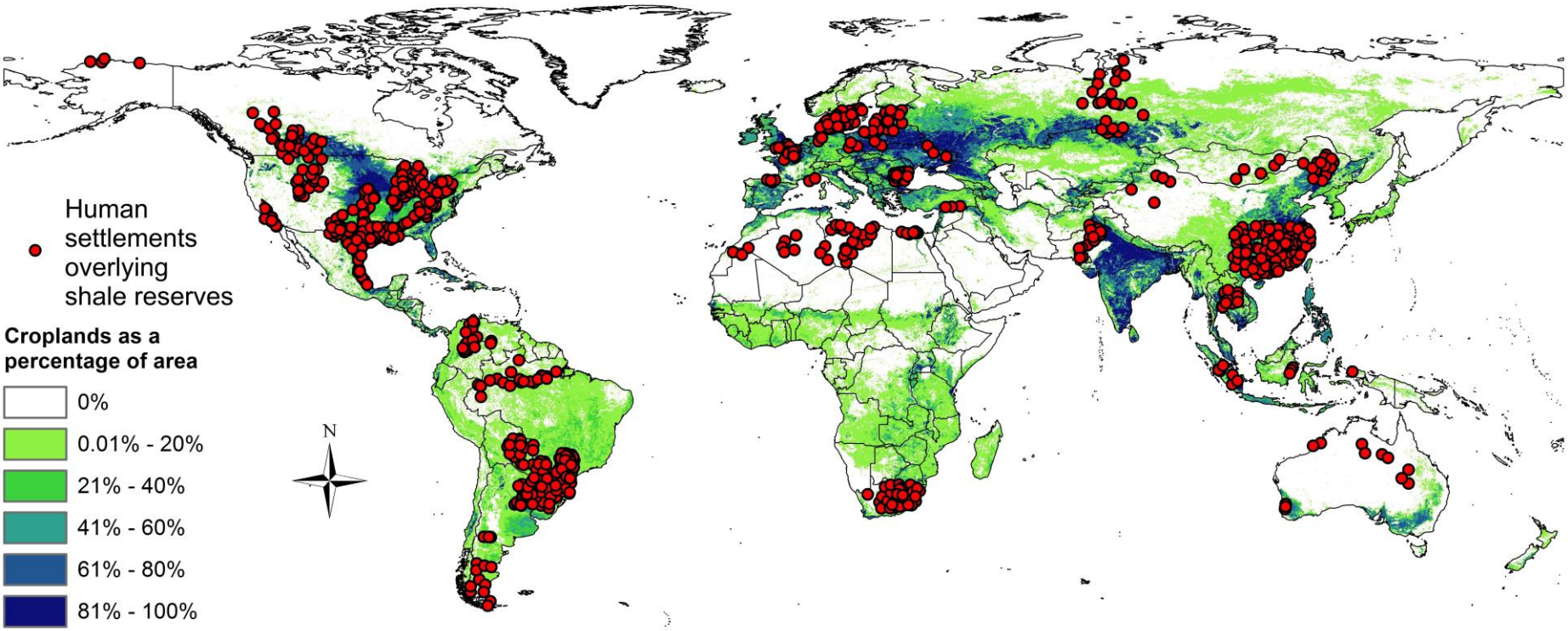


A conceptual model of socio-economic impacts of unconventional fossil fuel in host regions

Tom Measham Energy Impacts Symposium, Ohio July 2017

Highly controversial around the world

Fracking: much of the focus of this industry has been on the controversial extraction process

Tension with other landuses (e.g agriculture), in many countries:

- E.g. USA, Canada, Argentina, Australia, Poland, South Africa…
- Shale gas, Shale oil, Coal Seam gas (CBM), Tight gas

Focusing on socio-economic effects…

Lots of questions including:

What are the impacts and benefits for host communities?

- Jobs? How many and for whom?
- Income? for locals?
- Effects on other industries?
- Winners and losers?
- Cost of living?

Are these impacts different from conventional fossil fuel extraction?

If so how?

In response there is an expanding body of research to address these questions

It occurs under various headings

- Resource curse
- Boomtown
- Corporate social responsibility

Much of it is highly contradictory

- What happens in one place can be the opposite somewhere else

So we set about distilling a synthesis of this work and expressing it as a framework that fits on one page (or screen)

Primary effects: the initial stimulus

Energy extraction has 3 key direct initial impacts in host communities/regions

- Labour demand that quickly exhausts local supply
- Increased income (higher wages)
- Compensation for disturbance to land and/or other economic activity

Secondary effects: the guts of the boom

Demand for other services

Leading to indirect employment

Therefore In migration

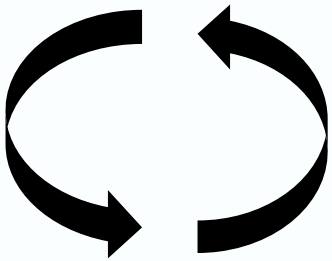
Feeds on itself:

= more demand for goods and services

Leading to more income…

Even more demand…

Strain on existing infrastructure



Tertiary effects: the joy and the pain

Increased housing values

- Increased rental costs

Construction of new dwellings (delay)

Demographic changes

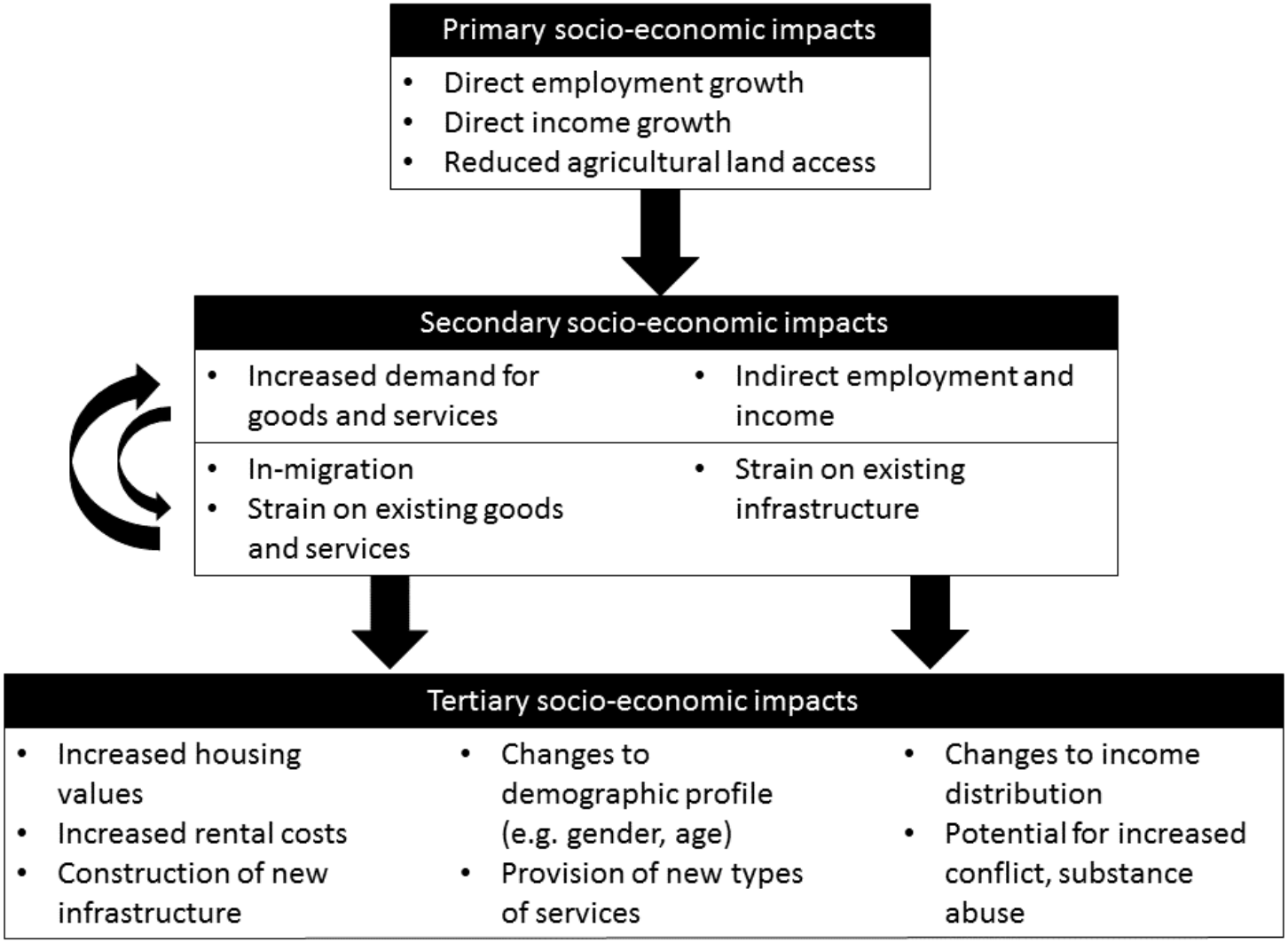
Changes to income distribution

- (becomes more or less even)

Potential for stress, conflict

Provision of new types of services

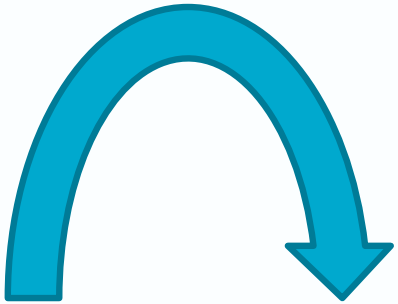
The framework distilled onto one screen



What about downturns?

Is it just the reverse? …

- Lower primary effects (direct employment, income)
- Leading to reduced secondary effects (fewer spillovers)
- Leading to outmigration
- Housing values decrease (which buffers out migration)



Some empirical evidence that the pattern is *slower*

- Some people in spillover jobs tend to stay on
- Particularly if social investment programs are well targeted

In the meantime conditions may change again

So what's different from conventional energy?

Conventional	Unconventional
Smaller spatial footprint, therefore fewer landholders with claim to compensation	Wider spatial footprint therefore more landholders with claim to compensation
Tends to displace existing landuses therefore less opportunity for job spillovers	Seeks to co-exist with other land-uses which may lead to complimentary job spill-overs over a wider area

Differences continued

Conventional	Unconventional
Shift from construction to operation is a single point in time therefore: strong boom-bust pattern for jobs/income	Shift from construction to operation is slower
Inderect jobs tend to follow major boom/bust cycles	Indirect jobs tend to follow 'mini-boom/bust' cycles of oscillating periods of growth and decline

Some places manage the impacts from extractive industries better than others

Good governance arrangements help to reduce negative impacts and encourage economic benefits

In particular the role of three-way dialogue involving

- Local governments/counties
- Resource companies
- State governments

Emphasis on genuine engagement to work through issues

It takes time to build up sufficient trust to work together

Conclusion

Unconventional fossil fuel industries occur differently around the world

- There are many similarities and differences between cases

This conceptual framework was developed to facilitate comparison of cases

And particularly as a ‘primer’ for places not yet familiar with the industry

We’ve presented it to multiple contexts

- To industry meetings
- Academic audiences

Feedback so far has been that it is useful

References

Measham, T.G., Fleming, D.A. and Schandl, H. (2016) A Conceptual Model of the Socioeconomic Impacts of Unconventional Fossil Fuel Extraction. *Global Environmental Change* Vol 36 pp 101-110. http://dx.doi.org//10.1016/j.gloenvcha.2015.12.002

Fleming, D., Komarek, T., Partridge, M., & Measham, T. (2015). The booming socioeconomic impacts of shale: A review of findings and methods in the empirical literature. *MPRA Paper* No. 68487 https://mpra.ub.uni-muenchen.de/68487/

Fleming, D.A. and **Measham, T.G.** (2015) Local Economic Impacts of an Unconventional Energy Boom: The Coal Seam Gas Industry in Australia, *Australian Journal of Agricultural and Resource Economics* vol 59 (1) pp 78-94 http://dx.doi.org/10.1111/1467-8489.12043

Measham, T.G. and Fleming, D.A.(2014) Impacts of unconventional gas development on rural community decline, *Journal of Rural Studies* Vol 36 pp. 376-385 http://dx.doi.org/10.1016/j.jrurstud.2014.04.003

Measham, T.G. and Fleming. D.A.(2014) Assess benefits and costs of shale energy, *Nature*, Vol 510 (7506) p 473 doi: http://dx.doi.org/10.1038/510473a

Thank you

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