

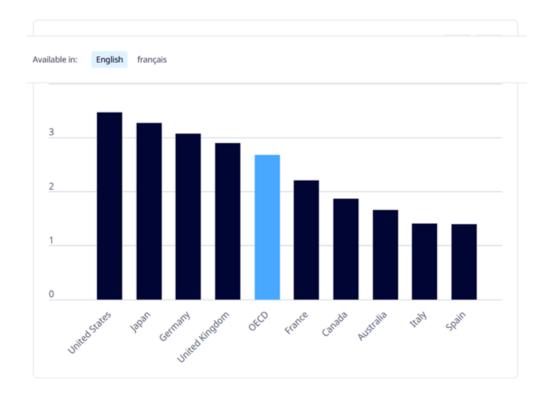
Austranada? Canada and Australia
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The very interesting 2023 Economist article entitled <u>Australia and Canada are one economy</u>—with one set of flaws (Ozanada) highlighted many of the similarities between the two countries, good and bad, but was largely focused on the resource economy, paying limited attention to the high technology categories, which includes pharmaceuticals, and the venture capital ecosystems. Having been educated primarily in Canada and having worked much of my post PhD life in Australia, with family and great friends in both, I wanted to take a closer look at therapeutics out-licensing in the two countries over the last couple of decades, as well as a preliminary look at venture capital activity in both.

To set the stage using recent cross-sectional data, and in keeping with the Economist article, both countries are very similar in terms of world rankings for Gross Expenditure on Research and Development (GERD) but fall below <u>OECD</u> average.

Canada and Australia very similar in R&D



GERD 2023: 1.9% Canada, \$2,007,470,000,000 (\$38B); 1.7% Australia, \$1,556,740,000, 000 (\$26B)

Similarities in top-line Global Innovation Index (GII) data for 2024 are also apparent although Canada ranks higher than Australia in innovation overall (14 vs 23) and within the high income country group (13 vs 22).

Canada Higher in Innovation Rank

GII 2024 rank

Austra	lia					23
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP
30	18	High	SEAO	26.5	1,719.3	64,674
						GII 2024 rank
Canad	la					14
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP
20	8	High	NAC	39.3	2,379.0	59,813

Both had the same number (n=3) of top 100 Science and Technology (S&T) clusters in 2024 according to <u>WIPO</u>.

Top 100 Science and Technology Clusters

Germany

China

China

United States

Republic of Korea: 4

France: 3

United Kingdom: 3

Japan: 3

Canada: 3

Australia: 3

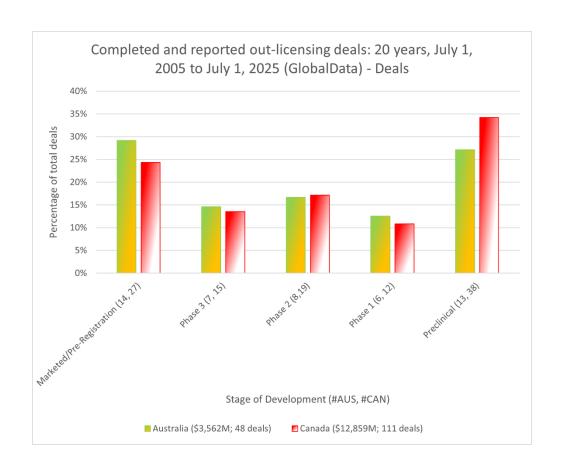
Table 6 Economies with three or more top 100 S&T clusters, 2024

Source: WIPO Statistics Database, April 2024.

So, we know from Linda's previous piece that deal data is very difficult to match perfectly to get a crisp apples-to-apples comparison with big sample sizes. With that caveat in mind, I have used GlobalData to try and parse therapeutics out-licensing data using completed deals in the last 20 years that had an overall deal amount with a verified Australian or Canadian company headquarters, stage of development and number of assets included in the deal.

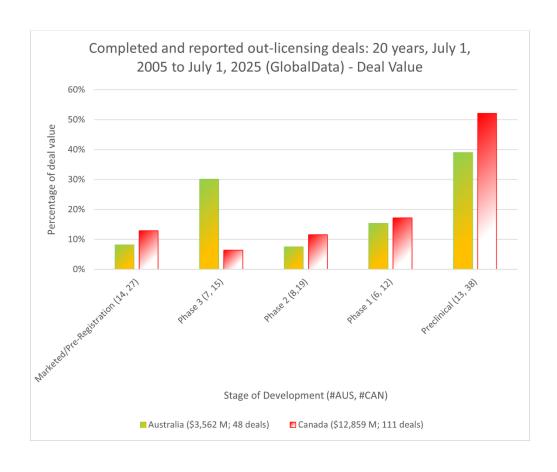
Canadian companies appeared to generate a larger number of deals (~2X) with higher cumulative value (~3.5X) compared to Australian companies over the previous two decades. Overall, very similar proportions of asset deals in the clinical development space with Canadian companies having a slightly higher proportion of preclinical deals and Australian companies a slightly higher proportion of deals for marketed therapeutics.

Number of Canada and Australia Out-Licensing Deals



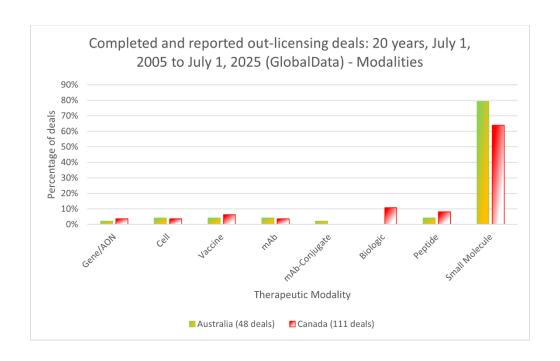
Australian companies exhibited a higher proportion of asset deal value (38%) at later stages of development (Phase 3/Marketed) compared to Canadian companies (19%) with earlier stage asset deals (preclinical, Phase 1 and Phase 2) being a high proportion of deal value for Canadian companies (81%) compared to Australian companies (62%).

Value of Out-licensing Deals



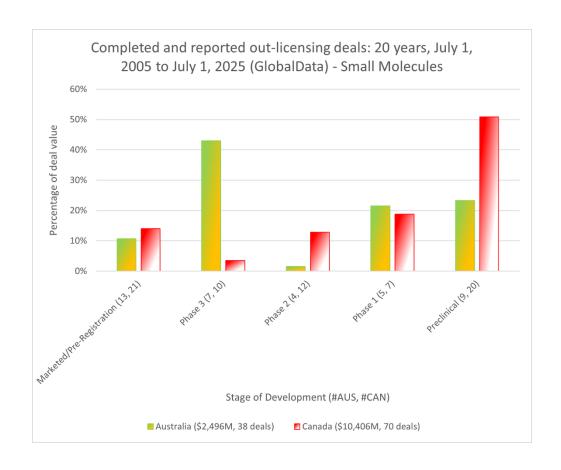
In terms of therapeutic modalities, asset deals from both countries were similar with most being for small molecules, and a notable exception for biologics which Australia had none and earned Canada \$396M in extra deal value.

Out-licensing Deals by Modality



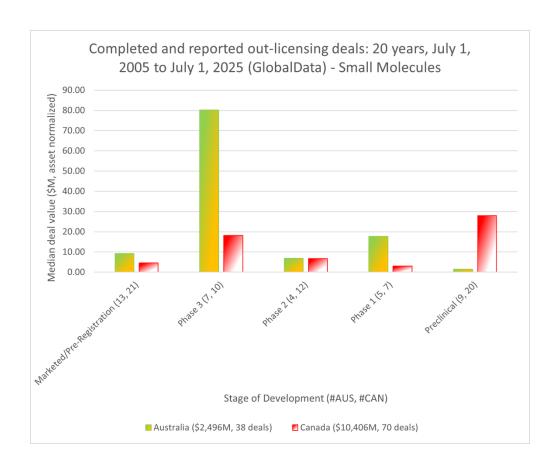
If we look closer at small molecules as the largest modality group supporting asset licensing deals (64% to 79%), it is not surprising that much of the Australian deal value has come from later stage assets whereas a majority of the Canadian deal vale has come from preclinical assets.

Small Molecule Deals Only by Stage



This split is also reflected in the asset normalized median deal values for small molecules.

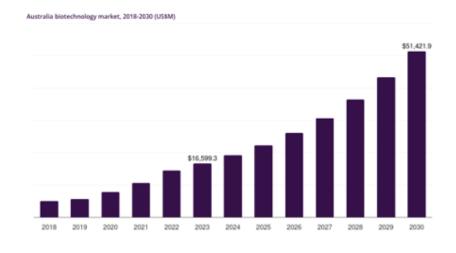
Normalized per asset

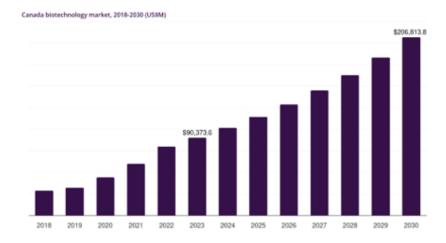


So, while deal numbers as a proportion of total stratified by stage of development, and primary modality focus have been reasonably close in both countries, if you have been playing grass hockey with small molecules you have been scoring later in clinical development for bigger median deals whereas the ice hockey players have been scoring before clinical development with bigger median deals. With better reporting and enhanced AI driven data gathering we may be able to better understand the nuance in some of these types of apparent differences between the two countries going forward.

Clearly the total number of asset deals and cumulative deal value indicate that the Canadian system for therapeutic asset out-licensing is more robust compared to Australia, and this is supported by biotechnology market value <u>assessments</u>.

Biotech Market Value





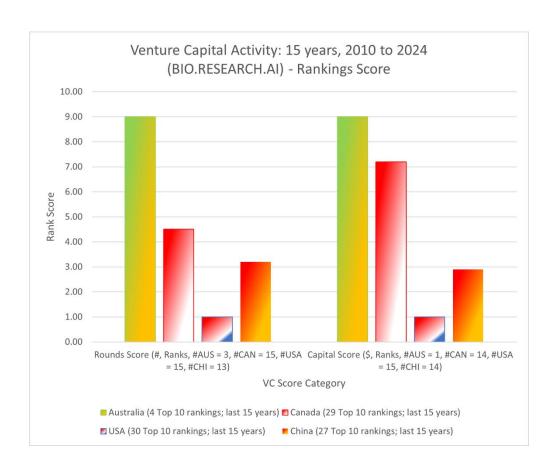
The second component of the Economist article involved mention of Venture Capital (VC) investments in the context of high technology economy sectors, so I used **Bio-Research.AI** to have a look at VC activity in the two countries over the last 15 years using top 10 rankings for number rounds and capital raised for the number of companies in each ranking.

To set the standard the USA has been the #1 ranked VC region in each of the past 15 years in both numbers of rounds, amount of capital raised and numbers of companies that those rounds, and capital have

been raised for in those rankings. To simplify the analysis, we create a VC score which is the product of the rank position (1-10) and the number rankings at that position divided by the total number of rankings in the 15-year period. So, for the USA it is (1x15)/15=1 so that the closer the score is to 1 the more VC activity you have relative to the USA leader.

There are strong differences in high level VC activity between Australia and Canada using our ranking score system.

VC Ranking (#1 is top ranking)



This is further illustrated looking at the numbers of rounds and capital raised for the number of companies that support the rank score graphic.

Rounds and Capital Raised

	Australia (4 Top 10 rankings; last 15 years)	Canada (29 Top 10 rankings; last 15 years)	USA (30 Top 10 Rankings; last 15 years)	China (27 Top 10 rankings; last 15 years
Rounds (#) - Companies (#)	11 -11	267 - 216	3,622 – 3,359	618 - 596
Capital (\$M) - Companies (#)	\$58 – 5	\$3,208 - 191	\$168,100 – 3,350	\$26,949 - 597

And echoed by the <u>WIPO</u> data for GII in terms of investment subcategory (4.2) in the market sophistication pilar where Australia currently ranks 20th out of 33 in the top quartile of high performers without distinction, and Canada ranking 4th with an overall and income group strength distinction in VC investment.

Market Sophistication

AUSTRALIA

áá	Market sophistication		53.8	20	
4.1 4.1.1 4.1.2 4.1.3	Credit Finance for startups and scaleups† Domestic credit to private sector, % GDP Loans from microfinance institutions, % GDP	0	54.9 60.6 133.9 n/a	16 28 11 n/a	
4.2.3	Investment Market capitalization, % GDP Venture capital (VC) investors, deals/bn PPP\$ GDP VC recipients, deals/bn PPP\$ GDP VC received, value, % GDP		33.1 116.5 0.3 0.2 0.0	24 12 21 19 30	
	Trade, diversification and market scale Applied tariff rate, weighted avg., % Domestic industry diversification Domestic market scale, bn PPP\$		73.3 0.6 90.9 1,719.3	7 7 33 20	•

NOTES: • indicates a strength; \bigcirc a weakness; \spadesuit an income group strength; \bigcirc an income group weakness; * an index; * a survey question; \bigcirc indicates that the economy's data is outdated. Square brackets $[\cdot]$ indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash-indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

CANADA

ííí	Market sophistication	67.2	4 •
4.1	Credit	63.3	[8]
4.1.1	Finance for startups and scaleups [†]	63.3	21
4.1.2	Domestic credit to private sector, % GDP	n/a	n/a
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	Investment	60.9	11
4.2.1	Market capitalization, % GDP	149.7	8
4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP	0.5	13
4.2.3	VC recipients, deals/bn PPP\$ GDP	0.4	1 ●◆
4.2.4	VC received, value, % GDP	0.0	10
4.3	Trade, diversification and market scale	77.5	14
4.3.1	Applied tariff rate, weighted avg., %	1.2	50
4.3.2	Domestic industry diversification	95.0	15
4.3.3	Domestic market scale, bn PPP\$	2,379.0	16

NOTES: • Indicates a strength; \bigcirc a weakness; \spadesuit an income group strength; \bigcirc an income group weakness; * an index; * a survey question; \oslash indicates that the economy's data is outdated. Square brackets () indicates that the data minimum caverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

There is much more to unpack in terms of VC investments that is beyond to scope of this piece. However, the top-level data suggests that if the dollar value of trade overall and proximity to the USA is a benefit for Canada in terms of VC investments and growth in the biotechnology sector then Australia may benefit from building stronger VC relationships with 3 of its 4 largest trading partners in China, South Korea and Japan, all of which outperform Australia in GII and VC rank scoring (data for VC rank scoring for Japan and Korea not shown).