

Identifying Project Cost and Benefit

Arief Anshory Yusuf

Reference: Gittinger

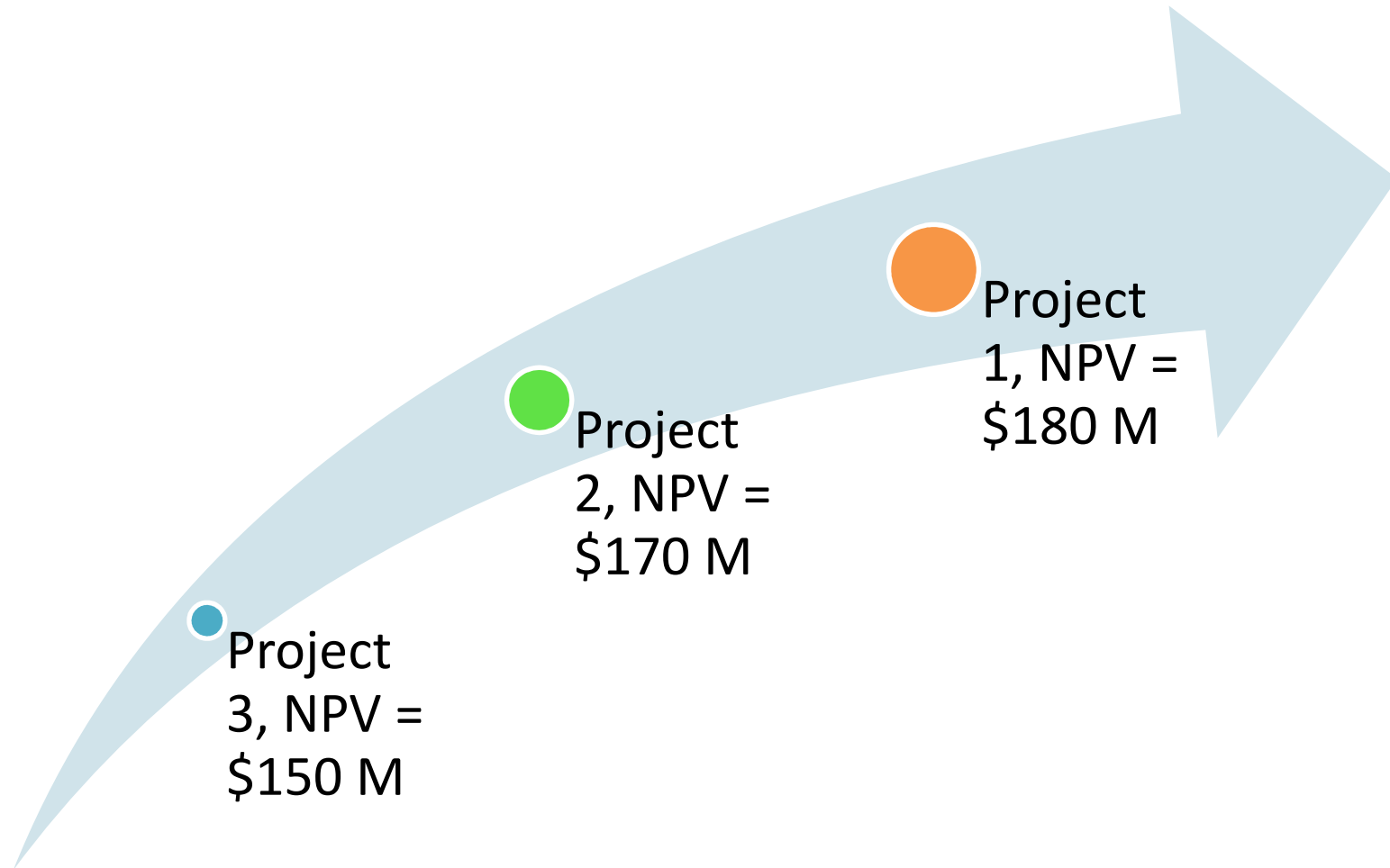
Objectives, Costs, and Benefits (1)

- Each participant in a project has many objectives
 - Farmer, farm-business, private corporation, national have different interests
- It is impossible to take into account every interests. Some selection will have to be made.
 - Increased income is probably the single most important objective of individual economic effort, and;
 - increased national income is probably the most important objective of national economic policy.

Objectives, Costs, and Benefits (2)

- Note that, by defining our objective for economic analysis in terms of change in national income, we are defining it in real terms. (Real terms, as opposed to money terms, refer to the physical, tangible characteristics of goods and services.)
- To an important degree, economic analysis, in contrast to financial analysis, consists in tracing the real resource flows induced by an investment rather than the investment's monetary effects.

"With" and "Without" Comparisons (1)

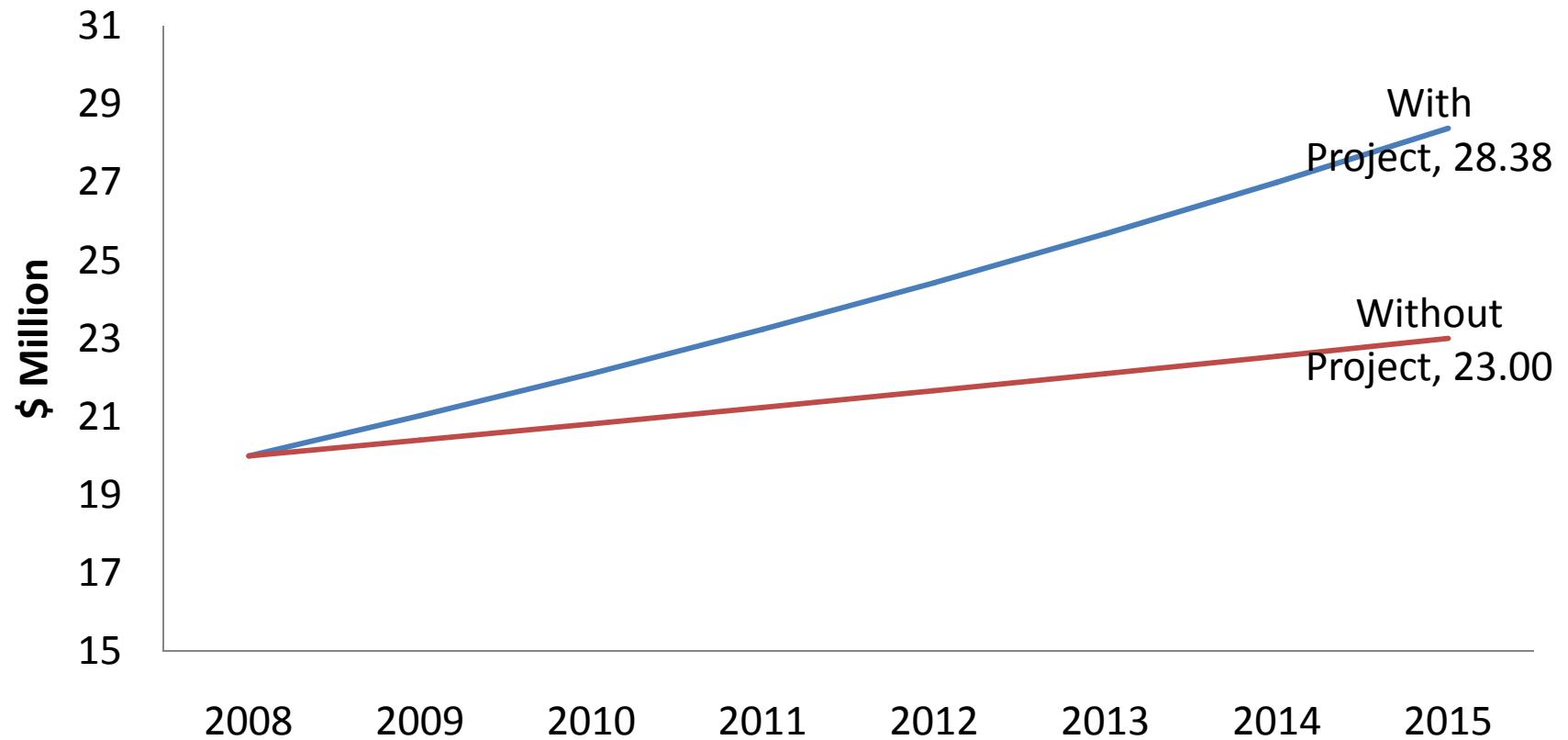


"With" and "Without" Comparisons (2)

- Project analysis tries to identify and value the costs and benefits that will arise with the proposed project and to compare them with the situation as it would be without the project.
- The difference is the **incremental** net benefit arising from the project investment.
- This approach is not the same as comparing the situation "before" and "after" the project. The before-and-after comparison fails to account for changes in production that would occur without the project and thus leads to an erroneous statement of the benefit attributable to the project investment.

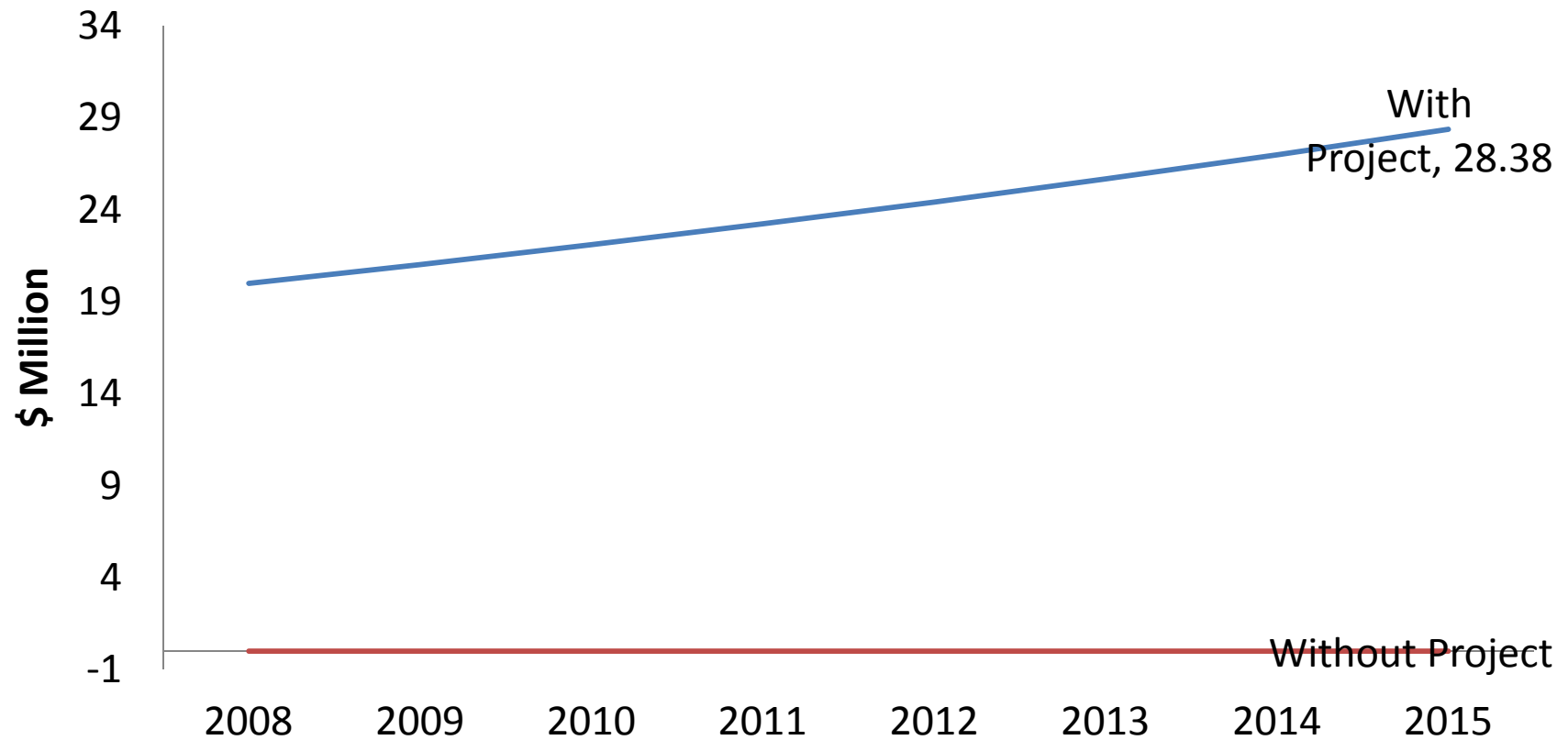
"With" and "Without" Comparisons (3)

NPV With and without the project (Case 1)



"With" and "Without" Comparisons (3)

NPV With and without the project (Case 2)



Direct Transfer Payments

- Some entries in financial accounts really represent shifts in claims to goods and services from one entity in the society to another and do not reflect changes in national income. These are the so-called direct transfer payments
- Four kinds of direct transfer payments are common:
 - taxes,
 - subsidies,
 - loans, and
 - debt service (the payment of interest and repayment of principal).
- A tax does not represent a real resource flow; it represents only the transfer of a claim to real resource flows.
- A direct subsidy that represents the transfer of a claim to real resources from, say, an urban consumer to a farmer.
- A loan represents the transfer of a claim to real resources from the lender to the borrower. When the borrower pays interest or repays the principal, he is transferring the claim to the real resources back to the lender-but neither the loan nor the repayment represents, in itself, use of the resources.

Cost of a (Agriculture) Project

- concrete for irrigation canals, fertilizer and pesticides for increasing production

Physical goods

- From the highly skilled project manager to the farmer
- Shadow Pricing

Labor

- problems may arise in valuing land because of the very special kind of market conditions that exist when land is transferred from one owner to another.

Land

- Contingency allowances may be divided into those that provide for physical contingencies and those for price contingencies

Contingency Allowances

- treated as a cost in financial analysis but as a transfer payment in economic analysis

Taxes

- In economic analysis, however, they are considered transfer payments and are omitted from the economic accounts.

Debt Services

- costs incurred in the past upon which a proposed new investment will be based

Sunk Cost

Tangible Benefit of a (agriculture) Project

Increased production	<ul style="list-style-type: none">•Increased physical production is the most common benefit of agricultural projects.
Quality improvement	<ul style="list-style-type: none">•an improvement in the quality of the product
Change in time of sale	<ul style="list-style-type: none">•The benefit of the storage investment arises out of this change in "temporal value."
Change in location of sale	<ul style="list-style-type: none">•The benefits of such projects arise from the change in "locational value."
Change in product form	<ul style="list-style-type: none">•Farmers sell paddy rice to millers who, in turn, sell polished rice.
Cost reduction through mechanization	<ul style="list-style-type: none">•investment in agricultural machinery to reduce labor costs.
Reduced transport cost	<ul style="list-style-type: none">•reduce the cost of moving produce from the farm to the consumer.
Losses avoided	<ul style="list-style-type: none">•resistant to the disease

Pricing Project Costs and Benefits

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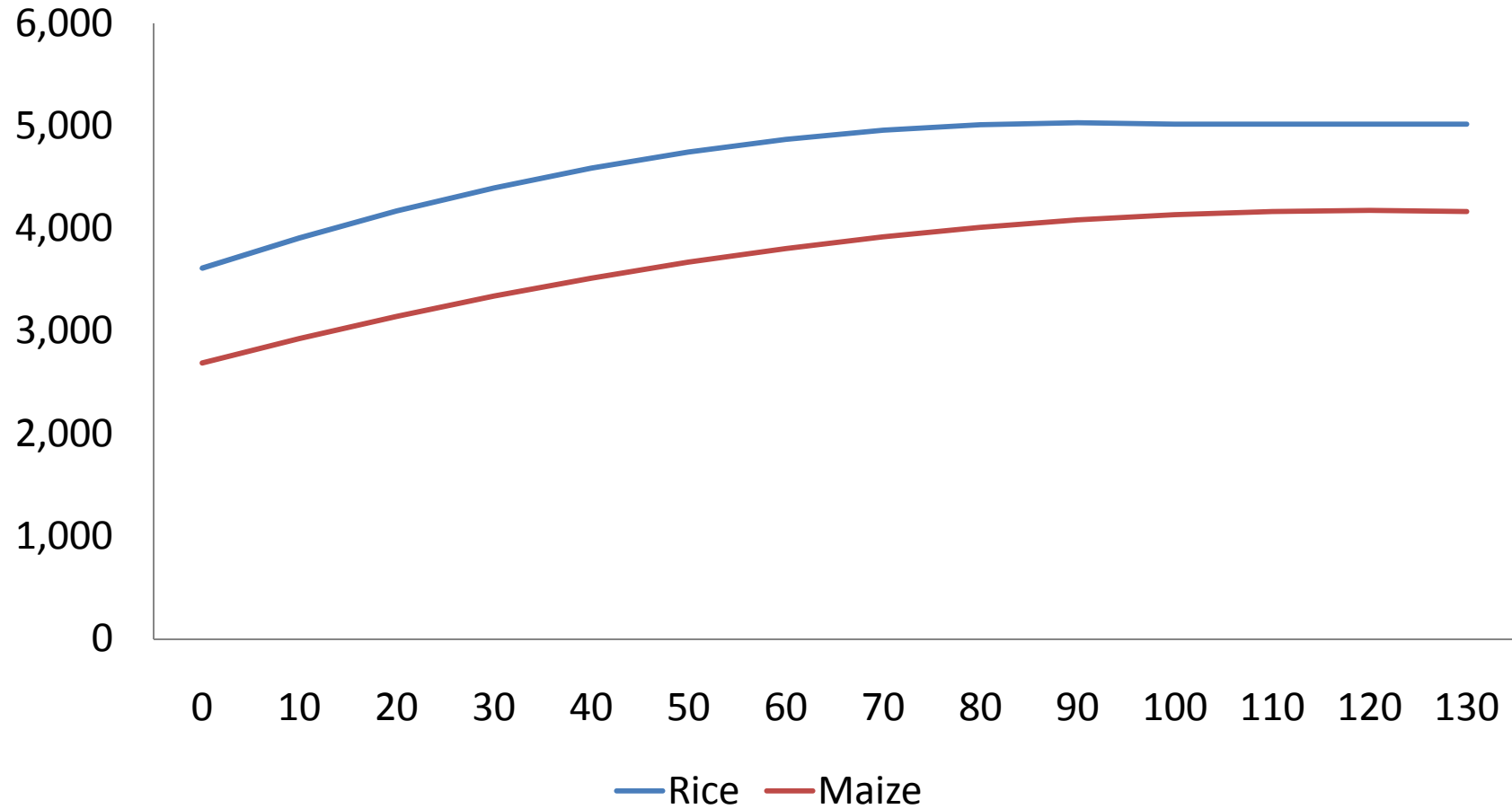
Prices Reflect Value

- Prices reflect value-or can be adjusted to do so.
- “Marginal value product (MPV)” and “opportunity cost”.

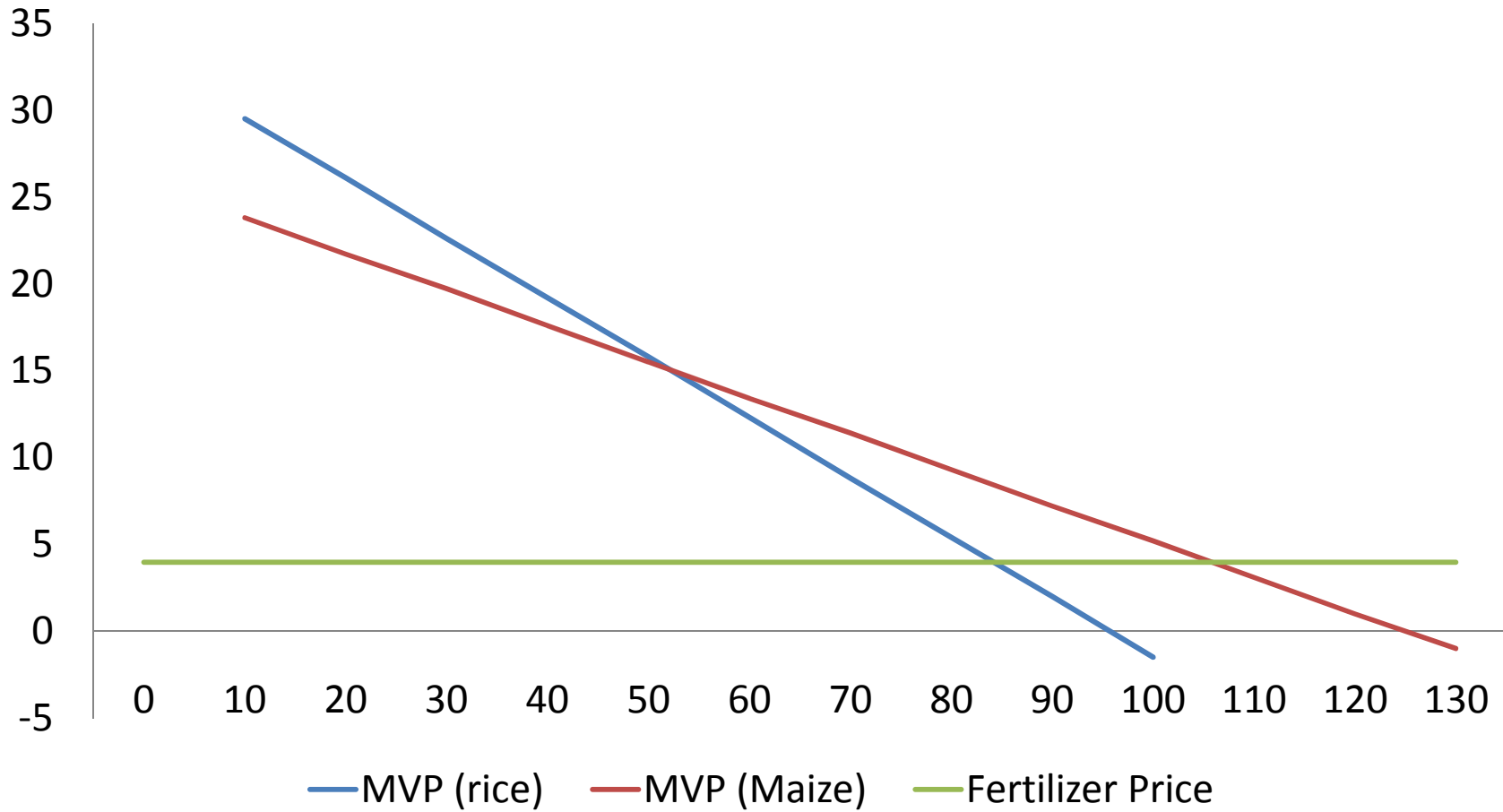
Price reflects value (Fertilizer price is P3.98)

Nitrogen (kgs/ha)	Yield (kgs/ha)	Value	MVP	Yield (kgs/ha)	Value	MVP
0	3,442	3,614		2,600	2,688	
10	3,723	3,909	29.5	2,830	2,926	23.8
20	3,971	4,170	26.1	3,040	3,143	21.7
30	4,187	4,396	22.6	3,230	3,340	19.7
40	4,370	4,588	19.2	3,400	3,516	17.6
50	4,520	4,746	15.8	3,550	3,671	15.5
60	4,637	4,869	12.3	3,680	3,805	13.4
70	4,721	4,957	8.8	3,790	3,919	11.4
80	4,772	5,011	5.4	3,880	4,012	9.3
90	4,791	5,031	2	3,950	4,084	7.2
100	4,777	5,016	-1.5	4,000	4,136	5.2
110				4,030	4,167	3.1
120				4,040	4,177	1
130				4,030	4,167	-1

Total Value Product



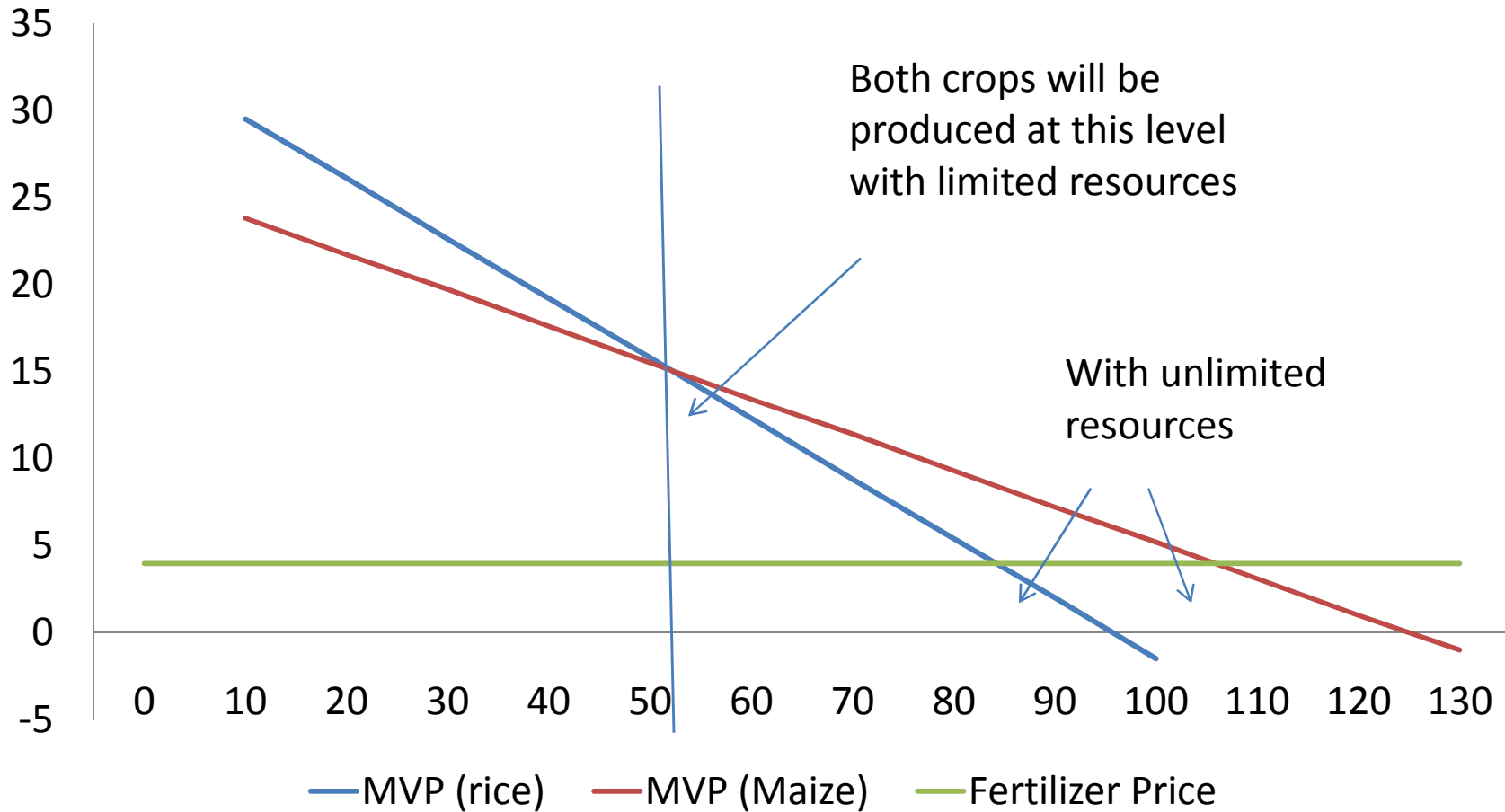
Marginal Value Product



Opportunity Cost

Nitrogen (kgs/ha)	Yield (kgs/ha)	Value	MVP	Yield (kgs/ha)	Value	MVP
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90	4,791	5,031	2	3,950	4,084	7.2
100	4,777	5,016	-1.5	4,000	4,136	5.2
110	Opportunity cost of fertilizer shifted from rice to maize			4,030	4,167	3.1
120				4,040	4,177	1
130				4,030	4,167	-1

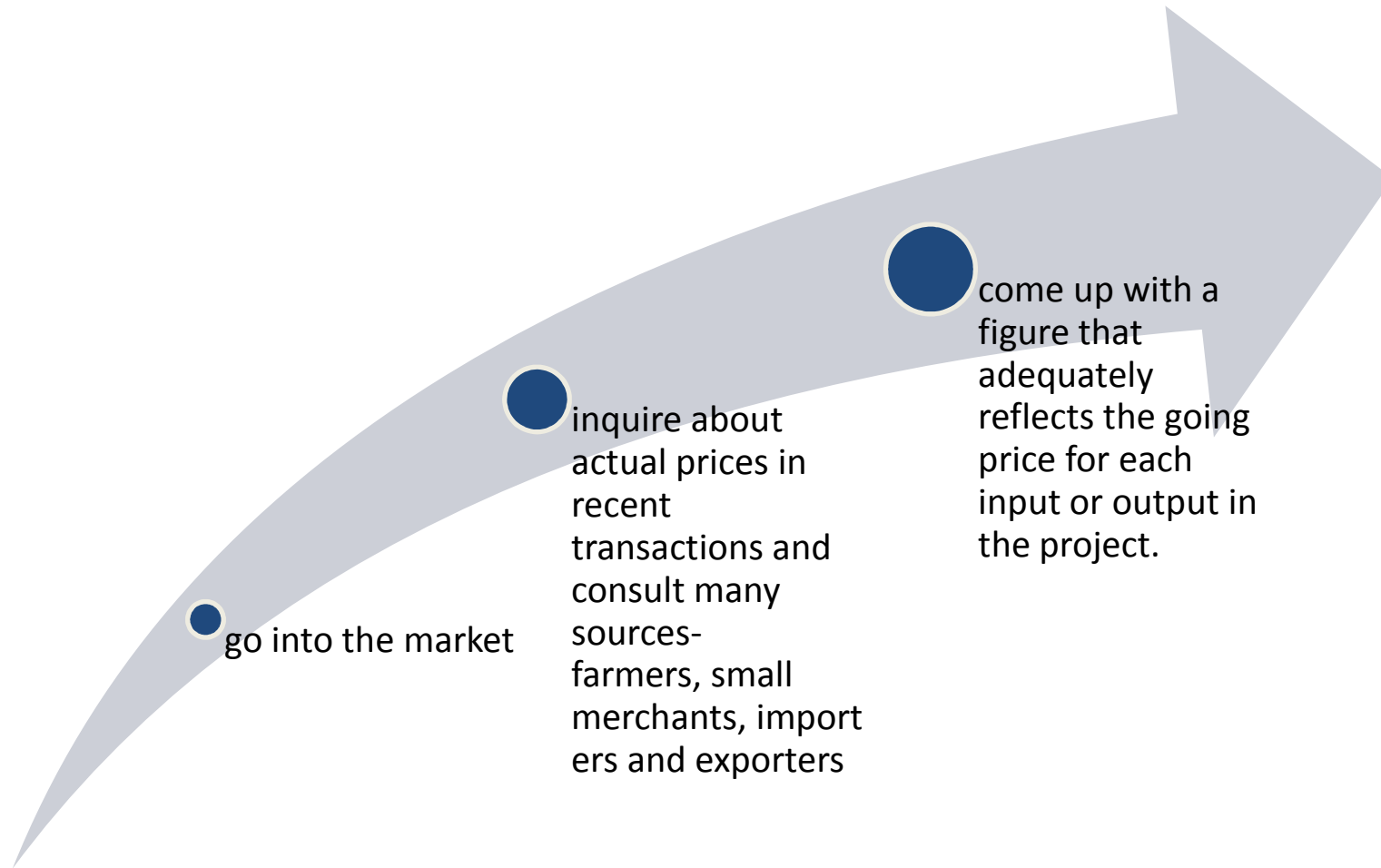
Marginal Value Product



Price reflects value

- In a "perfect" market-one that is highly competitive, with many buyers and sellers, all of whom have perfect knowledge about the market-every economic commodity would be priced at its MPV.
- the marginal value product, the opportunity cost, and the price will all be equal.
- markets are not perfect and are never in complete equilibrium. Hence, prices may reflect values only imperfectly.
- In financial analysis, as we have noted, the market price is always used. But in economic analysis some other price-a "shadow price"- may be a better indicator of the value of a good or service; that is, a better estimate of its true opportunity cost to the economy.

Finding The Market Prices



Point of first sale (farm-gate price)

- In project analysis, a good rule for determining a market price for agricultural commodities produced in the project is to seek the price at the "point of first sale."
- If the point of first sale is in a relatively competitive market, then the price at which the commodity is sold in this market is probably a relatively good estimate of its value in economic as well as financial terms.
- We are after what the farmer receives when he sells his product-the "farm-gate" price.
- The increased value added of the product as it is processed and delivered to a market arises as a payment for marketing services. This value added is not properly attributed to the investment to produce the commodity. Rather, it arises from the labor and capital engaged in the marketing service.



Point of first sale may not reflect the true price

- The farm-gate price may be a poor indicator of the true opportunity cost we want to use in economic analysis.
- In these cases, when the commodity is traded its economic value would have to be considered higher than the actual farm-gate price.
 - In Ghana the Marketing Board takes some proportion of the cocoa price as a tax for development purposes.
 - In Thailand, a rice "premium"-that is, a tax on rice exports-effectively keeps the domestic price well below what the international market would pay.
- In other cases, just the opposite happens. In these cases, part of the price does not really reflect the economic value of the product-its cost if it could be imported-but rather an indirect income transfer to small farmers.
 - In Mexico the price of maize is maintained at a high level to transfer income to ejidatarios, the small farmers.
 - In Malaysia, the price of rice is supported above world market levels to encourage local production and to reduce imports

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