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Authors

MCGUIRE, MARTIN C.
Ohta, Hiroshi

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Implicit Mercantilism, Oligopoly, and Trade

*Martin C. McGuire and Hiroshi Ohta**

Abstract

The authors propose a new model of trade between developing and advanced economies to capture the effects of important asymmetries in the organizations of their industries. This model demonstrates how the industrial structure of a developing economy can evolve to produce what the authors call “implicit mercantilism.” Free entry plus domestic oligopoly in a developing economy, when combined with competitive behavior in developed countries, generates several distinct stages of mercantilism hitherto unrecognized in the literature. Each stage has its own pattern of interaction with a competitive trading world. As the production costs and techniques of the mercantile society converge to world standards, its citizens will first lose from this progress, only later to gain. Both effects are due to certain relationships between home prices and world prices, newly identified in this paper. The analysis is particularly relevant to the structure of Asian economies, and to policy debates about their reform.

1. Introduction

As the global economy has become more integrated over the past generation, a growing share of world trade has occurred between the liberal trading nations of the West and more state-guided Asian economies, creating at the interface between them a continuing source of friction. The modern implicit-mercantile states—China, Korea, and Japan especially, plus others in East Asia—continue to be targets of ongoing political pressure to open up. Among their more or less open competitive trading partners, tension cycles between advocacy of tough negotiation and counsel of patience.

Mercantilism has been defined as “a set of policies, regulations, and laws, developed over the 16th through 18th centuries to support the rising nation states of Atlantic Europe by subordinating private economic behavior to national purposes” (McCusker, 2001). Relative to this definition of mercantilism, we label the modern mercantilism of Asian economies “implicit.” A significant academic literature identifies the mercantile quality of the modern Asian state (Epstein and Nitzan, 2002; Landa, 1994). There is also a large technical literature on institutional structure and trade performance (notably Hillman, 1989), as well as a literature concerning specifically the structure and performance of Asian neo-mercantile states (Dhar and Panagariya, 1999). Yet none offers an adequate theory to integrate their mercantilism with their trading behavior. To help fill this gap, and help in assessment of the histories and prospects of these countries, this paper proposes a new model of what we name “endogenous and implicit mercantilism.” Our proposal we believe applies primarily to the economies of Asia. These are states still emerging from isolation where domestic industry had/has been sheltered by barriers—sometimes formal, at other times informal, often founded on cultural

* McGuire: University of California-Irvine, CA 92697, USA. Tel: 1-949-824-6190; Fax: 1-949-824-3401; E-mail: mcmcguir@uci.edu. Ohta: Aoyama Gakuin University, 4-4-25 Shibuya, Shibuya-ku, Tokyo 150-8366. Tel: 813-3409-8562; Fax: 813-5485-0782; E-mail: ohta@siweb.aoyama.ac.jp. The authors have benefited from discussions with Johannes Bröcker, Amihai Glazer, Stephan Lutz, Santanu Roy, Koji Shimomura, and the late Martin Bronfenbrenner. We have also profited from seminars at Georgetown University, Kobe University, UC-Irvine, the Western Economics Association Meetings at San Diego 2000, Hong Kong University 2002, Kiel Institute for World Economics 2002, the International Atlantic Economic Congress, Vienna 2003, and from insightful comments of the referees.

practices, and especially reflected in their distribution systems. Yet despite the formal and informal protection they enjoyed they have progressively come abreast of best world production practice (so it would be incorrect to think they have slouched and featherbedded within a cocoon of protection). Contrary to *a priori* expectation, they have used implicit and explicit protection to catch up and sometimes surpass competitive partners.

Section 2 presents a brief literature review of monopoly mercantilism and symmetric oligopoly theory of trade as a prelude to our asymmetric oligopoly theory of mercantilism. Section 3 is a narrative description of our model of modern implicit mercantilism in terms of stylized facts. Section 4 presents our model by initially spelling out its assumptions and notation, followed by the basic simultaneous system of equations, numbered (5)–(7). We then proceed to comparative statics of this simplified linear model in the two sections to follow. Section 5 in particular probes the partitioned domains and ranges of the functions which define implicit mercantilism over the key exogenous variables. Section 6 then focuses attention on one key endogenous variable, domestic price, and demonstrates how it may react with world price depending on the stage of the mercantile society's integration into the world economy. Section 7 summarizes our comparative statics by means of diagrammatic analysis with Figures 5 and 6. Section 8 concludes the paper. The Appendix shows that our conclusions remain unchanged under generalized forms of demand and cost functions. It also provides a "successive monopolies" foundation of implicit mercantilism.

2. Monopoly Mercantilism: the Need for a Revision

Coincident with the upsurge of the neo-mercantile states of Asia, study of mercantilism has advanced over recent decades. First, formal modeling of monopoly–mercantilism has yielded an understanding of its internal domestic structure as grounded in individual gains from rent-seeking (Ekelund and Tollison, 1981, 1997). On the international front such monopoly is conventionally reflected in the assumption of a deliberate state trading monopoly with discriminatory international pricing power. Here, analyses of Rieber (1982) and Vousden (1990) spell out the required international trade theory. Supplanting earlier historiographic accounts (Viner, 1948; Heckscher, 1955), this work assumes conscious pursuit of domestic mercantile goals by the state moderated to a degree by public welfare objectives. Here an extension of this model of trade–mercantilism is needed. The assumption of purposeful mercantilism needs revision to include the implicit or endogenous mechanisms operative in these countries.

Second, the groundbreaking extensions of oligopoly theory to trade among countries (Brander and Krugman, 1983; Krugman, 1984; Brander and Spencer, 1984) generally study symmetric or reciprocal oligopoly. (This includes work such as Ruffin's (2003) or Vousden (1990) which follow the strategic trade theme of "import protection as export promotion" for a monopolistic mercantile state.) But none of these allows for a crucial feature of the still emerging Asian mercantile nations, namely culturally based barriers there and a resulting East–West asymmetry. That is, as a representation of modern trade mercantilism in Asia, both purposeful monopoly and symmetric oligopoly models raise questions. Local leaders in so-called mercantile states scoff at the monopoly depiction and typically refer to cultural factors or traditional ethnic values as the source of their uniqueness. Recent papers (Chu, 2001; Katayama and Ursprung, 2000) emphasize the role of culture—economic and political—in the performance of institutions such as Japanese *keiretsu*. Consistent with

the relevance of culture, the foundation of our explanation is the internal distribution system in these neo-mercantile states, which isolates and sustains an asymmetric oligopoly.

Predicated on such a stylized description of the real world, this paper invokes no coordinated intention to produce a mercantile result and no overt damage need be noticeable. Our model connects with other new institutional literature on the cultural foundations of Asian trading (Knack and Keefer, 1995). And it resonates with the frequent pronouncement of political leaders there asserting that Asian economic organization and trade practice reflects Asian values, and should not be tested on any western litmus. This institutional literature, however, has little to say to link the informal distribution mercantilism of the more traditional Asian economies with their foreign-trade practices. To supply this link, we propose a model of domestic oligopoly, with a capacity endogenously to induce trade-mercantilism.

Extending the conventional models of strategic trade along the lines of Vousden (1990), we ask how trade will be carried out between two dissimilar systems, one competitive and consumeristic and the other oligopolistic, neo-mercantile. Our model will identify three stylized stages in the domestic configuration of the neo-mercantile society and its international trading incentives. Replacing monolithic monopoly with an implicit oligopoly model will imply a natural progression in the stages of a mercantile society's trading incentives. Specifically we will demonstrate how our modification of classical dumping generates as a natural consequence three stages of implicit oligopoly-mercantilism. This will be "dumping" based not on undercutting foreign suppliers, but rather solely on exploiting the home captive economy. (Differing from Ethier's (1982), this dumping by the mercantile state need *not* cause harm to others and, therefore, may not be a cause for legal action, and may not even be noticed.)

In doing this we uncover a connection between the welfare of the neo-mercantile society, price discriminatory "dumping," and the stage of integration between the mercantilistic and *laissez-faire* economies that we believe has never yet been identified. This we claim is more representative of how current processes of globalization affect the benefits of trade *within* neo-mercantile systems taken as a whole. Thus, in building a stylized model of Asian trade-mercantilism we will ask, "How is the welfare of a mercantile society influenced by the relative competitiveness of its economy as against that of its consumeristic *laissez-faire* trading competitors?" Remarkably, as we demonstrate, depending on a crossover point derived below, *the two will be positively correlated or inversely related depending on the stage of the mercantile society's integration into the world economy.*

An oligopolistic neo-mercantile economy is at a significant cost/technology disadvantage *vis-à-vis* the larger world when first it is seeking markets for its exports. In these early phases the neo-mercantile country we show will "pay" for this access with higher domestic prices, thus penalizing its domestic consumers. In this stage, as the home country becomes more efficient, home prices in the mercantile-export sector actually go up and consumers suffer. But then as the cost disadvantage *vis-à-vis* world producers lessens still further, consumers in more developed mercantile economies benefit from further integration. In this latter configuration, higher world prices for the mercantile country's exports (or lowered domestic costs of production of those goods) actually lower domestic prices for consumption of the same identical goods. Thus, our analysis will show *how consumers in the modern neo-mercantile state can actually enjoy lower domestic prices of their export products when the world prices of those exportables rise.* With oligopolistic free entry, a lasting appreciation in the yen, for example, can *increase* domestic prices of Japanese exportables *within Japan* even though it

lowers the yen prices of these very same goods in export markets! (Of course dollar prices of Japan's export goods increase with the yen's appreciation.) Our model applies, we believe, to China, Korea, and many other societies as well as Japan. These are strongly integrated into the international trading system yet enveloped by political and commercial cultures in a neo-mercantile cocoon—the longstanding cultural attitudes and practices, which support the *keiretsu* system (*chaebol*, *zaibatsu*, Chinese equivalent). With Olson (1982) we think of this organization as typical of countries, which were not taken over during the colonial period, such that indigenous rent-seeking structures were not wiped out in the upheavals of colonialism and liberation.

3. Stages of Oligopoly–Mercantilism

To begin with a narrative description prior to a more formal model, consider a pre-mercantile society, which is actually isolated from foreign imports. This can arise from exclusionary cultures and customs. Or isolation may be effected by spatial oligopoly and successive monopoly in the distribution system (Ohta, 1988, 1997). Or government or special interests may possess enough control over a country's commerce to deliberately exclude imports, at least enough to support sustained differences between international and domestic prices for identical commodities. Whatever the cause, imagine that a country has evolved into a pattern of layered monopoly or oligopoly once fairly approximated by the actual structure in Japan, Korea, and other developing Asian countries. We think of such a stylized organization as “primitive” or “minimal” pre-mercantilism that at first merely curtails or banishes imports. This certainly seems to have been the case historically.

But would such import isolation be the whole of an idealized pre-mercantilism? We think not. Here a dynamic rendition of “import protection as export promotion” (Krugman, 1984) suggests itself forming the basis of our model. Now, domestic producers would notice a great difference between the cost of landed (excluded) imports and the final prices that home-produced substitutes would bring from consumers. For our purposes we assume that this occurs in certain major sectors of the economy which we call the “mercantile sectors.” Assume some sectors remain frozen in pre-mercantile isolation, and others evolve more competitively. With their advantages in distribution access and cost, home producers can have variable costs of production significantly above foreign substitutes and still offer home consumers an incentive to substitute home products for the costly to distribute foreign goods if they are available at all. But domestic producers (with time and learning) continue to achieve lower variable costs so that they come close to rival foreign sources in their cost/technique of production. Now the protected home markets will evolve to provide a base for *export* of these goods whose importation is only precluded by their exorbitant costs of distribution. Endogenous import protection based on culturally derived distribution structures has spawned export promotion. It is the comparative statics of the several stages of this process that we will now analyze more formally on the assumption that domestic producers are oligopolists. As we will see, assuming that these producers at first cannot match foreign suppliers for their efficiency but that over time they catch up, implies three distinct developmental stages in the relation between the mercantile society and the global economy. We have named these “primitive,” “early-start-up,” and “mature-established” mercantilism, each having its own distinct connection between consumer welfare, world-free-market price, and home price.

4. The Mercantile Economy in a Competitive World

Assumptions and Notation

We want to formalize the above stylized facts in the simplest way possible. We begin assuming that a portion of the domestic market—producing goods collectively called “ Q ”—is insulated from imports by spatial or nested monopolies in distribution, protected completely from certain foreign goods. Despite the insulation, domestic producers are assumed to have evolved to a point of being moderately close to competitive with foreign producers. Domestic demand for this good, Q , except possibly for a quota, is fully met from home production. We suppose that this supply is provided under conditions of Nash–Cournot oligopoly among home producers. Crucially, for our account the number of firms is endogenous; market entry by home producers eliminates oligopoly profits. Thus the time frame of our comparative static analysis must be of such duration as to allow adjustment in the number of firms, or price quantity pressures from incipient adjustments in numbers to take effect. Issues of active government intervention/optimization in a multi-stage-game trading world (such as in Hokari et al., 2003) are not addressed. Rather the foregoing stylized facts are prelude to a comparative static analysis of Nash–Cournot behavior—chosen over Bertrand behavior for its tractability.

If domestic firms are close enough to being globally competitive—specifically unless home *marginal cost* at all outputs greater than that chosen under autarchy is above the world price—they can market their product at a profit abroad as well. Based on this intuition we will postulate that the neo-mercantilist state’s producers have achieved various degrees of “cost parity” with foreign competitors. We also will assume the rest of the world market is competitive and price-taking, so domestic mercantilist producers do not influence world prices. To allow partial-equilibrium analysis we suppose (1) that the world prices of any goods that our stylized mercantile state does import are fixed, and (2) that all domestic industries other than those producing Q in the mercantile sector are competitive. Thus, the home country produces a homogeneous commodity Q , which is also produced abroad, and sells there (neglecting transport costs) at a constant world price, p_w . High distribution costs at home, rooted in language, custom, and culture and possibly sustained with government regulation, in effect, completely exclude foreign suppliers of good Q . Although we assume a crucial asymmetry between home and foreign suppliers, by contrast oligopoly within the neo-mercantile sector is assumed to be symmetric. There are n identical domestic firms each producing q ($= Q/n$) under symmetric oligopoly. (Here and throughout we ignore integer, whole-number issues in the equilibrium value of n . That is, we assume n can take on noninteger values.) Each firm sells q_H at home at the one price p_H and q_E abroad ($q_E \geq 0$) at price p_w while producing $q = q_H + q_E$. Throughout this paper we use specific functional forms of costs and demand to derive/illustrate these effects. We have assumed linear demand and quadratic cost structures, but the generic qualitative conclusions reached do not depend on the particular forms assumed. Production (q), revenue (TR), home demand (p_H), cost (TC , AC , MC), and profit (π) conditions are given by equations (1), (2), and (3). The parameter A is market reservation price, and b (> 0) is a parameter reflecting the size of the market.

$$q = q_H + q_E, \quad TR = p_w q_E + p_H q_H, \quad p_H = A - bq_H; \quad (1a-c)$$

$$TC = F + \alpha q^2, \quad MC = 2\alpha q, \quad AC = F/q + \alpha q. \quad (2a-c)$$

F is fixed cost, $\alpha (> 0)$ is a parameter to show scale economies, and AC is U-shaped. Returns to scale, therefore, are traditional intrafirm effects, and are recognized by individual firms.

$$\pi(q_H, q_E) = p_W q_E + p_H q_H - (F + \alpha q^2). \quad (3)$$

The standard Chamberlin oligopoly solution is pictured in Figures 1 and 2. Each oligopoly firm perceives a domestic marginal revenue curve constructed by assuming that all $n - 1$ identical rivals each maintain q_H at an unchanging level. (In equilibrium, both q_H and n will be determined endogenously.) Cournot oligopoly conditions are given by (4a,b) with perceived *ex ante* marginal revenue curve of each oligopolist MR^* and realized *ex post* marginal revenue MR :

$$MR^* = A - (n - 1)bq_H^* - 2bq_H, \quad MR = A - (n + 1)bq_H. \quad (4a-b)$$

The asterisk indicates each firm's assumption that others' q_H^* supply is fixed. Accordingly, $(n - 1)q_H^*$ gives the assumed supply of each of $(n - 1)$ rivals, and $-2bq_H$ gives the reduction in the individual firm's revenue caused by own supply q_H (measured from $A - (n - 1)bq_H^*$ on society's demand curve, also shown in Figure 1). As $(n - 1)q_H^*$ increases, the representative firm's domestic demand and marginal revenue curves—consistent with the Nash–Cournot assumption—shift parallel to the left. In symmetric equilibrium, $q_H = q_H^*$ for all firms. Therefore realized *ex post* marginal revenue is as given in (4b).

Mercantile Equilibrium Conditions

In our asymmetric oligopoly equilibrium with p_W assumed given, each firm maximizes profit, setting p_W , MC , and MR all equal to yield equations (5) and (6):

$$\partial\pi/\partial q_E = 0: p_W = 2\alpha q, \quad (5)$$

$$\partial\pi/\partial q_H = 0: A - bnq_H - bq_H = p_H - bq_H = 2\alpha q. \quad (6)$$

Figure 1. Market Demand and Individual Firm AR Under Cournot Oligopoly

Figure 2. Zero-profit Equilibrium of the Individual Firm in the Absence of Exports

Then the free-entry assumption gives

$$\pi = 0: q_H(A - bq_H) + p_w q_E = F + \alpha q^2. \quad (7)$$

New identical firms enter or exit the mercantile sector and the value of n adjusts until each firm's profit-maximizing revenues just cover its total costs. Figure 2 pictures the conventional Chamberlin tangency outcome in the absence of exports. If the number of firms were to increase, whether due to greater demand or a lower average-cost-minimizing scale of production, the tangency outcome will approach the competitive solution at minimum of AC (see Tirole, 1988).

But when profit maximization includes positive exports, then compared to the conventional picture there is a crucial difference. The tangency point between the individual firm's demand and its AC curves no longer corresponds to zero profits. If each firm's ability to export at world prices yields a profit on foreign sales, then further entry will continue until this profit, too, is competed away. Figure 3 pictures an example of such a positive-export, zero-profit equilibrium for one firm. There is no tangency here.

Equilibrium with positive exports, zero profits, and Cournot free entry is internally consistent only over a limited range of costs. For example, assume that domestic producers in the mercantile sector have achieved "marginal cost parity" with foreign suppliers, but not "average cost parity." Then the opportunity to sell abroad at world prices will indeed generate a profit for the home oligopolist, and will induce greater free entry. Central to our idea of implicit mercantilism, the range of "marginal cost parity" defines the domain of the implicit mercantile state. "Marginal cost parity" exists when world price exceeds the MC of individual domestic firms at zero-export Cournot

Figure 3. Zero-profit Oligopoly when Home Market is Isolated and Exports Sell at World Price p_w^*

[The number of firms adjusts so that individual firm profit is maximized where $p_w^* = MC = MR$ and losses from exports (area LFEX) are offset by gains from domestic sales (area GFDS), so that total profits are zero.]

equilibrium, while at the same time home AC is greater than world price. “Average cost parity” exists when home $AC < p_w$ for some values of q .

5. Limits on the Range of Mercantile Equilibrium

To obtain equilibrium we solve equations (5)–(7) to derive $p_H = f(p_w, b, \alpha, F)$, $q_H = g(p_w, b, \alpha, F)$, and $n = h(p_w, A, b, \alpha, F)$. Because of the individual firm’s demand constraint, from (1c), only any two of these expressions are independent; the third can be derived from the other two. Then combining (5) and (6) yields (8) for p_H and including $\pi = 0$ from (7) gives (9) for q_H for the representative firm’s domestic sales as a function of the world price p_w :

$$p_H = p_w + bq_H, \quad (8)$$

$$q_H = [(F/b) - (p_w^2/4b\alpha)]^{1/2}. \quad (9)$$

The first implication of this analysis and one crucial to our model of trade mercantilism follows from (9). Figure 4 shows that this relation applies only over a particular range of world prices relative to home production costs, as given by

$$2\{\alpha F/1 + (b/\alpha)\}^{1/2} < p_w < 2(\alpha F)^{1/2}. \quad (10)$$

Figure 4. Relative Cost Competitiveness and the Stages of Oligopoly-Mercantilism

[When world costs are very low, or domestic costs relatively high, as with rest-of-world supply S_W^0 and corresponding p_W^0 , a mercantile country supplies only its home market, maximizing profit where $p_W^0 = MR^0$, and Providing q_H^0 at price p_C . When rest-of-world costs are higher, or domestic costs lower, as with rest-of-world supply S_W^1 and corresponding p_W^1 , mercantile country supplies both home and foreign markets, maximizing profit where $p_W^1 = MC = AC$, each of n^1 firms providing q_E^1 at price p_W^1 . Here the number of firms n^1 is assumed to be large enough to meet excess world demand ($= n^1 q_E^1$) at p_W^1 .]

For our illustrations we consider various values of world prices, assuming that representative home production costs remain unchanged. We may also consider the impact of home production costs, assuming world prices constant. Home production costs in the mercantile sector normally evolve as the mercantile economy becomes more integrated or globalized into the world economy. The home TC curve may shift down, rotate, and bend in many ways to yield welfare impacts that are ambiguous, however. (We are indebted to Johannes Bröcker for pointing this out to us.) By contrast, simple shifts in p_W are unambiguous allowing the broad generalizations defined in the Appendix.

Within the range identified by (10) with p_W everywhere less than AC , “dumping” is feasible, is profitable (in the short run or *ex ante*), and is central to the economic structure of the neo-mercantile state. Within this range, goods for export are provided at lower price than the domestic price for identical goods (although not lower than world price). Thus this is neither the conventional classic model of dumping, nor a more modern version of Ethier (1982).

Outside this domain below its lower bound, world price is so low that domestic firms have not evolved to MC -parity and, therefore, have no incentive to export at all; instead

they supply only the captive domestic market. When p_w reaches its lowest value (11a), $MR = MC$, $q_E = 0$ for each firm, and each produces for the domestic market as in

$$p_w^{\min} = 2[\alpha F / (1 + b/\alpha)]^{1/2}, \quad (11a)$$

$$q_H = [F / (b + \alpha)]^{1/2}. \quad (11b)$$

Denote the domestic price at this Cournot outcome as p_H^C given by (12a). This domestic price obtains not only at the Cournot equilibrium when p_w has reached $p_w^{\min}$ but also at (12b):

$$p_H^C = (2\alpha + b)[F / (\alpha + b)]^{1/2}, \quad (12a)$$

$$p_w^0 = 2\alpha[(4\alpha + 3b) / (4\alpha + b)][F / (\alpha + b)]^{1/2}. \quad (12b)$$

Any p_w value above (12b) yields a domestic price strictly lower than the Cournot–Chamberlin price. World prices below $p_w^{\min}$ we say induce “primitive mercantilism” with a Cournot–Chamberlin equilibrium of tangency between AC and market demand (as in Figures 2 and 4). Beyond the other extreme of (10), where world price exceeds the minimum value of the representative firm’s AC curve, Cournot oligopoly disintegrates and so does the applicability of our model. Thus (10) identifies a range of marginal costs relative to world price, which defines endogenous trade mercantilism. Over this range the representative mercantile firm is partially competitive with world producers insofar as its marginal costs fall below international competitive average cost; but it is not fully competitive in that within this range it cannot cover average costs from competing with foreign suppliers. We say that over this range the mercantile state has achieved “marginal cost parity” but not “average cost parity.” Figure 4 illustrates these ranges.

6. Domestic Price Compared to World Price

Now for the second crucial inference that is central to our model of implicit neo-mercantilism: the domain of world prices and the corresponding spread of domestic average costs of production naturally separate into two sets; we will designate these two as “start-up mercantilism” and “mature mercantilism.”

The Crossover Point Dividing Mature from Start-up Mercantilism

Within the bounds of (10), combining (8) and (9) yields

$$p_H = p_w + \{b[F - (p_w^2/4\alpha)]\}^{1/2}. \quad (13)$$

This shows equilibrium home price p_H as a function of world price p_w . Again, the maximum of p_w corresponds to the minimum of AC . As p_w approaches $p_w^{\max} = AC^{\min}$, p_H approaches p_w , individual firm supply to home markets q_H approaches zero as in (9), and the number of firms, n , increases without limit, approaching a competitive structure. That is, as p_w approaches $AC^{\min}$, total supply to domestic consumers, nq_H , satisfies demand at $p_H = p_w = AC$, thereby achieving average cost parity. At the other end of the range defined by (10), the minimum value of p_w yields a tangency equilibrium and exports of zero.

Crucially also, equation (13) shows (given b , α , and F), domestic price p_H to be a strictly concave function of p_W ; its second partial derivative with respect to p_W is negative over the assumed domain and has a single peak at $p_W = p_W^*$ defined below by (14). This peak defines the watershed crossover point between start-up and mature mercantilism. Setting the first derivative of (13) with respect to p_W to zero yields

$$p_W^* = [4\alpha F / (1 + b/4\alpha)]^{1/2} < (4\alpha F)^{1/2}. \quad (14)$$

As shown in the Appendix, the concavity of $p_H(p_W)$ and interior position of p_W^* is a general property of this model, not peculiar to linear/quadratic specification. Remarkably, at p_W^* irrespective of its cost/demand curves, the profit-maximizing production of the representative firm is divided equally between exports and home sales, so that $q_E = q_H$. For our linear-quadratic specification, these values are given by

$$q_E = q_H = [F / (4\alpha + b)]^{1/2}. \quad (15)$$

Comparing this result with (10) implies that p_W^* is strictly smaller than the maximum of p_W (i.e. $p_W^{\max}$). Then substituting p_W^* from (15) back in (13) yields the highest possible domestic price

$$p_H^{\max} = [(4\alpha + b)F]^{1/2} > (4\alpha F)^{1/2}, \quad \text{for any } \alpha, F > 0. \quad (16)$$

Thus $p_H^{\max}$ is strictly higher than the home price p_H that obtains when world price equals $p_W^{\max} = AC^{\min}$. We can now use this outcome to establish our claim of two distinct phases of mercantilism: “start-up” and “mature.” Within these two realms, on either side of this $p_H^{\max}$, the response of home equilibrium price within the mercantile economy to changes in world price, or in the cost efficiency of domestic production, are opposites of each other.

The Domain of Mature Mercantilism

Equations (13)–(16) combined entail a strict relation when $p_W^* < p_W < p_W^{\max}$: the lower p_W , the higher is domestic price p_H over the relevant domain as given by (17), and shown in Figure 5.

$$[4\alpha F / (1 + b/4\alpha)]^{1/2} < p_W < (4\alpha F)^{1/2}. \quad (17)$$

Over this domain—contained within the allowable domain for equation (10)—domestic price p_H decreases as the world price p_W increases, and vice versa. In other words, as world price shifts up relative to domestic AC , the equilibrium price paid by domestic consumers in this domain declines and they benefit, all the more if AC also shifts down. Thus it is characteristic of mercantile societies as they mature and draw abreast of best world production techniques that oligopolistic competition benefits *their* citizens by lowering domestic price.

Parameter b captures the effect of domestic population or market size; the larger the absolute value of b , or the steeper the market demand curve, the smaller is the market. For larger b , the smaller is the lower bound of p_W given by (17) and the higher is the maximum domestic price $p_H^{\max}$ given by (16). More generally, (13) shows that for larger values of b (which means smaller population *ceteris paribus*), the equilibrium value of domestic p_H at any allowable level of p_W is higher. This establishes the following propositions for a mercantile society with a technology and cost structure close to world standards, that is for “mature mercantilism,” with $p_W^{\max} > p_W > p_W^*$.

PROPOSITION 1. *Over the specified domain of mature mercantilism, home and world prices are inversely related. If world price declines (increases), home price increases (declines).*

PROPOSITION 2. *The smaller the size of the domestic market, the smaller the lower bound of world price in (17) and, ceteris paribus, the greater the range of world prices to yield an inverse impact upon the home price.*

That is, following from (14), the greater the value of b , the lower the critical world price level. This p_W^* defines the entry point of mature mercantilism (see Figure 6). Although $dp_H/dp_W < 0$ throughout the domain of mature mercantilism, over a part of that domain domestic price is actually higher than it would be under zero-export primitive mercantilism, i.e. $p_H > p_H^C$.

The Domain of Start-up Mercantilism

Consider now the case when world price is below its critical level p_W^* . Then as world price increases, exports increase in response, and domestic price also rises with world price. In this domain, if world price shifts up or domestic AC shifts up, domestic consumers in the mercantile society lose. The domain for this to obtain is given by $p_W^{\min} < p_W < p_W^*$. Equation (18) shows specifics.

$$2[\alpha F/(1+b/\alpha)]^{1/2} < p_W < 2[\alpha F/(1+b/4\alpha)]^{1/2}. \quad (18)$$

Within this domain, a lower population size as reflected in higher absolute values of b will lower the entry point of start-up mercantilism; that is, an increase in b lowers $2[\alpha F/(1+b/\alpha)]^{1/2}$. Within this domain, the mercantile society's consumers lose from its integration with a *laissez-faire* world.

PROPOSITION 3. *Over the specified domain of start-up mercantilism, home and world price vary directly. If world price declines (increases), home price declines (increases).*

PROPOSITION 4. *The smaller the size of the domestic market, the smaller the lower bound of world price in (18) and, ceteris paribus, the greater the range of world prices to yield this direct impact upon the home price.*

7. Comparative Statics for the Neo-mercantile Economy

Figure 5 summarizes the structure of this mercantile economy and how foreign trade affects its citizenry, showing the three stages of mercantilism. Start with p_W at the high of $p_W^{\max} = AC^{\min}$ and allow world price to decline. Then total production—determined where $p_W = MC$ —declines following MC ; domestic price p_H initially goes up along the “domestic price locus” (or DPL -curve) at the stage of mature mercantilism. Eventually, when p_W reaches the critical crossover value of p_W^* , p_H reaches a maximum at $p_H^{\max}$ and then starts to go down entering the realm of start-up mercantilism. The arrows along MC and DPL indicate directions of movement of the firm's equilibrium as world price p_W increases, starting from its minimum $p_W^{\min}$.

For any allowable value of p_W , the firm's total output is divided into two parts, exports and domestic supply. The downward-sloping concave curve shows how total output of the firm is so divided for any value of p_W . This curve is the locus of inter-

Figure 5. How the Firm's Output, Home Supply, and Exports Change Along with Domestic Price as World Price Changes

[As p_W increases, the firm's total output moves along MC as shown by the dotted arrows, and domestic price p_H changes as shown by the solid arrows along DPL .]

sections between p_W and MR_i , where MR_i is the marginal revenue function of the representative firm given that the number and sales of other firms are at their equilibrium values (which themselves depend on p_W).

The value of p_H begins to decline for reductions in p_W below the critical level of $p_W^* = p_W(p_H^{\max})$ and continues to decline until p_H reaches p_H^C , and p_W has reached $p_W^{\min}$ supporting a domestic Chamberlin tangency equilibrium. Here domestic cost conditions are

so unfavorable compared to world prices that start-up mercantilism is just marginally viable. At world prices below $p_W^{\min}$, the variable costs to firms, which meet domestic demand in a Cournot equilibrium, are so great that sales on world markets will not cover even these costs. Note that the second-order condition is guaranteed (MR downward-sloping and MC upward) along with FOC. If the world price happens to be lower than $p_W^{\min}$, domestic firms have no incentives to sell their products abroad. They will simply supply the domestic market, remaining at a Chamberlin tangency on AC .

From this equilibrium as a reference point, now consider backward reasoning. Let the world price rise, equivalent to a decline in AC . Then, for given AR -curve, the firm's profit must increase with positive exports. But positive profit will induce new entry, shifting AR leftward and eliminating profit at the new equilibrium. If world price keeps increasing, so does the number of firms, additional entry shifting the firm's AR parallel leftward until $AR_{\min}$ obtains. Note also from (13) that equilibrium p_H does not depend on the reservation price A ; only the slope of the home demand curve counts. When world price approaches $p_W^{\max}$, the firm's output approaches $(F/\alpha)^{1/2}$ all of which is exported in the limit, as domestic sales of the individual firm approach zero. Now the individual firm's perceived AR curve shifts so far to the left that its perceived reservation price approaches world price $p_W^{\max}$. (The number of firms increases without limit as $p_W^{\max}$ is approached, each individually providing less and less to the home market but in the aggregate supplying sufficient to meet home demand as price decreases.) What happens if world price increases beyond the assumed domain, if $p_W > AC^{\min}$? Our model of oligopoly mercantilism no longer applies; the country becomes a fully competitive supplier of Q to world markets.

Figure 5 also shows how home consumers will or will not benefit from "dumping" depending on the value of world prices within the domain of (10). In a comparative static sense, world consumers benefit from mercantile "dumping," in that the aggregate increase in world supply which this "dumping" brings about lowers world prices (although each individual firm in the home country ignores this effect). But "dumping" benefits home consumers in the mercantile economy only when the world price is high enough such that

$$2(\alpha F)^{1/2} > p_W > 2\alpha[(4\alpha + 3b)/(4\alpha + b)]\{F/(\alpha + b)\}^{1/2}. \quad (19)$$

In this region, home price with "dumping" is strictly below the autarchic-tangency price: $p_H < p_H^C$. On the other hand, dumping harms the home consumers when

$$2\alpha[(4\alpha + 3b)/(4\alpha + b)]\{F/(\alpha + b)\}^{1/2} > p_W > 2\alpha[F/(\alpha + b)]^{1/2}. \quad (20)$$

In this region, $p_H > p_H^C$, home price with "dumping" strictly exceeds the Chamberlin-tangency price.

Figure 6 summarizes these effects with the relationship between p_W and p_H given by curve DPL .

$$DPL: (p_H = p_W + \{b[F - (p_W^2/4\alpha)]\}^{1/2}). \quad (21)$$

The defining ranges of p_W are marked off on the abscissa as I, II, III, and IV. In region I, domestic price has constant value p_H^C for low world prices. In region II, domestic price begins to increase with p_W and continues until it has reached a maximum of $p_H^{\max}$. Past this maximum, in region III, p_H declines with further increases in p_W , although remaining above the tangency-autarky price. Finally for world prices still higher in region IV,

Figure 6. Stages of Integration of Mercantile Economy

[I: *Primitive mercantilism*—No integration, world price very much below high home price. II: *Start-up mercantilism*—home price p_H ($> p_C > p_W$) increases with world price. Export increases with adverse welfare effects. III: *Mature mercantilism-1*—Home price declines as world price increases. Welfare loss from export declines as export increases, albeit p_H still remains higher than p_C ($> p_W$). IV: *Mature mercantilism-2*—Home price declines further below p_C , approaching p_W as world price increases with net welfare gain from export.]

the domestic price actually falls below p_H^C —more and more below as world price increases up to $p_W^{\max}$. Beyond this “maximum” value of world price, our model of Cournot mercantilism no longer applies.

Although the particular outcomes presented depend on the specific linearity assumptions in the model, they suggest how the modern mercantilist state may find itself in a local optimum trap. Within the range of “start-up mercantilism,” we expect consumers to resist integration. For the rent-seeking structure proposed here assigns a role of buffer to the local consumer. If world prices are very low compared to the domestic cost structure, “dumping” in world trade diverts the product abroad. This raises domestic prices to make up for the fact that each firm’s fixed costs are spread over a smaller domestic sales base and only a small share of those fixed costs are covered by overseas sales. Thus in the early stages in economic integration of the mercantile sector we expect domestic consumers in mercantile states to oppose the change. But after the domestic cost structure is sufficiently close to the world price—or the

world price is sufficiently high—the consumer in the mercantilist society *actually benefits from sales of exports below domestic AC*. For then foreign sales covers more and more of fixed costs. Absorption of excess profit by new entrants increases domestic sales and, therefore, reduces domestic prices to the benefit of the domestic consumer.

8. Conclusions

Recent decades have seen the emergence of the modern mercantile states as major players in the global economy—states that have become objects of continued political pressure to open up. Thus a need for better understanding has grown of how these countries interface with the international system. Our model suggests how domestic oligopoly reflecting traditional networks of trust, or supported by traditional distribution mechanisms, which earlier tended to isolate a society from overseas competition can lead to endogenous mercantilism. Combining oligopoly mercantilism with opportunity to trade illuminates the effects of trade on the incentives and welfare within such a mercantile society. To effect this insight we have introduced the notions of “marginal cost parity” contrasting it with “average cost parity,” as concepts to define three stages of mercantilism: “primitive,” “start-up,” and “mature.” These three stages emerge from free entry and Cournot competition within a mercantile state as it realizes opportunities to export.

These stages are important for two reasons. First they define the incentives mercantile countries have to remain closed or to open up their political economic structures—when the net benefits to the citizens favors abandonment of the mercantile system versus maintaining old patterns. Thus they provide some suggestion of likely drift of internal political pressure. “Primitive” mercantilism with a totally uncompetitive cost structure has no incentive at all to open up. “Start-up” mercantilism, on the other hand, has reached the early stages of “marginal cost parity” with the outside world, and is characterized by a *conflict between its producing and consuming sectors*. Producers benefit from selling abroad in these early stages of economic integration, but the more they can sell to foreigners, the greater the price they must charge at home, and so home consumers lose. As the cost disadvantage of the mercantile economy declines and its industries approach “average cost parity” with best competitive practices abroad, we call the society a “mature” mercantile state. And for this configuration, the closer mercantile costs approach international prices, *the better for both mercantile producers and domestic consumers*. Thus, as world prices increase domestic prices will increase at first, then reach a maximum, and finally decline. And they do so all the more if domestic costs also decline. Second, these cost parity stages are important as they bear directly on the hardline/forbearance policy dichotomy. Consider the effect of a tariff by the “*laissez-faire*” trading partners, levied possibly in response to their hardliner’s demands for trade instruments to offset price discriminating policies of the mercantile structures. If it has any effect, the tariff, by lowering demand, will lower the price at which the mercantile state can export. What long-term impact does this have on the mercantile state? The answer: it depends on the stage of mercantilism. A decline in p_w under start-up mercantilism benefits the citizens although it harms the producers, so it is an ambiguous instrument. But a decline in p_w under mature mercantilism harms everyone in the mercantile economy. This may not be decisive but it surely is relevant, and it raises the important question of where along the spectrum between isolation and complete *laissez-faire* integration a country with mercantile tendencies may be located.

Appendix

Derivation of Domestic Price Locus as a Function of World Price

This section shows the general relationship between world price, p_W , and domestic price, p_H , to be concave as pictured in Figure 4. Moreover, $p_H = g(p_W)$ reaches a maximum ($p_H^{\max}$) just at the point when the firm divides its sales equally between home and export markets. Remarkably, this identifying characteristic of $p_H^{\max}$ depends in no way on the underlying demand and cost functions, other than the ordinary provision that $f' < 0$ (downward-sloping demand curve), and $C'' > 0$ (increasing MC curve).

We begin with the first-order conditions (A1) and (A2) followed by the firm's equilibrium condition (A3) and the market equilibrium condition (A4). All notation corresponds with the text, except for C (total cost), C' , and C'' , and $f(Q_H) = p_H(Q_H)$, $f' = df/dQ_H$.

$$C'(q_H + q_E) = p_W, \quad (\text{A1})$$

$$f(Q_H) + f'(Q_H)q_H = p_W, \quad (\text{A2})$$

$$f(Q_H)q_H - C(q_H + q_E) = -p_W q_E, \quad (\text{A3})$$

$$Q_H - nq_H = 0. \quad (\text{A4})$$

Total differentiation of the system of the first-order equilibrium conditions gives Table A1.

The sign of dp_H/dp_W is the opposite of that of dQ_H/dp_W , and dQ_H/dp_W follows from the total differentiation as

$$\frac{dQ_H}{dp_W} = \frac{\begin{vmatrix} 1 & C'' & C'' \\ 1 & f' & 0 \\ -q_E & f - C' & 0 \end{vmatrix}}{\begin{vmatrix} 0 & C'' & C'' \\ f' + q_H f'' & f' & 0 \\ q_H f' & f - C' & 0 \end{vmatrix}}. \quad (\text{A5})$$

The denominator is negative by second-order conditions, so that the sign of dp_H/dp_W has the same value as the numerator.

$$C''[(f - C') + f'q_E] = C''[(f - p_W) + f'q_E] = C''[f'(q_E - q_H)]. \quad (\text{A6})$$

Thus when p_W is small such that the mercantile state is isolated, and unable to compete in international markets (has not achieved even MC parity), q_E is zero and the above

Table A1. Differentiation of First-order Conditions

	dQ_H	dq_H	dn	dq_E	dp_W	Equation
Coefficients	0	C''	0	C''	1	(A1)
	$f' + q_H f''$	f'	0	0	1	(A2)
	$q_H f''$	$f - C'$	0	$p_W - C'$	$-q_E$	(A3)
	1	$-n$	$-q_H$	0	0	(A4)

Table A2. Effect of an Increase in World Price p_w on Selected Variables in Each Domain

Domain in Figure 6	Values of p_w	Change effected by $\Delta p_w > 0$					
		Δp_H	ΔCS	Δq_E	Δq_H	ΔQ_H	Δn
I: Primitive mercantilism	$p_w < \sqrt{4\alpha F/[1+(b/\alpha)]}$	0	0	0	0	0	0
II: Start-up mercantilism	$\sqrt{4\alpha F/[1+(b/\alpha)]} < p_w$ $< \sqrt{4\alpha F/[1+(b/4\alpha)]}$	+	-	+	-	-	+
III: Mature mercantilism-1	$\sqrt{4\alpha F/[1+(b/4\alpha)]} < p_w$ $< (4\alpha + 3b)\sqrt{4\alpha F/[1+(b/\alpha)]}/(4\alpha + b)$	-	+	+	-	+	+
IV: Mature mercantilism-2	$(4\alpha + 3b)\sqrt{4\alpha F/[1+(b/\alpha)]}/(4\alpha + b)$ $< p_w < \sqrt{4\alpha F}$	-	+	+	-	+	0

expression is positive—assuming $C'' > 0$ and $f' < 0$ —and an increase in p_w raises p_H . When p_w reaches a level such that $q_E = q_H$, the marginal effect of p_w on p_H has vanished; and for still higher values of p_w so that $q_E > q_H$, the expression is negative and the value of p_H declines with rising world price p_w . Thus, the shape of the function $p_H = \phi(p_w)$ drawn in Figures 5 and 6 does not depend on our specific assumptions as to cost and demand curves. Any cost function with increasing marginal cost, and demand with negative slope, will produce the concave shape, and the specific equality in division between domestic and export supply is the crucial point at which the consumers in a mercantile society begin to benefit from economic integration.

Table A2 assembles these effects, showing calculations for the impact of an increase in world price on domestic price, consumer surplus, quantities produced and consumed in the mercantile state, and number of firms.

A Successive-monopolies Foundation of Endogenous Mercantilism

Following Greenhut and Ohta (1976) and Ohta (1997), consider a successive-monopolies model of import distribution. As in the text, assume a linear Marshallian final demand for imports, Q_H :

$$p_H = A - bQ_H. \quad (\text{A7})$$

We will use this model as an instance of the endogenous establishment of rent-seeking mercantilism. Individual layers of rent garnishing and rent absorbing distribution could derive from government import quotas, licensing, or other revenue collection or rent creating and transfer mechanisms, but conscious or conspiratorial action of government is not necessary. Instead the primitive mercantilism which the successive monopolies model generates may be quite organic/endogenous requiring no centralized political guidance.

For simplicity, neglect all variable costs of distribution incurred at every stage, from the final downstream distributor (indexed as “ n ” up to the original importer indexed as “1”). Then equation (A8) gives the final distributor’s marginal revenue, MR_n .

$$MR_n = A - 2bQ_H, \quad (\text{A8})$$

$$MR_{n-1} = A - 2^2bQ_H, \quad (\text{A9})$$

$$MR_1 = A - 2^n bQ_H. \quad (\text{A10})$$

The penultimate distributor ($n - 1$) perceives MR_{n-1} as his demand curve, so that MR_{n-1} is given by (A9). Under successive monopoly with n stages of costless distribution, therefore, the initial importer's (indexed as "1") derived marginal revenue, MR_1 , is as shown by (A10). Now assume the importer's landed unit cost of Q_H fixed at p_W ; then profit maximization requires this derived marginal revenue to be equated to p_W (A11), where the demand parameter A is the final market's reservation price and n is the number of independent distributors, each of whom behaves as a monopolistic seller and a competitive buyer. Thus, under the n -stage successive monopoly, using $p_W = MR_1$ yields both equilibrium imports (A12) and final domestic market price (A13).

$$p_W = A - 2^n b Q_H, \quad (\text{A11})$$

$$Q_H = (A - p_W) / 2^n b, \quad p_W < A, \quad (\text{A12})$$

$$p_H^* = A - [(A - p_W) / 2^n]. \quad (\text{A13})$$

The ratio of p_H^* to p_W exceeds unity when $n = 1$ provided the parameter A exceeds p_W . It becomes greater for higher ratios of A/p_W , and is increasing in n . Thus entry of more distributors exacerbates international price disparities. For example, a \$10 item abroad can easily sell for \$100 at home if reservation price $A = \$106$ and $n = 4$. Just four dealers can push it up to ten times the foreign price.

Now imagine that a country has evolved into such a pattern of successive distribution monopolies. These price-enhancing and demand-depressing effects of a multilayered domestic distribution structure reveal the underlying mercantile tendency to maximize the balance of payments by minimizing imports. More workers than needed are allocated to superfluous stages of distribution, raising the domestic market costs of imported goods, and generating structural protection. Thus this model of endogenous rent-seeking incorporates the idea that rents are dissipated and real resources are wasted. We might think of such an organization of trade as "primitive" or "minimal" mercantilism that at first merely curtails imports rather than stimulating exports and is in fact compatible with autarky.

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