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# **Where are the Exports?**

## **The Canadian Health Care Mystery**

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# **Where are the Exports?**

## **The Canadian Health Care Mystery**

### **Introduction**

Health care represents the biggest application by far of the resources that Canadians collectively create. Canada spends over \$100 billion on health care every year, fully 12% of Canada's GDP, and the percentage is rising. Canada boasts a sophisticated network of primary through quaternary providers, many globally recognized hospitals, and a number of major centers of health research. Canada spends aggressively in global terms on health research, which is supported nationally by the Canadian Institutes of Health Research (CIHR). Canada's single payer system with universal coverage of the population is considered a model by many nations around the world. In fact, more so than any other feature, our health care system is what Canadians think makes us unique in the world.

Against this backdrop, there is a profound mystery. Why do so few Canadian firms in the health care sector sell their products and services in the international market. Only nine Canadian health care firms sell as much as \$100 million of any health care product or service to customers outside Canada<sup>1</sup> and total sales outside Canada by Canadian health care firms total less than \$5 billion. This total compares unfavourably with the foreign sales of individual Canadian firms in other sectors, including Bombardier at \$22 billion, Nortel Networks at \$15 billion or Magna International at \$14 billion.<sup>2</sup> It even is dominated by the export of sawn logs at \$9 billion.<sup>3</sup>

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<sup>1</sup> Extendicare Inc., MDS Inc., Biovail Corp., Patheon Inc., Apotex Inc., TLC Vision Corp., Axcan Pharma Inc., QLT Inc., and Aeterna Laboratories Inc. The 2002 sales of the nine firms total \$4.2 billion.

<sup>2</sup> 2002 foreign sales from 2002 Annual Reports

<sup>3</sup> Government of Canada Trade Statistics

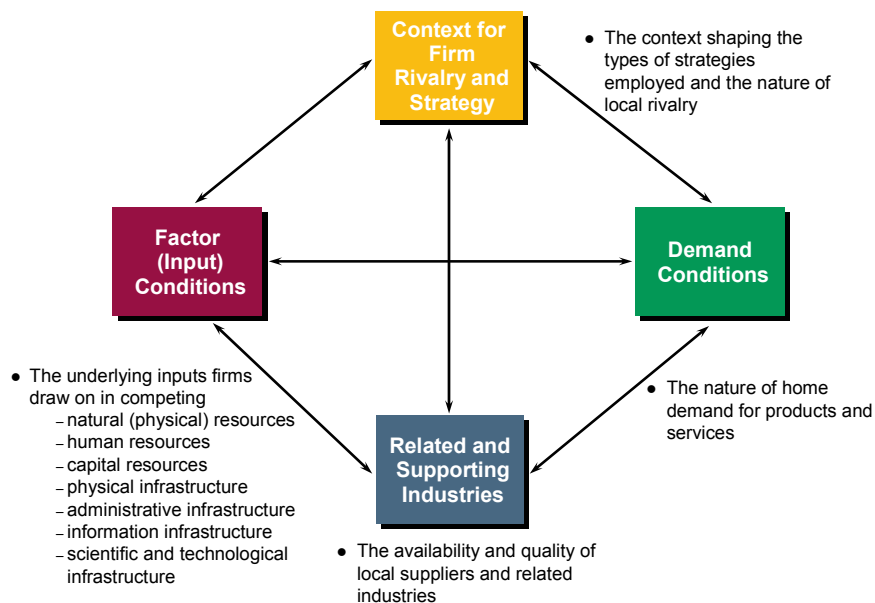
One would think that this sophisticated \$100+ billion sector would have bred numerous \$100+ million globally competitive export powerhouses. Canadians like to think of themselves as having a globally competitive health care sector, but it is hard to make this claim when its health care enterprises compete globally to such a minor extent.

There is no obvious reason why the profound absence of globally competitive Canadian health care enterprises exists. To understand this Canadian reality, it is necessary to step back and look at the conditions that tend to cause internationally competitive enterprise to spring from a given environment.

## The Drivers of Global Competitiveness

Michael Porter's ground-breaking work on competitiveness<sup>4</sup> suggests that four interrelated factors work together to produce globally competitive firms from a given environment.

### Dynamics of a Cluster: Pressure and Support



<sup>4</sup> Michael E. Porter: *The Competitive Advantage of Nations*, New York: Free Press, 1990

It is fundamentally a model of pressure and upgrading. A favourable context is one that creates **pressure** for firms continuously to upgrade the source and sophistication of their advantage and at the same time provides **support** for the upgrading process.

### ***Pressure for Upgrading***

Pressure for upgrading is supplied by *sophisticated and demanding customers*, whose demands spur the local firms to innovate in order to upgrade their product/service offerings. Both the demanding and sophisticated vectors are important. It is important that customers are not easily satisfied and thereby relentlessly push their providers to improve their offerings. However, they also need to be sophisticated in their understanding of nuances of product/service improvements and willingness to pay more for a better product. If customers are simply aggressively demanding – like the North American automobile OEMs have been over that last decade – and simply drive their providers' prices down without regard for quality or innovation, they will contribute to producing an under-competitive, not competitive industry. However, when consumers are demanding and sophisticated, as are the Japanese with consumer electronics, the French with wine, or the Americans with movies; they will make serving foreign markets seem a breeze in comparison to the tough home market.

It is also helpful if the pressure from customers anticipates the nature of demand elsewhere in the world rather than stands apart from demand in the rest of the world. For example, the American customer demand for ever bigger and less fuel-efficient automobiles in the 1960's and 1970's did not help the US Big 3 in most international markets where consumers wanted smaller more fuel-efficient automobiles. MTV, on the other hand, spread around the world because American tastes for music videos anticipated similar tastes emerging elsewhere around the world.

Finally, it is helpful to have many customers. Variety in customers enables providers to learn from each of their individual needs how they might upgrade the product/service. In addition, it is less attractive from a risk standpoint to sell to a monopoly buyer – or

monopsonist – because the powerful monopsonist can become overly demanding and capricious.

*Intense rivalry among providers* reinforces the pressure to innovate and upgrade. If many firms are competing vigorously for the same customers then they will have a powerful incentive to innovate and upgrade. This is particularly the case when all of the providers hail from the same geographic area. In that case, myriad factors are a dead heat for all of the competitors: they all have the same labour costs, tax rates, transportation logistics, etc. Given the lack of advantages in these areas, they have little choice but to win customers by out-investing and out-innovating their rivals.

### ***Support for Upgrading***

Pressure from demanding and sophisticated customers and from intense rivalry provides encouragement to innovate and upgrade. But with pressure only, they will not have the means to innovate and upgrade; for that firms need support as well.

Support for upgrading is provided by the *abundant supply of factor inputs*, including basic factors such as natural resources and capital resources, as well as advanced and specialized factors such as scientific infrastructure and pools of specialized labour. As countries become more advanced, the quality of support is increasingly influenced by advanced (e.g. graduate educated labor) and specialized (e.g. research universities) rather than basic factors (e.g. raw material supply, abundant unskilled labour) because the basic factors can be readily purchased from abroad.

Finally, support for upgrading is enhanced by the presence of *high quality related and supporting industries*. For example, this would include suppliers of inputs such as raw materials or capital, like venture capitalists, or producers of products or services that are sold in conjunction with the firms' products. For example for computer hardware firms, the presence of specialized software producers (e.g. Value Added Resellers or "VARs")

who sell in conjunction with them can help them meet customer needs without needing to make all the investments themselves.

### ***The Overall System***

The key to competitiveness does not lie within one or another of these four drivers but rather in their combination. Each driver of this “diamond” reinforces the others. For example, the presence of numerous competitors draws in skilled human capital, and educational institutions, and related and supporting industries, thus improving factor conditions. This in turn enables the firms to innovate more quickly and effectively, which in turn makes customers value the product/service more highly, and at the same time become ever more sophisticated in their demands. And this in turn encourages still more innovation and upgrading, which is aided by related and supplying industries that are drawn to the location by the vibrant cluster of rivals. The whole cluster of firms, suppliers, educational institutions, customers becomes stronger and stronger.

This positively reinforcing domestic cluster makes exporting seem easy. The intense competition and upgrading in the home market causes foreign market customers to think that the product/service is beyond their expectations. If one of the numerous northern Italian shoe manufacturers can interest Milanese women in their shoes, foreign women shoe buyers will be thrilled beyond belief. Similarly French wine, which may only meet the exacting standards of French consumers, exceeds expectations handily abroad, or Dutch cut flowers, or Swiss chocolate or Japanese cameras.

The Hollywood movie production industry is an excellent example of a self-reinforcing cluster that is without peer in global competition. The major US movie studios dominate world exports of motion pictures. Numerous movie studios compete vigorously against one another in southern California creating intense competitive pressures. The US movie customer who watches more movies per capita than in any other market in the world spurs them on to spend ever more in innovative ways to produce more appealing movies.

The studios are supported in their upgrading by the availability of specialized labour including actors, directors and producers, and the proximity of the two leading worldwide film schools (UCLA and USC), which the industry support generously. The world's greatest concentration of related and supporting motion picture industries, including special effects firms and film camera equipment firms are based in California. Together, the features of the California diamond produce an environment for business that has driven the companies to utilize ever more sophisticated strategies featuring relentless upgrading and global leadership.

Movie producers from other countries face daunting challenges in competing against the Hollywood powerhouse. They have fewer pressures for upgrading and many fewer supportive structures for upgrading. Star actors and directors find the gravitational pull of Hollywood difficult to resist thus weakening the specialized factor assets available to firms elsewhere, while strengthening the Hollywood cluster.

The power of the four drivers of the diamond working together is what generates competitive industries. Industries that rely on one driver – and often it is a factor condition advantage like low cost raw materials or labor – tend to find any advantage they might generate to be fleeting. This is because there is little pressure to upgrade and innovate. In addition, some other jurisdiction always comes along with still lower raw material or labor costs.

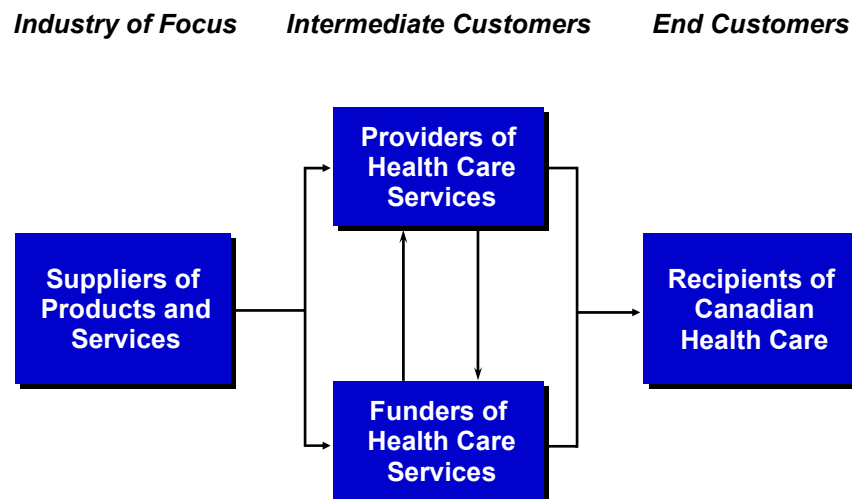
## **Canada's Health Innovation Problem**

In the context of this framework, it is not terribly hard to understand the source of the problem of failing to produce internationally competitive firms in the health sector. Simply put, we have a decidedly unbalanced diamond in the Canadian health sector, with dramatic weaknesses. This the reason that we don't see the development of globally competitive Canadian firms producing medical devices, software services, consulting services, pharmaceutical products, etc. To understand the weakness of the

Canadian diamond, it must be analyzed from the perspective of *suppliers of products and services to the health care provision sector* – i.e. the immediate customer of these potential products and services are the providers of health care services (hospitals, clinics, doctors, nurses) or the funders of those providers (governments or insurance companies), while the eventual customers are the Canadian patients of the health care system.

The system can be visualized as follows with the industry of focus, the intermediate customer of that industry and the end customers of the intermediate industry:

### Key Elements of the Canadian Health Care System



The fundamental question is: To what extent do *the suppliers of products and services to the health care providers* benefit from the kind of pressure and support for upgrading and innovation that is associated with globally competitive firms?

Arguably the *factor conditions* represent a strength for Canada in this sector. There is high funding of medically-related research and high production of medically-trained professionals in Canada. There is a broad and deep medical infrastructure including many global quality teaching hospitals. And as mentioned earlier, it is a huge sector with massive resources applied against it. So arguably, any would-be supplier of



products and services to the health provision sector should face attractive factor conditions in Canada.

*Demand Conditions* appears to be another story entirely. Suppliers face a very powerful “monopsonist” intermediate buyer – the single payer – in each jurisdiction. This is a situation less conducive to firms entering a business because of the inherent power of the monopsonist. In the Canadian health sector, the monopsonist buyer tends to operate as a demanding but not sophisticated buyer. Governments are so concerned about cost containment that their overwhelming concern is grinding down suppliers on price. In addition, their budgets are so segmented that it is hard for suppliers to create complex value propositions that involve increasing one budget item (e.g. drug costs) to produce a still greater reduction in another budget item (e.g. hospital costs). This does not create an environment conducive to innovation and upgrading by suppliers.

In addition, with respect to the end customers, the monopsonist buyer is a monopoly supplier. Canadian patients typically face a monopoly supplier for medical services. Monopolists really don’t need to be highly responsive to the demands of their customers, the Canadian health care recipients. In fact, by and large the monopoly health provider simply isn’t responsive. It dictates what drugs are on the formulary, what medical devices can and cannot be purchased, and how long waiting periods need to be to minimize costs to the system. In this sort of environment, the intermediate customer – i.e. the health care providers – don’t feel the compelling need to have fabulous new ideas from their suppliers.

The combination of weak demand conditions and monopoly provider status can also generate a negative disposition toward outsourcing activities to would-be suppliers. Outsourcing activities to more efficient or effective suppliers tends to be a result of a competitive environment –i.e. aggressive rivals and demanding customers – that creates relentless pressure to improve a firm’s value equation. In the case of Canadian health care, there is little or no pressure from rivals or customers for improving effectiveness and efficiency through outsourcing of key activities. In fact, the only

potential source of pressure is the government but that source is blunted by the framing of the outsourcing issue as a question of “privatization” of Canadian health care and therefore a dangerous thing.

The decision by a monopoly supplier to outsource can be a powerful driver of the creation of new businesses. No situation demonstrates this more than the contrast between Ontario Hydro and Hydro Quebec. Faced with exactly the same circumstances – the need to electrify their large and physically-challenging jurisdictions – they chose opposite tacks. Ontario Hydro built a huge internal engineering and construction operation that built its facilities. Hydro Quebec created considerably more modest internal operations and outsourced much of the engineering to nascent engineering consulting firms, such as SNC and Lavalin.

The contrast in results is dramatic. Hydro Quebec was instrumental in building two firms that would first go on to global prominence separately then later merge into SNC-Lavalin, one of the largest and most globally competitive firms in the engineering and construction industry worldwide. A firm with over \$3 billion in revenues, SNC-Lavalin is one of Canada’s strongest and most prominent globally competitive firms. Ontario Hydro did not contribute to the creation of any notable globally competitive firms and had to layoff the bulk of its construction and engineering workers when the electrification had been substantially completed. In many respects, Ontario Hydro wasted a magnificent opportunity to spur the creation of a cluster related to its huge magnitude of construction spending.

The net result is that the demand conditions facing Canadian would-be suppliers of new products or services to the health care providers are weak and do not contribute to innovation and upgrading by suppliers. The health care providers are overly demanding but less sophisticated and not as open to innovation as they would be if they faced more competition and more demand from patients.

This is in stark contrast to American suppliers of new products or services to the American health care providers. By and large, they face a wider variety of intermediate customers – both providers and funders thereof, all of whom face demanding end customers that have multiple choices of health care providers. It is no surprise that this environment has produced powerhouse exporters in pharmaceuticals, medical devices, medical technologies, and medical software and services.

The demand characteristics in Canada render would-be suppliers less inclined to enter and if they do, they are less inclined to invest in the kind of upgrading and innovation that is required for global competitiveness. The lower the level of entry, the less productive is the *firm rivalry* among the small number of competitors. This further diminishes the inclination to innovate and upgrade among those who choose to compete.

In turn, this has a negative impact on *related and supporting industries*. Related and supporting industries only spring up in response to the presence of a robust cluster of rivals in a business because they benefit from having a number of customers to supply. This is particularly true for a key related and supporting industry, which is venture capital. Specialized venture capital firms spring up in response to the availability of entrepreneurial firms with attractive prospects to finance. If there are few firms, there will be fewer venture capitalists. In turn, this has the knock-on effect of making it harder for firms to establish operations, and so on. In addition, venture capitalists tend to be nervous about financing firms that face monopsonist customers. They would rather have the firms they finance serving a multitude of customers so that one adverse decision by one customer can't destroy a firm they have financed.

The subsequent knock-on effect is on factor conditions. A key factor condition is the availability of business entrepreneurs in the health-related fields. The Canadian health system produces a wealth of medical scientists, doctors and nurses, but it won't produce business entrepreneurs in the health-related fields if there are few health-related start-ups and few health-related venture capitalists.

In summary, an analysis of the drivers of global competitiveness demonstrates that despite the huge investment in health care in Canada we shouldn't be surprised that we don't produce firms supplying products and services for the health care industry. In essence there is a fundamental imbalance in the supply and demand for innovation in the sector. While the sector may have a great supply of most of the factor conditions, the demand conditions are inferior and that cascades back to rivalry and related and supporting industries, such as health sector venture capital, to diminish the effectiveness of those drivers. And with the demand side of the diamond underperforming, even the supply of factor conditions show areas of weakness – in particular in the supply of health sector business entrepreneurs.

### **Toward Solutions for Canadian Health Innovations**

What conceivably could be done about the problem of the absence of globally competitive health products and services firms given the constraints of the single payer system to which we are apparently committed? There are five steps that could be taken collectively to improve the demand drivers in the sector: encourage more competition among health care providers; enforce more outsourcing by health care providers; enforce more sophisticated demand on the part of health care providers; provide targeted support for health sector venture capitalists; and provide developmental support for health sector entrepreneurs.

#### ***Encourage More Competition among Health Care Providers***

Health care providers will become more demanding and sophisticated customers to the extent that they are driven to compete by their customers. If the health care providers have a monopoly, their customers can't be demanding and as a consequence the providers won't be demanding and sophisticated either. Alternatively, if there were many more specialized clinics and hospitals that competed to outdo one another, they

would be more inclined to demand innovative products and services from firms who do or could supply them.

Within the current system, it is not easy to conceive of a dramatic positive change in the level of competition among health care providers. However, any movement towards more competition will enhance the demand quality of the health care providers. For example, the system would benefit from having a greater number of specialized clinics like the Shouldice Clinic that specializes in hernia operations and has innovated dramatically in that procedure.

### ***Enforce More Outsourcing by Health Care Providers***

It is essential that health care providers act more like Hydro Quebec than Ontario Hydro with respect to outsourcing to entrepreneurial firms. In essence Canada needs to have more of its health care spending end up in the hands of entrepreneurial firms that are given the incentive to innovate and upgrade for the global market rather than remaining in the bowels of large health care providers.

The default assumption needs to change from “an activity needs to be performed within the health care provider organization unless a compelling case can be made to outsource” to “an activity needs to be outsourced to a supplier unless a compelling case can be made to perform it internally”.

This is critically important because with a greater revenue stream available to entrepreneurial firms, venture capitalists will be more inclined to finance these firms. This will be doubly reinforced if there is more competition among health care providers because the venture capitalists will no longer have to fear the power of the monopsonist. With more firms serving the health care providers, there will be more rivalry among the firms, greater likelihood of related and supporting industries taking shape, and greater development of health sector business entrepreneurs.

### ***Enforce More Sophisticated Purchasing by Health Care Providers/Funders***

Regardless of how unfavourable the demand conditions, rivalry, and related and supporting industries, the government can attempt to enforce more sophisticated consumption on its own part and on the part of the health care providers. In their decisions on drug formularies, governments need to get beyond the funding silos to look at overall benefits of innovative new medications or procedures. If individual ministries or budget managers can't look beyond their narrow interests, then new mechanisms will have to be created that do so.

Similarly, hospitals and clinics will have to be more sophisticated in their demands. If they can't do it because of budget constraints or lack of the competitive pressures that would help them it may be necessary to create an overlay structure of some sort to ensure that as many activities as possible are outsourced and that entrepreneurial ventures are utilized where possible to provide new products and services.

### ***Provide Targeted Support for Health Sector Venture Capitalists***

While it is tricky to find a way that is not ineffective and bureaucratic to support venture capital in the health sector, given the potential for pump-priming by health sector venture capitalists, it warrants an attempt.

The Accounts Receivable Insurance program of the Export Development Corporation (EDC) can provide a model. EDC recognized that new potential exporters can be dissuaded from exporting due to legitimate fear that they could experience receivables problems with foreign buyers and those problems would be hard to overcome because they would be adjudicated by foreign laws in legal systems that may favour the home country debtor. EDC helps Canadian exporters overcome this legitimate fear by providing insurance for their foreign accounts receivables. It is a highly targeted service designed to help potential exporters overcome a problem that might prevent getting them started.

In a similar way, the greatest early danger for a venture capitalist in funding a start-up is the first “reference sale”; that is, getting the first trial or sale with a sufficiently prestigious client that if successful would provide a powerful reference for other clients. Without that first reference client, the start-up is almost certain to fail.

A program could be created that would enable venture capitalists to apply to a federal government agency for “reference sale” insurance. A panel of medical experts (in the mode of academic peer review for research grants) could decide whether to insure a venture-funded start-up against the possibility of failure to secure a reference client (within a certain period of time and further investment) and thereby encourage the venture capitalist to fund or continue to fund the start-up in question. As with the EDC insurance program, one would hope that in the majority of cases, the insurance would not cost the agency a penny and that the agency investment would be restricted to only those situations in which a reference client cannot be acquired.

Hopefully, the award of reference client insurance by the board of experts would have the beneficial side-effect of enhancing the credibility of the start-up with potential reference-clients in the same way receiving a SSHRC/NSERC/CIHR grant confers added credibility on the work of the grant recipient or the way receiving venture capital funding from one of the prestigious Silicon Valley venture firms confers credibility. This service could provide a pump-priming effect that would cause more venture capital money to support would-be start-ups in the medical sector.

### ***Provide Developmental Support for Health Sector Entrepreneurs***

It is similarly tricky to find an effective and non-bureaucratic way to support and encourage would-be entrepreneurs. But again, given the pump-priming capacity that could be created by the presence of more health sector entrepreneurs, it warrants an attempt.

One approach could be to further strengthen the commercialization efforts of Canada's research-intensive universities. This would be focused on giving researching professors more encouragement and support to take their innovative ideas from the lab bench to the market. It is somewhat questionable, however, whether just how much more entrepreneurship can be generated by "pushing" scientists harder and farther.

Alternatively, in keeping with the desire to overcome the imbalance of supply over demand, an initiative could target enhancing the power and effectiveness of demand by entrepreneurs for commercialization of health-related innovations. Business schools could create a program designed to bring together research scientists/professors interested in commercialization of their health-related ideas and entrepreneurs interested in commercialization of these ideas. The following could be the notional design of such a program. A class of 30 could consist of 15 scientists and 15 entrepreneurs. The program could have three modules of three to five days each and significant gaps between the modules. The content would be focused on issues related to commercialization of health related innovations – i.e. product/service development; marketing and sales in the health sector; financial planning; human resource issues in health-related start-ups, etc.

The first module could provide an introduction to the content. At the close of the first module, the scientists and entrepreneurs could pair off for a joint project on creating a business plan for a health-related idea. The second module could use the 15 draft business plans as the content for work on the critique and improvement of business plans. The teams could learn from each others' plans and from constructive critique from faculty and outside experts.

The pairs could each work on to refine their business plans between the second and third modules in order to come to the third module ready to present to a board of venture capitalists. The teams would all watch each others' presentations and interactions with the venture capitalists in order to develop their understanding of the thinking of venture capitalists and hone their own plan and pitch.



The desired output of the sessions would be several projects that would gain immediate venture capital support, plus a number of research scientists and would-be entrepreneurs that have a much better understanding of innovation and entrepreneurship in the health related sector.

If this program could have a rigorous application and screening process and thorough testing, it could become a prestigious degree or diploma program. A positive output would be that venture capitalists would begin to look for this credential in the scientists and entrepreneurs they consider funding.

### **Concluding Thoughts**

While at first blush, it is a mystery that Canada doesn't produce many globally competitive health care products and services firms given its huge investment in health care, closer scrutiny shows that we get exactly what we should expect and without significant changes, the situation is quite stable.

We can dramatically improve the production of globally competitive health care products and services firms, but only if we work to improve the demand side of innovation. That can be done if we encourage more competition among health care providers, enforce more outsourcing by health care providers, enforce greater sophistication in the purchasing of health care providers, provide carefully targeted support for health sector venture capitalists, and provide developmental support for health sector entrepreneurs.