Economics, Innovation and Human Rights: Questions and no answers

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- The seminar will be a non technical and highly speculative discussion of some crucial issues which are emerging in the debates surrounding innovation and access in health care, with particular emphasis on developing countries. Examples are drawn from the quest for a vaccine against HIV-AIDS, the proliferation of PPPs, attempts to develop domestic capabilities for the production of drugs in countries like Ghana. The main issue I would like to raise concerns the extent to which the classic economic analytical apparatus which is typically used in these discussions (based on concepts like efficiency, public goods, externalities, market failures, etc..) may conflict (or not) with different perspectives, which emphasise scientific and technological constraints on the one hand and considerations of justice and equality on the other. Thus, the questions I would like to submit to participants might be framed - in an extreme fashion - as " is health a public good or a human right?" And, is an economics of human rights and oxymoron?I admit from the outset that I don't have a clue about how to start answering these questions, which bring us back to the basic relationships between economics, moral philosophy science and technology. Therefore, the seminar is thought to be an occasion for flagging the issue and provoke suggestions.

A Big Title

- Don’t worry: I am not so crazy
- And unfortunately I don’t know the answers
- Not even know how to begin thinking about these kind of issues
- But:
  - Emphasis on the need to establish a firmer link between innovation, growth and human rights
  - Emphasis on the “organisational” problems inherent in the development of adequate settings and appropriate policies
  - Emphasis on public goods vs. “rights”.

Provocation

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- None of my business, of course
- But what if I have to start a new doctoral programme in (the) economics (of innovation)?

The personal background

- From the emergence of the biotech industry
- To pharmaceuticals
  - IPRs
  - Trips
  - Etc..
- To vaccines, health care, etc…

Example 1

- The development of a vaccine against HIV/AIDS

- Why there isn't a vaccine against AIDS?

The background

- Increasing doubts about the adequacy of the systems that govern the processes of discovery, development and delivery of vaccines from the economic, social and political perspective.

- In the industrialized world:

  widespread recognition of the importance of vaccines in preventing the spread of infectious diseases and of the threats that infectious diseases both known and (as yet) unknown (HIV/AIDS, SARS, polio) pose to populations

- In the Thirld World:

  failure to find satisfactory remedies for "old" diseases like malaria

  appearence of new tremendously dangerous infections – e.g. Ebola - and of course by the explosion of the HIV pandemics, especially in Africa but also in large emerging countries like China.

- Advances in scientific knowledge and understanding have raised expectations about the ability of research to deliver new vaccines.

Problems

- The discovery of new vaccines appears to lag behind expectations (especially where diseases affecting principally the Third World are concerned)
- when a vaccine is discovered access is restricted because of cost (as initially happened with hepatitis B vaccine).
- Ferment and significant change in the landscape of vaccine research:
    - appearence of new institutions and actors (primarily PPPs and charities like IAVI)
    - proliferation of proposals for reform.

Central questions

- to what extent is the current system adequate to provide sufficient innovation and to deliver the potential benefits to the society?
- What are the main causes of “failure” in the system of vaccine innovation?
- What can and should be done to improve - and possibly quickly - the current situation?

The “standard” economic approach

In economic terms, the problem is framed in terms of market failures in the allocation of resources to goods whose social return exceeds the private return, i.e. public goods: technology like information

- Implications:
  - Underinvestment in vaccine R&D by private, for-profit firms.
  - Private firms have monopoly power over the vaccines that are developed.
  - lack of resources by potential users to buy the vaccines, if and when they become available.
  - increasingly global character of vaccine innovation

- Consistently with this frame of analysis, proposals for reform include either /or:
  - more government funding of vaccine development, and greater involvement of public sector research organizations in the development work;
  - the introduction of adequate incentive schemes to mobilise private research and to reduce the costs associated to monopoly power (e.g. prizes to innovators).

The traditional approach

- The “standard” way of approaching the problem is cast in terms of efficient resource allocation of resources to vaccine research, whereas the latter is usually treated as a public good.
- Thus, the central question becomes how to fund research, either through public support or the introduction of appropriate incentives to private investment (e.g. Advanced Market Purchases, M. Kremer)
- In both cases, it is somehow assumed that the probability of discovering a new vaccines is a function of the amount of resources invested in research and /or the expected profit).
- Emphasizes amount of resources
- Emphasizes cost and benefits of alternative trajectories (vaccines or ARVs?)

- But is the AIDS vaccine a public good?
- Or is it a case of “missing markets”?
- Or something else?

- De-emphasizes scientific, technical, and social ‘feasibility space’
  - Virus hyper-variability
  - Virus ability to evade immune response
  - Short window of opportunity to stop permanent infection
  - No-one has ever recovered – we do not know what a successful immune response looks like
  - No good animal model

Organizational issues

- Much talked about in the field, but little research available
  - Lack of ‘private sector involvement’
  - ‘A Manhattan project for AIDS’

No one best way?

- Survey of (US) vaccine development shows (Wilson, 2007)
  - Basic research in universities or research institutes usually with public funding
  - Manufacturing by industry
  - Handover from public to private sector at some point
  - From the 1980s, large clinical trials carried out almost exclusively by industry

From vaccine discovery and development to delivery

- Most of the current debate and of the reform proposals are focused on the process of discovery and development of vaccines. This approach is coherent with the consideration of vaccines as a public good, with negligible production and delivery costs as compared to the fixed costs of research.
- However, both the production and above all the introduction of vaccines in the health systems pose significant problems, mainly but not exclusively in poor countries. For example, pharmaceutical corporations often maintain that one of the main obstacle in the vaccine business resides precisely in finding adequate delivery systems. Cases like anthrax in the USA signal the relevance of problems related to production capabilities, especially in time of acute crises. Quite differently, a number of industrialised countries are encountering growing challenges to the legitimacy of mandatory vaccination, sometimes grounded in appeal to the right to choose.
- it essential to understand much better the extent to which the activities of discovery, testing, manufacturing and delivery are separable, what kind of mechanisms of coordination are needed.

PPPs

- Emergence of a striking variety of new institutions
- Charities
- Public – private partnerships

- But:
  - Should we rely on the benevolence of Mr. and Mrs. Gates?
  - Accountability?

Evolution of the health care systems

- The debate about vaccines is at the same time one of the main causes and a chapter in the broader discussion about the evolution of the health care systems:

  - major scientific and technological revolutions
  - binding budget constraints for the public programs
  - increasing demand for health by the people.
  - exclusion of the poorest from access to health care
  - profound transformations in the pharmaceutical industry

The classic framework

- The classic framework: innovation and health as public goods
- But:
  - Intrinsic tension in the economics of innovation between incentives to innovate and diffusion of innovation, knowledge and their economic benefits (e.g. IPRs)
  - Innovation often generates inequality

Beyond the “Standard Approach” ?

- Properties of technology and innovation as learning processes
- Behaviour, Incentives and Capabilities
- Markets, Organisations and Institutions: Systems of Innovation
- Dynamics and Evolution

Beyond market failures?

- The properties of the innovation process imply all the sources of market failures defined in textbooks and more:
  - externalities and public goods
  - Monopolistic power
  - increasing returns – arising from the cumulativeness of learning, complementarities, network externalities, complex positive feedbacks – do not only entail deviations from perfect competition but often imply path-dependency and may lead to multiple and inefficient equilibria

- *agents' failures*, i.e. the "mistakes" and rigidities of particular organisations, (e.g firms, government bodies, public agencies, etc..).
- "*system failures*", i.e. the lack or insufficient development of linkages, relationships, connections and complementarities among agents and fragments of knowledge may hamper technological advance

Innovation, learning,organisations and institutions

- The market failure perspective is perhaps too restrictive:
  - Institutions, organisations and policies: are they "simply" optimal reactions to market failures?
  - Competences and incentives
  - Complementarities
  - Institutions as social routines
- Systems of innovation

The organisational dimension

- Beyond the public – private divide
- Innovation: from discovery to access and use
- Huge organisational problems
  - The changing structure of the pharmaceutical industry
  - Division of labour and integration
- rarely innovation support has been explicitly linked with health policies (and concerns with inequality)

Local production of pharmaceuticals in developing countries

- Efforts and programs for developing domestic production of drugs
- industrial policy and/or health policy: “access” to needed medicines.
- Thailand, Brazil, Ghana, Kenya, Uganda, ….

The economic counter - argument

- :
- If bulk active ingredients sourced have to be imported at high costs, manufacture may have no impact whatever on patient access to needed medicines
- If many countries adopt local production, the result may be less access to medicines, since production facilities in many countries may mean forgoing economies of scale l production is often not reliable and, even if reliable, it does not necessarily mean that medicine prices are reduced for the end user.
- For many countries, technical expertise, raw materials, quality standards, and production and laboratory equipment need to be imported, with the result that foreign exchange savings may be small or non-existent.
- Industrial investment to promote local manufacture of pharmaceuticals in most, but not all developing countries could be better used to improve health infrastructure or stimulate the existing market, but developing countries need to decide this for themselves and not have such decisions imposed upon them by developed countries.

- (W. Kaplan and R. Laing, WHO, 2005)

Ghana

- “ access to high quality pharmaceuticals for the Ghanaian population is critical to improving the health of the nation.
- a strategy that delivers high quality locally produced medicines across the range of essential drugs and, in conjunction with enhanced regulatory oversight, challenges the scourge of sub-standard and counterfeit products, will be beneficial for public health in Ghana.
- As well as the benefits for public health, a strengthened pharmaceutical industry will contribute to the economic development of the country through growth in exports, import substitution, being a driver of increased employment in the wider economy, and ultimately increasing government revenues. Furthermore, high quality pharmaceutical manufacturing is a technologically complex undertaking in a highly competitive industry, such that success in this area will demonstrate the country’s ability to define its own future”.

Public goods and human rights

- But can vaccines (and health more generally) be “simply” treated as public goods?
- Non rivalry?
- Excludability?

- Or are they a fundamental human right?

Economics and human rights

- Human rights: costly but (in principle) priceless
- An oxymoron?
- The economics of human rights is a vastly unexplored field of analysis and what it might look like is very difficult to predict. However, in all likelihood, it is going to be quite different from the standard analysis of public goods.

Human rights and economics

- HR: difficult to define: all human beings are endowed, as a result of their humanity, with a set of rights that imply obligations and duties in other people.
  - Ethical or philosophical branch
  - Legal branch
- Deontological definition Rules and Norms
- In economics: consequentialism and welfarism
  - The Factory Acts: limiting working hours for children
- **'the violation or fulfilment of basic liberties or rights tends to be ignored … not just because of its consequentialist focus, but particularly because of its "welfarism" whereby consequent states of affairs are judged exclusively by the utilities generated in the respective states' (Sen, 1985: 13).**

- Welfarism: Alternative policies should be assessed in relation to their impact on individual and aggregate utility, normally defined as the satisfaction of preferences.

- Preferences, well-being, rights…?

- Welfarism is a narrower form of utilitarian consequentialism, in which utility is measured solely in terms of access to things of economic value.

  - Ordinal utility

  - Pareto criterion

  - Compensation : Since most real world decisions involve losers as well as winners, welfare economists weaken the Pareto criterion to admit solutions under which winners could hypothetically compensate losers, leaving everyone at least as well-off as before the policy change.

  - Social welfare functions

- Exogenous ethical principles

- Economics: efficiency
- The rest is left to politics (and/or social choice)
- Does economics consider rights?

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- Individual rights
- Property Rights
- Why only these two?

Which Rights?

- "Food, jobs and housing are certainly necessities. But no useful purpose is served by calling them 'rights'. When a government locks someone up without a fair trial, the victim, perpetrator and remedy are pretty clear. This seldom applies to social and economic 'rights'. It is hard enough to determine whether such a right has been infringed, let alone who should provide a remedy or how. Who should be educated in which subjects for how long at what cost in taxpayers' money is a political question best settled at the ballot box

… no economic system known to man guarantees a proper job for everyone all the time: even the Soviet Union's much-boasted full employment was based on the principle 'they pretend to pay us and we pretend to work'.

- The Economist, 22 May 2007

How much of them?

- Needs satisfaction?
- Tastes and values?
- Rights realisation?

- Rights are not contingent on the outcomes arrived at by their application: cannot be overridden on the bases of arguments about their consequences
- Cannot be ranked: calculus of HR?

- “the rights-based approach begins … from aspects of human well-being: health, nutrition, education and other desirable conditions. For human rights practitioners however … human rights standards are not indicators or goals, but … statements about rights to which humans are entitled by virtue of their humanity (P. Nelson, 2007: 2051).

- … the mechanisms and processes for the delivery of health and education services are, in the rights approach, themselves morally compelling … On the other hand, the economic approach views those processes instrumentally: they could in principle be reconciled with authoritarian styles in medicine and school governance if those lowered mortality and raised literacy (Gauri,2003: 12).

- Economists: no prior reference to rules and norms but of rank orderings of market or social outcomes.

- And social-welfare functions rank outcomes according to their relative success in satisfying individual preferences.

- The value attached to any situation can only be measured relative to the existing situation, and then only in terms of marginal improvements in the ability of individuals to satisfy their preferences.

- " In the extreme, an economist would have no basis on which to differentiate between an additional 500 calories of energy obtained by a starving child or an overweight adult. Reference to an objective 'social welfare function' (for example, a Rawlsian maximum rule) can steer us away from such obvious absurdities, but such solutions must be introduced as a deus ex machina that overrides individuals' preferences (or is not 'Pareto optimal' in the language of welfare economics).

- It is legitimate to propose that all good things should be available to everyone at all times, but given that they are not, and are unlikely to be soon, economists justifiably ask for rules that establish priorities for action.

The human rights objection to the consequentialism of welfare economics

- some actions are inherently wrong even they result in a desirable outcome.

- use of rape as a weapon of war is ethically wrong if it ultimately speeds the conclusion of the war itself and thus a reduction in the overall amount of human suffering.

- The human rights advocate accepts the inconvenience of a theory which fails to resolve all or even the majority of possible dilemmas in exchange for not being forced into conclusions that are intuitively morally abhorrent.

- human rights theorists do not have a methodological vehicle to resolve trade-offs.
- Some economists and human rights theorists conclude on the basis of these differences that the two perspectives are simply incompatible.

Incompatible?

- A minimum level of income is necessary for realising rights
- Rights as inputs ot outputs of development
- Progressive realisation

- Users fees for basic services? In kind or cash provisions?

Conclusion

- Ways forward
- What can the economics of innovation, evolutionary economics, etc.. have to offer?
- Recognition of “bounded rationality”, incompleteness, routines, etc..
- Innovation and technological change: from Robbins back to Adam Smith
  - From the allocation of scarce resources to the wealth of nations
  - From utility to moral sentiments

- Beyond this:

- ? ? ?
- HELP !!!

- ? ? ?
- HELP !!!
- Thank you

- ? ? ?
- HELP !!!
- Thank you
- I’M SORRY

- ? ? ?
- thank you

- I’M SORRY