Trade Facilitation in APEC-exCRU

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1 Introduction

Much of APEC's development has been driven by the so-called Bogor Goals (1994):[1]

- Free and open trade and investment in the Asia-Pacific no later than 2010 in the case of industrialised economies and 2020 in the case of developing economies;
- Expansion and acceleration of trade and investment facilitation programs; and
- Intensified development cooperation to attain sustainable growth, equitable development, and national stability.

This working paper focuses on the adoption of trade facilitation measures by a subset of APEC members, comprising all 21 APEC economies other than China, Hong Kong, Russia and the United States. Hereafter, we refer to this grouping as "APEC-exCRU". Our motivation for examining trade policy reform in APEC-exCRU is to explore the magnitudes of gains available to APEC members in situations in which geostrategic competition might preclude participation by China, Russia and the US. To provide context for the magnitude of the potential gains from trade facilitation reforms, we also undertake simulations in which regions within APEC-exCRU eliminate tariffs.

2 The GTAP-FIN Model:

GTAP-FIN is a 65-sector dynamic computable general equilibrium (CGE) model of the global economy suitable for baseline forecasting and policy analysis, documented in Dixon *et al.* (2021). The regional aggregation for this trade facilitation study identifies 43 separate countries/regions (see Appendix for a complete list of these 43 countries/regions).

The starting point for the development of the GTAP-FIN model is the comparative-static GTAP model (Hertel 1997). To this model CoPS has added theory that produces a dynamic model with forecasting and policy analytic capabilities. In particular, we add:

(1) Accounting relationships that link stock variables (like capital stocks) in each period to relevant flow variables (like investment) in previous periods.

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[1] For more information on the Bogor Goals, including an assessment of their achievement, see https://www.apec.org/about-us/about-apec/achievements-and-benefits/bogor-goals.

(2) A new treatment for investment that allows regional capital stocks in GTAP-FIN to be industry specific. This replaces the standard GTAP treatment of capital which allows unrealistic instantaneous movements of capital across sectors.

(3) Regional labour market theory that provides for short-run stickiness in real wages and a gradual transition to long-run wage flexibility. This allows short-run labour market pressures to generate short-run movements in unemployment rates. In the long run, regional labour markets adjust via flexible wages to return regional unemployment rates to baseline forecast levels.

(4) A financial module that accounts for the bilateral international financial assets and liabilities of each region, and links the accounting for bilateral international financial stocks and flows with regional investment and savings outcomes, movements in regional rates of return, and regional current account financing needs.

(5) Sector-specific treatment of natural resources. This replaces the standard GTAP treatment of natural resources, which allows for unrealistic movements of region-specific natural resources between potentially unrelated industrial sectors.

GTAP-FIN uses the latest version of the GTAP database, GTAP v.11. This represents a global trading equilibrium for the year 2017. Because GTAP-FIN includes modelling of bilateral international financial asset and liability holdings, we supplement the GTAP data with international financial data. We use financial data from the IMF on the international assets and liabilities of each region, together with US data from the BEA and the US Treasury on the regional composition of US international asset holdings and the ownership of US international liabilities.

The baseline solution of GTAP-FIN covers the period 2018–2033. This period covers historical (2018-2022/23) and forecast (2022/23 – 2033) periods. To generate the baseline, we impose on the model observed outcomes (for the historical period) and forecast values (for the forecast period) for a variety of exogenous variables. Broadly, these variables include: real regional GDP; regional employment; regional population; regional energy demands based on IEA forecasts; trade tariffs including the US-China trade war tariffs and announced future tariff changes, and CO2e emissions.

3 Modelling Strategy:

We construct an estimate of each APEC-exCRU country's progress on the adoption of trade facilitation measures using data on the number of hours in 2015 and in 2020 reported in the Border Compliance component of the survey response to Time to Export and Time to Import in the World Bank's Doing Business "Trading Across Borders" database (see https://databank.worldbank.org/source/doing-business). The data used to construct these estimates are reported in the Appendix: Table 1.

These estimates of each APEC-exCRU country's progress on adoption of trade facilitation measures are then used to scale the shocks in Walmsley and Minor (2016) that are constructed and used to simulate the impact of adoption of the WTO's Trade Facilitation Agreement (TFA). The shocks from Walmsley and Minor (2016) are reproduced in the Appendix: Table 2.

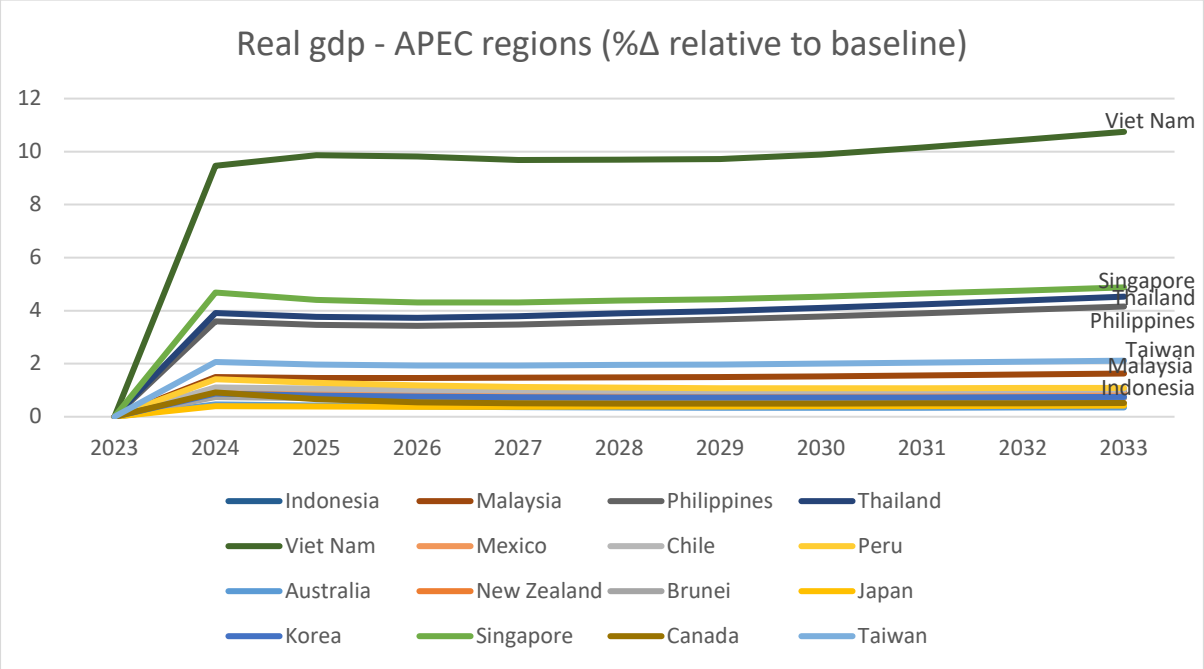
The literature on modelling of trade facilitation in CGE models uses the so-called "Iceberg Method", by which costly border and customs clearance procedures cause some amount of trade to "melt". The adoption of trade facilitation measures implies that border and customs clearance procedures become more efficient and less costly, so the amount of trade that "melts" diminishes. Calibrated shocks to simulate the impact of trade facilitation in the GTAP-FIN model are incorporated through import-

augmenting technical change shocks, by which the same amount is exported, but a larger amount arrives at the importer compared to before trade facilitation measures were adopted.

4 Model Results:

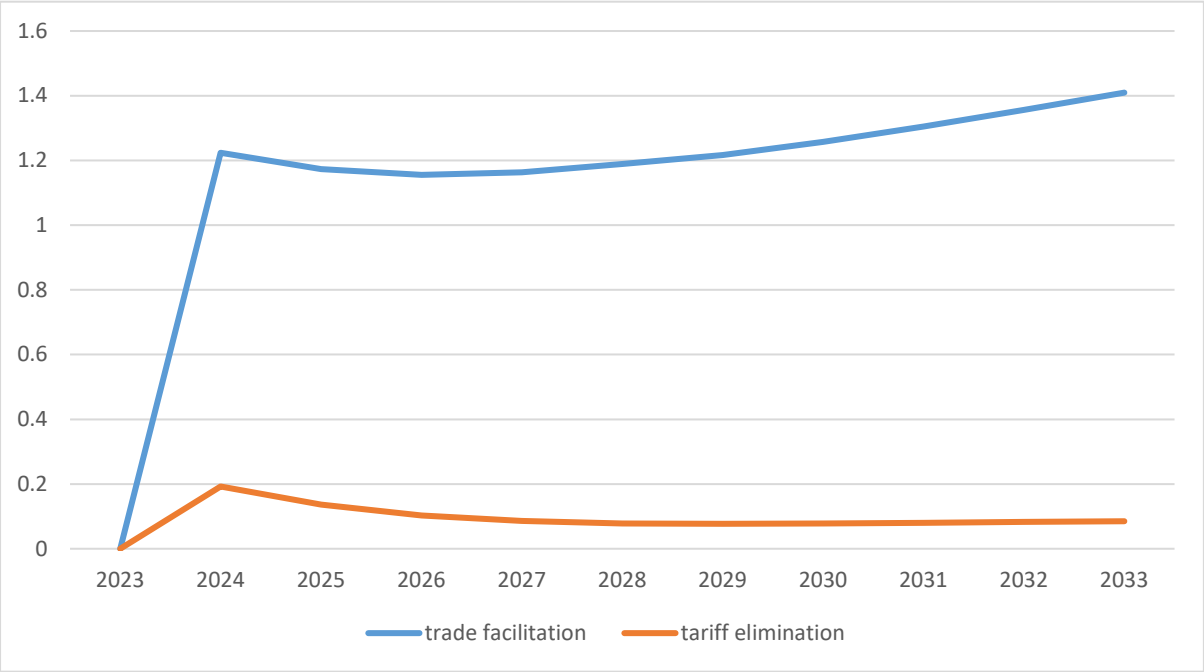
The impacts of the adoption of trade facilitation measures are illustrated in Figure 1 as Real GDP gains in APEC-exCRU. Average real GDP gains in APEC-exCRU are 1.2-1.4%, equivalent to US$250-300b. The real GDP gain in Australia is 0.33-0.45%, equivalent to US$6.7-9.2b. Of course, some APEC-exCRU countries do better than others. Larger real GDP gains generally reflect more open economies for which trade represents a larger share of GDP.

Figure 1: Real GDP – APEC-exCRU regions (percentage deviation from baseline)



To put the impact of the adoption of trade facilitation measures in perspective, we contrast results from this trade facilitation simulation to a different simulation where tariffs on trade between APEC-exCRU countries are eliminated. The impacts on real GDP on APEC-exCRU are reported in Figure 2. While the tariff elimination simulation suggests that APEC-exCRU will gain from such a policy, the gains are quite small, about 0.1% of real GDP. As noted above, the potential real GDP gains from the adoption of trade facilitation measures are 1.2-1.4%. By 2033, these gains are about 16 times the potential gains from tariff elimination.

Figure 2: Real GDP impacts from trade facilitation and tariff elimination (percentage deviations from baseline)



5 Concluding Remarks

The potential for economic gains due to the adoption of trade facilitation measures has been recognised by the ratification of the WTO's Trade Facilitation Agreement in 2017. But it is clear that this potential has not been realised by many countries. A number of countries continue efforts to simplify the cross-border trade environment. This working paper attempts to quantify the economic benefits that could be realised by the adoption of trade facilitation measures by a subset of APEC member countries, a region we referred to as APEC-exCRU. Average gains across APEC-exCRU amount to 1.2-1.4 per cent of GDP, equivalent to US$250-300b. By 2033, these gains are about 16 times greater than those simulated by a more traditional tariff-elimination exercise in APEC-exCRU. They are also more likely to be concentrated in developing countries that continue to lag in the adoption of the trade facilitation measures in the WTO's TFA, especially those where trade makes up a large share of economic activity.

References:

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Appendix

Regions in the model: The implementation of GTAP-FIN used in this paper identifies 43 regions, comprising: Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Sri Lanka, Thailand, Vietnam, Canada, the United States, Mexico, Barbados, Germany, the UK, France, Spain, Italy, Russia, mainland China, Hong Kong, Taiwan, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Panama, Peru, Uruguay, and 7 broad regions (South and Central America, Rest of EU, Rest of Europe, Rest of Asia, West & Central Asia, the Middle East, Africa, and rest of Oceania.

Table 1: World Bank estimates of hours of border compliance

	Time to export: Border compliance (hours)		Time to import: Border compliance (hours)			Time to export: Border compliance (hours)		Time to import: Border compliance (hours)	
	2015	**2020**	**2015**	**2020**		**2015**	**2020**	**2015**	**2020**
AUS	36	36	37	39	**MYS**	48	28	72	36
BRN	120	117	48	48	**NZL**	37	37	25	25
CAN	2	2	2	2	**PER**	48	48	72	72
CHL	60	60	54	54	**PHL**	42	42	72	120
IDN	63	56	99	99	**PNG**	42	42	72	72
JPN	23	27	40	40	**SGP**	12	10	35	33
KOR	13	13	6	6	**THA**	51	44	50	50
MEX	20	20	44	44	**TWN**	17	17	47	47
					VNM	60	55	64	56

Source: https://databank.worldbank.org/source/doing-business

Table 2: Average WTO Trade Facilitation Agreement shocks (per cent ad valorem equivalents)

	OECD	High Income	Medium Income	Low Income
Import-augmenting				
Primary agric	0.46	1.00	0.55	0.19
Processed agric	0.46	1.32	1.27	1.38
Coal, oil and gas	0.00	0.00	0.00	0.00
Mining & petrol	1.26	1.47	2.11	4.07
Light manuf	0.53	1.64	1.51	2.53
Heavy manuf	0.83	1.98	2.15	2.65
Services	0.00	0.00	0.00	0.00
Export augmenting				
Primary agric	0.27	0.27	0.88	0.47
Processed agric	0.61	1.05	0.95	1.15
Coal, oil and gas	0.00	0.00	0.00	0.00
Mining & petrol	1.02	2.89	1.74	1.64
Light manuf	0.61	1.08	0.92	1.45
Heavy manuf	1.16	1.44	1.58	5.01
Services	0.00	0.00	0.00	0.00

Source: Walmsley and Minor (2016:33), Table 4.5.

The final export- and import-augmenting technical change shocks are reported in Tables 3 and 4, respectively. These are derived by multiplying the per cent change in "time to export/import: border compliance" results over 2015-2020 reported in Table 1 by the Walmsley and Minor WTO TFA shocks reported in Table 2. For example, Table 1 reports that Malaysia (region code "mys") sees a 50 per cent reduction in "time to import: border compliance" hours over 2015-2020, from 72 hours to 36 hours. Malaysia is a medium income country, so Malaysia receives an import-augmenting technical change shock to imports of primary agricultural products of $0.55 \cdot 0.5 = 0.275$ per cent.

Table 3: Export-augmenting technical change shocks (per cent ad valorem equivalents)

	aus	nzl	brn	fji	roc	jpn	kor	idn	mys	phl	sgp	tha	vnm	can	mex	twn	chl	per
pdr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wht	0.24	0	0	0	0	0	0.15	0	0.21	0	0	0	0.08	0.2	0.05	0	0	0
gro	0.19	0.02	0	0	0	0	0.04	0	0.18	0	0	0.1	0	0.08	0.03	0	0.22	0.06
v_f	0.12	0.19	0.05	0	0	0	0.01	0.01	0.12	0.14	0.1	0.15	0.05	0.18	0.24	0.03	0.53	0.24
osd	0.15	0.13	0	0	0.32	0.01	0.01	0	0	0	0	0.01	0.01	0.13	0.02	0.02	0.86	0.12
c_b	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pfb	0.08	0	0.02	0	0	0.01	0.07	0.05	0.42	0.23	0.27	0.21	0.03	0.01	0.01	0.05	0	0
ocr	0.05	0.2	0.01	0	0.43	0.01	0.02	0.16	0.14	0.03	0.38	0.02	0.3	0.14	0.07	0.71	0.37	0.16
ctl	0.04	0.01	0.01	0	0	0	0	0	0.01	0	0.05	0.05	0	0.04	0.02	0	0.03	0
oap	0.06	0.16	0	0	0	0	0	0.02	0.03	0	0.1	0.01	0.01	0.05	0	0.06	0.01	0
rmk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wol	0.24	0.13	0	0	0	0	0.01	0	0.1	0	0	0	0	0.02	0	0	0.55	0.11
frs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fsh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
coa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
oxt	0.61	0.08	0	0	1.04	0.04	0.05	0.16	0.38	0.45	0.73	0.08	0.29	0.34	0.27	0.21	1.64	1.22
cmt	0.27	0.66	0.44	0	0	0.01	0	0	0.01	0	0.08	0	0	0.14	0.06	0.01	0.08	0
omt	0.07	0.5	0.07	0	0	0	0	0	0.08	0.03	0.04	0.3	0.03	0.15	0.02	0	0.18	0
vol	0.22	0.21	0.25	0	0.84	0.01	0.03	0.76	0.26	0.13	0.36	0.13	0.17	0.26	0.03	0.05	0.3	0.13
mil	0.11	0.89	0.05	0	0	0	0.01	0.01	0.06	0.01	0.26	0.07	0	0.02	0.01	0.02	0.03	0.02
pcr	0.15	0.01	0.01	0	0	0	0	0	0	0	0.07	0.37	0.26	0	0	0.01	0	0
sgr	0.13	0.17	0	0	0.01	0	0.12	0.01	0.18	0.09	0.2	0.46	0.04	0.08	0.06	0.11	0.12	0.02
ofd	0.11	0.44	0.14	0	0.56	0.02	0.05	0.13	0.2	0.05	0.67	0.56	0.42	0.28	0.12	0.24	0.43	0.31
b_t	0.17	0.31	0.14	0	0	0.01	0.1	0.04	0.08	0.07	0.37	0.13	0.1	0.08	0.15	0.09	0.31	0.01
tex	0.13	0.79	0.05	0	0.25	0.31	0.27	0.55	0.22	0.14	0.94	0.51	0.53	0.34	0.15	0.5	0.22	0.06
wap	0.29	0.15	0.3	0	0	0.03	0.06	0.79	0.37	0.58	0.36	0.4	1.08	0.33	0.25	0.27	0.03	0.12
lea	0.47	0.94	0.13	0	0.38	0.06	0.16	1.07	0.25	0.91	0.8	0.86	0.97	0.33	0.14	0.44	0.15	0.02
lum	0.08	0.31	0.05	0	0.11	0.01	0.01	0.29	0.27	0.59	0.11	0.51	0.3	0.22	0.04	0.08	0.51	0.03
ppp	0.1	0.26	0.09	0	0	0.04	0.07	0.27	0.1	0.1	0.59	0.26	0.11	0.3	0.09	0.16	0.4	0.06
p_c	0.1	0.35	0.06	0	0.14	0.08	0.25	0.07	0.25	0.17	0.99	0.27	0.11	0.15	0.09	0.27	0.08	0.43
chm	0.34	0.33	1.51	0	0.63	0.39	0.52	2.7	0.46	0.42	3.27	2.14	0.97	0.63	0.22	0.64	0.75	0.14
bph	0.35	0.38	0.03	0	0	0.14	0.24	0.77	0.23	0.27	3.63	0.87	0.29	0.72	0.33	0.63	0.1	0.14
rpp	0.13	0.21	0.37	0	0.6	0.24	0.26	1.94	0.4	1.13	1.81	2.81	1.34	0.46	0.39	0.47	0.32	0.32
nmm	0.02	0.05	0.01	0	0	0.15	0.13	0.5	0.27	0.21	0.08	0.64	0.74	0.2	0.23	0.25	0.04	0.24
i_s	0.19	0.24	0.48	0	3.23	0.13	0.35	1.66	0.19	0.18	1.71	0.54	1.22	0.46	0.16	0.32	0.21	0.33
nfm	1.08	0.95	0.22	0	4.61	0.31	0.41	3.41	0.71	4.11	3.62	3.65	1.21	0.88	0.58	0.64	1.36	3.9
fmp	0.06	0.1	0.04	0	0.34	0.17	0.19	0.39	0.13	1.48	0.91	2.56	1	0.29	0.37	0.64	0.16	0.15
ele	0.47	0.46	0.43	0	0.87	0.66	0.84	2.4	0.66	3.52	3.34	2.58	3.62	0.94	1.1	1.24	1.24	0.06
eeq	0.65	0.39	1.33	0	0.74	0.47	0.36	2.7	0.65	2.06	2.6	3.37	1.46	0.72	0.96	0.79	0.45	0.12
ome	0.4	0.36	1.1	0	0.43	0.46	0.39	1.52	0.6	2.57	2.61	2.99	3.22	0.67	0.87	0.81	0.24	0.11
mvh	0.25	0.24	0.43	0	0.47	0.5	0.48	1.47	0.06	1.25	3.22	2.36	1.7	0.84	0.77	0.44	1.33	0.06
otn	0.18	0.53	1.38	0	4.14	0.29	0.86	0.76	0.53	1.94	2.02	2.03	0.77	0.73	0.94	1	0.44	0.02
omf	0.45	0.49	1.21	0	0	0.22	0.11	2.56	0.53	0.86	2.87	2.14	2.11	0.49	0.76	0.64	0.03	0.25
ely	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gdt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wtr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
trd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
afs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
otp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wtp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
atp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
whs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cmn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ofi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
obs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ros	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
osg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
edu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
hht	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dwe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4: Import-augmenting technical change shocks (per cent ad valorem equivalents)

	aus	nzl	brn	fji	roc	jpn	kor	idn	mys	phl	sgp	tha	vnm	can	mex	twn	chl	per
pdr	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
wht	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
gro	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
v_f	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
osd	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
c_b	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
pfb	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
ocr	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
ctl	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
oap	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
rmk	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
wol	0.48	1	0.55	0	0.19	0.46	0.46	0.19	0.28	0.32	0.18	0.19	0.17	0.46	0.46	0.55	0.55	0.19
frs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fsh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
coa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
oxt	1.33	1.47	2.11	0	4.07	1.26	1.26	4.07	1.05	6.78	3.84	4.07	3.56	1.26	1.26	2.11	2.11	4.07
cmt	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
omt	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
vol	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
mil	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
pcr	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
sgr	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
ofd	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
b_t	0.48	1.32	1.27	0	1.38	0.46	0.46	1.38	0.63	2.3	1.3	1.38	1.21	0.46	0.46	1.27	1.27	1.38
tex	0.56	1.64	1.51	0	2.53	0.53	0.53	2.53	0.75	4.22	2.39	2.53	2.21	0.53	0.53	1.51	1.51	2.53
wap	0.56	1.64	1.51	0	2.53	0.53	0.53	2.53	0.75	4.22	2.39	2.53	2.21	0.53	0.53	1.51	1.51	2.53
lea	0.56	1.64	1.51	0	2.53	0.53	0.53	2.53	0.75	4.22	2.39	2.53	2.21	0.53	0.53	1.51	1.51	2.53
lum	0.56	1.64	1.51	0	2.53	0.53	0.53	2.53	0.75	4.22	2.39	2.53	2.21	0.53	0.53	1.51	1.51	2.53
ppp	0.56	1.64	1.51	0	2.53	0.53	0.53	2.53	0.75	4.22	2.39	2.53	2.21	0.53	0.53	1.51	1.51	2.53
p_c	1.33	1.47	2.11	0	4.07	1.26	1.26	4.07	1.05	6.78	3.84	4.07	3.56	1.26	1.26	2.11	2.11	4.07
chm	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
bph	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
rpp	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
nmm	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
i_s	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
nfm	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
fmp	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
ele	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
eeq	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
ome	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
mvh	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
otn	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
omf	0.87	1.98	2.15	0	2.65	0.83	0.83	2.65	1.08	4.42	2.5	2.65	2.32	0.83	0.83	2.15	2.15	2.65
ely	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gdt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wtr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
trd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
afs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
otp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wtp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
atp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
whs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cmn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ofi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
obs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ros	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
osg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
edu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
hht	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dwe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0