THE DOUBLE CHARGE OF EXTERNAL DEBT SERVICING

- I -

By

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Assumptions

No other country exists in the world except country A or group of countries A and country R or group of countries R.

The unit of money is 1,000 million dollars or an equivalent sum in money A.

The dollar is the national money of country R, money A being the domestic currency of economy A.

In period p° R is an excess country to the value of 200 dollars.

Country A thus incurs a net debt in p°, equal to its deficit.

Interest on A's debt falls due in each period p; the principal and the rate of interest remaining constant, interest due is equal to 10 dollars in each period p.

Net commercial exports, whether realized by A or "advanced" to A by R, are equal to 15 dollars in each period p.

Below line (i) imports are equal to exports.

Between line (i) and line (ii), A's net exports are denoted by ex*; they are equal to 10 dollars.

Above line (ii), A's net exports are denoted by ex**; they too are equal to 10 dollars. Half of exports ex**, namely ex^{**}_1, are sales of commercial goods to the value of 5 dollars; the other half of ex**, ex^{**}_2, is an amount of macroeconomic savings realized inside country A and equivalent, in money A, to 5 dollars.

The purpose of this paper is to prove as painstakingly as possible that the interest multiplier is equal to 1.5 in foreign currency; thus defined, k_1 is equal to 1.5. The meaning of $k_1 = 1.5$ is absolutely clear: in each period p country A spends 15 dollars in order to pay 10 dollars in interest.

When exports ex^{**}_2 are taken into account, the interest multiplier, K, is equal to 2. Again the meaning of the multiplier is unambiguous; in each period p country A spends 20 units of value - that is to say 15 dollars and macroeconomic savings equivalent to 5 dollars - in order to discharge its 10 dollar debt in interest.

Concerning $k_1 = 1.5$, a full proof is offered in the present paper.

Beyond k_1 the proof for K = 2 is not fully expounded; the exact nature of ex^{**}_2 will be analyzed in a second paper.

Resident D of country A owes the interest, the corresponding creditor is resident C of country R.

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The cost of interest is multiplied by 2

To pay interest is to pay an equivalent amount of imports effected by the creditor country.

Excess exports ex* are paid for by country R to country A at their value of 10 dollars.

The 10 dollars which A earns in this fashion are then paid out in interest: the payment of 10 dollars in interest defines the payment by country A itself of its own exports ex**, equivalent to 10 dollars. It can rightly be said that A takes over the payment of ex** which at first rests with country R.

The figure below depicts these flows.

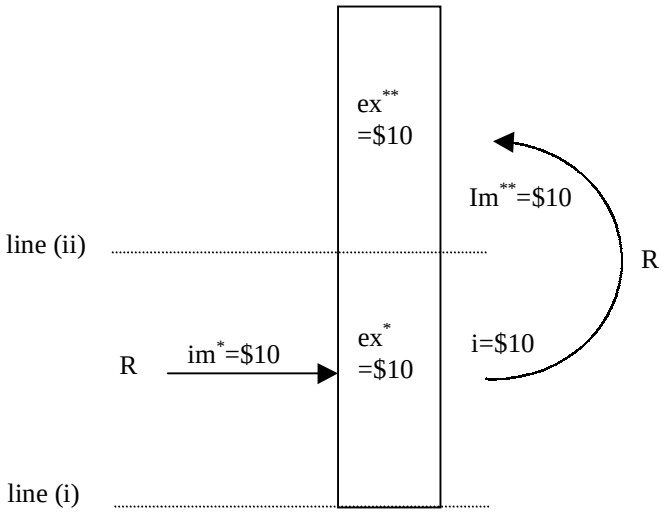

Figure 1

It can readily be seen that the payment of ex* is absorbed in the payment of ex**, for the imports corresponding to ex** are obtained for free by country R. In the end, a 10 dollar interest places a total burden of 20 dollars on the back of the indebted country.

If country R paid for A's excess exports ex**, which it does not do since, by paying net interests, A pays for equivalent imports by R, country A would fully meet its obligation by simply serving the total amount of interest due. Now, since exports ex** are paid for by A instead of being paid for by R, the real cost of a 10 dollar interest charge amounts to 20 dollars.

The reason why A's exports ex** are paid for by the exporting country – not by the importing country – is here stated for the third time: the payment of an interest of 10 dollars by A has only one possible meaning and effect: it constitutes the payment by A of an equivalent value of R's imports.

Let us note at the outset that exports ex**, amounting to 10 dollars, are divided into two equal parts:

. ex^{**}_1 = 5 dollars are " ordinary " exports of commercial goods;

. ex^{**}_2 are defined by the loss of a sum equivalent to 5 dollars in domestic savings incurred by A to the benefit of R.

In this first paper, we fully explain only ex^{**}_1; the analysis of ex^{**}_2 will be completed in the second paper.

Once the true nature of ex** has become absolutely clear, the complete interest multiplier, K, will be seen to be equal to 2.

But as soon as ex^{**}_1 is adequately analyzed, as we hope it is in the present paper, the interest multiplier, strictly defined in terms of a foreign currency (the dollar in country A), k_1, will be found to equal 1.5.

Let us explain the underlying reason why the cost of interest is multiplied by 2.

Even before any international transaction occurring in period p is taken into account, country A is burdened with a positive debt, resulting from the simple passage of time between p° and p.

Interest which falls due in p corresponds to a zero amount of excess imports effected by A in p: interest is nothing but an increment in the value of excess imports realized in p°. It follows that interest is the price of imports which country A never actually receives. In other words, interest is the price of elapsing time, not the price of imports. A fundamental asymmetry thus arises; country A alone is made to pay the price of the flow of time.

Is it correct, nevertheless, to say that R has to pay for its net imports im**? It is both right and wrong. Country R pays for its imports, true, but the expenditure thus incurred by R is covered by the 10 dollars which it receives in interest; in the final analysis, imports im** thus flow into economy R while imports im* are acquired by R at a positive cost, equal to the value of ex* (10 dollars).

. The value of exports ex** covers the debt generated by the flow of time.

. On the other hand the value of ex* is served in interest to the creditor, C.

The figure below shows how 20 units of value spent by country A go to pay a 10 dollar interest.

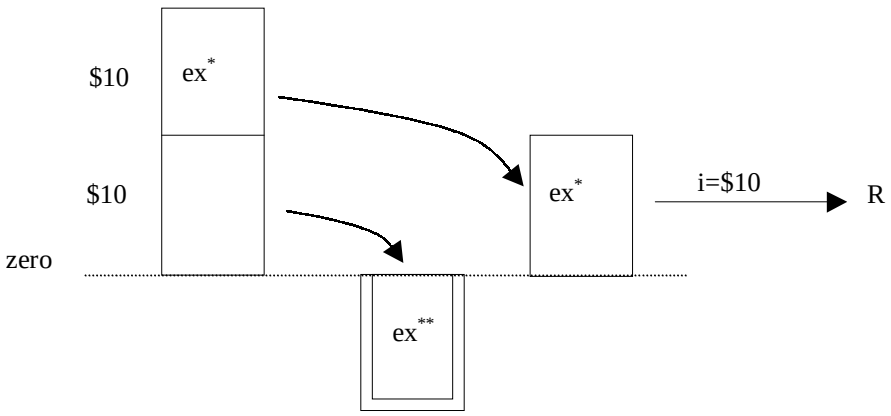

Figure 2

Elementary logic yields the following inference: since country A spends 20 units of value in order to pay a 10 dollar interest bill, country R, at the receiving end, correspondingly cashes in 15 dollars instead of 10 dollars, i.e. its rightful interest claim in money, and benefits, furthermore, by a net transfer of macroeconomic savings equivalent to 5 dollars formed in the domestic economy of country A.

Resident D spends an income formed in the domestic economy of country A; D thereby purchases the sum of foreign exchange,10 dollars, which A receives in payment of exports ex*. This is the *first payment*, P_1, made by D.

Thereafter, in a *second payment*, P_2, D pays 10 dollars in interest.

As far as D is concerned, P_2 is identical to P_1.

But it is by no means certain that P_1 and P_2 are not two distinct *macroeconomic* payments.

In fact we shall prove that for country A *as a whole*, P_1 and P_2 add up to a sum equal to 20 dollars.

The reader should keep in mind that this disconcerting result is valid only for the indebted country taken as a whole.

The following analysis is faulty: excess exports ex* yield 10 dollars which D purchases in order to pay interest; income A thus spent by D provides the payment in money A of the domestic product ex*.

Why is this an inaccurate account of the relevant events? It cannot possibly be correct since any given product, like ex*, is paid only once; it is certain, therefore, that P_1 and P_2 cannot relate to one and the same product. If ex* is purchased by D's domestic income, the buyer of ex* is country A itself; it follows, then, that country R is not the "payer".

In microeconomics all exports are paid for by the importing country; ex* is thus paid for by importers in R.

In macroeconomics product ex* is not paid by country R; on the contrary, it is D's domestic income, formed in money A, which is the purchasing power of ex*.

As a consequence, the 10 dollars which are spent in interest are derived from the payment by R of ex**.

P_1 is the payment in money A of country A's domestic product ex: P_2 hands back to country R the dollars which R spends on ex**.*

Note that D purchases 10 dollars from any exporter in A; so much for micro-theory. In macroeconomic analysis, the 10 dollars bought by D are derived from ex**, not from ex*. In the final analysis, R recovers its outlay on ex**: country R thus acquires ex** for free.

In the end, country A relinquishes ex* + ex**, to a total value of 20 dollars, and all it gets in return is to be quit of a 10 dollar interest bill.

The comparison between countries A and R, in period p and p°, clearly exhibits the double weight of interest

In p°, country R pays for its excess imports of financial assets (value = 100 dollars).

In p, country A pays the annual interest (10 dollars).

Each payment which diminishes the amount of *money* held in reserves is said to be a *red payment*.

By contrast, all payments which are fed by a sum of domestic income are said to be *blue payments*.

In period p°, country R acquires its net imports of foreign assets by a blue payment; the income which C lends to D, 100 dollars, in no way depletes the currency reserves of R.

In period p, country A reduces its foreign currency reserves by 10 dollars: interest is thus served by a red payment.

But the essential difference is the following: having made a blue payment, country R is in no way obliged to make a red payment on top of it; on the other hand, country A effects both a red payment and a blue payment, each for the amount of the interest due.

By means of the net loan which it extends to country A, country R pays in p° its own excess exports, which therefore fail to increase R's foreign currency reserves; nevertheless country R suffers no loss for it draws a zero amount of its reserves; R pays for its excess financial imports directly in its own money. Incoming and outgoing flows are thus at an equilibrium; country R's *currency* reserves are neither increased nor diminished.

Exactly for the same reason which applies to country R in period p°, country A fails to increase its foreign currency reserves in period p for A pays its own excess exports, ex*, which therefore remain unpaid by country R. Yet, the symmetry which holds in period p° is broken in period p for the simple reason that country A withdraws 10 dollars from its reserves. In p, the foreign currency reserves of the relevant country (A) are subjected to a variation; while they do not increase on the one hand, they diminish on the other.

Given that interest (10 dollars) is served both by a red payment, P_2 =10 dollars, and by a blue payment (namely P_1, a sum of money A equivalent to 10 dollars), the weight of interest is multiplied by 2.

In pure logic the adequate diagnosis reads as follows: an x dollar interest payment is both a decrease of x dollars in the *formation* of foreign currency reserves (effect of P_1) and a withdrawal of x dollars from foreign currency reserves (effect of P_2) which have actually been *formed*. No logician could possibly argue that P_1 and P_2 exert only one effect, to a total value of x dollars, for only muddled reasoning could come up with the proposition that a positive sum of x dollars can be taken out of reserves that have never been formed. In short, payments P_1 and P_2 add up to a value equal to 2x, the interest due being equal to x: K = 2.

It is logically impossible to give up the red payment, P_2, in order to retain only the blue payment, P_1

The debtor, D, purchases 10 dollars and serves interest; only one microeconomic

transaction has thus been performed. The macroeconomic significance of this very same transaction is twofold for it is a combination of a red payment, P_2, and a blue payment, P_1. These two payments are inseparably linked to each other, a fact which makes it impossible to retain the one (P_2) while giving up the other (P_1).

It is thus obvious that K can be equal to one only if A serves 50% of interest " in red " and the remaining 50% " in blue ".

Let us briefly recall that, in the state of affairs which holds in actual fact, K = 2.

After the required reform is in place, the indebted country will pay an interest of x dollars by adding a red payment of x/2 dollars to an equivalent blue payment.

The equal distribution, between the lines and above line (ii), of interest paid " in red " and interest paid " in blue "

At first P_2, namely the red payment, is entirely present between the lines; country A serves in interest the 10 dollars which flow into its reserves, in payment of ex*. The corresponding blue payment is located above line (ii) where it denotes the fact that country R acquires ex** for free.

This initial distribution of the two payments, red and blue, must be revised since each red payment is unavoidably coupled with a blue payment.

Therefore the correct figure is the following: both between the lines and above line (ii) the red payment and the blue payment are each equal to 5 dollars.

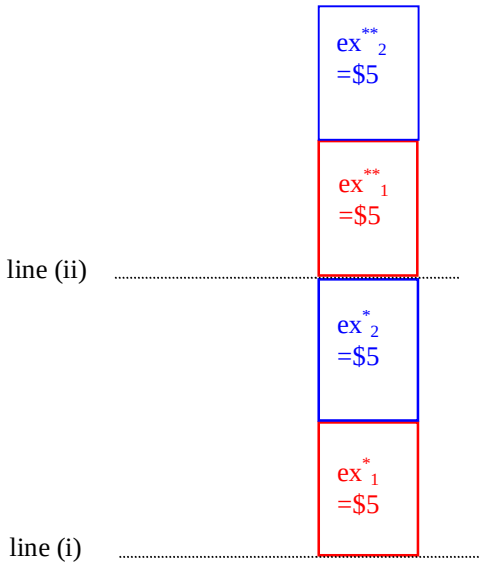

Figure 3

Payments between the lines

To the extent of the blue payment (5 dollars) country A pays for its own excess exports, ex*; income R thus " saved " by country R (5 dollars) finances the payment of

5 dollars in interest. The other half of interest is served by a red payment (5 dollars).

Payments above line (ii)

The effect of the red payment (5 dollars) is to present country R with free imports; the first half of ex**, consisting of 'ordinary' commercial exports by country A, is acquired by R cost-free.

The blue payment (5 dollars) transfers without any cost to country R an amount of savings formed in money A by the domestic production of country A; as stated at the beginning of this paper, the exact nature of these savings will be explained in the second paper.

The nature of the red payment located above line (ii) is already well known: country A forfeits the payment by country R of ex^{**}_1; as a consequence, the payment of A's exports above the sum of its imports *and interest payments* fails to accrue to A's reserves.

It is quite normal that excess exports ex* should finance interest.

But the fact that excess exports ex** are likewise absorbed by interest is highly abnormal.

The red payment which occurs above line (ii), equal to 5 dollars, fully explains k_1 = 1.5.

The " first " interest payment, namely the only international payment of interest which has been known up to now, is an expenditure effected by resident D of country A; nevertheless country A as a whole is involved since the debtor (D) and the creditor (C) belong to distinct countries.

The " second " interest payment, in *dollars*, is defined by the red payment above line (ii); the loss of 5 dollars is incurred only by country A as a whole for none of its residents suffers any direct loss as a result.

The interest multiplier, k_1, would be equal to 1 if ex^{**}_1 increased country A's reserves by 5 dollars. It would be silly to argue that D carries twice the burden of interest or that C is paid twice. As far as residents are concerned, whether creditors and debtors reside in one and the same nation or otherwise, the interest multiplier is strictly equal to 1. To repeat, the second interest payment burdens each indebted country considered as a whole as distinct from its residents, who are not even aware of the malfunction of interest payments; but, then, is the scientific community any better informed?

If the indebted person were country A itself, defined as the set of its residents, international interest payments would follow the normal pattern of all interest payments effected between the world's inhabitants. In fact, however, A carries the burden of interest only by *implication;* in the first place the indebted person is not country A as such but merely a resident; even the State of a country is one of its residents. Economists who fail to master the elementary distinction existing between a country or a nation and its residents, including the State, are quite unable to comprehend K = 2.

The interest multiplier in accountancy

It can be said that accounting rules are a pure expression of logic. Now, it never happens that an asset simply vanishes or evaporates from an account. It would seem, therefore, that the interest multiplier, K = 2 or k_1 = 1.5 in foreign currency, grossly

contradicts the logic inherent in all book-keeping. If that were really the case, coefficients K = 2 and in particular k_1 = 1.5 would be finally proven only after it has become clear that accounting rules do not thwart them.

Let us consider ex*. The first dollar paid in interest is provided by one dollar's worth of exports out of ex*. The actual transfer of this dollar to the creditor country allows R to import equivalent commercial goods for free; the corresponding exports of A are an extra dollar's worth of ex*; up to this point, ex* is already equal to 2 dollars. Once 5 dollars in interest have been paid, ex* has reached its total value: 5 dollars go into the interest payment which results in another 5 dollars' worth of imports by R; it can thus be seen that R pays for exactly half of its imports corresponding to ex*; the other half accrues to the creditor country cost-free.

The debtor country pays for 50% of its own excess exports, ex*; this "own payment" of A by A is directly educed by a flow equal to 5 dollars in interest payment; in short, exports ex* (value = 10 dollars) are acquired at a total cost of only 5 dollars by country R. The figure below again shows, this time between the lines, an "own payment" to the detriment of country A. Clearly, so far only half of the total interest payment is accounted for.

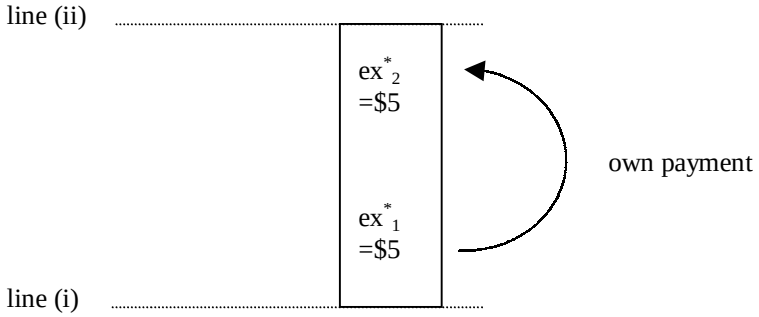

Figure 4

In order to meet the formal rigor of accounting rules, it is particularly important from this point on and with the utmost logical care to observe the meaning of the relevant flows.

. Exporters in A, "micro-entities", derive positive dollar payments both from ex*$_1$ *and ex*$_2$; no distinction whatever can be drawn in microeconomics with respect to the payments received, *in dollars*, from ex_1 and ex_2.

. Nevertheless, the fact that country R acquires free imports to the value of 5 dollars is undeniable.

. As a result, the 5 dollar deposit which A "gains" from it exports ex*$_2$ is *the very same deposit* which A has already acquired in return for ex*$_1$.

. According to the basic logic of accounting, a given deposit cannot simultaneously belong to two distinct persons.

. Now, since the 5 dollar deposit which A gets in payment for ex*$_2$ is the same 5 dollar deposit which it earned by its exports ex*$_1$, it necessarily follows that the said deposit

has not yet reached the interest creditor in country R.

. The interest creditor, C, receives his due only as and when he lays his hands on the 5 dollar deposit which country A receives first in payment of ex^*_1 and then again in return for ex^*_2.

. The payment of C becomes effective at the precise moment exporters in A release the 5 dollar deposit which they receive in payment for ex_2.

. By which precise transaction does the 5 dollar deposit finally change hands? Debtor D purchases the relevant deposit in order to serve *in dollars* the second half of interest due (5 dollars).

. It is at the precise point we have just reached that the core of the matter lies. At the very instant exporters sell the 5 dollar deposit finally received in payment for the second half of excess exports ex*, it is no longer contradictory to assert that the first half of interest, 5 dollars out of 10 dollars, has reached the creditor, C. However, given the fact that the 5 dollar deposit which A acquires first against ex^*_1 and then again in payment for ex^*_2 is finally in the possession of C, another contradiction would instantaneously arise if our analysis showed that the very same 5 dollar deposit provides country A with the means towards paying the remaining half of the interest due, namely the complementary 5 dollars. The relevant flows can only be logically accounted for if the second half of interest payments is financed out of A's currency reserves, provided it is understood that neither the 5 dollars flowing from ex^*_1 nor the (same) 5 dollars collected from the sale of ex^*_2 ever enter country A's reserves.

. Fully founded on the strict logic of accounting rules, the correct conclusion is now at hand: exports ex^*_2 are paid for by country A to itself: this "own payment" incurred by A deprives the debtor country of the 5 dollars it should have earned in exchange for ex^*_2: the 5 dollars which A actually receives from R in return for ex^*_1 are absorbed by the first half of interest; the first interest payment, 5 dollars, entails country A's equivalent "own payment"; thereafter, not a single cent remains of the total earnings - 10 dollars reduced to 5 dollars by A's "own payment" - generated by excess exports ex*; in order to serve the remaining debt in interest, country A is therefore obliged to drain its currency reserves by 5 dollars; finally, A's reserves can only be restored through the payment by country R of ex^{**}_1.

. The fact is thus established, with absolute certainty and in full compliance with accounting rules, that the interest multiplier, as measured in *foreign* currency, is equal to 1.5.

. The second half of ex** is an amount of macroeconomic savings formed in the domestic currency of the debtor country; when ex^{**}_2 is added to ex^{**}_1, it becomes clear that, in its entirety, the interest multiplier is K = 2. As we have already stated, the complete explanation of the passage from $k_1 = 1.5$ to K = 2 is a matter which we reserve for our second paper.

A word about the required reform

For the interest multiplier to be reduced to a coefficient equal to 1, it is necessary that interest should be served only between the lines. Even after an adequate reform is in place, interest will still be served additionally above line (ii). We already know that the two interest payments, as they occur between the lines and above line (ii), are each

made up in equal parts of a red payment and of a blue payment. In the present “system” of international interest payments, the second red payment of 5 dollars in interest defines an unwarranted net gain accruing to the creditor country; k_1 is therefore equal to 1.5. If, and only if, the debtor country collects in its own reserves the 5 dollars which country R spends on ex^{**}_1, k_1 will be reduced to 1. It then follows that savings ex^{**}_2 will likewise accrue to the Treasury of country A, thus reducing K to 1. The perfectly legitimate benefit which a country like Brazil will collect as a result of the requisite reform is well worth imagining: each billion dollars which Brazil serves in net interest (not to mention the profits which the rest of the world repatriates) will increase by a value of 1 billion dollars the income of its budget, the currency reserves being increased by 500 million dollars while macroeconomic savings equivalent to 500 million dollars, which today Brazil cannot avoid abjectly losing to the rest of the world, will henceforth remain within the country - as indeed they should in all logic and in all equity - at the disposal of its needy budget.

Statistics

According to the World Bank, the figures published in *Global Development Finance* are not absolutely reliable. However we shall consider all developing countries together over an undivided period of six years so that even major errors are likely to be reduced to a zero-sum. Be it as it may, the discrepancy which exists between the actual variation in the total debt stock and the justified increase thereof is of such magnitude that the persistent presence of some inaccurate figures does not matter all that much.

Let us lump together interest (long term) and profit transfers. The relevant figures, for the sum of 6 periods (1991 to 1996), are $ 368 billion (in the American sense) for interest payments and 142 for profit remittances on direct investment. We assume that 142 is the value of profits which have actually been transferred from the developing countries (A) to the rest of the world (R). Long-term interest + profits thus equal 510.

In order to be able to transfer 510 billion dollars to the rest of the world, developing countries need to “ earn ” this amount of foreign currency or, at least, to “ receive ” it from R: In other words, since 510 are flowing out, 510 must be flowing in.

Now, owing to direct investment and portfolio equity purchases, a sum of 625 is flowing into developing countries.

Up to this point, the difference between the sum total of foreign currency which flows into the developing countries and the sum total of foreign currency which flows towards the rest the world is 115.

We now take into account the variation in the international reserves for all developing countries: + 379. Obviously, the increase in reserves must be paid for; it is therefore equivalent to an outflow.

We now find that the sum of foreign currency which flows from developing countries to the rest of the world is 264.

If things stood as they are now, the debt stock of developing countries would logically be increased by 264 billion dollars.

But, besides long-term interest, there is a negative current balance (- 168), which has yet to be brought in.

The justified increase in the total debt stock is now 432.
In actual fact, the total change in debt stock is 651.
The discrepancy is startling; we see an unjustified, incredibly large increase in the foreign debt of developing countries, i.e. 219 billion dollars!
How can this " black hole " be explained? It can always be explained away. But if is taken at all seriously, which it no doubt deserves to be, the interest multiplier provides the scientific answer. If we halve the sum of interest paid we find 237. Because $k_1 = 1.5$, the developing countries, A, miss out on the payment by the rest of world by an amount of A's exports (ex^*_2) equal to 237 billion dollars.
Nor is this all. The transfer of profits has the same effect as the transfer of interest; 71 billion dollars are therefore added to the loss suffered by the developing countries. What happens to the black hole? In fact, we have not yet reckoned with debt reductions; if they amount to 68, the black hole is neatly accounted for.

The statistical evidence which we have just presented stands in great need of being refined; many experts working at the IMF could do the job extremely well. Factors such as cross exchange rates, the composition of reserves, the variations in the composition of reserves, the general value of the dollar against other currencies, the exact impact of debt buy-backs, of debt reductions, grants, etc, should be considered.
But refinements apart, the discrepancy is so enormous that we can safely say that the interest multiplier $k_1 = 1.5$ is not in the least falsified by the statistics of the World Bank. If, in today's world, the interest multiplier were equal to 1, surely there would not be room in the official statistics for an unjustified increase in the debt stock of developing countries to the tune of 50 billion dollars each year!

Ockham's razor: the most parsimonious explanation for $k_1 = 1.5$ and $K = 2$

"As far as I'm concerned, if something is so complicated that you can't explain it in 10 seconds, then it's probably not worth knowing anyway" Calvin in "Calvin and Hobbes", *International Herald Tribune*, January 29, 1999.

I published the first demonstration for K = 2 in 1984; the problem has remained with me ever since. An exceptionally perspicacious person should be able to master $k_1 = 1.5$ in less than an hour. The few lines below are devised for such a person. A complete proof of $k_1 = 1.5$ is contained in one page.

$$k_1 = 1.5$$

The argument relates to period p.
The world is first divided into two groups of countries or two countries, X and Y; neither X nor Y pays any net interest. If X serves x dollars in interest, then Y does likewise. Total imports - commercial and financial - of X are *necessarily* equal to the sum of imports, commercial and financial, of Y. The exact equality of imports effected by both countries holds in all conceivable cases, whether international trade is balanced

or not.

. Suppose that the trade balances are at equilibrium; it then follows that X neither exports nor imports a positive net value of financial claims; the total imports of X are therefore necessarily equal to its total exports.

. If X or Y achieves a positive surplus, the other country exports equivalent financial assets; again, total imports of X are equal to total imports of Y.

Let us now divide the world again into countries A and R. By serving 5 dollars in interest, country A pays for an equivalent amount of country R's imports. Within the window defined by the transfer of x/2 dollars in interest, out of the total interest bill of x dollars, R's imports are paid for by country A, which nevertheless carries the whole burden of its own debt, equal to its imports and interest due.

Excess exports which provide the funds to pay the net interest on foreign debt are ex*, equally divided into ex^*_1 and ex^*_2. Exports ex^*_1 are positively paid for by country R: country A is thus enabled to serve an equivalent sum in interest; $i_1 = 5$ dollars. The flow by which country A serves 5 dollars in interest constitutes the payment by A of equivalent imports effected by country R. It is thus obvious that country A pays, in dollars, for its own exports ex^*_2; in other words, A carries out an "own payment", in dollars, namely the payment by itself of its own excess exports, to the value of 5 dollars. If A exports goods equivalent to y dollars, the sum of foreign currency which country A actually receives is reduced to (y – x) dollars. The missing dollars raise k_1 to 1.5.

The exact significance of A's "own payment", equal to 5 dollars in our example, is that it allows R to buy back a 5 dollar deposit which logically belongs to A's reserves. Before the relevant buy-back is taken into account, excess exports ex^*_2 yield 5 dollars which A can add to its reserves. But when the "own payment" is included in the argument it becomes clear that the 5 dollars which are at first spent on its imports im^*_2 (exports ex^*_2 of A) are retrieved by R. The "own payment" can be construed in no other way: it simply means that R gets its imports im^*_2 for free.

As we have shown above, countries X and Y are protected from effecting any "own payments". International transactions between X and Y thus highlight, in each period (p), the exact equality of the deposits "exported" by each country.

Things are dramatically different for A and R. Country A spends the 5 dollars which it receives in payment for ex^*_1; A pays the other half of the interest bill by means of a *unilateral* transfer of a 5 dollar deposit. In this manner, country A loses the 5 dollar deposit which should normally flow into its reserves in payment for ex^*_2.

The 5 dollar deposit which A "earns" in exchange for ex^*_1 finances i_1: needless to say, the 0 dollar deposit which A derives from ex^*_2 provides zero dollars towards the payment of i_2. The payment of i_2 therefore drains the 5 dollars which country A receives in payment for ex^{**}_1; $k_1 = 1.5$.

If the same highly intelligent person (why the same? simply because K = 2 is built on $k_1 = 1.5$) has yet another few minutes to spare, she or he will soon be enlightened on the reason why the interest multiplier is finally equal to 2.

$$K = 2$$

Country A receives, in payment for ex^{**}_1, a sum of foreign currency which it relinquishes for the payment in dollars of ex^*_2: the foreign currency units which are lost in this fashion, 5 dollars, nonetheless remain in A's reserves provided they are replaced by an identical sum, newly borrowed by any resident in A, D_1, from some non-resident, C_1. If the malfunction defined by $k_1 = 1.5$ did not exist, A's reserves would increase by 10 dollars, 5 dollars derived from ex^{**}_1 and 5 dollars which are newly lent by R to A. Since $k_1 = 1.5$, only 5 dollars flow into A's reserves in the given circumstances. Excess commercial exports are entirely paid for (in money A), first by D, who spends a sum equivalent to 10 dollars, and then with a sum of money A that is newly created against the net increase (5 dollars) in A's foreign currency reserves.

Let us now imagine the following scenario: a reform ensures that the 5 dollars which country A derives from its net exports ex^{**}_1 are not absorbed by paying for ex^*_2; it then follows that A's reserves increase by 10 dollars. In these reformed circumstances, the Treasury of country A can play the role of D_1 and ask A's central bank to repay the newly borrowed 5 dollars without delay. The Treasury then sells to importers in A (below line (i)) the 5 dollars which it has borrowed from abroad; in this way the Treasury collects, definitively and without any charge, a sum of money A equivalent to 5 dollars, which flows into the national budget. The reader will have noticed that exactly half of the amount of money A debtor D spends in order to purchase the 10 dollars due in interest are now "gained" by country A's Treasury and budget.

At this point our analysis comes up against a difficulty which, it must be admitted, can be overcome only if a few minutes of undivided attention are available. The "own payment" cannot be suppressed, even under the new order of interest payments enforced by a reform. Country A's foreign currency reserves are thus depleted not only by the 5 dollars which repay C_1 but also, additionally, by the 5 dollars derived from ex^{**}_1, a sum of foreign currency which is used up in paying for ex^*_2. As a result, the 10 dollars which flow into A's reserves equally flow out of them. Therefore the net increase in dollar reserves is now nil; and only a zero sum of money A is created against a zero increase in country A's foreign currency reserves. If our analysis were complete at this stage, the sum of money A accruing to A's Treasury would have to be reclaimed in order to secure the payment in money A of ex^{**}_1. Let us now move on to the next, and last, analytical step. As soon as the Treasury sells to importers (below line (i)) the 5 dollars newly borrowed from C_1, an amount of excess exports, to the value of 5 dollars, is created below line (i); that is a fact since 5 dollars' worth of exports below line (i) now bring in 5 dollars which no longer pay for imports; it is true therefore that excess exports, amounting to 5 dollars, emerge below line (i). The final conclusion is now in sight: the 5 dollars which constitute the payment, in a foreign currency, of the excess exports formed below line (i) flow into A's reserves. After all the relevant inflows and outflows are taken into account, it is now certain that the net increase in A's reserves is equal to 5 dollars; the equivalent sum of money A which is created against this net increase in A's dollar reserves finances ex^{**}_1 in money A. The sum of money A which the Treasury receives in payment for its sale to importers of the 5 dollars borrowed from C_1, at once repaid by the Central Bank, is definitively owned by A's national budget for it can never be reclaimed.

We now know for certain that $K = 2$ in actual fact. Under the present regime of international interest payments, the Treasury of the indebted country cannot lay its

hands on any positive part of the sum of money A which the debtor (D) spends in order to service interest (in dollars). According to logic and justice, though, country A's Treasury is fully entitled to exactly 50%, in money A, of D's outlay, a sum equivalent to 5 dollars in our example.

The unwarranted loss incurred by the indebted country (or group of countries) under the present "non-system" of interest payments between nations, is finally equal to 1 dollar for each dollar served in interest; in a period when it serves 10 thousand million dollars in net interest, country A suffers an unjustified decrease of 5 thousand million dollars in its foreign reserves while, at the same time, a sum of money A equivalent to 5 thousand million dollars is unjustifiably denied to its Treasury or its budget. In short, a 10 thousand million dollar bill imposes a total cost of 20 thousand million dollars on the indebted country: K = 2.