

# Economic and environmental repercussions of a future biofuel industry in Australia

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**Aim:** To evaluate the economic repercussions of a possible **solution** for a major **problem**.

› **Problem!**

› **Greenhouse gas emissions**

› **Solution!**

› **Sugar-cane based biofuels**



Can Australia employ Brazil's method of producing ethanol?



**Brazil's ethanol  
production recipe**


**Current Ethanol  
production: 22 billion litres**

**How will the Australian economy adapt?  
What technique can be used to investigate?**

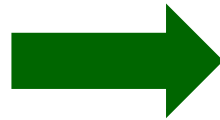


**Current Ethanol  
production: 400 million  
litres**

- › Relies on national input-output tables
- › IO tables document the flow of money to and from various industry sectors
- › Can be used to predict changes in economic activity

	Agriculture	Mining	...	Construction	...	Banking	...	Final demand	Exports
Agriculture		<b>Goods &amp; services</b>	<b>Intermediate demand</b>	<b>Final demand</b>					
Mining									
...									
Construction									
...									
Banking	<b>Value-added</b>								
Value added									
Net taxes on products									
Imports									

Industry to industry input/output table										
To From	Intermediate demand					Total	Final Demand	Exports	Total Supply	
	Mining	Manufacturing	Construction	Services	Public and private					
Intermediate inputs	Mining									
	Manufacturing	Intermediate usage					Final demand			
	Construction	Q1					Q2			
Primary inputs	Services									
	Wages & Salaries									
	Gross operating surplus	Primary inputs to production					Primary inputs to final demand			
	Taxes	Q3					Q4			
Imports										



**Reduce petrol sales by 20%**

**Australia's IO table**

Industry to industry input/output table										
To From	Intermediate demand					Total	Final Demand	Exports	Total Supply	
	Mining	Manufacturing	Construction	Services	Public and private					
Intermediate inputs	Mining									
	Manufacturing	Intermediate usage					Final demand			
	Construction	Q1					Q2			
Primary inputs	Services									
	Wages & Salaries									
	Gross operating surplus	Primary inputs to production					Primary inputs to final demand			
	Taxes	Q3					Q4			
Imports										



**Insert input-output information on ethanol production from Brazilian IO table**

Industry to industry input/output table										
To From	Intermediate demand					Total	Final Demand	Exports	Total Supply	
	Mining	Manufacturing	Construction	Services	Public and private					
Intermediate inputs	Mining									
	Manufacturing	Intermediate usage					Final demand			
	Construction	Q1					Q2			
Primary inputs	Services									
	Wages & Salaries									
	Gross operating surplus	Primary inputs to production					Primary inputs to final demand			
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Imports										

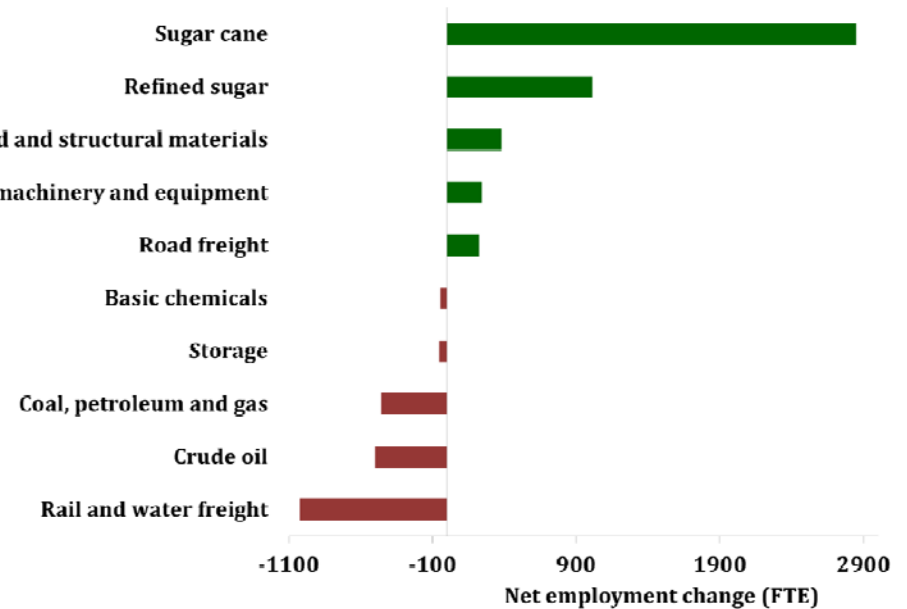


**Analyse effects on total output and employment**

Sector	Change in total output (%)	Change in total output (AU\$m)
Sugar-cane	76.95	259
Refined sugar	1.48	10
Agricultural services	0.29	0.6
Business services	0.22	7.1
Industrial machinery and equipment	0.16	12
Industrial machinery repairs	0.08	0.3
Chemical products	0.07	3.7
Basic chemicals	-0.11	-4.6
Storage	-0.13	-12
Water transport	-0.17	-10
Petroleum and coal products	-0.23	-10
Crude oil	-1.93	-320
Petrol and diesel	-5.09	-634

**Change in total output** ←

**Change in employment** →



- › Job gains in the direct suppliers of alcohol refinery
- › Job losses in the direct suppliers of petrol refinery
- › In economic terms, Australia has a positive outlook for a future sugar-cane-based biofuel industry.

**DO WE HAVE THE WILL TO BE INNOVATIVE IN  
OUR FUEL MIX ?**

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