Rent-controlled resources: Why are we under-charging Australia's mining tenants?

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prosper australia this land is your land

Fresh Economic Thinking

Imagine this

- You pay housing rent as a fixed 25% share of your income.
- Your income rises 10%, you pay 10% more rent.
- Your income falls 20%, you pay 20% less rent.
- You are relieved not to be at the mercy of volatile economic conditions
- Is this fair?

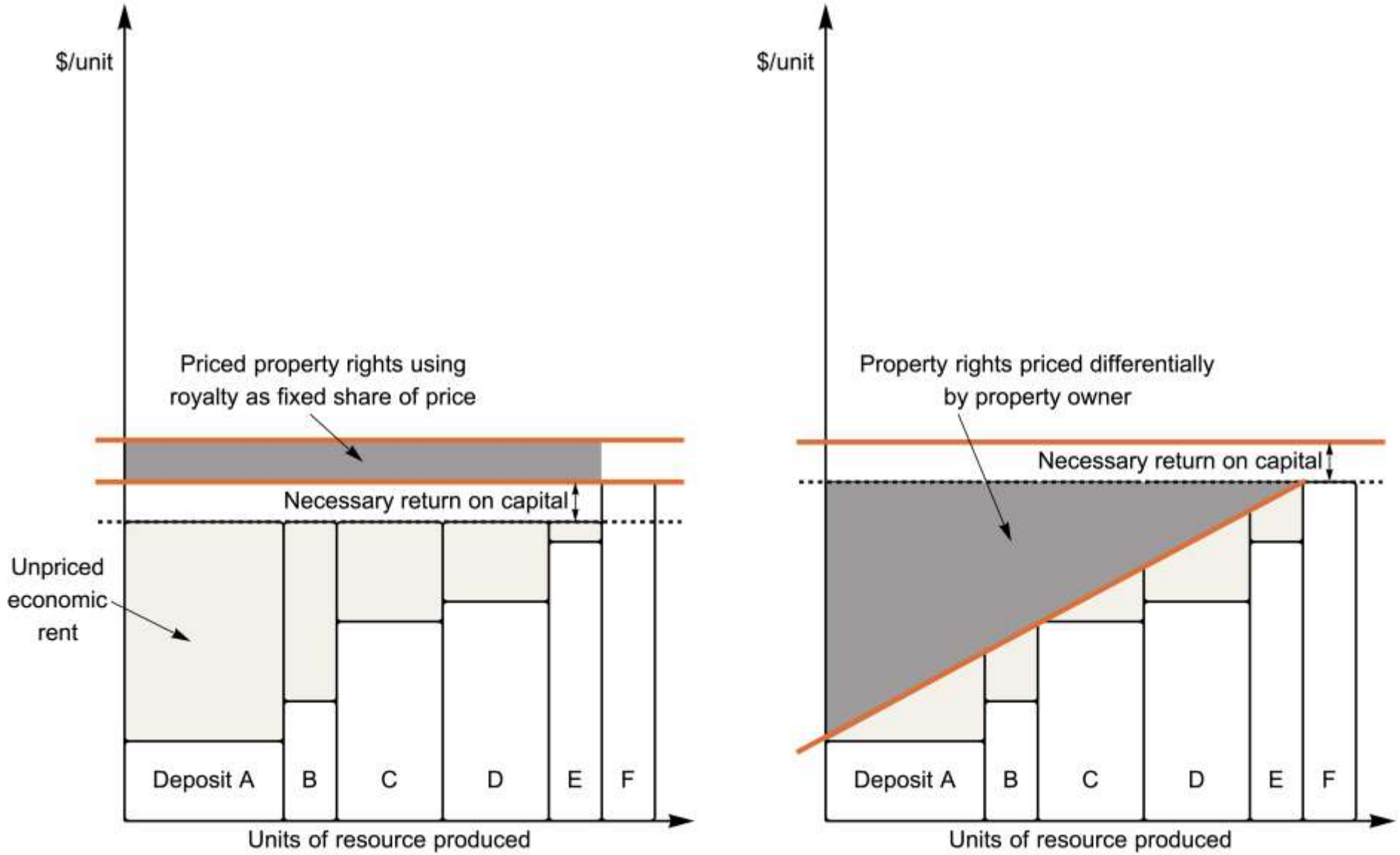
https://www.qld.gov.au/housing/public-community-housing/public-housing-tenants/your-rent/how-rent-is-calculated and https://www.homes.vic.gov.au/public-housing-rent-explainer

Does it matter that we rent control resources?

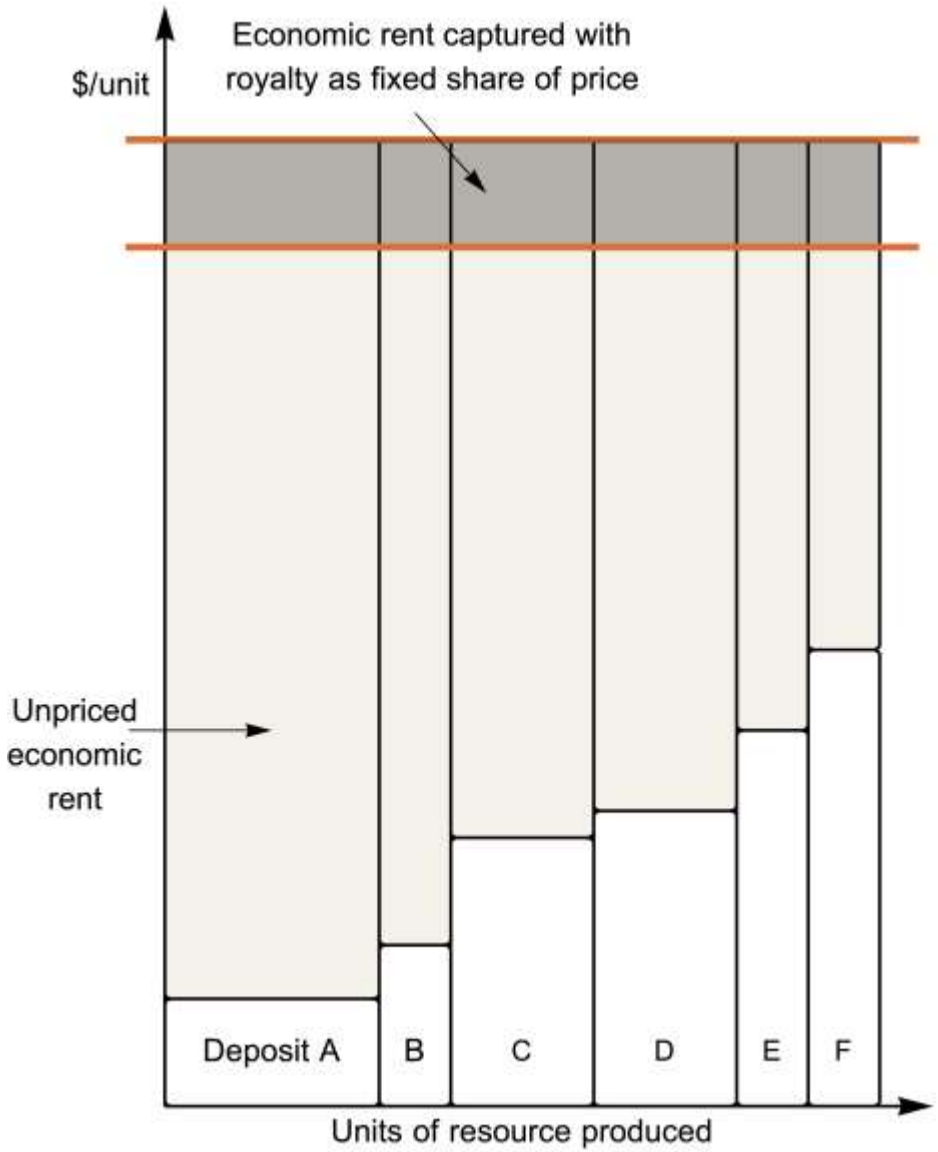
- Most resource royalties paid by leaseholds to “rent” extraction rights from the States are “controlled” like public housing rents.

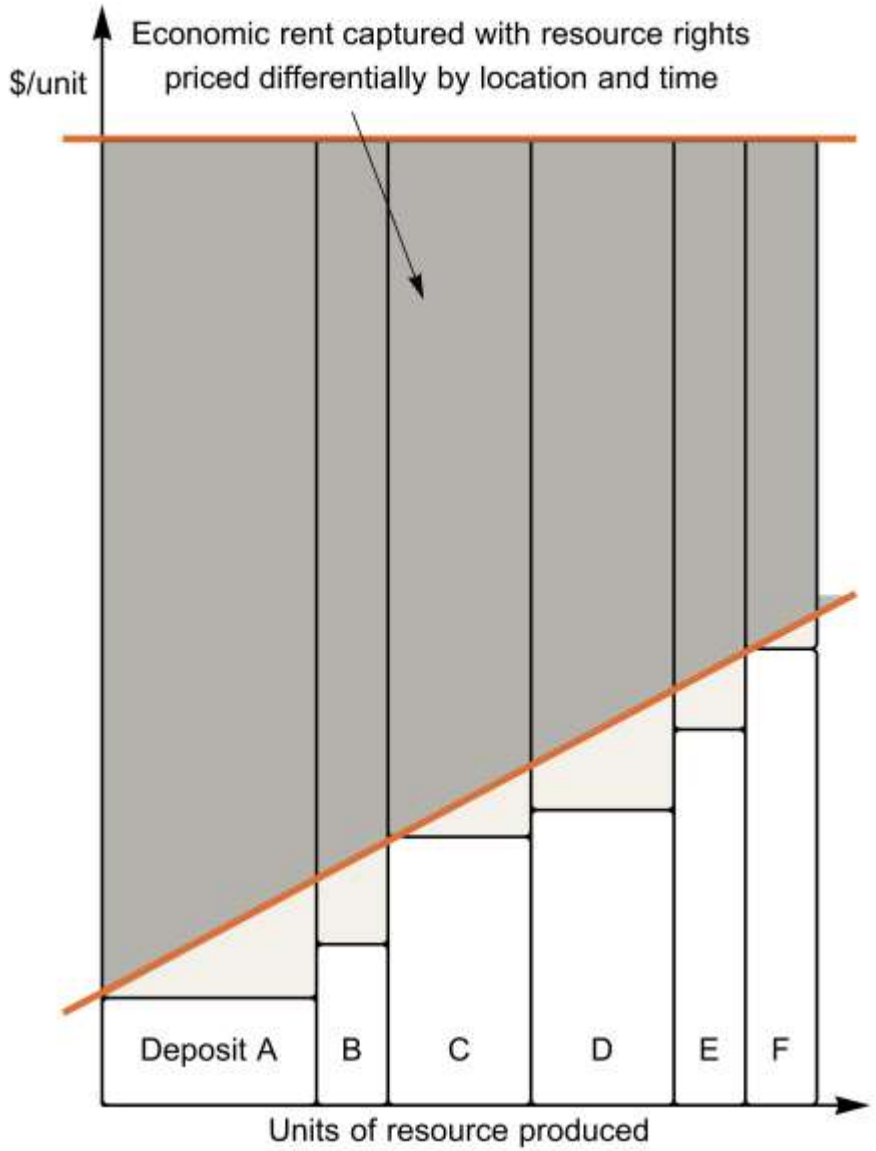
- “Australia’s current resource charging arrangements fail to collect an appropriate return for the community from allowing private firms to exploit non-renewable resources” – Ken Henry, 2009.

Economic issues with royalties



Economic issues with royalties





Petroleum Resources Rent Tax (PRRT)

- Since 1991 on off-shore petroleum products, mostly applying to facilities/fields on the North West Shelf (Gorgon, etc)
- Applies at 40% of the **taxable profits** on a project-by-project basis
- A 2017 review found these issues problematic
  - Escalation of losses to be deducted in future period from super profits tax base is at 15% above the long-term bond rate, so about 20% per annum.
  - Deductions of exploration cost for other project, as well as costs that aren't "necessarily incurred" in the business of extraction.
- In 2023 a new limit on the proportion of PRRT assessable income that can be offset by deductions was set at 90 per cent.

What does ChatGPT say are problems with super profits taxes?

Challenge	Description
Defining super profits	Requires arbitrary benchmarks
Project-level accounting	Difficult cost attribution
Loss carry-forwards	Complex tracking over decades
Transfer pricing	Opportunities for profit shifting
Commodity price swings	Volatile revenue base
Political/legal complexity	Risk of litigation and investor backlash
Admin capacity	High expertise and enforcement burden

State ownership?

- A common approach
- Can have problematic political incentives
- Probably outside scope for established industries
- How to acquire?

Company	Country	State ownership	Company	Country	State ownership
Saudi Aramco	Saudi Arabia	100%*	Eni	Italy	30.1%
NIOC	Iran	100%	INOC	Iraz	100%
CNPC	China	100%	NNPC	Nigeria	100%
PDV	Venezuela	100%	EGPC	Egypt	100%
Gazprom	Russia	50.002%	Equinor	Norway	67%
KPC	Kuwait	100%	ONGC	India	69.23%
Pemex	Mexico	100%	CNOOC	China	100%
Petrobas	Brazil	28.7%	Kazmunaigas	Kazakhstan	100%
Sonatrach	Algeria	100%	PDO	Oman	60%
Rosneft	Russia	75.16%	Socar	Azerbaijan	100%
QP	Qatar	100%	Uzbekneftgas	Uzbekistan	100%
Adnoc	UAE	100%	Ecopetrol	Colombia	88.49%
Sinopec	China	75.79%	OMV	Austria	31.5%
Petronas	Malaysia	100%	PTT	Thailand	51.1%

*Source: Arbatli (2018).*1.5% of shares were sold in 2019.*

The royalty problem is not unique – let's learn from commercial bargains

- Commercial negotiations create many royalty and rent systems in the broader economy.
- Books, films, music
  - A10% royalty on the first 10,000 sales then 15% royalty on extra sales
- Commercial two-part rents
  - A base rent set to market, plus a 5% of retail turnover above a threshold
- Holiday rental
  - Varies over the seasons based on market conditions
- Patents
  - Tiered percentage royalties, milestone payments, equity in lieu

Did Queensland change coal and petroleum royalties to do the job Ken Henry wants?

Coal benchmark price (AUD/t)	Pre-2022 royalty rate	Royalty price at top of tier	Price net of royalty at top of tier (or $500)	New royalty rate (from July 2022)	Royalty price at top of tier (or $500)	Price net of royalty at top of tier
<$100	7%	$7	$93	7%	$7	$93
$100-$150	12%	$13	$137	12%	$13	$137
$150-$175	15%	$17	$158	15%	$17	$158
$175-$225	15%	$24	$201	20%	**$27**	$198
$225-$300	15%	$36	$264	30%	**$49**	$251
>$300	15%	$65	$435	40%	**$130**	$370

Petroleum royalties now set relative to benchmark prices (rather than well-head net back price)

Petroleum type	Benchmark price for a royalty return period
Domestic gas	The firm End of Day Wallumbilla Benchmark Price averaged over the royalty return period
Supply gas	0.09 bbl/GJ multiplied by the daily Europe Brent Spot Price FOB ($/bbl) averaged over the relevant period
Project gas	0.135 bbl/GJ multiplied by the daily Europe Brent Spot Price FOB ($/bbl) averaged over the relevant period
Liquid petroleum	The daily Europe Brent Spot Price FOB ($/bbl) averaged over the royalty return period

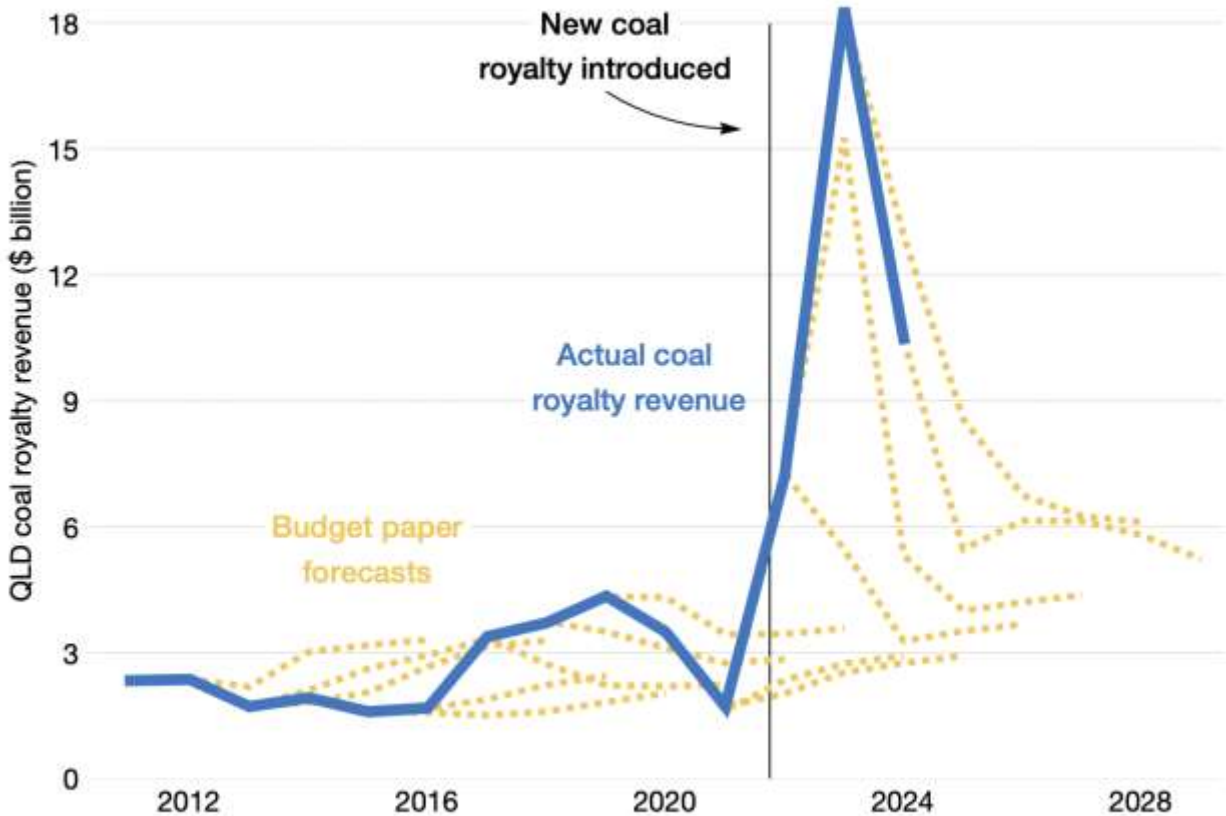
Petroleum and Gas (Royalty) Regulation 2021 applies a rising block rate to petroleum

Average sales price	DOMESTIC GAS Royalty payable per GJ
Up to and including $3/GJ	0.02 cents/GJ for each 1 cent/GJ more than $0/GJ
Over $3/GJ and up to and including $8/GJ	6 cents/GJ plus 0.08 cents/GJ for each 1 cent/GJ more than $3/GJ
More than $8/GJ	46 cents/GJ plus 0.10 cents/GJ for each 1 cent/GJ more than $8/GJ

Average sales price	LIQUIDS Royalty per GJ
Up to and including $50/bbl	0.03 cents/bbl for each 1 cent/bbl more than $0/bbl
Over $50/bbl and up to and including $100/bbl	$1.50/bbl plus 0.115 cents/bbl for each 1 cent/bbl more than $50/bbl
More than $100/bbl	$7.25/bbl plus 0.125 cents/bbl for each 1 cent/bbl > $100/bbl

Queensland coal royalties — forecast vs actual

New royalty regime gained more economic rent during boom years



Sources: QLD Budget Papers 2012 to 2025

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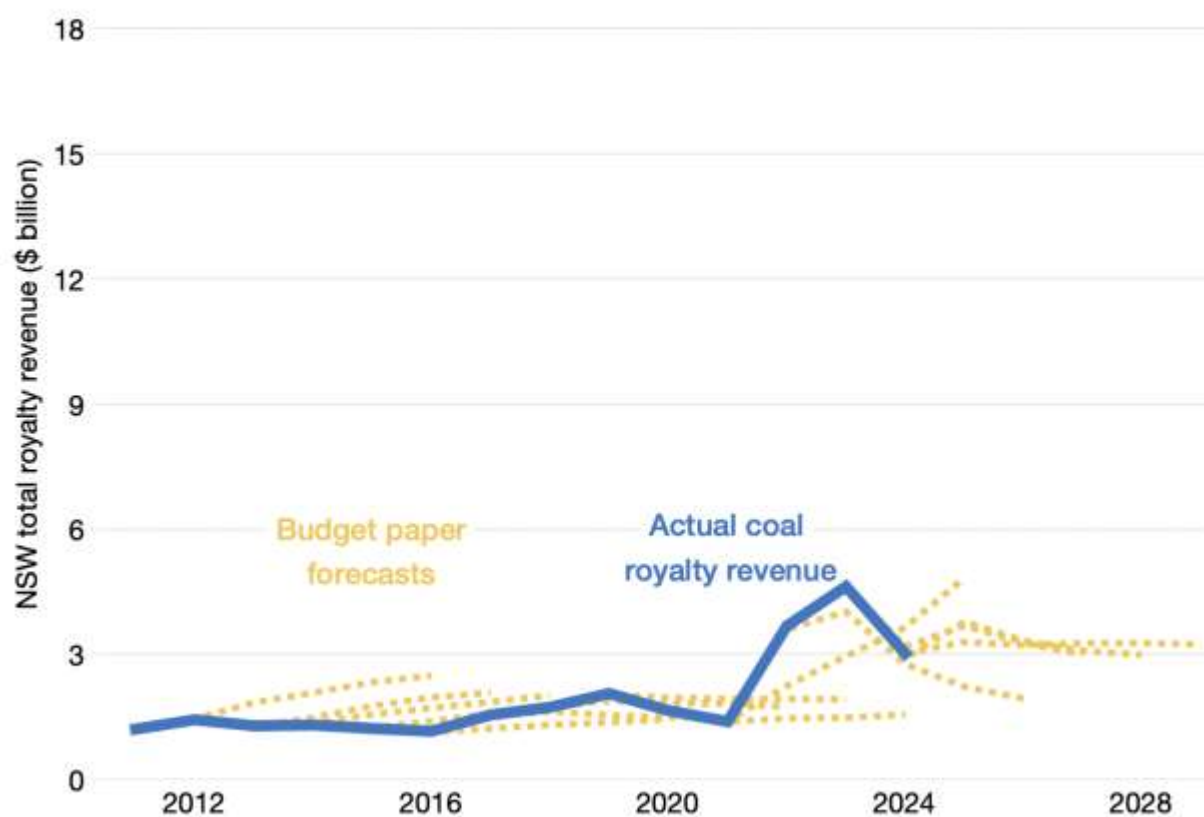
NSW royalties — forecast vs actual

Boom years were good, but not as good as in QLD



Sources: NSW Budget Papers 2012 to 2025

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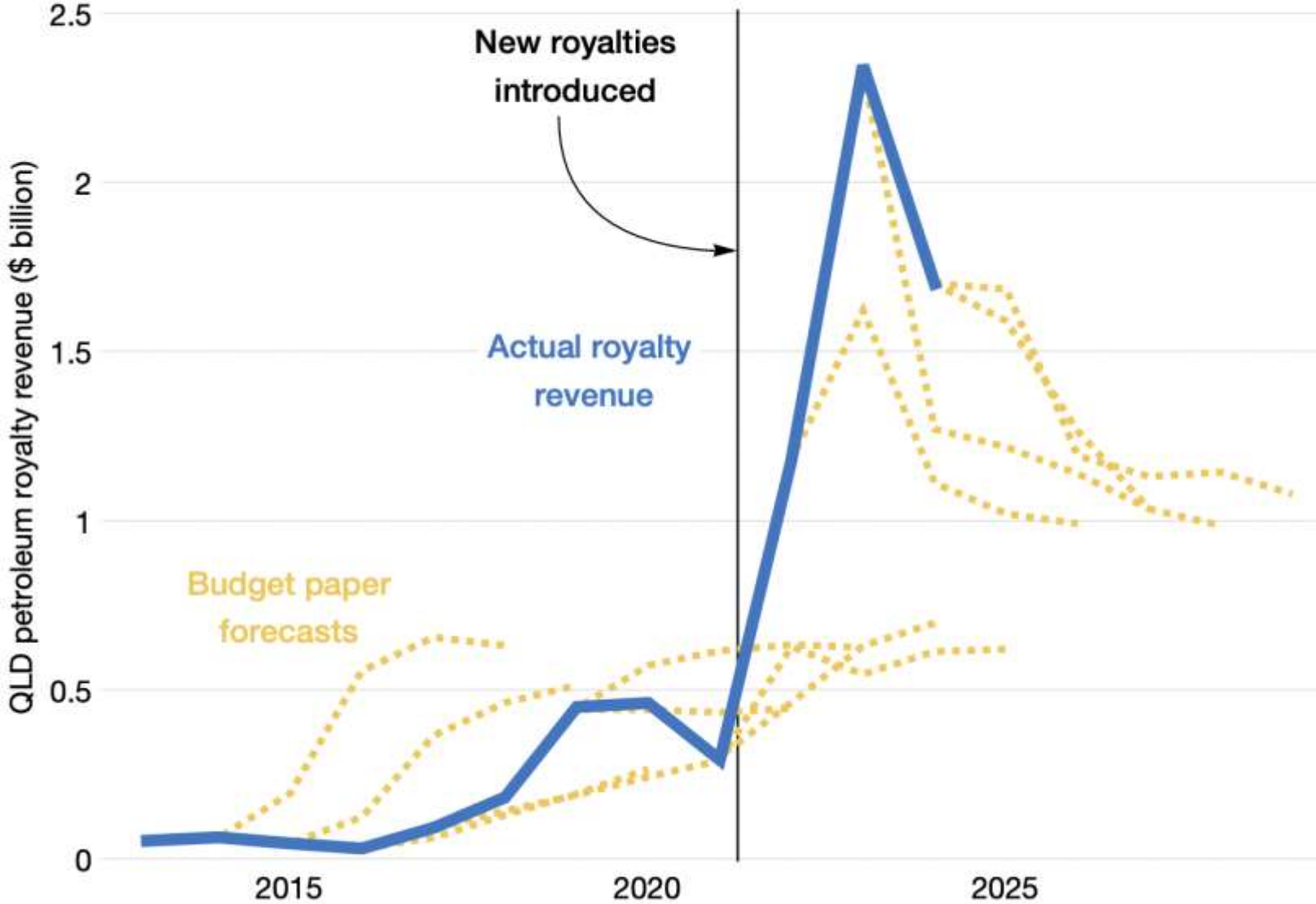
Queensland petroleum royalties — forecast vs actual

From overestimation to a new royalty with a favourable market



Sources: QLD Budget Papers 2014 to 2025

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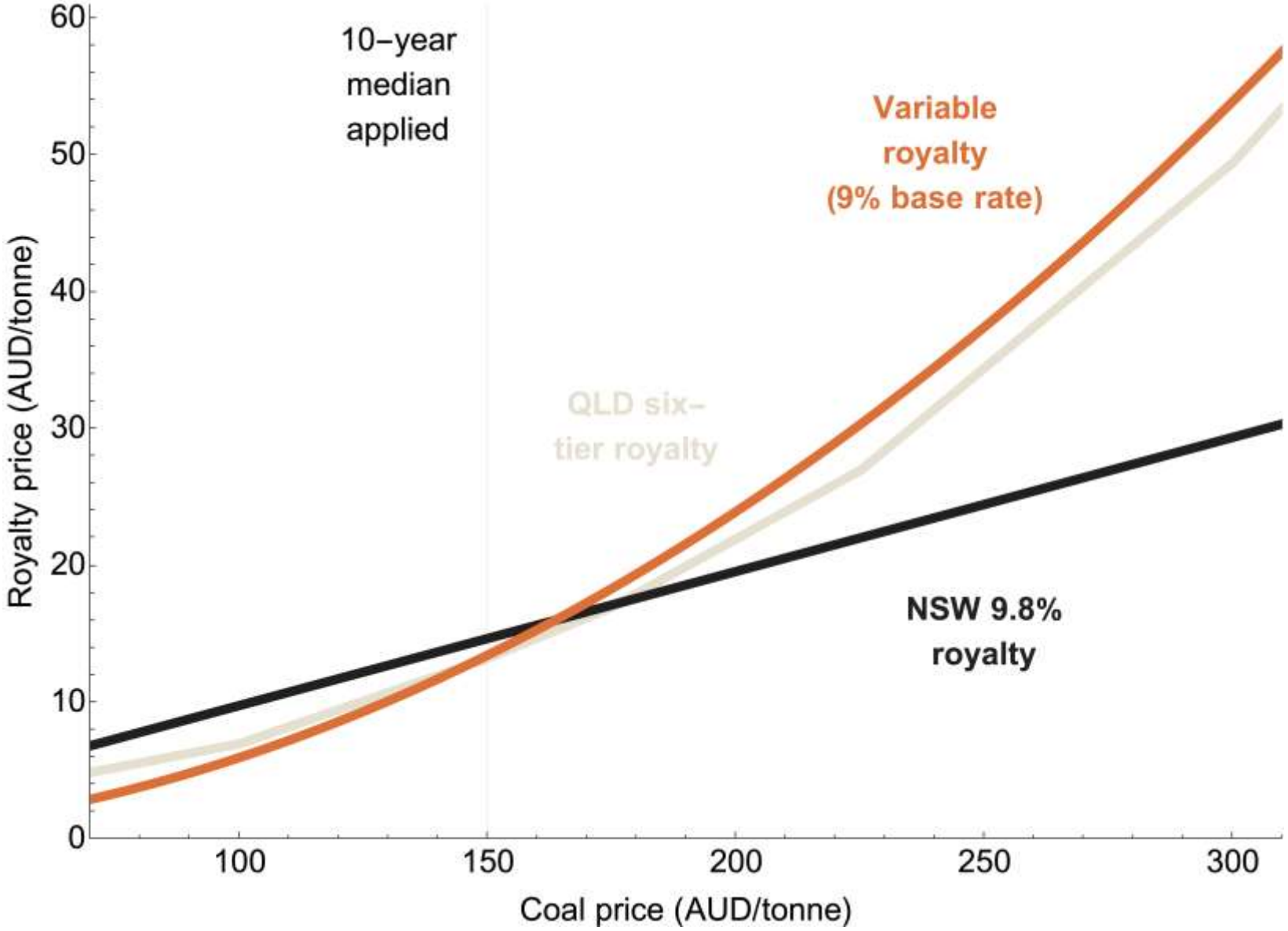
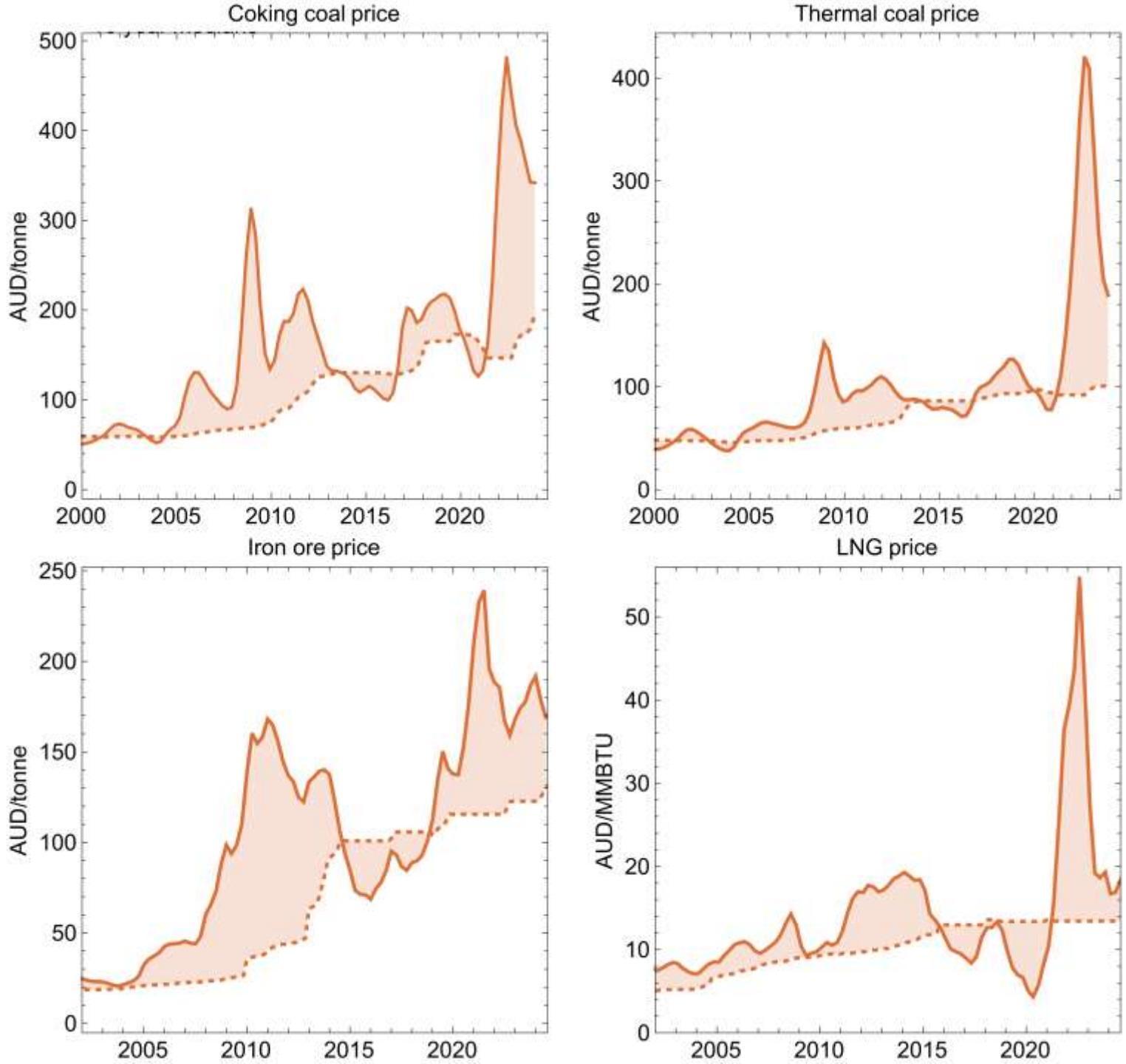
Can we generalise this approach?

- Globally such tiered royalties for resources are known as *variable royalties*
- We propose that rather than impose fixed price reference tiers, like income taxes, we can generalise the model
- With a reference price and base rate as inputs, it can be applied to resources more broadly, even replacing the existing PRRT

$$Royalty\ rate\ (\%) = \frac{Current\ Benchmark\ Price}{10\ year\ median\ price} \times\ Base\ rate\ (\%)$$

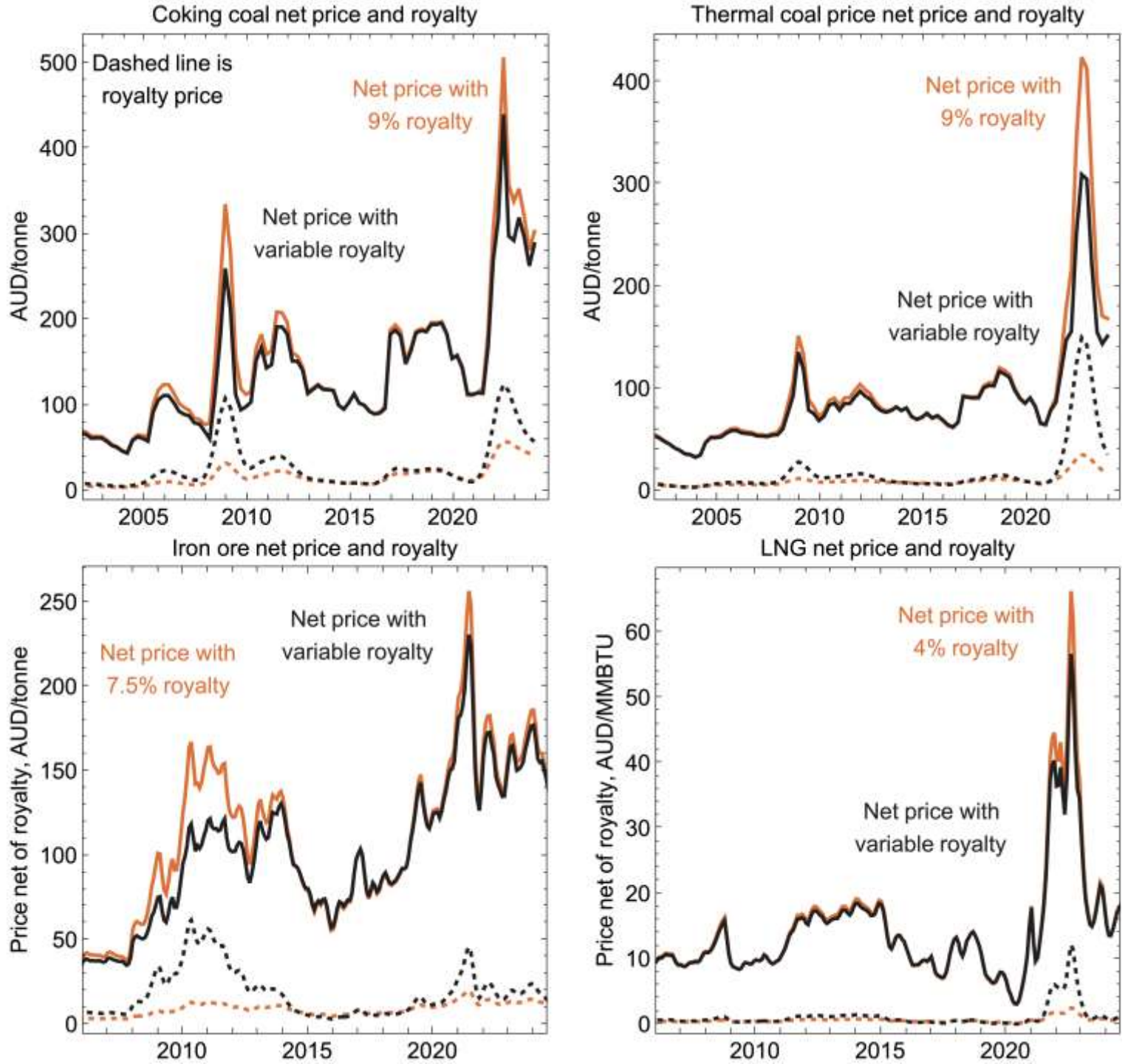


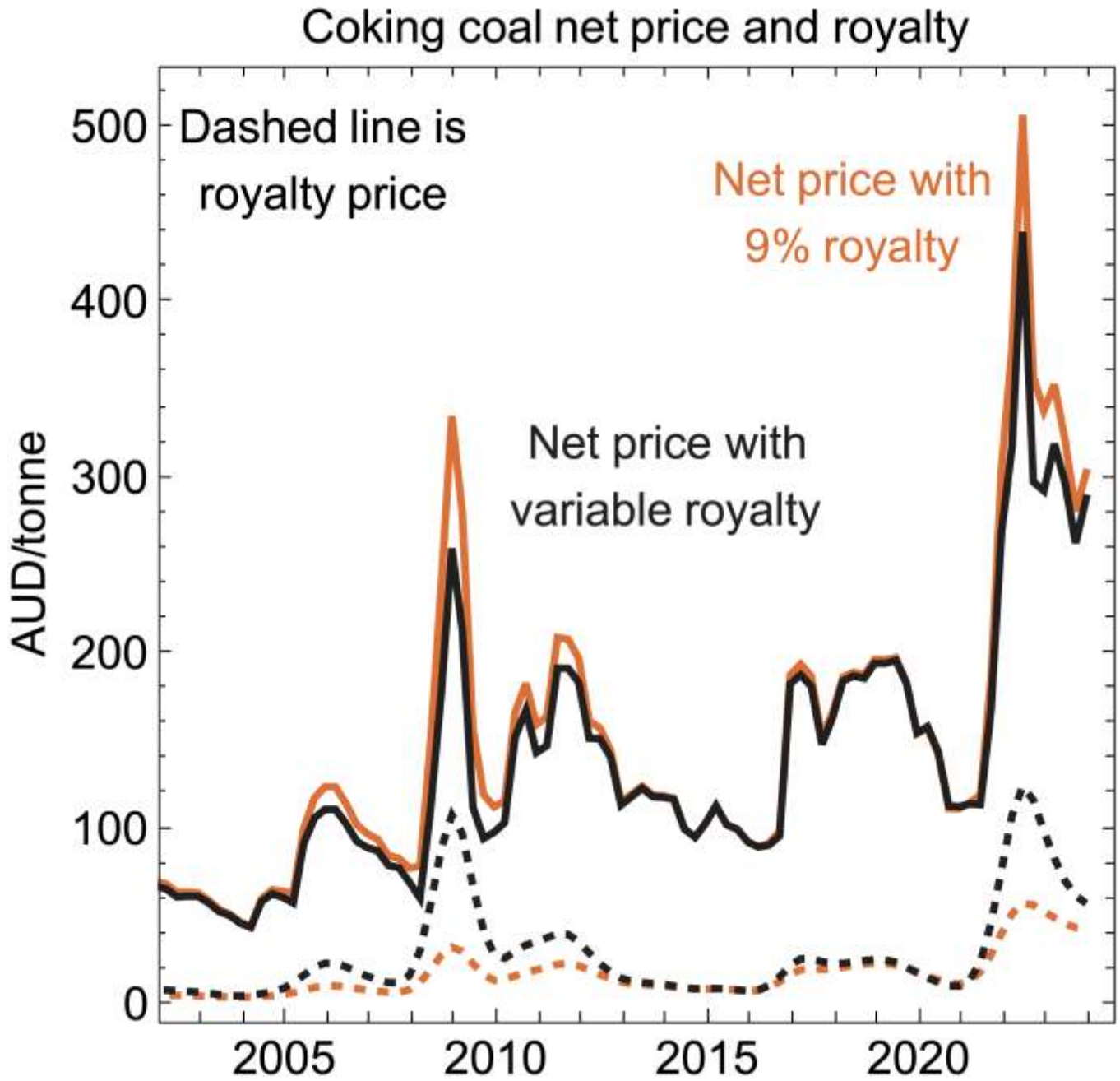
$$Royalty\ price\ (\$) = \frac{Current\ Benchmark\ Price^2}{10\ year\ median\ price} \times\ Base\ rate\ (\%)$$

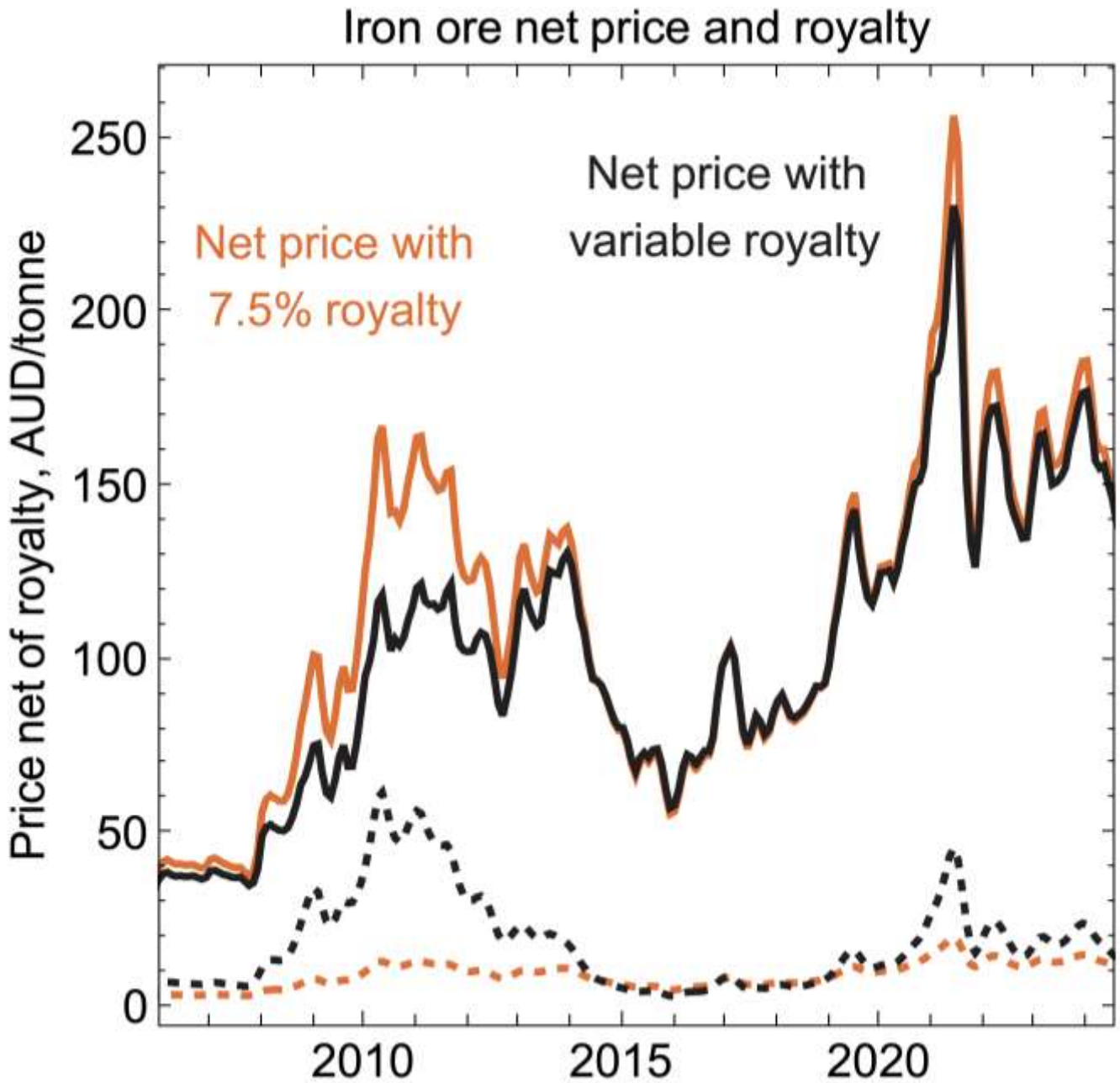

Coking coal price
AUD/tonne
500
400
300
200
100
0
2000
2005
2010
2015
2020
Thermal coal price
AUD/tonne
400
300
200
100
0
2000
2005
2010
2015
2020
Iron ore price
AUD/tonne
250
200
150
100
50
0
2005
2010
2015
2020
LNG price
AUD/MMBTU
50
40
30
20
10
0
2005
2010
2015
2020

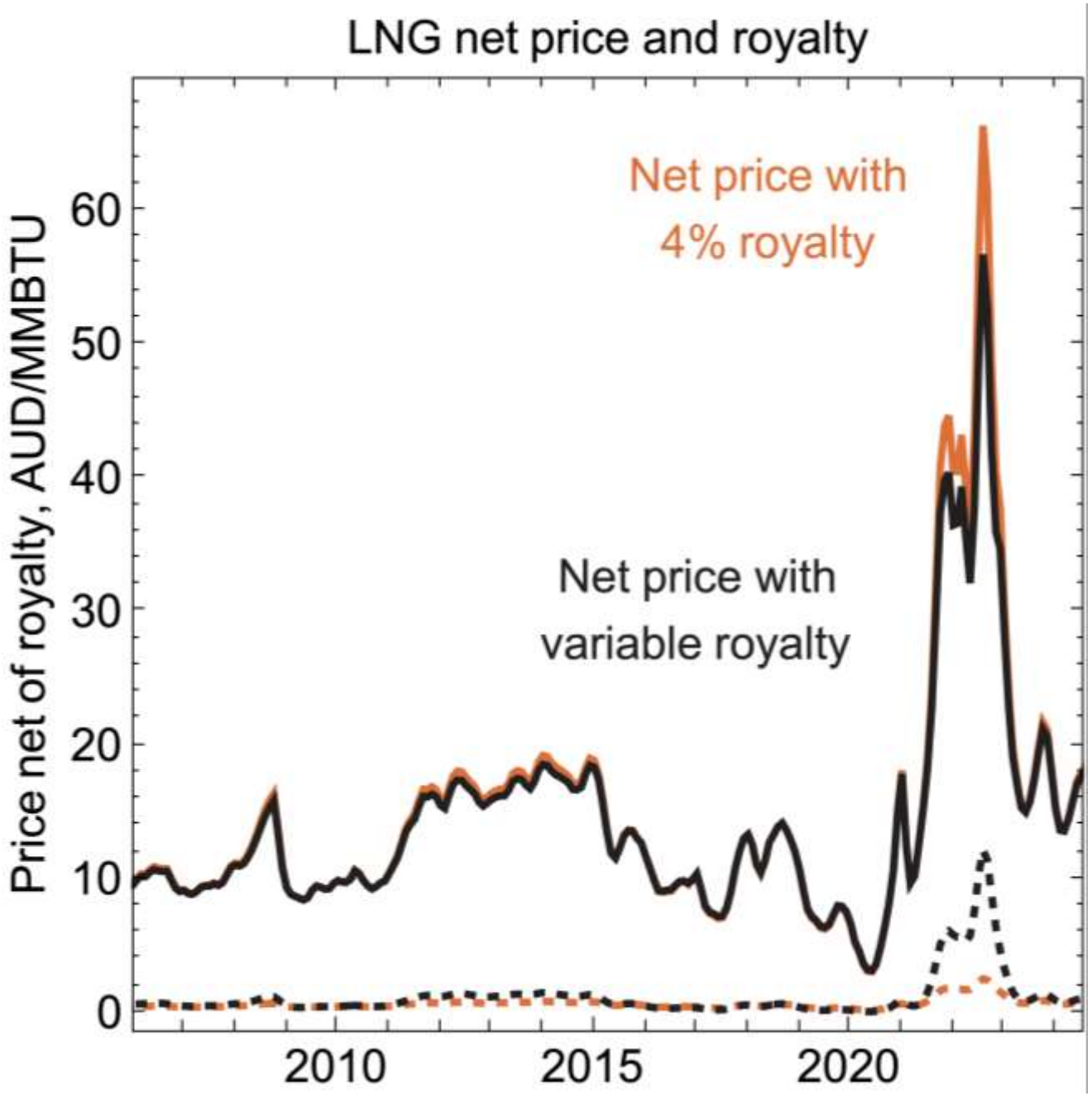
Base rates

- We simulate the use of the current royalty rates as the base rate in the following historical simulations
- 9% for coal, as per current NSW and historical Queensland rates;
- 7.5% for iron ore, as per the current rate in WA; and
- 4% for gas, which is an Australian average based on the ratio of royalty revenue to value of exports over the last four years,


Coking coal net price and royalty
Dashed line is royalty price
Net price with 9% royalty
Net price with variable royalty
AUD/tonne
Thermal coal price net price and royalty
Net price with 9% royalty
Net price with variable royalty
AUD/tonne
Iron ore net price and royalty
Net price with 7.5% royalty
Net price with variable royalty
Price net of royalty, AUD/tonne
LNG net price and royalty
Net price with 4% royalty
Net price with variable royalty
Price net of royalty, AUD/MMBTU


Coking coal net price and royalty
Dashed line is royalty price
Net price with 9% royalty
Net price with variable royalty
AUD/tonne
500
400
300
200
100
0
2005
2010
2015
2020


Iron ore net price and royalty
Price net of royalty, AUD/tonne
250
200
150
100
50
0
2010
2015
2020
Net price with
7.5% royalty
Net price with
variable royalty

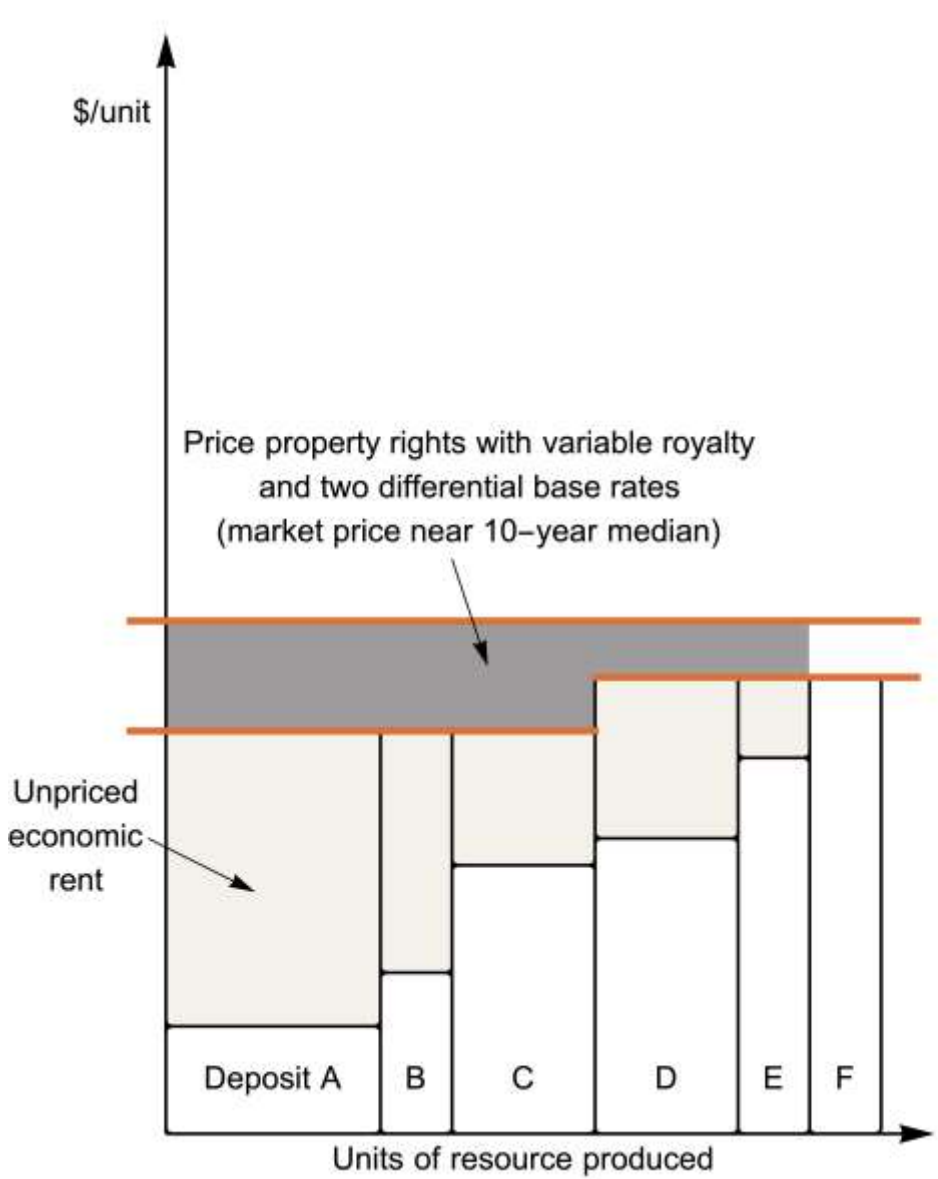

LNG net price and royalty
Net price with
4% royalty
Net price with
variable royalty
Price net of royalty, AUD/MMBTU
0
10
20
30
40
50
60
2010
2015
2020

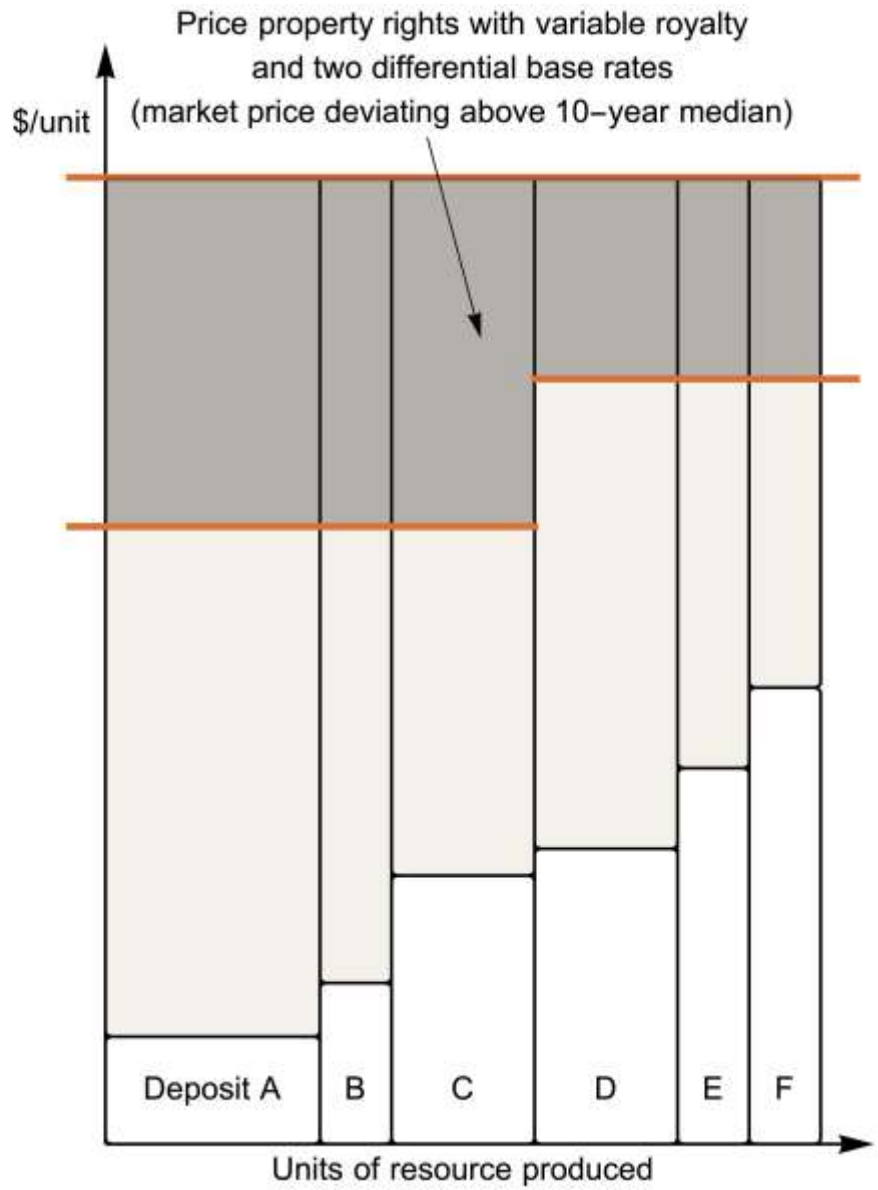
Over the decade to 2023, variable royalties for would have raised:

- For **coal**, $38 billion or 71% more than the $53 billion that would have been collected under a 9% fixed rate (2023 dollars).
- For **iron ore**, $33 billion, or 33% more than the estimated $101 billion from a 7.5% fixed-rate royalty.
- For **gas**, comparisons are made more complex by the predominance of longer-term contracts, a variety of product types, and complexities of existing royalty and super-profit tax regimes.
- As a ballpark,$40 billion would have been paid over the decade had a 4% fixed rate applied, while a variable royalty with a 4% base rate would have raised an additional $74 billion (182%) more.

So what?

- Current royalties act like rent control
- To capture more rent variation across resources and over time, super-profits taxes and nationalisation are popular approaches.
- *Variable royalties* can do most of the work with minimal institutional change in the Australian setting.
- A general variable royalty that changes according to long and short-term benchmark prices will earn more rent over the long term due to the asymmetry of resource price variation
- This rent gain is in the order of $10-14 billion per year across the resource cycle, which is ¼ of the way to Norway!


$/unit
Price property rights with variable royalty
and two differential base rates
(market price near 10–year median)
Unpriced
economic
rent
Deposit A
B
C
D
E
F
Units of resource produced


Price property rights with variable royalty
and two differential base rates
(market price deviating above 10–year median)
$/unit
Deposit A
B
C
D
E
F
Units of resource produced