Alternative Finance for Health R&D
(A couple of off-the-wall ideas)

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This presentation has been modified post-conference to make it more self-contained, by including some of the details added during presentation.

Potential sources of R&D Funds– The Tobin Tax and the HIPC

- The brief was to review two areas of current interest – the Tobin Tax, and the Heavily Indebted Poor Countries initiative – and to give a balanced assessment as to their potential role as a source of funding for Health Research and Development. This is not a proposal, but hopefully a balanced assessment purely for the purposes of discussion.

- Most of the presentation relates to the Tobin Tax, since it is the more complicated concept to understand, and since it is difficult to easily evaluate its chances of ever coming about; it was taken to be as important to evaluate its chances of ever being enacted as it was to evaluate how it might work.

Overview

We are looking for new sources of Health R&D finance that are:

- **Very large**
- **Cheaper than current sources**

  Equity is costing a nominal 15-20%+ per year on long term projects (according to Tufts). The Channel tunnel would never have been built on a similar form of funding!

- **Stable**

  The Tufts study generates an R&D cost measure that tracks stock market bubbles and hence is volatile. As they put it:

  "The real cost-of-capital in pharmaceuticals has increased since the mid-1980s **primarily** *as a result of higher real rates of return required by holders of equity capital during the 1990s"* (my emphasis)

  i.e. the rise in 'cost of capital' Tufts use has little if anything to do with any increase in the risk of pharmaceutical R&D in their sample. (Actually Tufts retroactively imposed the 1990s bubble onto R&D costs that took place before the bubble...a bit naughty).

1) Capital flows

- Transactions on currency markets currently run to about $1.4 trillion to $1.8 trillion per day.
- Yearly global trade in goods and services is about $4.3trillion.
- So about 3 days of currency trading is needed to finance a whole year of real trade.
- 99% of currency trade is therefore not directly connected to real activity.

- 95% of all these capital flows involve just 25 countries.

- 30 years ago the daily transaction level was just $70bn.

Good and bad reasons for flows

"Honourable" flows:

- export/import
- foreign investment

"Less Honourable" flows (but not always):

- speculative bets

Efficient short-term flows

- **Information-driven flows**

  "News" is hitting markets all the time – so prices always need to adjust. As currency transaction costs have come down over the last 30 years due to technological advances, we would expect the volume of currency transactions to have risen dramatically. Efficient speculation exhausts gains from information; currency prices end up revealing that information and guiding economic activity.
- **A "Disciplining" device**

  – against governments doing "silly things"
- **Liquidity**

  Short term flows transfer liquidity about the system to where it is most needed, and enables agents (firms, banks. consumers, governments, etc.) to hedge against short term risks. This is stabilising.

Non-efficient short-term flows:

Sometimes it goes wrong in a big way!

- **Coordination failures**

  Agents would like to act together but face a prisoners' dilemma; all end up at the "bad" outcome, though if they could have co-ordinated they would have all arrived at a better (even the best) outcome. Governments get "disciplined" for no (or little) fault of their own.

- **Bubbles and their collapse**

  Occasionally prices don't reveal information at all well; asset prices deviate from their "true" underlying "fundamental" value for long periods of time, and massive resource misallocation occurs. Collapse follows further distorting the allocation of resources.

- **Recent crisis have been particularly spectacular**

  Mexico 94, Southeast Asia 97, Russia 98, Brazil 99 Japan? US in the future?

- Eliminating "small" volatility is not the big deal...it's the big crises that need to be avoided. However, allowing "small" volatility might lead to **vulnerability** to "bigger" volatility.

2) Costs of instability

"ACTUAL" COSTS OF INSTABILITY:

- **Swings in GDP** (10-15% in a year is not unknown), jobs, welfare programs suffer
- **Sharp recessions** = multiple tens of billions of dollars of losses in welfare
- **Political instability**

  It often hits different groups in society differently
- **Contagion**

  In an increasingly interdependent world economy, a crisis in one country spreads to another/others via "contagion":

  i) financial contagion, "herding" (agents copy each other copying each other copying each other.....etc.)

  ii) non-financial contagion via trade flows

  a) exchange rate issues

  b) affects of real flows via multiplier

Costs of instability cont.

"POTENTIAL" COSTS OF INSTABILITY:

- **Private Costs:**
- It increases uncertainty, which increases the risk-adjusted cost of investment, which reduces the amount of investment and long-term planning... which reduces growth and "welfare".

- **Government Costs:**
- Volatility reduces certainty for governments too... hence macroeconomic stability is more difficult. It may also make governments more risk-averse and precautionary – this reduces growth-enhancing investment too.

- " potential" volatilities are hard to insure against in financial markets:
  i) Horizons are too short
  ii) People are myopic
  iii) It is difficult to write the contracts

3) The suggested Tobin Solution

- 80% of all speculative trades happen within a week or less, and 40% in two days or less. Many are bets on tiny margins.
- James Tobin (Nobel prize winner) suggested, in 1972, putting a little 'grit" in the system to slow these flows down.
- Tobin suggested a uniform tax on currency transactions or "exchange equivalent" transactions.
- Tobin proposed 1%
- More recently, the talk is of 0 .1-.25% (10c -25c per $100 of transactions)
- Think of financial instability as like financial "pollution".. a public bad. Like taxes on pollution, the idea of the Tobin tax is to push the system back to the "efficient" outcome.

Tobin, cont.

How does it work?

- A 0.2% tax per round trip in another currency, repeated every year once every day = 48% in tax, repeated once every week = 10% in tax, repeated once every month = 2.4% in tax.
- A tiny tax does not harm long-term investment, but stops/slows short-run speculative flows.
- Even small costs can matter in a world of *interactive reasoning* especially if profit margins from speculation are small. Attacking currencies is a game where the payoff from what one speculator does is a function of what they think others will do and what they think that others will think that they think that others will do....and so on. Speculators are less willing to shoulder the costs of attacking a currency in the hope of a one-way gain unless they can be sure of other speculators doing the same. It can be shown that in such interactive settings, even small costs can have a large impact; even a small tax can make agents *less convinced about the behaviour of other speculators*.

4) How much might it raise?

- **An Important Principal:**

The Tobin tax is not principally a revenue-generating mechanism.

- **How much then?**

  Estimates range from **$54 billion to $300 billion per year**.

  It's hard to know since the reaction of agents to the tax has to be factored in.
- Jeffrey Frankel estimates 0.1% rate would generate **$176bn** (in 1995 dollars) a figure similar to Felix and Sau's estimate using a 0.25% rate.
- Think of it as a $7bn insurance premium per country.
- As a revenue-generating mechanism nevertheless, this uses the solution for one public good failure (financial instability) to solve another public good failure (lack of provision of health R&D).

5) Problems in implementation and evasion

- **But…Derivatives**
- Using derivatives you can take lots of bets but only pay on the net outcome through the "netting system". Speculators only exercise "options" contracts if the trade is profitable. Transactions in fancy financial instruments would therefore grow to get around the tax.
- A tax would distort these derivatives markets too.

- CONCLUSION:
- You end up needing a broadly-based Financial Transactions Tax – not just one on currency transactions. This is more complicated than a simple tax on currency transactions.

Regarding evasion and problems in implementation

REASONS GIVEN FOR WHY IT IS NOT SO DIFFICULT

- The market is highly organised, centralised (due to economies of scale) and regulated. Electronic paper trails are getting easier to administer. Collecting technology just needs some software rewriting. It would be easier to collect than some make out.
- The system has three components – so one record can be checked against another and cheaters detected.
- All taxes have evasion problems. That doesn't stop other taxes being implemented.
- Cheaters could not remain undetected for long, and when they are found out they would lose reputation, market share, or might be punished by fines.
- 80% of global foreign exchange goes through 7 exchanges and less than 100 international banks and investment houses; the top ten control 52%. There are not so many players to police as it might seem.

Regarding evasion and problems in implementation, cont.

REASONS GIVEN WHY IT IS NOT SO DIFFICULT, cont.

- The tax is unlikely ever to be greater than 0.5% of value of transactions. Compare this with evasion of copyrights on disks and software, where the effective saving from evasion is 100% of the price.
- Offshore centres might develop. But this forgets the reasons for doing business in the big centres – like security, structure, and the interconnection of the market in such centres. Besides, surtaxes can be imposed on transactions coming from offshore centres.
- Many countries have imposed such taxes in the past. It's not so novel.

BUT THERE ARE STILL PROBLEMS

- There is still the problem of a single major dissenting centre.
- It still needs international agreement that is virtually universal. However:

  "*For the policy to achieve its goals, it would have to be the outcome of an international agreement that was virtually universal.... there is no reason to think that [if agreement could be sorted] enforcement would be more difficult for financial taxes, as compared to, say, income taxes.*" Jeffrey Frankel

6) Would it work?

- A small rate would not deter really serious attacks…

  For example: Say there is just a .05 probability of a currency falling by 4% by the end of the week. That works out to be an expected profit of 2% which is 180% per year.

  Since speculation is prone to herd behaviour…the probability of attack may increase “endogenously”.
- However, the interactive reasoning above suggests that even small taxes might still work against some large potential volatilities.

- **A two-level tax then, or some other more elaborate system?**

  A small tax range in “normal times” with a much higher range if a currencies exchange rate goes outside of a particular band?

- **Circuit breaker levels?**

  Financial activity responds to the fear of a tax rate being triggered?

- **There is still lot to be clarified to make a Tobin Tax work**

7) There are relative winners and losers

- Some financial players gain though not all.
- Volatility is profitable to speculators.
- Taxes to “losers” are always more visible than the avoided volatility and avoided crisis to “winners”.
- It easier to visualise the lower interest you get on savings caused by the tax being imposed, than the higher interest you get because the world is safer!

Relative winners and losers, cont.

- But, there are also benefits of using taxation over using monetary policy:

  i) Taxation is known in advance and predictable;

  ii) hyper-active monetary policy can signal distress;

  iii) Taxation can raise lots of revenue in volatile times – a country does not need to surrender exchange rate reserves and have higher interest rates.
- At least there is no free-riding like some other systems for raising funds.

8) But there are other ways to stabilise

To the extent that other measures are used instead, the argument and the pressure for Tobin-type measure becomes less pressing:

- **Capital controls**

  This includes minimal time for investment, and investment directed towards certain industries.

- **Flexible v. fixed exchange rates**

  The Asian crisis might not have been so severe had there been flexible exchange rates in advance.

- **Governance issues are increasingly emphasised**

  Stability is also linked to the quality of domestic institutions and governance. A lot of work is being put into this.

- **Reserves**

  Not only Asian countries but many other emerging economies have increased reserves by factors of two to four since the mid 1990s. But the levels are still globally less than a day or so of reserves and there is a cost to holding excess reserves.

- **Fiscal policy**

  There is more interest today in counter-cyclical fiscal policy (a surprising element of many developing countries is there pro-cyclical fiscal policy).

9) Support for a Tobin Tax

There is an extensive world-wide network already devoted to establishing a Tobin tax, and the Tax has been seriously considered at a high level in various places:

- **Canada**
- **Halifax initiative**
- **UNDP**
- **Brazil**
- **EU Council of Ministers**
- **Churches**
- **Big financial players?**
- **Huge developments in economic theory of the mechanisms of crises… This is influencing economists**
- **The IMF rethinks**
- **The "Economist" magazine rethinks**
- **But, there is strong opposition from the US Administration and central bankers generally**

US Citizen support?

Might US citizens eventually rethink?

- The volume of trading on the US stock exchanges is > $10 trillion/year. Since each of these already attracts about 0.5% in transactions costs (0.25 to each side of a trade) this costs > $50bn a year in fees. If volume fell by a third, and if the allocation of capital were no less efficient but at a much lower resource cost, this would be a "saving" of $17bn in this one market alone.
- Applied to all markets (corporate bonds, government bonds and bills, options, futures, swaps, etc.) this would take savings to, say, $25bn. Which is $250 per US household.

  "*the efficiency gain generated by eliminating excessive trading in financial markets vastly exceeds standard estimates of the efficiency gains associated with standard trade agreements*" (Baker 2001).

10) How can Health R&D be linked to Tobin tax – some dangers

- **Remember - Stability NOT revenue**
- **There is competition for resources**

  An under-funded UN, land mines, AIDS treatment, poverty, water, maintaining peace and security, etc...

  UNDP calculates the cost of eliminating the worst forms of worldwide poverty is about $40bn per year for ten years (still less than the budget for the war in Iraq and its aftermath)

- **General principle:**

  The opportunity cost of funds used for health R&D from this source is the lost opportunity to do some of the many other things. To the extent that some of these other things do not have alternative sources of funds, health R&D's gain is their loss.

  However, similarly, the UN's gain of resources (and hence the "letting off of the hook" of those who fail to pay their UN contributions) will impose costs on health R&D.

Dangers cont.

- There are dangers that in a decentralised system it will get used as a revenue mechanism anyway. There might be pressure for revenues raised to be used for reduction in less progressive forms of taxation.
- There might be pressure to use cash raised from the tax for exchange rate attack avoidance measures anyway.
- Tax is “fungible”– it just replaces other development budgets.

11) Who would administer it? And how?

- **Who?**

  IMF, World Bank, BIS, or some new agency?
- **Disagreements how to spend. Should countries keep some?**
- **Treaties**

  Tax levels and formulae for distribution would be negotiated in treaties
- **Countries ARE cooperating more – Montreal Protocol banning CFCs, Uruguay Round of multilateral trade negotiations that created the World Trade Organization, etc. The Tobin tax would fit well as another part of this emerging framework of cooperation.**
- **Unilateralist US stumbling block on all these though?**

12) Will it ever come about?

- **Recent flows have slowed considerably**

  … but not for long. Demographic factors are likely to lead to a resumption –as older people in the developed countries put pressure on financial firms to seek out a higher return to capital to finance pensions. And so the risks are likely to resume again.
- **In 10-20 years' time – will the tables be turned?**

  Will we be worrying about capital flows **from** emerging market **to** the rich industrialised countries as the demographic and aging transition leads to bigger budget deficits and external deficits, such that rich countries become dependent on the import of capital from the rapidly growing, high-population, relatively young, high-saving countries that we now think of as emerging? The US today is already heavily dependent on capital inflows, to the tune of half a trillion dollars+ a year. US self-interest may seek, sooner or later (after a crisis) stability in flows for itself?
- **Can winners and losers interests be combined. Somehow?**
- **New institutional architecture will be needed… But still little agreement on this.**
- **Conclusion:** Little chance of an early adoption… but worth having health R&D regularly listed as a potential use for any resources raised? It isn't at present even listed.

13) Tobin tax is only one of a range of "global commons"- like tax funds

Others "global commons" taxes include:

- Carbon (environmental) tax
- International air flight tax
- Telecommunications taxes

The beauty of these and the Tobin tax is that they are used to correct a distortion already there. So you gain twice. You solve two market failures at the same time?

The alternative is 15-20% nominal cost of equity after all.

Non-commons taxes:

- Arms trade
- Tobacco
- Alcohol

HIPC

- 1996 World Bank and IMF set up the debt initiative for **Heavily Indebted Poor Countries**
- Debt relief based on **"Poverty reduction Strategy Papers"**
- So far 26 countries (2/3 of those covered) have benefited from significantly lower debt levels.
- On average debt service requirements cut by 1/3
- Ratio debt service to exports cut by about 40% (from 16% to 9%)
- Ratio debt service to GDP cut from 3.7% to 2.4%
- Ratio debt service to government revenue cut from 24% to 13%. By 2005 should be at about 10% (and in 18 of the countries it should be under 2%)

HIPC

- Funding so far?

  About $40bn (half multilateral and half bilateral)
- Another $850m pledged to the Trust Fund by donor countries in October 2002
- But recent problems:

  Many of these countries have recently been hit badly by the turn down in world markets. In particular very badly hit by commodity price falls. So it is harder to hit their poverty reduction targets.

Can HIPC be used to produce funds for health care R&D?

- Country could in part fulfil its requirements for debt reduction by showing that it is making efforts to improve health, either by:

  i) actual current health spending, or

  ii) investments in long-term health-improving schemes like R&D in health care.
- Use financial instrument (some new sort of bonds?) that is invested in health R&D for diseases specific to these countries?
- The price of these bonds related to the expected effectiveness of this R&D? So the scheme is part of the bigger schemes being discussed at this Bellagio meeting?

Some pros of HIPC

- Gets more efficient, cheaper R&D costs
- Ensures health R&D spending targets 'their' health problems... and the researchers are motivated to do this too
- Maybe scheme could be linked to prizes for discoveries, etc...
- Unlike Tobin tax, it is a current and not a hypothetical scheme

Some cons of HICP…

- But the level of funding is much lower than the Tobin tax
- These are very poor countries indeed… Should part of their debt reduction be based on such long-term programs?… Health care **NOW** is needed?
- Maybe could co-ordinate across many countries, and IMF/World Bank be persuaded to be sympathetic to this as an alternative way to meet their requirement for debt reduction?
- They will shame the world! If even these very poor countries can make sacrifices for long-term health….. why are we not doing more to help them?
- Other donors could be encouraged to match them?
- Schemes need not be huge at the start.
- There is a link to brain drain problems, and regional technological transfer. It might help them to, as James Ochieng'-Odero put it at Bellagio, "own some of the solutions to their health care problems".