Biswas, Amit K.

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A Paradox

AMIT K. BISWAS

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Address of the author(s):

Amit K. Biswas
Technische Universität Dresden
Faculty of Business and Economics
01062 Dresden
Germany

e-mail : Amit.Biswas@mailbox.tu-dresden.de

Editors:

Faculty of Business and Economics, Department of Economics

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Working paper coordinator:

Dominik Maltritz
e-mail: wpeconomics@mailbox.tu-dresden.de

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Import Tariff Led Export Under-invoicing
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Amit K. Biswas
Technische Universität Dresden
Faculty of Business and Economics
01062 Dresden
Amit.Biswas@mailbox.tu-dresden.de

Abstract:

Prolonged worldwide economic depression forces some economists and policy makers to demand for a tougher regulation to protect their domestic economy. If implemented, this may lead to a high tariff and non-tariff regime that ruled the pre-globalised world economy. This paper examines the consequences of a tariff protected trade regime. It takes up the case of trade misreporting phenomena under the framework of protected regime. It builds up a basic trade mis-invoicing model and then develops a collusion between underreporting traders of partner countries. I show that high tariff barrier gives incentives not only to the importers but also to the exporters to gain by underreporting the trade statistics. Interestingly, this paper shows that even if foreign exchange is fully floated, underground foreign exchange market can be created and exporters may rationally underreport without any gain through black market premium – a departure from conventional theory.

JEL-Classification: F13, F31, K42.

Keywords: Prohibitive Tariff, Misreporting of Trade Data, Collusion.

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1. Introduction

Economists and policy-makers usually fall upon the restrictive foreign exchange and trade policies to protect the domestic industrial interests and foreign exchange reserves. Following globalization and WTO led trade reforms the conventional prescriptions of stringent regulatory policies seemed to be the stories from the past. But the present worldwide economic slump has made many economists and policy-makers from different countries to demand for a protected trade regime to save their domestic economy.

Trade economists are usually very much apprehensive of the effects of regulatory trade regime on true revelation of trade data by the foreign traders. Restrictive trade regime can act as incentives for the foreign traders to fabricate their officially reported traded values. Morgenstern (1963) was first to detect the comprehensive link between corrupt activities among the international traders and restrictive foreign exchange and trade regime. He prescribed the method of cross-checking the domestic trade data with the one obtained from the partner country statistics. The technique of partner country statistics comparison was developed there with great mastery and elegance. Naya and Morgan (1969) extended the technique of partner country data comparisons to Asian countries, again focusing on the statistical aspects of those discrepancies. In his paper on the invoicing of Turkish import, Bhagwati (1964) explicitly linked up the discrepancies between the import data of Turkey and the export data of her partner countries to the economic rationale that import duties higher than the black market premium (in short, BMP, defined as the difference between the market and official domestic exchange rate) of foreign exchange provided a systematic reason to under-invoice the import carrying those high duties.

In recent past, Jianping (1998) explored the different sources of demand and supply components in the black market for foreign exchange by analyzing trade mis-invoicing phenomena. Marjit et al. (2000) tried to build up a simple export under-invoicing model and concluded that with devaluation the extent of under-invoicing fell significantly. Biswas and Marjit (2005) show by comparing Indian official trade statistics with corresponding developed country figures, that India's export and import

figures have always been underreported during 1960-98, barring a few exceptional years. They show in the context of a trade mis-invoicing model that that the exporter will under (over) invoice exports if the gain from selling the unreported export at the market exchange rate outweighs (falls short of) the loss in export subsidy. Similarly, an importer will under (over) invoice imports if the benefits of escaping high tariffs outweighs (falls short of) the loss from buying the foreign currency at the market exchange rate. In a three country preferential – non preferential trade model Biswas and Marjit (2007) show that the low tariff preferential trade channel induces capital flight while the high tariff non preferential trade channel is conducive to illegal foreign exchange transactions in the domestic market.

This paper investigates further and singles out tariff barrier as the most significant policy instrument behind misreporting of traded values and subsequent creation of black market for foreign exchange. In our simple trade mis-invoicing model, the partner country exporters and importers misreport proportionately so that crosschecking of partner country trade data does not reveal anything. In this process of collusion they form a cartel, gain from tariff evasion and try to escape the punishment on misreporting. We find the stability of the cartel requires the exporters under-invoice even without any BMP gain. The stability condition that exporters under-invoice even without any BMP gain, is kind of departure from conventional wisdom and noted as ‘paradox’ here.

The rest of the paper is organized as follows. Section 2 describes the basic trade mis-invoicing model. Section 3 analyses the participatory condition for collusion through a Nash bargaining approach. Section 4 checks the stability of the cartel and finally section 5 concludes the paper.

2. The Basic Trade Mis-invoicing Model

This section, following Biswas & Marjit (2005), develops the basic trade mis-invoicing phenomena. We discuss in details the incentives and purposes of producing falsified

trade data by the dishonest foreign traders under restricted trade regime and government monitoring.

2. A. Export Mis-invoicing

When an exporter does not reveal his true value of export, he may either under-invoice or over-invoice. The former case occurs when the official exchange rate is overvalued and the later is the outcome if the export subsidy is really very high and financially attractive. In our model we take the two cases together to form a general objective function for a mis-invoicing exporter. He underreports to gain the lucrative BMP by selling the unreported export at the market exchange rate when he thinks that BMP gain will outweigh the subsidy loss. He over-reports the export values to gain some extra amount of financial benefits in the form of subsidy when it is anticipated that subsidy gain will outweigh the BMP loss. We use the following notations to build our comparative static model in a given period:

X_o: reported or official dollar value of export, X_a: actual dollar value of export,
e: official exchange rate, E: market exchange rate and
s: per unit subsidy on dollar value of official export.
The relationship between actual (X_a) and reported (X_o) export can be expressed as:

$$X_o = (1-\alpha) X_a, \quad \alpha \leq 1 \quad (\alpha \text{ is the rate of mis-invoicing}) \tag{1}$$

From (1) it is clear that whenever $\alpha \leq 0$, the case is over-reporting is occurred and otherwise the exporter underreports.

The basic assumption of our model is that whenever the domestic currency is devalued, the gap between the market exchange rate and the official exchange rate falls. Hence, the change in the BMP and the change in the official exchange rate are inversely related. We introduce the term BMP, denoted by v and defined as

$$v = E - e, \; v > 0 \text{ with } \frac{dv}{de} < 0 \tag{2}$$

Assume that there is a cost of misreporting, which includes the penalty charged on an exporter and consequential (if possible) bribe payments when caught. Beside other things the cost depends upon the amount of mis-invoicing. First and second order

derivatives of the cost functions are positive as the higher the extent of mis-invoicing, the larger will be the cost of punishment and monitoring will be more stringent.

Let us discuss the formulation of the objective function of the mis-invoicing exporter. Officially reported export in terms of dollar is X_o. He evaluates it in terms of domestic currency at the official exchange rate and his gain is eX_o. His extent of mis-invoicing is given by $(X_a - X_o)$. The exporter under-invoices when the gap is positive and he sells the unreported value of export at the market exchange rate (greater than the official one) and gains $E(X_a - X_o)$. But whenever an exporter mis-invoices, he has to be aware of the punishment cost 'F', which is a function of the extent of mis-invoicing and hence his cost would be $F(X_a - X_o)$ with $F', F'' > 0$.

Thus, the objective function of mis-invoicing exporter can be written as –

$$\underset{\alpha}{\text{Max}}\, W(\alpha) = e X_o + e s Xo + E(X_a - X_o) - F\{(X_a - X_o)\}.$$

Incorporating (1) and (2), we can write,

$$\underset{\alpha}{\text{Max}}\, W(\alpha) = [eX_a (1+ s)] + \alpha X_a \{v - es\} - F(\alpha X_a) \qquad (3)$$

The first order condition (FOC) of maximization gives us,

$$\frac{dw}{d\alpha} = 0, \text{ i.e., } \{v (e) - es\} = F'(\alpha X_a) \qquad (4)$$

Assuming that the cost of punishment is covered, from (4), the dishonesty condition requires, $v \neq es$. A rational exporter will under-invoice when $v > es$ and both sides of (4) will be positive as α will also be positive. Here v is the additional income in terms of local currency against one unit of dollar and es is the income in terms of local currency forgone per unit of dollar if that dollar value worth of export is not officially reported. Thus, condition for under-invoicing implies when subsidy loss on per unit of officially reported export is more than compensated by BMP, it is beneficial to under-invoice export value. Similarly he will over-invoice when the above condition is reversed, i.e., when $v < es$. In that case both sides of (4) will be negative as α will also be negative.

Let us find the effects of policy instruments, on mis-invoicing. Assuming X_a is exogenous, further differentiation of the FOC yields,

$$\frac{\partial[v - es - F'(\alpha X_a)]}{\partial \alpha} \left(\frac{d\alpha}{de}\right) + \frac{dv}{de} - s = 0$$

$$\text{or, } \frac{d\alpha}{de} = \frac{s - \frac{dv}{de}}{-\alpha X_a F''(\alpha X_a)} \qquad (5)$$

[since $\frac{\partial[v - es - F'(\alpha X_a)]}{\partial \alpha} = -\alpha X_a F''(\alpha X_a) < 0$ as $F'' > 0$].

In (5), as $\frac{dv}{de} < 0$, $\frac{d\alpha}{de} < 0$. It implies that as official exchange rate is devalued, BMP falls and exporter loses the incentive to under-invoice since the gap between v and es falls.

Also, $\frac{\partial[v - es - F'(\alpha X_a)]}{\partial \alpha} \frac{d\alpha}{ds} - e = 0$

$$\text{or , } \frac{d\alpha}{ds} = \frac{e}{-\alpha X_a F''(\alpha X_a)} \qquad (6)$$

Equation (6) shows that $\frac{d\alpha}{ds} < 0$. It demonstrates that as s increases again the gap between v and es falls and hence, the extent of under-invoicing falls.

2. B. Import Mis-invoicing

Mis-invoicing of import – a discrepancy between the stated value of import and its actual value (payable to the exporters abroad) may arise characteristically in two cases: first, when the imported commodity carries a tariff duty and second, when the BMP is high. An under-invoicing of import may take place when the tariff gain outweighs the BMP gain and the case of over-invoicing may occur when the later exceeds the former. Like the previous export model however, a risk is attached to both under and over statement of the value of import and importers have to take into account of that when forming the objective function. Here:

M_o: reported or official dollar value of import, M_a: actual dollar value of import and

d: per unit import duty on dollar value of import.

We may write the relationship between actual and stated values of import as

$M_o = (1-\beta) M_a$, $\beta \leq 1$ (β is the rate of mis-invoicing) (7)

The objective function of the mis-invoicing importer is formed in the following manner. His officially reported dollar value of import is M_o. To mitigate the expenditure on this

import, foreign exchange is needed and equivalent amount of domestic currency is given to the exchange authority. So his cost is eM_o in terms of official exchange rate. The tariff duty, to be paid through official exchange rate, is denoted by edM_o on his foreign currency augmented value of import. If he under-invoices βM_t amount of import, to buy it he has to pay the market exchange rate to acquire that amount of foreign exchange and his additional cost is $E\beta M_a$. There is also a punishment cost, which depends on the extent of mis-invoicing, like in the export model. We assume that the cost of punishment 'G' behaves similarly as in the case of export, i.e., $G', G'' > 0$.

Hence, the objective function of the mis-invoicing importer can be written as:

$$\underset{\beta}{\text{Max}}\ V(\beta) = R(M_a) - eM_o - edM_o - E(M_a - M_o) - G(M_a - M_o),$$

where $R(M_a)$ is the fixed revenue earned by the importer as M_a is fixed.

From equation (2) and (7) we have,

$$\underset{\beta}{\text{Max}}\ V(\beta) = R(M_a) - eM_a(1+d) + \beta M_a(ed - v) - G(\beta M_a) \quad (8)$$

The FOC gives us, $\{ed - v(e)\} = G'(\beta M_a)$ (9)

Assuming that the cost of punishment is covered, from (9), the dishonesty condition requires, $v \neq ed$. A rational importer will under-invoice when $ed > v$. This condition demonstrates that under-invoicing occurs when the domestic currency augmented tariff rate on per unit dollar value of import at official exchange rate is greater than the BMP. Similarly over-invoicing of import occurs when the above condition is reversed, i.e., when $v > ed$. The over-invoicing condition is indicative of a more lucrative BMP.

Let us find the effects of policy instruments, on mis-invoicing. Assuming that M_a is exogenous, further differentiation of equation (9) yields,

$$\frac{\partial}{\partial \beta}[ed - v - G'\beta M_a]\ \frac{d\beta}{de} + d - \frac{dv}{de} = 0$$

$$\text{or, } \frac{d\beta}{de} = \frac{\frac{dv}{de} - d}{-\beta M_a G''(\beta M_a)} > 0 \quad (10)$$

$$\text{where } \frac{\partial}{\partial \beta}[ed - v - G'\beta M_a] = -\beta M_a G''(\beta M_a) < 0 \text{ as } G'' > 0.$$

Equation (10) shows that as e_t increases and BMP falls, it becomes less costly for an importer to buy foreign exchange (say, US dollar) at market exchange rate. Also with the increase in e, the tariff duty to be paid in terms of domestic currency, exchanged at the official exchange rate (ed) increases. This will induce him to underreport more amount of import value. Thus, devaluation lures a dishonest importer to increase his extent of under-invoicing.

Also, $\frac{\partial}{\partial \beta}[ed - v - G'\beta M_a] \frac{d\beta}{dd} + e = 0,$

Or, $\frac{d\beta}{dd} = \frac{-e}{-\beta M_a G''(\beta M_a)} > 0$ (11)

Equation (11) implies as tariff increases, the importer will increase his rate of under-invoicing to evade the higher than before tariff hurdle.

3. Formation of Collusion

This section takes up the case of cartel formation between trade partners of two trading countries. Here we assume that foreign trade takes place between countries A and B. Trade between A and B are highly tariff protected and the medium of exchange is an international vehicle currency. Foreign exchange markets in both the countries are fully liberalized and the BMP does not exist. Our assumptions indicate that under the said framework only importers have some incentives to under-invoice their traded value and gain from evading tariff duties. The exporters have no incentives to misreport as domestic exchange market is fully floated and there is no export subsidy for them.

From the previous section it can be learned that the government has the monitoring capability. It can monitor and check the truthfulness of trade data by crosschecking the domestic trade data with partner country statistics of the same after the required c.i.f. – f.o.b. adjustment. Since the punishment cost is stringent, the traders should be very careful in reporting falsified trade statement. One possible instrument for a dishonest importer to jeopardize the method of cross-checking is to under-report proportionately along with the foreign country export partner. But in the absence of

BMP, the export partner under rational circumstances would only agree to do that if there is reward in the form of bribe payment from the dishonest import partner.

Initially, in the first period, country A's importer (M^A, this is also the value of actual import by A's importer) colludes with country B's exporter (X^B, also the value of actual export from B's exporter) to form a cartel (the same is true between the other trade partners of countries A and B – M^B and X^A as well to form another similar corrupt cartel). The basis of this collusion is as follows. Since the tariff rate is very high, the corrupt importer may gain through tariff evasion. If the partner country exporter agrees to under-invoice by the same proportion, the importer rewards a part of tariff evasion gain to the exporter. The reason is if the exporter and importer under-invoice proportionately, the probability of being detected through cross-checking of bilateral trade data and subsequently punished falls significantly.

The objective function of the corrupt importer (M^A) would be:

$$\underset{\beta}{\text{Max}}\ V(\beta)= R(M^A) - e^A M^A (1+ d^A) + \beta M^A e^A d^A - G(\beta(M^A) \qquad (12)$$

This equation is a bit different from general form in (8) in the sense that there is no BMP (d^A) cost for the importer. Though the government can provide credit to the importers only for officially reported import value, here we assume that the importer finances her unreported basket of import (βM^A) by her initial savings of foreign exchange. The importer may not have to buy the foreign exchange from the market. As a result we do not have the BMP component in the objective function.

Let us assume that following equation (12), the optimal value of tariff-evading rate of import under invoicing is $\beta^*(d^A)$ and the corrupt importer wants the cartel exporting partner to misreport the export value by the same rate.

The participatory condition is determined by Nash-Bargaining approach. Let the profit of the corrupt importer in the first period be $H_1(d)$, a function of tariff rate. If he is caught, he will be out of import business shown by the pay-off $H_1(0)$. The exporter earns K^B, his export revenue under normal circumstance. If he is rewarded with b_1, which is a function of tariff rate as well, the bribe by the importer, his gain goes up to $K^B + b_1$. Let us determine the optimal bribe b_1^* in the following manner:

$$\underset{b}{\text{Max}}\ [\{H_1(d) - b_1\} - H_1(0)]\ [(K^B + b_1) - K^B)] \qquad (13)$$

Following first order condition, $b_1^{*}(d) = \frac{H_1(d) - H_1(0)}{2}$ (14)

Second order condition is also satisfied.

So in a cartel agreement between corrupt trade partners, where β^* is the common rate of under-invoicing over actual exports (XB) and imports (MA) respectively, we have

$$\beta^*XB = \beta^*MA \quad (15)$$

Following symbols, the gain for the tariff evading importer would be:

$$H_1(d) = ed\beta^*M^A - G(\beta^*M^A) \quad (16)$$

Following cartel agreement, we have: $H_1(d) = H_{1M}^{A} + b_1^{*}$ (17)

where the amount 'H_{1M}^{A}' will be kept by the importer herself and 'b_1^{*}' will be passed to the exporter as bribe-reward following cartel agreement.

We assume that there is no monitoring on export invoicing in either country. This is justified as the exporters have neither incentive (in the form of BMP gain) to under-invoice or (in the form of export subsidy) to over-invoice. So there is no cost of mis-invoicing for the exporter.

Thus in the first period, assuming the cost of punishment is covered for the corrupt importer after the bribe payment, the self-enforcing participatory condition for a successful cartel requires,

$$\left.\begin{aligned} H_1 &= H_{1M}^{A} + b_1^{*} \\ H_{1M}^{A} &\geq G(\beta^*M^A) \end{aligned}\right\} \quad (17a)$$

We assume that M^B & X^A behave identically as M^A & X^B to form another corrupt cartel. Arguing in the same line as above, we can have another set of participatory condition for the second cartel between M^B and X^A, where the condition $\alpha^*M^B = \alpha^*X^A$ is satisfied. Here the participatory condition is:

$$\left.\begin{aligned} \tilde{H}_1 &= \tilde{H}_{1M}^{B} + \tilde{b}_1^{*} \\ \tilde{H}^{1}{}_{M}^{B} &\geq \tilde{G}(\alpha^*M^B) \end{aligned}\right\} \quad (17b)$$

α^* is the optimal rate of under-invoicing for M^B and hence following cartel agreement this is also the rate of under-invoicing for X^A as well. The '~' over the variables in (17b) indicate the counterpart variables of (17a).

4. Stability of Cartel

This section checks the stability condition of the cartel when the under-invoicing importer (M^A) has used up all her initial savings to finance the unreported import basket. As it has been already pointed out that the national government or central bank can provide import credit only up to the declared value of import basket, the dishonest importer of country A has to look for some sources other than government funding to finance unreported basket. Even if the domestic exchange market is liberalized, the importer may not buy huge amount of foreign exchange from there as probability of being caught is high in the legal market. Precisely, she needs the underground domestic foreign exchange market to finance unreported import basket once she utilized all her initial resources in the initial phase.

For simplicity we assume that all variables remain unchanged in the later phase of the collusive agreements. Only the cost of import under-invoicing increases as suppliers of illegal foreign exchange (should mainly be the domestic country exporters, here it is X^A) may charge some premium as the demand is inelastic and risk premium is involved (Biswas & Marjit, 2007). So the importer (M^A) finances the rest of unreported import basket by an exchange rate (E^A) $> e^A$ ($E^A - e^A = v^A$ or BMP) As the cost of underreporting goes up following BMP, the rate of underreporting falls from β^*. In the first period rate of underreporting was only a positive function of tariff rate (d^A), but in the second period rate of underreporting becomes a combined function of d^A and v^A and the under-invoicing rate is inversely related to v^A. Solving the general objective function of the corrupt importer as in (8) we get the new rate of under-invoicing:

$$\beta^{**}(d^A, v^A) < \beta^* (d^A).$$

We can also note the gain from tariff evasion in the second period (H_2) falls for the corrupt importer.

$$H_2 (d^A, v^A) = e^A d^A \beta^{**} M^A - v^A (\beta^{**} M^A) - G(\beta^{**} M^A) \leq H_1(d^A) \text{ as } v^A = E^A - e^A \geq 0 \qquad (18)$$

As $H_2 \leq H_1$, the new bribe structure will be different from the previous period. Let it be b_2^* following the Nash-Bargaining approach and $b_1^*(d^A) \geq b_2^*(d^A, v^A)$. But the bribe receiving country B's exporter in the cartel may not recognise the BMP component as v^A

is not visible in B and may continue to demand for $b_1^*(d)$ instead of $b_2^*(d,v)$ as neither M^A, X^B or d^A has changed in the interim.

We would also like to note that loss incurred by the corrupt importer in terms of BMP is the gain accrued to the country's exporter. As we have already pointed out that two corrupt pairs (M^A & X^B and M^B & X^A) in two corrupt cartel behave similarly, the net gain for the exporter (X^B) in the second period would be K^B plus either b_1^* or b_2^* plus gains from BMP ($v^B\alpha^{**}M^B$).

The determination of the optimal rate of mis-invoicing (β) is demonstrated in the following figure. This is the graphical representation of equation (9). Whenever a rational importer misreports, he must also take into account the cost of misreporting. In our model, punishment cost depends upon the extent of misreporting and not upon the nature of misreporting (under or over-invoicing). We assume that the cost is symmetric. The punishment cost is convex as both $G'(|\beta|M^A)$ and $G''(|\beta|M^A)$ are positive. In the model d, e and v are all exogenous and hence the marginal revenue (MR) is constant and parallel to the mis-invoicing (β) axis. In the figure, on the horizontal axis we measure the extent of mis-invoicing and on the vertical axis we have MR, marginal cost, (MC).

Whenever ed > v, it means it is profitable for an importer to under-invoice and the larger the gap, the higher would be the extent of under-invoicing. This is shown in the first quadrant. The second quadrant shows the case of import over-invoicing.

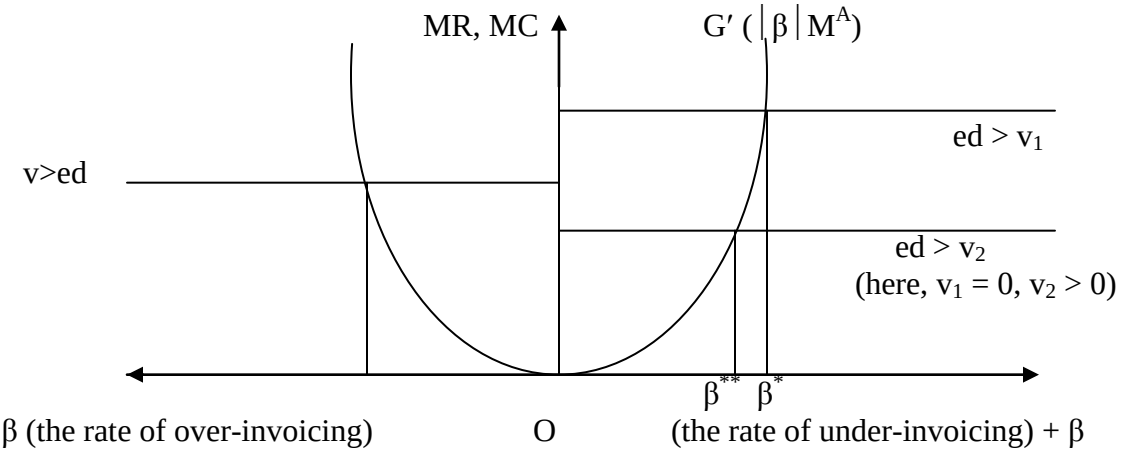

Figure: Determination of optimum rate of import under-invoicing

We would like to take up the issue of a fall in tariff evasion gain in the second period compared to the first period and relate it with the stability of the cartel when the bribe receiving partner country exporter does not recognize BMP to be a determinant of the optimal bribe.

4. A. Effects of Threat by the Exporter

Let us assume that the exporter thinks optimal bribe transfer solely depends upon tariff. Since the tariff rate has not changed in second period, the exporter argues for $b_1^*(d^A)$ instead of $b_2^*(d^A, v^A)$ which is lower. The exporter threatens to break the cartel if b_1^* is not paid which is the agreed upon bribe in the first period without taking into consideration BMP (d^A). Assume that the importer thinks the threat by the exporter as credible and behaves accordingly. Now she has to bear the burden of extra expenditure on herself without lowering the share of her exporting partner in the cartel.

Thus, a fall in importer's gross gain at second phase from H_1 to H_2 implies a larger fall in importer's net gain from $H_1 - b_1^*$ to $H_2 - b_1^*$. On the other hand, the reward paid to the exporter remains unchanged in the second period (b_1^*).

Recall that, in the first phase, one of the participatory conditions (from equation 17a) for the cartel is: $H_1 - b_1^* = H_{1M}{}^A \geq G(\beta^* M^A)$.

But at the second phase, the condition for the importer to under-invoice within the cartel framework should ideally be: $H_2 - b_2^* = H_{2M}{}^A \geq G(\beta^{**} M^A)$ (19)

But following exporter's threat, the importer should satisfy the following inequality:

$H_2 - b_1^* = H_{2M}{}^A \geq G(\beta^{**} M^A)$ (20)

It is highly unlikely that the condition (20) will be satisfied since to the importer b_2^* and not b_1^* is the profit maximizing rate of bribe. If condition (20) is satisfied under the above constraints, the stability of the cartel will still be maintained may be temporarily as the arrangement is Pareto sub-optimal. But let us examine what happens if it is not satisfied.

If condition (20) is reversed, we have, $H_2 - b_1^* = H_{2M}{}^A \leq G(\beta^{**} M_t)$.

This inequality shows that the under-invoicing importer would fail to cover her cost of punishment. As a result, she simply refrains herself from any further under-invoicing. Thus, H_2 will cease to exist and consequently the bribe payment will be zero.

Since, the foreign traders in both A and B behave identically, following above argument, tariff-evading corrupt importer in B (M^B) will also stop underreporting her import value. As a result, in the second period, exporter in B will not be able to sell foreign exchange to her domestic country importer to gain BMP. So her gain through corrupt activities will cease to exist as she will neither gain the bribe from partner country importer (b_1^* or b_2^*) nor the BMP from own country importer ($v^B\alpha^{**}M^B$). So the existence of BMP in either country is sufficient to break the two corrupt cartels.

Above discussion leads us to our first proposition.

Proposition 1: ***The presence of BMP in either country is sufficient enough to destabilize the Cartel between the corrupt importer and exporter. Under credible threat from the exporter, both the trading agents cease to benefit from underreporting traded values.***

4. B. Effects of Threat by Importers

We now turn the focus from the exporter to the importer and analyze the case where the importer in the cartel thinks she should have the bargaining power. Let us assume both the importers (M^A and M^B) threaten their respective exporting cartel partners not to sell the illegal foreign exchange at an exchange rate (E^A or E^B), which is supposed to be higher than the prevailing exchange rate in the countries (e^A or e^B), for BMP gain (v^A or v^B). It is the very existence of BMP in either country which is instrumental in lowering down the benefits from tariff evasion in the second phase and reduces both the exporters' and importers' benefits in the cartels. Importers' threats are viable in the sense that if they stop under-invoicing, their exporting partners cease to be benefited not only from the BMP gain but also from the bribe payments they receive as part of tariff evasion gain transmitted to them by their respective importing partners. I examine the effects of importers' threat in the cartel.

If the exporters take the importers' threat as credible, they will supply foreign exchange to their domestic tariff-evading importer at the ongoing market exchange rate

($e^{A,B}$ = $E^{A,B}$) and there will be no BMP earnings from the illegal foreign exchange market. Hence, each of the importers can buy their required unofficial foreign exchange at the prevailing exchange rate without foregoing the BMP loss. This will lead us to the initial conditions of stable cartel of the first phase, as the importers' profit would not fall due to BMP. Importers' profit as well as optimal bribe (b^*) will solely depend upon the tariff rate (d). For cartels to be stable, it is required that the exporters settle for unreduced reward from tariff evasion gain by the importers in exchange of foregoing BMP gain. It leads us to the other proposition.

Proposition 2: ***Cartel between under-invoicing importer and exporter would be stable under credible threat from the importer. Underground foreign exchange market will exist and exporter supplies foreign currency to domestic country underreporting importer without BMP gain.***

We can summarize our findings in the following manner:

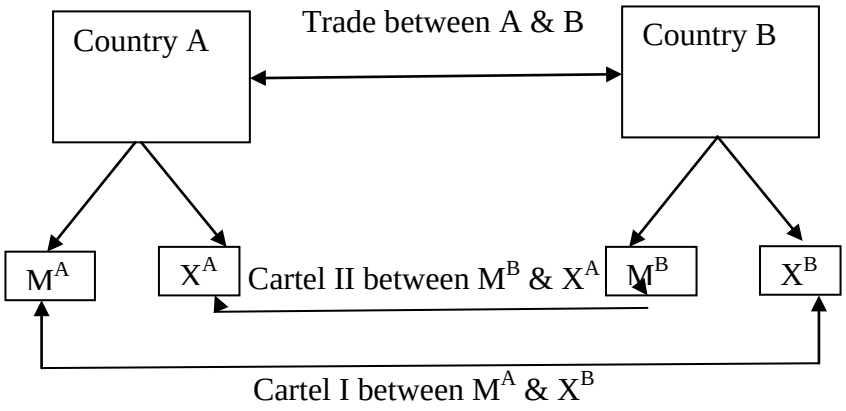

Chart: The players and two cartels.

The Pay-off Matrix of any of the two cartels:

Importer in Country A \ Exporter in Country B	Strategies	Cooperation	Non-Cooperation
	Cooperation	$(H_1 M^A, b_1^*)$	(0,0)
	Non- Cooperation	(0,0)	(0,0)

Clearly, the Nash equilibrium is cooperation on the part of both the corrupt traders. This can only be possible when the two propositions are satisfied. This implies the exporters will under-invoice without any BMP gain and illegal foreign exchange market coexists with fully floated domestic foreign exchange market.

5. Conclusion

This paper analyses the consequences of a tight and restricted foreign trade regime that can soon be a fact following worldwide economic meltdown. It relates corrupt mis-invoicing phenomena in trade statistics with restrictive trade regime. I build a simple cartel framework to show that so long as restrictive tariff barriers are erected, both export and import under-invoicing are possible. The results are quite startling and different from other findings in the sense that it shows that exporters may go for under-invoicing of exports even if there is neither BMP gain nor any export tax to evade. The most interesting finding of this paper is that it shows even if the foreign currency is fully floated, underground foreign exchange activity may take place. This can be contributed to the prohibitory tariff that may exist in the economy.

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