

TELLING THE CRACKPOTS FROM THE GENIUSES



Randall K. Morck

At the end of the first day of IRPP's recent conference "Creating Canada's Advantage in an Information Age," the University of Alberta's Randall K. Morck provided his reaction to the day's discussion of brain drain and industrial competitiveness. Here is an edited transcript of his comments on: taxes and the brain drain; economies of scale in R&D; the importance of competitive capital markets; and the growth of high-tech clusters.

L'IRPP organisait récemment une conférence portant sur la manière de « Maintenir le Canada en tête à l'ère de l'information ». Le professeur Randall Morck, de l'Université de l'Alberta, fut invité à exprimer sa réaction à l'issue de la première journée de discussion, consacrée à l'exode des cerveaux et à la concurrence industrielle. Voici une transcription de ses commentaires sur l'exode des cerveaux et la fiscalité, sur les économies d'échelle en recherche-développement, sur l'importance de marchés financiers concurrentiels, et sur la croissance de grappes industrielles dans le secteur des technologies de pointe.

The first thing I must do is make a disclaimer. I am a capital markets economist, and this means I come to much of this work as an outsider. Therefore, I hope you'll forgive me if I ask some naive questions.

The first question I have is about the studies of the brain drain this morning. Those studies focus on the issue of whether the number of people leaving Canada was greater or less than the number of people coming into Canada. There seemed to be an argument that, as long as the number of people coming into Canada with, say, PhDs was roughly the same or maybe even a little more than the number going out, everything was OK.

Now, I don't understand that. The US is sucking PhDs in from all over the world, in all kinds of fields. They're keeping their own best people. They're

getting PhDs from Canada. PhDs from India and Pakistan are going to the US, too. If we're worried about our stock of skilled labour, rather than the flow—which it seems to me we should be—I don't understand the point of those studies. They're not asking the question I would like to see asked, which is: Do we have more or fewer PhDs in engineering, in biophysics and so on, than the US, per capita. That's the question we want to ask, when we talk about whether Canada is able to compete in the global Internet economy.

The second thing I found a little bit surprising, was the use of survey evidence, where you ask people: "Why did you leave Canada?" And everyone says: "I left because of better opportunities." This reminds me of some surveys I saw about attitudes towards race

in the US South. When people were asked "Are you a racist?" everyone said, "No." But when they were asked: "Are your neighbors racists?" everyone said "Yes."

Now, I've been living in Boston for the last year. (I'm a visiting professor at Harvard.) I don't know if they're tax refugees, but there are a lot of Canadians—and former Canadians—there. When I ask them "Why did you leave?" they say: "I left because of better opportunities." Then I say: "Well, there's a lot of Canadians here in Boston, why do you think they all left?" "Oh, it's the taxes." I don't know how to interpret those survey results.

I was very pleased that [UBC labour economist] David Green argued that we need to think about capital markets as well as labour markets—

because it gives me a way to elbow in with something I actually know about. Suppose the surveys are right, and it really is that opportunities are better in the US. Maybe that means the taxes are lower, or the wages are higher. But, in any case, let's suppose there are better opportunities in the US. Why?

Some of the things we worry about in capital markets studies are: What makes firms prosper? What makes firms have high productivity, high share price performance, high earnings performance, high growth, and so on? These are the sorts of things that my colleague, Bernard Yeung at NYU and I have been doing—and, by the way, he used to be at the University of Alberta.

One of the things we've found is that when American companies expand into foreign markets, the ones that have invested a lot in R&D in the recent past are the ones whose performance surges as they expand abroad. When US companies that haven't spent very much on R&D expand abroad, we tend to see a performance decline. Now, why should that be?

We think a theory that Harvard's Dick Caves put forward back in the 1980s explains what's going on. The basic idea is that information is a different kind of corporate asset. Information has huge returns to scale. And here's why.

If I invest in a new drill press for my company, I can put that drill press in the plant in Peoria, or the plant in Ontario, but not both. But if I invest in new technology, I can put that in both plants after I've got it. In fact, I could put it in my plants all over the world. There are bigger returns to scale from investment in information than in any other investment we know of.

What does that have to say about the topics we've been talking about today? First, this is a reason why it really matters what the scale of Canada's economy is. The US has a huge domestic market. If you invest in an innovation in the US and apply it throughout your operations all over

the US, you can reap that huge return to scale. For example, if you've got a new drug, and you sell one tablet to every American for a dollar every year, that's \$270 million a year. To develop the drug in Canada costs the same, but you're only going to get \$30 million a year if you sell one capsule to every Canadian. That's a very simplistic

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argument, but the idea is that the return to technology really depends on the size of the market. Scale is crucially important. That's why free trade really matters to a country like Canada. That's the argument, the more sophisticated argument, that was being made about free trade.

Now, despite the FTA, we still have trade and mobility barriers between Canada and the US. I've tried things like shipping books across the border recently. It's incredible what a mess it can be. So market size still matters.

It plays into things in a couple of ways. The first is that we can benefit by further merging the Canadian market with larger foreign markets. The second is that immigration matters. Immigration makes the domestic market in Canada bigger, which is a good thing from this point of view. And immigrants from all over the world can give us ties to their old countries, and those ties can translate into mar-

ket access for Canadian firms into foreign markets. People from China or India or Eastern Europe or wherever working for Canadian companies give us an edge in getting into those markets, which matters.

A second issue about capital markets that touches on today's presentations is the financing of information technology companies. The US has a huge and highly sophisticated venture capital industry. Canada doesn't. There are things in Canada that call themselves venture capital funds, but they look very different from venture capital funds in the US.

Venture capital funds in the US tend to be very large and very specialized. The reason they're specialized is that deciding whether or not to plunk \$10 million into research on monoclonal antibodies is easier if people within that investment fund's management know about monoclonal antibodies. You need to have, on staff, PhDs in biophysics, or whatever the field is, who can evaluate projects. That way, you can give money to people who have good projects and charge them a relatively low rate of return. And when you see something that's riskier, you charge a higher rate of return for capital.

Now, in Canada, we have labour union-run things called venture capital funds and a few other things that call themselves venture capital funds. But they don't seem to have this kind of expertise. And so, when one talks to Canadians in Boston, one of the things that they say is: "I came to Boston because I could get funding for my ideas here. When I went to a US venture capital fund, they could tell what I was talking about and that I had a good idea. When I went to a Canadian venture capital fund, they couldn't tell whether I was a crackpot or a genius, and so they offered me some kind of weighted average financing for my project."

If you think about what that does, there's actually a filtering going on. People with really good ideas should

leave Canada because they can get cheaper financing in the US. But crackpots can get cheaper financing here. So, if you look at the performance of many of our so-called venture capital funds over the past few years, you see this playing itself out.

Today's discussion of Germany raises the issue of how capital markets work in different countries. The German stock exchange is really different from North American ones in that banks basically run everything. When you buy stock in Germany, you have a stock account next to your checking account and your savings account. And when you're signing the forms that set up your stock account, there's one that turns over your right to vote the shares to the bank.

The result is that German banks typically vote more than 90 per cent of the stock in typical German shareholder meetings. Now, banks like stability. And banks like physical assets. My guess is that Germany has been investing in physical capital more than America has because physical capital is collateral.

Many German capital market economists see this as a real problem, and really interesting financial reforms are going on to deal with it. They're proposing to rebuild Germany's stock market regulation system to shunt the banks aside and give shareholders much more legal protection. Basically, they're switching to the US system. It's going to be fascinating to watch what happens to the relative investment in tangible versus intangible capital in Germany over the next ten years.

In essence, it's a self-administered dose of creative destruction that the Germans seem to think they need.

The final issue I want to talk about is the clustering of high-tech firms. This is something that gets a lot of play in the finance literature, and I understand that labour market people think about it too. We used to think that the reason high-tech firms cluster in a few places like Silicon Valley,

Route 128, and so on is that there's a spillover—people from one company have a few beers with people from the other company and swap ideas.

It seems that's not true. Studies of patent citation find that a Massachusetts firm is as likely to cite a California firm's patent as the patent of another Massachusetts firm. It

The reason somebody with a PhD in biochemistry wants to live in Massachusetts is that there are lots of jobs in biochemistry in Massachusetts. If one job doesn't work out, switching jobs doesn't mean moving across the country. If a biochemistry PhD takes a job in Edmonton and things don't work out, she has to move thousands of miles to find a new one.

seems that ideas spillover doesn't really account for the geographical cluster.

So what does?

One theory is that it has to do with labour markets. The idea is that the reason somebody with a PhD in biochemistry wants to live in Massachusetts is that there are lots of

jobs in biochemistry in Massachusetts. If one job doesn't work out, switching jobs doesn't mean moving across the country. If a biochemistry PhD takes a job in Edmonton and things don't work out, she has to move thousands of miles to find a new one.

If I'm running a biotechnology firm, where do I want to locate it? I want to locate it in Massachusetts, where there's a big labour market of high-tech, well-qualified people. If I set up in Edmonton, I have to pay a premium to attract good people to a relatively isolated operation.

It seems to me that local labour markets might be really important. There's a self-reinforcing effect that, once you get a nucleus going, builds on itself, grows and eventually creates a high-tech cluster. This means we need to pay attention to the small things that might create local lumpiness in labour markets. One of those, surely, is taxes. If high personal taxes stifle opportunities for skilled Canadians in Canada, and this causes a minor shift in the density of high-tech people from here to elsewhere, and after that the self-reinforcing business takes off, we've got a problem.

Randall K. Morck is Stephen A. Jarislowsky Professor of Finance at the University of Alberta and Visiting Professor of Economics at Harvard University.

E-government is coming

When IBM put Arizona's vehicle-registration program online, the average wait to register a car fell from 45 minutes to three minutes, and the cost to the state plummeted from \$6.60 per car to \$1.60. Arizona's Motor Vehicle Department now saves about \$1.25 million a year. IBM, for its part, keeps \$1 for each online registration, as well as a portion of the fee charged by banks for credit card processing. ...

The spring issue of e.gov magazine ... quotes an officer of the Alliance for Redesigning Government saying, "The

Internet is a medium destined in the years ahead to engulf local governance like it will every other human institution; rejecting that idea is like applying for membership in the Flat Earth Society. ...

"E-government is going to be bigger than e-business," predicts National Information Consortium spokesman Rich Phillips ... "There will always be people who want to browse at Barnes & Noble. But you'll never have a market for people who want to stand in line to renew their driver's licenses."

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