

# Putting Some Mustard into Economic Growth

## Un peu Mustard dans la croissance économique

ROBERT G. EVANS

### Abstract

On September 27, 2012, the University of Toronto launched the Fraser Mustard Institute for Human Development – an appropriate recognition of an extraordinary individual. Fraser was a keen student of the science of human development and, most particularly, of early child development (ECD). He was also a powerful and tireless advocate for translating science into action. His institute must do both.

Action is needed also because 25% of Canadians lack the competencies to function effectively in a modern economy. Other countries do much better. Facing a low-growth future, we cannot afford to waste this untapped potential. Although Prime Minister Harper's personal ideology has no place for ECD, the Mustard Institute can help keep the flame alive.

### Résumé

Le 27 septembre 2012, l'Université de Toronto inaugurerait l'Institut de développement humain Fraser Mustard – une reconnaissance appropriée pour une personne exceptionnelle. Fraser était un brillant chercheur en études du développement humain et, plus particulièrement, du développement de la petite enfance. Il était également un militant infatigable en faveur d'une transposition de la science en gestes concrets. L'Institut qui porte son nom doit aussi accomplir ces deux tâches.

Ces gestes sont indispensables puisque 25 pour cent des Canadiens n'ont pas les compétences nécessaires pour fonctionner efficacement dans une économie moderne. D'autres pays font beaucoup mieux. Face à un avenir de faible croissance, nous ne pouvons nous permet-

tre de gaspiller ce potentiel inexploité. Bien que l'idéologie personnelle du premier ministre Harper ne fasse pas place au développement de la petite enfance, l'Institut Mustard pourra aider à maintenir cette flamme en vie.

---

**O**N SEPTEMBER 27 OF THIS YEAR THE UNIVERSITY OF TORONTO LAUNCHED THE Fraser Mustard Institute for Human Development. Well done, U of T! I'm proud of the old place. This is not only an entirely appropriate recognition of an extraordinary individual, but also a potentially powerful vehicle for carrying forward the extraordinarily important work to which he devoted much of his later career.

That career had many dimensions. Fraser Mustard was an athlete (the Moose), a physician, a scientist, a university administrator, twice a Royal Commissioner and finally, founder and long-time president of a unique (and uniquely Canadian) new form of research organization, the Canadian Institute for Advanced Research (CIAR).

Fraser's intellectual interests were boundless. Programs supported by CIAR ranged from cosmology, robotics and evolutionary biology to the determinants of human health, individual brain development and the characteristics of successful societies. He displayed a remarkable familiarity with all the programs; one might wonder if he had established CIAR to give himself a front-row seat at the cutting edge of advances in human knowledge.

The portfolio of programs chosen for support by CIAR was not, however, based simply on Fraser's diverse personal interests. CIAR was also guided by a remarkable Research Council, and all programs had to meet two fundamental criteria.

First, programs focused on research problems of significance and complexity that were essentially multidisciplinary, requiring the assembly and coordination of knowledge and skills from a number of intellectual fields. The Institute was to be a vehicle for genuine intellectual collaboration, not merely "parallel play" by individual researchers, however outstanding. "Glueability" was his term for the capacity to work productively in teams.

Second, programs were established in research areas where there was currently or potentially a powerful intellectual base in Canada on which to build. These were not "green field" enterprises, and Fraser was a strong patriot in the finest sense of the word.

### The Proper Study of Mankind...

But closest to his heart, as the University of Toronto has recognized, was the study of human health and development, and most particularly the relationship between the individual and the social context – "the conditions in which humans live and work." Fraser was deeply interested in and surprisingly well informed about all CIAR programs, but he took on for himself the chair of the Advisory Committee for the Population Health program.

This field, concerned with the question, as Jonathan Lomas later defined it, *Why Are Some People Healthy and Others Not?*, had been at the top of Fraser's priority list when CIAR was

first founded, though the Population Health program could not be established until 1987. The obvious and rather trivial answers commonly given to this question – bad genes, bad diets, bad physical environments, bad medicine and bad behaviour (and bad luck!) – are not in themselves wrong. But they do not go far enough upstream. They provide no explanation for the wide variations in health status not just among individuals, but among well-defined social groups. Ill health is strongly socially patterned, and in those patterns lies important information.

In particular, why is there a gradient, a relationship linking good health with higher income or wealth? The linkage appears in all societies, and most importantly is everywhere a *gradient*, not a threshold. Of course, poverty is bad for health in a number of ways, but the health–wealth correlation persists all the way up the income distribution, well above any possible effects of material deprivation. The overall steepness of that gradient, however, varies markedly among different societies, and that too is telling us something important.

Easy “explanations” point to “unhealthy [individual] choices” – smoking, drinking and driving, drug use – that are also correlated with social position. But as Michael (now Sir Michael) Marmot pointed out over 30 years ago, the real challenge is to explain why those behaviours are so closely linked with social position.

For example, everyone understands that smoking is bad for health. This has been known for more than half a century. Cigarettes were popularly known as “coffin nails” long before science confirmed that label. But the fact that smoking behaviour is so strongly socially graded makes a mockery of the language of “choice.” People do not “choose” to smoke or not, as they might choose between vanilla and chocolate ice cream. The term “unhealthy choices” – still popular among people who ought to know better – serves to obscure the powerful influence of social context. (It also offers a convenient basis for victim-blaming.)

Tobacco use is only one of a number of ways in which social context can get “under the skin” to affect health through positive or negative behaviours. But that context also influences *biological* responses to environmental challenges in ways that are damaging to, or protective of, health status. It is now well understood that the social environment becomes embedded in both behavioural and biological responses – “habits,” in a broad sense – to external stresses. The interesting question is, “How?”

As that understanding has progressed, however, attention has also been more focused on *when* the environment gets under the skin. Social context affects health throughout life, but has its most profound and long-term impacts, being most solidly embedded, through biological effects during the early years. The influences on brain development are of particular significance (e.g., McCain and Mustard 1999; Mustard 2007).

Understanding of the science linking social experience to the trajectory of individual health has progressed dramatically in the decades since the work of CIAR’s Population Health program, and an up-to-date and comprehensive review would be far beyond the competence of this author or this space. Instead, we will make a radical digression to note two very recent items of economic news that can, we believe, be tied back to the main theme.

## Where Did All the Money Go?

The United States Census Bureau has just released data showing that median “real” (i.e., inflation-adjusted) household income in the United States fell in 2010, for the second straight year, and has now fallen a total of 8.9% since 1999 (US Department of Commerce 2012). That’s rather a lot. Meanwhile, the dramatic increase in inequality that began in 1980 is continuing: The concentration of income and wealth at the very long end of the income distribution increased again in 2010.<sup>1</sup>

Well, that is in the United States, and Canada has, of course, historically been a much better managed country. Moreover, most of the data showing a health–wealth correlation are cross-sectional. It is true that, historically, rising income levels and rising life expectancies have moved together, but it is too soon to tell when or whether we might see rising mortality rates or declining overall health status in the United States. That country already performs pretty miserably, relative to most aggregate measures of population health relative to the rest of the developed world, but will falling median incomes and further increases in inequality make it worse? (Stay tuned.)

## The Future Ain’t What It Used to Be

But perhaps the US Census data are signaling the end of a historic era. A National Bureau of Economic Research Working Paper by Robert Gordon, just released, “raises basic questions about the process of economic growth. It questions the [nearly universal] assumption ... that economic growth is a continuous process that will persist forever” (Gordon 2012). The argument, while focused primarily on the United States, is intended to apply globally.

Gordon argues that continuous economic growth is not the historic norm, but rather a feature of only the past 250 years. During that time, the “frontier economies” – first Britain and later the United States – have been the leading edge of technological changes that have then been disseminated to other societies. The frontier economy at each stage sets the pace with which other countries may (or may not) converge. They may grow faster while catching up to the frontier economy, but eventually their growth will be constrained by the experience of the frontier. In short, if the United States has stopped growing, eventually so will everyone else.

Moreover, the increases in economic productivity, and the corresponding improvements in human welfare – including great gains in health – that this has made possible, have not been a smooth, continuous process. Rather, there have been three separate and identifiable waves of advance – three distinct “industrial revolutions” during which productivity and economic growth have leaped ahead. The first, built on steam power and railways (1750–1830), was led by Britain. In the second, the most significant and prolonged (1860–1972), growth was driven by electricity, chemicals, petroleum, running water and related innovations, and leadership passed to the United States. The third, of course (1996–2004), is the recent revolution in information technology.

After each “revolution,” growth slowed in the frontier economies following the integration of the new technologies into economic and social life. Productivity and economic well-being might continue to advance in the economies not yet at the frontier, but they would be converging towards the limits set by the state of technology in the leaders.

Despite the continuing excitement around consumer electronics, and the emergence of Apple as the world’s largest company (by market capitalization), Gordon believes that this third industrial revolution has probably about run its course. Moreover, he argues that it has had a much lesser impact on economic productivity and human welfare. As he puts it, “Which would you be least willing to give up, your cell phone or indoor plumbing?”

An economic historian could no doubt raise major questions about Gordon’s simple schema. But it does have the virtue of linking productivity growth to specific advances in technology, rather than to some mysterious process that goes on automatically year by year (except when it doesn’t).<sup>2</sup> Moreover, it turns our attention to the important question of why economic growth and productivity improvement seem to have stalled, or at least slowed dramatically, in what is still the world’s frontier economy.<sup>3</sup>

Absent another major wave of rapid scientific and technical innovation – a fourth industrial revolution that is not now on the horizon – the prospects are for very slow growth in the developed economies for the foreseeable future.<sup>4</sup> Gordon identifies six “headwinds” that will impede growth even if innovation were to continue at the rate of the 1987–2007 period.

Against us, or at least against the United States, are:

- + demography,
- + education,
- + globalization,
- + inequality,
- + energy/environment and
- + the “overhang of consumer and government debt” (Gordon 2012).

Taking all these factors into account, Gordon suggests that the economic prospects for the “99%” are pretty much nil. Indeed, given the experience of the last decade, flat-lining actually sounds rather optimistic.

Suppose Gordon is right: that economic growth has come to an end for most of the population of the United States and will now, or soon, end throughout the developed world. This will have – may already be having – major effects on political and institutional structures that have been in place, in Canada as elsewhere, for the last 50 years. It is no coincidence that the financial media bombard us with worries about overwhelming public and private debt, and the failure of pension systems based on over-optimistic income projections. Oh yes, and the “unsustainability” of medicare.

## “Gentlemen, We Are Out of Money. We Shall Have to Think”

But is Gordon right? One could perhaps challenge any of his “headwinds.” Consumer and government debt, for example, is matched by “mountains of cash” held in the corporate sector, and the rapidly growing assets of the very, very rich.<sup>5</sup> It is an aspect of extreme and growing inequality, not a collective national burden owed to Mars.<sup>6</sup> It is in Gordon’s frontier country the predictable result of deliberate financial sabotage by reckless bankers, deliberate fiscal sabotage by reckless politicians (yes, you, Dubya) and deliberate regulatory sabotage by reckless regulators (yes, you, Alan Greenspan). As for globalization – wasn’t that supposed to raise everyone’s productivity?

But what has all this to do with Fraser Mustard and the Institute for Human Development?

Well, this: We may be sitting on a large, untapped potential for human development that could counter at least one of Gordon’s headwinds, and mitigate others.

Education is included as a headwind on the assumption that the economic benefits of increased education have been largely tapped out, at least in the United States. Seriously? The suggestion that the population of the United States represents the outer limits of human educability, er, “lacks face validity” – to put it politely.<sup>7</sup> It perhaps rests on a confusion between schooling and education. For a much broader perspective, consider this commentary by Clyde Hertzman:

... in the last 20 years there has been an explosion of research, documentation, and developing biological understanding of the pathways through which early life experience becomes embedded in “coping styles” or responses to the later opportunities and challenges of life. Even the genetic endowment, once thought of as an immutable inheritance placing fundamental constraints on the life course, now turns out to be expressed in different ways depending on early experience. The genes in the DNA are given, but whether or not a particular gene is expressed depends on the pattern of attachment of methyl groups to those different genes, and that pattern is influenced by the early environment. This methylation mechanism is currently the best studied of the pathways from early experience to gene expression, but the whole field is under very active investigation.

But can the distribution of these trajectories be modified? Clearly yes. The evidence from cross-country comparisons is conclusive; the social gradients in health, literacy, school and work performance, are much steeper in some countries than in others ... . And the societies in which these gradients are flatter, are not only healthier but have higher educational attainment and literacy, lower poverty rates, smaller prison populations, and just work better. The argument for a serious ECD [early child development] program is supported not just by the research literature on the importance of the early years, but by the simple observation that other countries have such programs, and their population-level results are much better than those in Canada.

While it is true that a great deal, probably the majority, of successful “early child development” takes place in a well-ordered (and well-resourced) home, it is also true that over 25% of Canadians reach adulthood without the competencies they need to cope in the modern economy. Many families are succeeding, but many are not. ... It does not have to be this way; international experience indicates that our 25% rate could be reduced to under 10%. (Evans et al. 2007; see also Maggi et al. 2010)

The international variations in social gradients in student performance reflect differences across the socio-economic spectrum not in years of schooling but in the quality, the “productivity” as it were, of schooling provided. But even more important, they reflect differences in early life experience that show up in differences in “readiness to learn” at or before school entrance. If “25% of Canadians reach adulthood without the competencies they need to cope in the modern economy,” that’s because many of them previously lacked the competencies they needed to cope with schooling.

Disadvantages cumulate over time, and emerge not only as poor school performance but later as difficulty attaching to the workforce, contacts with the justice system, intermittent employment and lower productivity and, eventually, a higher incidence of health problems. Disadvantages are also carried across the generations.

### **Damn the Evidence! We Do It My Way!**

So how do we unlock this potential? We don’t – at least, not for now.

The case for a national policy on early child development thus seems very powerful, and by 2006 it appeared that action was imminent at the federal level. But then any initiative came to a grinding halt: “We don’t need the experts ... we have two experts ... Their names are mom (sic) and dad!”<sup>8</sup>

Thus Stephen Harper, the newly elected Prime Minister of Canada, contemptuously dismissed widely shared hopes for a national childcare program. So that’s that.

Harper’s views are at best wishful thinking – at worst, intense ideological conviction. What is certain is that they bear no relation to the rapid advances that have taken place in the scientific understanding of human development. Nor do they reflect any concern for Canada’s relatively mediocre international position.

Indeed, Harper’s government has a pattern of suppressing sources of information that do not support his ideological convictions.<sup>9</sup> The long form of the Canadian census, for example, discontinued in the face of universal public disapproval, could have been a goldmine of information on human development. (The Council for Early Child Development was closed in October 2010 for lack of funds.)

Canada will therefore continue to perform below its economic potential because a significant part of its workforce lacks the competencies to be productive in a modern economy. But though the Harper government has stonewalled any policy response, at least at the federal level, the underlying ideas are not so easily suppressed.

For example, the Canadian Institutes for Health Research in 2010 named Clyde Hertzman Canada's Health Researcher of the Year in recognition of his work on the fundamental importance of development during the early years of life. In 2011 he was chosen by the Royal Society of Canada to present the cross-Canada Governor General Lecture Series. Somebody is getting the message.

And now we have the Mustard Institute at the University of Toronto. Three cheers! Those of us who had the privilege of working closely with Fraser will, I think, know exactly what he would hope for it. Walk on two legs. Keep the hard science moving forward. And batter away at the walls of prejudice that prevent that science from being reflected in public policy. "Tis not too late to build a better world."<sup>10</sup>

#### NOTES

1. Lest anyone ask why inequality *per se* might matter, *The Economist* newspaper for October 1 refers to an unsubstantiated claim by a long-time Republican insider that the notorious Koch brothers, tied for fourth place on the current Forbes list of America's richest people with \$31 billion each, donated \$100 million to the Romney campaign to buy Paul Ryan his place as vice-presidential nominee. (The claim has been denied.)
2. In fairness, the perception of smooth and continuous productivity improvement rested on the an assumption that small innovations take place "below the radar" all the time, and cumulate to steady, if undramatic, advance.
3. Or is it? Does continuing economic stagnation qualify Japan as the "new frontier"? Talk of a "lost decade" has begun in the United Kingdom. The Eurozone is another story. Whoever is in front, no one seems to be going forward.
4. Advances in molecular biology might power another revolution. But note the surprisingly modest impact, so far, of mapping the human genome.
5. Those mountains are even higher, in relative terms, in Canada, to Mark Carney's distress.
6. A good deal of the American debt is, however, owed to China.
7. Alternatively, "Howls of derisive laughter, Bruce!"
8. Stephen Harper in a private (unpublished) speech to the Manning Centre Conference, Calgary, August 16, 2006. Harper, or his speechwriters, evidently thought the phrase worth repeating because he recycled it publicly for the June 2011 Conservative Party convention: "... we took money from bureaucrats and lobbyists and gave it to the real experts on childcare – and their names are Mom and Dad" (see Payton 2011).
9. The usual justification – the need to reduce the deficit – is demonstrably false. Check the "Fiscal Monitor" on Finance Canada's website.
10. Tommy Douglas, modified from Tennyson's "Ulysses."

#### REFERENCES

Evans, R.G., C. Hertzman and S. Morgan. 2007. "Improving Health Outcomes in Canada." In J. Leonard, C. Ragan and F. St. Hilaire, eds., *A Canadian Priorities Agenda: Policy Choices to Improve Economic and Social Well-Being* (pp. 291–325). Montreal: Institute for Research on Public Policy.



Gordon, R.J. 2012 (August). "Is US Economic Growth Over? Faltering Innovation Confronts the Six Headwinds." NBER Working Paper No. 18315. Cambridge, MA: National Bureau of Economic Research. Retrieved October 9, 2012. <<http://www.nber.org/papers/w18315>>.

Maggi, S., L.J. Irwin, A. Siddiqi and C. Hertzman. 2010. "The Social Determinants of Early Child Health: An Overview." *Journal of Paediatrics and Child Health* 46(11): 627–35.

McCain, M. and J.F. Mustard. 1999. *Reversing the Real Brain Drain: Early Years Study – Final Report*. Toronto: Children's Secretariat.

Mustard, J.F. 2007 (May 15). "Council for Early Child Development: Putting Science into Action." Sackville, NB: Mount Allison University. Retrieved October 9, 2012. <<http://www.cprav.net/ueywns/FraserMustardSackville.pdf>>.

Payton, L. 2011 (June 10). "Harper Speech Fires Up Convention Crowd." CBC News. Retrieved October 9, 2012. <<http://www.cbc.ca/news/canada/story/2011/06/.../pol-harper-speech.html>>.

US Department of Commerce (Census Bureau). 2012. *Income, Poverty, and Health Insurance Coverage in the United States: 2010*. Washington, DC: Author. Retrieved October 9, 2012. <<http://www.census.gov/prod/2011pubs/p60-239.pdf>>.