# *« Vertical Integration and Market Power in Electricity Markets »,*
# *by S. Hogan and R. Meade*

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# *Background*

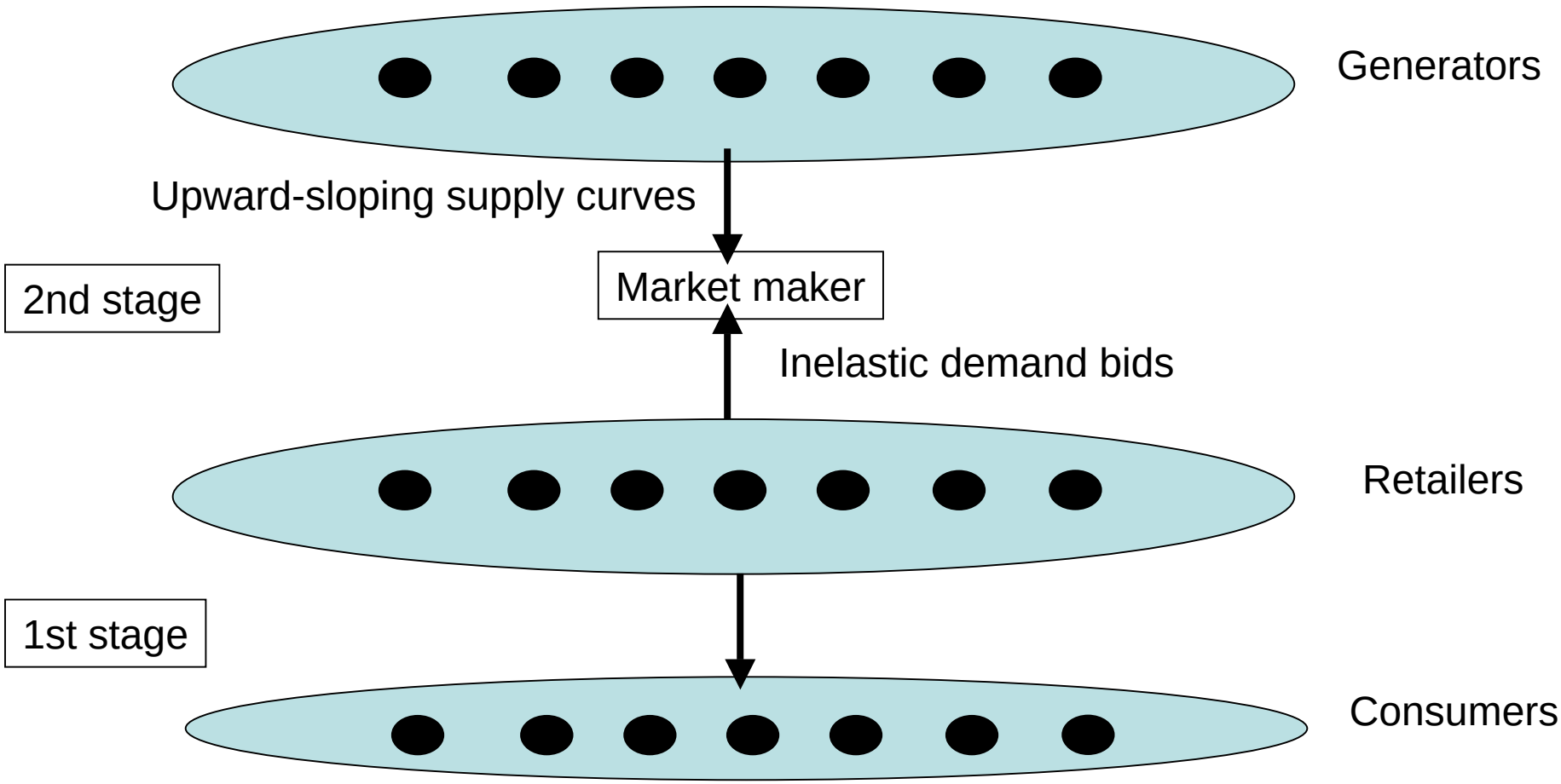
3 « standard » results from the academic literature regarding vertical integration between Generation and Retail markets:

- VI as a risk management tool to hedge against wholesale price volatility ➔ VI as a facilitator of investment in Generation
- VI as a barrier to entry for non-vertically integrated retail companies
- VI as a way to mitigate Market Power of Generators in the wholesale market

# *Objective of the Paper*

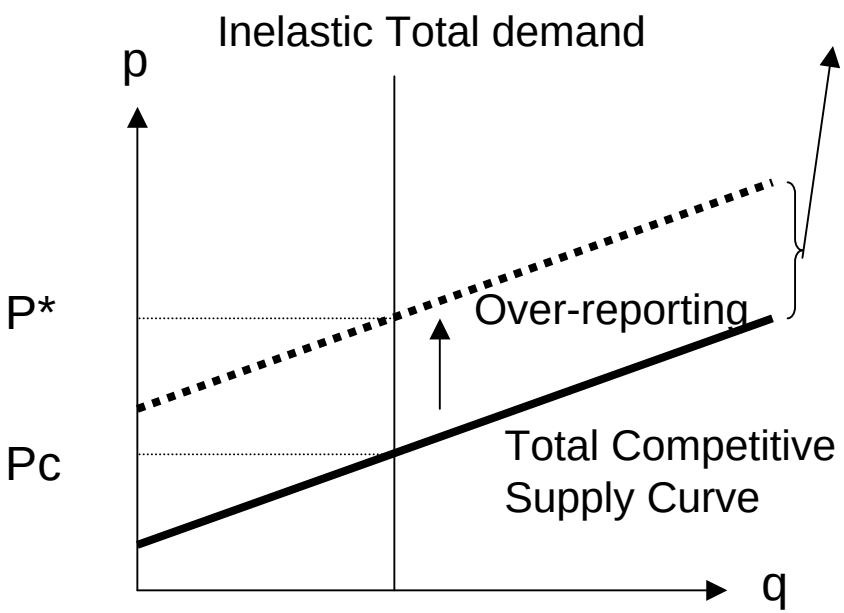
To formalize to which extent VI between Generators and Retailers (« *Gentailers* ») can be welfare improving and constitute a natural candidate for an optimal market structure in Electricity markets (which are highly capital intensive)

# *Market Structure*



# *Market Power in the wholesale market with no VI*

Hyp: Generators have no presence in the retail market and have no impact on the size of the inelastic demand




**<u>1st result</u>** : Generators will over-report their respective supply curve, with over-reporting tending to increase as natural market share increases

**<u>Intuition</u>** : this is a standard Cournot result : generators will exercise their perceived Market Power with an incentive to abuse it decreasing with the number of firms

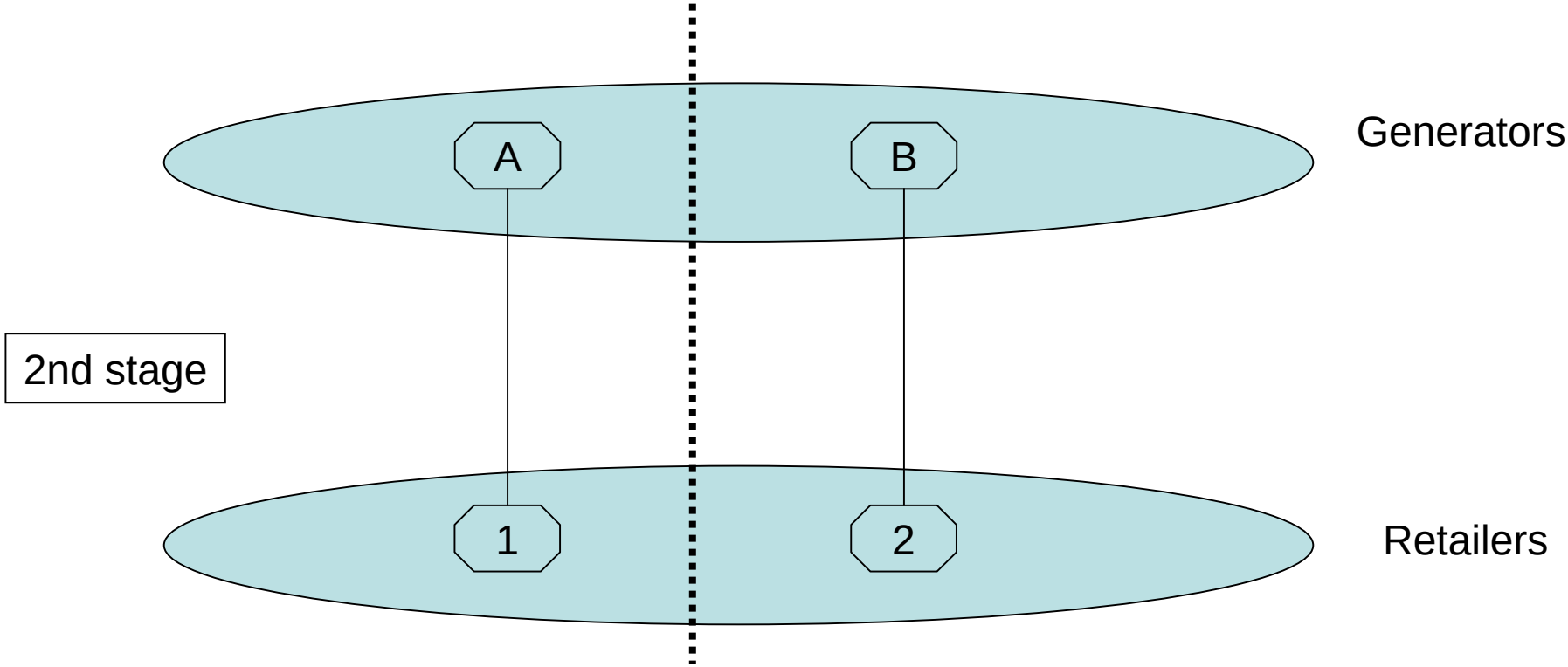
# *Market Power in the wholesale market with VI*

Hyp: Retail prices are given in stage 2 of the game

**Results:**

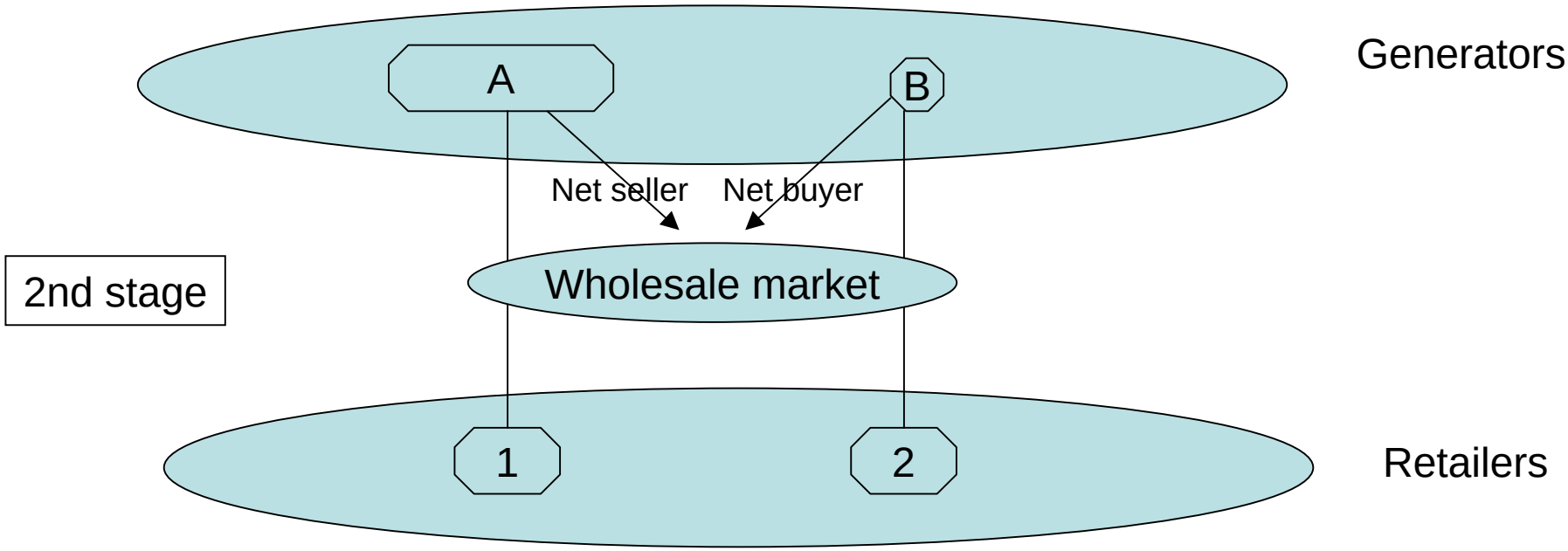
1- If all firms have the same market share in the retail market as they have in the wholesale market, there is no over-reporting at all

2- In general, Generators with positive net positions will over-report while those with negative net positions will under-report




❑ If market shares between Generation and Retail sectors are balanced, it is as if A and B were functioning in two separate markets (there is no strategic interaction between them)

❑ Since retail prices are given at this stage, A and B have no incentives to exercise market power on their respective retail arm (such strategy would only imply a financial transfer from the retail arm to its generator, without impact on the overall profit of the vertically-integrated firm




❑ When market shares between G and R markets are not balanced, A and B are then engaged in a kind of Bargaining game in the wholesale market:

- ➢ A will have incentives to exercise its market power on B by selling him its residual capacity at the highest price
- ➢ while B will have incentives to limit its exposure to the market power of A by proposing lower prices (i.e. higher quantities)

❑ The overall equilibrium of this bargaining game is not determined

# *Market Power in the Retail market*

Hyp: Pricing behavior of Retailors is now introduced in the static 2-stage game

**Results:**

1- Any monopoly power that exists in the Retail market exists independently of the market structure

2- Retail prices are higher in a non-vertically integrated market

*Intuition* : VI allows to avoid the double marginalization problem

(i.e. the fact that both Generators and Retailers impose a mark-up on their respective costs)

# *Final comments/questions*

1- An effort from the Authors to provide more intuitive explanations about the results obtained in the paper would help readers unfamiliar with this kind of literature

2- Would the results be the same with a standard Cournot model (with Generators choosing quantities rather than supply functions)?

3- How to solve the Market Power concern in the retail market?