th when the subsidy is eventually phased out.

Government certification has two major problems. First the public institution must have credibility. It must certify high quality for consumers to find the information useful. Secondly to encourage high quality production, only the high quality firms should be certified and subsidized. This requires a lot of information, honesty, technical expertise, and administrative functions beyond the capacity of most government institutions.

The analysis confirms the central importance of interest rates and capital markets in promoting industrial growth. Imperfect capital markets added to political instability tend to limit investment:

because of the social and economic instability, the lack of knowledge and other imperfections that combine to make relatively high risks and uncertainties,.... the rates of discount on the present value of future incomes are such that economic horizons are shorter (Adekunle).

Though credit and interest rate policies may be used to encourage longer term horizon in economic decision making, such policies have to be considered in a broad macroeconomic framework involving issues of inflation, financial repression and the investment atmosphere.⁵

Other studies have argued for protection especially for infant industries, if capital markets are imperfect and there are prospects for producer "Learning by Doing" (Arrow), or if consumers are uncertain about the quality of imports (Bond), or for political reasons. The analysis in the previous section, however, suggests that given consumer uncertainty about the quality of locally produced goods, protection is not effective for promoting the production of high quality goods. With the fundamental information

⁵ On the issue of financial repression and capital markets, see Cole; McKinnon; Gurley and Shaw; Leff; Levy, Jr.; Adekunle; Vogel and Buser.

problems and consumer inability to identify quality before purchase, protection would cover all local producers. The windfall gain to the low quality producers would increase, and high quality production would continue to be frustrated.

An alternative policy is to encourage export-oriented over import-substitution industrial strategies.⁶ Foreign consumers, typically, do not import directly from the developing country producers, but through agents who are better equipped to identify quality because professional success requires such expertise. Also exported goods tend to sell in larger markets especially in the developed economies where consumers make more frequent repeat purchases because incomes are higher, and information flow is faster as the infrastructure for communication is more developed. The consumer learning period would therefore, be shorter and the export-oriented firm would stand to lose less from consumer uncertainty.

IV. Concluding Remarks

This paper argues that the craze for imported goods in the developing countries may be explained by consumer uncertainty about the quality of locally produced goods. Such consumer uncertainty frustrates the production of high quality goods in the developing countries. Given consumer uncertainty, protection is not effective for promoting the production of high quality goods. It is argued that export-oriented firms have advantages over import-substitution ones. Also appropriate credit and interest rate policies may be used to encourage investment in high quality production. This paper abstracts from some issues including the role of foreign direct investment, and the consequences of quality uncertainty about both locally produced and imported goods. These will have to be the subjects for further investigation.

⁶ Transition into export-oriented production is crucial for industrial growth even if the country initially starts with the import-substitution strategy (see Schmitz).

List of Symbols

a	= Symbol of valuation of quality
AC^b	= Average cost of low quality goods
AC^h	= Average cost of high quality goods
C^m	= Certification cost of high quality goods
$D(P^b)$	= Demand for low quality goods
$D(P^d)$	= Demand for locally produced goods
$D(P^h)$	= Demand for high quality goods
EV	= Expected net benefit operator
K	= Proportion of high quality goods
L	= $L_h - L_b$
L_b	= Discounted profits from low quality goods
L_h	= Discounted profits from high quality goods
MC^b	= Marginal cost of low quality goods
MC^h	= Marginal cost for high quality goods
P^b	= Price of low quality goods
P^c	= Price value
P^d	= Average price for locally produced goods
P^h	= Price of high quality goods
P^m	= Price of imported good
P^v	= Price value
P^1	= Value for P^h
P^2	= Value for P^d
P^3	= Value for P^b
P^4	= Value for P^m
q	= Quality index
q^b	= Low quality indicator for local goods
$q^d(P)$	= Average quality indicator for local goods
q^h	= High quality indicator for local goods
q^m	= Quality of imported goods
R	= Consumer taste valuation variable
$S(P)$	= Supply of locally made goods
$S(P^b)$	= Supply of low quality locally made goods
$S(P^h)$	= Supply of high quality local goods
T_b	= Low quality local goods
T_d	= Locally made goods
T_h	= High quality local goods
T_m	= Imported goods
W	= Maximum consumer valuation for quality

References

- Abel, A., "Market Structure and Durability of Goods," *Review of Economic Studies*, 50, Oct. 1983, 625-637.
- Adekunle, J.O., "The Demand for Money: Evidence from Developed and Less Developed Economies," *International Monetary Fund Staff Papers*, 15, July 1968, 220-257.
- Akerlof, G.A., "The Market for Lemons: Quality, Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 84, Aug. 1970, 488-500.
- Arrow, K., "The Economic Implications of Learning by Doing," *Review of Economic Studies*, 29, June 1962, 154-194.
- Balassa, R., *Development Strategies in Semi-Industrialized Economies*, John Hopkins University Press, Baltimore, 1982.
- Bardham, P. and K. Kletzer, "Quality Variations and Choice Between Foreign and Indigenous Goods, or Technology," *Journal of Development Economics*, 14, Apr. 1984, 323-330.
- Bond, E., "International Trade with Uncertain Quality Product," *Southern Economic Journal*, 51, July 1984, 196-207.
- Cole, D.C., "Concepts, Causes and Cures for Instability in Less Developed Countries," McKinnon, R.I., ed., *Money and Finance in Economic Growth and Development*, Marc Dekker Inc., 1976, 43-74.
- Contractor, F.J., *Licensing in International Strategy: A Guide for Planning and Negotiation*, Greenwood Press, 1984.
- Evans, D. and P. Alizadeh, "Trade, Industrialization and the Visible Hand," *Journal of Development Studies*, 21, Oct. 1984, 23-43.
- Fanon, F., *Black Skin White Masks*, New York Gross Press Inc. 1967, 83-108.
- Freedman, D.S., "The Role of the Consumption of Modern Durables in Economic Development," *Economic Development and Cultural Change*, 19, Oct. 1970, 25-48.
- Gurley, J.G. and E.S. Shaw, "Financial Structure and Economic Development," *Economic Development and Cultural Change*, 15, Apr. 1967, 257-268.
- Heisler, H., "Two Causal Models of African Economic Conduct," *Economic Development and Cultural Change*, 21, Oct. 1972, 161-170.
- Hey, J.D. and J. McKenna, "Consumer Search with Uncertain Product Quality," *Journal of Political Economy*, 89, Feb. 1981, 54-66.
- Klein, B. and K. Lefler, "The Role of Market Forces in Assuring Contractual Performance," *Journal of Political Economy*, 89, Aug. 1981, 615-641.
- Krueger, A.O., "Import Substitution Versus Export Promotion," *Finance and Development*, 22, June 1985, 20-23.

- Lange, O., *Political Economy*, 1, Pergamon Press, 1963, 157-169.
- Leff, N.H., "Capital Markets in the Less Developed Countries: The Group Principles," McKinnon, R.I., ed., *Money and Finance in Economic Growth and Development*, Marc Dekker Inc., 1976.
- Leland, H., "Quality Choice and Competition," *American Economic Review*, 67, 1977, 127-136.
- _____, "Quacks, Lemons and Licensing: A Theory of Minimum Quality Standards," *Journal of Political Economy*, 87, Dec. 1979, 1328-1346.
- Levy, Jr. and J. Marion, "Some Social Obstacles to Capital Formation in 'Under-developed Areas,'" *Capital Formation and Economic Growth*, National Bureau of Economic Research, Princeton University Press, 1955, 397-440.
- Lucas, R.E.B., *Lecture Notes in International Trade: Infant Industry Protection*, Economics Department, Boston University, 1980.
- Mannoni, D.O., *Prospero and Caliban: The Psychology of Colonization*, Praeger, New York, 1964, 40.
- Manove, M., *Lecture Notes in Advanced Microeconomics*, Economics Department, Boston University, 1980.
- McKinnon, R.I., *Money and Capital in Economic Development*, The Brookings Institution, 1973, 5-41.
- Myrdal, G., *Economic Theory and Underdeveloped Regions*, Harper, New York, 1957, 100.
- Robinson, J., *Aspects of Development and Underdevelopment*, Cambridge University Press, 1979, 113-115.
- Schmitz, H., "Industrialization Strategies in Less Developed Countries: Some Lessons of Historical Experience," *Journal of Development Studies*, 21, Oct. 1984, 1-21.
- Shapiro, C., "Premiums for High Quality Products as Returns to Reputations," *Quarterly Journal of Economics*, 98, Nov. 1983, 661-679.
- Smithies, A., "Rising Expectations and Economic Development," *Economic Journal*, 81, June 1961, 255-272.
- Vogel, C.R. and S.A. Buser, "Inflation, Financial Repression and Capital Formation in Latin America," McKinnon, R.I., ed., *Money and Finance in Economic Growth and Development*, Marc Dekker Inc., 1976.
- Wilson, C., "The Nature of Equilibrium in Markets with Adverse Selection," *Bell Journal of Economics*, 11, Spring 1980, 108-130.
- Ysen-Boras, E., "The Colonial Personality: Franz Fanon's Concept of the Psychology of People Living under Socio-Political Conditions of Colonialism," Ph.D. Dissertation, Wright Institute, University of California, Berkeley, 1985.

