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Managing the coal transition for workers in South Africa

scenario analysis of age cohorts & skills profiles of coal workers

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SA-TIED
Southern Africa – Towards Inclusive Economic Development

Preliminary results of a study that…

- Asks whether affordable solutions for coal miners exist, were market forces *or* climate policy to reduce coal demand;
- Explores whether forced job losses can be avoided, assuming a *though experiment:* **a hiring stop from 2020 onwards**;
- Considers the socio-economic characteristics of coal miners;
- And identifies possible solutions and makes a first estimate of their costs.

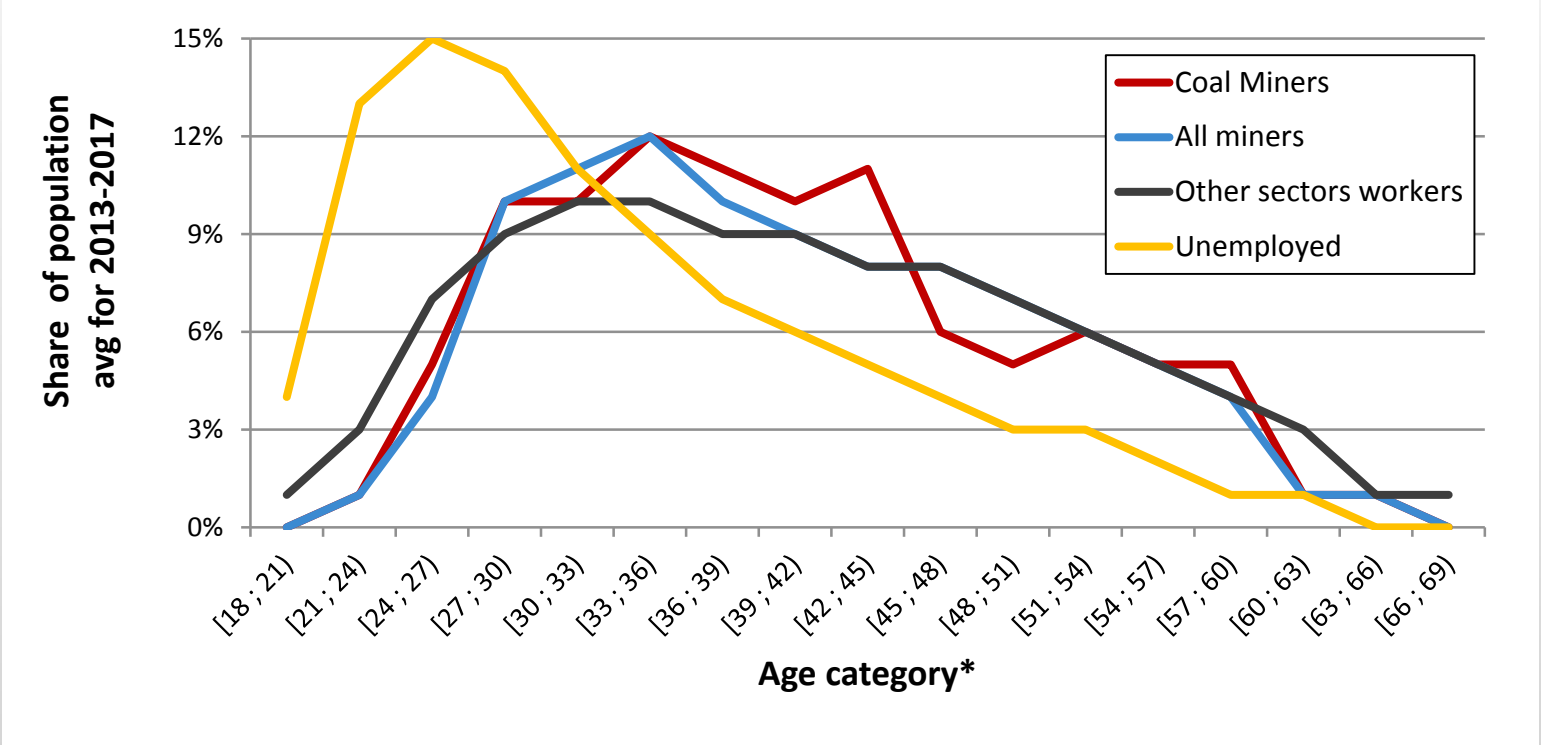
Let's start with some numbers

x 1000 workers)	Minerals Council*	QLFS**	Difference
2012	83.2	77.5	-5.7
2013	88.0	85.4	-2.6
2014	86.1	84.1	-2.0
2015	77.7	74.9	-2.9
2016	77.2	63.7	-13.5
2017	82.2	68.2	-14.1

*Notes: * Facts & Figures 2017 ; ** QLFS = annual average Quarterly Labour Force Survey of StatsSA; for 2016 and 2017 only 2 out of 4 surveys.*

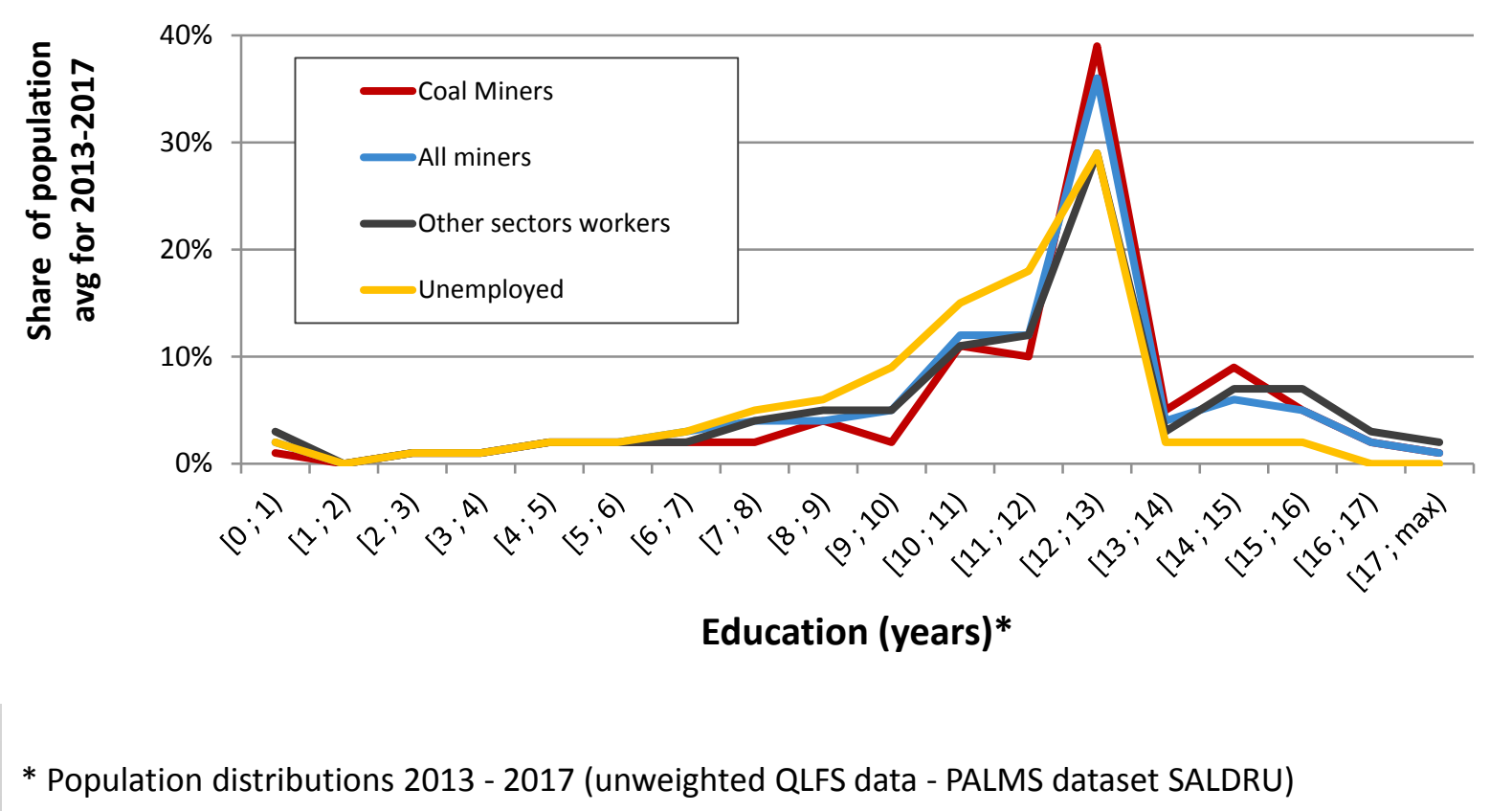
- Coal Miners are too small as a sample to be measured in detail through national surveys…
- Mining company labour data is mostly not publicly available.

What do we think we know:
Coal miners are similar to other workers in age



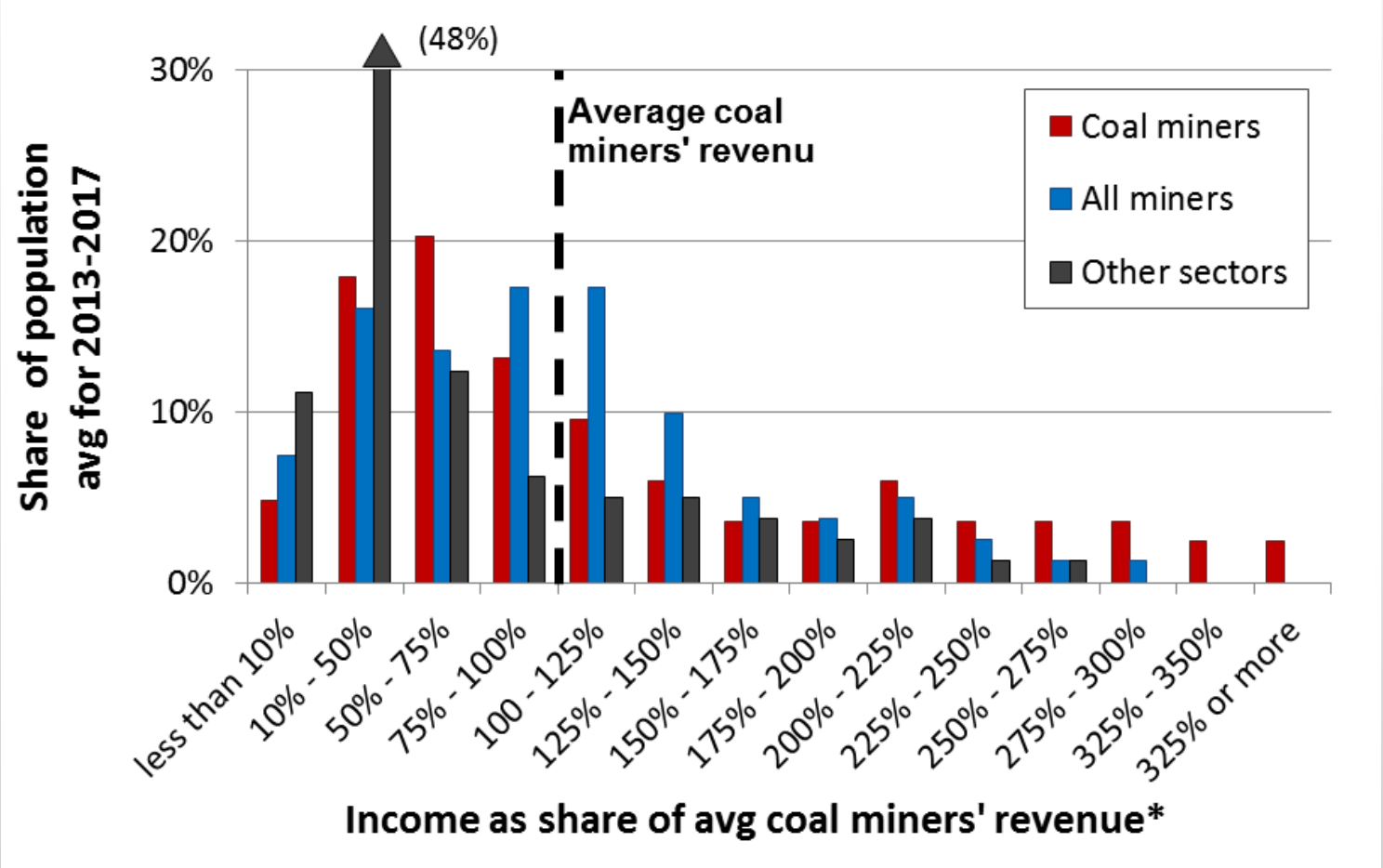
* Population distributions 2013 – 2017 (unweighted QLFS data - PALMS dataset SALDRU).

What do we think we know:
Coal miners are similar to other workers in education



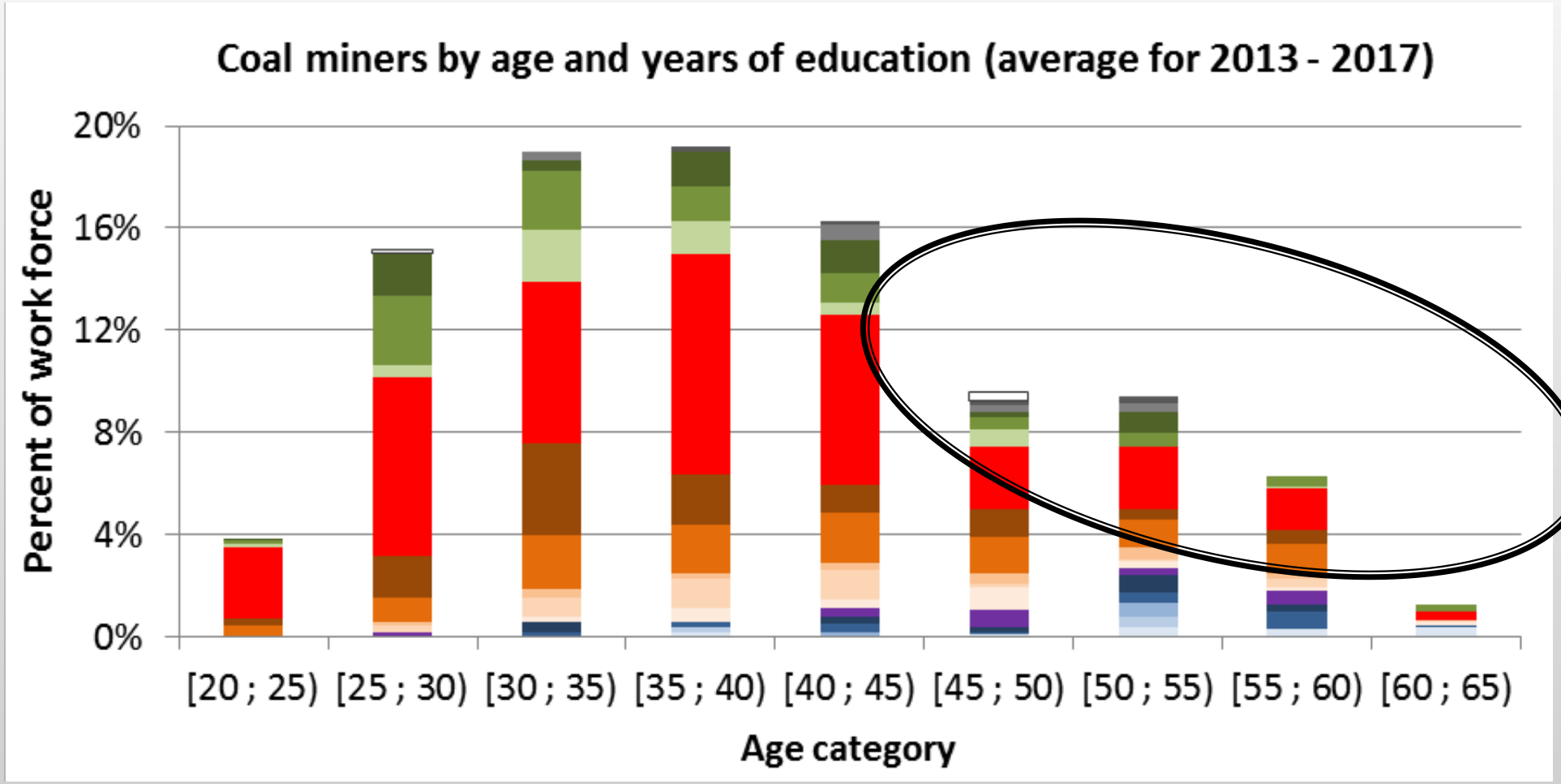
* Population distributions 2013 - 2017 (unweighted QLFS data - PALMS dataset SALDRU)

What do we think we know:
Coal miners earn more than other workers



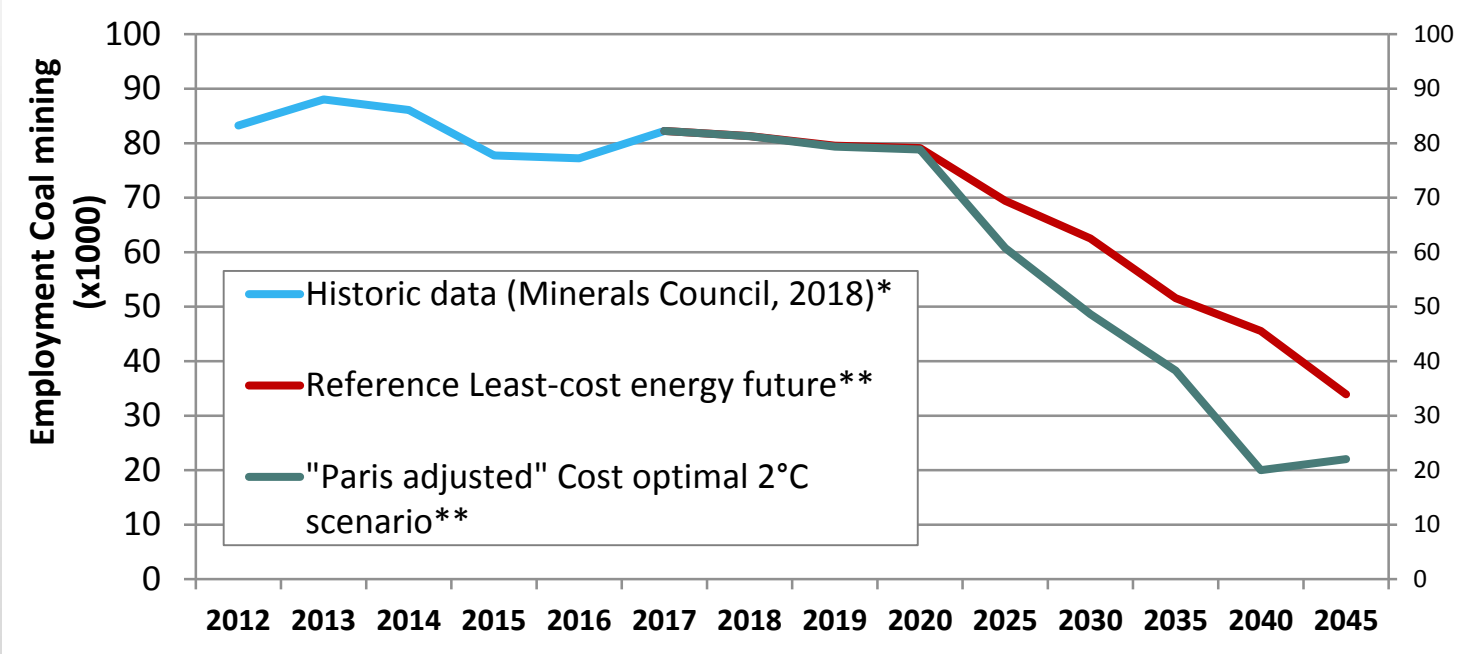
* Population distributions 2013 - 2015 for income data (unweighted QLFS data - PALMS dataset SALDRU); Quality of income data is mediorate due to under- or imprecise reporting of higher incomes.

Coal miners seem to drop out of coal mining work force before retirement age



Climate policy accelerates, but not change employment trend in coal relative to market forces

- Scenarios:
  Reference
  = least-cost energy future
  "Paris adjusted"
  = cost-optimal to well below 2°C



- Assuming constant intensity of employment over coal output
- 47k to 58k less jobs in 25 years → but how much unemployment?

Notes: * Minerals council data used, because it reports higher employment numbers than Labour Force/Dynamics surveys;
** Coal mining output data comes from McCall et al. (2018)

Retirement reduces forced job losses, but 2020'ies are a critical period

	Reference scenario		*, of which:*	
Year	**Employment (X 1000 jobs)**	**Reduction past 5 years**	**People retiring**	**Forced job losses**
2020	79.0	-	-	-
2025	65.2	13.8	3.0	**10.8**
2030	58.7	6.5	5.1	**1.4**
2035	48.4	10.3	6.2	**4.1**
2040	42.8	5.6	7.4	***-1.8***
2045	31.8	10.9	11.3	***-0.3***
Totals 2020-2045 :		**47.2**	**33.0**	**14.1**

- Assuming retirement at 63, and age structure of recent years
- Forced job losses would be 14k in Reference (market forces)

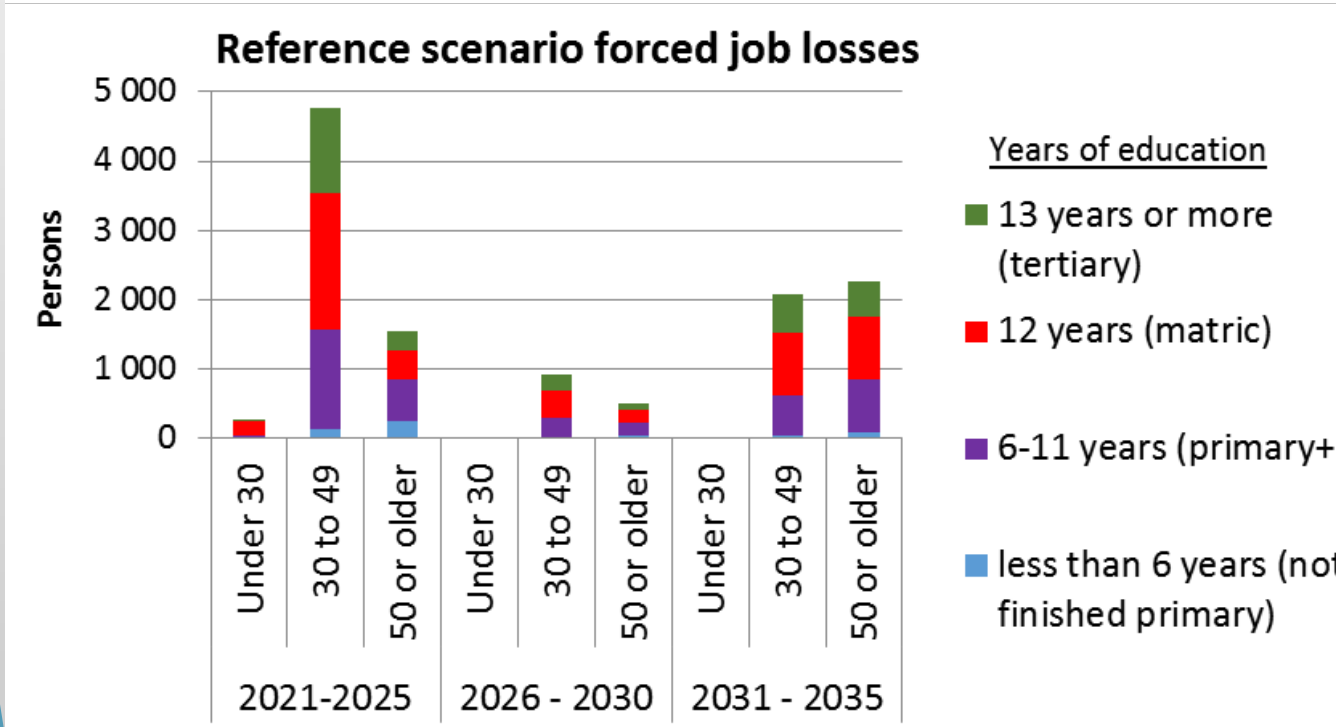
Retirement reduces forced job losses, but 2020'ies are a critical period

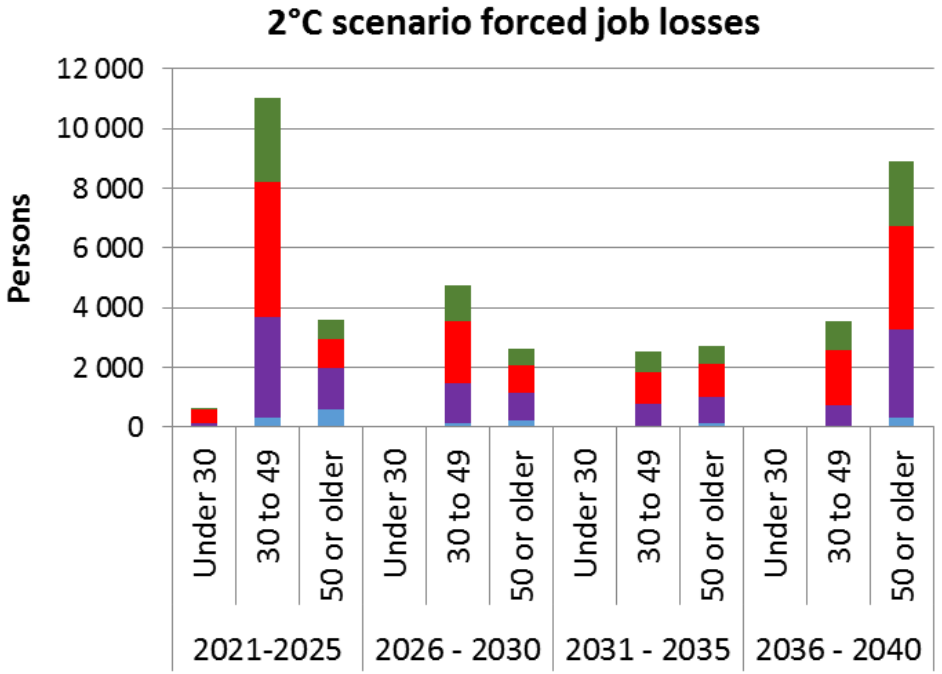
	Paris adjusted		*, of which:*	
Year	**Employment (X 1000 jobs)**	**Reduction past 5 years**	**People retiring**	**Forced job losses**
2020	79.0	-	-	-
2025	57.0	22.0	3.0	**19.0**
2030	45.7	11.4	4.5	**6.9**
2035	35.9	9.7	4.8	**4.9**
2040	18.8	17.1	5.5	**11.6**
2045	20.7	*-1.9*	4.9	***-6.8***
Totals 2020-2045 :	-	**58.3**	**22.7**	**35.6**

- Assuming retirement at age 63 & age structure of recent years
- Forced job losses would be 36k jobs in Paris adjusted

If job losers were to be a cross-section of coal mining labour force, *then they …*

- Respectively 2,0k and 5,6k persons would be 30 to 49 yrs *with* a education above matric...
- *But* maybe more if last-in = first-out, or less if older workers loose jobs first





Advancing retirement age to 58 years old could avoid almost alll job losses in Reference

(x 1000 persons)	*Reference*	*People leaving the labour force if they retired …*		
By year …	Reduction in past 5 years	*… at 63*	*between 58 and 63*	Remaining job losses
2020	-	-	-	
2025	13.8	3.0	6.0	4.8
2030	6.5	-	7.4	-0.9
2035	10.3	-	9.6	0.7
2040	5.6	-	13.8	-8.2
2045	10.9	-	15.1	-4.2
Totals	47.2	3.0	51.9	-7.8

- Retirement at 58 seems already common practice in coal mining

Advancing retirement age to 53 years old could avoid most job losses in “Paris adjusted”

(x 1000 persons)	*Paris-adjusted*	*People leaving the labour force if they retired …*			
By year …	in past 5 years	*… at 63*	*between 58 and 63*	*between 53 and 58*	Remaining job losses
2020	-	-	-	-	
2025	22.0	3.0	6.0	7.4	5.6
2030	11.4	-	-	9.6	1.8
2035	9.7	-	-	13.8	-4.1
2040	17.1	-	-	15.1	2.0
2045	-1.9	-	-	13.8	-15.7
Totals	58.3	3.0	6.0	59.7	-10.4

Earlier retirement age is not unaffordable...

- *Estimated* cost of retiring 44k workers 5 years in Reference: R3.0 bn/year (2020 to 2040):
  - Assuming 100% of an average annual salary in coal of 272 kR*;
  - Total costs would equate R(2017) 60 bn;
  - Counting 23 bn saved on Coal IPP subsidy**, R37 bn remains = R 1.9 bn/year;
  - This equals estimated "weak carbon tax" revenue (R1.8 bn/yr for 2019/2020)***;
  - Preliminary estimate of retirement at 53 in "Paris-adjusted": 2,5-3 times higher;
- This is a high-end estimate:
  - Retirement seems already to happen before age of 63 years;
  - People will partly be re-employed else;
  - How much over relative to cost (LCOE) of electricity ?

Notes: * Minerals Council (2018) "Facts & Figures 2017"; ** Jeff Radebe acc to Engineering news 1 Oct 2018; *** February budget forecast 2019/2002 NT.

However, things are more complicated…

- Real age structure & salaries workers loosing jobs ?
- Whom *or* which fund should pay ?
- Other factors also put coal output & employment at risk ;
- Other issues :
  - Solution for youth in coal mining regions: training to work in other sectors?
  - Do we need a bail-out of mortgages for home owners in mining towns?
- Other (cheaper?) solutions:
  - What is the need & cost of re-training of younger miners for a job in other (mining) sectors?
  - Voluntary leave premia?
  - Coal mining regions *can* develop new economic activity ...

Conclusions for a Just transition

- Solutions for disappearing coal mining employment are possible → See experience in other countries;
- Solutions are required as of this year !
- Costs depend on the approach and coal miner characteristics;
- Economic re-development of mining regions is very important!
- This requires **in-advance planning** and more research, thus **good & detailed data** !

Thank you!

Your feedback is very welcome !

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