ACE155 CircuMat Tutorial
2019

In this exercise, you will use the CIrcuMat tool to look at various aspects of input-output tables and how the results can be used to learn more about how changes in resource use could affect multiple sectors in a region or economy. The tool is based on input-output analysis, which is briefly shown below.

Background:

PRODUCTION VIEW: In order to produce manufacturing, we need 40 inputs from agriculture, 200 from manufacturing, 80 from services, etc.

"hotspot analysis"

		OUTPUTS				
		Agriculture	Manufacturing	Services	Final Demand	Total
INPUTS	Agriculture	30	40	0	30	100
	Manufacturing	10	200	50	140	400
	Services	20	80	200	200	500
	Other sources	40	80	250	230	600
	Total	100	400	500	600	1600

CONSUMPTION VIEW: 10 inputs are used by agriculture, 200 are used within manufacturing, 50 is used by the services, and 140 is the final demand (e.g., consumption, investment, government expenditure, and exports)

"contribution analysis"

"hotspot analysis" is the <u>production</u> view – i.e. – what is being consumed/emitted during manufacturing, or how many people are working in a given sector or to produce certain products, etc.

"contribution analysis" is the <u>consumption</u> view – i.e., what is being consumed in the whole value chain leading up to when the good/service is presented to the consumer. This could be, for example, all of the metals, plastics, fuel, etc. that goes into the manufacturing of a car that is sold to a person in a region. It could also be all of the sectors that have goods involved in the supply chain (e.g., manufacturing, mining, transport) of the same car.

Source for input/output example: Trinity College Dublin https://www.tcd.ie/Economics/staff/paredesm/~EC2040/Lecture06.pdf

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1. Visit: https://cml.liacs.nl/cmat/
2. Select “Tool”
3. On left side, make sure “Hotspot analysis” is highlighted
4. Select region: EU Nuts2 > Sweden > Västsverige
5. Select ”all products”
6. Scroll down, select the appropriate indicator (”product output”, Total GHG emissions”, etc. see table below). Do ONE indicator at a time.
7. Press “Analyse”
8. Scroll back up and select the new analysis request in the “Analysis Queue” on the right-hand side
    a. What are the top three product types? Include % in parentheses
    b. What is the sum? (Look at Analysis Result, underneath the boxes)
9. Perform 5-8, using “All sectors”
10. Repeat tasks 3-9, but using “Contribution Analysis” from step 3.
11. Create a .csv file from one of the tables. To do this, look at the analysis in the “analysis queue”. Scroll over to the (arrow down) icon.

Questions to answer:

1. Are there any differences between Västsverige and Stockholm?

2. Suggest how these differences could affect potential policies or measures.

3. Do you see any differences in the greenhouse gas emissions between the Production view and the consumption view? Why or why not?

4. If you were going to reduce the consumption of a certain good or service, what would you choose? Why?

5. Which indicator would you want to use if you want to gauge how the economy could be affected by a change in consumption?

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Results:

	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
Production view "Hotspot analysis" "In order to produce x, we need x, y, and z" **VÄSTSVERIGE**	No. of employees	1. Education (20%) 2. Manufacturing (14%) 3. Real estate, renting and business activities (12%)	1213041 people	1. Education services (20%) 2. Health and social work services (10%) 3. Public administration and defense services (10%)	people
	Product Output	1. 2. 3.		1. 2. 3.	
	Greenhouse gas	1. 2. 3.		1. 2. 3.	
	Domestic extraction used	1. 2. 3.		1. 2. 3.	

	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
Production view "Hotspot analysis" "In order to produce x, we need x, y, and z" **STOCKHOLM**	No. of employees	1.Real estate, renting and business activities (19%) 2. Health and social work (17%) 3. Education (15%)	16255534 people	1. Health and social work services (17%) 2. Education services (15%) 3. Computer and related services (8%)	
	Product Output	1. 2. 3.		1. 2. 3.	
	Greenhouse gas	1. 2.		1. 2.	

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	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
		3.		3.	
	Domestic extraction used	1. 2. 3.		1. 2. 3.	

	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
Consumption view "Contribution analysis" "this much of x is used in x, y, and z" **VÄSTSVERIGE**	Product Output	1. Manufacturing (29%) 2. Real estate, renting and business activities (16%) 3. Health and social work (10%)	1.39 x10^5 MEuro	1. Real estate services (11%) 2. Health and social work services (10%) 3. Construction work (10%)	MEuro
	Greenhouse gas	1. 2. 3.		1. 2. 3.	
	Domestic extraction used	1. 2. 3.		1. 2. 3.	

	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
Consumption view "Contribution analysis" "this much of x is used in x, y, and z" **STOCKHOLM**	Product Output	1. Manufacturing (29%) 2. Real estate, renting, and business activities (16%) 3. Construction (11%)		1. Real estate services (11%) 2. Construction work (11%) 3. Health and social work services (10%)	1,90x10^5 MEuro
	Greenhouse gas	1. 2. 3.		1. 2. 3.	

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	Indicator	Sectors	Sum (include unit)	Products	Sum (include unit)
	Domestic extraction used	1. 2. 3.		1. 2. 3.	

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