PUB/COALITION - 24

Reference:

Simpson/Compton Pg. 7 Table 2

Preamble:

The report indicates based on a real increase in electricity rates in year 1 households are expected to adjust spending to make up for a .09% increase in household budget cost.
We expect a decline in spending on household equipment and furnishings to fall by 0.11% and transportation spending to fall by 0.13%. On the other hand, we expect spending on food purchased from stores to fall by only 0.04% and spending on health care to fall by 0.05%. The largest spending category is Shelter Excluding Electricity, which is estimated to fall by 0.06%.

The adjustments to other categories are based on their income elasticities of demand.

Question:

Please explain how the percentage change in spending was allocated by categories with supporting calculations.

Response:

Here, we expand the description from Appendix C to include calculations. The household (final consumption) table shows broad spending categories in columns (e.g. food, garments, electricity, parking, major tools and appliances, legal services, etc.) and detailed products in rows (canola, fresh potatoes, coal, funeral services, books, etc.). We determine the required increase in spending on hydro-electricity (Table 1) and the proportion of household spending that this represents. Other goods and services must decline to offset this increase, as we

have made the assumption that total spending by households remains constant in the direct effect.

To determine the amount by which spending on each good and service declines, we apply income elasticities of demand (IED) – the percentage change in quantity demanded due to a percentage change in income. The additional spending required for hydro is treated as equivalent to a fall in income (i.e. income available for spending on other goods and services). If we ignored differences in income elasticity of demand, we could simply reduce the spending on each good or service by the same amount. However, we know that households do not respond to changes in income by proportionally adjusting their spending on goods and services. In response to a fall in income, spending on certain goods (goods with a small elasticity of demand) will not decline substantially while spending on other goods (goods with a large elasticity of demand) will drop more. We apply previously published income elasticities of demand (Appendix D) to calculate the reduced spending on broad categories (e.g. food, garments).

For example, the income elasticity of food is 0.54, while the income elasticity of Household Equipment and Furnishings is 1.31. In the first year, household spending on hydro increases by 4.26% (Table 1). Hydro comprises 2.18% of total household spending, so total household spending increases by 0.095%. If we assumed a zero income elasticity of demand, we would simply decrease each spending category by 0.095% to offset the rise in hydro. Instead, we multiply the decline in spending by the income elasticity, so that spending on Food categories declines by (0.095% X 0.54 = 0.0513%) while spending on Household Equipment and Furnishings declines by (0.095% X 1.31 = 0.125%). The full list of income elasticities of demand is included in Appendix D.

Within each broad spending column, the row components (detailed goods and services) are reduced proportionally. We sum across rows to determine the amount by which spending on each detailed good and service is lessened to offset the rise spending on hydro.

PUB/COALITION (COMPTON/SIMPSON) - 25

Reference:

Simpson- Compton Pg. 13-14, Table 5 – Direct Effect of Fall in Demand by Industry Affected

Preamble:

It is important to note that most, but not all, of the fall in demand is borne by the provincial economy. Sixty-six percent of the decline is borne by provincial industries, but 14% is borne by international imports and 20% by interprovincial imports.

Question:

a) Please explain the concept to leakage in the context of the economic impacts being modeled.

b) Please indicate how Provincial leakage was determined to estimate that only 66% of demand is borne by the Provincial economy

c) Please explain why the decline in output demand is indicated to be 34% but the proportion of total output in table 5 is 26.7%.

Response:

a) This issue is addressed in Appendix C. Briefly, the required increase in spending on hydro reduces spending on other goods and services – both

by households, and by industry and governments as we assumed that all sectors would respond to the hydro spending increases by reducing spending across other categories. This reduction in spending on other goods and services is the direct effect (shock) to the Manitoba economy. A portion of these goods and services with reduced demand are produced in Manitoba. The industries that produce the goods and services will respond to the lower demand for their output by further reducing demand for their inputs, etc. At each round, some portion of the inputs are imported so that a proportion of the effect "leaks" out of the economy.

b) Statistics Canada's Supply and Use tables outline the proportion of each input that is produced within Manitoba and the proportion that is imported either provincially or internationally. We assume that the proportion of each input that is imported does not change, so that the demand decline is a decline both in provincial production and imports. Summing across all goods and services, we calculated that the proportion of the input demand decline that affects provincial producers was 66%, the remaining third is a fall in imports.

c) We assume this question refers to the sum of International and Interprovincial Imports in table 5 (given as 26.7%) compared to the previously quoted figure in part (b) in which the 34% of the decline in demand is calculated to be a decline in imports. These figures are not inconsistent. In table 5, we are providing the proportion of total output that is imported. However, the decline in output is more heavily weighed to imported goods. This is potentially due to two factors. First, household spending declines are greater for goods and services that have high income elasticities of demand, and these goods may be more likely to be imported than goods with low income elasticities of demand. Second, industries that have relatively high spending on hydro may also have

relatively high spending on imported inputs. Note in table 5 that while total provincial output falls by 0.048%, the fall in imports is much higher.

PUB/COALITION - 26

Reference:
Simpson- Compton Pages 14-15, Table 6 & 7

Question:

Please provide economic impact table 6 and table 7 based on an assumed 3.36% and 3.95% rate increase and provide summary commentary on the results of the analysis.

Please indicate the tax revenues impact related to the assumed rate increases.

Response:

Three tables are presented. The first provides the nominal change in hydro spending and the cumulative change in hydro spending with and without behavioural response (i.e. applying the price elasticity of demand). The second table provides the overall results for the 3.95% price increase and the third for the 3.36% price increase. For each of the price increases the results are shown using the simple and total multipliers and for each of these, applying the PED to households only and to all sectors.

	PUB Request - 3.95			PUB Request - 3.36		
Fiscal year ending	Nominal Rate Increase	Real Cumulative Increase in Spending, No PED	Real Cumulative Increase in Spending With PED = 0.29	Nominal Rate Increase	Real Cumulative Increase in Spending, No PED	Real Cumulative Increase in Spending With PED = 0.29
2019	3.95	2.05	1.46	3.36	1.46	2.92

2020	3.95	4.14	2.94	3.36	2.94	5.88
2021	3.95	6.28	4.46	3.36	4.44	8.90
2022	3.95	8.46	6.00	3.36	5.97	11.97
2023	3.95	10.68	7.58	3.36	7.52	15.10
2024	3.95	12.95	9.19	3.36	9.09	18.28
2025	3.95	15.26	10.84	3.36	10.68	21.52

PUB REQUEST 1: Rates increases of 3.95

Applying the Simple Multiplier

	PED=0.29 on Households Only				PED = 0.29 on all Sectors			
	Output	GDP	Labour Income	Jobs	Output	GDP	Labour Income	Jobs
2019	-0.023	-0.031	-0.031	-36	-0.019	-0.026	-0.026	-29
2020	-0.072	-0.095	-0.097	-110	-0.059	-0.079	-0.080	-91
2021	-0.145	-0.192	-0.195	-221	-0.120	-0.160	-0.162	-184
2022	-0.243	-0.323	-0.328	-372	-0.202	-0.269	-0.272	-309
2023	-0.368	-0.489	-0.496	-527	-0.306	-0.406	-0.412	-438
2024	-0.518	-0.689	-0.698	-683	-0.431	-0.573	-0.581	-568
2025	-0.695	-0.924	-0.937	-1062	-0.578	-0.769	-0.780	-884

Applying the Total Multiplier

	PED=0.29 on Households Only				PED = 0.29 on all Sectors			
	Output	GDP	Labour Income	Jobs	Output	GDP	Labour Income	Jobs
2019	-0.027	-0.042	-0.040	-47	-0.022	-0.034	-0.033	-39
2020	-0.082	-0.128	-0.124	-145	-0.068	-0.106	-0.103	-120
2021	-0.166	-0.258	-0.250	-292	-0.138	-0.214	-0.208	-243
2022	-0.279	-0.434	-0.421	-491	-0.231	-0.361	-0.350	-408
2023	-0.421	-0.656	-0.636	-695	-0.350	-0.545	-0.529	-578
2024	-0.593	-0.923	-0.896	-901	-0.493	-0.768	-0.745	-750
2025	-0.794	-1.238	-1.200	-1401	-0.661	-1.031	-1.000	-1167

PUB REQUEST 2: Rates increases of 3.36

Applying the Simple Multiplier

PED=0.29 on Households Only	PED = 0.29 on all Sectors

	Output	GDP	Labour Income	Jobs	Output	GDP	Labour Income	Jobs
2019	-0.015	-0.020	-0.020	-23	-0.013	-0.017	-0.017	-19
2020	-0.047	-0.062	-0.063	-71	-0.039	-0.051	-0.052	-59
2021	-0.094	-0.125	-0.127	-144	-0.078	-0.104	-0.105	-119
2022	-0.157	-0.209	-0.212	-241	-0.131	-0.174	-0.176	-200
2023	-0.237	-0.315	-0.320	-340	-0.197	-0.262	-0.266	-282
2024	-0.333	-0.443	-0.450	-439	-0.277	-0.369	-0.374	-365
2025	-0.446	-0.593	-0.601	-682	-0.371	-0.494	-0.501	-568

Applying the Total Multiplier

	PED=0.29 on Households Only				PED = 0.29 on all Sectors			
	Output	GDP	Labour Income	Jobs	Output	GDP	Labour Income	Jobs
2019	-0.017	-0.027	-0.026	-31	-0.014	-0.022	-0.022	-25
2020	-0.053	-0.083	-0.081	-94	-0.044	-0.069	-0.067	-78
2021	-0.107	-0.167	-0.162	-190	-0.089	-0.139	-0.135	-157
2022	-0.180	-0.281	-0.272	-318	-0.150	-0.233	-0.226	-264
2023	-0.272	-0.423	-0.410	-448	-0.226	-0.352	-0.341	-373
2024	-0.382	-0.595	-0.577	-579	-0.317	-0.495	-0.480	-482
2025	-0.510	-0.795	-0.771	-900	-0.425	-0.662	-0.642	-749

We assume that the increase in spending on hydro will be met with a fall in spending on other goods and services. As a result, we expect that the initial effect on tax revenues will be nil. With the decline in the economy (relative to the counterfactual) that occurs with the indirect and multiplier effects, tax revenues will be lower than otherwise would occur. However, we did not consider the exact calculation of tax revenue declines in this project.

PUB/COALITION - 27

Reference:

Simpson- Compton Pages 17, Carbon Pricing

Preamble:

Policies that raise the price of carbon will reduce the behavioral response of households, industry and government to the proposed hydro price increase. That is, the incentive to switch to alternative forms of energy or to relocate production will be lessened, although the precise policy and its impact is not yet clear.

Question:

a) Please elaborate on why the introduction of carbon pricing is going to reduce the behavioral response to switch to alternative forms of energy or to re-locate production.

b) Please indicate directionally how the advent of carbon pricing will impact the Provincial economy IE a further impact than that modeled from assumed rate increases.

Response:

a) Consumers and firms react not only to absolute price changes, but to relative price changes. If the introduction of carbon pricing raises the costs of alternative sources of energy, this may reduce the incentive of firms and businesses to switch away from hydroelectric power to other sources of energy. Similarly, firms would have a reduced incentive to relocate to another province in response to the hydro price increase if energy prices in other provinces rise in response to carbon pricing.

b) In this report, we focus our attention on the effect of the Manitoba Hydro projected price increases on the Manitoba economy and we consider the effect of these price changes in isolation. The separate effect that carbon pricing may have on industry - and on the economy - lies outside the scope of our mandate.

Please also see the response to MIPUG/COALITION 1.