CARBON PRICING: THE REAL AND FAKE PROBLEMS STEMMING FROM MONITORING UNCERTAINTY

Valentin Bellassen, INRAE

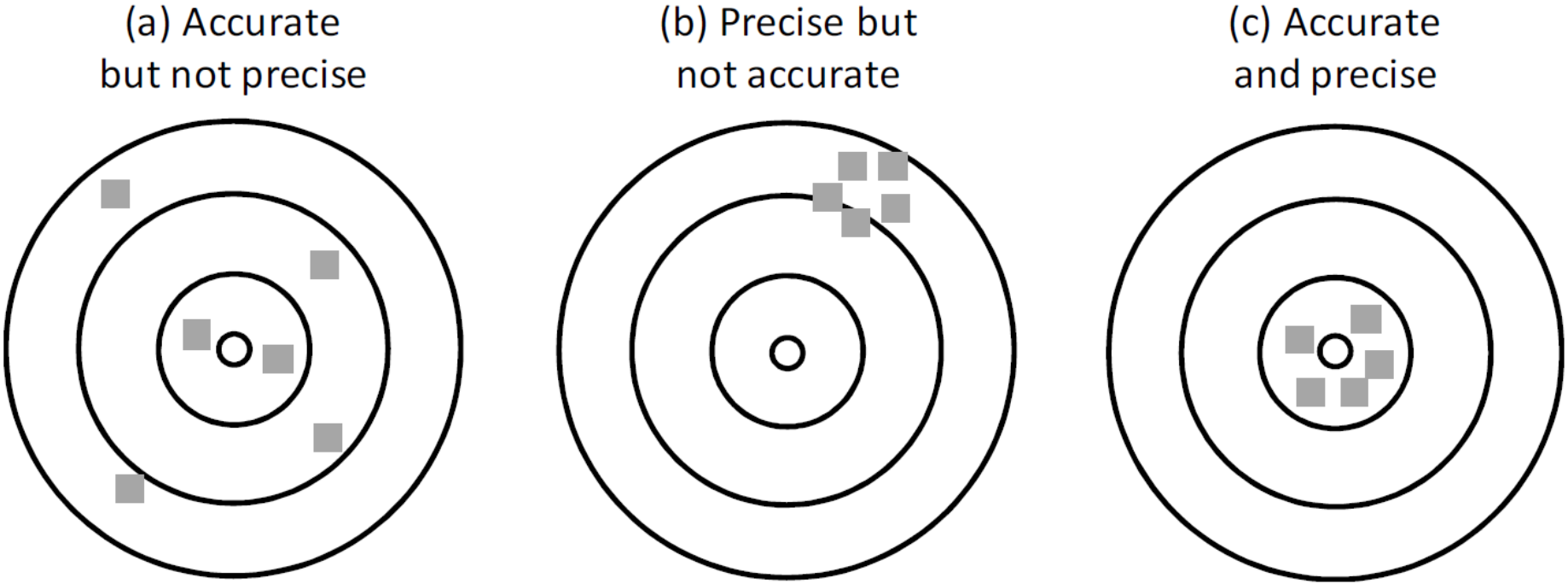
MOOC SOL et CLIMAT

Enjeux, processus et stratégies pour protéger et augmenter les stocks de carbone des sols

OBJECTIVES

MISCONCEPTIONS AND DEFINITIONS

UNCERTAINTY: BIAS OU IMPRECISENESS?



Source: adapted from IPCC (2006)

UNCERTAINTY AND CARBON STORAGE: THREE MISCONCEPTIONS

Carbon storage in biomass and soils is the most uncertain sector

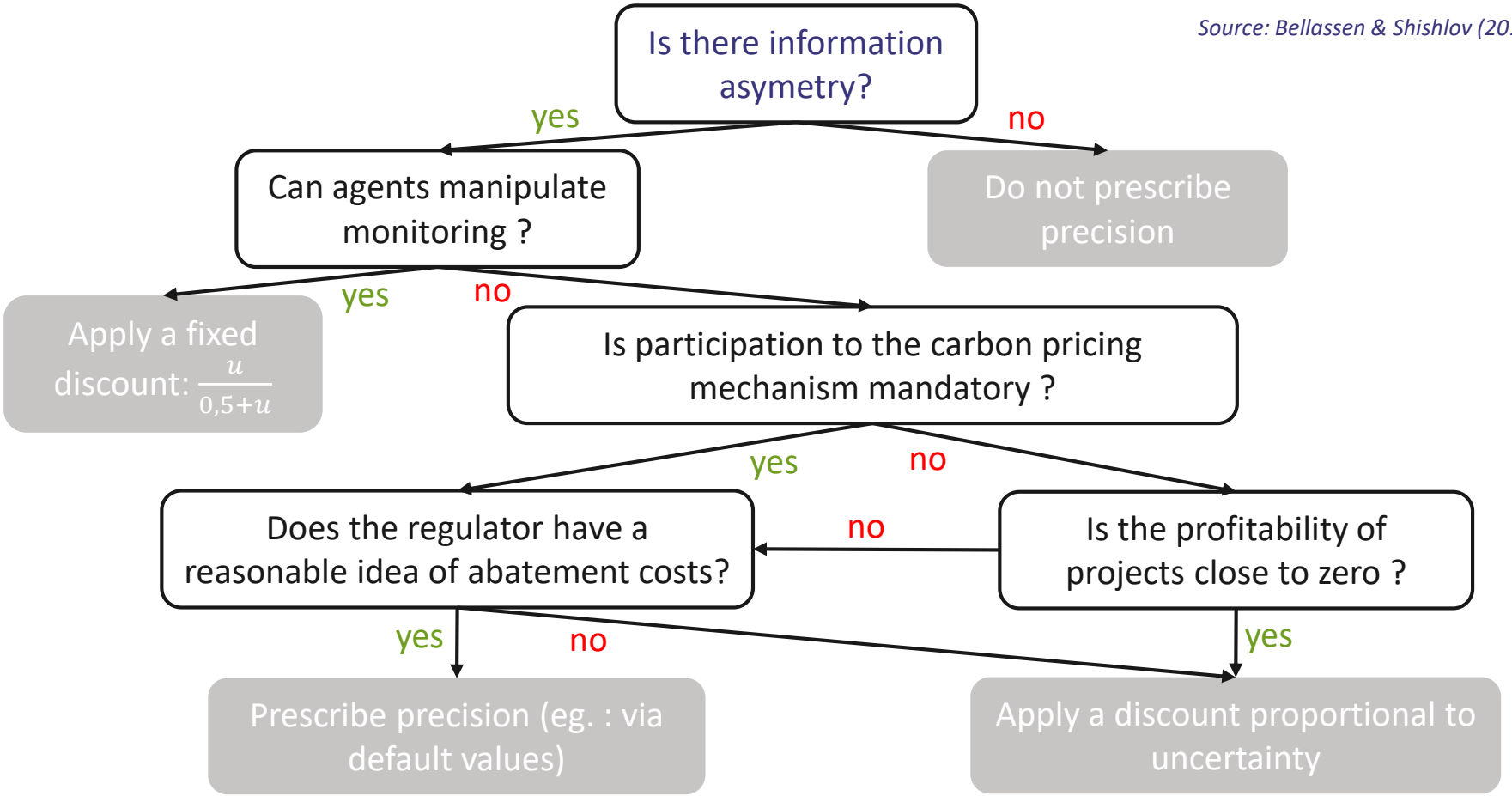
Measurement uncertainty is an obstacle to carbon pricing

When a measure is uncertain, it is better to be conservative and under-reward carbon storage

A DECISION TREE FOR MONITORING RULES

DECISION TREE FOR POLICY MAKERS

Source: Bellassen & Shishlov (2016)



CONCLUSIONS

Uncertainty is not a problem in itself

- ✓ The land sector is not the most uncertain sector
- ✓ In many cases, the lack of precision does not undermine the economic efficiency of a carbon pricing mechanism!

Measurement bias and information asymmetry are the main problems. They cause selection bias and windfall effects that reduce the effectiveness of carbon pricing mechanisms.

Solutions exist to limit these problems:

- ✓ Reducing uncertainty
- ✓ Offering a menu of contracts - via top-down auctions for example - to induce agents to reveal their 'type' (eg. Mason & Plantinga (2013))
- ✓ Use a baseline scenario more demanding than the average performance of agents (eg. Bento et al. (2015))
- ✓ Force each agent to enrol large areas (eg. van Benthem & Kerr (2013))

OVERVIEW OF MONITORING, REPORTING AND VERIFICATION RULES IN CARBON PRICING MECHANISMS

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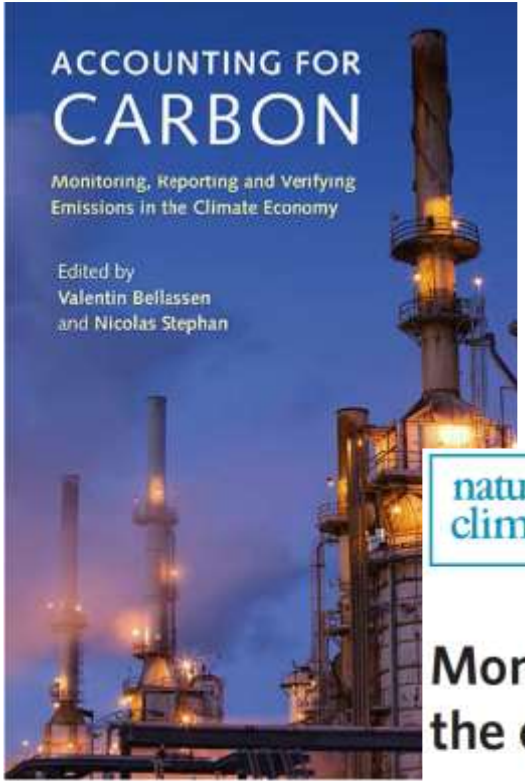

PRACTICE : WHAT REGULATORS ASK FOR IN 15 MAJOR CARBON PRICING MECHANISMS

nature climate change

REVIEW ARTICLE

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Monitoring, reporting and verifying emissions in the climate economy

Valentin Bellassen[1*], Nicolas Stephan[2], Marion Afriat[2], Emilie Alberola[2], Alexandra Barker[3], Jean-Pierre Chang[4], Caspar Chiquet[5], Ian Cochran[2], Mariana Deheza[2], Christopher Dimopoulos[3], Claudine Foucherot[2], Guillaume Jacquier[4], Romain Morel[2], Roderick Robinson[3] and Igor Shishlov[2]

15 CARBON PRICING MECHANISMS REVIEWED, CLASSIFIED IN THREE CATEGORIES

Jurisdictional scale

- ✓ National GHG inventories, sub-national inventories, REDD+ (VCS and UNFCCC)

Installation/company scale

- ✓ EU ETS, Australian CPM, Californian ETS, Shenzhen ETS, company-level reporting (CDP and Grenelle 2)

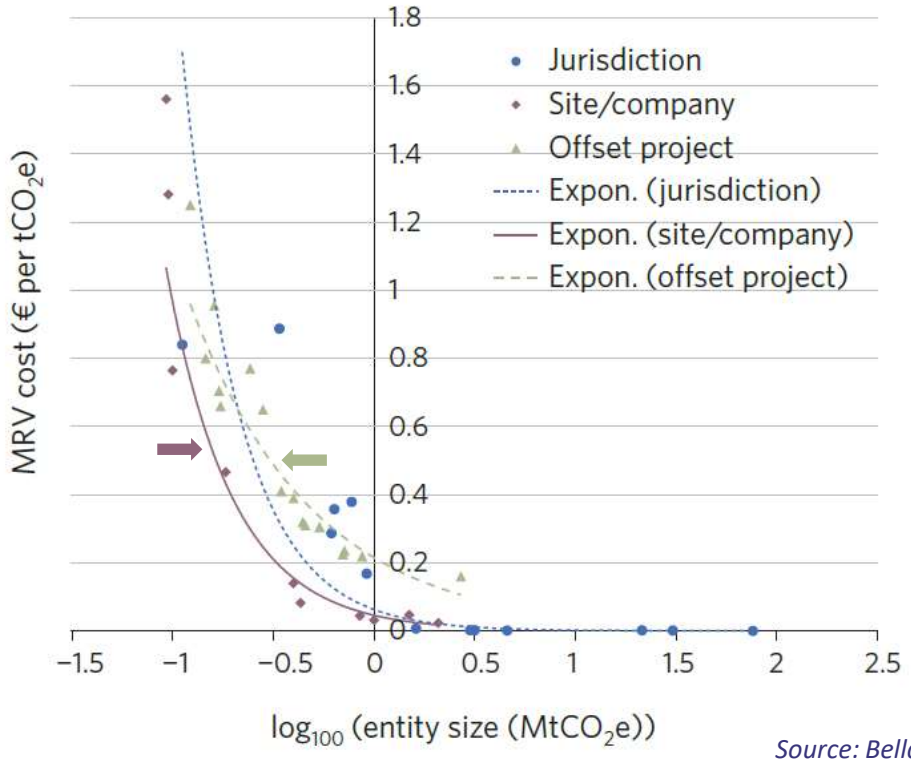
Project scale (offsets)

- ✓ Various standards followed by cases studies on agriculture, forestry, and fugitive emissions

SIX MAIN RESULTS

MRV costs decrease sharply with perimeter size (economies of scale), despite the materiality principle

MONITORING COSTS DECREASE WITH PERIMETER SIZE/COMPREHENSIVENESS



Source: Bellassen et al. (2015)

SIX MAIN RESULTS

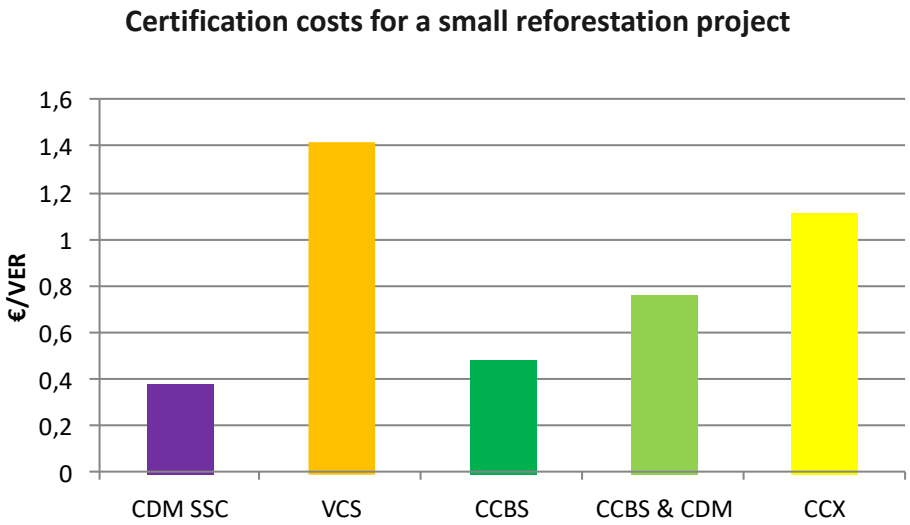
MRV costs decrease sharply with perimeter size (economies of scale), despite the materiality principle

MRV costs strongy vary between standards

VARIABILITY OF MRV COSTS

MRV costs: 0.003-1 €/tCO2e, 0.005-1 M€ per entity

A difference in standard choice can divide costs by 3 … at which cost?



Source: Bellassen et al. (2015), Guigon et al (2009)

SIX MAIN RESULTS

MRV costs decrease sharply with perimeter size (economies of scale), despite the materiality principle

MRV costs strongy vary between standards

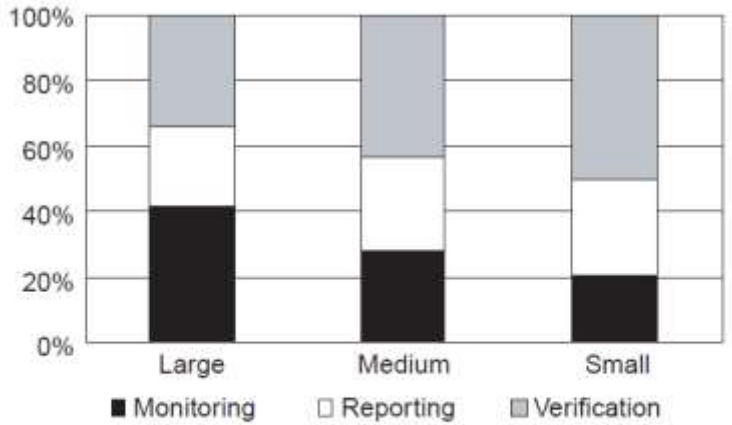
The vast majority of systems require verification or audit by an independent third party …

… which weighs on costs

Average share of verification in MRV costs of CDM projects: 32 % (48 % in reforestation projects)

This cost cannot be internalized and weighs more heavily on small projects

Share of verification in MRV costs per size of industrial sites (European carbon market)



Sources: Bellassen & Stephan eds (2015), Jaraité et al (2010)

SIX MAIN RESULTS

MRV costs decrease sharply with perimeter size (economies of scale), despite the materiality principle

MRV costs strongy vary between standards

The vast majority of systems require verification or audit by an independent third party …

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The incentive to reduce uncertainty is weak

“Conservatism” only exists at project scale and its implementation is far from being systematic

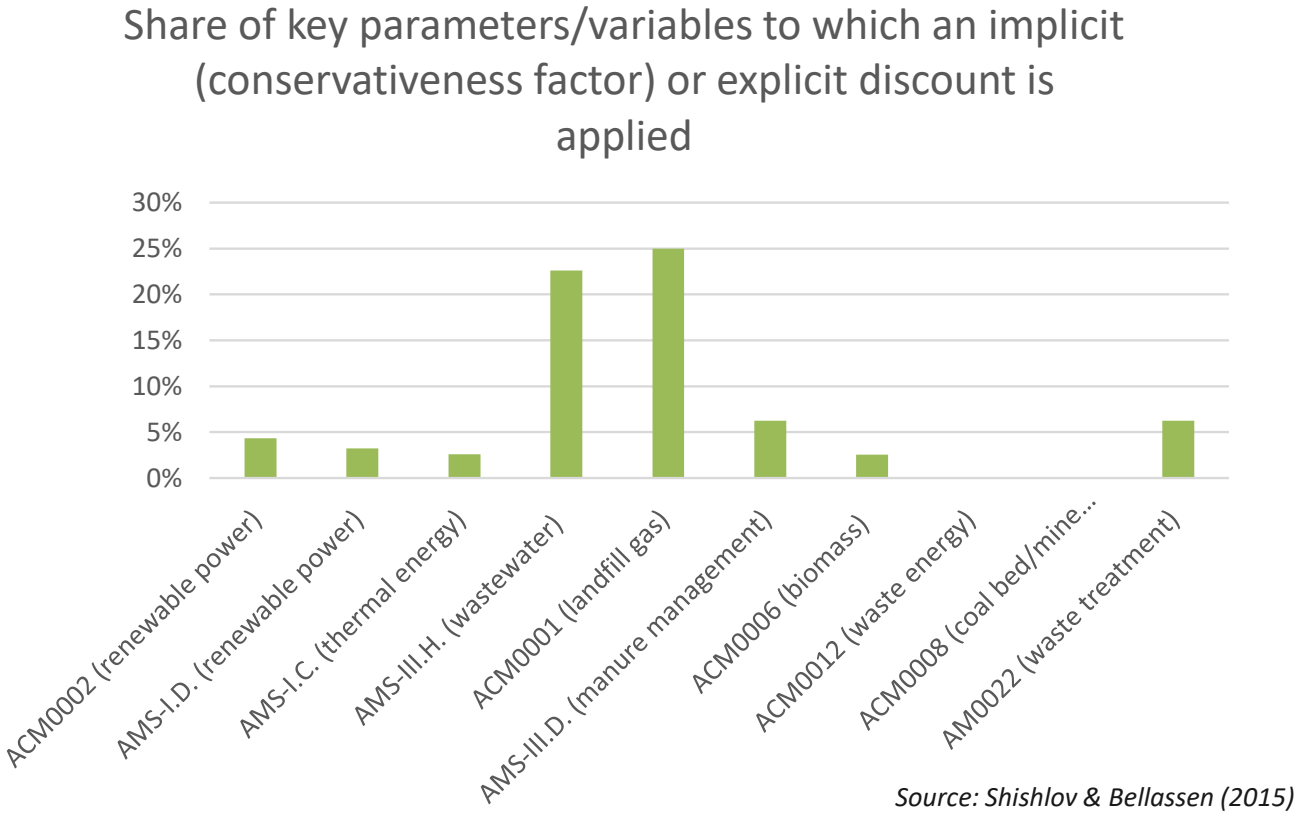
« CONSERVATIVE » ESTIMATES?

The notion barely exists at jurisdictional scale

It does not exists at the scale of industrial scale

The principle exists for projects, but it is neither systematically nor consistently applied

« CONSERVATIVE » ESTIMATES?



Source: Shishlov & Bellassen (2015)

MORE ABOUT …

On the construction of the decision tree:

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Antle, J., Capalbo, S., Mooney, S., Elliott, E., Paustian, K., 2003. Spatial heterogeneity, contract design, and the efficiency of carbon sequestration policies for agriculture. Journal of Environmental Economics and Management 46, 231-250.

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SOL et CLIMAT

Enjeux, processus et stratégies pour protéger et augmenter les stocks de carbone des sols

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