Macroeconomic Implications of Oil prices on Net Oil Importing and Exporting Emerging Economies

The Case of Latin America

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Group #22

Group members:

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Government Issued Photo ID

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Project Goal and Importance

Capstone track: Statistical Characteristics of Markets

- Assessing the impact of oil price variations and its contemporaneous relationship with economic output

- Identifying the channels and magnitude of impact and devise appropriate policy and risk management responses

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Literature Review/Background

- Examine the effects and implications of oil shocks on economic activity

- Focus on emerging economies in Latin America by considering oil dependency as a comparative distinction

Assumptions and Choice of Technology

- Global Oil price is exogenously determined
- Emerging economies are impacted differently
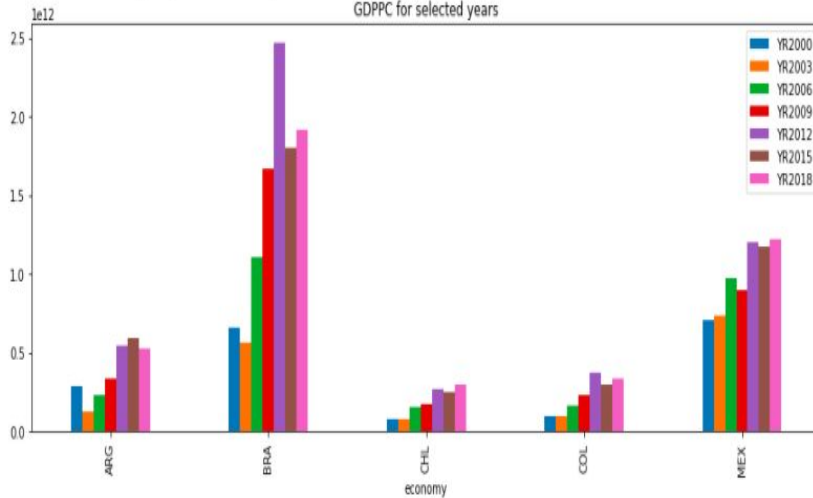
- Python and R

Peer Review Feedback

- Separating the effect of the oil price on the economy from other variables

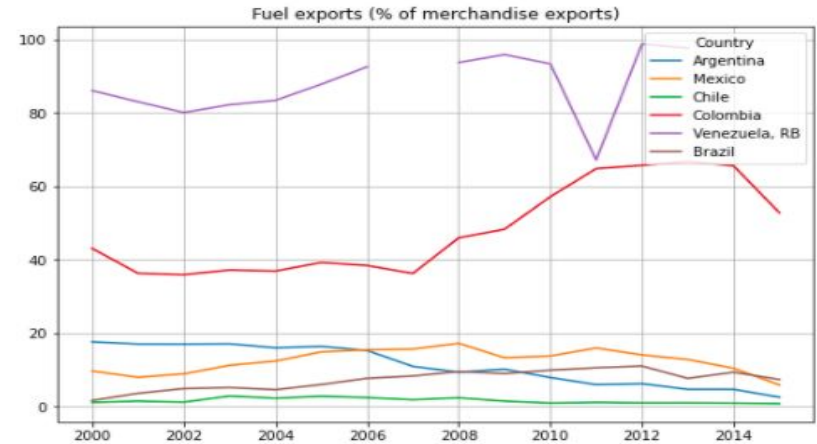- Missing data and Stationary of the time series data

Summary of Results

GDP per capita

Oil exports

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Summary of Results....continued

VECM and IRF

Loading coefficients (alpha) for equation
GDPPC

	coef	std err	z	P>lzl	[0.025	0.975]
ec1	-0.2215	0.056	-3.977	0.000	-0.331	-0.112

Loading coefficients (alpha) for equation

Loading coefficients (alpha) for equation
GDPPC

	coef	std err	z	P>lzl	[0.025	0.975]
ec1	0.0089	0.005	1.920	0.055	-0.000	0.018

Loading coefficients (alpha) for equation
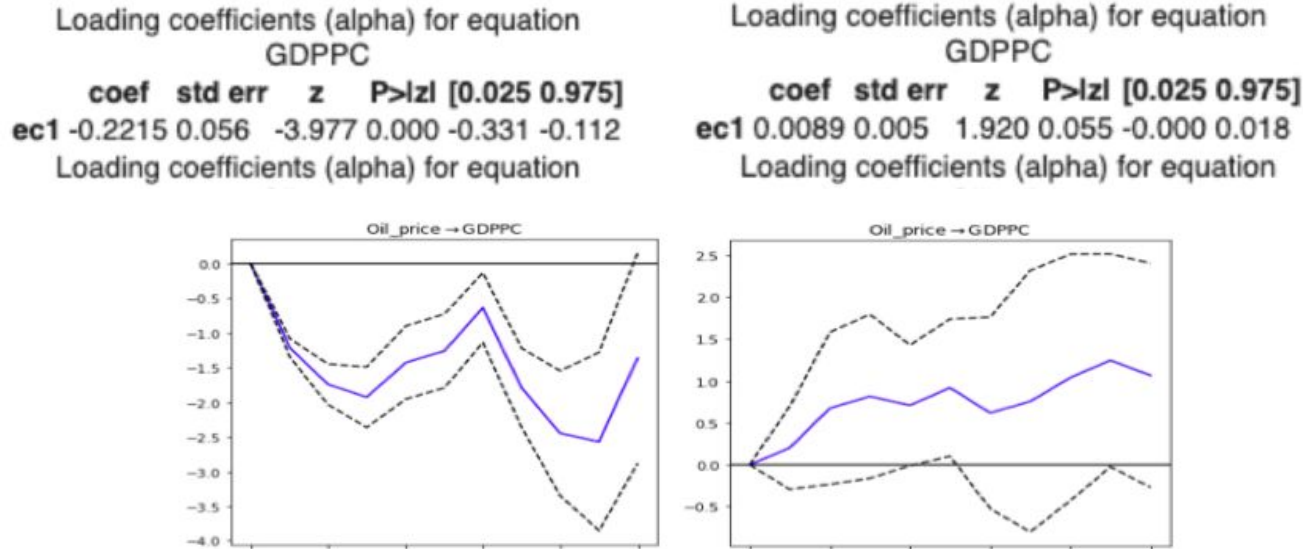

Figure 8: IRF Colombia(left) and Chile(right)

Summary of Results.....continued

SVAR

```
Estimated A matrix:
          Oil_price   GDPPC      CPI       IR PrIdx
Oil_price   1.00000  0.00000  0.00000 0.00000      0
GDPPC       0.17790  1.00000  0.00000 0.00000      0
CPI         3.93081 -0.51638  1.00000 0.00000      0
IR          4.78886  0.07041  0.52038 1.00000      0
PrIdx       0.06979  0.07645 -0.06036 0.06478      1
```

```
Estimated A matrix:
          Oil_price   GDPPC      CPI       IR PrIdx
Oil_price    1.0000  0.0000  0.00000 0.0000      0
GDPPC        0.1072  1.0000  0.00000 0.0000      0
CPI         -0.6313  0.3075  1.00000 0.0000      0
IR           0.1137  0.1304  0.54635 1.0000      0
PrIdx        0.2328  0.1092 -0.05443 0.1583      1
```

Figure 10: SVAR matrix for Chile(top) and Colombia(bottom)

Your Contribution

- Project consisted of 3 portions
  - Exploratory analysis
  - Long-run and short-run relations
  - Impact of shocks on macroeconomic variables

- My contribution was on the last two portions
  - VAR
  - VECM
  - SVAR

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Conclusions

- Net oil exporting economies respond in short run than net oil importing economies

- Inflation and interest rate are the main channels of impact

- Response depend on energy consumption, the proportion of oil exports from the GDP, oil dependence in the energy mix

Policy Recommendation and Risk management

- ## Net oil exporting economies
    - Avoid passing price increase
    - Hedging with futures oil contracts
    - Investing in sustainable and alternative energy.

- ## Net oil importing economies
    - Government sponsored oil purchased
    - Diversify energy consumption

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Future Scope of Work

- Including additional macroeconomic variable

- Replicated analysis to include more emerging economies

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Thank you
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