IMPLICATIONS OF TRADING BASELINES ON THE SUPPLY OF CREDITS IN WATER QUALITY TRADING PROGRAMS

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Goals of point/nonpoint trading

- Reduce cost of meeting water quality goal
  - Distribute abatement efficiently between sources with different abatement costs
- Provide incentive for greater nonpoint source role in meeting water quality goals (assumes no regulatory policies for nonpoint)

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What is a baseline?

- Conditions (loads or practices) that must be met before a source (point or nonpoint) is allowed to participate in a trading program
- Emissions against which changes in management are measured for the purpose of estimating credits

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Role of eligibility baseline

- Ensures environmental integrity of the credits that are traded, by increasing the likelihood that pollutant reductions would not have occurred without the economic incentive provided by the trading market
- Provides “extra” abatement that can go to Load Allocation under a TMDL
  - Depends on incentive being strong enough for producers to take steps to meet baseline
- Baseline can provide “good stewards” an economic advantage in the market

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Two types of baselines

- Current practices – assumes farmers are in management equilibrium, given current markets and regulations
- Practices implied by TMDL – assumes farmers will attain a level of abatement consistent with the load allocation on their own, with or without the presence of regulations
  - Defined as loading rate or implemented BMPs

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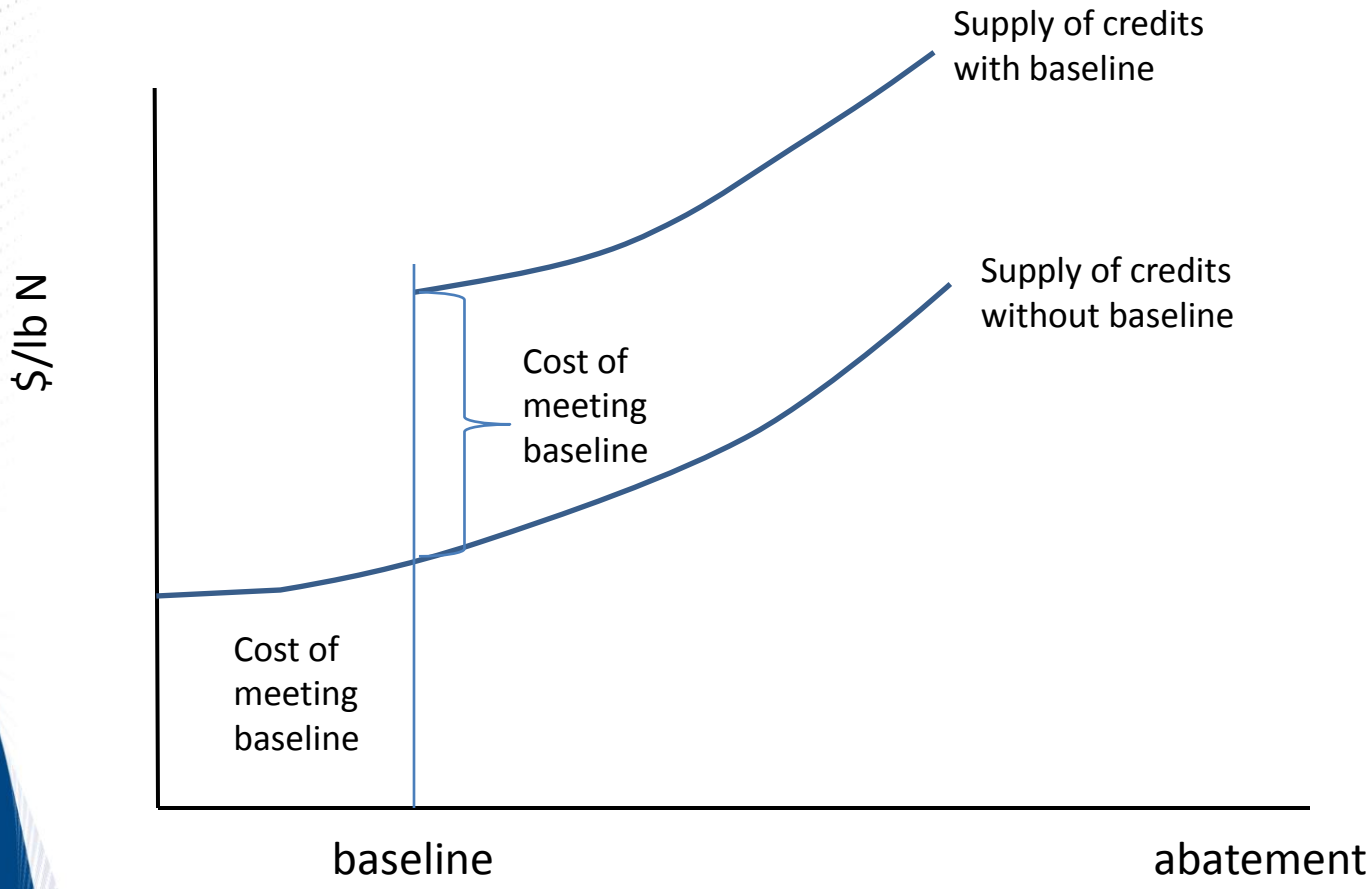
Impact of baseline on farm



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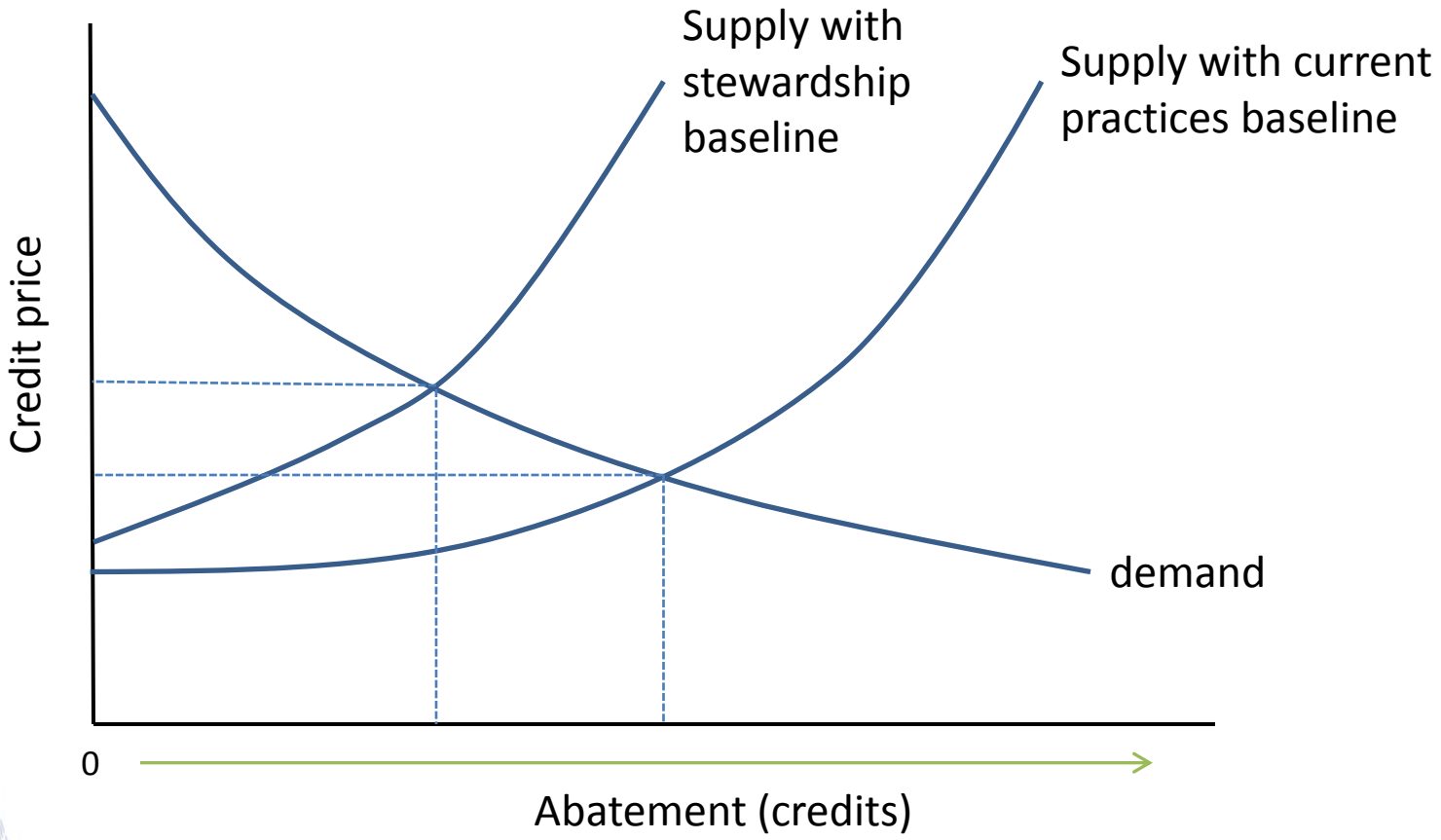
Impact of baseline on market



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Empirical example: Offset supply in the Chesapeake Bay Watershed

- Used economic model to find least-cost combination of practices for each sample observation to meet baseline and to supply credits after baseline achieved
- Cost includes cost of achieving baseline for those observations not meeting it

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Data for estimating supply

- Current practices
  - Conservation Effects Assessment Project survey data (2001-2006)
  - Nitrogen losses modeled with APEX, HUMUS, and SWAT
- Abatement practices
  - Cover crops, nutrient management, water erosion controls (separately and in combination)
  - Yield changes modeled with APEX
  - Cost of practices from WIPs, EPA, and other sources

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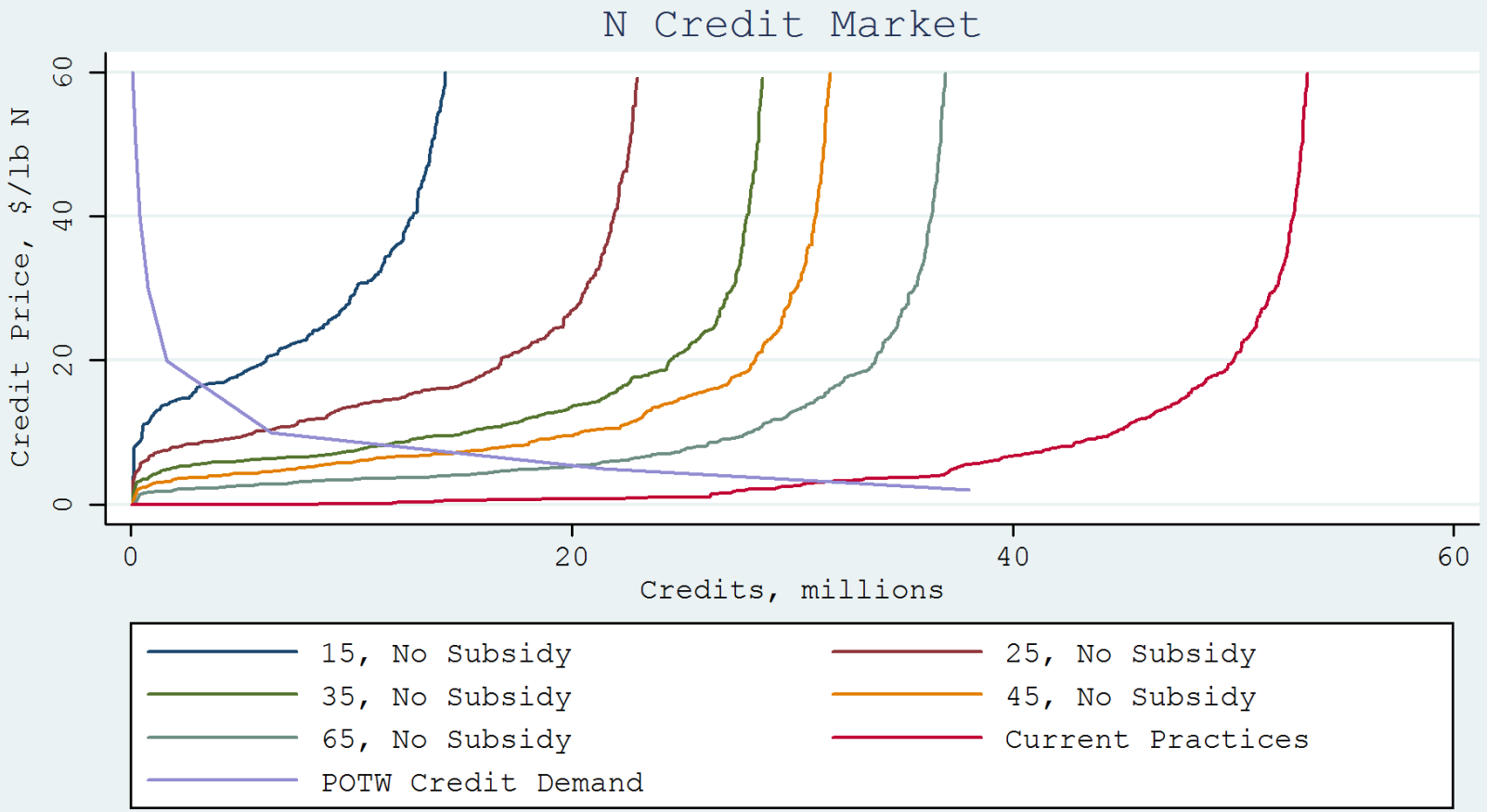
Nitrogen credit supply curves



Based on data from NRCS Conservation Effects Assessment Project

Abatement going to market and load allocation

Baseline lbs N/acre	Equilibrium price ($/lb N)	Equilibrium quantity (1 million lbs N)	Abatement towards ag nonpoint load allocation (1 million lbs N)	Total ag nonpoint abatement (1 million lbs N)
Current practices	3.13	31.65	0	31.65
15	16.49	3.29	3.54	6.83
25	10.28	6.25	7.49	13.74
35	8.26	11.62	12.59	24.21
45	7.23	14.72	18.13	32.85
65	5.41	20.19	26.42	46.61

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Summary

- Baseline selection has significant impact on potential supply of credits in trading markets
- The more stringent the baseline, the smaller the scope of trading and the smaller the amount of nonpoint abatement going to load allocation
- Consider separate programs for achieving load allocation

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