

If Canada is Number One, Why Would Anyone Leave?

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EVERY YEAR FOR THE LAST TEN years, the United Nations has produced a Human Development Report, complete with a Human Development Index (HDI). Every year for the last six years, Canada has ranked number one among all the countries listed—and in 1999 174 countries were on the list.

If Canada is such a great place—"the best place in the world to live in," as the UN ranking is usually summarised, though not by the UN—why would anyone think of leaving? The UN ranking seems to fly in the face of the recent claims that Canada is suffering a "brain drain", especially to the United States. How could there possibly be a brain drain from the world's number one country?

A Flawed Exercise?

One possibility is that man does not live by "human development" alone. It may be that variables other than those appearing in the UN index are what really determine whether people move from country to country.

Another way of saying essentially the same thing is that the HDI may be a flawed index. Even friends of the index—and it's a fascinating exercise that generates lots of interesting facts—will concede that this is almost certainly the case. *De gustibus non disputandum*. You shouldn't argue matters of taste. What makes for the good life has been con-

found by founding philosophers for five thousand years, probably more. It would be surprising, even shocking, if the UN had struck upon the magic formula. And, of course, there are immense problems in



getting consistent data across 174 countries, many of them very poor. One excellent index of underdevelopment is the inability to finance the collection of good national statistics.

But quite beyond the inherent difficulty of the task that the UN Human Development Report Office (HDRO) has set for itself, the way it has chosen to go about building the index is peculiar, and creates needless opportunities for criticism. The main problem is the HDI's habit of dra-

matically minimising the importance of per capita income. In fact, only because the influence of income is minimised does Canada come out on top. The roughly US\$6,500 difference—almost \$10,000 in Canadian dollars—between Canada's 1997 per capita income and that in the United States impresses most potential migrants. But until this year's Human Development Report, the UN discounted it almost entirely.

Some Interesting Details

How is the HDI calculated? Almost perfectly arbitrarily, which is inevitable in an exercise of this sort. But it is nonetheless done in an intuitively appealing way. Countries are scored between zero and one on each of three different criteria—life expectancy, education and income. The scores are then summed and divided by three, with the result being the country's index number, also a number between zero and one. In the 1999 report, the country scores varied between Sierra Leone's 0.254 and Canada's 0.932.

The way the individual scores are awarded is also plausible.

Countries are judged according to where they fall between a minimum and maximum level of performance.

For instance, minimum life expectancy is defined as 25 years and maximum 85. (In fact, the worst performer is Sierra Leone, at 37.2 years, and the best is Japan, at 80.0 years. Average life expectancy at birth in Canada was 79.0 years

in 1997.) If your country's life expectancy is halfway between 25 and 85, your score is 0.50. Life expectancy in the

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world as a whole is 66.7 years, which is just a little more than two-thirds of the way between 25 and 85, so the world's life expectancy score is 0.69.

The education index is calculated in more or less the same way, except that it is itself a weighted average of two other indices, one for adult literacy and one for the "combined gross enrolment" rate. Literacy gets two-thirds of the weight here, and enrolment one-third. In both cases, the minima and maxima are 0 and 100, so when Canada gets a literacy score of 0.99, it is because 99% of Canadian adults are literate. Similarly, a 0.99 on the enrolment scale means that 99% of the Canadian school-age population is enrolled in primary, secondary or tertiary education. One anomaly of the enrolment ratio is that in four countries (Belgium, Sweden, Australia and the United Kingdom) it has to be capped at 100%. How could it be greater than 100%? When people attend school who are no longer of "school age" the enrolled population can be greater than the school-age population.

On both components of the education index—and therefore on the index itself—Canada scores 0.99. Only five other countries do as well: Belgium, Sweden, Australia, the Netherlands and Finland. The world as a whole scores 0.67.

The Problem is with Income

It is in the indexing of income, however, that the HDI becomes both complex and suspect. In fact, criticism of the HDRO's techniques has led to a change in practice this year.

The general approach was and remains the same as for the other categories: Define minimum and maximum values and then score countries on where they fall between them. In the case of income, the minimum value is US\$100 per year. If that is your country's per capita GDP, you score zero on the

income scale. (In fact, the lowest per capita GDP is Sierra Leone's, at US\$410 per year.) At the other end of the scale, US\$40,000 per year earns you a score of one. (In the 1999 report, which uses 1997 data, the highest recorded per capita income is Luxembourg's, at US\$30,863.)

The controversy arises over how countries are graded when their income level falls between the two end-points. Adopting the unobjectionable assumption that a given increase in income produces a larger increase in "human development" for a poor country than for a rich one, the indexers decided to discount higher incomes. But they overdid it.

Until this year, they used a discounting method devised by the British economist Tony Atkinson. The value of any income beyond the world average per capita income of roughly US\$6000 was held to vary with: the square root of the increment for amounts between the average and twice the average; the cube root of the increment for amounts between twice and three times the average; the fourth root for amounts between three and four times the average, and so on. The maximum income considered, US\$40,000 per year, is more than six times the average, so the increment beyond \$36,000 was discounted to its seventh root. Since the seventh root of almost any number is not very large, and since \$40,000 is not a very big number, its discounted value was just \$6,311, only \$321 more than the world average income.

The effect of this very aggressive discounting was to give very little payoff for having a higher income. A country with per capita income equal only to the world average of \$6,000 would get

roughly 0.95 on the index. Earning five or six times that amount added only 0.03 or 0.04 to its income score, and only 0.01 to 0.02 to its score on the overall index, since income counts for only one-third of the total score. As a result, among countries with per capita incomes greater than the world average, even quite sizeable differences in income gave rise to very little difference in income scores. A country like Canada, only thirteenth in the income rankings in 1997, ended up first overall.

Responding to criticism of the Atkinson method of discounting, the HDRO this year adopted a new technique. Under the new discounting formula, a country with per capita income equal to the world's average earns a 0.69 (not 0.95) on the income index, while it needs roughly US\$22,000 of per capita income to get to 0.90 (Canada's score). The country with the highest per capita income, Luxembourg (US\$30,863), scores 0.96.

This greater differentiation among countries according to their income gives rise to predictable effects. In general, countries with high incomes improve their ranking whereas countries with low incomes fall in their ranking. As it turns out, Canada manages to maintain its number one ranking, but a number of other countries move up markedly—the United States by nine places, Brunei by 13, Kuwait by 14, Dominica by 17. The "losers" include Iran by 27 places, Turkey by 25, Libya by 11, Spain by seven, Greece by six, and so on.

Despite this improvement in technique, the new discounting formula still tilts heavily against the richer countries—

getting to US\$20,000, just halfway to the maximum income, results in a score of 0.89, almost nine-tenths of the way to the maximum score. So it may be of interest to see how countries would fare if income were not discounted at all.

What makes for the good life has been confounding philosophers for five thousand years. It would be shocking if the UN had struck upon the magic formula.

If the HDI put greater weight on income, the idea that people might choose to leave the "best country in the world to live in" would not be so shocking.

The accompanying table, which provides data for the 45 countries that the HDRO qualifies as having "high human development," shows this comparison. Its first column shows each country's 1997 per capita income in US dollars, calculated in purchasing power parities (an approach which, in theory, overcomes the effects of temporary misalignments of currency values). The second column shows each country's official HDI index value and the third column shows the rank by HDI. The fourth column calculates an income score using undiscounted per capita GDPs, and the fifth column provides the countries' HDI index values using these income scores instead of the ones used by the HDRO. The final column provides the ranking by the revised index values.

How have the income scores been calculated? The difference between the maximum income (\$40,000) and the minimum (\$100) is \$39,900. Canada's per capita income of \$22,480 puts it \$22,380 beyond the minimum. Dividing \$22,380 by \$39,900 gives 0.56, which is our new income score. (In effect, Canada is 56% of the way from the minimum to the maximum income.) That score is then added to the education and life expectancy scores used by the HDRO and the sum is divided by three to give the new HDI index value.

In general, the scores are considerably lower than the official HDI scores. The reason is that with higher incomes counting as heavily as lower ones, not earning the full \$40,000 reduces the

income score much more than when high incomes are heavily discounted. The top income score (Luxembourg) is now 0.76 instead of 0.96, while the top overall score is 0.85 (the United States) instead of 0.932.

places fifth overall, with the United States first.

How About Canada's Brain Drain?

Does this re-calculation put Canada-

US migration in new perspective? It depends on whether the variables the HDRO thinks are important are also important to potential migrants. Would an emigrant reduce his or her life expectancy by the 2.3-year difference between Canadian and American life expectancies at birth? Probably not, though there hasn't been much statistical work done on the effect of moving on life expectancy. Would an emigrant suffer as a result of America's five-point-lower enrolment rate? Perhaps. Any private economic gains from higher enrolment would probably be subsumed in income differences, and, despite the lower US enrolment rate, incomes are higher there. But there may be non-financial benefits from living in a society, such as Canada's, in which marginally more people had at one time been enrolled in the education system, though estimation of such gains would be difficult.

That leaves the income difference: US\$6,530 per year, or roughly C\$9,600 at current exchange rates. Large numbers of studies of migration find that income differences explain population

movements. If the UN's Human Development Index put greater weight on income, the idea that people might choose to leave the "best country in the world to live in" would not be so shocking. ♦

Country	Real GDP 1997 PPP US\$	HDI Index	Rank	Income index with no discounting	Revised HDI index	Revised Rank
1 Luxembourg	30863	0.90	17	0.77	0.84	2
2 Brunei	29773	0.88	25	0.74	0.81	9
3 US	29010	0.93	3	0.72	0.85	1
4 Singapore	28460	0.89	22	0.71	0.81	7
5 Kuwait	25314	0.83	35	0.63	0.74	26
6 Switzerland	25240	0.91	12	0.63	0.81	6
7 Norway	24450	0.93	2	0.61	0.83	3
8 Hong Kong	24350	0.88	24	0.61	0.78	20
9 Japan	24070	0.93	4	0.60	0.82	4
10 Denmark	23690	0.90	15	0.59	0.80	13
11 Belgium	22750	0.92	5	0.57	0.81	8
12 Iceland	22497	0.92	9	0.56	0.80	10
13 Canada	22480	0.93	1	0.56	0.82	5
14 Austria	22070	0.91	16	0.55	0.79	17
15 France	22030	0.92	11	0.55	0.80	11
16 Germany	21260	0.90	14	0.53	0.78	19
17 Netherlands	21110	0.92	8	0.53	0.80	12
18 Qatar	20987	0.81	41	0.52	0.69	33
19 UK	20730	0.92	10	0.52	0.79	15
20 Ireland	20710	0.90	20	0.52	0.78	21
21 Italy	20290	0.90	19	0.51	0.78	22
22 Australia	20210	0.92	7	0.50	0.79	14
23 Finland	20150	0.91	13	0.50	0.78	18
24 Sweden	19790	0.92	6	0.49	0.79	16
25 United Arab Emirates	19115	0.81	43	0.48	0.68	36
26 Israel	18150	0.88	23	0.45	0.74	24
27 New Zealand	17410	0.90	18	0.43	0.76	23
28 Bahamas	16705	0.85	31	0.42	0.70	29
29 Bahrain	16527	0.83	36	0.41	0.69	35
30 Spain	15930	0.89	21	0.40	0.74	25
31 Portugal	14270	0.86	28	0.36	0.70	30
32 Cyprus	14201	0.87	26	0.35	0.71	27
33 Korea	13590	0.85	30	0.34	0.69	32
34 Malta	13180	0.85	32	0.33	0.69	34
35 Greece	12769	0.87	27	0.32	0.71	28
36 Chile	12730	0.84	34	0.32	0.68	37
37 Barbados	12001	0.86	29	0.30	0.69	31
38 Slovenia	11800	0.84	33	0.29	0.67	38
39 Czech Republic	10510	0.83	38	0.26	0.66	39
40 Argentina	10300	0.83	39	0.26	0.66	40
41 Antigua and Barbuda	9692	0.83	37	0.24	0.65	41
42 Uruguay	9200	0.83	40	0.23	0.65	42
43 Slovakia	7910	0.81	42	0.20	0.64	43
44 Costa Rica	6650	0.80	45	0.16	0.62	45
45 Poland	6520	0.80	44	0.16	0.62	44

Source: www.undp.org/hdro

What happens to Canada's ranking? In terms of per capita income, Canada is not first, but thirteenth. When undiscounted incomes are used in the HDI's weighted average of income, life expectancy and education, Canada